Stormwater Management Program (SWMP)

The City of Portsmouth

680 Peverly Hill Road, Portsmouth, New Hampshire 03801

EPA NPDES Permit Number *NHR041027*

June 2019

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Authorization

The City of Portsmouth, New Hampshire ("Portsmouth") has been granted permit coverage under the 2017 New Hampshire General Permit for Stormwater Discharges associated with Small Municipal Separate Storm Sewer Systems (MS4) by the Environmental Protection Agency via a Letter of Authorization dated 06/12/2019.

The Notice of Intent (NOI) Form and the EPA Letter of Authorization can be found at the following web address below and in **Appendix A**.

Web address: https://www.cityofportsmouth.com/public-works/stormwater/

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 gathered and evaluated 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, 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."

Printed Name: John P. Bohenko

Signature:

Date: 6-27-19

Title: City Manager

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Introduction

Permit Background

On January 18, 2017, EPA Region 1 renewed its General Permit for Stormwater Discharges associated with Small Municipal Separate Storm Sewer Systems (MS4) to replace its 2003 MS4 Permit. The MS4 Permit authorizes stormwater discharges from "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the "Urbanized Area" as defined by the 2010 Census Bureau. This 2017 MS4 Permit ("MS4 Permit") became effective on July 1, 2018 and will remain in effect for 5 years or until July 1, 2023.

The City also obtained coverage under the 2003 MS4 Permit and has initiated ongoing educational and preventative measures to minimize potential pollutant contributions associated with stormwater discharges. It is important to note that the Pease International Tradeport, although located within the City boundaries, is a separate regulated entity and has its own separate permit responsibilities and authorization and, thus, its facilities and roadways under its jurisdiction are not included in this SWMP or the DRAFT O&M Plan.

SWMP Background

This Stormwater Management Program (SWMP) describes the City's plan to address the 2017 MS4 Permit requirements and minimize any impact on water quality in receiving water bodies due to runoff from its facilities and storm drain system. The Plan is a "Living Document" and will be updated during the permit term as new information is developed and/or practices are modified, changed or updated to meet permit conditions. The need for SWMP updates will be assessed as part of the Annual Reporting process completed by end of September of each year.

Similar to the 2003 Permit, the 2017 MS4 Permit requires the following Six Minimum Control Measures (MCMs) to be part of the City's Stormwater Management Program:

- **MCM1: Public Education and Outreach.** A program to deliver educational messages to residents, businesses, institutions, developers and contractors who perform activities that may affect stormwater quality and discharges to receiving waters.
- **MCM 2: Public Involvement and Engagement.** An opportunity to allow the public to participate and provide comments on the stormwater program.
- **MCM 3: Illicit Discharge Elimination Program**. A program to effectively detect and eliminate illicit discharges within the MS4 regulated area.
- **MCM 4: Construction Site Erosion Control Review and Inspections.** A program to ensure that proper sediment and erosion control measures are included on construction projects disturbing more than one acre and inspected for effectiveness.
- **MCM 5: Post-Construction Stormwater Controls.** A program to ensure that adequate post-construction stormwater measures are included on development projects in the MS4 regulated area and these stormwater controls are maintained.
- **MCM 6: Good Housekeeping and Pollution Prevention for Municipal Operations.** A program to ensure that stormwater pollution sources associated with municipal properties and facility operations and maintenance activities are minimized.

Requirements for Water Quality Limited and Impaired Waters

The 2017 MS4 Permit imposes additional requirements for stormwater discharges to impaired or water quality limited water bodies including enhanced good housekeeping measures and source control plans for chloride and nutrient impaired waters. **Table 1.2** summarizes the additional requirements for water quality impairments and pollutants of concern.

Table 1.2: Summary of Impaired Waters and Water Quality Limited Requirements

Chloride Impaired Waters	› Develop a Salt Minimization Plan for roadways located in chloride impaired waters by July 2021 or within 3 years of effective date. › Sample for chloride as part of IDDE outfall screening.
Bacteria Impaired Waters	› Sample for bacteria during dry weather screening and sampling › Categorize outfalls as high priority for IDDE screening. › Annual pet waste messages and cleanup stations/signs in parks & other areas.
Nitrogen Impaired Waters	› Analyze for total nitrogen during dry weather outfall screening and sampling. › Increase street sweeping to at least twice/year › Annual educational messages for pet waste, fertilizer & septic systems › Develop a Nitrogen Source Identification Plan within 4 years of effective date › Identify feasible locations for stormwater BMP retrofits within 5 yrs. of effective date

Stormwater Team

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Stormwater Outfalls and Receiving Water Bodies

The City currently has identified approximately 205 stormwater outfalls that are within the Urbanized Area and discharging to waters of the United States. As such, these outfalls are considered subject to the MS4 Permit. A map of the identified outfalls and receiving waters is provided in **Appendix C** or can be found on the City DPW web site at https://portsmouthnh.maps.arcgis.com/apps/webappviewer.

Table 1.1 below provides a summary of the number of outfalls that drain to each water body assessment unit and the relevant water quality impairments according to the state's 2016 303(d) list of impaired waters. Since the 303(d) list of impairments is updated every 2 years, the water quality impairments may change with new ones added and/or existing impairments may be removed as well as the addition of new TMDLs. The City will report on any changes to the receiving waters list with each future annual report.

Table 1.1: Summary of Receiving Waterbodies in Portsmouth

Waterbody Segment that Receives Flow from the MS4	No. of Outfalls into Receiving Water AU	Primary Impairments					Other Pollutant(s) Causing Impairments
		Nitrogen	Phosphorous	Bacteria	Chloride	Solids, Metals, Oil and Grease	
NHEST600031001-03 *Upper Sagamore Creek*	34			X			Acenaphthylene, Aluminum, Arsenic, Benzo(a)pyrene (PAHs), Benzo(a)anthracene, Cadmium, Chrysene (C1-C4), Copper, Dibenz(a,h)anthracene, Estuarine Bioassessments, Fluoranthene, Lead, Mercury, Nickel, Phenanthrene, Pyrene, Trans-Nonachlor, PCBs, Dioxin
NHEST600031001-04 *Lower Sagamore Creek*	5			X			Estuarine Bioassessments, PCBs, Dioxin
NHEST600031001-02-02 *Lower Piscataqua River - South*	30			X			Estuarine Bioassessments, PCBs, Dioxin
NHEST600031001-05 *Back Channel*	7	X					Estuarine Bioassessments, Light Attenuation Coefficient, PCBs, Dioxin, Nitrogen[1]
NHEST600031001-09 *South Mill Pond*	13			X			PCBs, Dioxin
NHEST600031001-10 *North Mill Pond*	41			X			PCBs, Dioxin
NHLAK600031001-01 *Unnamed Pond*	2						
NHRIV600031001-02 *Unnamed Brook – To Piscataqua River*	10						
NHIMP600031001-01 *Unnamed Brook -To Sagamore Creek Dam*	5						Aluminum, Iron
NHRIV600031001-03 *Sagamore Creek*	3			X	X		pH
NHRIV600031001-04 *Lower Hodgson Brook*	11			X	X		Benthic-Macroinvertebrate Bioassessments (Streams), Dissolved Oxygen, pH
NHRIV600031001-05 *Upper Hodgson Brook*	1			X	X		Benthic-Macroinvertebrate Bioassessments (Streams), Dissolved Oxygen, Manganese, pH

Waterbody Segment that Receives Flow from the MS4	No. of Outfalls into Receiving Water AU	Primary Impairments					Other Pollutant(s) Causing Impairments
		Nitrogen	Phosphorous	Bacteria	Chloride	Solids, Metals, Oil and Grease	
NHRIV600031001-09 *Borthwick Ave. Tributary*	7			**X**	**X**		Dissolved Oxygen, Iron, pH
NHRIV600031001-21 *Unnamed Brook to Back Channel*	1						
NHRIV600031001-24 *Unnamed Brook to Back Channel*	2						
NHRIV600031002-01 *Berrys Brook*	11			**X**			Dissolved Oxygen, pH
NHRIV600031002-11 *Witch Creek*	2						
NHRIV600030901-04 *Haines Brook – Unnamed Brook*	4						
NHRIV600030904-06 *Pickering Brook*	14			**X**	**X**		Copper, Dissolved Oxygen, Iron, pH
NHRIV600030904-07 *Unnamed Brook – to Unnamed Marsh*	2						
Grand Total	**205**						

Note: [1]The Back Channel is the only water body listed as nitrogen impaired according the 2012 303 (d) list.

Endangered Species and Historic Property Eligibility

Portsmouth met the eligibility requirements under the previous 2003 permit and continues to carry the eligibility status under the 2017 MS4 permit. The following reflects the selected criteria used to indicate eligibility for Endangered Species and Historical Resources.

Endangered Species Documentation

Portsmouth has determined eligibility for the ESA under:

Criterion A: ☒ Criterion B: ☐ Criterion C: ☐

Criterion A: *No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities*.

On September 24, 2018, the US Fish and Wildlife Service (USFWS) issued a general letter for NH MS4 communities stating that the proposed stormwater discharge activities covered under the 2017 NH Small MS4 General Permit *may, but are not likely to adversely affect,* federally listed threatened and endangered species and any species' critical habitat provided that no new construction or major land disturbances are needed to meet the MS4 permit requirements.

The EPA Letter of Authorization received by the City on June 12, 2019, also states that adverse effects to federally-listed species are not expected due activities conducted to meet the MS4 permit requirements. However, if structural measures are proposed or if new information reveals the presence of additional listed species may be affected by the planned activities, the City will consult with the USFWS office, as necessary, by contacting David Simmons at (603) 227-6425 in the Concord, NH office to seek further assistance. (USFWS letter and IPaC results are contained in **Appendix B**).

Historic Property Documentation

Portsmouth has determined permit eligibility for Historic Properties under:

Criterion A: ☐ Criterion B: ☒ Criterion C: ☐ Criterion D: ☐

Criterion B: *The stormwater discharges and allowable non-stormwater discharges do not have the potential to influence historic properties and discharge-related activities (i.e. construction and/or installation of stormwater control measures that involve subsurface disturbance) will not affect historic properties.*

MCM 1: Public Education and Outreach

MCM 1: Overall Goal

Consistent with the 2017 MS4 Permit, the overall goal of the Public Education and Outreach Program is to increase awareness and educate residents and other key audiences on best practices to minimize adverse effects on receiving water quality resulting from stormwater discharges in the MS4 area.

Educational Program Requirements

The type and number of educational messages that need to be disseminated each year to the targeted audiences depends on whether there are water quality impaired water bodies within the MS4 area. If there are no water quality impairments, the City is required to deliver at least two (2) messages to each of four (4) targeted audiences every other year over the 5-year permit team. The targeted audiences include:

- **Residents**
- **Businesses, Institutions, and Commercial Facilities**
- **Developers, Engineers and Construction Contractors**
- **Industrial Facilities**

However, if the City discharges stormwater to either bacteria or nutrient impaired water bodies, then additional educational messages must be distributed ***annually for residents and businesses/commercial entities*** to try to modify behaviors and reduce bacteria and/or nitrogen source contributions associated with certain activities per Appendix H requirements.

Since the City discharges stormwater to both bacteria and nitrogen impaired waters based on the 2016 303(d) list and the EPA Authorization letter, respectively, additional education messages are required as outlined Table 1.3 below. The required messages for bacteria and nitrogen impaired waters overlap with respect to enhancing pet waste control/cleanup and septic system management. For nitrogen impaired waters, additional annual messages are required to improve grass clipping and leaf litter disposal /management and encourage less fertilizer use or, at a minimum, only use slow release fertilizers for lawn management.

The Permit also requires the City to evaluate the effectiveness of the messages and report on the overall progress in achieving the educational goals of the program. Ideally, the effectiveness of these message will be measured not only by the number of messages delivered or participants at each event but by noticeable changes in human behaviors or in the way pollutant sources are managed (e.g., less pet waste observed in public dog walking areas, less grass clippings left on paved surfaces, more yard waste collected at the Transfer Station, less leaves raked into public streets and/or, more importantly, observed improvements in water quality conditions in the area water bodies). Any of these observances are examples of reportable items for the Annual Reports.

Table 1.3 outlines the City's planned education BMPs, message type, distribution methods, frequency and/or targeted year for distribution. The technical content for these messages will be derived mainly from educational materials developed by the Piscataqua Region Estuary Partnership (PREP), UNH Stormwater Center and the UNH Cooperative Extension as part of a

collaborative effort with municipal members of the Seacoast Stormwater Coalition. Selected public education messages and materials will be retained in Appendix C of this document.

Best Management Practices for Public Education

Table 1.3: Summary of the Planned Educational BMPs for each Target Audience by Year

Educational BMP[1]	Target Audience	Target Month / Season	Schedule by Permit Year (Fiscal Year)				
			1 FY19	2 FY20	3 FY21	4 FY22	5 FY23
1-1: Pet Waste Flyers/Post Card/Signage	Residents and Businesses	March/April[2]	X	X	X	X	X
1-2: Grass Clipping /Slow-Release Fertilizer Fact Sheet	Residents and Businesses	April/May	X	X	X	X	X
1-3: "Get Pumped" Septic System Brochure	Select Residents[4]	Sept.	X	X	X	X	X
1-4: Leaf Litter Disposal Fact Sheet	Residents and Businesses	October	X	X	X	X	X
1-5: Green SnowPro / Salt Efficiency Fact Sheet	Businesses	Fall / Winter			X		X
1-6: Erosion Control SWPPP Factsheet	Developers (Construction)	Spring		X		X	
1-7: Low Impact Development Factsheet	Developers (Construction)	Summer				X	
1-8: Lawn Maintenance Water Use Factsheet	Industrial Facilities	Spring			X		X
1-9: Waste Disposal/Spill Prevention Factsheet	Industrial Facilities	Fall					X

Notes: [1]The technical content for these BMPs messages is anticipated to be provided by regional educational outreach organizations such as the Piscataqua Region Estuaries Partnership or UNH Cooperative Extension and modified as appropriate for the target audience.
[2]The nitrogen impairment requirements specified in Appendix H suggest a June /July time frame for dog waste messaging, however, for residents, the messaging would be best during the City dog license renewal period of March - April, which is more aligned with the bacteria impairment requirements in Appendix H.
[3] Similar fact sheets and messages can be used for businesses and commercial facilities as those used for residents, however, different methods of delivery will likely be utilized.
[4] Select residents refer to the relatively few areas in Portsmouth that are not connected to the sanitary sewer system.

BMP 1-1: Pet Waste Educational Flyer / Post Cards / Signage

- **Description:** The City will distribute and post educational flyers and/or post cards at various locations throughout the City to encourage residents to cleanup and properly dispose pet waste. The City has one dog park and several parks frequently used by dog owners.
- **Target Audience(s):** Residents, Businesses, Institutions, and Commercial Facilities
- **Responsible Department/Parties:** DPW Operations/Parks and Recreation
- **Measurable Goal(s):** Increase the number and maintenance of dog waste stations and reduce the number of observed incidences where dog waste is left on the ground in dog walking locations.
- **Timeline:** Annually March/April (dog license renewal period);

BMP 1-2: Lawn Maintenance / Fertilizer Use Fact Sheet

- **Description:** The City will collaborate with the PREP "Green Grass & Clear Water" Program to distribute educational materials/videos to encourage residents to use less fertilizers or at a minimum, slow-release fertilizers as well as properly dispose or recycle grass clippings. Education materials will generally include other information related to stormwater and water quality issues and will be distributed each Spring.
- **Target Audience(s):** Residents, Businesses, Institutions, and Commercial Facilities
- **Responsible Department/Parties:** DPW Operations/ Planning Department
- **Measurable Goal(s):** Increase the adoption or conversion to slow release fertilizers and reduce the amount of fertilizer usage by reducing applications and/or the amount of treated area done by commercial applicators, landscapers and homeowners. The fact sheet would focus on highlighting the adverse effects of fertilizer use on water quality and promote more cost-effective and sustainable measures for maintaining "healthy" lawns.
- **Timeline:** Annually in April and May

BMP 1-3: "Get Pumped" Septic System Brochure

Document Name and/or Web Address: https://getpumpednh.com/

- **Description:** The City will distribute educational brochures to homes not serviced by sanitary sewer to encourage residents to pump out their septic systems. The "Get Pumped" program provides a list of septic haulers participating in a rebate program to encourage pump outs.
- **Target Audience(s):** Residents
- **Responsible Department/Parties:** DPW Operations
- **Measurable Goal(s):** Increase septic system pump-out frequency and septage volume delivered to City WWTF to reduce potential for system failure and poor performance and non-serviced areas.
- **Timeline:** Annually in September - October

BMP 1-4: Leaf Litter / Yard Waste Fact Sheet

Web Address: https://www4.des.state.nh.us/nh-ms4/wp-content/uploads/2019/

- **Description:** Distribute NHDES yard-waste brochures detailing proper lawn maintenance including clipping disposal and leaf litter/yard waste disposal or proper composting. Messages will be distributed each Fall to increase effectiveness.
- **Target Audience(s):** Residents, Businesses, Institutions, and Commercial Facilities
- **Responsible Department/Parties:** DPW Operations
- **Measurable Goal(s):** Increase the amount of yard waste /leaf litter brought to the transfer station each year as an alternative to dumping in backyard areas.
- **Timeline:** Annually in Sept - October

BMP 1-5: Green SnowPro Certification/ Salt Minimization Fact Sheet

- **Description:** To reduce the effects on the chloride impaired waters, the City will distribute a fact sheet to businesses and institutions within the community to highlight tools and resources to promote greater efficiency in deicing procedures, contractor training and snow storage.
- **Target Audience(s):** Businesses, Institutions, and Commercial Facilities
- **Responsible Department/Parties:** DPW Operations/Seacoast Stormwater Coalition
- **Measurable Goal(s):** Increase the number of business property owners that utilize Green SnowPro Certified applicators.
- **Timeline:** 2021

BMP 1-6: Site Plan Review Erosion Control Fact Sheet/ Checklist

- **Description:** A brief factsheet and checklist detailing standard erosion control inspection process for new and redevelopment projects. The checklist with outline standard erosion control measures that should be considered and included on site plans for new construction.
- **Target Audience(s):** Developers (Construction)
- **Responsible Department/Parties:** DPW Operations/Planning Department
- **Measurable Goal(s):** Increase the use and proper maintenance of erosion control measures at construction projects and reduce the number of incidences of observed tracking or sediment erosion at construction sites.
- **Timeline:** 2020

BMP 1-7: Low Impact Design and BMP Fact Sheet

- **Description:** The City will disseminate a factsheet promoting the benefits of LID design and practices to encourage more use of LID practices in new and redevelopment projects. The City will also work with developers and consultants to utilize LID practices as well as track pollutant reductions using the UNH stormwater PTAPP tracking methodology.
- **Target Audience(s):** Developers (Construction)
- **Responsible Department/Parties:** DPW Operations/Planning Department
- **Measurable Goal(s):** Increase the use of LID design and BMP practices such as permeable pavement if applicable to reduce the amount of impervious cover in new and redevelopment projects.
- **Timeline:** 2022

BMP 1-8: Lawn Maintenance/Water Use Factsheet

- **Description:** A factsheet detailing more sustainable lawn maintenance or alternative landscaping as well as irrigation practices for industrial facilities. The factsheet will provide tools and resources to promote greater water use efficiency and related water quality information with respect to lawn maintenance.
- **Target Audience(s):** Industrial Facilities
- **Responsible Department/Parties:** DPW Operations/Planning Department
- **Measurable Goal(s):** Update/distribute new factsheet every other year to improve lawn irrigation efficiency and minimize chemical applications.
- **Timeline:** 2021

BMP 1-9: Spill Prevention /Waste Disposal Factsheet (Alternatively, Green SnowPro Fact Sheet)

- **Description:** A brief factsheet describing tools and resources for spill prevention and waste disposal measures for industrial facilities that handle, and store regulated substances.
- **Target Audience(s):** Industrial Facilities and Applicable Businesses
- **Responsible Department/Parties:** DPW Operations/Planning Department
- **Measurable Goal(s):** Update/distribute new factsheet every other year to enhance awareness and improve timely reporting and permit compliance.
- **Timeline:** 2023

Annual Reporting Elements

For each Annual Report, due at the end of September following each Permit year, the City will summarize what types of messages were delivered to specific audiences, the method of delivery and any feedback or any observed changes in behavior or improvements in reducing pollutant sources (e.g. less dog waste accumulation on the ground, less grass clippings or leaves on the road, more leaf litter collected, etc.). Any potential changes or opportunities to improve future message delivery and/ or effectiveness will also be noted

MCM 2: Public Involvement and Participation

MCM 2: Goal

Consistent with Part 2.3.3 of the 2017 MS4 Permit, the overall goal of the public involvement and participation program is to provide opportunities for the public to participate in the review and implementation of the SWMP.

Compliance with Regulatory Requirements

Consistent with Section 2.3.3.1 of the Permit, the City will post the final SWMP and future Annual Reports to provide an opportunity for the public review and comment. The preferred method to satisfy this requirement is making the documents available online. In addition to the SWMP, the City will post relevant education materials and information on related activities undertaken to encourage public participation in stormwater related activities.

Best Management Practices for Public Involvement

The City typically hosts several events and provides opportunities for presentations to inform residents on stormwater and other environmental-related issues. **Table 2.1** provides a summary of the planned public involvement and participation BMPs consistent the permit requirements. Each of these current and proposed BMPs are described in greater detail below.

Table 2.1: Summary of the Planned Public Involvement/Participation BMPs

BMP Category	BMP Description	Responsible Parties	Implementation Year
Public Review (2.3.3.1)	BMP 2-1: Post Stormwater Management Plan on City's website for public review	*DPW/City Hall*	*2019*
Public Participation (2.3.3.2)	BMP 2-2: Solicit public comment on Stormwater Management issues and concerns via City web site	*DPW/City Hall*	*2019*
	BMP 2-3: Public will stencil catch basins prohibiting illicit discharges	*DPW Operations*	*2020*
	BMP 2-4: Public will participate in City led roadside and general litter cleanup	*DPW Operations*	*Ongoing*
	BMP 2-5: City typically holds hazardous waste/oil collections days for public	*DPW Operations*	*Ongoing (2x/year)*

Public Review

BMP 2-1: SWMP Review

- **Web Address:** https://www.cityofportsmouth.com/publicworks/stormwater/
- **Description:** The SWMP will be made available to the public for review. As changes are made over time, the revised SWMP will be reposted for public review.
- **Responsible Department/Parties:** DPW Operations/City Hall
- **Measurable Goal(s):** Update and post the SWMP annually
- **Timeline:** 2019

Public Participation

BMP 2-2: Stormwater Program Public Input

- **Description:** The City's online "Click and Fix" system allows residents to submit comments on stormwater or any other related issues in the City. Comments may include any observed blockages, backups, illicit discharges, violations, or other concerns.
- **Responsible Department/Parties:** DPW Operations/City Hall
- **Measurable Goal(s):** Collect and track amount of public input and any actions taken.
- **Timeline:** 2019

BMP 2-3: Catch Basin Marking and Stenciling

- **Description:** An ongoing program where the public can assist in stenciling messages on catch basins. Stencil messages commonly include information about discharging waterbodies, notification of no dumping, and more.
- **Responsible Department/Parties:** DPW Operations
- **Measurable Goal(s):** Track the number of stencils/participants annually
- **Timeline:** 2020

BMP 2-4: Roadside/General Cleanups

- **Description:** An existing municipal program where the public may participate in collecting roadside/general litter. Cleanup efforts will be chosen based on need and amount of community involvement.
- **Responsible Department/Parties:** DPW Operations
- **Measurable Goal(s):** Track the number of participants and litter collected
- **Timeline:** Ongoing

BMP 2-5: Hazardous Waste/Used Oil Collection

- **Description:** The Department of Public Works will continue to hold hazardous waste collection events twice per year. Items/dates that can be collected will be provided to the public.
- **Responsible Department/Parties:** DPW Operations
- **Measurable Goal(s):** Hold two events per year and track the amount of waste collected.
- **Timeline:** Ongoing

MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

MCM 3: Goal

Consistent with Part 2.3.4 of the 2017 MS4 Permit, the overall goal of the Illicit Discharge Detection and Elimination (IDDE) program is to establish a process to systematically find and eliminate any illicit sources of non-stormwater discharges into the City's storm drain system, as well as implement procedures to prevent such discharges.

Compliance with Regulatory Requirements

Table 3.1 summarizes the required IDDE BMPs included in the Permit, their current status relative to the required completion dates as specified in the 2017 MS4 Permit. The specific details of each of these components are described in the following sections.

Table 3.1: Summary of Major IDDE Compliance Tasks

IDDE BMP	Subtask	Permit Section	Reference Location	Status	Required Completion Date
3-1: Legal Authority to Prohibit Illicit Connections	Establish ordinance, by-law, or other regulatory mechanism to prohibit illicit discharges	*2.3.4.a*	Ordinance Ch. 11, Art. 2 Ch. 16, Art. 2 Site Plan Sec. 8.3	Done	06-30-2019
3-2: Written Plan	IDDE Procedure Plan	*2.3.4.6.c*	See Appendix C	Done	06-30-2019
	Catchment Investigation Plan	*2.3.4.8.b*	TBD	TBD	12-30-2019
3-3 Sanitary Sewer Overflow Inventory	Include Inventory in IDDE Plan	*2.3.3.4*	See Appendix C	Done	06-30-2019
3-4: Outfall Mapping	Phase I Mapping	*2.3.4.5.a*	City Website	Done	07-01-2020
3-5: Dry Weather Screening /Sampling	Outfall Categorization by Impairment	*2.3.4.7.a*	Phase I Map	Done	07-01-2020
	Dry Weather Screening/Sampling	*2.3.4.7.b.iii*	TBD	Pending	07-01-2021
3-6: Catchment Investigations	Investigation of Junction Manholes /Drainage Areas	*2.3.4.8.c*	TBD	TBD	07-01-2028
	Wet Weather Sampling	*2.3.4.8.c.ii.2.b*	TBD	TBD	07-01-2028
	Phase II Mapping	*2.3.4.5.b*	TBD	Ongoing	07-01-2028
3-7: Employee Training	IDDE Training for Select Employees	*2.3.4.11*	TBD	Pending	07-01-2020

BMP 3-1: Legal Authority

Article 2 of the City's Utility Ordinance contains language that prohibits the discharge of non-stormwater flow into the municipal storm drain system. For any new development project, the ordinance requires a thorough review of any requested sanitary sewer connections as well as the proposed treatment of stormwater generated onsite. A more complete written IDDE plan can be found in the attached **Appendix D**.

BMP 3-2: Written Illicit Discharge Detection and Elimination Plan

The MS4 Stormwater General Permit requires that a separate, written IDDE Plan be completed within one (1) year of the effective permit date (July 1, 2019) to describe the specific procedures that will be used to perform and document the IDDE investigation activities as well as contain the following information:

The City's written IDDE plan can be found in the attached **Appendix D**.

BMP 3-3: Sanitary Sewer Overflow (SSO) Inventory

Per Section 2.3.3.4 of the Permit, the IDDE Plan includes an inventory of Sanitary Sewer Overflow (SSOs) that have occurred in the last 5 years (refer to **Appendix D)**. Any updates to this inventory will be included in the annual reports.

- Location (Approximate street crossing/address and receiving water)
- Statement indicating whether the discharge entered a surface water or MS4
- Date(s) and time(s) of each known SSO occurrence
- Estimated discharge volume(s)
- Description of occurrence including possible cause of overflow
- Completed mitigation/corrective measures
- Planned mitigation/corrective measures

Per the City's NPDES Permit, SSOs discharges are also reported to the New Hampshire Department of Environmental Services. The following personnel must be contacted immediately upon detection of an overflow;

Facility Supervisor

› City Engineer (603) 828-1915

NHDES Shellfish Program

› Chris Nash: (603) 568-6741

BMP 3-4: Storm Outfall Mapping

Phase I Mapping: The City has completed the Phase I mapping requirements consistent with the Permit. Existing mapping efforts from the 2003 Permit have been updated and completed in accordance with the 2017 MS4 Permit. The Phase I mapping includes the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- State owned stormwater treatment structures
- Water bodies identified by name and indication of all use impairments as identified on the most recent 2016 NHDES List of Impaired Waters
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations.

Phase II Mapping: Additional outfall features including the field-verified limits of the catchment area must be addressed in Phase II of the mapping requirements. Phase II mapping must be completed within ten (10) years of the effective date of the permit (July 1, 2028). The Phase II mapping requirements include the following information:

- Outfall spatial location (latitude & longitude with a minimum accuracy of +/-30 feet)
- Connecting Storm Drain Pipes and Open Channel Conveyances
- Catch basins and Manholes
- Refined catchment delineations. Catchment delineations must be updated to reflect information collected during catchment investigations.
- Municipal sanitary sewer system
- Municipal combined sewer system

Additional Mapping Considerations: Although not specifically required by the 2017 MS4 Permit, the following outfall features, and related information should be included in the geodatabase of the storm system:

- Storm drain material, shape, size (pipe diameter), age
- Interconnections from other or privately-owned stormwater treatment structures
- Locations where municipal sanitary sewer systems exist, properties known or suspected to be served by a septic system, especially in high density urban areas
- Areas where the storm drain system receives or could receive flow from septic systems
- Stormwater BMP Locations
- Inspection dates and work completed of past illicit discharge investigations
- Locations of suspected confirmed and corrected illicit discharges with dates and flow estimates.

BMP 3-5: Dry Weather Screening / Sampling

The City has completed its initial prioritization and ranking of outfalls and anticipates initiating the dry weather screening and sampling in the late summer and fall of 2019. The

permit allows up to three years form the permit effective date to complete the dry weather screening and sampling. The status of any dry weather completed this year will be reported in the first annual report.

BMP 3-6: Catchment Investigations

The City will develop a written catchment investigation plan within eighteen (18) months from the effective permit date in accordance with Section 2.3.4.8 of the Permit to outline the procedures to investigate each outfall or interconnection catchment within the MS4 area. The catchment investigations are not anticipated to be starting until after the dry weather screening and sampling is completed.

BMP 3-7: Employee Training

Annual training will be provided to any employees involved with the IDDE Program including how to recognize illicit discharges and SSO's. The City will report on when, type and frequency of the any IDDE training in the annual report.

MCM 4: Construction Stormwater Runoff Control

MCM 4: Goal

Consistent with Part 2.3.5 of the 2017 MS4 Permit, the overall goal of the Construction Site Stormwater Control Program is to establish a process where erosion control measures for new or redevelopment projects that disturb more than 1 acre of area are adequately reviewed and inspected during the construction period to minimize erosion and prevent sediment from entering into storm drain system and be discharged to waters of the U.S.

Compliance with Regulatory Requirements

Consistent with Part 2.3.5 of the MS4 Permit, the City has implemented an internal review and inspection program for erosion control measures and waste controls for projects disturbing one (1) acre or more to ensure adequate erosion measures are used to prevent sediment transport in stormwater. This includes disturbances of less than one acre if the disturbance is part of a larger common plan of development.

The 2003 MS4 permit required similar requirements be in place by May 1, 2008. The City adopted local regulations to address the 2003 MS4 Permit provisions in 2007. The 2017 MS4 permit requires written procedures be developed to describe the process involved in site plan review and approval for new construction projects that will disturb more than 1 acre. The procedures should focus on ensuring that adequate erosion control measures are included in project plans and that erosion control measures will be monitored during construction to assess their effectiveness. The key elements of the more recent 2017 MS4 permit requirements are summarized below in **Table 4.1**.

The current City regulations require submittal and review of the Stormwater Management and Erosion Control Plan for new development projects. The City regulations also establish authority to inspect and enforce erosion control measures as well as solid waste measures on construction sites. The current regulations, nonetheless, will likely be updated to address the enhanced treatment measures for MCM 5 and can add specific language to be more explicit with regard to erosion control review and inspections.

Table 4.1: Summary of Key Erosion Control BMPs Required by the MS4 Permit

Plan Element	Permit Section	Status	Required Completion Date
4-1 Site Plan Review Regulations	*2.3.5.3.a*	Done	05-01-2008
4-2 Site Inspection and Enforcement Written Procedures	*2.3.5.3.b*	Done;	07-01-2019
4-3 Waste Control Requirements	*2.3.5.3.d*	Done	07-01-2019

Planned Regulation Updates: The City plans to add more explicit language regarding construction site waste controls including measures to handle solid waste, sanitary waste and demolition debris consistent with the MS4 Permit.

BMP 4-1: Site Plan Review Procedures

The Stormwater Management Section (Sec 7.4) of the City's Site Plan Review Regulations requires any construction project subject to site plan review to have adequate erosion control measures in place prior to initiating soil disturbances. Projects subject to City site plan review include most new residential development or redevelopment that involves 3 residential units or new nonresidential development or redevelopment.

Sec. 7.4.4 of the Site Plan regulations require proposed development projects to include a Stormwater Management and Erosion Control (SMEC) Plan that describes the proposed erosion control measures to be used, their locations, the installation timeline, temporary and permanent stabilization measures, inspection protocols and frequency, reporting and maintenance requirements. Site plan review utilizes a Technical Advisory Committee (TAC), which includes at least one member of the Department of Public Works, to evaluate the proposed erosion control and stormwater treatment measures as part of the development application. The review process will be described in the first annual report.

BMP 4-2: Site Inspections & Enforcement of Erosion Control Measures

Under Section 2.16.1 of the City's Site Plan Regulations, the Planning Board reserves the right to require routine site inspections to ensure compliance with the approved plans.

The City may delegate inspections to a licensed engineer or other qualified individual. The City also has their own inspection personnel on staff as part of multiple departments. These inspections are documented and shared with the Code Enforcement Officer and Department of Public Works as relevant issues arise.

As part of any future regulation updates will be reported in future annual reports. The City will review the current site plan review language and identify opportunities to provide greater clarity on the erosion control submittal and inspection requirements for Planning Board members, City personnel and development applicants to help make sure provisions are in place consistent with the MS4 permit requirements.

BMP 4-3: Construction Site Waste Control Requirements

Section 9.2 of the City's Site Plan Regulations establish on-site waste management and disposal standards for property owners. The regulations require that adequate storage containers be available onsite to store and contain solid and liquid waste generated onsite. The review of adequacy generally falls to the Planning Department and Public Works Department. Although the regulations may not be entirely explicit regarding construction site debris and temporary sanitary waste facilities during construction, the regulations generally cover all aspects of onsite waste generation and disposal.

MCM 5: Post Construction Stormwater Management in New Development and Redevelopment

MCM 5: Goal

Consistent with Part 2.3.6 of the 2017 MS4 Permit, the overall goal of the Post-Construction Stormwater Management Program is to adopt or update local stormwater regulations to ensure adequate stormwater treatment measures are included in new and/or redevelopment projects that will disturb 1 acre or more of area and to ensure these stormwater treatment measures are maintained to preserve the water quality treatment functions of the proposed BMP. As noted below, the level of stormwater treatment needed will depend on any water quality impairment linked to the receiving water body.

Compliance with the Regulatory Requirements

The City's Site Plan regulations, in large part, include many of the MS4 provisions related to post-construction stormwater management for new and redevelopment projects. However, the City will review and update their stormwater management regulations, as appropriate, to align with Southeast Watershed Alliance Stormwater Model Regulations as referenced in the 2017 MS4 Permit when the Model Regulations are finalized. It is anticipated that the Model Regulations will be finalized in next few months to allow Communities to update the local regulations within the 2-year time frame from the effective permit date or July 2020. **Table 5.1** summarizes the key requirements of the 2017 MS4 permit for new and redevelopment.

Table 5.1: Summary of Key Regulatory Requirements

Plan Element	Sub-Task	Permit Section	Status	Required Completion Date
5-1: Post-Construction Ordinance / Regulations	Low Impact Development (LID) must be used to maximum extent	*2.3.6.a.ii.a*	In Progress	07-01-2020
	Salt/snow storage and loading designed according to NHDES guidance	*2.3.6.a.ii.b*	In Progress	
	Select/Design infiltration practices in accordance with NH Stormwater Manual	*2.3.6.a.ii.c*	In Progress	
	New Development - Enhanced Stormwater control/treatment	*2.3.6.a.ii.d*	In Progress	
	Redevelopment - Stormwater control/treatment	*2.3.6.a.ii.e*	In Progress	
	Submit As-Built Plans	*2.3.6.b*	Pending	07-01-2020
5-2: Street/Parking Lot Design Guidelines	Review/ adopt guidelines to minimize new impervious cover and promote LID	*2.3.6.c*	Pending	07-01-2022
5-3: Green Infrastructure	Review zoning and design guidance to promote use of green infrastructure	*2.3.6.d*	Pending	07-01-2022
5-4: Retrofit Inventory / Priority Ranking	Review City-owned property to identify potential locations for SW retrofits or improved BMPs	*2.3.6.e*	Pending	07-01-2022

City Site Plan Review Stormwater Requirements

Table 5.2 provides a comparison of the City's current regulations to the 2017 MS4 Permit post-construction stormwater requirements:

Table 5.2: Comparison of Current Regulations to the 2017 MS4 Requirements

Post-Construction Stormwater Provision	Current City Requirement	MS4 Requirement
Enhanced Storm Water Treatment for Water Quality	1. For storm events of ½ inch or less, the applicant shall demonstrate that stormwater management practices will remove contaminants from stormwater runoff that leave the sites. 2. All applications shall minimize the area of impervious surfaces, and address the potential negative impact of impervious surfaces on surface and groundwater resources; 3. All projects that require a stormwater permit from NHDES shall comply with the AoT standards with respect to the export of total suspended solids and/or nutrients such as phosphorous and nitrogen. If projects do not require a stormwater permit from the NHDES, it shall be designed to minimize the export of phosphorous from the site to the extent reasonable with the proposed use and the characteristics of the site.	1. Require BMPs designed to retain the WQV (1-inch rain consistent with AoT) calculated in accordance with Env-Wq 1540.10; Or 2. Require BMPs designed to provide 90% TSS and 60% nutrient removal for new development, and: 80% TSS and 50% Removal for Redevelopment; The Permit encourages BMPs to optimize nitrogen removal; 3. Offsite mitigation can be used to meet the pollutant removal equivalent within same watershed as discussed in updated in SWA model regulations and EPA guidance manual.
As-Built Plans	At the completion of the project, the applicant shall submit to the Planning Director three (3) copies of an "as-built plan" which shall include all surface and subsurface features, easements, licenses, rights-of-way, and maintenance agreements. The plan shall be prepared and stamped by a New Hampshire licensed land surveyor.	The current City Reg is consistent with MS4 Permit, with the exception that the MS4 permit sets a time a frame for as-built submittal of no more than 2 years after project completion.
Street/ Parking Lot Design Guidelines	Sec 4.3 states that every effort shall be made to use pervious parking and pathway surfaces as an alternative to impervious asphalt or concrete for overflow parking areas, except in cases where it is determined that a traditional impervious parking lot with engineered stormwater systems renders greater protection of surface and groundwater resources than pervious pavement	Within 4 years of the effective permit date, the City shall develop a report that assesses the current street and parking lot design standards that effect the creation of impervious cover and modify standards to promote LID options.
Green Infrastructure	Applicants shall demonstrate why on-site infiltration approaches are not possible or adequate before proposing the use of conventional systems that rely on collection and conveyance to remove runoff from the site.	Within 4 years of the effective permit date, the City shall develop a report to assess local regulations to identity appropriate modifications to promote LID site planning and require that LID design strategies be used to the maximum extent feasible to reduce

Post-Construction Stormwater Provision	Current City Requirement	MS4 Requirement
		the discharge of stormwater from new development.
Stormwater BMP Retrofit Inventory	The City has implemented several existing SW BMPs. An inventory of these BMPs should be included in this SWMP.	Within 4 years of the effective permit date, the City will need to develop an inventory and priority rank all City-owned property in terms of stormwater BMP retrofit potential. Beginning in the 5th Annual Report and each subsequent Annual Report, the City shall report on progress in implementing BMP retrofits to mitigate effects from existing IC area

Planned Regulation Updates: The City will review and update its site plan regulations over the next year to enhance the stormwater treatment requirements by July 1, 2020 as required by the MS4 Permit. The Draft Model Regulations developed by the Southeast Watershed Alliance represents a good reference and starting point, which will be reviewed and discussed with other municipal representatives of the Seacoast and Nashua Regional Stormwater Coalition. Allowance for offsite mitigation for redevelopment projects will help to provide relief from existing densely developed parcels with severe space limitations for stormwater treatment.

MCM 6: Good Housekeeping and Pollution Prevention for Municipal Operations

MCM 6: Goal

Consistent with Part 2.3.7 of the 2017 MS4 Permit, the overall goal is to develop a City-wide operations and maintenance program that emphasizes source control and minimizes the amount of pollutants being exposed and transported by stormwater runoff into nearby water bodies from the City roadways, facilities and maintenance activities, as well as to maintain the functional integrity of the stormwater infrastructure system.

Compliance with Regulatory Requirements

Consistent with Part 2.3.7 of the Permit, the City has developed a Draft Operations and Maintenance (O&M) Plan to describe specific protocols to guide City personnel in performing good housekeeping and pollution prevention measures at its facilities (Appendix E). The Draft O&M Plan is expected to be completed by July 2020 or 2 years from the effective Permit date.

The following provides a brief description of the major components or Best Management Practices (BMPs) that are included in the DRAFT O&M Plan consistent with Part 2.3.7 of the Permit and includes an inventory of City-owned facilities (e.g., roadways, buildings, parks and recreational facilities, vehicle maintenance, waste handling and disposal facilities).

The Permit identifies four (4) principal type of permittee-owned facilities or activities that must be addressed in the O&M Plan:

- Buildings and Facilities
- Vehicle/Equipment Storage and Maintenance Facilities
- Parks and Open Spaces
- Stormwater Infrastructure (e.g., catch basins, outfalls and treatment BMPs)

The City will also develop and/or update a Stormwater Pollution Prevention Plans (SWPPPs) by July 2020 for its DPW facility and its wastewater facilities to describe specific good housekeeping and pollution prevention measures for these facilities to minimize the potential for pollutants to be exposed and conveyed by stormwater to receiving waters. These SWPPPs will be updated if any future changes are made to the facility pollution prevention practices or conditions.

The pending City-wide O&M plan will describe best practices currently used or planned for future implementation to enhance the operations and maintenance of City facilities consistent with permit requirements. The O&M Plan will include an employee training component and a process to review and assess operations and report on progress in each future annual report.

BMP 6-1: Parks and Open Space Operations and Maintenance

Description: The O&M Plan will include written O&M procedures to minimize the use and proper storage, and disposal of pesticides, herbicides, and fertilizers (PHF) for lawn maintenance and landscaping activities and ensure practices are protective of water quality. Protective practices include use of integrated pest management (IPM), recycling or proper disposal of lawn clippings and other vegetative waste, and the use of native and drought resistant landscaping materials.

Since EPA considers downstream coastal waters to be nitrogen impaired, the City will need to:

1. Use slow release fertilizers on City and School maintained property.
2. Properly manage grass clippings and leaf litter to limit and minimize accumulation on paved surfaces, storm drain systems and adjacent water bodies or wetlands.

Other park and recreational O&M procedures required by the Permit include

1. Management of trash containers at parks (scheduled cleanings; sufficient number), and for placing signage in areas concerning the proper disposal of pet wastes.
2. Establish procedures to address waterfowl congregation areas where appropriate to reduce waterfowl droppings from entering the MS4.
3. Establish procedures to address erosion or poor vegetative cover when the permittee becomes aware of it; especially if the erosion is within 50 feet of a surface water [Part 2.3.7.1.a of the MS4 Permit].

Responsible Department: Department of Public Works/ Building and Grounds/ School Dept

BMP 6-2: Buildings and Facilities

Description: The City will develop an inventory and O&M procedures to maintain the building and grounds, parking lots for municipally-owned buildings including schools, police and fire stations, municipal pools, libraries, and parking garages and other facilities. The Permit requires the City to evaluate the following:

1. Use, storage, and disposal of petroleum products and other potential stormwater pollutants.
2. Provide employee training as necessary so that those responsible for handling these products know proper procedures. Ensure that Spill Prevention Plans are in place, if applicable, and coordinate with the fire department as necessary.
3. Develop management procedures for dumpsters and other waste management equipment. Sweep parking lots and keep areas surrounding the facilities clean to reduce runoff of pollutants [Part 2.3.7.1.b of the MS4 Permit].

Responsible Department: Department of Public Works and School Department

BMP 6-3: Vehicles and Equipment

Description: The O&M plan will need to include procedures for maintaining, fueling and washing City vehicles to minimize exposure of vehicle related fluids and fuels. Establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters. The permit does not authorize such discharges [Part 2.3.7.1.c of the MS4 Permit].

Responsible Department: Department of Public Works

Stormwater Infrastructure Operations and Maintenance

BMP 6-4: Street/Parking Lot Sweeping

Description: The MS4 Permit requires all City owned roads and parking lots with curbs and/or catch basins be swept at least once per year in early spring following winter deicing applications. The Permit also requires close tracking and annual reporting of which streets are swept and the amount of sediment material recovered.

Nitrogen Impairment-Appendix H Requirements
Since the EPA considers waters connected to the Great Bay as impaired for nitrogen (based on the 2012 303(d) list), the City also needs to comply with Part 1 of Appendix H, which requires that City-owned streets and parking lots be **swept a minimum of twice per year** (once in the spring (following winter deicing activity) and at least once in the fall (following leaf fall). Roadways and parking lots that are closest and drain directly to tidal waters should be considered the highest priority.

The City currently sweeps streets that have curbing and/or catch basins generally twice per year from May to October. The Downtown area streets are generally swept more often. During the 2017 fiscal year, approximately 328 tons of street sweepings were collected and disposed of. The City also utilizes a sidewalk sweeper to help reduce debris entering the stormwater system. For each future annual report, the City will continue to report the number of miles cleaned and the volume or mass of material removed.

***Alternative*:** In lieu of post-leaf drop street sweeping in the fall, the City can implement a fall leaf litter collection program to effectively minimize the leaf litter on impervious surfaces and in stormwater drainage structures.

Reporting Requirements:
The number of miles swept, and the volume or mass of material removed shall be reported in each annual report.

Responsible Department: **Utilities Maintenance Supervisor**

BMP 6-5: Catch Basin Cleanings

Description: The MS4 permit requires the City to establish a cleaning schedule that ensures that catch basins are cleaned frequently enough that no catch basin will be more than 50% full at any time. The City will need to keep of a log of catch basins cleaned and ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such

that they do not discharge to receiving waters. The Permit also requires that a schedule be developed to prioritize areas that are either under construction, are known to receive heavy sediment loads or a suspected to contribute a higher nutrient load due to managed turf practices and/or improper pet waste disposal.

The City maintains approximately 3,700 catch basins and drainage manholes. In 2017, approximately 380 catch basins were cleaned and documented using VUE Works. Catch basins are currently ranked and cleaned based on field observations and condition of the surrounding system. The City's highest priority is cleaning catch basins in the areas of North Mill Pond, Hodgson Brook, and their respective watersheds.

Catch basins are typically cleaned for one of three (3) reasons, Emergency, Routine Maintenance, and New Construction. The purpose of the cleaning will be documented by City personnel followed by the following standard operating procedures (SOPs).

- Each catch basin will be inspected for structural damage, noxious materials, sewage, or heavy flow. If any of these conditions are present, contact the Utilities Management Supervisor for further cleaning procedures.
- Cleaning is done using vacuum equipment while limiting the use of excessive wash-down waters to remove debris. Cleaning generally begins at the upstream end and working downstream of a closed drainage system.
- Complete the Catch basin cleaning/ inspection log included in Appendix E.
- All personnel engaged in catch basin cleanings should be familiar with the City's SOPs related to confined space entry procedures.

Reporting Requirements

For each Annual Report, the City will report on how many catch basins were cleaned and inspected, the total mass of material removed from all catch basins and whether any changes are planned to catch basin cleaning schedule to help ensure no sump is more than 50% full at any given time. The Permit also requires the City to document in the SWMP and in the first Annual Report its optimization plan for catch basin cleaning, inspection plans, based on current knowledge and data on sediment accumulation, or a schedule for gathering information to develop the optimization plan.

Responsible Department: Utilities Maintenance Supervisor

BMP 6-6: Stormwater Treatment BMP Inspection and Maintenance

Description: The Permit requires that the City routinely inspect and maintain its stormwater BMPs that fall under its responsibility to treat stormwater runoff from roadways and/or parking lots.

Inspectors will document observations using the City's Stormwater BMP inspection log. Inspectors will note the depth of sediment or trash accumulation, any structural damage, any unusual staining, discoloration, foams, oil sheens, noxious odors or any other indicator of potential stormwater contamination. Inspectors should also note any excessive vegetation growth or damage to existing vegetation or soils. Suggested maintenance actions will be also included. Trapped oils and grease, other observed floatable materials and water within the BMP should be removed using appropriate vacuum truck prior to removing any accumulated sediment.

BMP 6-7: Winter Road Maintenance

Description: The City DPW performs snow and ice control practices on its roadways in accordance with its own Snow and Ice Removal Plan. The City also maintains several municipal parking lots and sidewalks in critical area and seeks to provide practical safe access to homes, businesses and municipal facilities during winter storms. poses. Road salt applications may be supplemented with liquid calcium chloride during cold temperatures below 20 degrees.

Requirements for chloride-impaired waters (Appendix H)

Because there are five streams with the City limits that are listed as chloride impaired according to the 2016 303(d) list, the City will develop a ***Salt Reduction Plan*** within 3 years of the effective date or July 1, 2021. Most of these streams, except for Sagamore Creek, originate in areas adjacent to the Pease International Tradeport and flow through major roadway corridors associated with multilane roadways maintained by NHDOT including Routes I-95 and NH Route 16 (Spaulding Turnpike) before flowing through the main portions of the City.

The City plans to continue to increase its use of liquid deicers to increase the effectiveness and efficiency of road salt. The City will develop a Salt Reduction Plan to identify various BMPs that are used or will be implemented in the future to minimize salt use.

BMP 6-8: Stormwater Pollution Prevention Plans (SWPPPs)

Description: Consistent with Section 2.3.7.2 of the Permit, the City plans to develop a Stormwater Pollution Prevention Plan (SWPPP) for its DPW maintenance facility associated storage areas and its Pierce Island Wastewater Facility, which are the only facilities within the MS4 that have outside storage of materials that may potentially exposed to stormwater. The SWPPP shall include a map of the facility and a description of the activities that occur at the facility. The map shall show the location of the stormwater outfalls, receiving waters, and any structural controls. Identify all activities that occur at the facility and the potential pollutants associated with each activity including the location of any floor drains.

The SWPPP will include instructions for conducting employee training and routine facility inspections and associated documentation forms. The SWPPP is anticipated to be completed by July 1, 2020 consistent with the Permit requirements.

BMP 6-9: Nitrogen Source Identification Report

Description: To address the nitrogen water quality impairment associated with the Back Channel, the City will develop a Nitrogen Source Identification Report within 4 years of the effective permit date consistent with Part I requirements of Appendix H. The Report will be submitted to EPA as part of the year 4 Annual Report. The report will include the following elements:

1. Calculation of total MS4 area draining to the impaired water quality segments or their tributaries, using updated mapping and catchment delineations produced pursuant to Part 2.3.4.6,
2. All screening and monitoring results pursuant to Part 2.3.4.7.d., targeting the receiving water segment(s)
3. Impervious area and DCIA for the target catchment
4. Identification, delineation and prioritization of potential catchments with high nitrogen loading
5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment.

BMP 6-10: Stormwater BMP Retrofit Evaluation/Inventory

Description: Again, per Appendix H requirements for the nitrogen impairments, the City will evaluate and develop an inventory of municipal property that may represent feasible locations for stormwater BMP retrofits to treat existing paved areas and reduced existing pollutant loads. The inventory and feasibility assessment will be incorporated into the Nitrogen Source Identification Report with updates on planned implementation included in the 5th year Annual Report. The City has implemented a number of structural BMPs already and will continue to seek opportunities as roadway and utility upgrades are proposed.

Annual Report Checklist

The following represents of Draft list of reporting needs and key items to be included in future Annual Reports. EPA has also indicated that they plan to release Annual Report template in the next few months for permittees to use in developing their first Annual Report. The City's first Annual Report will need to be submitted on September 30, 2019 and will summarize relevant compliance activities that have been completed over the first permit year or since July 1, 2018.

Self-Assessment

General overview of the internal City coordination, meetings, training, staffing changes and new plan or document modifications used to comply with the permit.

BMP Selection Assessment

General description of the process for selecting and implementing BMPs (i.e., ongoing activities, collaborative efforts, new programs, staff and equipment resources).

BMPs for Meeting Total Maximum Daily Loads (TMDLs)

Description of BMPs implemented to comply with water bodies with a TMDL.

BMPs for Meeting Discharge Requirements to Impaired Waters

A description of any BMPs implemented to comply with impaired water bodies.

Summary of Minimum Control Measures

MCM1: Public Education and Outreach

Audience	Message	Distribution Method(s)	Distribution Date(s)	Evaluation Method(s)	Program Change(s)

MCM2: Public Involvement and Participation

Event / Activity	Topic	Public Notice Compliance

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

- IDDE Mapping (status of completing Phase I and II mapping requirements)
- Outfall Ranking (summary of the problem, high, low and excluded outfalls)
- Status of IDDE Program Responsibilities and Systematic Procedures
- Outfall Screening and Monitoring Results
- Illicit Discharges Detected and Removed
- Employee Training

MCM 4: Construction Site Stormwater Runoff Control

Written Procedures Update		
# of Project Plans Reviewed	**# of Inspections Completed**	**# of Enforcement Actions**

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

- Ordinance/Regulation Update_____
- Street Design Assessment Status

MCM6: Operations and Maintenance (O&M) Program

- Facility and Equipment Inventory List Updates
- Facility Maintenance Activities

Catch Basins			
Total # of Catch Basins	**# Cleaned**	**# Inspected**	**Total Volume/Mass of Material Removed**

Street Sweeping	
Lane Miles Cleaned	**Volume/Mass of Material Removed**

Stormwater Pollution Prevention Plans

- Completion Status
- Site Inspection Status

Nitrogen Source Identification Report

- Status update
- Pollutant Loading Analysis
- Stormwater BMP Retrofit Evaluation

Activities Planned for Next Reporting Year

Changes to BMPs and/or Measurable Goals

- Salt Minimization Plan

Activities Undertaken by Contracted Entities

Appendices

A. NOI and EPA NPDES Authorization Letter
B. Endangered Species Act / IPaC Documentation
C. Education Outreach Materials
D. Written Illicit Discharge Detection and Elimination (IDDE) Plan
E. IDDE Inspection Results and Data (Placeholder)
F. DRAFT Operations and Maintenance (O&M) Plan
G. O&M Logs and Compliance Tracking (Placeholder)
H. DRAFT Salt Reduction Plan (Placeholder)
I. Employee Training Records

Appendix A

NOI and EPA NPDES Authorization Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

VIA EMAIL

June 12, 2019

John P. Bohenko
City Manager

And;

Peter Rice
Public Works Director
680 Peverly Hill Road
Portsmouth, NH 03801
phrice@cityofportsmouth.com

Re: National Pollutant Discharge Elimination System (NPDES) Permit ID: NHR041027, City of Portsmouth, NH

Dear Peter Rice:

Your Notice of Intent (NOI) for coverage under the 2017 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in New Hampshire (MS4 General Permit) has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA to discharge stormwater from your MS4 in accordance with applicable terms and conditions of the MS4 General Permit, including all applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2023.**

As a permittee located within the Great Bay Watershed, part 2.2.2.a of the 2017 MS4 General Permit identified your MS4 as discharging to a waterbody impaired due to total nitrogen, or tributary of a waterbody impaired due to total nitrogen. As such, discharges from your MS4 within the Great Bay Watershed are subject to the requirements of Appendix H Part I of the permit.

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA's concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.

Information about the permit and available resources can be found on our website: https://www.epa.gov/npdes-permits/new-hampshire-small-ms4-general-permit. Should you have any questions regarding this permit please contact Suzanne Warner at warner.suzanne@epa.gov or (617) 918-1383.

Sincerely,

Thelma Murphy, Chief
NPDES Permits Branch
Water Division
United States Environmental Protection Agency, Region 1

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part I: General Conditions

General Information

Name of Municipality or Organization: City of Portsmouth State: NH

EPA NPDES Permit Number (if applicable): NHR041027

Primary MS4 Program Manager Contact Information

Name: Peter Rice Title: Public Works Director

Street Address Line 1: 680 Peverly Hill Road

Street Address Line 2:

City: Portsmouth State: NH Zip Code: 03801

Email: phrice@cityofportsmouth.com Phone Number: (603) 427-1530

Fax Number:

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed): DPW Operations Office; 680 Peverly Hill Road, Portsmouth, NH

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☒ A ☐ B ☐ C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☐ A ☒ B ☐ C ☐ D

☑ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)* 100%

If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published:

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

https://portsmouthnh.maps.arcgis.com/apps/webappviewer/index.html?id=6d014b3f49254a6e9c35f00a360f3e20

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? *(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/15/07

Construction/Erosion and Sediment Control (ESC) Authority Adopted? *(Part II,III,IV or V, Subpart B.4.(a.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/15/07

Post-Construction Stormwater Management Adopted? *(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)* Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/15/07

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbodies to which your MS4 discharges. For each waterbody, please report the number of outfalls discharging into it and, if applicable, the segment ID and any impairments.

New Hampshire list of impaired waters: http://des.nh.gov/organization/divisions/water/wmb/swqa/

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Waterbody that receives flow from the MS4 and segment ID if applicable	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Upper Sagamore Creek (NHEST600031001-03)	34	☐	☐	☐	☐	☐	☐	☐	☐	☒	Acenaphthylene, Aluminum, Arsenic, Benzo(a)pyrene (PAHs), Benzo(a)anthracene, Cadmium, Chrysene (C1-C4), Copper, Dibenz(a,h)anthracene, Estuarine Bioassessments, Fluoranthene, Lead, Mercury, Nickel, Phenanthrene, Pyrene, Trans-Nonachlor, PCBs, Dioxin
Lower Sagamore Creek (NHEST600031001-04)	5	☐	☐	☐	☐	☐	☐	☐	☐	☒	Estuarine Bioassessments, PCBs, Dioxin
Lower Piscataqua River - South (NHEST600031001-02-02)	30	☐	☐	☐	☐	☐	☐	☐	☐	☒	Estuarine Bioassessments, PCBs, Dioxin
Back Channel (NHEST600031001-05)	7	☐	☐	☐	☒	☐	☐	☐	☐	☐	Estuarine Bioassessments, Light attenuation coefficient, PCBs, Dioxin
South Mill Pond (NHEST600031001-09)	13	☐	☐	☐	☐	☐	☐	☐	☐	☒	PCBs, Dioxin
North Mill Pond (NHEST600031001-10)	41	☐	☐	☐	☐	☐	☐	☐	☐	☒	PCBs, Dioxin
Unnamed Pond (NHLAK600031001-01)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Unnamed Brook - To Piscataqua River (NHRIV600031001-02)	10	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Unnamed Brook - Sagamore Creek Dam (NHIMP600031001-01)	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	Aluminum, Iron
Sagamore Creek (NHRIV600031001-03)	3	☒	☐	☐	☐	☐	☐	☐	☒	☐	pH
Lower Hodgson Brook (NHRIV600031001-04)	11	☒	☐	☒	☐	☐	☐	☐	☒	☐	Benthic-Macroinvertebrate Bioassessments (Streams), pH
Upper Hodgson Brook (NHRIV600031001-05)	1	☒	☐	☒	☐	☐	☐	☐	☒	☐	Benthic-Macroinvertebrate Bioassessments (Streams), pH, Manganese
Borthwick Ave. Tributary (NHRIV600031001-09)	7	☒	☐	☒	☐	☐	☐	☐	☒	☐	Iron, pH
Unnamed Brook to Back Channel (NHRIV600031001-21)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Unnamed Brook to Back Channel (NHRIV600031001-24)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Berrys Brook (NHRIV600031002-01)	11	☐	☐	☒	☐	☐	☐	☐	☒	☐	pH
Witch Creek (NHRIV600031002-11)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	

		☐	☐	☐	☐	☐	☐	☐	☐	☐	
Waterbody that receives flow from the MS4 and segment ID if applicable	**Number of outfalls into receiving water segment**	**Chloride**	**Chlorophyll-a**	**Dissolved Oxygen/ DO Saturation**	**Nitrogen**	**Oil & Grease/ PAH**	**Phosphorus**	**Solids/ TSS/ Turbidity**	**E. coli**	**Enterococcus**	**Other pollutant(s) causing impairments**
Haines Brook - Unnamed Brook (NHRIV600030901-04)	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Pickering Brook (NHRIV600030904-06)	14	☒	☐	☒	☐	☐	☐	☐	☒	☐	Copper, Iron, pH
Unnamed Brook - to Unnamed Marsh (NHRIV600030904-07)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs).

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
Web Page, CCTV, and Radio	Post educational materials on web site re fertilizer usage & pet waste cleanup	Residents	DPW Operations	>1,000 web visits/ viewings per year	2018
School Curricula/Programs	Information sessions regarding sustainability, pollution prevention, and BMP site visits	Residents	DPW Operations	1-2 sessions/year	2021
Displays/Posters/Kiosks	Pet waste sign and bag stations at City Parks	Residents	DPW Operations/ Parks and Recreation	Update sign message every 2 years	2020
Brochures/Pamphlets	Annual Stormwater Brochure	Residents	DPW Operations	Update newsletter annually	2019
Brochures/Pamphlets	Brochure on waste disposal, street sweeping, lawn maintenance, and irrigation	Businesses, Institutions and Commerc	DPW Operations	Update/distribute brochure every 2 years	2020
Videos	Information video on lawn maintenance, snow removal deicing, and other stormwater related topics	Businesses, Institutions and Commercial Facilities	DPW Operations/ Seacoast Stormwater Coalition	Update video every other year	2022
Brochures/Pamphlets	Fact Sheet/ checklist on Site plan review & SW mgt regulations	Developers (construction)	DPW Operations/ Planning Department	Provide checklist for applicants/ Tech Adv Comm mtgs	2019

Brochures/Pamphlets	Fact Sheet on Erosion Control Inspections/ Construction SWPPP	Developers (construction)	DPW Operations/ Planning Department	Review of all new CGP SWPPPs	2022
Brochures/Pamphlets	Lawn maintenance / water use efficiency fact sheet	Industrial Facilities	DPW Operations/ Planning Department	New fact sheet every other year	2021
Brochures/Pamphlets	Waste disposal/ pretreatment fact sheet	Industrial Facilities	DPW Operations/ Planning Department	New fact sheet every other year	2023

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

BMP Categorization	Brief BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Additional Description/ Measurable Goal	Beginning Year of BMP Implementation
Public Review	SWMP Review	DPW / City Hall	Gain input regarding stormwater management priorities measure amount of input	2019
Public Participation	Hotline/webline - reporting problems/violations	DPW / City Hall	Receive input from community and compare education and outreach with adjacent towns. Track # of meetings / input	2019
Public Participation	Catch Basin Stenciling/Markers	DPW Operations	# of stencils	2019
Public Participation	Cleanups - Roadside/General	DPW Operations	# of participants / amount of litter collected	ongoing
Public Participation	Household haz. waste/used oil collection	DPW Operations	Amount of waste collected	2/yr

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
SSO inventory	Develop SSO inventory in accordance of permit conditions	DPW Operations	Complete within 1 year of effective date of permit
Storm sewer system map	Create map and update during IDDE program completion	DPW Operations	Update map within 2 years of effective date of permit and complete full system map 10 years after effective date of permit
Written IDDE program development	Create written IDDE program	DPW Operations	Complete within 1 year of the effective date of permit and update as required
Implement IDDE program	Implement catchment investigations according to program and permit conditions	DPW Operations	Complete 10 years after effective date of permit
Employee training	Train employees on IDDE implementation	DPW Operations	Train annually
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions	DPW Operations	Complete 3 years after effective date of permit
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	DPW Operations	Complete 10 years after effective date of permit
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	DPW Operations	Complete ongoing outfall screening on completion of IDDE program

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
Site inspection and enforcement of Erosion and Sediment Control (ESC) measures	Complete written procedures of site inspections and enforcement procedures	Planning/Zoning Department/City Engineer	Complete within 1 year of the effective date of permit
Site plan review	Complete written procedures of site plan review and begin implementation	Planning/Zoning Department	Complete within 1 year of the effective date of permit
Erosion and sediment control	Adoption of requirements for construction operators to implement a sediment and erosion control program	Planning/Zoning Department/City Engineer	Complete within 1 year of the effective date of permit
Waste control	Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes	Planning/zoning Department/City Engineer	Complete within 1 year of the effective date of permit

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
As-built plans for on-site stormwater control	The procedures to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP	Planning/zoning Department	Require submission of as-built plans for completed projects
Target properties to reduce impervious areas	Complete an inventory and priority ranking of permitee-owned property and existing infrastructure that could be retrofitted with BMPs designed to reduce the frequency, volume and pollutant loads of stormwater discharges to its MS4 through the mitigation of impervious area	Engineering /DPW Operations	Complete 4 years after effective date of permit and report annually on retrofitted properties
Allow green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Engineering / DPW operations	Complete 4 years after effective date of permit and implement recomendations of report
Street design and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Engineering / DPW Operations	Complete 4 years after effective date of permit and implement recommendations of report

Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and consistent with the Southeast Watershed Alliance's Model Stormwater Standards for Coastal Watershed Communities; or contain provisions that are at least as stringent as described in Section 2.3.6 of the Permit.	Adoption, amendment, or modification of a regulatory mechanism to meet permit requirements	Planning/Zoning Department/DPW Operations	Complete 2 years after effective date of permit

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
O&M procedures	Create written O&M procedures including all requirements contained in 2.3.7.1 for parks and open spaces, buildings and facilities, and vehicles and equipment	Parks/Recreation /DPW Operations /City Engineer	Complete and implement 2 years after effective date of permit	2020
Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment	Create inventory	Parks/Recreation/DPW Operations	Complete 2 years after effective date of permit and implement annually	2020
Infrastructure O&M	Establish and implement program for repair and rehabilitation of MS4 infrastructure	City Engineer/ DPW Operations	Complete 2 years after effective date of permit	ongoing
Stormwater Pollution Prevention Plan (SWPPP)	Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities	City Engineer/ DPW Operations	Complete 2 years after effective date of permit	2020
Catch basin cleaning	Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule	DPW Operations	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	2018
Street sweeping program	Sweep all streets and permitee-owned parking lots in accordance with permit conditions	DPW Operations	Sweep all streets and permitee-owned parking lots once per year in the spring	2018
Road salt use optimization program	Establish and implement a program to minimize the use of road salt	DPW Operations	Implement salt use optimization during deicing season	2019

Inspections and maintenance of stormwater treatment structures	Establish and implement inspection and maintenance procedures and frequencies	City Engineer/ DPW Operations	Inspect and maintain treatment structures at least annually	2019

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, **enter your own text to override drop-down menus.** If submitting a NHDES approved alternative reduction plan, attach and submit it with the NOI.

Applicable TMDL	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Upper Sagamore Creek (NHEST600031001-03) (E. coli, Enterococcus)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Lower Piscataqua River - South (NHEST600031001-02-02) (Enterococcu	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Lower Sagamore Creek (NHEST600031001-04) (Enterococcus)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
South Mill Pond (NHEST600031001-09) (Enterococcus)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
North Mill Pond (NHEST600031001-10) (Enterococcus)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Pickering Brook (NHRIV600030904-06) (E. coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Sagamore Creek (NHRIV600031001-03) (E. coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Lower Hodgson Brook (NHRIV600031001-04) (E. coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Upper Hodgson Brook (NHRIV600031001-05) (E. coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Borthwick Ave. Tributary (NHRIV600031001-09) (E. coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor
Berrys Brook (NHRIV600031002-01) (E. Coli)	Adhere to requirements in Part II.1 of Appendix F	DPW Operations / External Contractor

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. In addition, if you are subject to additional requirements due to a downstream nutrient impairment (see Part 2.2.2 of the permit) select the pollutant of concern and indicate applicable waterbody IDs or write "all waterbodies" if applicable. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Pollutant	Waterbody ID(s)	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Iron	Pickering Brook (NHRIV600030904-06) Borthwick Ave. Tributary (NHRIV600031001-09)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor
Chloride	Pickering Brook (NHRIV600030904-06) Sagamore Creek (NHRIV600031001-03) Lower Hodgson Brook (NHRIV600031001-04) Upper Hodgson Brook (NHRIV600031001-05) Borthwick Ave. Tributary (NHRIV600031001-09)	Adhere to requirements in part IV of Appendix H	DPW Operations / External Contractor
Aluminum	Upper Sagamore Creek (NHEST600031001-03)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor
Lead	Upper Sagamore Creek (NHEST600031001-03)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor
Cadmium	Upper Sagamore Creek (NHEST600031001-03)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor
Copper	Upper Sagamore Creek (NHEST600031001-03) Pickering Brook (NHRIV600030904-06)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor
Hydrocarbons (PAHs)	Upper Sagamore Creek (NHEST600031001-03)	Adhere to requirements in part V of Appendix H	DPW Operations / External Contractor

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.2 that you have identified as not applicable to your MS4 and provide all supporting documentation below or attach additional documents if necessary.

Provide any additional information about your MS4 program below.

This NOI form does not include stormwater outfalls located on and under the jurisdiction of the Pease International Tradeport.

The City has actively participated in the ongoing Seacoast Stormwater Coalition collaborative meetings where various municipal and regional planning commission representatives have discussed and evaluated the 2017 NH MS4 NOI mapping needs and future compliance activities.

The water body list and associated water quality impairments included in this NOI are based on the NHDES 2016 303(d) list.

The City has several well -established and ongoing public education outreach and participation activities that will continue to be used to comply with the 2017 MS4 permit.

By submitting this Notice of Intent to Comply with the Provisions of 2017 New Hampshire Small MS4 Permit pursuant to Section 1.7.2, the City of Portsmouth does not waive any rights it has to object or contest the applicability of any provision or requirement of the Permit, including, but not limited to, any issues raised by any party in the appeal of the Permit before the United States Court of Appeals for the District of Columbia Circuit, Case Number 17-1060.

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part V: 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 gathered and evaluated 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, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than 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. (40 CFR 122.22)

Name:	John P. Bohenko	Title:	City Manager
Signature:		Date:	

[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]

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

Appendix B

ESA & IPaC Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial St, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

September 24, 2018

To whom it may concern:

The U.S. Fish and Wildlife Service (USFWS) reviewed the stormwater discharge activities associated with the 2017 National Pollutant Discharge and Elimination System (NPDES) New Hampshire (NH) Small Municipal Separate Storm Sewer System (MS4) general permit (2017 NH Small MS4 General Permit) issued by the Environmental Protection Agency (EPA). We determined those activities may affect, but are not likely to adversely affect, certain species listed under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) when specific conditions are met. When these conditions are met, we do not need to review individual projects. These comments are provided in accordance with section 7 of the ESA and complement existing 2017 NH Small MS4 General Permit Appendix C Guidance. We understand the applicant is acting as a non-Federal representative of the EPA for the purpose of consultation under section 7. **This letter provides additional guidance for meeting Criterion B and should be submitted as part of your application package to the EPA.**

If the USFWS Information for Planning and Consultation website (https://ecos.fws.gov/ipac/) indicates your 2017 NH Small MS4 General Permit project action area may contain one or more of the following federally listed endangered species: roseate tern (*Sterna dougallii*), dwarf wedgemussel (*Alasmidonta heterodon*), Karner blue butterfly (*Lycaeides melissa samuelis*), northeastern bulrush (*Scirpus ancistrochaetus*), or Jesup's milk-vetch (*Astragalus robbinsii var. jesupi*); threatened species: Canada lynx (*Lynx Canadensis*), piping plover (*Charadrius melodus*), or red knot (*Calidris canutus rufa*); or their federally designated critical habitat; and the specific conditions listed below are met, you may submit this letter to complete the **2017 NH Small MS4 General Permit Appendix C: Step 4** in place of a concurrence letter for informal consultation as documentation of ESA eligibility for **USFWS Criterion B**.

In addition, this letter also satisfies the requirement in the **2017 NH Small MS4 General Permit Appendix C: Step 2 (3)** to contact the USFWS and obtain a concurrence letter, if you have not yet done so. If your project action area includes one or more of the above-listed species *and* one or more of the species listed under **Criterion C,**[1] you may still use this letter to certify under

[1] Criterion C includes guidance for project action areas that may contain species for which EPA has already made a determination. These species include the northern long-eared bat (*Myotis septentrionalis*) and small whorled pogonia (*Isotria medeoloides*) (2017 NH Small MS4 General Permit Appendix C: Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C).

Criterion B. All existing guidance regarding requirements for certifying eligibility according to the USFWS Criterion A, B, or C for coverage by the 2017 NH Small MS4 General Permit (see 2017 NH Small MS4 General Permit Appendix C – Endangered Species Guidance) remains unchanged.

We have determined that proposed stormwater discharge activities covered under the 2017 NH Small MS4 General Permit *may affect, but are not likely to adversely affect*, the above-listed species and the species' critical habitat when the following are true:

1. all stormwater discharges are pre-existing or previously permitted by EPA;
2. any planned operations and maintenance work covered by this permit will only affect previously disturbed areas where stormwater controls are already installed. In these situations the chance of encountering any of the subject species is discountable;
3. the project implements EPA MS4 Best Management Practices (BMPs) and meets Clean Water Act and New Hampshire Water Quality Standards. Although permitted discharges may reach the environment used by these species, BMPs reduce pollutants to the extent that discharges are not known to have measurable impacts on these species or their habitat;
4. no new construction or structural BMPs are proposed under this permit at this time; and
5. you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the Notice of Intent (NOI), you will re-initiate consultation with the USFWS as necessary (see **2017 NH Small MS4 General Permit Appendix C: Step 2 (5)**).

If the above criteria are met, further consultation with the USFWS under section 7 of the ESA is not required at this time; however, if the proposed action changes in any way such that it may affect a listed species in a manner not previously analyzed or if new information reveals the presence of additional listed species that may be affected by the project, the applicant or the EPA should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your cooperation, and please contact David Simmons of this office at (603) 227-6425 if you have questions or need further assistance.

Sincerely yours,

Thomas R Chapman
Supervisor
New England Field Office

IPaC **U.S. Fish & Wildlife Service**

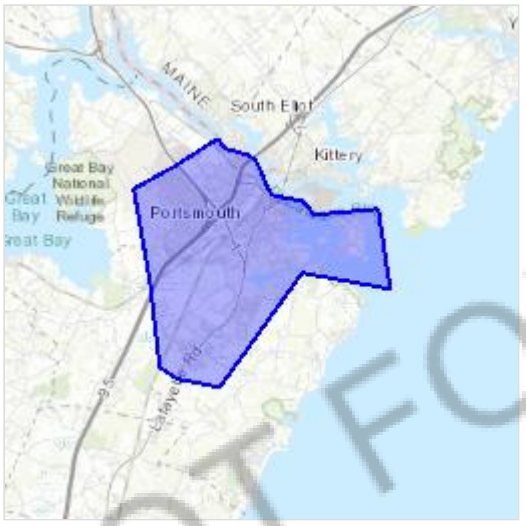
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Maine and New Hampshire



Local offices

Maine Ecological Services Field Office

(207) 469-7300
(207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS

306 Hatchery Road
East Orland, ME 04431

http://www.fws.gov/mainefieldoffice/index.html

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Red Knot Calidris canutus rufa No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern Sterna dougallii dougallii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2083	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
American Oystercatcher Haematopus palliatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Arctic Tern Sterna paradisaea This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds May 20 to Aug 15
Atlantic Puffin Fratercula arctica This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/8943	Breeds Apr 15 to Aug 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

Black Guillemot Cepphus grylle — Breeds May 15 to Sep 10

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Black Scoter Melanitta nigra — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Black-billed Cuckoo Coccyzus erythropthalmus — Breeds May 15 to Oct 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Black-legged Kittiwake Rissa tridactyla — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bonaparte's Gull Chroicocephalus philadelphia — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Buff-breasted Sandpiper Calidris subruficollis — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9488

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clapper Rail Rallus crepitans — Breeds Apr 10 to Oct 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Common Eider Somateria mollissima — Breeds Jun 1 to Sep 30

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Common Loon gavia immer — Breeds Apr 15 to Oct 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4464

Common Murre Uria aalge — Breeds Apr 15 to Aug 15

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Common Tern Sterna hirundo — Breeds May 10 to Sep 10

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4963

Cory's Shearwater Calonectris diomedea — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Double-crested Cormorant phalacrocorax auritus — Breeds Apr 20 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/3478

Dovekie Alle alle — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/6041

Dunlin Calidris alpina arcticola — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Evening Grosbeak Coccothraustes vespertinus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Great Black-backed Gull Larus marinus — Breeds Apr 15 to Aug 20

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Great Shearwater Puffinus gravis — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Herring Gull Larus argentatus — Breeds Apr 20 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Hudsonian Godwit Limosa haemastica — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Kentucky Warbler Oporornis formosus — Breeds Apr 20 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Leach's Storm-petrel Oceanodroma leucorhoa — Breeds May 15 to Nov 20

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Least Tern Sterna antillarum — Breeds Apr 20 to Sep 10

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Long-tailed Duck Clangula hyemalis — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/7238

Manx Shearwater Puffinus puffinus — Breeds Apr 15 to Oct 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Nelson's Sparrow Ammodramus nelsoni — Breeds May 15 to Sep 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Northern Gannet Morus bassanus — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Parasitic Jaeger Stercorarius parasiticus — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Purple Sandpiper Calidris maritima — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Razorbill Alca torda — Breeds Jun 15 to Sep 10

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-breasted Merganser Mergus serrator — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-necked Phalarope Phalaropus lobatus — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-throated Loon Gavia stellata — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ring-billed Gull Larus delawarensis — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Roseate Tern Sterna dougallii — Breeds May 10 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Royal Tern Thalasseus maximus — Breeds Apr 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Rusty Blackbird Euphagus carolinus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Saltmarsh Sparrow Ammodramus caudacutus — Breeds May 15 to Sep 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Snowy Owl Bubo scandiacus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Surf Scoter Melanitta perspicillata — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Thick-billed Murre Uria lomvia — Breeds Apr 15 to Aug 15
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

White-winged Scoter Melanitta fusca — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wilson's Storm-petrel Oceanites oceanicus — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or

attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

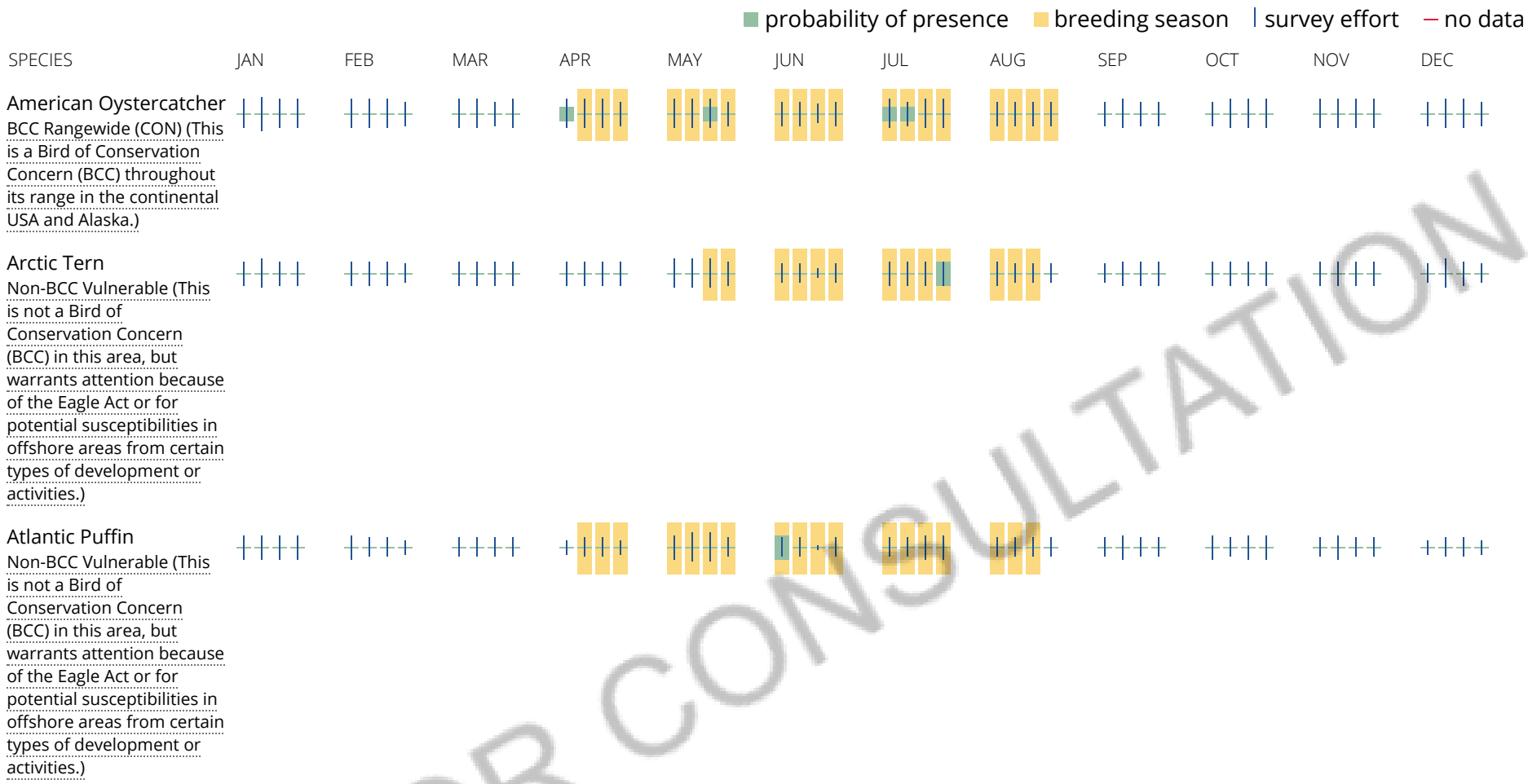
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

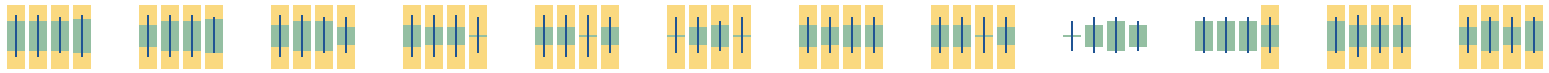
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

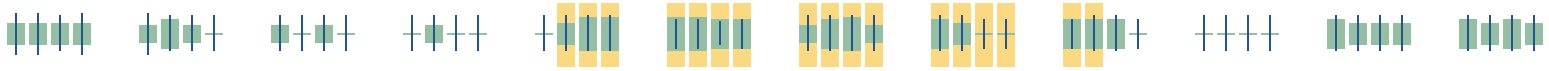
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

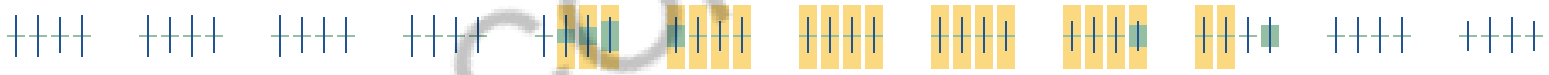


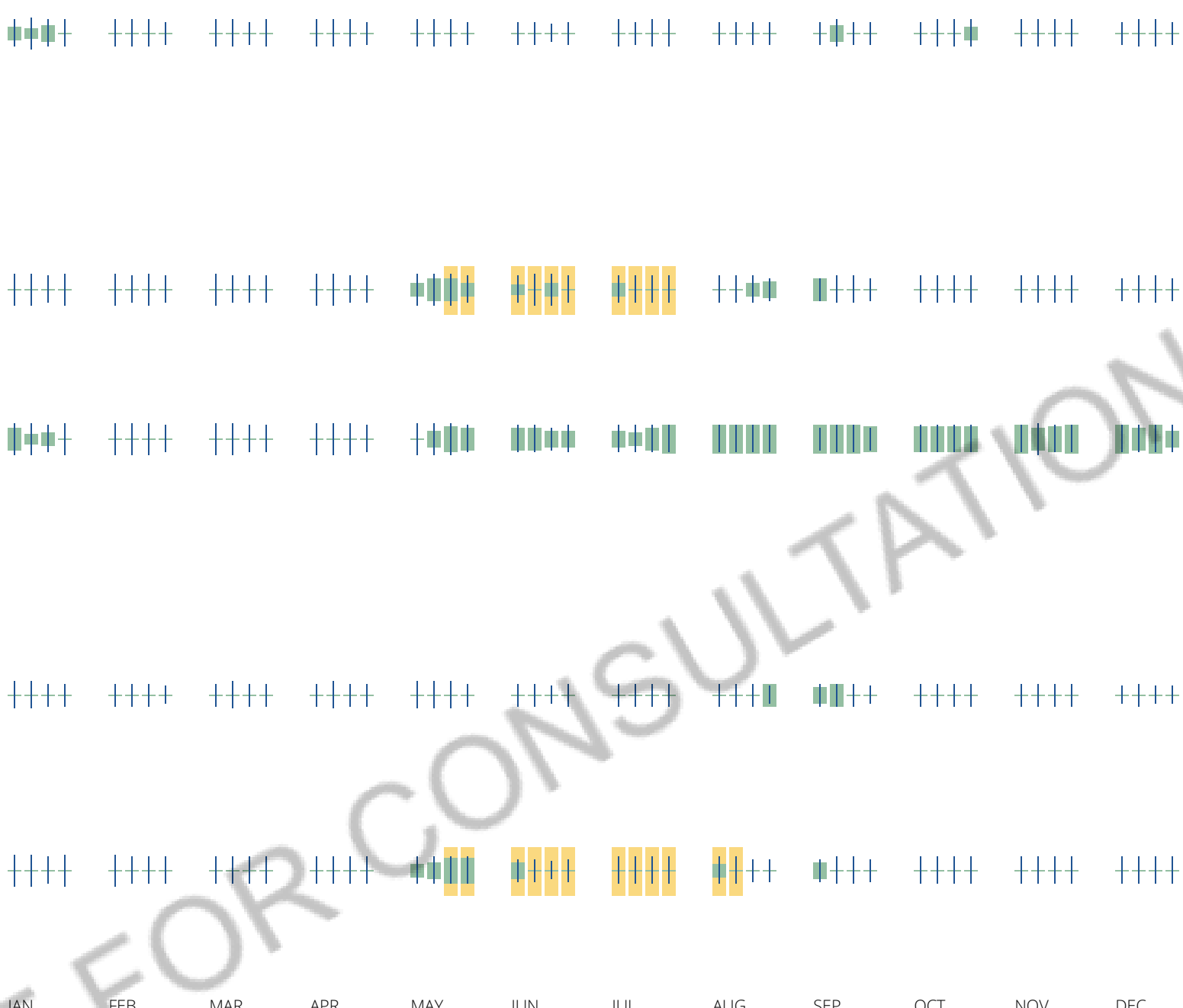
Black Guillemot
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



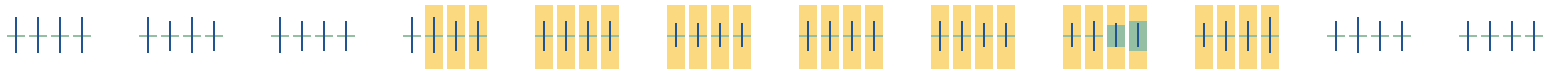
Black Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Black-billed Cuckoo
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



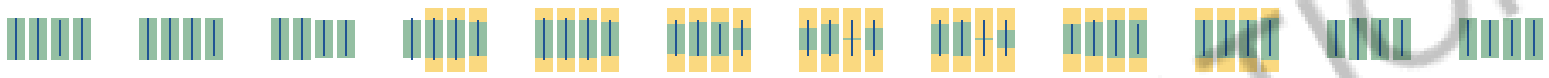


Clapper Rail
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Common Eider
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Common Loon
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

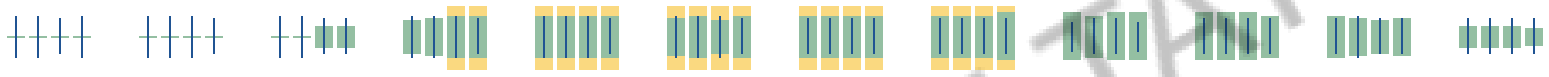


Common Murre
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Common Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Cory's Shearwater
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Double-crested Cormorant
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Dovekie
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Dunlin
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Eastern Whip-poor-will
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Evening Grosbeak
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

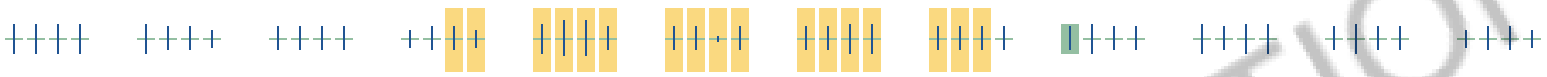
Great Black-backed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Great Shearwater
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

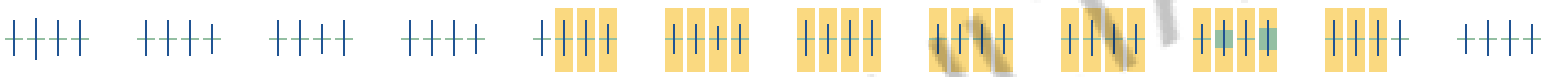
Herring Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Hudsonian Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

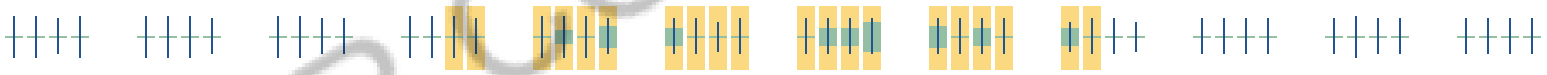
Kentucky Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Leach's Storm-petrel
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



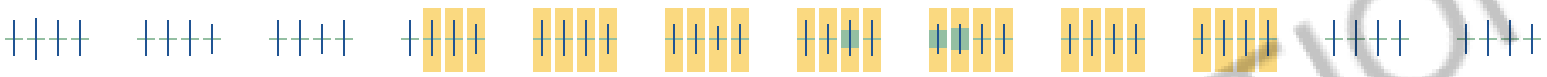
Least Tern
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-tailed Duck
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Manx Shearwater
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



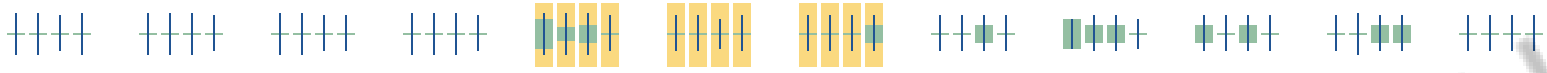
Nelson's Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Northern Gannet
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Parasitic Jaeger
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

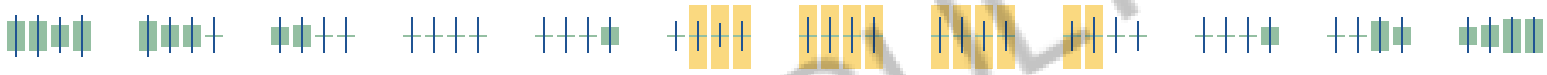
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Purple Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Razorbill
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Red-breasted Merganser
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Red-necked Phalarope
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Ring-billed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

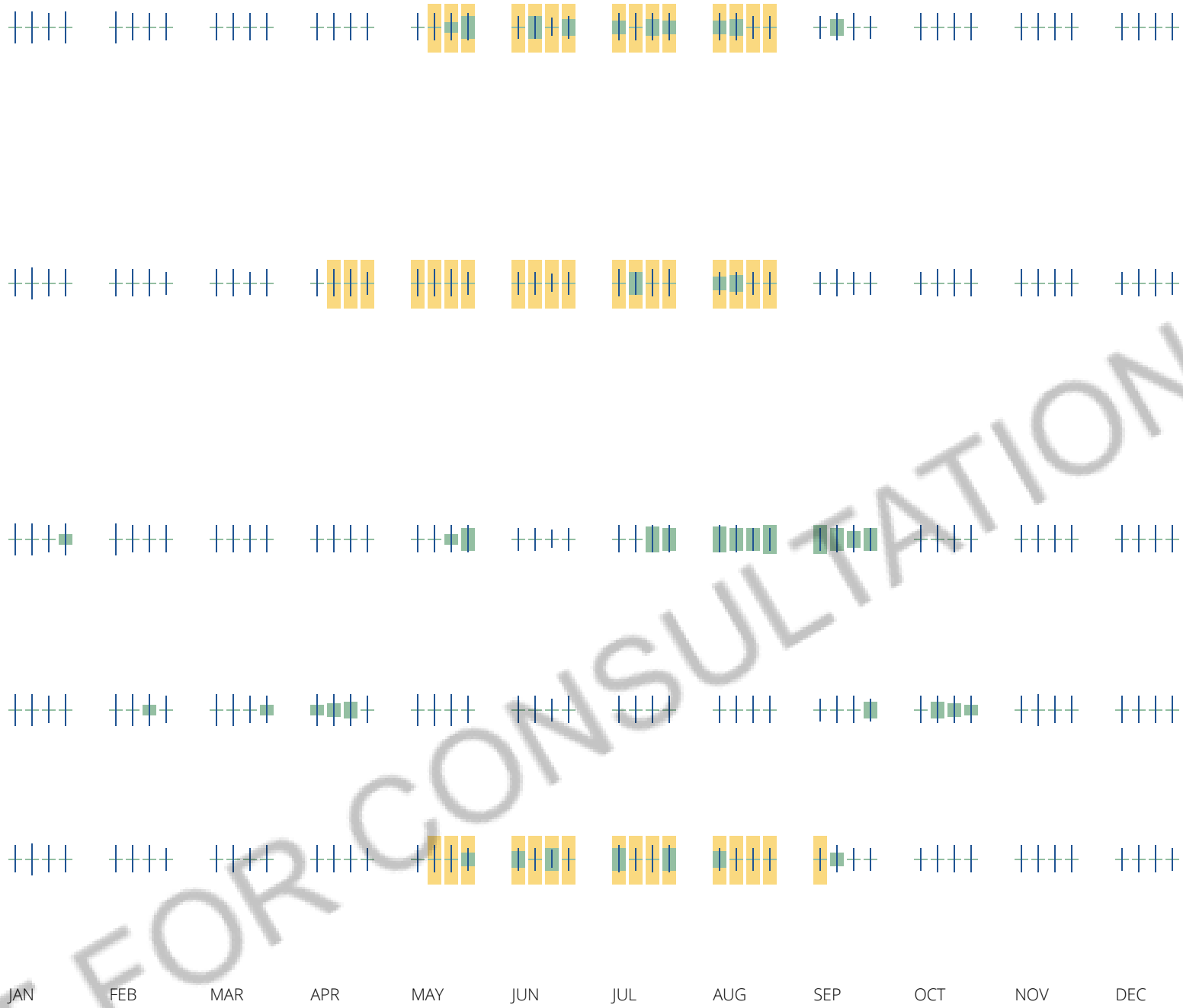
Roseate Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Royal Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Ruddy Turnstone
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Rusty Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Saltmarsh Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Snowy Owl
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Surf Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Thick-billed Murre
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

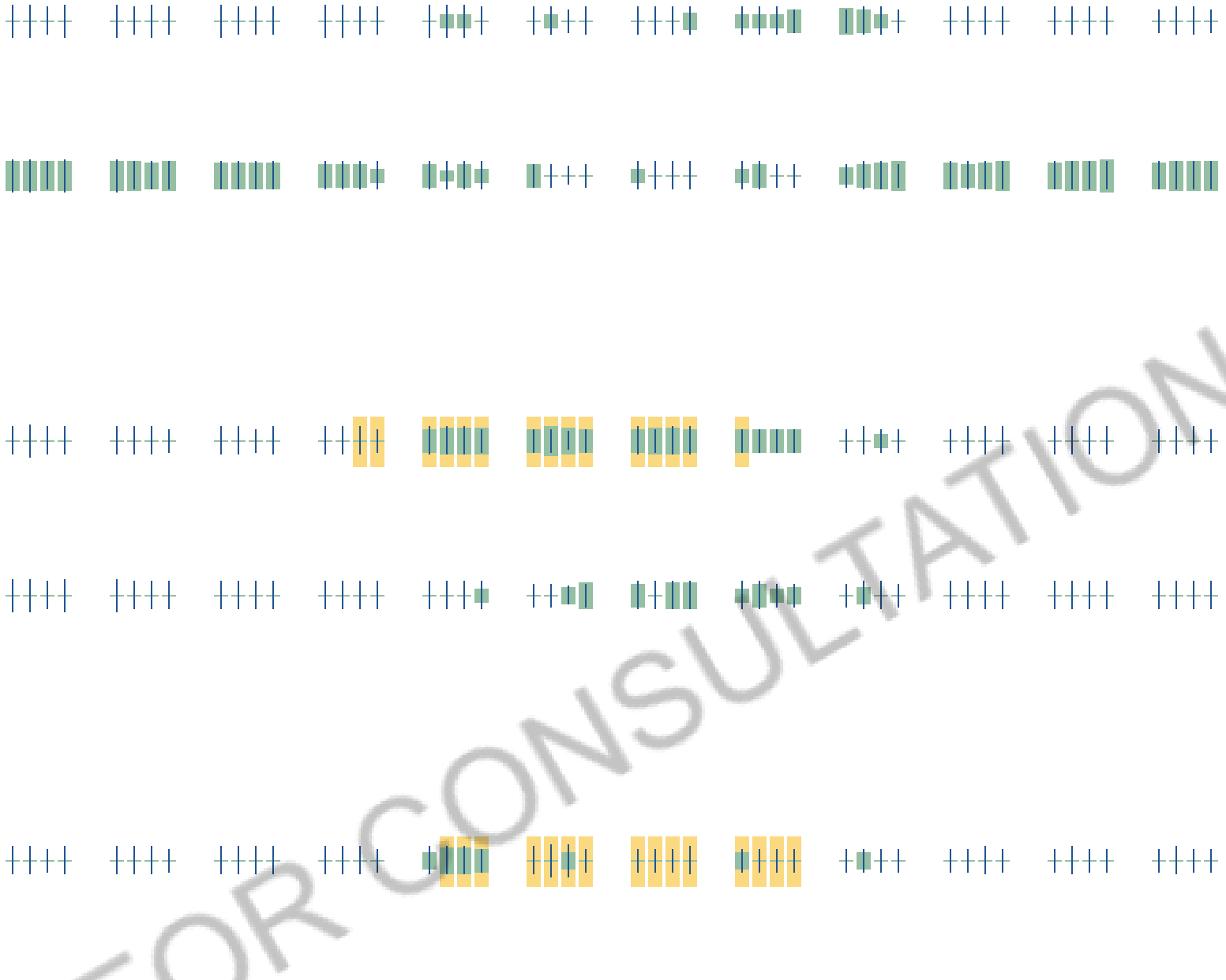
Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

White-winged Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wilson's Storm-petrel
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and

helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix C

Education Outreach Materials

EVERY DROP

Small Changes. Big Difference.

We love our dogs! But dog waste carries harmful bacteria that can make our waters unsafe for drinking or swimming. So always pick it up and throw it in the trash!

This message helps the City meet its educational outreach requirements for the USEPA MS4 Stormwater Permit.

Stormwater is a pollution problem that affects everyone and if we all do our part to help, we can reach our goal of clean and healthy waterways.

Many NH towns have over 1,000 dogs living in them, and each dog "goes" once or twice a day. That's a lot of poop! Not only is it gross when it's left around, it can also be dangerous. Harmful bacteria and parasites—such as Giardia or Salmonella—that live in pet waste can come into contact with people or other pets, or wash into waterways and storm drains.

Take the pledge to Scoop the Poop! Please go to:

stateofourestuaries.org/everydrop/petpledge

or scan the QR code to go straight to the page.

EVERY DROP
Small Changes. Big Difference.

We love our dogs! But dog waste carries harmful microorganisms that can make our waters unsafe for swimming and drinking. Picking it up can be a major benefit, particularly in paved areas, and near streams and lakes.

Picking up our dog's waste and throwing it out properly is a small effort that can make a big difference in keeping our waters clean.

Appendix D

Written Illicit Discharge Detection and Elimination (IDDE) Plan

Illicit Discharge Detection and Elimination (IDDE) Plan

City of Portsmouth, New Hampshire

June 2019

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City of Portsmouth, New Hampshire

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1 Introduction

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by Portsmouth to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2017 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in New Hampshire, hereafter referred to as the "2017 New Hampshire MS4 Permit" or "MS4 Permit."

The 2017 New Hampshire MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination Program
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management); and
6. Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

In addition to a Stormwater Management Plan (SWMP), the 2017 MS4 Permit requires the City to implement an Illicit Discharge Detection Elimination (IDDE) Plan to systematically find and eliminate sources of non-stormwater discharges into its separate storm sewer system and implement procedures to prevent such discharges. This written IDDE Plan has been prepared to address this requirement.

1.1.1 Illicit Discharges

An "illicit discharge" is any discharge to a drainage system that is not composed entirely of stormwater, with the exception of discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire-fighting activities.

Illicit discharges may take a variety of forms. Illicit discharges may enter the drainage system through direct or indirect connections. Direct connections may be relatively obvious, such as cross-connections of sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters.

Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Elimination of some discharges may require substantial costs and efforts, such as funding and designing a project to reconnect sanitary sewer laterals. Others, such as improving self-policing of dog waste management, can be accomplished by outreach in conjunction with the minimal additional cost of dog waste bins and the municipal commitment to disposal of collected materials on a regular basis.

Regardless of the intention, when not addressed, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

1.1.2 Allowable Non-Stormwater Discharges

The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA or New Hampshire Department of Environmental Services (NHDES) identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4 regulated area:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground water
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- Uncontaminated pumped groundwater
- Discharge from potable water sources
- Foundation drains
- Air conditioning condensation
- Irrigation water, springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual resident car washing
- Flows from riparian habitats and wetlands
- De-chlorinated swimming pool discharges
- Street wash waters
- Residential building wash waters without detergents

If these discharges are identified as significant contributors to the MS4, they must be considered an "illicit discharge" and addressed in the IDDE Plan (i.e., control these sources so they are no longer significant contributors of pollutants, and/or eliminate them entirely).

1.1.3 Receiving Waters and Impairments

Table 1-1 lists the "impaired waters" within the boundaries of Portsmouth's regulated area based on the 2016 New Hampshire Integrated List of Waters. Impaired waters are water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.

Table 1-1. Impaired Waters, Portsmouth, New Hampshire

Water Body Name	Assessment Unit ID	Outfall Count	Impairment(s)	Approved TMDL
Lower Piscataqua River - South	NHEST600031001-02-02	30	Estuarine Bioassessments, PCBs, Dioxin, Mercury	Bacteria (Enterococcus)
Upper Sagamore Creek	NHEST600031001-03	0	Acenaphthylene, Aluminum, Arsenic, PAHs, Cadmium, Chrysene, Copper, Estuarine Bioassessments, Lead, Mercury, Nickel, Pyrene, PCBs	Bacteria (Enterococcus)
Lower Sagamore Creek	NHEST600031001-04	0	Estuarine Bioassessments, PCBs, Dioxin, Mercury	Bacteria (Enterococcus)
Back Channel	NHEST600031001-05	8	Estuarine Bioassessments, Light Attenuation, Mercury, PCBs, Dioxin	
South Mill Pond	NHEST600031001-09	13	Mercury, PCBs, Dioxin	Bacteria (Enterococcus)
North Mill Pond	NHEST600031001-10	41	Mercury, PCBs, Dioxin	Bacteria (Enterococcus)
Pickering Brook	NHRIV600030904-06	14	Chloride, Copper, DO Saturation, Iron, pH	Bacteria (E. coli), Mercury
Sagamore Creek	NHRIV600031001-03	47	Chloride, pH	Bacteria (E. coli), Mercury
Lower Hodgson Brook	NHRIV600031001-04	11	Macroinvertebrate Bioassessments, Chloride, DO Saturation, pH	Bacteria (E. coli), Mercury
Upper Hodgson Brook	NHRIV600031001-05	1	Macroinvertebrate Bioassessments, Chloride, DO Saturation, Manganese, pH	Bacteria (E. coli), Mercury, Habitat Assessments
Lower Grafton Brook	NHRIV600031001-06	0	Aluminum, Arsenic, Chromium, Copper, Iron, Lead, Manganese, Zinc	Mercury
Borthwick Ave Brook	NHRIV600031001-09	7	Chloride, DO Saturation, Iron, pH	Bacteria (E. coli), Mercury
Newfields Ditch	NHRIV600031001-10	0	Chloride, DO Saturation, pH	Bacteria (E. coli), Mercury
Berry's Brook	NHRIV600031002-01	11	DO Saturation, pH	Bacteria (E. coli), Mercury
Sagamore Creek	NHRIV600031001-03	47	Chloride	Bacteria (E. coli)

1.2 IDDE Program Goals, Framework, and Timeline

The goals of the IDDE program are to find and eliminate illicit discharges to municipal separate storm sewer system and to prevent illicit discharges from happening in the future. The program consists of the following major components as outlined in the MS4 Permit:

- Legal authority and regulatory mechanism to prohibit illicit discharges and enforce this prohibition
- Storm system mapping
- Inventory and ranking of outfalls
- Dry weather outfall screening
- Catchment investigations
- Identification/confirmation of illicit sources
- Illicit discharge removal
- Follow-up screening
- Employee training.

The IDDE investigation procedure framework is shown in **Figure 1-1.** The required timeline for implementing the IDDE program is shown in **Table 1-2**.

Figure 1-1. IDDE Investigation Procedure Framework

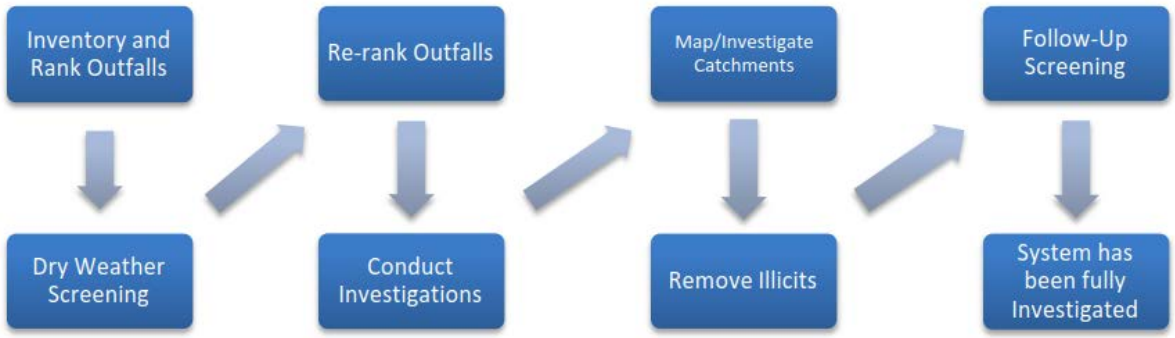

Table 1-2. IDDE Program Implementation Timeline

IDDE Program Requirement	Completion Date from Effective Date of Permit					
	1 Year	1.5 Years	2 Years	3 Years	7 Years	10 Years
Written IDDE Program Plan	X					
SSO Inventory	X					
Written Catchment Investigation Procedure		X				
Phase I Mapping			X			
Phase II Mapping						X
IDDE Regulatory Mechanism or By-law (if not already in place)				X		
Dry Weather Outfall Screening				X		
Follow-up Ranking of Outfalls and Interconnections				X		
Catchment Investigations – Problem Outfalls					X	
Catchment Investigations – all Problem, High and Low Priority Outfalls						X

1.3 Work Completed to Date

The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of storm system mapping, adopting a regulatory mechanism to prohibit illicit discharges and enforce this prohibition, and identifying tools and methods to investigate suspected illicit discharges. Each MS4 community was also required to define how confirmed discharges would be eliminated and how the removal would be documented.

Portsmouth has completed the following IDDE program activities consistent with the 2003 MS4 Permit requirements:

- Developed a map of outfalls and receiving waters
- Adopted a Stormwater Discharge Regulation Ordinance
- Developed procedures for locating illicit discharges (i.e., visual screening of outfalls for dry weather discharges, dye or smoke testing)
- Developed procedures for locating the source of the discharge
- Developed procedures for removal of the source of an illicit discharge
- Developed procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to removal

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The City of Portsmouth adopted Stormwater Discharge Regulations (Chapters 16, Article 2 of the City's Ordinances) as well as Stormwater Management Design Standards as part of Section 8.3 of the Site Plan Regulations. The Stormwater Discharge Regulation (Chapter 16; Article 2) provides the City with adequate legal authority to:

- Prohibit illicit discharges or discharges not allowed under Chapter 16 Stormwater Regulations (see Below)
- Investigate suspected illicit discharges
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system
- Implement appropriate enforcement procedures and actions.

The Portsmouth Stormwater Committee will review its current Stormwater Discharge Regulations and related Site Design Standards for consistency with the 2017 MS4 Permit.

According to Section 16.204; The following Discharges are allowed into the City Storm Drainage System: (these appear to align with the MS4 Permit allowed discharges in 1.2.1)

A. Storm Water as defined.

B. Landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)); uncontaminated pumped ground water; flows from uncontaminated springs; lawn watering runoff; flows from riparian habitats and wetlands;

C. Uncontaminated flows from foundation drains; air conditioning and compressor condensate; uncontaminated water from crawl space pumps; uncontaminated flows from footing drains;

D. Residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used);

E. Hydrant flushing and firefighting activity runoff; water line flushing and discharges from potable water sources;

F. Discharges specified in writing by the Enforcement Authority as being necessary to protect public health and safety;

G. Dye testing, with written notification to the Enforcement Authority prior to the time of the test;

H. Individual residential car washing;

2.2 Statement of Responsibilities

The Portsmouth Department of Public Works is the lead municipal agent responsible for implementing the IDDE program pursuant to the provisions of the City's Stormwater Regulations. Other departments with responsibility for aspects of the program include:

- **Department of Public Works (DPW)** – Most program elements except those noted below.
- **Planning Department** – Development Design Standards and IDDE Ordinance
- **City Engineer** – Code enforcement / Plan review

3 Stormwater System Mapping

Portsmouth originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A copy of the existing storm system map is provided in **the City's SWMP**. The 2017 MS4 Permit requires a more detailed storm system map than was required by the 2003 MS4 Permit. The revised mapping is intended to facilitate the identification of key infrastructure, factors influencing proper system operation, and the potential for illicit discharges.

The 2017 MS4 Permit requires the storm system map to be updated in two phases as outlined below. The Department of Public Works is responsible for updating the stormwater system mapping pursuant to the 2017 MS4 Permit. The City will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in **the SWMP.**

3.1 Phase I Mapping

The City has completed the Phase I mapping requirements consistent with the Permit, even though it is not required to be completed until two (2) years from the effective date of the permit (**July 1, 2020**). The Phase I mapping includes the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally owned stormwater treatment structures
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved New Hampshire Integrated List of Waters report
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations.

3.2 Phase II Mapping

Phase II mapping must be completed within ten (10) years of the effective date of the permit (by **July 1, 2027**) and include the following information:

- Outfall spatial location (latitude / longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations must be updated to reflect information collected during catchment investigations.
- Municipal Sanitary Sewer system (if available)
- Municipal combined sewer system (if applicable).

The City of Portsmouth has completed the following updates to its stormwater mapping to meet the Phase II requirements:

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved New Hampshire Integrated List of Waters report
- Initial catchment delineations. Any available system data and topographic information may be used to produce initial catchment delineations

Portsmouth will update its stormwater mapping by **July 1, 2027** to include the remaining Phase II information.

3.3 Additional Recommended Mapping Elements

Although not specifically required by the 2017 MS4 Permit, Portsmouth will include the following recommended elements in its storm system mapping by the completion of the Phase II mapping efforts:

- Storm sewer material, size (pipe diameter), age
- Sanitary sewer system material, size (pipe diameter), age
- Privately owned stormwater treatment structures
- Where a municipal sanitary sewer system exists, properties known or suspected to be served by a septic system, especially in high density urban areas
- Area where the permittee's MS4 has received or could receive flow from septic system discharges
- Seasonal high water table elevations impacting sanitary alignments
- Topography
- Orthophotography
- Alignments, dates and representation of work completed of past illicit discharge investigations
- Locations of suspected confirmed and corrected illicit discharges with dates and flow estimates.

4 Sanitary Sewer Overflows (SSOs)

The 2017 MS4 Permit requires municipalities to prohibit illicit discharges, including sanitary sewer overflows (SSOs), to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. SSOs can be caused by blockages, line breaks, sewer defects that allow stormwater and groundwater to overload the system, power failures, improper sewer design, and vandalism.

Portsmouth has completed an inventory of SSOs that have discharged to the MS4 within the five (5) years prior to the effective date of the 2017 MS4 Permit, based on review of available documentation pertaining to SSOs (**Table 4-1**). The inventory includes all SSOs that occurred during wet or dry weather resulting from inadequate conveyance capacities or where interconnectivity of the storm and sanitary sewer infrastructure allows for transfer of flow between systems.

Upon detection of a future SSO, Portsmouth will eliminate it as expeditiously as possible and take interim measures to minimize the discharge of pollutants to and from its MS4 until the SSO is eliminated. Upon becoming aware of an SSO to the MS4, the Portsmouth will provide oral notice to EPA within 24 hours and written notice to EPA and NHDES within five (5) days of becoming aware of the SSO occurrence.

The inventory in **Table 4-1** will be updated by the DPW when new SSOs are detected. The SSO inventory will be included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.

Table 4-1. SSO Inventory
Portsmouth, New Hampshire
Revision Date: March 2019

SSO Location[1]	Discharge Statement[2]	Time Start[3]	Time End[3]	Estimated Volume[4]	Description[5]	Mitigation Completed[6]	Mitigation Planned[7]
49 Spinnaker Way	Yes, the SSO entered a catch basin and discharged into surface water	12:30 pm, March 1, 2013	1:30 pm, March 1, 2013	100 Gallons	Roots and debris blocked a sewer main resulting in a surcharged manhole	The sewer main was cleaned and the blockage removed. Upon TV inspection no damage to the main was found. The MS4 was vacuumed and jetted clean.	Investigate ownership of the main and establish a maintenance schedule for the main.
Melcher Street End	No, the SSO infiltrated through the ground before it reached any surface water	2:30 pm, April 8, 2013	3:00 pm, April 8, 2013	100 Gallons	Flushable wipes had accumulated in the end of a sewer service resulting in a blockage and backup. The surcharged manhole was leaking around its sealed gasketed manhole cover.	A vac truck was used to clean the surcharged manhole and clear the blockage.	The service owner was contacted is taking action to stop flushing wipes.
630 Lafayette Road	No, the SSO was contained in the trench and either infiltrated through the ground or was removed by vac truck	9:30 am, May 1, 2013	3:00 pm, May 1, 2013		During excavation for a road reconstruction and bridge removal project the contractor struck and broke the 16" sewer force main and damaged the gravity main located under the force main.	Vac trucks were used to pump the sewage out of the trench, so the sewer mains could be repaired. The sewer mains were repaired, and use restored.	Greater care was taken during excavation to avoid breaking the sewer again.
973 Islington Street	Yes, the illicit connection was found in a drainage line that discharged to a natural drainage channel that has a final discharge in Hodgdon Brook	N/A	N/A		An illicit connection was discovered in a private residence that had been vacant for over one year. The illicit connection was discovered during redevelopment of the property. The City conducted a dye test to confirm, no evidence of sewer discharge was found at the time of dye test.	The City worked with the developer to establish a sewer connection to the sanitary sewer system.	The city has implemented IDDE studies to find and eliminate illicit discharges.
179 Union Street	No, the SSO either infiltrated into the ground or was captured by vac truck before it reached any MS4 or surface water	9:00 am, April 21, 2014	3:00 pm, April 21, 2014	10 Gallons	A sewer service had been previously damaged by Until (natural gas company) during construction	The City and Until worked to repair the damaged sewer service	Greater care was taken during excavation to avoid breaking the sewer again.
Exeter Street and Airline Avenue Intersection	No, the SSO discharged to a wooded area adjacent to the manhole and infiltrated through the ground.	12:00 pm, October 31, 2014	1:00 pm, October 31, 2014	100 Gallons	Sewage was seeping out of a sewer manhole at the described location. A blockage was discovered in the line.	The city removed the blockage and service was restored.	The section of main was put on a list of known "trouble spots" to be checked more frequently.
Brewster Street, Elwyn Road Cross Country, Thornton Street	Yes, the Brewster Street SSO discharged into North Mill Pond, the Elwyn Road SSO discharged to the Sagamore Creek, the Thornton Street SSO discharged to North Mill Pond	4:00 pm, 9:30 pm, and 8:30 pm respectively on December 9, 2014 respectively	7:30 pm on December 9, 2014, 7:00 am and 1:30 am on December 10, 2014 respectively	82,000 gallons (diluted) 30,000 gallons (diluted) 6,000 gallons (diluted) respectively	The combined storm and sanitary sewer system significantly surcharged due to intense rain, snow melt, and frozen ground conditions.		A project was implemented to separate the Brewster Street sewer and stormwater systems. Elwyn Road was investigated for cause of overflow. Root removal was conducted on Thornton Street.

100 Piscataqua Drive	Yes, the SSO discharged into the Piscataqua River	9:00 am, April 21, 2015	April 22, 2015		The last manhole in the Pease/Newington Waste Water Treatment Plant outfall was surcharged. Upon investigation a crack between the main and the manhole was found resulting in the treated effluent to come to the surface, run along the river embankment, and discharge into the Piscataqua River	The manhole was cleaned and the discharge ended.	A repair of the cracked manhole connection was scheduled and implemented.
Pierce Island Road Bridge	Yes, the SSO discharged into the Piscataqua River	January 27, 2016			A leak in a sewer force main was found during a bridge inspection on the Pierce Island Road Bridge	The City collected the discharge in a 55-gallon drum and continually pumped it out and disposed of the sewage in the sewer system	The City was actively working with a consultant and specialty lining firm to repair the force main from abutment to abutment
306 FW Hartford Drive	Yes, The SSO entered the MS4 and from there into the wet tributary area for Berry's Brook.	11:00 pm, March 19, 2016	9:30 am, March 20, 2016	500-800 Gallons	The Woodlands 1 Pump station PLC failed at 11:00 pm. No alarm was sent to the on-call wastewater operator. The upstream manhole surcharged onto the street and into a catch basin as a result.	The pump station was turned on and the discharge ended. The street, catch basin, and stormwater system were cleaned.	The City made changes to the pump station so pump operations will bypass the PLC and use float controls if this occurs again.
Pierce Island	Yes, the SSO discharged into Back Channel	2:00 pm, March 24, 2016	8:00 pm, March 24, 2016	500 Gallons	There was a break on the 24" cast iron force main headed towards the Pierce Island Waste Water Treatment Plant	The City located and repaired the broken sewer force main. The sewage that migrated to the surface was captured with vac trucks.	
Deer Street Pump Station	Yes, the SSO discharged directly to the Piscataqua River	6:40 pm, June 5, 2016	8:20 pm, June 5, 2016	52,000 Gallons	The Deer Street Pump Station PLC failed. No alarm was sent to the on-call wastewater operator. During the time the pumps were not operating flow backed up into the collection system and surcharged from CSO 013 (Deer Street) directly into the Piscataqua River.	The on-call wastewater operator did not receive an alarm when the PLC failed. An alarm was sent from CSO 013 and at that time the operator went to the Deer Street Pump Station and manually turned on the pumps.	The City made changes to the pump station so pump operations will bypass the PLC and use float controls if this occurs again.
100 Portsmouth Boulevard	No, the SSO discharged to the sides of the road and infiltrated through the ground.	9:50 am, June 20, 2016	6/20/2016 10:45	300 Gallons	City staff responded to a surcharging manhole. Upon investigation a significant grease buildup was found downstream.	City staff removed the grease blockage and restored flow to the sewer system.	City staff will investigate the hotel to review their grease trap maintenance records and the need for improvements to their grease removal equipment.
828 Elwyn Road	Yes, the SSO entered a catch basin that was connected to a culvert across the street.	9:30 am, June 24, 2016	June 27, 2018	20 gallons	City staff responded to a call due to sewage in the road. City staff found that the water was flowing from the septic tank at 828 Elwyn Road. The owner indicated that power was off to the home causing the pump type septic system to overflow.	The owner indicated that power would be restored to the home. The City swept the street and cleaned the catch basin.	
CSO at 10A (South Mill Pond)	Yes, the SSO entered the South Mill Pond	3:35 pm, June 29, 2016	3:50 pm, June 29, 2016	5,000 (diluted)	A short duration, high intensity rain event occurred resulting in an overflow event.	City staff changed to the high capacity pumps in the Mechanic Street Pump Station to better handle the elevated flow.	City staff is investigating more effective ways to track these types of events to prevent this from occurring in the future.
Pierce Island Road Bridge	Yes, the SSO discharged into the Piscataqua River	10:00 am, August 2, 2016	12:00 pm, August 2, 2016	350 Gallons	An air release valve on a sewer force main was found to be broken and discharging sewage.	City staff fabricated a wooded plug to stop the discharge.	The broken air release valve was removed and will be replaced.

Pierce Island WWTF	No, the SSO was contained in the excavation pit, dewatered, and treated.	January 6, 2017	January 6, 2017		The City's contractor hit the sewer force main during construction of the Pierce Island WWTF.	The excavation was contained, dewatered, and treated. The force main was repaired.	
Pierce Island WWTF, CSO at 10A (South Mill Pond)	Yes, the SSO discharged to the Piscataqua River and South Mill Pond	9:30 am, February 3, 2017	3:30 pm, February 3, 2017	40,000 gallons, and 2,000 gallons respectively	The City's contractor hit the sewer force main during construction of the Pierce Island WWTF. To remove water from the trench and repair the break, wastewater was pumped out of the trench and onto the grass. The pumps at the Mechanic Street pump Station were turned off to stop flow in the force main resulting in discharge from CSO 10A in South Mill Pond.	The broken force main was repaired.	The City is investigating the cause of the break and better management practices in the event of future breaks. The force main was dig safe marked out in its entirety and the contractor performed test pits to locate the main.
Goose Bay Drive	Yes, the SSO discharged over the road to the storm drain and into the drainage culvert. Most of the solids were contained in the silt bags in the basins.	7:00 am, April 24, 2017	9:00 am, April 24, 2017	100 gallons	A power outage at the Pease WWTF took out the PLC in the raw sewage pump control panel. The backup system activated but only allowed for one influent pump to operate. The second pump did not activate due to a fault in an electrical relay within the control panel. An increased flow rate was experienced by an industrial user resulting in a backup in the sewage collection system. A pasty precipitate was also found in the service from the industrial user possibly adding to the sewage backup and subsequent SSO	The operators were able to restore the PLC and second pump and pumped down the wet well level. This returned normal function to the collection system	The back processor in the PLC that failed was replaced. The UPS was properly wired to protect against a short power outage between utility power and backup power systems. Operators have been trained on manual operation of pumps when automatic controls fail. The city is working with the industrial user to find the source of the pasty precipitate.
1475 Lafayette Road	Yes, The SSO discharged into the MS4	10:00am, June 8, 2017	11:00 am, June 8, 2017	10 gallons	A blockage in a private sewer service caused a backup of wastewater flow into the store's grease trap and overflow out of the grease trap cover. A minimal amount of discharge was noted in the MS4 catch basin and no indication of discharge was found in the effluent pipe.	The City pumped out the grease trap and ended the discharge. The road, sidewalk, and catch basin were cleaned.	The owner will be responsible for maintenance of their sewer service and grease trap.
Sewer Manhole 1094 on Marne Ave	No, the SSO did not discharge to either the MS4 or open water source	7:30 pm, June 16, 2017	7:30 pm, June 16, 2017	none	There was a blockage that caused backup of waste water into a fixture in a resident's home. The blockage also caused a backup of a manhole and a discharge to the depression immediately around the manhole cover.	The City arrived and found the backup had already drained itself. The City cleaned the street around the manhole.	The City returned on Monday, June 19th and inspected the line. All debris were removed.
187 Edmond Ave	No, the SSO infiltrated through the ground before it reached any surface water	4:30 pm, March 4, 2018	7:30 pm, March 4, 2018	none	There was a break in a private sewer service connection to the low-pressure service main.	The City responded by cutting out and replacing the pipe with new pipe and couplings.	There are plans for the city to install new pipe on this street and take over operation and maintenance of the low-pressure sewer main.
531 Islington Street	No, the SSO did not discharge to either the MS4 or open water source	1:40 pm, March 28, 2018	4:00 pm, March 28, 2018	40 Gallons	A blockage in the sewer main caused by debris and grease resulted in a surcharged manhole.	The City cleaned the sewer system and cleared the blockage.	The City added the line to its frequent cleaning list. This section of sewer will be replaced by a new sewer line in Islington Street as part of a future roadway and utility improvement project.
15 Banfield Road	Yes, the SSO discharged to a catch basin on Peverly Hill Road which discharged to Sagamore Creek	2:15 pm, May 9, 2018	2:45 pm, May 9, 2018	10 Gallons	Debris and other materials clogged a private sewer service at an external drop in the sewer service at SMH 1645. The City investigated the service and found the external drop connection to be improperly constructed.	The sewer service was cleaned to remove debris and inspected.	The City notified the property owner the sewer service needed to be repaired to prevent this from occurring again.
100 Northwick Ave	Yes, the sewer flowed along the railroad tracks and a small amount infiltrated into the ground. Most was contained within the tracks.	3:10 pm, May 10, 2018	8:00 am May 11, 2018	1,500 - 2,000 Gallons	A sewer manhole surcharged due to a blockage of grease and rags downstream.	The City cleaned the sewer system and cleared the blockage. The City returned the next day to clean the surrounding area.	This section of main has been placed on a "trouble spots" list to be inspected more often.

Pierce Island Road Bridge	Yes, the SSO discharged to the Piscataqua River	June 27, 2018	June 27, 2018	1 Gallon	A drip was discovered from the top of the air relief valve on the Mechanic Street Pump Station force main headed to the Pierce Island WWTP	The city removed the air relief valve from service.	The air relief valve will undergo maintenance and be returned to service.
Maplewood Ave at McGee Drive	No, the SSO discharged to a catch basin that was connected to the combined sewer system and re-entered the sewer system.	7:00 pm, July 21, 2018	July 21, 2018	10 gallons	A resident notified the City of a plumbing backup. The City investigated and found a new utility pole had been installed through a portion of the sewer main.	Flow was restored in the main the evening of the 21st. On July 23, 2018 the sewer was excavated, and a temporary repair conducted.	The sewer will be fully replaced as part of the City's Maplewood Avenue Roadway Reconstruction project which is ongoing.
Brewster Street End	Yes, the SSO entered the MS4 and flowed to North Mill Pond	September 18, 2018	September 18, 2018		Sewage discharged from a manhole that was connected to a combined collection system. A significant rain event caused a hydraulic grade line backup in the sewer system.	After the rain event passed the City cleaned all visible debris and removed water from the catch basins.	The City is continuing its Long-Term Control Plan and Supplemental Compliance Plan to separate the sanitary and stormwater sewer systems. This will prevent significant rain events from having such an impact on the collection system.
802 Lafayette Road	Yes, the SSO entered a private catch basin that emptied into a salt marsh which empties into Sagamore Creek	5:20 pm, January 12, 2019	6:00 pm, January 12, 2019	25 Gallons	The restaurants grease trap encountered an overflow. The SSO overflowed into the parking lot and into a private catch basin.	A private company cleaned the grease trap, parking lot, and catch basin. The City of Portsmouth Health Inspector shut down the restaurant until the SSO had been addressed.	The City Health Inspector inspected and approved reopening the restaurant on January 13, 2019
802 Lafayette Road	No, the SSO did not discharge to either the MS4 or open water source	3:00 pm, March 19, 2019	4:00 pm, March 19, 2019	15 Gallons	A manhole surcharged due to grease and paper towel buildup in the sewer line.	The City responded by cleaning the sewer main and restoring normal flow to the pipes	The City of Portsmouth will work with the restaurant, who were previously required to install a grease trap, to receive routine maintenance records of their grease trap in an effort to prevent this event from happening again.

5 Assessment and Priority Ranking of Outfalls

As described below, the City has completed an assessment and priority ranking of its outfalls in terms of their potential to have illicit discharges and related public health significance consistent with the 2017 MS4 Permit. The ranking will be used to determine the priority order for performing IDDE investigations and meeting permit milestones.

5.1 Initial Outfall Catchment Delineations

A catchment is the area that drains to an individual outfall[1] or interconnection.[2] The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Catchments are typically delineated based on topographic contours and mapped drainage infrastructure, where available. As described in **Section 3**, initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations

5.2 Outfall and Interconnection Inventory and Initial Ranking

The DPW will complete an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking will be completed within one (1) year from the effective date of the permit. An updated inventory and ranking will be provided in each annual report thereafter. The inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections.

The outfall and interconnection inventory will identify each outfall and interconnection discharging from the MS4, record its location and condition, and provide a framework for tracking inspections, screenings and other IDDE program activities.

Outfalls and interconnections will be classified into one of the following categories:

1. **Problem Outfalls**: Outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem

[1] **Outfall** means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.

[2] **Interconnection** means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine (DL of 0.02 mg/L).

Dry weather screening and sampling, as described in **Section 6** of this IDDE Plan and Part 2.3.4.7.b of the MS4 Permit, is not required for Problem Outfalls.

2. **High Priority Outfalls**: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:

   - Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
   - Determined by the permittee as high priority based on the characteristics listed below or other available information.

3. **Low Priority Outfalls**: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

4. **Excluded outfalls**: Outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

Outfalls will be ranked into the above priority categories (except for excluded outfalls, which may be excluded from the IDDE program) based on the following characteristics of the defined initial catchment areas, where information is available. Additional relevant characteristics, including location-specific characteristics, may be considered but must be documented in this IDDE Plan.

- **Previous screening results** – previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
- **Past discharge complaints and reports.**
- **Poor receiving water quality** – the following guidelines are recommended to identify waters as having a high illicit discharge potential:
  - Exceeding water quality standards for bacteria
  - Ammonia levels above 0.5 mg/l
  - Surfactants levels greater than or equal to 0.25 mg/l

- **Density of generating sites** – Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- **Age of development and infrastructure** – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- **Sewer conversion** – Contributing catchment areas that were once serviced by septic systems but have been converted to sewer connections may have a high illicit discharge potential.
- **Historic combined sewer systems** – Contributing areas that were once serviced by a combined sewer system but have been separated may have a high illicit discharge potential.
- **Surrounding density of aging septic systems** – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- **Culverted streams** – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- **Water quality limited waterbodies** that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

An initial outfall inventory and priority ranking summary based on the parameters can be found in **Table 5-1** below.

Table 5-1. Outfall Inventory and Priority Ranking Summary
Revision Date: May 2019

Outfall Priority	# of Outfalls
Problem	0
High Priority	156
Low Priority	49
Excluded	0
Total Outfalls	**205**

6 Dry Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and excluded Outfalls) to be inspected for the presence of dry weather flow. The DPW is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section.

6.1 Weather Conditions

Dry weather outfall screening and sampling may occur when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring. For purposes of determining dry weather conditions, DPW staff will use precipitation data available online at Weather Underground (wunderground.com) for three personal weather stations within or closest to Portsmouth. If any of the three stations document more than 0.1 inches of rainfall in the previous 24-hour period, DPW staff will not count that as a dry weather period.

For purposes of determining dry weather conditions, program staff will use precipitation data from NOAA Station KNHPORTS22 (Portsmouth 22) on Columbia Street in Portsmouth, NH . If Portsmouth 22 Station is not available or not reporting current weather data, then NOAA Station KNHPORTS16 (Portsmouth 16) on Middle Street will be used as a back-up. (KNHPORTS10 station as third backup)

6.2 Dry Weather Screening/Sampling Procedure

6.2.1 General Procedure

The dry weather outfall inspection and sampling procedure consists of the following general steps:

1. Identify outfall(s) to be screened/sampled based on initial outfall inventory and priority ranking
2. Acquire the necessary staff, mapping, and field equipment (see **Table 6-1** for list of potential field equipment)
3. Conduct the outfall inspection during dry weather:
    a. Mark and photograph the outfall
    b. Record the inspection information and outfall characteristics (using paper forms or digital form using a tablet or similar device)
    c. Look for and record visual/olfactory evidence of pollutants in flowing outfalls including odor, color, turbidity, and floatable matter (suds, bubbles, excrement, toilet paper or sanitary products). Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures.

4. **If flow is observed, sample and test the flow following the procedures described in the following sections.**
5. If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends and using optical brighteners.
6. Input results from screening and sampling into spreadsheet/database. Include pertinent information in the outfall/interconnection inventory and priority ranking.
7. Include all screening data in the annual report.

Previous outfall screening/sampling conducted under the 2003 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2017 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2017 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2017 permit.

6.2.2 Field Equipment

Table 6-1 lists field equipment commonly used for dry weather outfall screening and sampling.

Table 6-1. Field Equipment – Dry Weather Outfall Screening and Sampling

Equipment	Use/Notes
Clipboard	For organization of field sheets and writing surface
Field Sheets	Field sheets for both dry weather inspection and Dry weather sampling should be available with extras
Chain of Custody Forms	To ensure proper handling of all samples
Pens/Pencils/Permanent Markers	For proper labeling
Nitrile Gloves	To protect the sampler as well as the sample from contamination
Flashlight/headlamp w/batteries	For looking in outfalls or manholes, helpful in early mornings as well
Cooler with Ice	For transporting samples to the laboratory
Digital Camera	For documenting field conditions at time of inspection
Personal Protective Equipment (PPE)	Reflective vest, Safety glasses and boots at a minimum
GPS Receiver	For taking spatial location data
Water Quality Sonde	If needed, for sampling conductivity, temperature, pH
Water Quality Meter	Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits	Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day
Label Tape	For labeling sample containers

Equipment	Use/Notes
Sample Containers	Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers).
Pry Bar or Pick	For opening catch basins and manholes when necessary
Sandbags	For damming low flows in order to take samples
Small Mallet or Hammer	Helping to free stuck manhole and catch basin covers
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow
Safety Cones	Safety
Hand Sanitizer	Disinfectant/decontaminant
Zip Ties/Duct Tape	For making field repairs
Rubber Boots/Waders	For accessing shallow streams/areas
Sampling Pole/Dipper/Sampling Cage	For accessing hard to reach outfalls and manholes

6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters[3] listed in **Table 6-3**. The general procedure for collection of outfall samples is as follows:

1. Fill out all sample information on sample bottles and field sheets
2. Put on protective gloves (nitrile/latex/other) before sampling
3. Collect sample with dipper or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
4. If using a dipper or other device, triple rinse the device with distilled water and then in water to be sampled (not for bacteria sampling)
5. Use test strips, test kits, and field meters (rinse similar to dipper) for most parameters (see **Table 6-3**)
6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern
7. Fill out chain-of-custody form for laboratory samples
8. Deliver samples to designated testing laboratory for other Parameter that require Lab Analysis
9. Dispose of used test strips and test kit ampules properly
10. Decontaminate all testing personnel and equipment

In the event that an outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to

[3] Other potentially useful parameters, although not required by the MS4 Permit, include **fluoride** (indicator of potable water sources in areas where water supplies are fluoridated), **potassium** (high levels may indicate the presence of sanitary wastewater), and **optical brighteners** (indicative of laundry detergents).

the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

Field test kits or field instrumentation are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges. **Table 6-2** lists various field test kits and field instruments that can be used for outfall sampling associated with the 2017 MS4 Permit parameters, other than indicator bacteria and any pollutants of concern. Analytic procedures and user's manuals for field test kits and field instrumentation can be found at the manufacturer's website.

Table 6-2. Sampling Parameters and Analysis Methods

Analyte or Parameter	Instrumentation (Portable Meter)	Field Test Kit
Ammonia	CHEMetrics™ V-2000 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 Hach™ Ammonia Test Strips
Surfactants (Detergents)	CHEMetrics™ I-2017	CHEMetrics™ K-9400 Hach™ DE-2
Chlorine	CHEMetrics™ V-2000 Hach™ Pocket Colorimeter™ II	SenSafe™ Total Chlorine Test Strips
Conductivity	YSI Pro30 EXTECH ExStik®II	NA
Temperature	YSI Pro30 EXTECH ExStik®II	NA
Salinity	YSI Pro30 EXTECH ExStik®II	NA
Temperature	YSI Pro30 EXTECH ExStik®II	NA
Indicator Bacteria: E. coli (freshwater) or Enterococcus (saline water)	EPA certified laboratory procedure (40 CFR § 136)	NA
Pollutants of Concern[1]	EPA certified laboratory procedure (40 CFR § 136)	NA

[1] Where the discharge is directly into a water quality limited water or a water subject to an approved TMDL, the sample must be analyzed for the pollutant(s) of concern identified as the cause of the water quality impairment.

Testing for indicator bacteria and any pollutants of concern must be conducted using analytical methods and procedures found in 40 CFR § 136.[4] Samples for laboratory analysis

[4] 40 CFR § 136: *ecfr.gov/cgi-bin/text-idx?SID=b3b41fdea0b7b0b8cd6c4304d86271b7&mc=true&node=pt40.25.136&rgn=div5*

must also be stored and preserved in accordance with procedures found in 40 CFR § 136. **Table 6-3** lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.

Table 6-3. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives[4]

Analyte or Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative
Ammonia	**EPA**: 350.2, **SM**: 4500-NH3C	0.05 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2, No preservative required if analyzed immediately
Surfactants	**SM**: 5540-C	0.01 mg/L	48 hours	Cool ≤6°C
Chlorine	**SM**: 4500-Cl G	0.02 mg/L	Analyze within 15 minutes	None Required
Temperature	**SM**: 2550B	*NA*	Immediate	None Required
Specific Conductance	**EPA**: 120.1, **SM**: 2510B	0.2 µs/cm	28 days	Cool ≤6°C
Salinity	**SM**: 2520	-	28 days	Cool ≤6°C
Indicator Bacteria: *E.coli* *Enterococcus*	*E.coli* **EPA**: 1603 **SM**: 9221B, 9221F , 9223 B **Other**: Colilert ®, Colilert-18® *Enterococcus* **EPA**: 1600 **SM**: 9230 C **Other**: Enterolert®	*E.coli* **EPA**: 1 cfu/100mL **SM**: 2 MPN/100mL **Other**: 1 MPN/100mL *Enterococcus* **EPA**: 1 cfu/100mL **SM**: 1 MPN/100mL **Other**: 1 MPN/100mL	8 hours	Cool ≤10°C, 0.0008% $Na_2S_2O_3$
Total Phosphorus	**EPA**: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4 **SM**: 4500-P E-F	**EPA**: 0.01 mg/L **SM** : 0.01 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2
Total Nitrogen (Ammonia + Nitrate/Nitrite, n to be combined with Ammonia listed above.)	**EPA**: Cadmium reduction (automated)-353.2 Rev. 2.0, **SM**: 4500-NO_3 E-F	**EPA**: 0.05 mg/L **SM** : 0.05 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2

SM = Standard Methods

6.3 Interpreting Outfall Sampling Results

Outfall analytical data from dry weather sampling can be used to help identify the major type or source of discharge. **Table 6-4** shows values identified by the U.S. EPA and the Center for Watershed Protection as typical screening values for select parameters. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. **Reported values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.**

Table 6-4. Benchmark Field Measurements for Select Parameters

Analyte or Parameter	Benchmark
Ammonia	>0.5 mg/L
Conductivity	>2,000 µS/cm
Surfactants	>0.25 mg/L
Chlorine	>0.02 mg/L (detectable levels per the 2017 MS4 Permit)
Indicator Bacteria[5]: *E.coli* *Enterococcus*[6]	*E.coli*: the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml *Enterococcus:* the geometric mean of the three most recent samples taken during a 60-day period shall not exceed 35 colonies per 100 ml and no single sample taken during the bathing season shall exceed 104 colonies per 100 ml

6.4 Follow-up Ranking of Outfalls and Interconnections

Based on information gathered during dry weather screening, outfalls will be reevaluated and re-prioritized as either High or Low priority before initiating more detailed catchment investigations. Outfalls and/or interconnections where indicators of sanitary sewer or other illicit discharges were detected or suspected (i.e., possible evidence observed but inconclusive) will be considered or remain as High Priority outfalls.

The rankings will be updated periodically as dry weather screening information becomes available but will be completed within three (3) years of the effective date of the permit (by July 1, 2021).

[5] EPA Illicit Discharge Detection and Elimination: A Guidance Manual: epa.gov/npdes/pubs/idde_chapter-12.pdf
[6] NHDES Water Division: des.nh.gov/organization/divisions/water/wmb/beaches/faq_advisories.htm

7 Catchment Investigations

Consistent with Section 2.3.4.8 of the MS4 permit, following completion of the dry weather screening of the high and low priority outfalls, the City will initiate catchment area investigations. Outfalls/catchment areas will then be reevaluated and reprioritized based on the dry weather screening results and the additional screening data discussed below.

Once stormwater outfalls with evidence of illicit discharges have been identified, various methods can be used to trace the source of the potential discharge within the outfall catchment area. Catchment investigation techniques include but are not limited to review of maps, historic plans, and records; manhole observation; dry and wet weather sampling; video inspection; smoke testing; and dye testing. This section outlines a systematic procedure to investigate outfall catchments to trace the source of potential illicit discharges. All data collected as part of the catchment investigations will be recorded and reported in each annual report.

7.1 System Vulnerability Factors

The DPW will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

- Plans related to the construction of the drainage network
- Plans related to the construction of the sewer drainage network
- Prior work on storm drains or sewer lines
- Board of Health or other municipal data on septic systems
- Complaint records related to SSOs
- Septic system breakouts.

Based on the review of this information, the presence of any of the following **System Vulnerability Factors (SVFs)** will be identified for each catchment:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- Common or twin-invert manholes serving storm and sanitary sewer alignments
- Common trench construction serving both storm and sanitary sewer alignments
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- Areas formerly served by combined sewer systems

- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- Any sanitary sewer and storm drain infrastructure greater than 40 years old
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

A SVF inventory may be documented for each catchment (see **Table 7-1**), retained as part of this IDDE Plan, and included in the annual report.

Table 7-1. Outfall Catchment System Vulnerability Factor (SVF) Inventory
Portsmouth, New Hampshire
Revision Date:

Outfall ID	Receiving Water	1 History of SSOs	2 Common or Twin Invert Manholes	3 Common Trench Construction	4 Storm/Sanitary Crossings (Sanitary Above)	5 Sanitary Lines with Underdrains	6 Inadequate Sanitary Level of Service	7 Areas Formerly Served by Combined Sewers	8 Sanitary Infrastructure Defects	9 SSO Potential In Event of System Failures	10 Sanitary and Storm Drain Infrastructure >40 years Old	11 Septic with Poor Soils or Water Table Separation	12 History of BOH Actions Addressing Septic Failure
Sample 1	XYZ River	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Presence/Absence Evaluation Criteria:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
2. Common or twin-invert manholes serving storm and sanitary sewer alignments
3. Common trench construction serving both storm and sanitary sewer alignments
4. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
7. Areas formerly served by combined sewer systems
8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations
9. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old
11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)
12. History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)

7.2 Dry Weather Manhole Inspections

Portsmouth will implement a dry weather storm drain network investigation that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges or SSOs.

The DPW will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation, where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- **Junction Manhole** is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.
- **Key Junction Manholes** are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

For all catchments identified for investigation, during dry weather, field crews will systematically inspect **key junction manholes** for evidence of illicit discharges. This program involves progressive inspection and sampling at manholes in the storm drain network to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way, or
- By working progressively down from the upper parts of the catchment toward the outfall.

For most catchments, manhole inspections will proceed from the outfall moving up into the system. However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an

illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system, but may be more efficient if the sources of illicit discharges are believed to be in the upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

1. Manholes will be opened and inspected for visual and olfactory evidence of illicit connections.
2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. Field kits can be used for these analyses. Sampling and analysis will be in accordance with procedures outlined in **Section 6**. Additional indicator sampling may assist in determining potential sources (e.g., bacteria for sanitary flows, conductivity to detect tidal backwater, etc.).
3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources.
4. Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges or SSOs can be isolated to a pipe segment between two manholes.
5. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

7.3 Wet Weather Outfall Sampling

Where a minimum of one (1) System Vulnerability Factor (SVF) is identified based on previous information or the catchment investigation, a wet weather investigation must also be conducted at the associated outfall. The DPW will be responsible for implementing the wet weather outfall sampling program and making updates as necessary.

Outfalls will be inspected and sampled under wet weather conditions, to the extent necessary, to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.

Wet weather outfall sampling will proceed as follows:

1. At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening.
2. Wet weather sampling will occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities

that are likely to trigger sanitary sewer interconnections are preferred. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

3. If wet weather outfall sampling indicates a potential illicit discharge, then additional wet weather source sampling will be performed, as warranted, or source isolation and confirmation procedures will be followed as described in **Section 7.4**.
4. If wet weather outfall sampling does not identify evidence of illicit discharges, and no evidence of an illicit discharge is found during dry weather manhole inspections, catchment investigations will be considered complete.

7.4 Source Isolation and Confirmation

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges

- Sandbagging
- Smoke Testing
- Dye Testing
- CCTV/Video Inspections
- Optical Brightener Monitoring
- IDDE Canines

These methods are described in the sections below.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the DPW will notify property owners in the affected area. Smoke testing notification for single family homes, businesses and building lobbies for multi-family dwellings will include Robocalls, email, door hangers, and/or in-person methods.

7.4.1 Sandbagging

This technique can be particularly useful when attempting to isolate intermittent illicit discharges or those with very little perceptible flow. The technique involves placing sandbags or similar barriers (e.g., caulking, weirs/plates, or other temporary barriers) within outlets to manholes to form a temporary dam that collects any intermittent flows that may occur. Sandbags are typically left in place for 48 hours and should only be installed when dry weather is forecast. If flow has collected behind the sandbags/barriers after 48 hours, it can be assessed using visual observations or by sampling. If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge. Finding appropriate durations of dry weather and the need for multiple trips to each manhole makes this method both time-consuming and somewhat limiting.

7.4.2 Smoke Testing

Smoke testing involves injecting non-toxic smoke into drain lines and noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the system itself. Typically, a smoke bomb or smoke generator is used to inject the smoke into the system at a catch basin or manhole and air is then forced through the system. Test personnel are place in areas where there are suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm drain infrastructure). It is important when using this technique to make proper notifications to area residents and business owners as well as local police and fire departments.

If the initial test of the storm drain system is unsuccessful then a more thorough smoke-test of the sanitary sewer lines can also be performed. Unlike storm drain smoke tests, buildings that do not emit smoke during sanitary sewer smoke tests may have problem connections and may also have sewer gas venting inside, which is hazardous.

It should be noted that smoke may cause minor irritation of respiratory passages. Residents with respiratory conditions may need to be monitored or evacuated from the area of testing altogether to ensure safety during testing.

7.4.3 Dye Testing

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks and observing nearby storm drains and sewer manholes as well as stormwater outfalls for the presence of the dye. Similar to smoke testing, it is important to inform local residents and business owners. Police, fire, and local public health staff should also be notified prior to testing in preparation of responding to citizen phone calls concerning the dye and their presence in local surface waters.

A team of two or more people is needed to perform dye testing (ideally, all with two-way radios). One person is inside the building, while the others are stationed at the appropriate storm sewer and sanitary sewer manholes (which should be opened) and/or outfalls. The person inside the building adds dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The person inside the building then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer and sanitary sewer, recording the presence or absence of the dye.

The test can be relatively quick (about 30 minutes per test), effective (results are usually definitive), and inexpensive. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

7.4.4 CCTV/Video Inspection

Another method of source isolation involves the use of mobile video cameras that are guided remotely through stormwater drain lines to observe possible illicit discharges. IDDE program staff can review the videos and note any visible illicit discharges. While this tool is both effective and usually definitive, it can be costly and time consuming when compared to other source isolation techniques.

7.4.5 Optical Brightener Monitoring

Optical brighteners are fluorescent dyes that are used in detergents and paper products to enhance their appearance. The presence of optical brighteners in surface waters or dry weather discharges suggests there is a possible illicit discharge or insufficient removal through adsorption in nearby septic systems or wastewater treatment. Optical brightener monitoring can be done in two ways. The most common, and least expensive, methodology involves placing a cotton pad in a wire cage and securing it in a pipe, manhole, catch basin, or inlet to capture intermittent dry weather flows. The pad is retrieved at a later date and placed under UV light to determine the presence/absence of brighteners during the monitoring period. A second methodology uses handheld fluorometers to detect optical brighteners in water sample collected from outfalls or ambient surface waters. Use of a fluorometer, while more quantitative, is typically more costly and is not as effective at isolating intermittent discharges as other source isolation techniques.

8 Illicit Discharge Removal

When the specific source of an illicit discharge is identified, Portsmouth will exercise its authority as necessary to require its removal. The annual report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- The location of the discharge and its source(s)
- A description of the discharge
- The method of discovery
- Date of discovery
- Date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal
- Estimate of the volume of flow removed.

8.1 Confirmatory Outfall Screening

Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening will be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation.

9 Ongoing Screening

Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be re-prioritized for screening and scheduled for ongoing screening once every five (5) years. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in **Section 6** of this plan. Ongoing wet weather screening and sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors and will be conducted in accordance with the procedures described in **Section 7.3**. All sampling results will be reported in the annual report.

10 Training

Annual IDDE training will be made available to all employees involved in the IDDE program. This training will at a minimum include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. Training records will be maintained in **Appendix I** of the City's SWMP. The frequency and type of training will be included in the annual report.

11 Progress Reporting

The progress and success of the IDDE program will be evaluated on an annual basis. The evaluation will be documented in the annual report and will include the following indicators of program progress:

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- Number of enforcement notices issued
- All dry weather and wet weather screening and sampling results
- Estimate of the volume of sewage removed, as applicable
- Number of employees trained annually.

The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines.

Appendix E

IDDE Inspection Results and Data

Appendix F

Draft Operations and Maintenance (O&M) Plan

DRAFT Operations and Maintenance (O & M) Plan

The City of Portsmouth

680 Peverly Hill Road, Portsmouth, New Hampshire 03801

EPA NPDES Permit Number *NHR041027*

DRAFT Operations & Maintenance Plan

MCM 6: Goal

Consistent with Part 2.3.7 of the 2017 MS4 Permit, the overall goal is to develop a City-wide operations and maintenance program that emphasizes source control and minimizes the amount of pollutants being exposed and transported by stormwater runoff into nearby water bodies from the City roadways, facilities and maintenance activities, as well as to maintain the functional integrity of the stormwater infrastructure system.

Compliance with Regulatory Requirements

Consistent with Part 2.3.7 of the Permit, the City has developed this Draft Operations and Maintenance (O&M) Plan to provide specific protocols and instructions for City personnel in performing good housekeeping and pollution prevention measures at its facilities. This Draft O&M Plan will be completed by July 2020 or 2 years from the effective Permit date.

The Permit identifies four (4) principal type of permittee-owned facilities or activities that must be addressed in the O&M Plan:

- Buildings and Facilities
- Vehicle/Equipment Storage and Maintenance Facilities
- Parks and Open Spaces
- Stormwater Infrastructure (e.g., catch basins, outfalls and treatment BMPs)

The City will also develop and/or update a Stormwater Pollution Prevention Plans (SWPPPs) by July 2020 for its DPW facility and its wastewater facilities to describe specific good housekeeping and pollution prevention measures for these facilities to minimize the potential for pollutants to be exposed and conveyed by stormwater to receiving waters. These SWPPPs will be updated if any future changes are made to the facility pollution prevention practices or conditions.

The City-wide O&M plan will describe best practices currently used or planned for future implementation to enhance the operations and maintenance of City facilities consistent with permit requirements. The O&M Plan will include an employee training component and a process to review and assess operations and report on progress in each future annual report.

BMP 6-1: Parks and Open Space

The City has established procedures to minimize the use of pesticides, herbicides, and fertilizers (PHF) on managed turf and other managed areas to the extent practicable as well as to properly store and dispose of these products. The MS4 Permit requests that

the use of integrated pest management (IPM) practices be evaluated to determine if the use of PHF 'can be reduced for turf maintenance and landscaping activities. Also, determine if lawn clippings and other vegetation waste can be recycled and/or composted and that native and drought resistant landscaping materials are used to promote more protective practices for water quality and water use.

The MS4 Permit also requires procedures be in place to ensure that trash containers and sanitary facilities at recreational parks are inspected and emptied frequently enough depending on usage to prevent overflows. Also, if applicable, place signage and containers to promote disposal of pet wastes and establish procedures to limit waterfowl congregation in areas and prevent waterfowl droppings from entering the MS4 storm system. In addition, procedures should be established to address erosion or poor vegetative cover when the permittee becomes aware of it; especially if the erosion is within 50 feet of a surface water. **Table 6.1** lists the various City parks, recreational ball fields and open space areas.

Table 6.1: Inventory of City Parks, Ball Fields and Open Space Areas

Parks / Ball Fields / Open Space	Managed Turf	Sanitary Services	Dog Waste Station
Maple Haven Park	No	No	No
Pannaway Park	No	No	No
Portsmouth Plains Field	No	Restrooms[1]	No
Portsmouth Plains Playground	Yes	Restrooms[1]	No
Lafayette Playground	No	Seasonal Port-a-Let	No
Clough Field	No	Seasonal Port-a-Let	No
Langdon Park	No	No	No
Leary Field / Central Little League	Yes	Yes	No
Alumni Field	Yes	Yes	No
South Mill Pond Playground	No	Seasonal Port-a-Let	No
South Street Playground	No	No	No
Peirce Island Playground	No	Seasonal Port-a-Let	No
Haven Park	No	No	No
Aldrich Park	No	No	No
Daniel Street Pocket Park	No	No	No
Rock Street Playground	No	No	No
Goodwin Park	No	No	No
Cater Park	No	No	No
Pine Street Playground	No	No	No
Hislop Field	Yes	Restrooms	No
Atlantic Heights Playground	No	Restrooms[1]	No
Bug Rock Park	No	No	No
Hanscom Park	No	No	No
Prescott Park	Yes	Seasonal Port-a-Let	No
Four Tree Island Park	No	Seasonal Port-a-Let	No
Pease Ball Field	Yes	Seasonal Port-a-Let	No
Route 33 Dog Park	No	No	Yes
South Mill Pond Dog Park	N/A	Seasonal Port-a-Let	Yes

1 Restrooms are only open during games or events.

Pesticides, Herbicides, and Fertilizers

The City uses a limited amount of fertilizer and other lawn maintenance chemicals on an as needed basis on the recreational ball fields.

Nitrogen Impairment Requirements

Since the City is within the Great Bay Watershed and the EPA considers the Great Bay Estuary and its tributaries to be impaired for nitrogen, Part 1 of Appendix H of the Permit requires the City to adopt the following protocols with respect to fertilizer use and managing grass clippings:

1. Use slow release fertilizers on City and School maintained property
2. Properly manage grass clippings and leaf litter to limit and minimize accumulation on paved surfaces, storm drain systems and adjacent water bodies or wetlands.

Trash Container Management

The City empties the trash containers at the various parks approximately three times a week during the non-winter months and less frequently during winter months. The City also places signage in areas concerning the proper disposal of pet wastes. Trash disposal containers are managed by the City's Buildings and Grounds Department.

Pet Waste

The City has established pet waste disposal stations in several park locations that are popular locations for dog walking. **Table 6.2** presents an inventory of pet waste disposal stations and dog waste sign locations.

Table 6.2: Inventory of Pet Waste Stations

Location	# Bag Stations	Bag Dispenser	# Trash Cans	# Dog Waste Signs	Notes
South Mill Pond Along Shore	0	No	2	0	
South Mill Pond Dog Park	1	No	4	4	Small dog park -uses mailbox. Trash cans are outside the fence.
Haven Park	0	No	1	0	
Goodwin Park	2	Yes	2	1	
Langdon Park	0	No	0	6	
Ward Park	0	No	1	1	
Islington Trails	1	Yes	1	2	Trash cans near the entrance to the trails at the park and ride
Islington Area	1	Yes	1	3	

Waterfowl Congregation

In areas where waterfowl congregate due to waste storage or handling or as result of resident feeding in City parks, the City will continue to use deterrents to discourage

waterfowl or seagull feeding including use of predator (decoys) or planting shrubs or tall grasses along waterbodies to discourage geese from feeding on open grass areas.

BMP 6-2: Building and Facilities

Consistent with Section 2.3.7.1(b) of the MS4 Permit, the following provides an inventory of City-owned buildings and facilities that may use, store and/or dispose of petroleum products or other chemicals be evaluated to determine that practices are in place to minimize exposure of these products/chemicals to stormwater. Buildings and facilities include town offices, fire and police stations, schools, library, municipal pools and parking garages. **Table 6.3** provides a listing of City Buildings and Facilities, an inventory of materials at school facilities is still being developed by the City.

Table 6.3: City Owned Building and Facility Inventory

Facility Name	Outdoor Fuel or Chemical Storage	Vehicle Maint. / Washing	Outdoor Bulk Materials	Managed Turf / Dogs Stations
City Hall	N/A	N/A	N/A	N/A
Police Department	N/A	N/A	N/A	N/A
Fire Station 1	N/A	Wash Bay in Garage	N/A	N/A
Fire Station 2	N/A	Wash Bay in Garage	N/A	N/A
Public Works Facility	Brine, Fuel (UST)	Wash Bay in Garage	Salt Shed	N/A
Transfer Station	Used Oil	N/A	Yard Waste	N/A
Library	N/A	N/A	N/A	N/A
Old Library	N/A	N/A	N/A	N/A
South Meeting House	N/A	N/A	N/A	N/A
High/Hanover Parking Facility	Diesel, Road Salt	N/A	N/A	N/A
Foundry Place Garage	N/A	N/A	N/A	N/A
Cemeteries	N/A	N/A	N/A	N/A
School Facilities				
Portsmouth High School				
Portsmouth Middle School				
Little Harbour School				
New Franklin School				
Dondero School				
Recreational Facilities				
Greenleaf Recreation Center	N/A	N/A	N/A	N/A
Spinnaker Point Recreation Center	N/A	N/A	N/A	N/A
Indoor Swimming Pool at HS	N/A	N/A	N/A	N/A

Peirce Island Outdoor Pool	Chlorine (55 Gal Drums, Acid	N/A	As Listed	N/A

BMP 6-3: Vehicles and Equipment

Vehicles Fueling Areas

The City has vehicle fueling stations at the DPW Facility and at the Pierce Island WWTF. Both stations have spill response kits to contain and respond to an inadvertent spill and prevent the discharge of petroleum-based products to surface waters. Both facilities also have Spill Prevention Control and Countermeasure (SPCC) Plans that outline spill response and good housekeeping/ pollution prevention measures at the fueling stations. Both SPCC Plans are currently being revised to maintain compliance with EPA regulations.

Vehicle Maintenance

Vehicle Maintenance is done indoors within the DPW Facility

Vehicle Washing

Consistent with the Permit, vehicle washing is done in a manner to minimize and avoid direct discharge pollutants to the MS4 system.

- Washing of DPW vehicles is typically done indoors in the Wash Bay that is connected to an oil/water separator and then the sanitary sewer system
- Police vehicles are either washed at commercial facilities or at the DPW facility which has floor drains that are connected to municipal sewer.
- The Fire Department either washes its vehicles indoors that also has floor drains connected to the sanitary sewer or occasionally washes vehicles outdoors.

Stormwater Infrastructure Operations and Maintenance

BMP 6-4: Street/Parking Lot Sweeping

The City currently sweeps streets that have curbing and/or catch basins generally twice per year from May to October. The Downtown area streets are generally swept more often. During the 2017 fiscal year, approximately 328 tons of street sweepings were collected and disposed of. The City also utilizes a sidewalk sweeper to help reduce debris entering the stormwater system. For each future annual report, the City will continue to report the number of miles cleaned and the volume or mass of material removed.

General Permit Requirement

Section 2.3.7.1.d.iii. of the MS4 Permit requires all City owned roads and parking lots with curbs and/or catch basins be swept at least once per year in early spring following winter deicing applications.

The Permit also requires close tracking and annual reporting of which streets are swept and the amount of sediment material recovered.

Nitrogen Impairment-Appendix H Requirements

Since the City falls within the Great Bay watershed, which the EPA considers impaired for nitrogen (based on the 2012 303(d) list), the City also needs to comply with Part 1 of Appendix H, which requires that City-owned streets and parking lots be **swept a minimum of twice per year** (once in the spring (following winter deicing activity) and at least once in the fall (following leaf fall). Roadways and parking lots that are closest and drain directly to tidal waters should be considered the highest priority.

***Alternative*:** In lieu of post-leaf drop street sweeping in the fall, the City can implement a fall leaf litter collection program to effectively minimize the leaf litter on impervious surfaces and in stormwater drainage structures.

Reporting Requirements:

The number of miles swept, and the volume or mass of material removed shall be reported in each annual report.

Responsible Department/Parties:

Utilities Maintenance Supervisor

BMP 6-5: Catch Basin Cleaning

The City maintains approximately 3,700 catch basins and drainage manholes. In 2017, approximately 380 catch basins were cleaned and documented using VUE Works. Catch basins are currently ranked and cleaned based on field observations and condition of the surrounding system. The City's highest priority is cleaning catch basins in the areas of North Mill Pond, Hodgson Brook, and their respective watersheds.

Catch basin cleaning is typically done for one of three (3) reasons, Emergency, Routine Maintenance, and New Construction. The purpose of the cleaning will be documented by City personnel followed by the following standard operating procedures (SOPs).

- Each catch basin will be inspected for structural damage, noxious materials, sewage, or heavy flow. If any of these conditions are present, contact the Utilities Management Supervisor for further cleaning procedures.
- Cleaning is done using vacuum equipment while limiting the use of excessive wash-down waters to remove debris. Cleaning generally begins at the upstream end and working downstream of a closed drainage system.
- Complete the Catch basin cleaning/ inspection log.
- All personnel engaged in catch basin cleanings should be familiar with the City's SOPs related to confined space entry procedures.

General Permit Requirement

The MS4 permit requires that the City establish a cleaning schedule with goal that ensures that catch basins are cleaned frequently enough that no catch basin will be more than 50% full at any time. The permittee shall keep of a log of catch basins cleaned and ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving waters. The Permit also requires that a schedule be developed to prioritize areas that are either under construction, are known to receive heavy sediment loads or a suspected to contribute a higher nutrient load due to managed turf practices and/or improper pet waste disposal.

Reporting Requirements

For each Annual Report, the City will need to report on how many catch basins were cleaned and inspected, the total mass of material removed from all catch basins and whether any changes are planned to catch basin cleaning schedule to help ensure no sump is more than 50% full at any given time. The Permit also requires the City to document in the SWMP and in the first Annual Report its plan for optimizing catch basin cleaning, inspection plans, or its schedule for gathering information to develop the optimization plan.

Responsible Department/Parties:

Utilities Maintenance Supervisor

BMP 6-6: Stormwater Treatment BMP Inspection and Maintenance

Frequency of Inspections

The City has several stormwater BMPs that treat stormwater runoff from roadways and/or parking lots that fall under its responsibility to inspect and maintain on a routine basis.

Table 6.4 provides a listing of the stormwater BMPs maintained by the City DPW.

Table 6.4: Summary of City Maintained Stormwater BMPs

BMP Type	BMP ID #	Location	Frequency
Vortechs 2436CIP	10311	*Lincoln Avenue Area*	Sediment (grit) chamber is inspected quarterly Cleaning of system will occur on an as needed basis according to inspections
Downstream Defender	25194	Memorial Bridge	System are inspected quarterly to evaluate sediment and floatable accumulation
	6145	Bartlett Street	
	12814	Rogers Street	

**We are waiting on more information from City on other types of BMPs.

Inspection Procedures

Inspectors will document observations using the City's Stormwater BMP inspection log. Inspectors will note the depth of sediment or trash accumulation, any structural damage, any unusual staining, discoloration, foams, oil sheens, noxious odors or any other indicator of potential stormwater contamination. Inspectors should also note any excessive vegetation growth or damage to existing vegetation or soils. Suggested maintenance actions will be also included. Trapped oils and grease, other observed floatable materials and water within the BMP should be removed using appropriate vacuum truck prior to removing any accumulated sediment.

BMP 6-7: Winter Road Maintenance

The City DPW maintains approximately 200 miles of roadway in accordance with its own Snow and Ice Removal Plan. The City also maintains several municipal parking lots and sidewalks in critical area and seeks to provide practical safe access to homes, businesses and municipal facilities during winter storms. poses. Road salt applications may be supplemented with liquid calcium chloride during cold temperatures below 20 degrees.

There are five streams with the City limits that are listed as chloride impaired according to the 2016 303(d) list. Most of these streams, except for Sagamore Creek, originate in areas adjacent to the Pease International Tradeport and flow through major roadway corridors associated with multi-lane roadways maintained by the NHDOT including Routes I-95 and NH Route 16 (Spaulding Turnpike) before flowing through the main portions of the City.

The City plans to increase its use of liquid deicers to increase the effectiveness and efficiency of road salt. The City is currently in the process of developing a Salt Minimization Plan to identify various BMPs that are used or will be implemented in the future to minimize salt use (Appendix F).

BMP 6-8: Stormwater Pollution Prevention Plans (SWPPPs)

Consistent with Section 2.3.7.2 of the Permit, the City plans to develop a Stormwater Pollution Prevention Plan (SWPPP) for its DPW maintenance facility associated storage areas and its Pierce Island Wastewater Facility, which are the only facilities within the MS4 that have outside storage of materials that may potentially exposed to stormwater. The SWPPP shall include a map of the facility and a description of the activities that occur at the facility. The map shall show the location of the stormwater outfalls, receiving waters, and any structural controls. Identify all activities that occur at the facility and the potential pollutants associated with each activity including the location of any floor drains.

The SWPPP will include instructions for conducting employee training and routine facility inspections and associated documentation forms. The SWPPP is anticipated to be completed by July 1, 2020 consistent with the Permit requirements.

BMP 6-9: Nitrogen Source Identification Report

Description: To address the nitrogen water quality impairment associated with the Back Channel, the City will develop a Nitrogen Source Identification Report within 4 years of the effective permit date consistent with Part I requirements of Appendix H. The Report will be submitted to EPA as part of the year 4 Annual Report. The report will include the following elements:

1. Calculation of total MS4 area draining to the impaired water quality segments or their tributaries, using updated mapping and catchment delineations produced pursuant to Part 2.3.4.6,
2. All screening and monitoring results pursuant to Part 2.3.4.7.d., targeting the receiving water segment(s)
3. Impervious area and DCIA for the target catchment
4. Identification, delineation and prioritization of potential catchments with high nitrogen loading
5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment.

BMP 6-10: Stormwater BMP Retrofit Evaluation/Inventory

Description: Per Appendix H requirements for the Back Channel nitrogen impairments, the City will evaluate and develop an inventory of municipal property that may represent

feasible locations for stormwater BMP retrofits to treat existing paved areas and reduced existing pollutant loads. The inventory and feasibility assessment will be incorporated into the Nitrogen Source Identification Report with updates on planned implementation included in the 5th year Annual Report.

Appendix F

O&M Logs and Compliance Tracking (Placeholder)

Appendix G

DRAFT Salt Reduction Plan (Placeholder)

Appendix H

Employee Training Records

Illicit Discharge Detection and Elimination (IDDE)
Employee Training Record

Portsmouth, New Hampshire

Date	Type of Training	Participant Organizations

Name	Title	Signature