
EPA NPDES Permit Number: NHR043000

Stormwater Management Plan (SWMP)

EPA NPDES Permit Number: NHR043000

PREPARED FOR



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Authorization

The New Hampshire Department of Transportation (the "Department", or "NHDOT") has established an internal Stormwater Committee and has been duly authorized by the Deputy Commissioner to prepare the various documents, policies, procedures and measures needed to comply with the United States Environmental Protection Agency's (EPA) 2017 Small Municipal Separate Storm Sewer Systems (MS4) Stormwater Permit. The Committee is comprised of Senior Management representatives of various Departments and are listed on page 3. A copy of the Stormwater Committee Charter is in **Appendix A**.

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: Christopher Waszczuk, PE

Signature:



Date:

6/27/19

Title: Deputy Commissioner

Table of Contents

1	Introduction	1
	Permit Background	1
	Stormwater Management Plan	1
	Requirements for Water Quality Limited and Impaired Waters	2
	Major Changes in the 2017 MS4 Permit	2
	MS4 Notice of Intent and Authorization.....	3
	Stormwater Management Plan Team.....	3
	Receiving Waters	3
	Eligibility: Endangered Species and Historic Properties.....	4
	Endangered Species Review	4
	Historic Resources Review.....	4
2	MCM1: Public Education and Outreach	5
	Public Education and Outreach Implementation.....	5
	General Public Education Messages.....	6
	Employee Education and Training.....	7
	Education for Design Engineers Services and Construction Contractors	7
3	MCM2: Public Involvement and Participation	9
	Implementation of Public Involvement and Participation	9
4	MCM3: Illicit Discharge Detection and Elimination (IDDE) Program	10
	Initial IDDE Implementation Steps.....	10
	Storm Sewer System Mapping Requirements.....	10
	Prohibiting Illicit Connections into the Department’s Storm Drain System	12
	Assessment and Priority Ranking of Outfalls/Interconnections	12
	Catchment Investigations	14
5	MCM4: Construction Site Stormwater Runoff Control	15
	Construction Site Stormwater Runoff Control Implementation Program	15
6	MCM5: New Development and Redevelopment Post Construction Stormwater Management	16
	New Development and Redevelopment Post Construction Stormwater Management Implementation Program.....	16
7	MCM6: Good Housekeeping and Pollution Prevention for Facilities and Operations	18

Maintenance Facilities	18
Stormwater Infrastructure	19
Stormwater Pollution Prevention Plans.....	20
8 Annual Report Checklist.....	21

Appendices

- A. Stormwater Committee Charter
- B. NOI and EPA NPDES Authorization Letter
- C. NHDOT List of Receiving Waters
- D. Department ESA Review Process Memo
- E. Section 106 Programmatic Agreement
- F. Driveway Access Permit Application
- G. Written Illicit Discharge Detection and Elimination (IDDE) Plan
- H. IDDE Inspection Results and Data (placeholder)
- I. BOE Manual
- J. DRAFT Operations and Maintenance (O&M) Plan
- K. Salt Management Plan (placeholder)
- L. Employee Training Work Instructions
- M. Roadway/ROW Maintenance Work Instructions
- N. Material Handling Work Instructions
- O. Vehicle Maintenance Work Instructions
- P. Annual Report Template (To be provided by EPA)
- Q. Stormwater BMP Inspection Manual

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Introduction

Permit Background

On January 18, 2017, EPA Region 1 issued its renewed 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 or will be continued until such time that EPA reissues a new MS4 Permit.

The New Hampshire Department of Transportation ("Department") had permit coverage under the 2003 MS4 Permit as well and established numerous educational, training and preventative measures to minimize potential pollutant contributions associated with stormwater discharges from its facilities. The Department has established an internal Stormwater Committee comprised of representatives from various Department bureaus and divisions involved with activities that may affect stormwater.

The MS4 Permit mostly applies to the south central and southeast portions of the State of New Hampshire. This Urbanized Area includes 44 cities and towns, either in their entirety or portions thereof. For the Department, roadways, facilities and properties that are subject to the MS4 Permit requirements include facilities and roadways maintained by District 5, District 6, the Bureau of Turnpikes, and Patrol Area 414 in District 4, located in the Town of Wilton.

Stormwater Management Plan

This Storm Water Management Plan (SWMP) describes the Department's storm water management program to address the requirements of the 2017 MS4 Permit to minimize its impact on water quality for water bodies receiving stormwater discharges from its facilities. The Department has formed an internal Stormwater Committee comprised of Senior Management representatives from various Bureaus and Divisions within the Department that are responsible for operations, maintenance, design and management of the Department's roadway infrastructure and maintenance facilities. The Committee is discussed more on page 3.

This SWMP describes the Department's activities and measures that will be implemented to meet the terms and conditions of the MS4 Permit. The document is intended to be a "Living Document" and will be updated and/or modified during the permit term as new information is developed and/or if the Department's activities are modified, changed or updated to meet permit conditions during the permit term. The need for SWMP updates should be assessed as part of the Annual Reporting process in September of each year. A full inventory of items to be included in the SWMP Annual Report can be found in the Annual Report section of this Plan.

Similar to the 2003 Permit, the 2017 MS4 Permit requires Six Minimum Control Measures (MCMs) to be adopted as part of the stormwater management program, which include:

- **MCM1:** A public education program to develop and deliver educational messages to the traveling public, as well as Department employees and contractors that provide related services.
- **MCM 2:** An opportunity for the public to participate and provide comments on stormwater program.
- **MCM 3:** A program and written plan to effectively find and eliminate illicit discharges to the roadway drainage system within the MS4 Regulated area.
- **MCM 4:** A program to ensure sediment and erosion control measures are implemented and monitored for construction projects disturbing greater than 1 acre.
- **MCM 5:** A program to ensure that post-construction stormwater discharges from development projects in the MS4 regulated area is adequately treated.
- **MCM 6:** A good housekeeping program to ensure that stormwater pollution sources on Department properties and Right-of-Ways are minimized.

Requirements for Water Quality Limited and Impaired Waters

The 2017 MS4 Permit imposes additional requirements for impaired or water quality limited water bodies. These include separate pollution prevention and source control plans, and good housekeeping measures for stormwater discharges that drain to receiving waters that are listed as impaired due to certain pollutants typically found in stormwater. The following list summarizes the additional requirements for certain water quality impairments and pollutants of concern.

Chloride Impaired Waters	<ul style="list-style-type: none"> › Develop a Salt Management Plan for roadways located in chloride impaired waters by July 2020. › Sample for chloride as part of Illicit Discharge Detection and Elimination (IDDE) outfall screening.
Bacteria Impaired Waters	<ul style="list-style-type: none"> › Sample for bacteria as part of IDDE outfall screening. › Categorize outfalls as high priority for IDDE screening. › Provide pet waste cleanup stations and educational information for public rest areas/service centers/ parks.
Lakes and Pond Phosphorus TMDL's	<ul style="list-style-type: none"> › Sample for phosphorus as part of IDDE outfall screening. › Develop a Lake Phosphorus Control Plan (LPCP) by the fourth year for roadways draining to lakes with phosphorus TMDLs.

Major Changes in the 2017 MS4 Permit

1. The 2017 MS4 Permit requires more prescriptive measures and specific timelines for each of the minimum control measures.
2. The Illicit Discharge Detection and Elimination (IDDE) requires additional field sampling mapping and investigations including some potential wet-weather sampling.
3. More prescriptive good housekeeping and pollution prevention measures for facilities and maintaining the stormwater infrastructure with reporting requirements.
4. Additional plans and measures are required to address water quality impairments.

MS4 Notice of Intent and Authorization

The MS4 Notice of Intent (NOI) was submitted on September 17, 2018. The Department's NOI can be found in **Appendix B**. Authorization to Discharge was granted to the Department from the EPA on March 19, 2019. The EPA Authorization Letter can be found in **Appendix B**.

Stormwater Management Plan Team

The Department has formed an internal Stormwater Committee to oversee the implementation of the Stormwater Management Plan and related compliance activities. The representatives that serve on this Committee include:

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Receiving Waters

The Department has currently identified over 2,500 stormwater outfalls within the Urbanized Area that discharge to waters of United States and, therefore, subject to the MS4 Permit. The evaluation and mapping of outfalls is an ongoing process as the Department's storm drain system is continually being modified by new roadway projects and/or as driveway access permits are granted to accommodate offsite development and access to the Department's right of way. The list of receiving waters and their relevant water quality impairments according to the state's 2016 303(d) list of impaired waters is included in **Appendix C**. This list is anticipated to be updated periodically as infrastructure is added or retired.

In addition, the state 303(d) list of impairments is updated every 2 years, so impairments may be added and removed as well as the addition of new TMDLs. The Department anticipates reporting on any changes to the receiving waters list with each future annual report.

Eligibility: Endangered Species and Historic Properties

The Department has established an internal project review process for projects that will disturb more than 1 acre and will not otherwise undergo Endangered Species Act (ESA) review and Section 106 Historic Resource review as part of EPA's Construction General Permit (CGP), or as part of the National Environmental Protection Act (NEPA) review process. The Department's internal project review process for both ESA and Historic Resources are described below.

Endangered Species Review

The Department has determined permit eligibility for ESA under:

Criterion A: Criterion B: Criterion C:

Criterion B: In the course of formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and discharge related activities are "not likely to adversely affect" listed species or critical habitat.

The initial search of the ECOS-IPaC system indicated two species of concern within the Urbanized Area: Northern Long-eared Bat *Myotis septentrionalis*, and Small Whorled Pogonia *Isotria medeoloides*. The Department informally consulted with USFWS and EPA via email to inquire about any concerns with respect to the potential for adverse effects to ESA Species as a result of the Department's anticipated MS4 Stormwater Management activities including good housekeeping measures. The USFWS provided a written response affirming that they did not expect adverse effects to occur because of the Department's MS4 related activities.

The Department has established a separate process to review ESA concerns associated with any proposed construction activity either through the EPA's 2017 CGP if the activity involves more than 1 acre of disturbance or through the Department's internal environmental review process for soil disturbance and tree clearing activities for smaller maintenance type projects (see the Department ESA Review Process Memo in **Appendix D**).

Historic Resources Review

The Department has determined permit eligibility for historic properties under:

Criterion A: Criterion B: Criterion C: Criterion D:

Criterion A: The Department has determined that its stormwater discharges and allowable non-stormwater discharges do not have the potential to adversely affect historic properties. The Department is not constructing or installing stormwater control measures that cause less than 1 acre of subsurface disturbance specifically for this Permit and outside of any normal internal environmental review process.

The Department's Bureau of Environment has developed an internal Programmatic Review process to review the potential to adversely affecting historic resources for construction or excavation projects related to maintenance and minor improvements of its facilities or roadway infrastructure. Refer to the Section 106 Programmatic Agreement in **Appendix E**.

MCM1: Public Education and Outreach

MCM 1: Overall Goal

Consistent with Section 2.3.2 of the 2017 MS4 Permit, the overall goal of the Public Education and Outreach Program is to increase awareness and educate key audiences on best practices to minimize potential adverse effects on stormwater volume and quality in the MS4 area associated with the design, construction, maintenance and use of Department roadways and facilities. The Permit specifies that at least one educational message be delivered to two different targeted audiences in each year over the 5-year term starting in the first permit year. For transportation agencies, the targeted audiences include:

- › Public (users of the roadways)
- › Employees
- › Design Engineers / Service and Construction Contractors

Impaired and TMDL Waters: Appendices F and H of the 2017 MS4 Permit require additional educational messages to be included as minimum control measures, including:

- **For Waters Listed as Bacteria Impaired or a Bacteria TMDL:** Additional educational messages should focus on proper pet waste disposal and septic system maintenance.
- **For Waters Listed as Nitrogen or Phosphorus Impaired or with a Nutrient Related TMDL:** Employee and/or contractor training shall include additional training topics focused on limiting or promoting more efficient use of fertilizers during construction and proper maintenance of structural stormwater facilities.

General Educational Topics: Consistent with Part 2.3.2.1.c of the 2017 MS4 Permit, the following topics will be included in the educational program:

- Facility, Equipment and Stormwater Infrastructure Operations and Maintenance
- Material Handling, Storage and Disposal Practices
- Stormwater BMP Design, Inspections and Maintenance
- Sediment Erosion and Control Practices
- Snow and Ice Control Practices

Public Education and Outreach Implementation

Program Assessment: The 2017 MS4 Permit requires the Department to develop and document the message topics delivered to the target audiences and provide evidence of progress in achieving the educational goals of the program. The Department shall periodically assess the effectiveness of the educational messages and the overall education program. Any messages or distribution methods that are found to be ineffective should be modified prior to the next scheduled message delivery.

Methods used to evaluate the effectiveness of the program shall be tied to the defined goals of the program and any intended behavioral changes and improvements. Message effectiveness can be assessed using surveys to solicit feedback related to internal and external training sessions, review and responding to public comments received at meetings and/or through the department web site or anecdotal observed changes in behavior, environmental improvements or waste reduction (e.g., less roadside litter or pet waste).

General Public Education Messages

Stormwater Model Display Table: The Department has developed a 3D stormwater display model that illustrates how changes in landscape, topography and altered land surfaces in a watershed area can affect stormwater flow and water quality. The display table is geared toward educating school-aged children but is effective for all audiences and is presented at various educational or natural resource related fairs and at public schools. The display table also illustrates how BMPs associated with bridge and roadway maintenance, sand and salt operations, maintenance facility activities, and construction activities can protect water quality.

The stormwater display table is often shared with local watershed associations, which broadens the educational messaging beyond the Department's regular scheduled events. The stormwater display is also used in training sessions with Department employees.

Public Notices and Messages via Social Media and Website: The Department uses social media and other media outlets to inform the traveling public on various safety and environmental issues related to projects, policy changes and travel conditions. The Department's Communications Officer coordinates with local media outlets including television and radio stations to inform the public on new project and traffic related information.

The Department continues to expand its use of web site and social media to provide timely information on project related activities and environmental issues. Previous press releases can be found online at <https://www.nh.gov/dot/media/news.htm>.

Department Newsletters, Publications and Reports: The Department also publishes various materials to inform residents and the traveling public on project or programmatic related activities including:

- *On the Move* Newsletter
- NHDOT Annual Report
- Specific Major Project Newsletters

Informational Postings and Signage in Select Locations: At various welcome centers and service areas, the Department often posts information and signs to make the traveling public aware of important environmental issues (e.g., controlling the spread of invasive species) or to encourage proper waste collection and disposal practices, especially in bacteria or nutrient impaired waters (e.g., pet waste and litter control). The messages are posted in key visible areas and the topics may change to reflect other timely or seasonal issues depending on season.

Employee Education and Training

Environmental and Safety Trainings: The Department holds annual training to enhance employee competency in environmental, safety and regulatory awareness and related Department work instructions. Safety and environmental coordinators are responsible for training operations staff and contractors on many topics including compliance with the MS4 Permit.

Snow and Ice Control Training: The Department provides annual training on snow and ice control operations for maintenance personnel and equipment operators in accordance with the Department's Salt Management Plan. This helps ensure efficient and effective snow and ice control practices are used on the state highway system.

Construction School: The Department provides annual training for Contract Administrators who are involved with overseeing erosion control and soil stabilization measures installed by contractors during construction projects. The training focuses on updating Contract Administrators on the latest Department policies, available tools and any regulatory changes with respect to erosion control measures used during construction and maintenance activities. This training is part of "Construction School" and typically involves several full-day workshops on various subjects that are held with Bureau of Construction employees.

Education for Design Engineers Services and Construction Contractors

University of New Hampshire (UNH) Technology Transfer Center and Information Exchange: The Department often collaborates and provides funding for regional planning organizations to help share resources and information to address the MS4 stormwater requirements more effectively. Department staff participate in the municipal stormwater coalition group meetings to share experiences and approaches in implementing best practices. The Department plans to continue to partner and collaborate with the coalition groups to share resources and information with municipal and regional planning representatives. A key example consists of the State Asset Management Data System (SADES) that the Department financially supports and maintains through a working agreement with the UNH Technology Transfer Center. The SADES system incorporates stream crossing, culvert and storm drain data collected by multiple entities to build one universal and consistent data base. The entities collecting this data receive training to understand the data collection process and relevant attributes to record.

Contractor Conference Presentations and Resource Collaboration: Department representatives routinely present at various professional organizations whose members are involved with roadway design and/or construction to present updates on policies and programs related to stormwater issues.

The Department jointly hosts an annual Technical Exchange Conference with the American Council of Engineering Companies that allows Department employees, contractors and consultants to exchange ideas and learn about new innovations, policies and practices within the Department. Attendees are solicited for feedback on the usefulness and effectiveness of the presentations, and ideas for improvement.

Department personnel also periodically meet and consult with other New England Departments of Transportation agencies to coordinate programs, identify common issues and solutions, and share information related to stormwater. In addition, Department representatives attend

presentations and workshops with the UNH Technology Transfer Center and the UNH Stormwater Center to stay current with stormwater management practices.

Drainage Design and other Guidance Manuals: The Department has developed and promoted the use of various guidance manuals to assist design engineers and contractors, including:

- American Association of State Highway Transportation Officials, *Highway Drainage Guidelines*, 4th Edition, 2007
- EPA, *Developing Your Stormwater Pollution Prevention Plan – A Guide for Construction Sites*, 2007
- Federal Highway Administration (FHWA), *Guidance Manual for Monitoring Highway Runoff Water Quality*, 2001
- FHWA, *Hydraulic Design of Highway Culverts*, 2012
- FHWA, *Urban Drainage Design Manual*, 2009
- NHDES, *New Hampshire Stormwater Management Manuals, Volumes 1, 2 & 3*, 2008
- NHDOT, *Best Management Practices for Routine Roadway Maintenance Activities in New Hampshire*, 2001
- NHDOT, *Construction Manual*, 2016
- NHDOT, *Guidelines for Temporary Erosion Control and Stormwater Management*, 2002
- NHDOT, *Suggested Minimum Design Standards for Rural Subdivision Streets*, 2003
- U.S. Department of Transportation, *Best Management Practices for Erosion and Sediment Control*, 1995
- Applicable Federal Aviation Administration Advisory Circulars and Orders

Contract Special Provisions and Supplemental Specifications: As conditions arise in the project planning and design phase, the Department may request contractors to incorporate additional measures in the design or construction phases through special provisions or contract specifications to address or protect unique or atypical water resource conditions in adjacent water bodies. The additional measures may include training employees to be aware, monitor or protect against certain adverse effects. An example may involve periodic sampling or monitoring to detect increases in turbidity or other parameters at specific locations in a sensitive or impaired water body.

MCM2: Public Involvement and Participation

MCM 2: Overall 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.

Implementation of Public Involvement and Participation

The Department will post the complete SWMP and associated Appendices on its web site to allow the public to review the proposed activities related to the SWMP, as well as associated mapping information and future Annual Reports.

Comments on the SWMP will be reviewed and incorporated as appropriate.

MCM3: Illicit Discharge Detection and Elimination (IDDE) Program

MCM 3: Overall 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 develop a process and protocols to systematically investigate, identify and eliminate illicit sources of non-stormwater discharges into the Department's storm drain system, as well as implement procedures to prevent such discharges.

Written IDDE Plan: A separate, written IDDE Plan has been prepared to describe the Department's proposed process and procedures to complete the following components (see **Appendix G**):

- Storm Sewer System Mapping
- Policies and Procedures for Reviewing/Approving Connections to the Department's System
- Assessment and Priority Ranking of Outfall and Interconnections
- Dry Weather Screening and Sampling Protocols
- Catchment Investigations
- Employee Training

Additional Requirements for Impaired Waters: Appendices F and H of the Permit require additional measures for waters with a bacteria Total Maximum Daily Load (TMDL) or listed as impaired to be included in the IDDE process. They include the following:

- **For waters with bacteria impairments or a TMDL:** The Permit requires outfalls that drain to a bacteria-impaired water body or one listed under the statewide bacteria TMDL be categorized as "High" priority to implement the IDDE program.

Initial IDDE Implementation Steps

Storm Sewer System Mapping Requirements

Phase I Mapping: The Department has essentially completed the Phase I mapping components even though the Permit allows for up to 2 years from the effective date or July 1, 2020 for it to be completed. 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 EPA approved 2016 NHDES List of Impaired Waters
- Initial catchment areas were preliminarily based on a 100-foot buffer setback around each system connected to an outfall regulated by this permit.

The Department relied on the following GIS layers and data components to complete this task. The entire mapping system is ArcGIS based and consists of the following Asset layers:

- › Culvert and Closed Drainage Systems (CCDS developed under SADES)
- › Structural Stormwater Treatment
- › NHDES 303(d) Listing of Impaired Waters
- › Outfalls and Interconnections
- › National Wetlands Inventory Map
- › NHDOT GIS Roadway Inventory within the Urbanized Area
- › 2010 Urbanized Area Map
- › Initial Catchment Areas
- › Flow (Open Conveyances, etc.)

The process included:

1. Mapping drainage infrastructures (drainage structures, pipes, inlets and outlets)
2. Mapping structural stormwater treatment facilities
3. Mapping Drainage flow direction and flow from the catch basins to the outlets
4. Identifying land cover within the Urbanized Area and is under NHDOT control
5. Identifying the outfalls that discharged to a Waters of the United States
6. Identifying interconnection with other MS4 and private systems
7. Identifying which particular NHDES Assessment Unit receives the discharge
8. Identifying any particular impairments or TMDLs that are relevant to the MS4 Permit
9. Mapping the catchments for each outfall and interconnection
10. Applying the geographic referenced information to the MS4 Permit conditions

Phase II Mapping: Additional outfall features including the field-verified limits of the catchment area will be needed to address the Phase II mapping requirements, but this is not required to be completed until 10 years from the effective date of the permit (July 1, 2028). The Phase II mapping will refine the catchment delineations based on observed information collected in the field during catchment investigations. Topographic contours and drainage system information may also be used to refine the initial catchment delineations.

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

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

The Department will consider these additional mapping efforts as part of its overall asset management system and will be collecting data as funding, manpower and time allows.

Prohibiting Illicit Connections into the Department's Storm Drain System

The MS4 Permit requires, to the extent allowable under State law, that the permittee prohibit and enforce removal of any non-storm water discharge into their system that is not explicitly allowed by the MS4 Permit. The Department is not a regulatory agency, and therefore does not have regulatory authority to establish or enforce ordinances. However, the Department does have a Driveway Permit application review and approval process for anyone seeking to gain access or a connection to the State roadway system. The Department permit application references NH state law (RSA 236:13) that makes it unlawful for any person, firm or corporation to make any connection into a State road system, or to drain or pump water onto the traveled surface of a State Highway without first obtaining written permission from the Commissioner of the State Department of Transportation via the issuance of a Driveway Access Permit Application (see **Appendix F**). As part of the Application review process, District personnel request and review information pertaining any drainage connections and approved connections prohibit non-stormwater discharges from entering the state drainage system.

Assessment and Priority Ranking of Outfalls/Interconnections

The Department has approximately 2,500 regulated stormwater outfalls within the Urbanized Area associated with its roadways, facilities and other properties that have been determined to discharge to surface waters or wetland areas. These outfalls are primarily contained within Turnpikes, Districts 5 and 6 and one patrol area (PS 414) in District 4.

Outfall/Interconnection Inventory and Initial Ranking: Permit specifies that outfalls shall be classified into four different categories to prioritize the sequence with which outfalls undergo dry-weather screening and sampling. The categories consist of Problem Outfalls, High Priority, Low Priority and Excluded Outfalls, as described below. Excluded outfalls are those located in relatively undeveloped areas and/or have minimal potential to be connected to an illicit discharge and, thus can be excluded from the IDDE screening or sampling program.

The Department has classified its outfalls and interconnections within the Urbanized Area under its control into one of the following categories:

- **Problem:** Outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information. The Department has not identified any Problem outfalls.
- **High Priority:** Outfalls/interconnections that has not been excluded and have one of the following features:
 - Discharges to waters impaired for bacteria
 - Discharges to waters with a bacteria TMDLs
 - Discharges to a beach
 - Discharges to waters with (AU) shellfish designated use
 - Discharges to NHDES Water Supply Intake Protection Areas
 - Discharges to waters impaired for pollutants of concern
- **Low Priority:** Outfalls/interconnections that are not classified as Problem, High, or Excluded.
- **Excluded:** Outfalls/interconnections that have one of the following features are considered Excluded from the IDDE process because there is very low potential for an illicit connection:
 - Discharges from single drainage structure
 - Discharges from a catchment that is entirely with Limited Access Right of Way
 - Discharges from a catchment that does not have a building/residence within 100 feet

Dry Weather Outfall/Interconnection Screening and Sampling: The Department will execute the dry weather screening process in two phases. The first phase was completed with an initial field investigation of regulated outfalls. All low and high priority outfalls were visited to determine if there was a dry weather discharge (flow) and/or any evidence of illicit discharge. During the second phase, the high and low priority outlets, in that order, that had observed flow during the first inspection will be re-visited and sampled if flow is evident by 2021. The complete IDDE Plan outlining the dry weather outfall/interconnection inspection protocols can be found in **Appendix G**. Sampling for outfalls with dry weather discharge will include:

- Ammonia
- Chlorine
- Conductivity/Salinity
- Bacteria (e. coli or Enterococcus)
- Surfactants
- Temperature
- Pollutant of Concern (as specified in Appendix G of the MS4 Permit)

Based on the information gathered during dry weather screening, the outfalls will be reevaluated and re-prioritized as either High or Low Priority before initiating more detailed catchment investigations, outfalls and interconnection will need to be reevaluated based and

priority ranked for 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 number of System Vulnerabilities Factors (SVFs) as described in the next section might also influence the reprioritization and ranking.

Catchment Investigations

The goal of catchment investigations is to conduct a more detailed investigation of the storm drain infrastructure connected to the outfall and verify/revise the limits of the contributing area that drains to each outfall. ***A separate Catchment Investigation Plan will be developed following the completion of the Dry Weather Inspection and Sampling process and will target outfalls with one or more of the following SVFs in their initial catchment areas, which will be discussed in more detail in the future Catchment Investigation Plan.***

- Exceedances of dry weather screening benchmarks
- A submerged or inaccessible discharge locations
- Areas where there are deviations from the Record Plans
- Noted Illicit connections on Record Plans
- MS4 without Record Plans

For all catchments targeted for investigation, field crews will systematically inspect for evidence of illicit discharges. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon finalization of key junction manhole observations and sampling.

MCM4: Construction Site Stormwater Runoff Control

MCM 4: Overall Goal

Consistent with Part 2.3.5 of the 2017 MS4 Permit, the overall goal of the Construction Site Stormwater Control Program is to develop an effective internal review and inspection program that involves review and inspection of erosion control measures for new projects that disturb more than 1 acre of area and to ensure that these measures will minimize the potential for erosion and eroded sediment to be transported into storm drain system and/or be discharged to waters of the U.S.

Construction Site Stormwater Runoff Control Implementation Program

The Department has had a well-established statewide program that is based on the provisions of the EPA's 2017 CGP. Any project involving more than 1 acre of disturbance is reviewed by the Bureau of Environment (BOE) and the Water Quality Program Manager to assess the permit compliance needs based on the location and size of the project.

If the project is 1 acre or larger, environmental commitments are generated that indicate CGP coverage is needed. The environmental commitments are also documented in a NEPA document or other environmental document by the Department's Senior Environmental Managers. The commitments travel with the project through the final design phases and provisions that are added to the proposal, if the project goes out to bids, are executed by the field Environmental Coordinators. The Department currently has three field Environmental Coordinators.

The Environmental Coordinators are responsible for making sure that a CGP Stormwater Pollution Prevention Plan (SWPPP) is prepared. The Water Quality Program Manager will then file a Notice of Intent. The ensuing SWPPP monitoring is reviewed by the Environmental Coordinators and, upon completion of any project, will then notify the Water Quality Program Manager to file a Notice of Termination. **See the BOE Manual in Appendix I.**

Construction Contract Administrators are responsible for monitoring daily precipitation and ensuring the Contractor is complying with the commitments and BMP's described in the project SWPPP. Periodic inspection of the construction site by certified erosion control inspectors is typically required based on a specific schedule outlined in the project SWPPP, and after storm events that meet a certain rainfall amount.

Results of these inspections are documented, along with any recommended actions or corrective actions to ensure erosion and sediment controls are functioning, being maintained properly, and preventing the offsite migration of construction site sediments.

MCM5: New Development and Redevelopment Post Construction Stormwater Management

MCM 5: Overall Goal

Consistent with Part 2.3.6 of the 2017 MS4 Permit, the overall goal of the Post-Construction Stormwater Program is to develop a program that reviews and inspects stormwater treatment measures associated with roadway improvement projects that will disturb 1 acre or more of area to ensure adequate stormwater treatment measures are included in proposed project design to minimize any potential water quality impact associated with the proposed project. As noted below, the level of stormwater treatment needed will depend on any water quality impairment linked to the receiving water body.

Impaired and TMDL Waters: Appendices F and H of the 2017 MS4 Permit require additional measures to be included to minimum control measures, including:

- **For Nitrogen Impaired Waters:** The Permit requires additional consideration to use BMPs that reduce nitrogen load contributions, potentially develop a Nitrogen Source Report for any waterbody with a Nitrogen TMDL and assess potential locations for additional stormwater BMP retrofits for the fourth-year annual report.
- **For Phosphorus Impaired Waters:** The Permit requires additional consideration to implement and optimize BMPs to reduce phosphorus load contributions, develop a Phosphorus Control Plan for Lakes and ponds with a Phosphorus TMDL and assess potential locations for additional stormwater BMP retrofits for the fourth-year annual report.
- **For Solids, Oil, Grease, and Metals Impaired Waters:** The Permit requires additional consideration during project design to include shut-off devices and other containment apparatuses for BMPs potentially discharging to these water bodies.

New Development and Redevelopment Post Construction Stormwater Management Implementation Program

New and Redevelopment: The Department has had a well-established program within its Bureau of Environment for many years where proposed project designs are reviewed to assess potential water impacts and associated stormwater treatment needs for roadway improvement projects. The Department requires new projects to include stormwater treatment measures, as appropriate, consistent with the Alteration of Terrain (Env-Wq 1500) regulations and to meet any applicable Water Quality Certification conditions. In general, the Department has required project designs to include stormwater treatment BMPs sized to capture and treat 100 percent of the water quality volume generated from new pavement area. This typically results in either a reduction or a no net increase in pollutant loads to the receiving water body.

Stormwater treatment BMPs are designed in accordance with the Alteration of Terrain (AoT) regulations and the *New Hampshire Stormwater Manual*.

For discharges to coastal waters, gravel wetlands are generally preferred to optimize the level of nitrogen removal efficiency consistent with Permit requirements. For inland or phosphorus impaired waters, wet-extended detention basins are preferred to optimize the removal efficiency for phosphorus. Gate valves are also generally installed for treatment basins that discharge to solids, oil, grease, and metals impaired waters and when there is a downstream surface drinking water supply. See the BOE Manual in **Appendix I**.

Maintenance Projects: The Department also executes a wide range of maintenance-type projects. These include replacement or repair of guard rails, signs, culverts and drainage infrastructure as well as re-paving of roadways. These projects are also reviewed by the Bureau of Environment and Water Quality Program to determine if the projects will result in increases in impervious area and whether any additional treatment may be necessary consistent with the provisions of Part 2.3.6(a).ii(e).

Record Plans: The Department has a records section that maintains an inventory of all design plans. Once construction is completed and audited, As-Built Plans are stored electronically in the Department's GIS systems. Older plans dating back to early 1900's have also been scanned and are stored in the same system.

Stormwater BMP Retrofit Inventory: The Department has consistently included stormwater BMPs in its roadway project designs over the last 10 years or more. These BMPs typically treat both new and existing roadway areas resulting in a net improvement in the stormwater water quality discharged from roadway areas in most cases. The Department currently has over 600 stormwater BMPs statewide and will continue to include stormwater BMP retrofits in future roadway improvement projects. The Department is currently completing a geodatabase inventory and a consistent inspection process for its stormwater treatment BMPs. A summary of the BMP inventory and inspection results will be reported in future MS4 Annual Reports.

Nitrogen Source Control Plans: Based on the 2016 303(d) listing, the Department discharges directly to only one nitrogen impaired water body consisting of the Squamscott River segment along the Exeter/Stratham town line. Stormwater flows through several catch basins as well as vegetated treatment swales along the Route 101 roadway before discharging to the river. A Nitrogen Source Control report will be prepared by 2023 consistent with the Permit timeline.

Phosphorus Source Control Plan: Appendix F of the MS4 Permit requires any permittee that discharges to a lake and/or pond with an EPA-Approved Phosphorus TMDL to develop a Lake Phosphorus Control Plan by the fourth permit year, or 2023, to identify phosphorus sources under the permittee's jurisdiction and potential source control and reduction measures. Approximately 15 lakes that are within the MS4 area have an EPA-Approved Phosphorus TMDL. The Department plans to continue to evaluate and identify which of its storm drain outfalls discharge to a lake or pond with an EPA approved Phosphorus TMDL, and preliminarily is aware that at least several catch basins along I-93 in Manchester discharge to Stevens Pond.

Roadway sections that drain to a water body with a phosphorus TMDL or is listed as nutrient impaired in the state 303 (d) list will need to be swept twice per year in the spring and fall as opposed to the minimum once per year sweeping. Roadway areas that may need to be swept twice per year are currently being identified and will be included in the Operations and Maintenance Plan discussed in the next section.

MCM6: Good Housekeeping and Pollution Prevention for Facilities and Operations

MCM 6: Overall Goal

Consistent with Part 2.3.7 of the 2017 MS4 Permit, the overall goal is to develop an operations and maintenance program to enhance source control and minimize pollutants from being exposed and transported by stormwater runoff from the Department roadways and facilities, as well as maintain the functional integrity of the stormwater infrastructure system.

The Department is in the process of developing a separate Operations and Maintenance (O&M) Plan with a targeted completion date of June 2020 or within 2 years of the effective permit date, consistent with the 2017 Permit. A Draft of the O&M Plan is included in **Appendix J**, which summarizes relevant ongoing and pending updates to the O&M activities that the Department performs to maintain its storage facilities, roadways and related facilities (e.g., park and rides, welcome centers) as well as its stormwater infrastructure (e.g., catch basins and stormwater treatment BMPs). A summary of the major permit requirements, the relevant Department facilities and ongoing O&M activities is provided below. Additional requirements apply to water bodies listed as impaired or have a Total Maximum Daily Load study as described below:

Impaired and TMDL Waters: Appendices F and H of the 2017 MS4 Permit require additional measures to be included to minimum control measures, including:

- **For Chloride Impaired and TMDL Waters:** The Permit requires a Salt Management Plan be developed and implemented to describe the various BMPs that will be used to enhance road salt use efficiency (see **Appendix K**).
- **For Nutrient Impaired Waters:** The Permit requires twice per year sweeping on pavement that discharge to nitrogen or phosphorus impaired waters.
- **For Solids, Oil, Grease, and Metals Impaired Waters:** The Permit requires increased sweeping for pavement that discharges to solids, oil, grease, and metals impaired waters.

Maintenance Facilities

The Department owns and operates several types of facilities including: Patrol Sheds, Storage Yards, Storage Sheds, Vehicle Maintenance Buildings, Park and Rides, Transportation Centers, and Administration Buildings. See the O&M Plan located in **Appendix J** for a list of facilities within the Urbanized Area. The maintenance activity required at each of these facilities varies but mostly involves limited vehicle maintenance, chemical storage and material handling. The Department has established its own policies, procedures and work instructions to address good housekeeping and maintenance practices and prevent or minimize discharges to the Waters of the United States.

Relevant work instructions that the Department currently uses to minimize the potential discharge of pollutants to surface waters are listed below and found in **Appendices L to O**.

Division of Operations	› Management of Limited Reuse Soil Work Instructions
Bureau of Turnpikes	› Vehicle Washing Work Instructions › Roadside Mowing Procedure Work Instructions › Salt and Anti-icing Chemical and Storage and Handling Work Instructions for Turnpikes
Bureau of Bridge Maintenance	› Used Oil and Oil Filter Management Work Instructions for Bridge Maintenance › Chemical Handling Storage Disposal Work Instruction for Bridge Maintenance › Vehicle Washing Work Instruction for Bridge Maintenance › Road and Parking Lot Maintenance Work › Chemical Disposal Work Instructions › Salt and Anti-icing Chemical and Storage and Handling Work Instructions › Wastewater Handling and Disposal Work Instruction

Stormwater Infrastructure

The Department owns and operates approximately 1,950 lane-miles of roadways within the Urbanized Area. The Department has developed best practices to maintain and operate its stormwater related infrastructure along roadways. These practices include catch basins cleaning, street sweeping, winter maintenance and stormwater treatment BMP inspection and maintenance. Many of these same activities are conducted in conjunction with or done separately as part of the Department’s facility maintenance discussed in previous section.

Catch Basin Cleaning: There are approximately 19,000 drainage structures located within the MS4 regulated area along roadways and at other Department facilities. The Department has implemented catch basin cleaning procedures in its Limited Reuse Soils Management Work Instructions. Department personnel will inspect each catch basin at least once every 5 years and if necessary remove sediment such that sumps will be no more than 50 percent full at any time. The Department will prioritize catch basin cleaning activity in watershed areas listed as impaired due to sedimentation/siltation, total nitrogen or total phosphorus as well as catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment) or cleaning will be done more frequently if previous inspection and maintenance activities indicate excessive sediment or debris loading.

Street Sweeping: The Department has and will continue to sweep hundreds of miles of roadway with curbed shoulders and catch basins. Consistent with the Permit, the Department will sweep the curb and gutter sections of highways at least once per year as outlined in the Management of Limited Reuse Soil Work Instruction. Roadway areas with nitrogen impairments, phosphorus impairments or TMDLs, or solids, oil, grease or metals impairments, will be swept more frequently in accordance to the Permit Appendices F and H.

Salt Management Plan: The Department recently developed an updated Salt Management Plan. This Plan identifies the various policies, equipment BMPs, weather forecasting and pavement monitoring tools, training and tracking and reporting measures used to apply deicers most efficiently and maintain reasonable safe travel conditions during winter weather events. The Salt Management Plan contains detailed accounting of snow and ice equipment throughout the State and in essential key locations that drain to chloride impaired waterbodies to make sure efficient Best Management Practices are available. See **Appendix K**.

Stormwater Treatment BMPs: The Department owns and operates approximately 300 stormwater BMPs within the Urbanized Area. The Department has developed a GIS database and a statewide BMP Inspection and Maintenance Manual (**Appendix Q**) that will be used to guide the inspection and maintenance of stormwater treatment BMPs, consistent with the 2017 MS4 Permit. Inspection status and any related maintenance activities will be tracked and maintained using GIS mobile data collection technology.

Stormwater Pollution Prevention Plans

During the second permit year, the Department will be evaluating and identifying which maintenance facilities throughout the Urbanized area will require the preparation of SWPPPs. These facilities to be evaluated include Patrol Sheds, Storage Yards, Storage Sheds, Vehicle Maintenance Buildings, Park and Rides, Transportation Centers, and Administration Buildings. Some are leased to private operators and if necessary, discharges are permitted by the operator under the Multi-Sector General Permit. For facilities operated by the Department, the Department will develop SWPPPs for facilities that conduct one or more of the following activities:

- Handle and load road salt;
- Handle and load winter maintenance sand; and/or
- Handle and store Limited Reuse Soils.

The SWPPPs will be monitored in accordance with the 2017 MS4 Permit.

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 Department’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 Department 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 (**MS4 Appendix F**).

BMPs for Meeting Discharge Requirements to Impaired Waters

A description of any BMPs implemented to comply with impaired water bodies (**MS4 Appendix H**).

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

MCM3: 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

MCM4: Construction Site Stormwater Runoff Control

Written Procedures Update		
# of Projects Reviewed	# of Inspections Completed	# of Enforcement Actions

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

- Policy Updates / Checklist_____
- Summary of Water Quality Treatment

MCM6: Operations and Maintenance (O&M) Program

- Facility and Equipment Inventory List Updates
- Facility Maintenance Activities

Catch Basins			
Roadways with Inspected 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

Activities Planned for Next Reporting Year

Changes to BMPs and/or Measurable Goals

Activities Undertaken by Contracted Entities

Appendices

(provided in a separate Binder)