

Stormwater Management Program (SWMP)

The Town of Londonderry

268B Mammoth Road, Londonderry, New Hampshire 03053



EPA NHDES Permit Number NHR041016

Revised September 2019



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- A. Copy of Notice of Intent and EPA NPDES Authorization Letter
- B. Stormwater Outfall Map
- C. ESA Eligibility Documentation
- D. Adopted Stormwater Ordinance
- E. Illicit Discharge Detection and Elimination (IDDE) Plan
- F. IDDE Inspection Results and Data (Placeholder)
- G. Catch Basin Cleaning Inspection Log (Placeholder)
- H. Winter Maintenance Snow and Ice Control Policy
- I. Salt Reduction Plan

Authorization

The Town of Londonderry, New Hampshire ("Londonderry") 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.epa.gov/npdes-permits/regulated-ms4-new-hampshire-communities>

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: Kevin H. Smith

Signature: 

Date: 10/1/19

Title: Town 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 Town had permit 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 Manchester-Boston Regional Airport, although located within a portion of the Town's 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 Stormwater Management Program (SWMP) or the DRAFT O&M Plan of the Town of Londonderry.

Stormwater Management Plan

SWMP Background

This SWMP describes the Town'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 Town'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 1.1** summarizes the additional requirements for water quality impairments and pollutants of concern.

Table 1.1: Summary of Impaired Waters and Water Quality Limited Requirements

Chloride TMDL Waters and Impaired Waters	<ul style="list-style-type: none"> > 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. > Adhere to requirements in Part I.1 of Appendix F of the MS4 Permit.
Bacteria TMDL Waters	<ul style="list-style-type: none"> > 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. > Adhere to requirements in Part II.1 of Appendix F of the MS4 Permit.

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.

Stormwater Management Program Team

The Department of Public Works & Engineering (Department) is responsible and oversees the implementation of the Stormwater Management Program and related compliance activities. The representative for the Department is:

John Trottier – Asst. Director of Public Works and Engineering

Department of Public Works and Engineering

603-432-1100 x146

jrtrottier@londonderrynh.org

Stormwater Outfalls and Receiving Water Bodies

The Town currently has identified approximately 500 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 B** or can be found at the Town's DPW office.

Table 1.2 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 Town will report on any changes to the receiving waters list with each future annual report.

Table 1.2: Summary of Receiving Waterbodies in Londonderry

Waterbody Segment that Receives Flow from the MS4	No. of Outfalls into Receiving Water AU	Primary Impairments								Other pollutant(s) causing impairments
		Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/PAH	Phosphorus	Solids/TSS/Turbidity	E.coli	
NHIMP700060703-02 Branch Cohas Brook										Mercury
NHRIV700060703-04 Unnamed Brook – Branch of Cohas Brook	5									Mercury
NHRIV700060703-05 Cohas Brook – Long Pond Brook	17								X	Mercury
NHRIV700060703-07 Cohas Brook	1									Mercury
NHIMP700060804-01 Little Cohas Brook	4									Mercury

Waterbody Segment that Receives Flow from the MS4	No. of Outfalls into Receiving Water AU	Primary Impairments									Other pollutant(s) causing impairments
		Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/PAH	Phosphorus	Solids/TSS/Turbidity	E.coli	Enterococcus	
NHRIV700060804-04 <i>Little Cohas Brook</i>	56	X									Mercury
NHRIV700060804-05 <i>Little Cohas Brook – Unnamed Brook</i>	8	X		X							Mercury, Iron
NHRIV700060804-07 <i>Watts Brook</i>	17										Mercury
NHRIV700060804-08 <i>Watts Brook</i>	25										Mercury
NHRIV700060804-12 <i>South Perimeter Brook</i>		X									Mercury, Iron
NHRIV700060804-16 <i>Watts Brook</i>	1										Mercury
NHRIV700060804-17 <i>Unnamed Brook</i>	1										Mercury
NHIMP700061002-04 <i>Nesenkeag Brook</i>	1										Mercury
NHIMP700061002-05 <i>Brooks Recreation Pond Dam</i>	1										Mercury
NHLAK700061002-05 <i>Unnamed Pond</i>	3										Mercury
NHRIV700061002-04 <i>Nesenkeag Brook</i>	1			X							Mercury
NHRIV700061002-05 <i>Nesenkeag Brook</i>	9			X							Mercury
NHRIV700061002-07 <i>Chase Brook</i>	1										Mercury
NHRIV700061002-16 <i>Unnamed Brook</i>	45										Mercury
NHRIV700061002-17 <i>Chase Brook – Unnamed Brook</i>	18										Mercury
NHRIV700061002-26 <i>Nesenkeag Brook – Unnamed Brook</i>	19			X							Mercury
NHRIV700061002-27 <i>Nesenkeag Brook – Unnamed Brook</i>	8										Mercury
NHRIV700061002-28 <i>Unnamed Brook</i>	2										Mercury
NHIMP700061203-06 <i>Tr Beaver Brook</i>											Mercury
NHIMP700061203-07 <i>Winding Brook Road Dam</i>	2										Mercury
NHIMP700061203-08 <i>Roselee Dam</i>	2										Mercury
NHIMP700061203-09 <i>Branch Beaver Brook</i>	3										Mercury
NHIMP700061203-10 <i>Beaver Brook</i>	2										Mercury

Waterbody Segment that Receives Flow from the MS4	No. of Outfalls into Receiving Water AU	Primary Impairments									Other pollutant(s) causing impairments
		Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/PAH	Phosphorus	Solids/TSS/Turbidity	E.coli	Enterococcus	
NHIMP700061203-12 Wheeler Pond											Mercury
NHLAK700061203-04 Kendall Pond	4			X							Mercury
NHLAK700061203-10 Century Village Pond	3										Mercury
NHRIV700061203-11 Beaver Brook	24	X									Mercury
NHRIV700061203-13 Unnamed Brook – Trib Beaver Brook	3										Mercury
NHRIV700061203-14 Unnamed Brook – To Century Village Dam Trib Beaver Brook	35										Mercury
NHRIV700061203-15 Unnamed Brook – From Winding Brook Rd Dam to Roselee Dam	7										Mercury
NHRIV700061203-16 Beaver Brook	24	X									Mercury, Iron
NHRIV700061203-17 Unnamed Brook – Upper Reach Trib Beaver Brook	19										Mercury
NHRIV700061203-20 Beaver Brook	90										Mercury
NHRIV700061203-21 Beaver Brook	9										Mercury
NHRIV700061203-23 Brook to Wheeler Pond	13										Mercury
NHRIV700061203-24 Wheeler Pond Brook	3										Mercury

Endangered Species and Historic Property Eligibility

Londonderry 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

Londonderry 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 Town 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 Town 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 C**).

Historic Resources Review

Londonderry has determined permit eligibility for Historic Properties under:

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

Criterion A: *The Town has determined that its stormwater discharges and allowable non-stormwater discharges do not have the potential to adversely affect historic properties. The Town 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 environmental review process.*

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 Town will continue to implement the public education program required under the 2003 MS4 permit by distributing educational materials to the community. Under the 2017 MS4 Permit, 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 Town is required to deliver at least two (2) messages to each of four (4) targeted audiences every other year over the 5-year permit term. The targeted audiences include:

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

However, if the Town discharges stormwater to water bodies subject to an approved TMDL, then additional educational messages must be distributed annually for residents and businesses/commercial entities to try to modify behaviors and reduce the impairments to the waterbodies per Appendix F of the MS4 permit. Where Town stormwater discharges to water quality limited water bodies where chlorides, bacteria or nutrient are the cause of the water quality limitation, then additional educational messages must be distributed annually for residents and businesses/commercial entities to try to modify behaviors and reduce the impairments to the waterbodies per Appendix H of the MS4 permit.

Since the Town discharges stormwater to Chloride TMDL and Bacteria TMDL 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 impaired waters overlap with respect to enhancing pet waste control/cleanup and septic system management.

The Permit also requires the Town 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 Londonderry Drop Off Center, 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 Town'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 UNH Stormwater Center and the UNH Cooperative Extension as part of a collaborative effort with municipal members of the Lower Merrimack Valley Stormwater Coalition and Seacoast Stormwater Coalition.

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
1A: Pet Waste Flyers/Post Card/Signage	Residents and Businesses	March/April*	X	X	X	X	X
1B: Grass Clipping/Slow-Release Fertilizer Fact Sheet	Residents and Businesses	April/May	X	X	X	X	X
1C: "Get Pumped" Septic System Brochure	Septic System Owners	Sept.		X	X	X	X
1D: Leaf Litter Disposal Fact Sheet	Residents and Businesses	October	X	X	X	X	X
1E: Green SnowPro / Salt Efficiency Fact Sheet	Businesses	Fall / Winter		X	X	X	X
1F: Erosion Control SWPPP Factsheet	Developers (Construction)	Spring		X		X	
1G: Low Impact Development Factsheet	Developers (Construction)	Summer				X	
1H: Lawn Maintenance Water Use Factsheet	Industrial Facilities	Spring			X		X
1I: Waste Disposal/Spill Prevention Factsheet	Industrial Facilities	Fall					X

Notes: 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. 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.

*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 Town's dog license renewal period of March – April, which is more aligned with the bacteria impairment requirements in Appendix H.

BMP 1A: Pet Waste Disposal

Document Link or Reference:

http://www.londonderry.org/Pages/LondonderryNH_PublicWorks/engodcs/storm

Description: A bifold brochure stating the problem with dog waste, highlighting the benefit of cleaning up and properly disposing of dog waste, and encouraging dog owners to voluntarily clean up after their dog. The brochure and similar information are posted on the Department of Public Works & Engineering stormwater web page.

Targeted Audience: Residents and Businesses

Responsible Department/Parties: Department of Public Works

Measurable Goal(s): Number of Flyers Taken

Message Date: Summer 2019

BMP 1B: Lawn Care

Document Link or Reference:

http://www.londonderry.org/Pages/LondonderryNH_PublicWorks/engodcs/storm

Description: Literature stating water quality friendly lawn care and another for fertilizing the lawn with recommendations. The brochure and similar information are posted on the Department of Public Works & Engineering web page.

Targeted Audience: Residents & Businesses

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Number of Flyers Taken

Message Date: Summer 2019

BMP 1C: Septic System Maintenance

Document Link or Reference: TBD

Description: A 4-fold brochure template prepared by USEPA for homeowners on the importance of maintaining their septic system. Brochures are edited with links for additional information. Distribution will be through Department of Public Works, and electronic version to be posted on the Department's website.

Targeted Audience: Septic System Owners – Residents & Businesses

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Number of Flyers Taken

Message Date: Fall 2019

BMP 1D: Leaf Litter / Yard Waste Fact Sheet

Document Link or Reference: <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.

Targeted Audience: Residents, Businesses, Institutions, and Commercial Facilities

Responsible Department/Parties: Department of Public Works & Engineering

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.

Message Date: Annually in Sept - October

BMP 1E: Green SnowPro Certification / Salt Minimization Fact Sheet

Document Link or Reference: TBD

Description: To reduce the effects on chloride impaired waters, the Town 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. This will include the Green SnoPro Certification for Application.

Targeted Audience: Businesses, Institutions, and Commercial Facilities

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Increase the number of business property owners that utilize Green SnowPro Certified applicators.

Message Date: 2020

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

Document Link or Reference: TBD

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 plan for new construction.

Targeted Audience: Developers (Construction)

Responsible Department/Parties: Department of Public Works & Engineering

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.

Message Date: 2020

BMP 1G: Low Impact Design and BMP Fact Sheet

Document Link or Reference: TBD

Description: The Town 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 Town will also work with developers and consultants to utilize LID practices as well as track pollutant reductions using the UNH stormwater PTAPP tracking methodology.

Targeted Audience: Developers (Construction)

Responsible Department/Parties: Department of Public Works & Engineering/Planning Board

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.

Message Date: 2022

BMP 1H: Lawn Maintenance/Water Use Factsheet

Document Link or Reference: TBD

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.

Targeted Audience: Industrial Facilities

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Update/distribute new factsheet every other year to improve lawn irrigation efficiency and minimize chemical applications.

Message Date: 2021

BMP 1I: Spill Prevention/Waste Disposal Factsheet

Document Link or Reference: TBD

Description: A brief factsheet describing tools and resources for spill prevention and waste disposal measures for industrial facilities that handle, and store regulated substances.

Targeted Audience: Industrial Facilities and Applicable Businesses

Responsible Department/Parties: Department of Public Works/Planning Board

Measurable Goal(s): Update/distribute new factsheet every other year to enhance awareness and improve timely reporting and permit compliance

Message Date: 2022

Annual Reporting Elements

For each Annual Report, due at the end of September following each Permit year, the Town 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: 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.

Compliance with Regulatory Requirements

Consistent with Section 2.3.3.1 of the Permit, the Town will post the final SWMP and future Annual Reports to provide an opportunity for public review and comment. The preferred method to satisfy this requirement is making the documents available online. In addition to the SWMP, the Town 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 Town 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 2A: Post Stormwater Management Plan on Town's website for public review	DPW	2019
Public Participation (2.3.3.2)	BMP 2B: Solicit public comment on Stormwater Management issues and concerns via Town web site	DPW	2019
	BMP 2C: Town typically holds household hazardous waste and used oil collections days for public	DPW	Ongoing (annually)
	BMP 2D: Encourage partnership between City of Manchester and Manchester Airport and conduct biannual meetings	DPW	Ongoing (2x/year)
	BMP 2E: Partnership with Solid Waste advisory committee on existing programs and possible development of other public involvement programs	DPW	Ongoing
	BMP 2F: Partnership with NHDOT on related Stormwater issues	DPW	Ongoing

	BMP 2G: Annual Cleanup/Beautification Day advertised and coordinated by Town	DPW	Ongoing
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BMP 2A: Public Review of Stormwater Management Program (SWMP)

Document Link or Reference:

http://www.londonderrynh.org/Pages/LondonderryNH_PublicWorks/engdocs/storm

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: Department of Public Works & Engineering

Measurable Goal(s): Public Review comments. Update and post the SWMP annually

Timeline: 2019

BMP 2B: Public Participation in Stormwater Management Program

Document Link or Reference: TBD

Description: Provide opportunity for public to comment on the Stormwater Management Program. The DPW website includes the contact information for the Department that allows residents to submit comments on stormwater or any other related issues in the Town. Comments may include any observed blockages, backups, illicit discharges, violations, or other concerns.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Provide for annual public input. Allows DPW to receive and track the amount of public input and any actions taken.

Timeline: 2019

BMP 2C: Annual Household Hazardous Waste & Monthly Used Oil Collection Events

Document Link or Reference:

<http://www.londonderrynh.org/sites/londonderrynh/files/uploads/hhwspring2019.pdf>

<http://www.londonderrynh.org/sites/londonderrynh/files/uploads/oil19.pdf>

Description: Hold annual Household Hazardous Waste (HHW) Collection Event in November each year for the residents of Londonderry and Derry. The Town of Derry sponsors a separate event in May each year for residents of both towns. The event allows residents of each town to legally and properly dispose of household hazardous waste

from their home. The event is also used to spread outreach materials directly to residents. Outreach brochures promoting health and safety and HHW reduction include:

- Alternative Household Products
- Hazardous Materials in your Home
- Green Painting Techniques

The Town of Londonderry provides monthly used oil collection dates. The dates of the collection are posted on the Department of Public Works & Engineering website.

Responsible Department/Parties: Public Works Environmental Division coordinates, advertises, and runs the event.

Measurable Goal(s): Resident participation, number of cars, households and residents reached by outreach material and the volume of waste received

Timeline: Ongoing

BMP 2D: Partnership with City of Manchester and Manchester Airport

Description: Encourage partnership and hold biannual meetings

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Attend coalition and partnership meetings

Timeline: 2019

BMP 2E: Partnership – Advocacy Groups

Description: Continue working with Solid Waste advisory committee on existing programs and possibly developing other public involvement programs.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Hold two events per year

Timeline: Ongoing

BMP 2F: Partnership with NHDOT

Description: Encourage partnership and hold biannual meetings.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Hold two events per year

Timeline: Ongoing

BMP 2G: Cleanups – Roadside/General

Document Link or Reference: <http://www.londonderrynh.org/environmental-services-solid-waste/pages/recycling-newsletters>

Description: Encourage annual Cleanup/Beautification Day each year. The Town will advertise the event where the public may participate in collecting roadside/general litter. The Town provides all trash bags to the participants, and picks up full trash bags the week following each cleanup weekend. This would be noted in the Town's recycling newsletter

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Hold one event per year

Timeline: Ongoing

Annual Reporting Elements

For each Annual Report, due at the end of September during each permit year, the Town will describe the activities used to promote public participation including documentation of compliance with the state public notice regulations (NH: RSA Chapter 91-A). Any potential changes or opportunities to improve future public participation and outreach will also be noted.

MCM 3: 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 establish a process to systematically find and eliminate any illicit sources of non-stormwater discharges into the Town's storm drain system, as well as implement procedures to prevent such discharges.

Program Summary

Minimum Control Measure #3 (MCM 3) of the MS4 Permit requires that an Illicit Discharge Detection Elimination (IDDE) program be implemented to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent discharges. An "illicit discharge" is any discharge to a drainage system that is not composed entirely of stormwater, except for discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire-fighting activities.

Consistent with Section 2.3.4 of the MS4 Permit, the Town will develop an inventory of Sanitary Sewer Overflows (SSOs) that have discharged to the MS4 within the previous 5 years and update the inventory annually; revise the system map to include the Phase I required information and update annually; develop a written IDDE plan; develop an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information (catchments draining to any waterbody impaired for bacteria or pathogens shall be designated either Problem Catchments or High-priority); inspect all outfalls/interconnections for the presence of dry weather flow including follow-up inspections and dry weather flow sample collection as applicable; develop a written catchment investigation procedure identifying maps, plans, records, and data sources; outline a manhole inspection methodology; and establish procedures to isolate and confirm sources of illicit discharges; investigate catchments associated with Problem Outfalls (begin by year 2 and complete by year 7) and catchments where any information gathered on the outfall/interconnection identifies sewer input (complete by year 7); investigate catchments associated with High- and Low-priority Outfalls by year 10; and provide annual training to employees involved in the IDDE program including how to recognize illicit discharges and SSOs.

Best Management Practices

The BMPs proposed below summarize the planned IDDE program including the location of relevant documents, who is responsible, a description, and how effectiveness will be measured.

Compliance with Regulatory Requirements

Table 3.1 summarizes the required IDDE BMPs included in the Permit and 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 Tasks

IDDE BMP	Subtask	Permit Section	Reference Location	Status	Required Completion Date
3A: Legal Authority to Prohibit Illicit Connections	Establish ordinance, by-law, or other regulatory mechanism to prohibit illicit discharges	2.3.4.a	See Appendix D	Adopted Sept 16, 2019	06-30-2019
3B: Written Plan	IDDE Procedure Plan	2.3.4.6.c	See Appendix E	Draft Sept 2019	06-30-2019
	Catchment Investigation Plan	2.3.4.8.b	TBD	TBD	12-30-2019
3C: Sanitary Sewer Overflow Inventory	Include Inventory in IDDE Plan	2.3.3.4	See Appendix E	Draft Sept 2019	06-30-2019
3D: Outfall Mapping	Phase I Mapping	2.3.4.5.a	DPW	Ongoing	07-01-2020
3E: Dry Weather Screening/Sampling	Outfall Categorization by Impairment	2.3.4.7.a	Phase I Map	Ongoing	07-01-2020
	Dry Weather Screening/Sampling	2.3.4.7.b.iii	TBD	Pending	07-01-2021
3F: Catchment Investigations	Investigation of Junction Manholes/Drainage Areas	2.3.4.8.c	TBD	TBD	07-01-2020
	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
3G: Employee Training	IDDE Training for Select Employees	2.4.4.11	TBD	Pending	07-01-2020

BMP 3A: Legal Authority

Document Link or Reference: The Town has adopted a Storm Water Ordinance on September 16, 2019 that contains language that prohibits illicit discharges and connections to the municipal storm drain system. The Storm Water Ordinance provides the Department of Public Works & Engineering with adequate legal authority to:

1. Prohibit illicit discharges

2. Investigate suspected illicit discharges
3. Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system
4. Implement appropriate enforcement procedures and actions.

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 copy of the adopted Storm Water Ordinance can be found in the attached **Appendix D**. The Ordinance adoption and legal authority is necessary to allow implementation of the Illicit Discharge Detection and Elimination (IDDE) Plan.

Responsible Department/Parties: Pursuant to the provisions of the Stormwater Ordinance, the Londonderry Department of Public Works & Engineering has the lead responsibility for implementing the IDDE program, including reviewing permit applications for new projects and storm drain construction projects. Other departments with responsibility for aspects of the program include the Londonderry Planning and Economic Development Department who are responsible for the Land Use and Site Plan Review Regulations, and the Code Enforcement Officer who is responsible for enforcement of the Ordinance.

Measurable Goal: Ordinance/Regulation to provide Legal Authority for IDDE Program completed on September 16, 2019.

BMP 3B: Written Illicit Discharge Detection and Elimination Plan

Document Link or Reference: The Town has developed a draft written IDDE plan that is referenced to the Storm Water Ordinance. (see BMP 3A above). A copy of the draft IDDE Plan can be found in the attached **Appendix E**.

Description: 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:

- Sanitary Sewer Overflow (SSO) Inventory
- Storm Water System/Outfall Mapping
- Policies and Procedures for Reviewing/Approving Connections to the Town's Stormwater System
- Assessment and Priority Ranking of Outfall and Interconnections
- Dry Weather Outfall Screening and Sampling Protocols
- Catchment Investigations
- Illicit Discharge Removal
- Employee Training

Additional Requirements for Impaired Waters: The 2017 MS4 Permit requires additional measures for waters with a bacteria Total Maximum Daily Load (TMDL) or listed as impaired. 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 under the IDDE program.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Initiate IDDE program under legal authority obtained under Storm Water Ordinance. Conduct 100% of outfall screening on High and Low Priority Outfalls within 3 years of the permit's effective date. Complete catchment investigations for 100% of the Problem Outfalls within 7 years of the permit's effective date. Complete 100% of all catchment investigations within 10 years of the permit's effective date.

A summary of the IDDE program is noted in the following BMPs.

BMP 3C: 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). The Town does not have any combined systems and has not experienced any SSO's in the past 5 years.

Document Link or Reference: See Section 4 of the IDDE Plan

Description: An inventory of all SSOs that have discharged to the MS4 within the previous five years [Part 2.3.4.4 of the MS4 Permit]: The Town has not experienced any SSOs in the past 5 years.

Responsible Department/Parties: Department of Public Works & Engineering - Sewer Division

Measurable Goal(s): Annually track and report the following SSO information: the location; a clear statement of whether the discharge entered a surface water directly or entered the MS4; date(s) and time(s) of each known SSO occurrence; estimated volume(s) of the occurrence; description of the occurrence indicating known or suspected cause(s); mitigation and corrective measures completed with dates implemented; and mitigation and corrective measures planned with implementation schedules. Update inventory as needed.

SSO Reporting: In the event of an overflow or bypass, a notification must be reported within 24 hours by phone to EPA. Follow up the verbal notification with a written notification to EPA and NHDES within five days of becoming aware of the SSO occurrence.

The NHDES contact is:
NHDES
PO Box 95
Concord, NH 03302-0095
(603) 271-3503

The EPA contact is:
EPA New England
5 Post Office Square
Boston, MA 02109
(617) 918-1510

BMP 3D: Stormwater System and Outfall Mapping

Document Link or Reference: Londonderry originally mapped its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A copy of the existing storm system map is provided in **Appendix B** of the IDDE Plan.

Description: The Town's existing mapping efforts are currently being updated to include the additional storm water features in accordance with the 2017 MS4 Permit for Phase 1 mapping. The Phase 1 mapping to be completed by July 2020 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
- Town 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 for each outfall. 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

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.

Responsible Department/Parties: Londonderry Department of Public Works & Engineering

Measurable Goal(s): Map 100% of outfalls and receiving waters, open channel conveyances, interconnections with other MS4s and other storm sewer systems, municipally-owned stormwater treatment structures, waterbodies identified by name and indication of all use impairments, and initial catchment delineations within 2 years of the permit's effective date. Map 100% of outfall spatial locations, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer system (if available), within 10 years of the permit's effective date.

The outfall/interconnection inventory and initial ranking and the dry weather outfall and interconnection screening and sampling results are included in the Draft IDDE Plan - **Appendix E.**

BMP 3E: Dry Weather Screening / Sampling

Document Link or Reference: See Sections 5 and 6 of the IDDE Plan

Description: The Town 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 from the permit effective date to complete the dry weather screening and sampling. The status of any dry weather screening completed this year will be reported in the first annual report.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Conduct 100% of outfall screening on High and Low Priority Outfalls within 3 years (July 2021) of the permit's effective date.

BMP 3F: Catchment Investigations

Document Link or Reference: See Section 7 of the IDDE Plan

Description: The Town 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.

Responsible Department/Parties: Department of Public Works & Engineering, Stantec

Measurable Goal(s): Complete catchment investigations for 100% of the Problem Outfalls within 7 years (by July 2025) of the permit's effective date.

BMP 3G: Employee Training

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

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Training Occurs annually and is tracked by the Department. Goals will be measured by the number of employees trained and the types of training sessions attended or held.

Annual Reporting Elements

For each Annual Report, due at the end of September during each permit year, the Town will describe the activities related to implementation of the IDDE program including: status of the map; status and results of the illicit discharge potential ranking and assessment; identification of problem catchments; status of all protocols described in Parts 2.3.4 of the MS4 Permit (program responsibilities and systematic procedure); number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located; number of illicit discharges removed; gallons of flow removed; identification of tracking indicators and measures of progress based on those indicators; updates to the SSO inventory including status of mitigation and corrective measures to address each identified SSO; and employee training.

MCM 4: Construction 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 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 Town has implemented a proposed review and inspection program for erosion control measures for projects to ensure adequate erosion measures are used to prevent sediment transport in stormwater. This includes disturbances of less than one acre if the project requires review of the proposed development by the Planning Board. The Town developed construction monitoring procedures including a Checklist in September 2000 for all approved projects and continues implementing the procedures.

The 2003 MS4 permit required similar requirements be in place by May 1, 2008. The Town updated the local regulations in September 2000 for construction monitoring that address the 2003 MS4 Permit provisions. 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**.

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

Plan Element	Permit Section	Status	Required Completion Date
4A: Site Plan Review Regulations	2.3.5.3.a	Done	05-01-2008
4B: Site Inspection and Enforcement Written Procedures	2.3.5.3.b	To be updated	07-01-2019
4C: Waste Control Requirements	2.3.5.3.d	Under development	07-01-2019

The current Town regulations require submittal and review of the Stormwater Management Design and includes erosion control measures for new development projects. The Town regulations also establish authority to inspect and enforce the erosion

control measures shown on the approved plans. The Town is developing additional language to address solid waste measures on construction sites. The current regulations, nonetheless, will likely be updated to address the enhanced treatment measures for MCM 5 and add specific language to be more explicit with regard to erosion control review and inspections.

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

Best Management Practices

The BMPs proposed below summarize the planned construction site stormwater runoff control program BMPs including the location of relevant documents, who is responsible, a description, and how effectiveness will be measured.

BMP 4A: Site Plan Review Procedures

Document Link or Reference:

<http://www.londonderrynh.org/sites/londonderrynh/files/uploads/site2.pdf>

Description: The Storm Drain System Section (Sec 3.07) of the Town's Site Plan Review Regulations requires any construction project subject to site plan review to have proper surface drainage so that removal of surface waters will not adversely affect neighboring properties or the public storm water system, and will conserve flooding, erosion and sedimentation prior to initiating soil disturbances. Projects subject to Town site plan review include new residential, commercial or industrial development or redevelopment.

Section 4 of the Site Plan regulations require proposed development projects to include temporary erosion control protection on the development plans and includes notes relative to the construction sequence, erosion control notes and turf establishment that are intended for the description of the proposed erosion control measures to be used, their locations, the installation timeline, and reporting and maintenance requirements. Site plan review utilizes a Design Review Committee (DRC) which includes at least one member of the Department of Public Works & Engineering, 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.

Responsible Department/Parties: Department of Public Works & Engineering, Planning and Economic Development Department,

Measurable Goal(s): Conduct site plan review of 100% of projects according to the procedures outlined in the site plan review process.

BMP 4B: Site Inspections & Enforcement of Erosion Control Measures

Document Link or Reference: Construction Monitoring Procedures and Checklist available at the Department of Public Works & Engineering

Description: The Town adopted “Construction Monitoring Procedures and Checklist” in September 20, 2000 and under Section 6 of the Town’s Site Plan Regulations, the Town requires the approved application to be constructed in accordance with the approved plans and requires routine site inspections under section 6.02 to ensure compliance with the approved plans.

The Town may delegate inspections to an agent of the Town or other qualified individual. The Town also has their own inspection personnel on staff as part of multiple departments. These inspections are documented and provided to the Department of Public Works & Engineering and shared with the Code Enforcement Officer as relevant issues arise.

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

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Inspect 100% of construction sites as outlined in the above document and take enforcement actions as needed.

BMP 4C: Construction Site Waste Control Requirements

Document Link or Reference:

<http://www.londonderrynh.org/sites/londonderrynh/files/uploads/final-zoning-ordinance-adopted-3.18.19-with-cover.pdf>

Description: Section 5.16 of the Town’s Zoning Ordinance identifies performance standards for Commercial and Industrial Districts of the Town which include management of wastes. The review of adequacy falls to the Planning and Economic Development Department and Department of Public Works & Engineering. 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.

Responsible Department/Parties: Department of Public Works & Engineering, Planning and Economic Development Department

Measurable Goal(s): Adoption of requirements to control wastes, including but not limited to, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste.

Annual Reporting Elements

For each Annual Report, due at the end of September during each permit year, the Town will evaluate the construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.

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

MCM 5: Overall 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 the 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 Town's Site Plan regulations will be reviewed and updated to include the MS4 provisions related to post-construction stormwater management for new and redevelopment projects noted in the Permit by July 2020. Consistent with Section 2.3.6 of the MS4 Permit, the Town will continue to implement and enforce its post construction stormwater runoff program and revise as necessary to meet the requirements of Part 2.3.6.a and Appendix F Part I.1.b of the MS4 Permit; modify the existing stormwater management requirements noted in the Town's Land Use Regulations; develop a street design and parking lot guidelines report, a green infrastructure report, and a list of municipal BMP retrofit opportunities.

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
5A: Post-Construction Ordinance / Regulations	Low Impact Development (LID) must be used to maximum extent	2.3.6.a.ii.a	To Begin	07-01-2020
	Salt/snow storage and loading designed according to NHDES guidance	2.3.6.a.ii.b	To Begin	
	Select/Design infiltration practices in accordance with NH Stormwater Manual	2.3.6.a.ii.c	To Begin	

	New Development – Enhanced Stormwater control/treatment	2.3.6.a.ii.d	To Begin	
	Redevelopment – Stormwater control/treatment	2.3.6.a.ii.e	To Begin	
	Submit As-Built Plans	2.3.6.b	To Be Updated	
5B: Street/Parking Lot Design Guidelines	Review/adopt guidelines to minimize new impervious cover and promote LID	2.3.6c	To Begin	07-01-2022
5C: Green Infrastructure	Review zoning and design guidance to promote use of green infrastructure	2.3.6d	To Begin	07-01-2022
5D: Retrofit Inventory/ Priority Ranking	Review Town-owned property to identify potential locations for SW retrofits or improved BMPs	2.3.6e	To Begin	07-01-2022

Best Management Practices

The BMPs proposed below summarize the planned post construction stormwater management program including the location of relevant documents, who is responsible, a description, and how effectiveness will be measured.

BMP 5A: As-Built Plans for On-Site Stormwater Control

Document Link or Reference:

<http://www.londonderrynh.org/sites/londonderrynh/files/uploads/site2.pdf>

Description: Section 6.03 of the Site Plan Regulations require proposed development projects to submit an “As-Built” plan. As part of the site plan review process, the Department’s policy has been typically to request as-built stormwater calculations of the stormwater detention/retention basin to verify the minimum design volume has been constructed in accordance with the approved design. In addition, an operation and maintenance plan is required to be prepared and submitted to the Department for the stormwater facilities, and this includes submission of yearly inspection reports to the Department. It is intended that the as-built policies will be written into the updates to the regulations.

Responsible Department/Parties: Department of Public Works & Engineering, Planning and Economic Development Department

Measurable Goal(s): Require submission of as-built plans and stormwater facility volume calculations, operation and maintenance plans, and yearly inspection reports for completed projects. To be completed by July 2020.

BMP 5B: List of Municipal Retrofit Opportunities

Document Link or Reference: TBD

Description: An inventory and priority ranking of permittee-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. Properties and infrastructure for consideration will include those with the potential for mitigation of on-site impervious area, as well as those that could provide mitigation of off-site impervious area. At a minimum, this may include municipal property with significant impervious area (including parking lots, buildings, and maintenance yards) that could be mitigated, and open space and undeveloped land available to mitigate impervious area and associated stormwater from proximate offsite properties.

MS4 infrastructure to be considered includes existing street right-of-ways, outfalls and conventional stormwater conveyances and controls (including swales and detention practices) that may be readily modified to provide reduction in frequency, volume or pollutant loads of such discharges through the mitigation of impervious cover. This may also include an inventory of properties and infrastructure that are privately-held or that do not contribute stormwater to the MS4.

The inventory and priority ranking will, at minimum, be a screening level ranking based on existing or readily obtainable data. The following factors will be considered in determining potential for retrofitting particular properties: access for maintenance purposes; subsurface geology; depth to water table; site slope and elevation; and proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems; and public safety. In determining priority ranking, the following will be considered schedules for planned capital improvements to storm and sanitary sewer infrastructure; paving projects; current storm sewer level of service; control of discharges to impaired waters, first or second order streams, and critical receiving waters; the complexity and cost of implementation; and opportunities for public use and education. For the purposes of this opportunity, critical receiving waters include public swimming beaches, public drinking water supply sources, outstanding resource waters, and cold water fisheries [Part 2.3.6.e of the MS4 Permit].

Responsible Department/Parties: Town Manager, Department of Public Works & Engineering

Measurable Goals: The list is completed by July 2022 and updated as needed.

BMP 5C: Green Infrastructure Report

Document Link or Reference: TBD

Description: A report that assesses existing local regulations to determine the feasibility of making, at a minimum, the following green infrastructure practices allowable when

appropriate site conditions exist: (1) green roofs; (2) infiltration practices; and (3) water harvesting devices. The assessment will indicate whether and under what circumstances the practices are allowed in the MS4 jurisdiction. If the practices are not allowed, the report shall identify impediments to the use of these practices, and what changes in local regulations may be made to make them allowable and provide a schedule for implementation of recommendations. [Part 2.3.6.d of the MS4 Permit].

Responsible Department/Parties: Planning and Economic Development Department, Zoning, Department of Public Works & Engineering

Measurable Goal: Implement all recommendations, in accordance with the schedules contained in the assessment. Report in each Annual Report on findings and progress towards making the practices allowable. To be completed by July 2022.

BMP 5D: Street Design and Parking Lot Guidelines Report

Document Link or Reference: TBD

Description: A Report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover to determine if design standards can be modified to support low impact design options. If the assessment indicates that changes can be made, the assessment will include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs [Part 2.3.6.c of the MS4 Permit].

Responsible Department/Parties: Planning and Economic Development Department, Department of Public Works & Engineering

Measurable Goals: Implement all recommendations, in accordance with the schedules contained in the assessment. It is anticipated the Planning Board, Planning and Economic Development Department and Department of Public Works & Engineering will be involved in this assessment. Report in each Annual Report on the status of this assessment including any planned or completed changes to local regulations and guidelines. To be completed by 2022.

BMP 5E: Review Regulations to Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit

Document Link or Reference: TBD

Description: Conduct a review and update the Storm Drain System Section (Sec 3.07) of the Town's Site Plan Review Regulations and (Sec 3.08) of the Subdivision Regulations consistent with the permit conditions relative to Low Impact Development, Salt Storage,

Stormwater Treatment, post construction water quality BMPs and long term maintenance practices consistent with NHDES Env-Wq. 1500 [Part 2.3.6.a.ii of the MS4 Permit] and conduct updates to the regulations.

Responsible Department/Parties: Department of Public Works & Engineering, Planning and Economic Development Department

Measurable Goal(s): Adoption, amendment, or modification of the existing regulatory mechanisms consistent with permit requirements. To be completed by July 2020.

Annual Reporting Elements

For each Annual Report, due at the end of September during each permit year, the Town will evaluate stormwater management for new development and redevelopment, include status of ordinance development; provide status of the street design assessment; provide status of the green infrastructure assessment; report on the permittee-owned properties and infrastructure inventoried that have been retrofitted with BMPs to mitigate impervious area.

MCM 6: Good Housekeeping and Pollution Prevention for Municipal Operations

MCM 6: Overall Goal
Consistent with Part 2.3.7 of the 2017 MS4 Permit, the overall goal is to develop a Town-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 Town 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 Town will develop a DRAFT Operations and Maintenance (O&M) Plan to describe specific protocols to guide Town personnel in performing good housekeeping and pollution prevention measures at its facilities. 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 to be included in the DRAFT O&M Plan consistent with Part 2.3.7 of the Permit and includes an inventory of Town-owned facilities, including 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 Town will also develop and/or update Stormwater Pollution Prevention Plans (SWPPP's) by July 2020 for its DPW facility and its waste handling 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 Town-wide O&M plan will describe best practices currently used or planned for future implementation to enhance the operations and maintenance of Town 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 6A: Inventory of All Permittee Owned Parks, Open Spaces, Building and Facilities, Vehicles and Equipment

Written Document completed: Under Development (to be completed by July 2020)

Document Link or Reference: Under Development - TBD

Description: The Town will develop an inventory of all permittee owned facilities including those under management by other departments such Fire, Police, DPW and School District including address location, and Tax Map and Lot Number. The inventory will assist the development of Operation and Maintenance (O&M) procedures for the various facilities.

Responsible Department/Parties: Department of Public Works & Engineering, School District

Measurable Goal(s): Complete an inventory of Permittee owned facilities.

BMP 6B: Parks and Open Space Operations and Maintenance

Written Document completed: Under Development (to be completed by July 2020)

Document Link or Reference: Under Development - TBD

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 and proper disposal of lawn clippings and other vegetative waste, and the use of native and drought resistant landscaping materials.

Park and recreational O&M procedures required by the Permit include:

1. Use slow release fertilizers on Town 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.
3. Management of trash containers at parks (scheduled cleanings; sufficient number), and for placing signage in areas concerning the proper disposal of pet wastes.

4. Establish procedures to address waterfowl congregation areas where appropriate to reduce waterfowl droppings from entering the MS4.
5. 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/Parties: Department of Public Works & Engineering, School District

Measurable Goals: Implement the SOP listed above on 100% of the parks and open spaces.

BMP 6C: Buildings and Facilities

Written Document completed: Under Development (to be completed by July 2020)

Document Link or Reference: Under Development - TBD

Description: The Town will develop an inventory and O&M procedures to maintain the buildings and grounds, parking lots for municipally-owned buildings including schools, police and fire stations, Public Works Garage, Town Library, Senior Center, Drop Off Center, and other facilities. The Permit requires the Town 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/Parties: Department of Public Works & Engineering, Police Department, Fire Department and School District

Measurable Goals: Implement the SOP listed above on 100% of buildings and facilities.

BMP 6D: Vehicles and Equipment

Written Document completed: Under Development (to be completed by July 2020)

Document Link or Reference: Under Development - TBD

Description: The O&M plan will need to include procedures for maintaining, fueling and washing Town 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/Parties: Department of Public Works & Engineering, Police Department, Fire Department, School District

Measurable Goals: Implement the SOP listed above on 100% of the Vehicles and Equipment.

BMP 6E: Catch Basin Cleanings

Written Document completed: Under Development

Document Link or Reference: Under Development - TBD

Description: The Department of Public Works & Engineering and Engineering perform routine inspections, cleaning, and maintenance of the approximately 2,500 catch basins that are located within the MS4 regulated area. The Town of Londonderry will implement catch basin inspection and cleaning procedures to reduce the discharge of pollutants from the MS4.

Catch basins are typically cleaned for one of three (3) reasons: Emergency Response, Routine Maintenance, and New Construction. The purpose of the cleaning will be documented by Town 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, the Assistant Public Works Director will be contacted for further cleaning procedures.
- Cleaning is done using proper traffic control measures with men and clam shell equipment while limiting the use of excessive wash-down waters to remove debris.
- Complete the Catch basin cleaning/ inspection log included in **Appendix G**.
- All personnel engaged in catch basin cleaning must be familiar with the Town's SOPs related to confined space entry procedures.

Review and update established routine inspection and cleaning of catch basins. Schedule catch basin cleaning such that they are no more than 50 percent full at any time and clean basins on that schedule. The Town will keep 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.

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

data on sediment accumulation, or a schedule for gathering information to develop the optimization plan.

Responsible Department: Department of Public Works & Engineering

Measurable Goals: All catch basins are cleaned in accordance with the Catch Basin Cleaning Program such that no catch basin is more than 50% full at any given time.

BMP 6F: Street/Parking Lot Sweeping

Written Document completed: Under Development

Document Link or Reference: Under Development - TBD

Description: Establish and implement procedures for sweeping all Town owned roads and parking lots with curbs and/or catch basins at least once per year in early spring following winter deicing applications. The procedures shall also include more frequent sweeping of targeted areas determined on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired or TMDL waters or other relevant factors as determined [Part 2.3.7.1.iii of the MS4 Permit].

Reporting Requirements: The number of miles swept shall be reported in each annual report.

Responsible Department/Parties: Department of Public Works & Engineering, School District

Measurable Goals: Annually sweep 100% of all municipal owned streets and parking lots in accordance with the schedule listed in the document referenced above. Report in each Annual Report the number of miles cleaned.

BMP 6G: Stormwater Treatment BMP Inspection and Maintenance

Written Document completed: Under Development

Document Link or Reference: Under Development - TBD

Description: Establish and implement inspection and maintenance frequencies and procedures for the storm drain systems and for all stormwater treatment structures such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures. All permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum [Part 2.3.7.1.vi of the MS4 Permit].

Responsible Department: Department of Public Works & Engineering

Measurable Goals: Inspect and maintain 100% of treatment structures to ensure proper function.

BMP 6H: Winter Road Maintenance

Written Document completed: November 2003

Document Link or Reference:

- Town of Londonderry Department of Public Works & Engineering Winter Maintenance Snow and Ice Control Policy November 2003. (**Appendix H**)
- Salt Reduction Plan for Beaver Brook Watershed within the boundaries of the Town of Londonderry. Approved by Town Council 2/14/2011 and revised July 26, 2019. (**Appendix I**)

Description: The documents describe the Town's policy on snow and ice control, and winter road maintenance, areas of coverage, and best management practices to be followed to promote and ensure the reduction in the use of deicing chemicals.

Requirements for TMDL and Chloride-Impaired Waters

Beaver Brook has been identified as impaired by the New Hampshire Department of Environmental Services (NHDES) and the US Environmental Protection Agency (EPA) for chloride concentrations and a TMDL has been established. Appendix F in the 2017 MS4 permit requires any discharges to Beaver Brook, shall reduce chlorides to those waterbodies and requires a Salt Reduction Plan be developed within 1 year. The Town established a Salt Reduction Plan in 2011 (**Appendix I**) to address the state water quality standards for chlorides. The Town will continue to implement the Salt Reduction Plan to address the requirements of the Permit in Londonderry.

Within the Beaver Brook watershed in Londonderry, the New Hampshire Department of Transportation (NHDOT) is responsible for winter maintenance operations on a segment of I-93, section of NH Route 102, section of NH Route 28, small sections of NH Route 128, Peabody Row as well as the state parking lot at Exit 4 (including driveway) and responsible for meeting the TMDL requirements of the Permit for these areas.

Responsible Department/Parties: Department of Public Works & Engineering

Measurable Goal(s): Improved water quality in chloride impaired water bodies.

BMP 6I: Stormwater Pollution Prevention Plans (SWPPPs)

Written Document completed: Under Development (to be completed by July 2020)

Document Link or Reference: Under Development - TBD

Description: Consistent with Section 2.3.7.2 of the Permit, the Town plans to develop a Stormwater Pollution Prevention Plan (SWPPP) for its DPW maintenance facility associated

storage area and the Londonderry Drop Off Center, which are the only facilities within the MS4 that have outside storage of materials that may be 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. The plan shall 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.

Measurable Goals: Develop and implement SWPPPs for 100% of facilities.

Annual Reporting Elements

For each Annual Report, due at the end of September during each permit year, the Town will provide the status of the O&M programs required by Part 2.3.7.1 and the status of SWPPP required by Part 2.3.7.2 including inspection results.

Appendix A

Copy of Notice of Intent (NOI) and EPA NPDES Authorization Letter

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

Page 1 of 21

Part I: General Conditions

General Information

Name of Municipality or Organization: LONDONDERRY, NH State: NH

EPA NPDES Permit Number (if applicable): NHR041016

Primary MS4 Program Manager Contact Information

Name: John R. Trottier, PE Title: Asst. Director of Public Works & Engineering

Street Address Line 1: 268B Mammoth Road

Street Address Line 2:

City: Londonderry State: NH Zip Code: 03053

Email: jrtrottier@londonderrynh.org Phone Number: (603) 432-1100

Fax Number: (603) 432-1128

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed):

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? 90% If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY): 06/30/19

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)

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? No Effective Date or Estimated Date of Adoption (MM/DD/YY): 06/30/19

Construction/Erosion and Sediment Control (ESC) Authority Adopted? Yes Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/11/01

Post-Construction Stormwater Management Adopted? No Effective Date or Estimated Date of Adoption (MM/DD/YY): 06/30/19

[illegible]

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	
R-700061203-13	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-14	35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-15	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-16	24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury, Iron, Lead, Arsenic, Benzene,	
R-700061203-17	19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-20	90	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-21	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-23	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-24	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
R-700061203-26	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercury	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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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 Implementation
1.A.1: Brochures/Pamphlets	Obtain/make brochures/pamphlets related to lawn care, yard waste, septic systems, pet waste, etc. and make available at Town Hall	Residents	DPW & Engineering	Number of distributed materials. Address questions, obtain Feedback and update information as appropriate	2019
1.A.2: Brochures/Pamphlets	Obtain/make brochures/pamphlets relative to lawn maintenance, stormwater maintenance, deicing/anti-icing, etc. and make available at Town Hall	Businesses, Institutions and Commercial Facilities	DPW & Engineering	Number of distributed materials. Address questions, obtain Feedback and update information as appropriate	2019
1.A.3: Brochures/Pamphlets	Obtain/make brochures/pamphlets relative to erosion control and EPA's Construction General Permit and make available at Town Hall	Developers (construction)	Planning/Zoning Department & DPW & Engineering	Number of distributed materials. Address questions, obtain Feedback and update information as appropriate	2019

[illegible]

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 Imple- mentation
Public Review	SWMP Review	DPW & Engineering	Allow annual review of stormwater management plan and posting of stormwater management plan on website	2020
Public Participation	SWMP Review	DPW & Engineering	Allow public to comment on stormwater management plan annually	2020
Public Participation	Household haz waste/used oil collection	DPW & Engineering	Conduct annual collection and provide notification by public announcement on Town website	2018
Public Participation	Partnership with City of Manchester and Manchester Airport	DPW & Engineering	Encourage partnership and conduct biannual meetings.	2019
Public Participation	Partnership - Advocacy Groups	DPW & Engineering	Continue working with Solid Waste advisory committee on existing programs and possibly developing other public involvement programs	2020
Public Participation	Partnership with NHDOT	DPW & Engineering	Encourage NHDOT to partnership on related Stormwater issues biannually	2020
Public Participation	Cleanups - Roadside/General	DPW & Engineering	Encourage annual Townwide cleanup/beautification and provide notification by public announcement on Town website	2020

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 & Engineering	Complete within 1 year of effective date of permit
Storm sewer system map	Create map and update during IDDE program completion	DPW & Engineering	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	Building Permitting and Enforcement & DPW & Engineering	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 & Engineering	Complete 10 years after effective date of permit
Employee training	Train employees on IDDE implementation	DPW & Engineering	Train annually
Conduct dry weather screening	Conduct in accordance with outfall screening procedure and permit conditions	DPW & Engineering	Complete 3 years after effective date of permit
Conduct wet weather screening	Conduct in accordance with outfall screening procedure	DPW & Engineering	Complete 10 years after effective date of permit
Ongoing screening	Conduct dry weather and wet weather screening (as necessary)	DPW & Engineering	Complete ongoing outfall screening on completion of IDDE program

Part III: Stormwater Management Program Summary (continued)

[illegible]

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	Review existing 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 & DPW & Engineering	Require submission of as-built plans for completed projects
Target properties to reduce impervious areas	Begin an inventory and priority ranking of permittee-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	Town Manager /Mayor's Office & DPW & Engineering	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	Planning/zoning Department & DPW & Engineering	Complete 4 years after effective date of permit and implement recommendations 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.	Planning/zoning Department & DPW & Engineering	Complete 4 years after effective date of permit and implement recommendations of report

[illegible]

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 Implementation
O&M procedures	Review 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	DPW & Engineering	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	DPW & Engineering	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	DPW & Engineering	Complete 2 years after effective date of permit	2020
Stormwater Pollution Prevention Plan (SWPPP)	Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities	DPW & Engineering	Complete 2 years after effective date of permit	2020
Catch basin cleaning	Review and update Established schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule	DPW & Engineering	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	2019
Street sweeping program	Sweep all streets and permittee-owned parking lots in accordance with permit conditions	DPW & Engineering	Sweep all streets and permittee-owned parking lots once per year in the spring	2019
Road salt use optimization program	Establish and implement a program to minimize the use of road salt	DPW & Engineering	Implement salt use optimization during deicing season	2019

[illegible]

Part III: Stormwater Management Program Summary (continued)

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.

[illegible]

Part III: Stormwater Management Program Summary (continued)

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.**

[illegible]

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

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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.

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

Page 21 of 21

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:

Kevin H. Smith

Title:

Town Manager

Signature:

Kevin H. Smith

Date:

9/27/18

[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



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

VIA EMAIL

June 12, 2019

Kevin H. Smith
Town Manager

And;

John R. Trottier, PE
Asst. Director of Public Works & Engineering
268B Mammoth Road
Londonderry, NH 03053
jrtrottier@londonderrynh.org

Re: National Pollutant Discharge Elimination System (NPDES) Permit ID: NHR041016, Town of Londonderry, NH

Dear John R. Trottier:

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**.

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,

A handwritten signature in blue ink that reads "Thelma Murphy". The signature is fluid and cursive, with a long horizontal flourish extending from the end of the name.

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

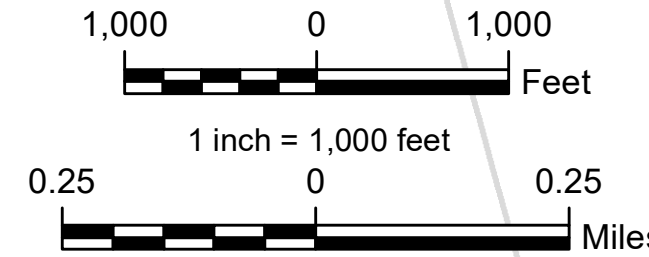
Appendix B

Stormwater Outfall Map



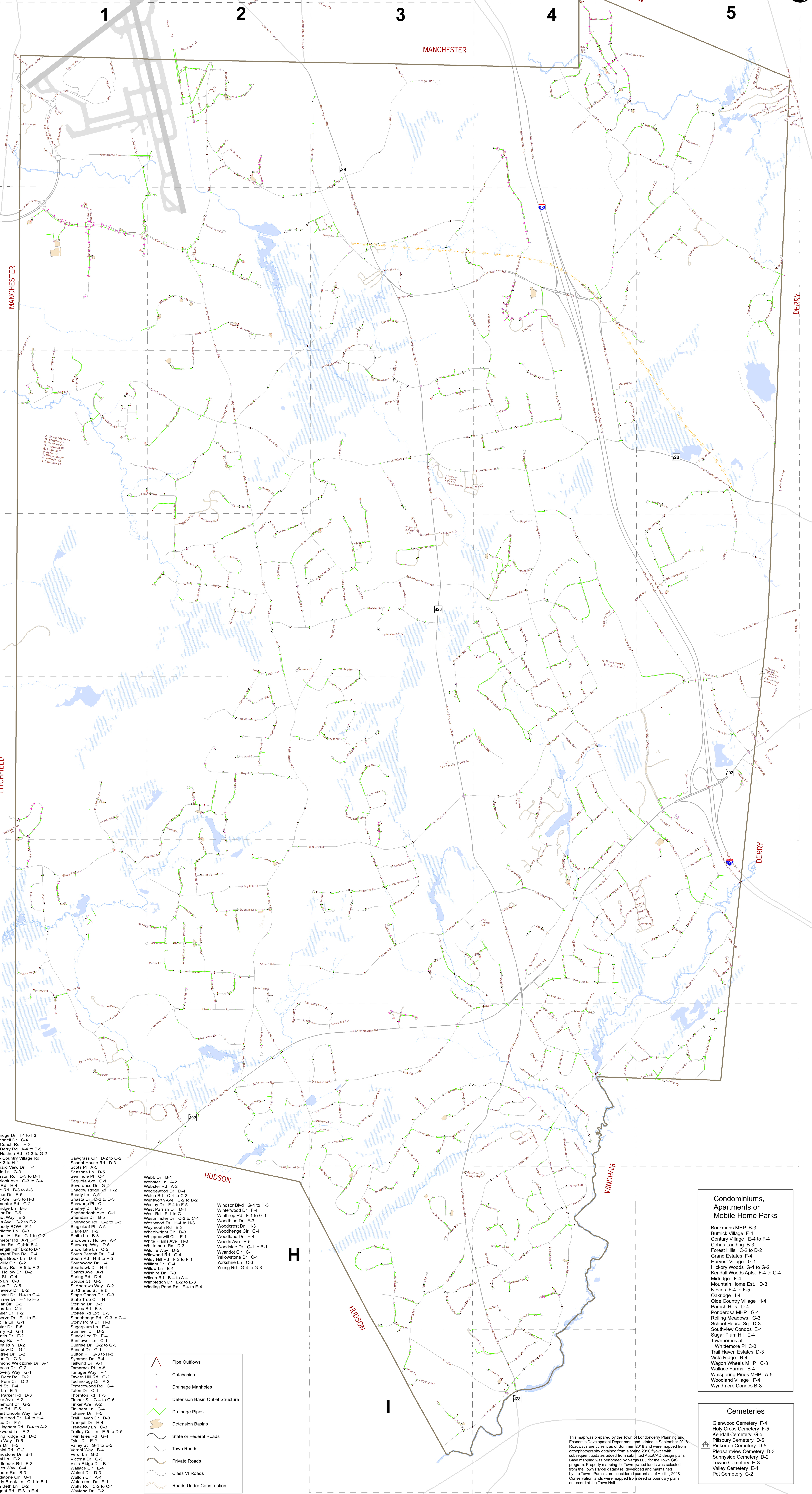
SMALL MS4 GENERAL PERMIT - OUTFALL MAP

OCTOBER 1, 2018



- Abbey Rd. F-3
Abigail Dr. D-3
Acorn Dr. C-1
Acropolis Ave. G-3 to F-2
Action Blvd. E-5
Adams Rd. F-2 to F-4
Airport Rd. A-1
Akira Way. A-2
Alain Cr. F-4
Albany Ave. F-5
Alexander Rd. D-2
Allison Ln. B-5
Ammon Dr. A-1
Anderson Ln. E-4
Angelo Ln. F-2
Angus Ave. F-2
Anthony Dr. F-2
Apollo Rd. G-2 to G-3
Apple Blossom Dr. F-3 to F-4
Appletree Ln. E-6
Apollo Rd. Ext. G-3
Arrowhead Dr. G-5
Aslan Dr. D-5
Ashley Dr. F-3
Aspen Cr. C-1
Atlas Pl. A-5
Auburn Rd. B-4 to A-5
Auburn Ln. D-5
Avery Rd. G-2
Avery Park Dr. B-2
Baldwin Rd. E-4
Ball Dr. F-4 to F-3
Bancroft Rd. D-3 to D-4
Barksdale Ave. B-3
Bartley Hill Rd. C-3 to C-4
Bayberry Ln. G-3
Baxter Dr. E-5
Bear Meadow Rd. D-2 to D-3
Beckley St. B-3
Beech Dr. G-4
Bellflower Hw. A-4
Belknap Ln. G-2
Belang Rd. F-1
Bentley Dr. F-4
Birchwood Dr. G-4 to F-4
Birchwood Ln. D-2
Black Forest Cr. G-2
Blueberry Ln. G-3
Blueberry Pl. F-5
Boston Ave. F-5
Boulder Dr. G-4 to G-4
Boundary Dr. D-2
Boyd Rd. G-2 to G-3
Bretton Cr. G-3
Brewster Rd. C-5
Brian Dr. I-3
Bride Path. B-4
Brookview Dr. C-4
Buckingham Dr. C-3
Buckingham St. B-2
Bunker Hill Dr. F-2 to E-2
Burbank Rd. G-2
Burton Dr. B-2
Button Dr. F-4
Buttrick Rd. F-4
Buyck Ave. D-5
Cala Rd. I-3
Canterbury Ln. G-3
Capitol Hill Dr. F-4
Cardinal Cr. B-5
Carmel Dr. D-3
Carrousel Cr. F-2
Carrier St. F-1
Carrington Dr. G-4
Castle Ct. C-2
Catalpa Rd. F-5
Cedar Ln. F-2
Chandler Dr. E-2 to F-2
Chapman Dr. G-4
Charleston Ave. E-5 to F-5
Charmant Rd. F-4
Chartwell Ct. G-3
Chase Brook Dr. C-2
Chase Rd. I-4 to G-4
Checkerberryn Ln. A-4
Cherokee Cr. D-3
Cheshire Cr. H-3
Chester Hill Dr. E-2 to D-2
Cheyenne Ave. C-1
Church Ln. G-2
Cinnamon Cr. G-4
Clark Rd. A-4
Cobles Terr. A-4
Coin St. B-3
Coleman Pl. F-2
Colonial Dr. F-1 to E-2
Colorado Pl. A-5
Columbia Dr. C-2
Commerce Ave. A-2 to A-1
Commercial Ln. C-5
Commons Dr. E-5
Conifer Pl. A-5
Connors St. D-2
Constance Dr. F-3
Constitution Dr. F-4
Continental Dr. G-1
Copperfield Ln. G-4 to F-3
Cortland St. E-4
Cote Ln. D-5
Coville Rd. D-5
Coventry Ln. C-2
Cragapple Ln. F-2
Crestview Cr. B-4
Crestview Ln. G-4 to F-4
Cross Rd. G-4 to F-3
Cutter Dr. F-3
Dan Hill Rd. G-1 to G-2
Darbury Cr. C-4
Darrow Way. D-4
Davenport Dr. F-5
Davis Dr. E-2 to D-3
Day Blvd. E-3
Deer Crossing Cr. F-3
Delta Dr. B-2
Devonshire Ln. E-4
Dianna Rd. G-2 to F-2
Dickey St. E-5
Douglas Pl. A-5
Dragonfly Way. D-4
Dredgen Way. D-4
Eagle Way. H-4
Eagles Range Rd. F-5 to F-4
Edgell Rd. I-3
Edward Cr. H-4
Edin Blvd. B-3
Ela Ave. E-5
Elstaria Pl. A-5
Elijah Hill Ln. I-3
Elin Way. A-1
Elwood Rd. G-1 to G-2
Enterprise Dr. B-4 to B-3
Essex Cr. C-3
Esley Dr. H-4 to G-4
Evergreen Cr. G-5
Everts St. E-3
Executive Dr. A-1
Fairway Rd. D-2
Falcon Rd. H-4
Faucher Rd. C-1 to C-2
Faye Ln. D-4
Fiddlers Ridge Rd. F-3
Fieldstone Dr. D-3
Finch Cr. H-4
Fir St. G-4
Footpath Way. E-5
Forest St. G-4 to F-5
Fogtown St. B-3
Gall Rd. F-5
Galaxy Way. A-1
Garden Ln. E-5
Gardner Cr. F-4
Gary Dr. E-4
George Ave. A-2
Gerry Ln. A-4
Gillette Rd. F-5 to E-4
Gillette Dr. I-4 to H-4
Glen Dr. F-4
Gordon Dr. D-4
Granite St. F-4
Grassmere Cr. D-3
Greely Rd. G-3
Green Dr. A-1
Gregg Cr. D-2
Greiner Blvd. B-3
Greiner Field Rd. B-3 to A-2
Griffin Ave. H-3
Griffin Rd. H-3 to I-3
Grist Mill Hw. A-4
Grove St. G-4 to G-5
Hailey Cr. F-4
Hall Rd. B-3 to C-2
Hampshire Ln. F-3
Hampton Dr. E-5
Hancock Dr. E-2
Happy Ln. G-4
Hardy Rd. E-4 to C-4
Hardy Rd. Ext. C-4
Harmony Dr. I-4
Harriet Cr. F-5
Harris St. A-2
Harvey Rd. C-2
Hawthorne Rd. F-2 to G-2
Haywood Rd. A-5 to A-4
Hazelnut Ln. D-3 to C-3
Heathstone Dr. E-3
Hemlock St. G-5
Heritage Ln. D-3
Heron Dr. H-4 to E-1
Hickory Hill Dr. D-2
Hidden Meadow Dr. D-2
High Range Rd. G-2 to C-2
Highland Way. A-1
Hilcrest Ln. A-5
Hillside Ave. E-5 to D-5
Holy Ln. G-4
Holstein Ave. H-3
Holt Cr. F-3 to E-3
Homeshead Ln. A-4
Horizon Dr. F-4
Horseshoe Ln. G-4
Howey Rd. E-5 to C-4
Hunter Blvd. B-3
Hunter Mill Way. A-4
Hyde Park Cr. H-3
Imperial Dr. E-2
Independence Dr. B-5 to B-4
Industrial Dr. A-1 to B-1
Innovation Way. B-1
Interstate G. A-4 to F-5
Iris Ln. B-5
Isabel Cr. C-1
Isabella Dr. E-3
Jake Bridge Rd. B-4 to A-4
Jake Rd. F-3 to E-3
Jason Dr. F-2
Jay Dr. H-4
Jefferson Cr. G-3
Jesse St. H-3
Jewel Cr. E-2
Jesse St. G-2
Jolly Ln. H-4 to G-4
Josephine Dr. B-4
July Dr. D-4
Justin Cr. D-2
Karen Ln. F-4
Kelley Rd. C-3
Kelly Ave. A-2
Kendall Pond Rd. H-4 to F-5
Kensington Way. B-2
Kestree Dr. H-4
Kim Ave. E-4 to D-4
Kimball Rd. I-3 to D-2
King Arthur Dr. E-4 to D-3
King Charles Dr. E-4 to D-4
King Edward Dr. E-4 to D-4
King George Dr. E-4
King Henry Dr. D-4
King James Dr. E-4
King John Dr. D-4
King Philip Dr. D-4 to E-4
King Richard Dr. E-4
Kil Ln. E-4 to D-4
Kitty Hawk Lndg. A-2
Lafayette Rd. F-2
Lancaster Dr. E-4 to F-4
Lane Ave. A-4
Lane Way. C-3
Lantern Ln. H-3
Larch Ln. H-3
Laurel Hill Rd. E-2
Lawson Farm Rd. D-3 to C-3
Ledgewood Dr. H-4
Leavins Cr. B-3
Lexington Ave. G-3
Liberty Dr. B-4
Lilac Cr. H-4
Lincoln Dr. F-4
Lindorf Dr. A-2
Litchfield Dr. C-1 to C-3
Loam St. B-3
Lorchester Way. C-1
Longleaf Dr. A-5
Longwood Ave. A-5
Loop Rd. F-4
Lori Ln. B-3
Lorraine Dr. F-2
Lucas Rd. A-3
Mabel Dr. F-5
Macintosh Dr. F-2
Madden Dr. D-5
Madison Dr. B-5
Mammoth Rd. B-3 to A-2
Manassah Cr. D-2
Matter Mill Rd. A-1
Maplewood Dr. H-3
Marks Cr. B-3
Matthew Dr. B-5 to A-5
Meadow Cr. C-2
Mayflower Dr. E-2
McAllister Dr. F-4
McEnroe Dr. D-3 to E-3
McKinley Ave. C-1
Meadow Dr. G-4
Meetinghouse Dr. D-4
Merrill Cr. C-4
Memorial Dr. B-2
Mercury Dr. F-4
Merlin Pl. G-3
Michelle Ln. G-1
Michels Way. E-5
Midridge Cr. F-4
Mill Rd. I-3 to I-4
Millstone Cr. F-5
Milly Ln. C-3
Mohawk Dr. F-4
Mont Vernon Dr. F-2
Morrington Dr. H-4
Morrison Dr. F-5
Morse Dr. F-1
Moulton Dr. H-4
Mountain Home Rd. D-3
Muesquash Meadow Rd. F-1
Mustang Ln. C-3
Nashua Rd. G-2 to F-4
Navigator Rd. A-2
Navigator Cr. E-3
Nettie Way. F-1 to G-1
Nevins Dr. F-4 to F-5
Newbury Rd. A-1
Noble Pl. A-5
North Wentworth Ave. B-2
Northwood Rd. B-3
Nottingham Cr. C-3
Noyes Rd. C-4 to B-3
Nuffield Dr. D-3
Oak Dr. G-4

- A
B
C
D
E
F
G
H
I



- Webb Dr. B-1
Webster Ln. A-2
Welch Rd. D-4
Wendwood Dr. F-2
Wesley Dr. F-4 to F-5
West Park Dr. D-4
West Rd. F-1 to G-1
Westminster Dr. F-4 to C-4
Westwood Dr. H-4 to H-3
Weymouth Rd. B-3
Whitcomb Cr. D-3
Whitcomb Rd. E-1
Whitcomb Rd. D-3
Whitcomb Rd. C-1 to B-1
Wyandott Cr. C-1
Yellowstone Dr. C-1
Yorkshire Ln. C-3
Young Rd. G-4 to G-3
- Windsor Blvd. G-4 to H-3
Winterwood Dr. F-4
Winthrop Rd. F-1 to G-1
Woodbine Dr. E-3
Woodcrest Dr. H-3
Woodlands Cr. C-4
Woodland Dr. H-4
Woods Ave. B-5
Woodside Dr. C-1 to B-1
Wyandott Cr. C-1
Yellowstone Dr. C-1
Yorkshire Ln. C-3
Young Rd. G-4 to G-3
- Sawgrass Cr. D-2 to C-2
School House Rd. D-3
Scotia Pl. A-5
Seasons Ln. D-5
Sennetts Cr. C-1
Sequoia Ave. C-1
Severance Dr. G-2
Shadow Ridge Rd. F-2
Shady Ln. A-5
Shasta Dr. D-2 to D-3
Shawnee Pl. C-1
Shawnee Pl. B-5
Sherridan Dr. B-1
Sherridan Dr. E-2 to E-3
Shingleleaf Pl. A-5
Shirley Cr. D-3
Smith Ln. B-3
Sourberry Hollow. A-4
Snowcap Way. D-5
Snowcap Ln. C-5
South Park Dr. D-4
South Rd. H-3 to F-5
Southwood Dr. I-4
Sparks Ave. A-1
Spring Rd. D-4
Spruce St. D-5
St Andrews Way. C-2
St Charles St. E-5
Stage Coach Cr. C-3
State Tree Cr. H-4
Sterling Dr. B-3
Stokes Rd. B-3
Stokes Rd. Ext. B-3
Stokes Rd. C-3 to C-4
Stony Point Dr. H-3
Superlum Ln. E-4
Sunset Dr. D-5
Sunny Lee Dr. E-4
Sunflower Ln. C-1
Sunrise Dr. G-2 to G-3
Sunset Dr. G-1
Sutton Pl. G-3 to H-3
Symmes Dr. B-4
Tallmadge Dr. A-1
Tanager Way. F-1
Tavern Hill Rd. G-2
Technology Dr. A-2
Terracewood Dr. C-4
Teton Dr. C-1
Thornhill Dr. F-3
Timber St. C-4 to G-5
Tinker Ave. A-2
Tinkham Dr. G-4
Tokan Rd. F-5
Trail Haven Dr. H-3
Treadway Ln. G-3
Trolley Cr. Ln. E-5 to D-5
Twin Isles Rd. G-4
Tyler Dr. E-2
Valley St. G-4 to E-5
Vernal Way. B-4
Verdell Ln. G-2
Victoria Dr. B-4
Vista Ridge Dr. B-4
Wallace Ave. E-4
Walnut Dr. E-3
Walton Cr. A-4
Watercrest Dr. A-4
Watts Rd. C-2 to C-1
Wayland Dr. F-2

- Pipe Outflows
Catchbasins
Drainage Manholes
Detention Basin Outlet Structure
Drainage Pipes
Detention Basins
State or Federal Roads
Town Roads
Private Roads
Class VI Roads
Roads Under Construction

- Condominiums, Apartments or Mobile Home Parks**
- Bockmans MHP. B-3
Buttrick Village. F-4
Century Village. E-4 to F-4
Cohas Landing. B-3
Forest Hills. C-2 to B-2
Grand Estates. F-4
Harvest Village. G-1
Hickory Woods. G-1 to G-2
Kendall Woods Apts. F-4 to G-4
Midridge. F-4
Mountain Home Est. D-3
Nevins. F-4 to F-5
Oakridge. I-4
Ode Country Village. H-4
Parish Hills. D-4
Ponders MHP. G-4
Rolling Meadows. G-3
School House Sq. D-3
Southview Condos. E-4
Sugar Plum Hill. E-4
Townhomes at Whittemore Pl. C-3
Trail Haven Estates. D-3
Vista Ridge. B-4
Wagon Wheels MHP. C-3
Watson Farms. E-4
Whispering Pines MHP. A-5
Woodland Village. F-4
Wyndmere Condos. B-3
- Cemeteries**
- Glenwood Cemetery. F-4
Holy Cross Cemetery. F-5
Kendall Cemetery. G-5
Pillsbury Cemetery. D-3
Pinkerton Cemetery. D-5
Pleasantview Cemetery. D-3
Sunnyvale Cemetery. D-2
Towne Cemetery. H-3
Valley Cemetery. E-4
Pet Cemetery. C-2

Appendix C

ESA Eligibility Documentation



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>



In Reply Refer To:

August 24, 2018

Consultation Code: 05E1NE00-2018-SLI-2869

Event Code: 05E1NE00-2018-E-06723

Project Name: Town of Londonderry - NOI - MS4

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2869

Event Code: 05E1NE00-2018-E-06723

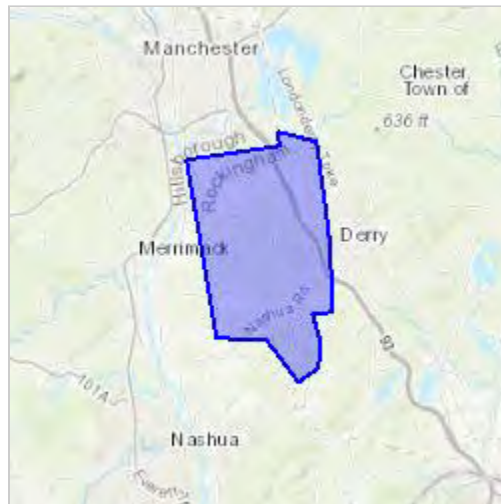
Project Name: Town of Londonderry - NOI - MS4

Project Type: Guidance

Project Description: Town wide assessment for NOI -MS4 application

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.872837180612215N71.38685721529302W>



Counties: Hillsborough, NH | Rockingham, NH

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

Mammals

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

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN NEW HAMPSHIRE**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Belknap	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Meredith, Alton and Laconia
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Carroll	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Albany, Brookfield, Eaton, Effingham, Madison, Ossipee, Wakefield and Wolfeboro
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Coos	Canada Lynx	Threatened	Regenerating softwood forest, usually with a high density of snowshoe hare.	All Towns
	Dwarf wedgemussel	Endangered	Connecticut River main channel and Johns River	Northumberland, Lancaster and Dalton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Cheshire	Dwarf wedgemussel	Endangered	S. Branch Ashuelot River and Ashuelot River	Swanzey, Keene and Surry
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Grafton	Dwarf wedgemussel	Endangered	Connecticut River main channel	Haverhill, Piermont, Orford and Lyme
	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Holderness
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hillsborough	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Manchester, Weare
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Merrimack	Karner Blue Butterfly	Endangered	Pine Barrens with wild blue lupine	Concord and Pembroke
	Small whorled Pogonia	Threatened	Forests	Bow, Danbury, Epsom, Loudon, Warner and Allenstown
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN NEW HAMPSHIRE**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Rockingham	Piping Plover	Threatened	Coastal Beaches	Hampton and Seabrook
	Roseate Tern	Endangered	Atlantic Ocean and nesting at the Isle of Shoals	
	Red knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal towns
	Small whorled Pogonia	Threatened	Forests	Deerfield, Northwood, Nottingham, and Epping
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Strafford	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Middleton, New Durham, Milton, Farmington, Strafford, Barrington, and Madbury
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Sullivan	Northeastern bulrush	Endangered	Wetlands	Acworth, Charlestown, Langdon
	Dwarf wedgemussel	Endangered	Connecticut River main channel	Plainfield, Cornish, Claremont and Charlestown
	Jesup's milk-vetch	Endangered	Banks of the Connecticut River	Plainfield and Claremont
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

¹Migratory only, scattered along the coast in small numbers

-Eastern cougar, gray wolf and Puritan tiger beetle are considered extirpated in New Hampshire.

-Endangered gray wolves are not known to be present in New Hampshire, but dispersing individuals from source populations in Canada may occur statewide.-There is no federally-designated Critical Habitat in New Hampshire

Appendix D

Adopted Stormwater Ordinance



Town of Londonderry

STORM WATER ORDINANCE

Adopted: September 16, 2019

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STORM WATER ORDINANCE

SECTION 1 PURPOSE

The purpose of this ordinance is to:

- A. Protect, maintain, and enhance the environment of the Town of Londonderry, New Hampshire ("Town") and the public health, safety and the general welfare of the citizens of the Town, by controlling discharges of pollutants to the town's storm water system and maintaining and improving the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the town.
- B. Enable the Town to comply with requirements of the Town's Municipal Separate Storm Sewer System ("MS4") General Permit issued by USEPA under the National Pollution Discharge Elimination System ("NPDES") program and applicable regulations, including 40 CFR §122.26 for storm water discharges.
- C. Allow the Town to exercise the powers granted by the State of New Hampshire through RSA 149-I and other applicable statutes to:
 - 1. Exercise general regulation over the planning, location, construction, and operation and maintenance of storm water facilities in the town, whether or not owned and operated by the town;
 - 2. Adopt any rules and regulations deemed necessary to accomplish the purposes of this ordinance, including the adoption of a system of fees for services and permits;
 - 3. Establish standards to regulate the quantity of storm water discharged and to regulate storm water contaminants as may be necessary to protect water quality;
 - 4. Review and approve plans for storm water management in proposed subdivisions, commercial and industrial developments;
 - 5. Issue permits for storm water discharges, or for the construction, alteration, extension, or repair of storm water facilities;
 - 6. Suspend or revoke permits when it is determined that the permittee has violated any applicable ordinance or condition of the permit;
 - 7. Regulate and prohibit illicit discharges into storm water facilities of sanitary, industrial, or commercial sewage or waters that have otherwise been contaminated; and
 - 8. Expend funds to remediate or mitigate the detrimental effects of contaminated land or other sources of storm water contamination, whether public or private.

SECTION 2. DEFINITIONS

For the purpose of this ordinance, the following definitions shall apply unless the context clearly indicates or requires a different meaning. Words used in the singular shall include the plural, and the plural shall include the singular; words used in the present tense shall include the future tense. The word "shall" is mandatory and not discretionary. The word "may" is permissive. Words not defined in this section shall be construed to have the meaning given by common and ordinary use as defined in the latest edition of Webster's Third New International Dictionary.

1. Accidental Discharge - A discharge prohibited by these Regulations, which occurs by chance, and without planning or thought prior to occurrence.
2. Best Management Practices ("BMPs") – Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce the increase in rate of storm water runoff, and pollution of water, that have been approved by the Town and that have been incorporated by reference into the Storm Water Regulations as if fully set out therein. (See Section 6 of the Storm water Regulations for recommended Best Management Practices manuals).
3. Channel - A natural or artificial watercourse with a definite bed and banks that conveys flowing water continuously or periodically.
4. Code Enforcement Officer – A Town employee assigned to enforce the implementation of Town Ordinances
5. Construction Activity - Activities subject to the EPA Phase II Storm Water Program and the NPDES General Construction Permits, including construction projects resulting in land disturbance. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.
6. Contaminant - Any physical, chemical, biological, or radiological substance or matter in water.
7. Department of Public Works and Engineering ("DPWE") - The Town of Londonderry Department of Public Works and Engineering.
8. Director of Public Works and Engineering ("Director") - The chief administrator of DPWE who is authorized to assign DPWE staff to oversee the implementation of the Town's Storm Water Regulations and Storm Water Ordinance (SWO).
9. Discharge - To dispose, deposit, spill, pour, inject, seep, dump, leak or place by any means, or that which is disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means including any direct or indirect entry of

any solid or liquid matter into the municipal separate storm sewer system or ponds, streams, lakes and wetlands.

10. Environmental Protection Agency (EPA) – The Federal agency responsible for implementing the Federal Water Pollution Control Act, (3 U.S.C § 1251 et seq.) AKA the “Clean Water Act”.
11. Illicit Connections - Illegal and/or unauthorized connections to the municipal separate storm water system whether or not such connections result in discharges into that system. A Illicit Connection is:
 - (1) Any pipe, open channel, drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system, regardless of whether such pipe, open channel, drain or conveyance has been previously allowed, permitted, or approved by an authorized enforcement agency; or
 - (2) Any pipe, open channel, drain or conveyance connected to the municipal separate storm sewer system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.
12. Illicit Discharge - Any discharge to the Municipal Storm Sewer System (MS4) that is not composed entirely of storm water and not specifically permitted through an existing NPDES Discharge Permit.
13. Industrial Activity - Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).
14. Land Disturbing Activity - Any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, and excavation.
15. Maintenance - Any activity that is necessary to keep a storm water facility in good working order so as to function as designed. Maintenance shall include complete reconstruction of a storm water facility if reconstruction is needed in order to restore the facility to its original operational design parameters. Maintenance shall also include the correction of any problem on the site property that may directly impair the functions of the storm water facility.
16. Maintenance Agreement - A document duly executed and recorded in the Registry of Deeds that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

17. Municipal Separate Storm Sewer System ("MS4") - The conveyances owned or operated by the municipality for the collection and transportation of storm water, including the roads and streets and their drainage systems, catch basins, pipes, curbs, gutters, ditches, man-made channels, and storm water detention ponds.
18. National Pollutant Discharge Elimination System Permit ("NPDES permit") - A permit issued pursuant to 33 USC § 1342(b) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.
19. Non-Storm Water Discharge - Any discharge to the storm drain system that is not composed entirely of storm water.
20. Notice of Intent ("NOI") – Application to apply for coverage under the EPA's General Permit for Construction Activities.
21. Person - Any and all persons, including any individual, firm or association and any municipal or private corporation or other entity organized or existing under the laws of this or any other state or country.
22. Pollutant - Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; petroleum hydrocarbons; automotive fluids; cooking grease; detergents (biodegradable or otherwise); degreasers; cleaning chemicals; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations, so that same may cause or contribute to pollution; sediment; floatables; pesticides, herbicides, and fertilizers; liquid and solid wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; concrete and cement; and noxious or offensive matter of any kind.
23. Pollution - The contamination or other alteration of any water's physical, chemical or biological properties by the addition of any constituent and includes but is not limited to, a change in temperature, taste, color, turbidity, or odor of such waters, or the discharge of any liquid, gaseous, solid, radioactive, or other substance into any such waters as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety, welfare, or environment, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.
24. Premises - Any building, lot, parcel of land, or portion of land whether improved or unimproved including sidewalks and parking strips
25. Recharge – The amount of water from precipitation that infiltrates into the ground

and is not evaporated or transpired.

26. Runoff - That portion of the precipitation on a drainage area that is discharged from the area into the municipal separate storm sewer system.
27. Sediment - Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.
28. Stabilization/Stabilized - Providing adequate measures, vegetative and/or structural, that will prevent erosion from occurring.
29. State Waters - Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of a boundary of the State of New Hampshire which are not entirely confined and retained completely upon the property of a single person.
30. Storm Water - water from any form of natural precipitation that is not absorbed or evaporated, and resulting from such precipitation. Street wash waters related to street cleaning or maintenance.
31. Storm Water Management - The programs to maintain quality and quantity of storm water runoff to pre-development levels.
32. Storm Water Management Facilities - The drainage structures, conduits, ditches, storm sewers, and all device appurtenances by means of which storm water is collected, transported, pumped, treated or disposed of.
33. Storm Water Management Plan - The set of drawings and other documents that comprise all the information and specifications for the programs, drainage systems, structures, BMPs, concepts and techniques intended to maintain or restore quality and quantity of storm water runoff to pre-development levels.
34. Storm Water Pollution Prevention Plan ("SWPPP") - A plan that clearly describes appropriate control measures that include a description of all pollution control measures (*i.e.*, BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges and describes the interim and permanent stabilization practices for the site, including maintenance agreement.
35. Storm Water Regulations ("Regulations") - A supplement to this Storm Water Ordinance ("SWO") that includes additional conditions and requirements. Copies are available at the DPWE and the Office of the Town Clerk.
36. Storm Water Runoff - Flow on the surface of the ground, resulting from precipitation and drainage consisting entirely of water from any form of natural precipitation that

is not absorbed or evaporated, and resulting from such precipitation.

37. Stream - Areas of flowing water occurring for sufficient time to develop and maintain defined channels but may not flow during dry portions of the year. Includes but is not limited to all perennial and intermittent streams located on U.S. Geological Survey Maps.
38. Structural BMPs - Devices that are constructed to provide control of storm water runoff.
39. Structural Stormwater Control - A structural storm water management facility or device that controls storm water runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.
40. Surface Water - Waters upon the surface of the earth in bounds created naturally or artificially including, but not limited to, streams, other watercourses, lakes, ponds and reservoirs.

SECTION 3. ADMINISTRATION

The Director (or his/her designee) shall administer the provisions of this ordinance and is hereby authorized to promulgate and amend such regulations as may be necessary and convenient to effectuate the purposes of this ordinance.

SECTION 4. PROHIBITED DISCHARGES

No person shall introduce or cause to be introduced into the MS4 any discharge that causes or contributes to causing the Town to violate a state surface water quality standard, the Town's Phase II MS4 NPDES permit, or any state-issued discharge permit for discharges from its MS4.

The specific prohibited discharges outlined in the Regulations are not inclusive of all discharges prohibited by this ordinance and the Regulations.

SECTION 5. PERMITTING REQUIREMENTS

A. Construction General Permit

No land owner or land operator shall begin any site work of any building(s), grading or other land development or any land disturbance activities as outlined in 1 – 4 below without first obtaining an EPA Construction General Permit from EPA and submitting a

Notice of Intent (NOI) to EPA Region I, receiving acknowledgement, having an approved Storm Water Pollution Prevention Plan and meeting the requirements of this ordinance.

1. Land disturbing activity of one (1) or more acres of land;
2. Land disturbing activity of less than one (1) acre of land, if such activity is part of a larger common plan of development that affects one (1) or more acres of land.
3. Land disturbing activity of less than one (1) acre of land, if in the discretion of the Director such activity poses a unique threat to water, or public health or safety;
4. The creation and use of borrow pits (the excavation of soils from one area to be used in another area) that would meet any of the criteria of 1, 2, or 3 above.

The EPA's general permit contains eligibility restrictions, as well as permit conditions and requirements. Applicant(s) may have to take certain actions to be eligible for coverage under this permit. In such cases, the applicant must continue to satisfy those eligibility provisions to maintain permit authorization. If the applicant does not meet the requirements that are pre-condition to eligibility, then the resulting discharges constitute unpermitted discharges. By contrast, if the applicant does not comply with the requirements of the general permit, the applicant may be in violation of the general permit.

B. Industrial General Permit

Any facility covered under the NPDES Multi-Sector General Permit for storm water discharges associated with industrial activities at the facility, must apply for coverage with EPA through submittal of an NOI to EPA Region I, receive acknowledgement of coverage or continuation of coverage if it is a renewal of existing coverage, and have a SWPPP for the facility.

All operators of landfills, hazardous waste treatment, disposal, and recovery facilities and industrial facilities are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42, USC (S) 11023. Industrial facilities that the Town determines are contributing a pollutant load to the Municipal Separate Storm Sewer System, shall comply with Best Management Practices outlined in the Town's Storm Water Regulations.

C. Chloride Usage for Winter Maintenance

The owners and operators of private street and private parking lots with 10 or more parking spaces that are draining to MS4 located within any watershed that is impaired for Chlorides shall be required:

(1) that any commercial salt applicators used for applications of salt to their parking lots or streets be trained and certified in accordance with Env-Wq 2203, and

(2) to report annual salt usage within the municipal boundaries using the UNH Technology Transfer Center online tool (<http://roadsalt.unh.edu/Salt>)

SECTION 6. TOWN APPROVAL PROCEDURES

Any land owner or land operator who intends to obtain coverage for storm water discharge associated with land disturbing activities described in Section 5A above whether a new development or redevelopment or associated with industrial activity under the NPDES Multi Sector General Permit for Storm Water Discharges Associated with Industrial Activity (“the Industrial General Permit”) as described in Section 5B above shall, in addition to the state and federal permit requirements:

1. Secure required approvals through the Town of Londonderry’s Planning Board (“Planning Board”) if appropriate, and
2. At least five (5) days prior to the commencement of the land disturbing activity on the property and/or industrial activity at the facility submit to the Director for review and approval, a signed copy of its NOI and a copy the SWPPP prepared and implemented in accordance with the requirements of the EPA Construction or Industrial General Permit or any individual or group NPDES permit issued for storm water discharges from the facility. The SWPPP shall be prepared to meet the requirements of 40 CFR 122.26.

SECTION 7. STORM WATER CONTROL REGULATIONS

Any land owner or land operator subject to the General EPA permitting requirements described in Sections 5A and/or 5B above or whose land disturbance or industrial activity is otherwise determined by the Director to have the potential to;

1. Degrade the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the Town or and
2. Increases post-development rate of storm water runoff or
3. Introduce or cause to be introduced into the MS4 any discharge that causes or contributes to causing the Town to violate a state surface water quality standard, the Town’s Phase II MS4 NPDES permit, or any state- issued discharge permit for discharges from its MS4.

shall be required to comply with the Best Management Practices of the Londonderry Storm Water Control Regulations dated August 16, 2019 or latest revision thereto.

SECTION 8. ACCESS AND INSPECTION OF PROPERTY AND FACILITIES

- A. A DPWE representative shall be permitted to enter and inspect properties and facilities at reasonable times as often as may be necessary to determine compliance with this ordinance
- B. If a property or facility has security measures in force which require proper identification and clearance before entry into its premises, the owner or operator shall make the necessary arrangements to allow access to DPWE representatives.
- C. The owner or operator shall allow DPWE representatives ready access to all parts of the premises for the purposes of inspection, sampling, photography, videotaping, examination and copying of any records that are required under the conditions of a National Pollutions Discharge Elimination System Permit to discharge storm water.
- D. DPWE shall have the right to set up on any property or facility such devices as are necessary in the opinion of the DPWE to conduct monitoring and/or sampling of flow discharges.
- E. DPWE may require the owner or operator to install monitoring equipment and perform monitoring as necessary, and make the monitoring data available to DPWE. This sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the owner or operator at his/her own expense. All devices used to measure flow and quality shall be calibrated to ensure accuracy.
- F. Any temporary or permanent obstruction to safe and easy access to the property or facility to be inspected and/or sampled shall be promptly removed by the owner or operator at the written or oral request of DPWE and shall not be replaced. The costs of clearing such access shall be borne by the owner or operator.
- G. Unreasonable delays in allowing DPWE access to a facility shall be a violation of this ordinance. A delay shall be considered unreasonable if the delay a) exceeds 1 week (7 days), or b) any length of time if it is determined that the delay allowed the continuation of a discharge to the MS4 that is specifically prohibited by this ordinance.
- H. If DPWE has been refused access to any part of the premises from which storm water is discharged, and DPWE is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designated to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, environment and welfare of the community, then DPWE may seek

issuance of a search warrant from any court of competent jurisdiction.

SECTION 9. NOTIFICATION OF ACCIDENTAL DISCHARGES AND SPILLS

Notwithstanding other requirements of law, as soon as any person responsible for a facility, activity or operation, or responsible for emergency response for a facility, activity or operation has information of any known or suspected release of pollutants or non- storm water discharges from that facility or operation which are resulting or may result in illicit discharges or pollutants discharging into storm water, the Town's Separate Storm Sewer System, State Waters, or Waters of the United States, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release so as to minimize the effects of the discharge.

Any person identified above that is required to respond as described in the previous paragraph, or is otherwise required to provide notification to the State in accordance with RSA 146-A:5 (NH Oil Spillage in Public Waters) or RSA 147-A:11 (NH Hazardous Waste Management Act), shall also provide immediate notification to DPWE and the Londonderry Fire Department.

SECTION 10. VIOLATIONS ENFORCEMENT AND PENALTIES

- A. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of the Town's SWO or Regulations. Any person who has violated or continues to violate these provisions may be subject to the enforcement actions outlined in this section or may be restrained by injunction or otherwise abated in a manner provided by law. In the event the violation constitutes an immediate danger to public health or public safety, DPWE is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property. D P W E is authorized to seek costs of the abatement as outlined in Section 10.F below.
- B. Whenever DPWE finds that a violation of this ordinance has occurred, a Code Enforcement Officer may order compliance by written notice of violation ("NOV"). The NOV shall contain:
 - 1. The name and address of the alleged violator;
 - 2. The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
 - 3. A statement specifying the nature of the violation;
 - 4. A description of the remedial measures necessary to restore compliance with this ordinance and a time schedule for the completion of such remedial action;

5. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed; and,
6. A statement that the determination of violation may be appealed to the Town Manager by filing a written notice of appeal within five (5) days of service of notice of violation.

C. An NOV may require without limitation:

1. Performance of monitoring, analyses, and reporting;
2. Elimination of illicit discharges and illegal connections;
3. Violating discharges, practices, or operations shall cease and desist;
4. Abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;
5. Payment of costs to cover administrative and abatement costs; and,
6. Implementation of pollution prevention practices.

D. Appeal of Notice of Violation - Any person receiving an NOV may appeal the determination of DPWE. The appeal must be received by end of the business day at the office of the Town Manager within five (5) calendar days from the date of the NOV. Filing an appeal does not relieve the owner from full compliance with remedial actions outlined in the NOV. The decision of the Town Manager shall be final.

E. Enforcement Measures After Appeal - If the violation has not been corrected pursuant to the requirements set forth in the NOV, then DPWE representatives may enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow DPWE or its designee to enter upon the premises for the purposes set forth above.

F. Costs of Abatement of the Violation - Within ten (10) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file to the Town Manager a written protest objecting to the assessment or to the amount of the assessment within fifteen (15) days of such notice. If the amount due is not paid within thirty (30) days after receipt of the notice, or if an appeal is taken, within five (5) days after a decision on said appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the Town by reason of such violation.

G. Civil Penalties -In the event the alleged violator fails to take the remedial measures set forth

in an NOV or otherwise fails to cure the violations described therein within five (5) days, or such greater period as DPWE shall deem appropriate, after the Director or the Director's designee has taken one or more of the actions described above, the Code Enforcement Officer may impose a penalty not to exceed \$1,000 (depending on the severity of the violation) for each day the violation remains unremedied after receipt of the NOV.

- H. Criminal Penalties - For any wanton, willful, or malicious violation of the SWO or the Regulations adopted pursuant to the authority stated in this ordinance, the Code Enforcement Officer may issue a citation to the alleged violator requiring such person to appear in court to answer charges for such violation. Upon conviction, such person shall be guilty of a misdemeanor if a natural person, or guilty of a felony if any other person and may be punished by a fine not to exceed \$1,000 for each day the violation has occurred, or imprisonment or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.
- I. Violations Deemed a Public Nuisance – In addition to the enforcement process and penalties provided in this SWO any threat to public health, safety, welfare and environment is declared and deemed a nuisance, which may be abated by injunctive or other equitable relief as provided by law.
- J. Remedies Not Exclusive_- The remedies listed in this SWO and the Regulations are not exclusive of any other remedies available under any applicable federal, state or local law and the Town may seek cumulative remedies.
- K. The Town may recover attorney's fees, court costs, engineering fees and other expenses associated with enforcement of this SWO and the Regulations, including sampling and monitoring expenses.

SECTION 11. ELIGIBILITY

EPA reissued the Construction General Permit ("CGP") on January 18, 2017. The CGP now covers both the Phase I large construction sites greater than five acres and "Storm Water Associated with Small Construction Activity," which includes construction sites from one to five acres (or smaller than one acre if part of a larger "common plan of development or sale" that totals one acre). The permit contains conditions to protect endangered species and historic properties.

The EPA's general permit contains eligibility restrictions, as well as permit conditions and requirements. Applicant(s) may have to take certain actions to be eligible for coverage under this permit. In such cases, the applicant must continue to satisfy those eligibility provisions to maintain permit authorization. If the applicant does not meet the requirements that are pre-condition to eligibility, then the resulting discharges constitute unpermitted discharges. By contrast, if the applicant does not comply with the requirements of the general permit, the applicant may be in violation of the general permit.

SECTION 12. SEVERABILITY CLAUSE

Should any Chapter or provision of this SWO be declared by a court of competent jurisdiction to be unconstitutional or invalid, such decision shall not affect the validity of this SWO as a whole, or any part thereof other than the part declared to be invalid.

SECTION 13. ORDINANCE IN FORCE

This SWO shall be in full force and effect from and after its passage, approval, recording and publications as provided by law.

Appendix E

Illicit Discharge Detection and Elimination (IDDE) Plan

Illicit Discharge Detection and Elimination (IDDE) Plan

Town of Londonderry



DRAFT
September 2019

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Appendices

Appendix A – Legal Authority – Stormwater Ordinance

Appendix B – Storm System Map

1 IDDE Program Implementation Timeline

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by the Town of Londonderry 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.

Under Minimum Control Measure 3, the permittee is required to implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges. The IDDE program must also be recorded in a written (hardcopy or electronic) document. This IDDE Plan has been prepared to address this requirement.

1.2 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 wash water 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.

1.3 Allowable Non-Stormwater Discharges

The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- 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
- 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).

1.4 Receiving Waters and Impairments

Water Body Name	Segment ID	Category	Impairment(s)	Associated Approved TMDL
Cohas Brook – Long Pond Brook	NHRIV7000060703-05	4A-P	E.coli	Appendix F, Part II
Little Cohas Pond – Unnamed Brook	NHRIV7000060804-05	5-P	Chloride	
South Perimeter Brook	NHRIV7000060804-12	5-P	Chloride	
Nesenkeag Brook	NHRIV7000061002-4	5-P	Dissolved Oxygen	
Nesenkeag Brook	NHRIV7000061002-5	5-P	Dissolved Oxygen	
Nesenkeag Brook – Unnamed Brook	NHRIV700006102-26	5-P	Dissolved Oxygen	
Kendall Pond	NHLAK7000061203-04	5-M	Dissolved Oxygen Saturation	
Beaver Brook	NHRIV700061203-11	5-P	Chloride	Appendix F, Part I
Beaver Brook	NHRIV700061203-16	4A-P	Chloride	Appendix F, Part I

Category 4A Waters – impaired water bodies with a completed Total Maximum Daily Load (TMDL).

Category 4C Waters – impaired water bodies where the impairment is not caused by a pollutant. No TMDL required.

Category 5 Waters – impaired water bodies that require a TMDL.

“Approved TMDLs” are those that have been approved by EPA as of the date of issuance of the 2017 MS4 Permit.

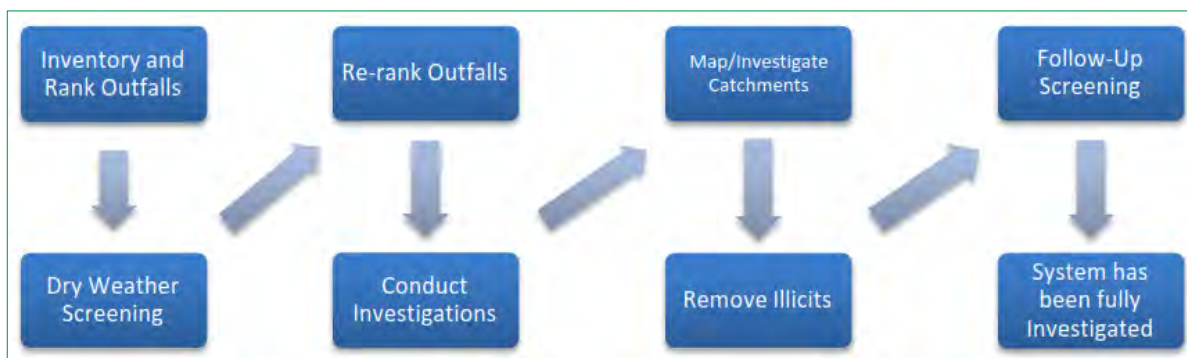
1.5 IDDE Program Goals, Framework, and Timeline

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 outfalls¹
- 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 1-1.

Figure 1-1. IDDE Investigation Procedure Framework



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.

Table 1-1. 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	N/A					
Initial Outfall Ranking	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 ²				X		
Catchment Investigations – Problem Outfalls					X	
Catchment Investigations – all Problem, High and Low Priority Outfalls						X

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.

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The Town of Londonderry has adopted a Stormwater Ordinance (on September 16, 2019) with adequate legal authority to:

- Prohibit illicit discharges
- 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 bylaw, ordinance, or other regulatory mechanism will meet the requirements of the 2017 MS4 Permit. A copy of the Storm Water Ordinance is included in **Appendix A**.

2.2 Statement of Responsibilities

The Department of Public Works and Engineering is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of the Stormwater Ordinance. Other agencies or departments with responsibility for aspects of the program include:

- Department of Public Works
- Building Inspector and/or Code Enforcement Officer
- Department of Planning and Economic Development
- Planning Board
- Town Council
- Town Manager

3 Stormwater System Mapping

Londonderry 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 **Appendix B**. 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 Town will report on the progress towards completion of the storm system map with the filing of each annual report. Updates to the stormwater mapping will be included in **Appendix B**.

3.1 Phase I Mapping

The Town is in the process of completing the Phase I mapping requirements consistent with the Permit, although it is not required to be completed until two (2) years from the effective date of the permit (complete by July 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
- Town 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 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 (July 1, 2028) and include the following information per Part 2.3.4.5.b of the MS4 Permit:

- Outfall spatial location (latitude and 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)

3.3 Additional Recommended Mapping Elements

Although not specifically required, the following elements as recommended by the 2017 MS4 Permit should be included in Londonderry's 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 Town of Londonderry has no Sanitary Sewer Overflows (SSOs). The Town of Londonderry does not have any combined sanitary sewer and stormwater systems.

Discharges of wastewater from any point sources, including sanitary sewer overflows (SSO's) shall be reported in accordance with Part II, Section D.1.e. of the General Requirements of the Publicly Owned Treatment Works General Permit.

5 Assessment and Priority Ranking of Outfalls

The MS4 Permit requires an assessment and priority ranking of outfalls for their potential to have illicit discharges and related public health significance. The ranking helps 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 or interconnection. 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 Department has visited most of its outfalls during summer in 2018 to initially assess how many outfalls have dry weather flow. Approximately 15 outfalls were observed to have dry weather flow.

The Department of Public Works and Engineering will complete an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. See **Table 5-1**. 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 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, or drinking water supplies
- 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 from 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.

5.3 Outfall Characteristics

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: September 2019

Outfall Priority	# of Outfalls
Problem	0
High Priority	150
Low Priority	350
Excluded	0
Total Outfalls	500

This initial ranking of outfalls is based upon a cursory review of outfalls within watersheds with the receiving waters noted to have impairments in Section 1.4 of this report.

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.

The Department plans to complete the dry weather screening process in two phases. The first phase consists of a review and assessment of the initial visit information gathered in the Summer of 2018 to determine if any dry weather flow was observed at the stormwater outfalls. However, at the time of the visits, the outfall priority rankings and protocol for determining dry weather conditions had not been established. Outfalls were visited to determine if there was discharge (flow) and any obvious evidence of illicit discharge. Upon completion of the review and assessment of existing field visit information gathered in 2018, some locations may require a follow-up dry weather outfall screening visit consistent with the protocol noted below.

During the second phase, outfalls which are determined to be in the high priority category that had observed flow during the first round of visits in 2018 will be visited first and sampled if flow is evident. The remaining outfalls will be visited in order of their priority ranking. The second phase is expected to be completed in 2021. Sampling for outfalls with observed flow will include:

- Ammonia
- Chlorine
- Conductivity/Salinity
- Bacteria (e. coli or Enterococcus)
- Surfactants
- Temperature
- ph

Preparation for Dry Weather Outfall Screening and Sampling involves Desktop Analyses, Equipment Preparation and Outfall Access Planning / Coordination. The elements of the work are described below.

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. Periods of significant snow melt, or even high groundwater

tables should be avoided to limit the potential for flow and having to sample. Ideally dry weather screening should be done during the dry summer months when groundwater levels are low and potential for flow will be at its lowest. For purposes of determining dry weather conditions, DPW staff will use precipitation data available online at Weather Underground (wunderground.com) for three weather stations within or closest to Londonderry. 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.

6.2 Dry Weather Screening/Sampling Procedure

6.2.1 Develop GIS-based Checklist to Record Inspection Data

Prior to initiating dry weather screening, a field inspection checklist needs to be developed in the geodatabase to record attribute data in the field and be able to identify outfalls that discharge to impaired receiving water bodies and the related pollutant(s) of concern that need to be sampled during dry weather. The field inspection sheet should include sanitary sewer indicator parameters consistent with the permit requirements.

The screening inspection checklist will enable field personnel to record observations and field-testing results at each of the outfalls. Hardcopy versions should also be developed to have on hand in case the GPS connection is not available in the field. The checklist will include the following items to be documented in the field for each outfall inspected consistent with the permit;

Table 6-1. Field Attributes to be Included on Inspection Checklist Collected in the Field

Physical Attributes	Water Quality Readings (if Flow Present)
<ul style="list-style-type: none"> • Unique Outfall Identifier • Active Flow Observed (yes or no) • Receiving Water • Inspection Date • Outfall Characteristics (i.e. dimensions, material (concrete, PVC)) • Spatial Location (Lat and Long +/- 30 feet) • Physical Condition • Photos Taken 	<ul style="list-style-type: none"> • Ammonia • Detergents/Surfactants • Chlorine • Conductivity • Temperature • Salinity • Indicator Bacteria • Pollutants of Concern

6.2.2 Identify Safe Vehicle Parking Locations / Outfall Access

Prior to initiating field investigations, inspectors should develop a game plan to identify groups of high priority outfall(s) to be screened each day, accounting for available access, travel time, staff and sample delivery coordination to an approved laboratory. Bacteria samples have a max. hold time of 6 hours and thus samples will need to be delivered to the lab daily, prior to the lab closing time to allow for processing.

Field inspectors should develop map books of targeted outfall locations that can be accessed from designated vehicle parking locations. Vehicle parking locations and outfall access should be done from the public Right-of-Way and avoid use of private property. This involves a desktop analysis evaluating public roadway and facility locations as they relate to outfall locations and designate appropriate parking and access locations.

Whenever possible, parking along major multi-lane roadways should be avoided for safety reasons and, if necessary, should be coordinated with the Department of Public Works relative to proper protection and signage, as well as possible lane closure to access outfalls from roadways. Property ownership and personnel protection gear are also important considerations. Safety issues related to accessing outfalls along steep embankments should also be considered and carefully planned.

6.2.3 General Procedure

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 6-2** 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 (when peak flow periods may be anticipated) 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.

Include all screening data in the annual report.

6.2.4 Field Equipment

Field investigators should collect and become familiar with the appropriate safety and water quality testing equipment. Table 6-2 lists field equipment commonly used for dry weather outfall screening and sampling.

Table 6-2. Field Equipment – 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	Handheld meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine

Equipment	Use/Notes
Field Test Kits (See Table 6-3)	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
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

6.2.5 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, use water quality meters/test stamps to measure targeted water quality parameters and collect a sample for lab analysis of the required permit parameters listed in **Table 6-4**. 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 6-4**)
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 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 pollutants of concern. Field kits need to have appropriate detection limits and ranges. **Table 6-3** 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 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 6-3. Standard Sampling Parameters and Analysis Methods

Analyte or	Instrumentation (Portable Meter)	Field Test Kit
<i>Ammonia</i>	CHEMetrics™ V-2000 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 Hach™ Ammonia Test Strips
<i>Surfactants (Detergents)</i>	CHEMetrics™ I-2017	CHEMetrics™ K-9400 Hach™ DE-2
<i>Chlorine</i>	CHEMetrics™ V-2000 Hach™ Pocket Colorimeter™ II	SenSafe™ Total Chlorine Test Strips
<i>Conductivity</i>	YSI Pro30 EXTECH ExStik®II	NA
<i>Temperature</i>	YSI Pro30 EXTECH ExStik®II	NA

<i>Salinity</i>	YSI Pro30 EXTECH ExStik®II	NA
<i>Temperature</i>	YSI Pro30 EXTECH ExStik®II	NA
<i>Indicator Bacteria: E. coli (freshwater) or Enterococcus (saline water)</i>	EPA certified laboratory procedure (40 CFR § 136)	NA
<i>Pollutants of Concern³</i>	EPA certified laboratory procedure (40 CFR § 136)	NA

Testing for indicator bacteria and pollutants of concern must be conducted using analytical methods and procedures found in 40 CFR § 136.⁴ Samples for laboratory analysis must also be stored and preserved in accordance with procedures found in 40 CFR § 136. **Table 6-4** lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.

³Where 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.

⁴40 CFR § 136: <https://www.ecfr.gov/cgi-bin/text-idx?SID=57d5771415f8a36cb8c0e2ca2a1583a2&mc=true&node=pt40.25.136&rgn=div5>

Table 6.4. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives⁴

Analyte or Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative
Ammonia	EPA: 350.2, SM: 4500- NH ₃ C	0.05 mg/L	28 days	Cool ≤6°C, H ₂ SO 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
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 ₂ S ₂ O 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 ₂ SO 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 ₂ SO 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 6-5 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 6-5. 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)
Indicator Bacteria ⁵ : <i>E.coli</i> <i>Enterococcus</i> ⁶	<i>E.coli</i> : 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 <i>Enterococcus</i> : 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

The initial outfall ranking was developed from the outfalls located in the watersheds that contribute flow to the receiving waters listed in Section 1.4 and listed as high priority. Under the first follow-up ranking assessment, the Town will review and assess the information gathered from the outfall observations conducted in 2018 and conduct supplemental dry weather outfall screening/sampling visits consistent with Section 6.2 above as needed.

⁵EPA Illicit Discharge Detection and Elimination: A Guidance Manual: epa.gov/npdes/pubs/idde_chapter-12.pdf

⁶NHDES Water Division: des.nh.gov/organization/divisions/water/wmb/beaches/faq_advisories.htm

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 and will be completed within three (3) years of the effective date of the permit (by July 1, 2021).

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 Town 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.

With a significant portion of the MS4 area serviced by septic systems, reconnaissance should include observation of local septic systems for signs of potential influences such as dark green vegetation areas, thick growth spots, moist or wet spots or conditions, evidence of “break-out” of flow, etc.

Catchment Investigations shall be completed in accordance with Part 2.3.4.8 of the MS4 Permit. A written catchment investigation procedure shall be developed and incorporated into this plan within 18 months of the permit effective date. Investigations of catchments associated with Problem Outfalls shall begin no later than two (2) years from the permit effective date and shall be completed within seven (7) years.

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 sanitary sewer network
- Prior work on storm drains or sewer lines
- Building Department data on septic systems
- 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 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
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary 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 than poor owner maintenance)
- History of multiple Building Department/Health Officer actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than 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

Londonderry, NH

Revision Date:

Outfall ID	Receiving Water	1 History of SSOs	2 Common or Twin Invert Manholes	3 Common Trench Excavation	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

- 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 than poor owner maintenance)
- History of multiple Building Department/ Health Officer actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance)

7.2 Dry Weather Manhole Inspections

Londonderry will implement a dry weather storm drain network investigation that involves systematically and progressively observing, sampling if necessary, 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, etc.).
3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges, 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 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

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 equipment is placed 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 fluorimeters 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, Londonderry 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 the Town'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 A

Legal Authority – Stormwater Ordinance



Town of Londonderry

STORM WATER ORDINANCE

Adopted: September 16, 2019

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STORM WATER ORDINANCE

SECTION 1 PURPOSE

The purpose of this ordinance is to:

- A. Protect, maintain, and enhance the environment of the Town of Londonderry, New Hampshire ("Town") and the public health, safety and the general welfare of the citizens of the Town, by controlling discharges of pollutants to the town's storm water system and maintaining and improving the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the town.
- B. Enable the Town to comply with requirements of the Town's Municipal Separate Storm Sewer System ("MS4") General Permit issued by USEPA under the National Pollution Discharge Elimination System ("NPDES") program and applicable regulations, including 40 CFR §122.26 for storm water discharges.
- C. Allow the Town to exercise the powers granted by the State of New Hampshire through RSA 149-I and other applicable statutes to:
 - 1. Exercise general regulation over the planning, location, construction, and operation and maintenance of storm water facilities in the town, whether or not owned and operated by the town;
 - 2. Adopt any rules and regulations deemed necessary to accomplish the purposes of this ordinance, including the adoption of a system of fees for services and permits;
 - 3. Establish standards to regulate the quantity of storm water discharged and to regulate storm water contaminants as may be necessary to protect water quality;
 - 4. Review and approve plans for storm water management in proposed subdivisions, commercial and industrial developments;
 - 5. Issue permits for storm water discharges, or for the construction, alteration, extension, or repair of storm water facilities;
 - 6. Suspend or revoke permits when it is determined that the permittee has violated any applicable ordinance or condition of the permit;
 - 7. Regulate and prohibit illicit discharges into storm water facilities of sanitary, industrial, or commercial sewage or waters that have otherwise been contaminated; and
 - 8. Expend funds to remediate or mitigate the detrimental effects of contaminated land or other sources of storm water contamination, whether public or private.

SECTION 2. DEFINITIONS

For the purpose of this ordinance, the following definitions shall apply unless the context clearly indicates or requires a different meaning. Words used in the singular shall include the plural, and the plural shall include the singular; words used in the present tense shall include the future tense. The word "shall" is mandatory and not discretionary. The word "may" is permissive. Words not defined in this section shall be construed to have the meaning given by common and ordinary use as defined in the latest edition of Webster's Third New International Dictionary.

1. Accidental Discharge - A discharge prohibited by these Regulations, which occurs by chance, and without planning or thought prior to occurrence.
2. Best Management Practices ("BMPs") – Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce the increase in rate of storm water runoff, and pollution of water, that have been approved by the Town and that have been incorporated by reference into the Storm Water Regulations as if fully set out therein. (See Section 6 of the Storm water Regulations for recommended Best Management Practices manuals).
3. Channel - A natural or artificial watercourse with a definite bed and banks that conveys flowing water continuously or periodically.
4. Code Enforcement Officer – A Town employee assigned to enforce the implementation of Town Ordinances
5. Construction Activity - Activities subject to the EPA Phase II Storm Water Program and the NPDES General Construction Permits, including construction projects resulting in land disturbance. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.
6. Contaminant - Any physical, chemical, biological, or radiological substance or matter in water.
7. Department of Public Works and Engineering ("DPWE") - The Town of Londonderry Department of Public Works and Engineering.
8. Director of Public Works and Engineering ("Director") - The chief administrator of DPWE who is authorized to assign DPWE staff to oversee the implementation of the Town's Storm Water Regulations and Storm Water Ordinance (SWO).
9. Discharge - To dispose, deposit, spill, pour, inject, seep, dump, leak or place by any means, or that which is disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means including any direct or indirect entry of

any solid or liquid matter into the municipal separate storm sewer system or ponds, streams, lakes and wetlands.

10. Environmental Protection Agency (EPA) – The Federal agency responsible for implementing the Federal Water Pollution Control Act, (3 U.S.C § 1251 et seq.) AKA the “Clean Water Act”.
11. Illicit Connections - Illegal and/or unauthorized connections to the municipal separate storm water system whether or not such connections result in discharges into that system. A Illicit Connection is:
 - (1) Any pipe, open channel, drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system, regardless of whether such pipe, open channel, drain or conveyance has been previously allowed, permitted, or approved by an authorized enforcement agency; or
 - (2) Any pipe, open channel, drain or conveyance connected to the municipal separate storm sewer system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.
12. Illicit Discharge - Any discharge to the Municipal Storm Sewer System (MS4) that is not composed entirely of storm water and not specifically permitted through an existing NPDES Discharge Permit.
13. Industrial Activity - Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).
14. Land Disturbing Activity - Any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling, and excavation.
15. Maintenance - Any activity that is necessary to keep a storm water facility in good working order so as to function as designed. Maintenance shall include complete reconstruction of a storm water facility if reconstruction is needed in order to restore the facility to its original operational design parameters. Maintenance shall also include the correction of any problem on the site property that may directly impair the functions of the storm water facility.
16. Maintenance Agreement - A document duly executed and recorded in the Registry of Deeds that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

17. Municipal Separate Storm Sewer System ("MS4") - The conveyances owned or operated by the municipality for the collection and transportation of storm water, including the roads and streets and their drainage systems, catch basins, pipes, curbs, gutters, ditches, man-made channels, and storm water detention ponds.
18. National Pollutant Discharge Elimination System Permit ("NPDES permit") - A permit issued pursuant to 33 USC § 1342(b) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.
19. Non-Storm Water Discharge - Any discharge to the storm drain system that is not composed entirely of storm water.
20. Notice of Intent ("NOI") – Application to apply for coverage under the EPA's General Permit for Construction Activities.
21. Person - Any and all persons, including any individual, firm or association and any municipal or private corporation or other entity organized or existing under the laws of this or any other state or country.
22. Pollutant - Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; petroleum hydrocarbons; automotive fluids; cooking grease; detergents (biodegradable or otherwise); degreasers; cleaning chemicals; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations, so that same may cause or contribute to pollution; sediment; floatables; pesticides, herbicides, and fertilizers; liquid and solid wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; concrete and cement; and noxious or offensive matter of any kind.
23. Pollution - The contamination or other alteration of any water's physical, chemical or biological properties by the addition of any constituent and includes but is not limited to, a change in temperature, taste, color, turbidity, or odor of such waters, or the discharge of any liquid, gaseous, solid, radioactive, or other substance into any such waters as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety, welfare, or environment, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.
24. Premises - Any building, lot, parcel of land, or portion of land whether improved or unimproved including sidewalks and parking strips
25. Recharge – The amount of water from precipitation that infiltrates into the ground

and is not evaporated or transpired.

26. Runoff - That portion of the precipitation on a drainage area that is discharged from the area into the municipal separate storm sewer system.
27. Sediment - Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.
28. Stabilization/Stabilized - Providing adequate measures, vegetative and/or structural, that will prevent erosion from occurring.
29. State Waters - Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of a boundary of the State of New Hampshire which are not entirely confined and retained completely upon the property of a single person.
30. Storm Water - water from any form of natural precipitation that is not absorbed or evaporated, and resulting from such precipitation. Street wash waters related to street cleaning or maintenance.
31. Storm Water Management - The programs to maintain quality and quantity of storm water runoff to pre-development levels.
32. Storm Water Management Facilities - The drainage structures, conduits, ditches, storm sewers, and all device appurtenances by means of which storm water is collected, transported, pumped, treated or disposed of.
33. Storm Water Management Plan - The set of drawings and other documents that comprise all the information and specifications for the programs, drainage systems, structures, BMPs, concepts and techniques intended to maintain or restore quality and quantity of storm water runoff to pre-development levels.
34. Storm Water Pollution Prevention Plan ("SWPPP") - A plan that clearly describes appropriate control measures that include a description of all pollution control measures (*i.e.*, BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges and describes the interim and permanent stabilization practices for the site, including maintenance agreement.
35. Storm Water Regulations ("Regulations") - A supplement to this Storm Water Ordinance ("SWO") that includes additional conditions and requirements. Copies are available at the DPWE and the Office of the Town Clerk.
36. Storm Water Runoff - Flow on the surface of the ground, resulting from precipitation and drainage consisting entirely of water from any form of natural precipitation that

is not absorbed or evaporated, and resulting from such precipitation.

37. Stream - Areas of flowing water occurring for sufficient time to develop and maintain defined channels but may not flow during dry portions of the year. Includes but is not limited to all perennial and intermittent streams located on U.S. Geological Survey Maps.
38. Structural BMPs - Devices that are constructed to provide control of storm water runoff.
39. Structural Stormwater Control - A structural storm water management facility or device that controls storm water runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.
40. Surface Water - Waters upon the surface of the earth in bounds created naturally or artificially including, but not limited to, streams, other watercourses, lakes, ponds and reservoirs.

SECTION 3. ADMINISTRATION

The Director (or his/her designee) shall administer the provisions of this ordinance and is hereby authorized to promulgate and amend such regulations as may be necessary and convenient to effectuate the purposes of this ordinance.

SECTION 4. PROHIBITED DISCHARGES

No person shall introduce or cause to be introduced into the MS4 any discharge that causes or contributes to causing the Town to violate a state surface water quality standard, the Town's Phase II MS4 NPDES permit, or any state-issued discharge permit for discharges from its MS4.

The specific prohibited discharges outlined in the Regulations are not inclusive of all discharges prohibited by this ordinance and the Regulations.

SECTION 5. PERMITTING REQUIREMENTS

A. Construction General Permit

No land owner or land operator shall begin any site work of any building(s), grading or other land development or any land disturbance activities as outlined in 1 – 4 below without first obtaining an EPA Construction General Permit from EPA and submitting a

Notice of Intent (NOI) to EPA Region I, receiving acknowledgement, having an approved Storm Water Pollution Prevention Plan and meeting the requirements of this ordinance.

1. Land disturbing activity of one (1) or more acres of land;
2. Land disturbing activity of less than one (1) acre of land, if such activity is part of a larger common plan of development that affects one (1) or more acres of land.
3. Land disturbing activity of less than one (1) acre of land, if in the discretion of the Director such activity poses a unique threat to water, or public health or safety;
4. The creation and use of borrow pits (the excavation of soils from one area to be used in another area) that would meet any of the criteria of 1, 2, or 3 above.

The EPA's general permit contains eligibility restrictions, as well as permit conditions and requirements. Applicant(s) may have to take certain actions to be eligible for coverage under this permit. In such cases, the applicant must continue to satisfy those eligibility provisions to maintain permit authorization. If the applicant does not meet the requirements that are pre-condition to eligibility, then the resulting discharges constitute unpermitted discharges. By contrast, if the applicant does not comply with the requirements of the general permit, the applicant may be in violation of the general permit.

B. Industrial General Permit

Any facility covered under the NPDES Multi-Sector General Permit for storm water discharges associated with industrial activities at the facility, must apply for coverage with EPA through submittal of an NOI to EPA Region I, receive acknowledgement of coverage or continuation of coverage if it is a renewal of existing coverage, and have a SWPPP for the facility.

All operators of landfills, hazardous waste treatment, disposal, and recovery facilities and industrial facilities are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42, USC (S) 11023. Industrial facilities that the Town determines are contributing a pollutant load to the Municipal Separate Storm Sewer System, shall comply with Best Management Practices outlined in the Town's Storm Water Regulations.

C. Chloride Usage for Winter Maintenance

The owners and operators of private street and private parking lots with 10 or more parking spaces that are draining to MS4 located within any watershed that is impaired for Chlorides shall be required:

(1) that any commercial salt applicators used for applications of salt to their parking lots or streets be trained and certified in accordance with Env-Wq 2203, and

(2) to report annual salt usage within the municipal boundaries using the UNH Technology Transfer Center online tool (<http://roadsalt.unh.edu/Salt>)

SECTION 6. TOWN APPROVAL PROCEDURES

Any land owner or land operator who intends to obtain coverage for storm water discharge associated with land disturbing activities described in Section 5A above whether a new development or redevelopment or associated with industrial activity under the NPDES Multi Sector General Permit for Storm Water Discharges Associated with Industrial Activity ("the Industrial General Permit") as described in Section 5B above shall, in addition to the state and federal permit requirements:

1. Secure required approvals through the Town of Londonderry's Planning Board ("Planning Board") if appropriate, and
2. At least five (5) days prior to the commencement of the land disturbing activity on the property and/or industrial activity at the facility submit to the Director for review and approval, a signed copy of its NOI and a copy the SWPPP prepared and implemented in accordance with the requirements of the EPA Construction or Industrial General Permit or any individual or group NPDES permit issued for storm water discharges from the facility. The SWPPP shall be prepared to meet the requirements of 40 CFR 122.26.

SECTION 7. STORM WATER CONTROL REGULATIONS

Any land owner or land operator subject to the General EPA permitting requirements described in Sections 5A and/or 5B above or whose land disturbance or industrial activity is otherwise determined by the Director to have the potential to;

1. Degrade the quality of the receiving waters into which the storm water outfalls flow, including, without limitation, lakes, rivers, streams, ponds, wetlands, and groundwater of the Town or and
2. Increases post-development rate of storm water runoff or
3. Introduce or cause to be introduced into the MS4 any discharge that causes or contributes to causing the Town to violate a state surface water quality standard, the Town's Phase II MS4 NPDES permit, or any state- issued discharge permit for discharges from its MS4.

shall be required to comply with the Best Management Practices of the Londonderry Storm Water Control Regulations dated August 16, 2019 or latest revision thereto.

SECTION 8. ACCESS AND INSPECTION OF PROPERTY AND FACILITIES

- A. A DPWE representative shall be permitted to enter and inspect properties and facilities at reasonable times as often as may be necessary to determine compliance with this ordinance
- B. If a property or facility has security measures in force which require proper identification and clearance before entry into its premises, the owner or operator shall make the necessary arrangements to allow access to DPWE representatives.
- C. The owner or operator shall allow DPWE representatives ready access to all parts of the premises for the purposes of inspection, sampling, photography, videotaping, examination and copying of any records that are required under the conditions of a National Pollutions Discharge Elimination System Permit to discharge storm water.
- D. DPWE shall have the right to set up on any property or facility such devices as are necessary in the opinion of the DPWE to conduct monitoring and/or sampling of flow discharges.
- E. DPWE may require the owner or operator to install monitoring equipment and perform monitoring as necessary, and make the monitoring data available to DPWE. This sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the owner or operator at his/her own expense. All devices used to measure flow and quality shall be calibrated to ensure accuracy.
- F. Any temporary or permanent obstruction to safe and easy access to the property or facility to be inspected and/or sampled shall be promptly removed by the owner or operator at the written or oral request of DPWE and shall not be replaced. The costs of clearing such access shall be borne by the owner or operator.
- G. Unreasonable delays in allowing DPWE access to a facility shall be a violation of this ordinance. A delay shall be considered unreasonable if the delay a) exceeds 1 week (7 days), or b) any length of time if it is determined that the delay allowed the continuation of a discharge to the MS4 that is specifically prohibited by this ordinance.
- H. If DPWE has been refused access to any part of the premises from which storm water is discharged, and DPWE is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designated to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, environment and welfare of the community, then DPWE may seek

issuance of a search warrant from any court of competent jurisdiction.

SECTION 9. NOTIFICATION OF ACCIDENTAL DISCHARGES AND SPILLS

Notwithstanding other requirements of law, as soon as any person responsible for a facility, activity or operation, or responsible for emergency response for a facility, activity or operation has information of any known or suspected release of pollutants or non- storm water discharges from that facility or operation which are resulting or may result in illicit discharges or pollutants discharging into storm water, the Town's Separate Storm Sewer System, State Waters, or Waters of the United States, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release so as to minimize the effects of the discharge.

Any person identified above that is required to respond as described in the previous paragraph, or is otherwise required to provide notification to the State in accordance with RSA 146-A:5 (NH Oil Spillage in Public Waters) or RSA 147-A:11 (NH Hazardous Waste Management Act), shall also provide immediate notification to DPWE and the Londonderry Fire Department.

SECTION 10. VIOLATIONS ENFORCEMENT AND PENALTIES

- A. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of the Town's SWO or Regulations. Any person who has violated or continues to violate these provisions may be subject to the enforcement actions outlined in this section or may be restrained by injunction or otherwise abated in a manner provided by law. In the event the violation constitutes an immediate danger to public health or public safety, DPWE is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property. D P W E is authorized to seek costs of the abatement as outlined in Section 10.F below.
- B. Whenever DPWE finds that a violation of this ordinance has occurred, a Code Enforcement Officer may order compliance by written notice of violation ("NOV"). The NOV shall contain:
 - 1. The name and address of the alleged violator;
 - 2. The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
 - 3. A statement specifying the nature of the violation;
 - 4. A description of the remedial measures necessary to restore compliance with this ordinance and a time schedule for the completion of such remedial action;

5. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed; and,
6. A statement that the determination of violation may be appealed to the Town Manager by filing a written notice of appeal within five (5) days of service of notice of violation.

C. An NOV may require without limitation:

1. Performance of monitoring, analyses, and reporting;
2. Elimination of illicit discharges and illegal connections;
3. Violating discharges, practices, or operations shall cease and desist;
4. Abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;
5. Payment of costs to cover administrative and abatement costs; and,
6. Implementation of pollution prevention practices.

D. Appeal of Notice of Violation - Any person receiving an NOV may appeal the determination of DPWE. The appeal must be received by end of the business day at the office of the Town Manager within five (5) calendar days from the date of the NOV. Filing an appeal does not relieve the owner from full compliance with remedial actions outlined in the NOV. The decision of the Town Manager shall be final.

E. Enforcement Measures After Appeal - If the violation has not been corrected pursuant to the requirements set forth in the NOV, then DPWE representatives may enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow DPWE or its designee to enter upon the premises for the purposes set forth above.

F. Costs of Abatement of the Violation - Within ten (10) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file to the Town Manager a written protest objecting to the assessment or to the amount of the assessment within fifteen (15) days of such notice. If the amount due is not paid within thirty (30) days after receipt of the notice, or if an appeal is taken, within five (5) days after a decision on said appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the Town by reason of such violation.

G. Civil Penalties -In the event the alleged violator fails to take the remedial measures set forth

in an NOV or otherwise fails to cure the violations described therein within five (5) days, or such greater period as DPWE shall deem appropriate, after the Director or the Director's designee has taken one or more of the actions described above, the Code Enforcement Officer may impose a penalty not to exceed \$1,000 (depending on the severity of the violation) for each day the violation remains unremedied after receipt of the NOV.

- H. Criminal Penalties - For any wanton, willful, or malicious violation of the SWO or the Regulations adopted pursuant to the authority stated in this ordinance, the Code Enforcement Officer may issue a citation to the alleged violator requiring such person to appear in court to answer charges for such violation. Upon conviction, such person shall be guilty of a misdemeanor if a natural person, or guilty of a felony if any other person and may be punished by a fine not to exceed \$1,000 for each day the violation has occurred, or imprisonment or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.
- I. Violations Deemed a Public Nuisance – In addition to the enforcement process and penalties provided in this SWO any threat to public health, safety, welfare and environment is declared and deemed a nuisance, which may be abated by injunctive or other equitable relief as provided by law.
- J. Remedies Not Exclusive_- The remedies listed in this SWO and the Regulations are not exclusive of any other remedies available under any applicable federal, state or local law and the Town may seek cumulative remedies.
- K. The Town may recover attorney's fees, court costs, engineering fees and other expenses associated with enforcement of this SWO and the Regulations, including sampling and monitoring expenses.

SECTION 11. ELIGIBILITY

EPA reissued the Construction General Permit ("CGP") on January 18, 2017. The CGP now covers both the Phase I large construction sites greater than five acres and "Storm Water Associated with Small Construction Activity," which includes construction sites from one to five acres (or smaller than one acre if part of a larger "common plan of development or sale" that totals one acre). The permit contains conditions to protect endangered species and historic properties.

The EPA's general permit contains eligibility restrictions, as well as permit conditions and requirements. Applicant(s) may have to take certain actions to be eligible for coverage under this permit. In such cases, the applicant must continue to satisfy those eligibility provisions to maintain permit authorization. If the applicant does not meet the requirements that are pre-condition to eligibility, then the resulting discharges constitute unpermitted discharges. By contrast, if the applicant does not comply with the requirements of the general permit, the applicant may be in violation of the general permit.

SECTION 12. SEVERABILITY CLAUSE

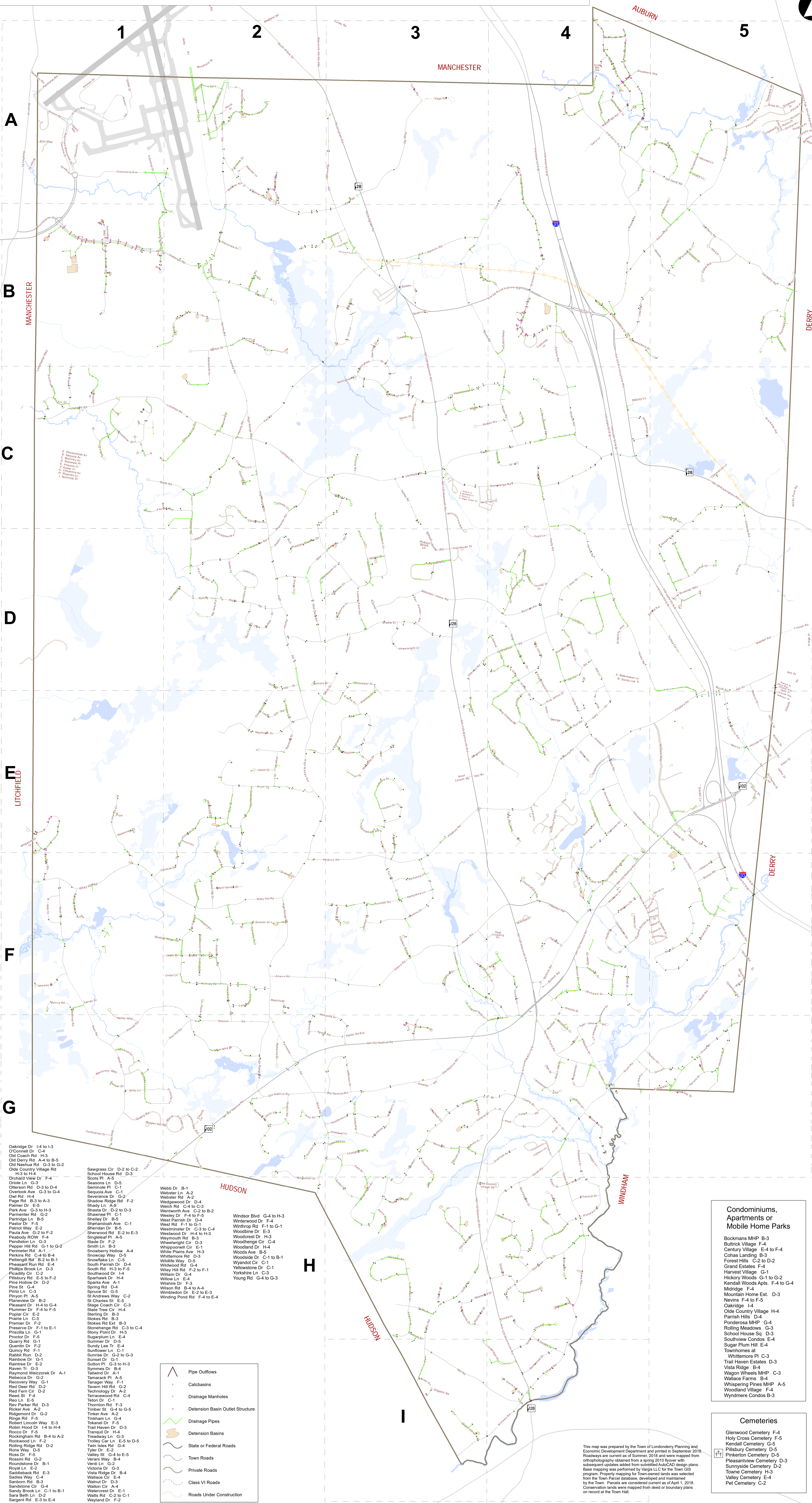
Should any Chapter or provision of this SWO be declared by a court of competent jurisdiction to be unconstitutional or invalid, such decision shall not affect the validity of this SWO as a whole, or any part thereof other than the part declared to be invalid.

SECTION 13. ORDINANCE IN FORCE

This SWO shall be in full force and effect from and after its passage, approval, recording and publications as provided by law.

Appendix B

Storm System Mapping



Bookmans MHP	B-4
Buttrick Village	F-3
Century Village	E-4 to F-4
Clocks Landing	B-3
Forest Hills	C-2 to D-2
Grand Estates	F-4
Greenview Village	D-1
Hickory Woods	G-1 to G-2
Kendall Woods Apts.	F-4 to G-2
Mountain Home	F-4
Mountain Home Est.	D-3
Nevins	F-4 to F-5
Oakridge	I-4
Olde Country Village	H-4
Parish Hills	G-4
Ponderosa MHP	G-4
Rolling Meadows	G-3
School House Sq.	D-3
Southern Condos	E-4
Sugar Plum Hill	E-4
Townhomes at	
Whitmore Pt.	C-3
Trail Haven Estates	D-3
Wagon Wheel MHP	C-3
Wagon Wheels MHP	Ridge
Wallace Farms	B-4
Whispering Pines MHP	A-5
Woodland Village	F-4
Wyndmere Condos	B-3

Glenwood Cemetery F-4
Holy Cross Cemetery F-5
Kendall Cemetery G-5
Pillsbury Cemetery D-5
Pinkerton Cemetery D-5
Pleasantview Cemetery D-3
Sunnyside Cemetery D-2
Towne Cemetery H-3
Valley Cemetery E-4
Pet Cemetery C-2

This map was prepared by the Town of Londonderry Planning and Economic Development Department and printed in September 2018. Roadways are current as of Summer, 2018 and were mapped from orthophotography obtained from a spring 2010 flyover with subsequent updates added from submitted AutoCAD design plans. Base mapping was performed by Vargis LLC for the Town GIS program. Property mapping for Town-owned lands was selected from the Town Parcel database, developed and maintained by the Town. Parcels are considered current as of April 1, 2018. Conservation lands were mapped from deed or boundary plans on record at the Town Hall.

Appendix F

IDDE Inspection Results and Data (Placeholder)

Appendix G

Catch Basin Cleaning Inspection Log (Placeholder)

Appendix H

Winter Maintenance Snow and Ice Control Policy

**TOWN OF LONDONDERRY
DEPARTMENT OF PUBLIC WORKS
WINTER MAINTENANCE
SNOW AND ICE CONTROL POLICY**



NOVEMBER 2003

Janusz Czyzowski, P.E.
Director Public Works & Engineering

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INTRODUCTION

As individuals living in New Hampshire know quite well, each storm situation varies and presents a unique set of circumstances. Each storm, therefore, presents different and unique challenges to the individuals employed by the Town who are charged with the responsibility of meeting the Town's winter maintenance obligations. In meeting these obligations, the individual judgment by those performing the required tasks is an essential component both in conducting and timing all necessary remedial work to overcome ice and snow hazards. This document constitutes a winter maintenance policy for the Town which is intended to provide general guidelines that are strictly advisory in nature. The provisions herein should not be understood or interpreted as restricting the essential freedom of judgment which must be exercised by the Highway Foreman, the Public Works Director, the Town Manager, or other individuals empowered to implement this policy or perform the winter maintenance obligations herein addressed.

I. RESOURCES AVAILABLE

The Town of Londonderry has the following resources available to it in its winter operations:

Weather Information

Local Radio: WZID 95.7 FM
Local T.V.: WMUR Ch. 9
Cable T.V.: Weather Channel
Weather Services: Meteorlogix

Personnel

Personnel available to the Town varies depending upon many economic, political, social, and health related factors. At present, the Town D.P.W. Highway Division has five truck driver/laborers, two equipment operator/mechanics, two equipment operators/truck drivers, one assistant foreman and one foreman available for storm responses. In addition, depending upon need five independent contractors with equipment and two temporary driver without equipment are called upon to assist the Town personnel with winter maintenance operations.

Equipment

Equipment available to the Town varies depending upon many economic, political, social, and mechanical related factors. At present, the Town has the following equipment available:

- 9 International 6 Wheelers (with plows & spreaders)
- 1 Back-Ho
- 2 Pick-Ups (with plows)
- 3 1-Ton Pick Up Trucks (with plows & spreaders)
- 2 Loaders
- 1 Grader

Materials

Sand is purchased by the Town on an annual basis and stockpiled at the Town Garage. The amount of sand used for winter varies from year to year. The amount the Town budgets for sand each year varies depending upon economic, political, and other factors. At present the Town budgets for 4,500 tons of sand per year.

Sodium Chloride (Salt) is purchased from three suppliers. The Town strives, as is possible, to keep the salt shed as close to full as possible. The salt stock is replenished after each storm when possible. The amount the Town budgets for salt each year varies depending upon economic, political, and other factors. The amount of salt used per year varies from year to year. The Town budgets for 3,700 tons of salt per year.

II. OPERATIONS

A. General

Winter weather in northern New England is difficult to predict. There are many variables affecting winter maintenance operations such as type of precipitation, air temperature and pavement temperature, traffic, wind, time of day, and day of week.

The Londonderry Public Works Department has the responsibility for maintaining approximately 175 miles of Town roadways. The Public Works Department's snow removal and ice control policy is based on many years of experience with due consideration for the many competing social, economic, and political considerations that are a necessary component of the Public Works Department's ability to perform snow removal and ice control. This policy expressly recognizes that it is impossible to provide bare pavement throughout the Town on all Town roads during a winter storm.

Traffic volume and speed are two of several major factors affecting the level of winter maintenance service. Heavily traveled roadways are given first priority. The Town attempts to maintain other Town roadways during a storm. Sometimes, however, conditions or other factors dictate that snow removal on other Town roads is not necessarily shoulder-to-shoulder.

It is impractical to develop specific rules on winter maintenance operations. Due to numerous variables involved in winter storms, the judgment of the Highway

Foreman, the Public Works Director, or other individual specifically so empowered governs the quantities and types of material used to control snow and ice. In general, the purpose of using salt is to reduce adherence of snow to the pavement, keep snow in a “mealy” condition and thereby permit nearly full removal by plowing, and, prevent the formation of ice or snow ice (hard pack). Salt is not intended to eliminate the need for snowplowing

The Public Works Director under the general direction of the Town Manager has direct responsibility for daily operation of the Department. The Highway Foreman supervises the day-to-day operations of the Highway Division.

B. Communications:

The following provides a guideline for the normal manner in which communication is to take place within the Town regarding its winter maintenance obligations. This section, however, is not intended nor should it be construed to be the exclusive manner in which communication must take place. This policy recognizes that each given circumstance warrants discretionary decisions by the individuals empowered with the responsibility for the Town’s winter maintenance policy and therefore authorizes these individuals to exercise discretion in determining, based upon the circumstances, the best method for communicating to ensure that winter maintenance obligations are met.

1. Prior to Storm

The Director and Highway Foreman communicate prior to the storm to determine the level of readiness and probable initiation of snow and ice control operations. The Director and Highway Foreman utilize the various weather forecasting sources available.

2. Onset of Storm:

Police Department calls Highway Foreman to inform him that roadway conditions are requiring initiation of snow and/or ice control operation. Highway Foreman then calls in the response team as required according to procedures. If the storm begins during the regular work hours, the Highway Foreman may not wait for the Police Department to request the initiation of snow and ice control operation.

3. During Storm Operations

Radio communication is maintained with all response vehicles. Requests and special instructions for service are taken via telephone or radio at the Highway garage or D.P.W. Requests are relayed to the Highway Foreman who dispatches personnel and equipment when they become available or immediately if it is deemed to be an emergency. The Highway Foreman or designee will determine the extent of the emergency.

Telephone and radio communications with the Highway Foreman, the Director, School Administrators, Bus Managers, Police Department, and Fire Department continue on an as needed basis during the storm.

Any problems with communications or communications equipment may be noted in the log.

4. Wrap Up After The Storm

At the end of the snow/ice operations the Highway Foreman notifies the Police Department that operations are ended and ask to monitor any potential weather related problems, i.e., drifting snow, icing conditions, etc.

Following the storm, generally on Monday of next week the storm log is delivered by the Highway Foreman to the D.P.W. secretary for the director's review and filing.

C. Applications

1. Application of Materials

The use of salt, sand or salt-sand mixtures is a discretionary decision that is dependent upon many factors including not only the conditions of the roadway and the weather conditions, but also anticipated changes in these conditions and fiscal constraints experienced by the Public Works Department. The decision also depends upon the effects of peak traffic periods, approaching nightfall, daybreak, predicted temperature changes, and the anticipated time for the end of the storm. All of these factors, and more, are considered and evaluated prior to selecting the proper materials or rate of application.

Adverse roadway conditions existing during periods of low temperatures, which are predicted to rise would generally be treated in accordance with the recommendations for the higher temperature. If the time of day and weather forecast is such that a drop in temperature may reasonably be expected, treatment would generally be for the lower temperature. Generally, neither salt nor sand should be used at low temperatures if the pavement is dry and snow is blowing off the pavement. However, changing circumstances may warrant such an application.

Salt is the chemical of choice for most storm situations. Salt is used to prevent snow and ice build-up on the pavement and to aid removal of any build-up that occurs. Salt is most effective for melting purposes at temperatures above 20 degrees Fahrenheit becoming slower acting at temperatures below 20 degrees Fahrenheit.

Approximately 300 lbs. per lane mile of salt is applied during initial salt application. However, the actual amount applied during a particular application is left to the discretion of the individual performing the application.

Salt is generally applied to the middle 1/3 of pavement width and on high side of super-elevated curves. Spread width may be increased or decreased at the discretion of the individual applying the substance and depending upon the action of traffic. Salt is applied early in the storm so that brine develops on the pavement and prevents build-up of packed snow. If snow continues and accumulates on the pavement plowing should follow. At the end of the storm when all roadways have been plowed, an additional treatment of salt and/or sand may be applied if deemed necessary.

There are many additional circumstances which, in the discretion of the individuals applying the materials, may necessitate modification to these treatments. Some circumstances are:

- Rising or falling temperatures
- When pavement is cold and dry and dry snow is falling, salt may not be applied. Plowing and treatment of icy spots, if they develop is recommended.
- In low temperatures or on very lightly traveled roadways the effectiveness of salt is reduced and sand or salt/sand mixture may be needed for traction.

2. Spreading Practices

Timing of the initial application during each storm is very important. Generally, spreading should be delayed until there is sufficient accumulation on the pavement to hold and contain the material. However, each circumstance is unique and the decision regarding the timing of the application is left to the discretion of the individuals charged with the responsibility for implementing the winter maintenance policy.

Portions of the town are peculiar due to various physical conditions and will require a greater application rate or an additional application during some storms. However, these areas should be judged and treated separately and not used as a barometer to evaluate and subsequently direct complete applications over the entire town. In order to conduct efficient operation, when possible periodic observation of the pavement surface conditions may be performed.

When possible and at the discretion of the individual responsible for performing the task, the width of material spread (throw plus roll) may be restricted to increase the concentration of the salt where it is needed and therefore increase the effectiveness of the application. Spreading operations should be conducted at lower speeds. Air turbulence created at high speeds makes it difficult to retain all the material discharged within the desired width. Spinner and belt speeds and

spread pattern may be adjusted to obtain the correct spread rate and to retain the material within the required width.

3. *Plowing Operations:*

Each storm presents unique circumstances dictating different decisions regarding the initiation of plowing operations. Generally, however, plowing begins after two inches of snow has fallen and continues until the storm has ended. In some cases, at the discretion of the individuals empowered with the responsibility for implementing this policy, plowing may be suspended in order to allow drivers to rest and/or sleep. Widening and intersection sight distance clearing is performed at the discretion of the individuals implementing this policy with due consideration for the many factors that must be considered. If possible, it generally occurs following the storm during daylight hours when best visibility exists.

For light accumulation snowfalls, snow squalls, and so-called “Alberta Clippers” of short duration, plowing may begin immediately and may include simultaneous salting and/or sanding to provide desired results quickly and efficiently.

Truck mounted front plows and in some cases wing plows are utilized for, among other things, to clear roadways of snow and frozen precipitant. Storm intensity generally measured in inches per hour varies considerably in New Hampshire but average major snowstorms are approximately one inch per hour. This one-inch per hour intensity rate and the allowable snow accumulation is one consideration used in planning the availability of equipment necessary for snowplow operations. The planned allowable snow accumulation of most roads in town is 4 inches with a maximum allowable accumulation in non-emergency situations of 8 inches and a planned plowing frequency of 3 ½ hours. These above mentioned figures are only an approximation and are based on an average of 1” per hour under optimum conditions (i.e., no traffic tie-ups due to accidents or stuck vehicles and no equipment breakdowns). The maximum allowable depth of snow that a motorist may encounter on highway pavements does not include blizzard conditions, heavy wind, drifting conditions, or other emergency conditions.

Frozen precipitation, including sleet and the build up of ice caused by freezing rain or special situations are not subject to the procedures indicated above. When a changeover from snow or sleet to freezing rain is predicted or anticipated, the individuals implementing this policy exercise discretion in deciding whether to leave the snow and ice on the pavement as it may capture the freezing rain and thereby prevent a glare ice situation.

D. Storm Log

Maintaining records is a desirable objective. When possible, beginning with the arrival of the Highway Foreman or responding supervisor at the town garage, a storm log may be initiated and kept throughout the storm event in which, if possible, notes may be maintained regarding communications, conditions and major events.

At a minimum, when possible, the following information may be noted on the log:

- a. Approximate time each piece of equipment and personnel begin and end operation.
- b. Weather conditions, total snow accumulations and maximum and minimum temperature.
- c. Any reported major problems from drivers or operators including equipment failure.
- d. Approximate time equipment is down and time that equipment is back in service.
- e. Report on accidents and special situations, especially Police calls.
- f. Approximate amount of salt and sand used.
- g. Communication with town or school officials regarding road conditions or other storm related matters.
- h. Other situations that occur which, at the discretion of the individual maintaining the log, is potentially significant

E. Response Teams

Department responses will vary with the conditions encountered, personnel, who are available for work. The time of day and day of week, the temperature, overall road conditions, preceding weather, anticipated weather, etc.

The Department response teams are as follows:

1. ***Spot Salting*** – Depending upon the circumstances two to three men may be called. The Highway Foreman or another individual specifically empowered to do so will determine whether additional help is needed to cover the icy spots and if contractors need to be called to assist with the operation.
2. ***Ice/Snow Winter Storms*** – The Highway Foreman or another individual specifically empowered to do so will contact the Town's personnel and contractors to start salting and plowing operations.

F. Blowing and Drifting Snow

Quite often after a cold, dry snowstorm blowing and drifting snow will begin to drift across roadways creating hazardous travel conditions. If identified, the Police Department or other individuals who observe this condition may, depending upon the circumstances, call and request the Highway Foreman to improve the conditions. The Highway Foreman or other individual specifically empowered to do so will determine an appropriate response to the situation identified including, but not limited to, the pieces of road equipment, personnel, and materials that need to be utilized to address the situation.

G. Post Storm Operations

At an appropriate time following the completion of winter maintenance obligations, additional activities may take place to ensure readiness for subsequent winter operations which may include, but need not be limited to, the following:

1. Equipment inspected using preventative maintenance techniques and repair as necessary.
2. Materials, especially salt, may be reordered in order to insure adequate stockpile.
3. Depending upon available resources and at the discretion of the individuals implementing this policy, plow routes may be checked for problems, especially for snow piles created by driveway contractors.
4. Depending upon available resources and at the discretion of the individuals implementing this policy, following a major storm the snow on the sides of roads may be pushed further off the road.
5. Depending upon available resources and at the discretion of the individuals implementing this policy, the height of snow banks may be decreased.

Towing

Often during snow removal operations, stranded or parked vehicles will be encountered on Town roads. When such a vehicle is on a Town roadway or right-of-way it may be towed under the Town's winter parking ban/ordinance. Generally, the procedures for having a car such as one so identified towed are as follows:

- Operating personnel call the garage base station that notifies the Londonderry Police Department and requests removal of the vehicle.
- Persons contacting the Public Works Department to retrieve their car after a storm are referred to the Londonderry Police Department.

Sidewalks

Sidewalk snow clearance will be conducted after the needs to maintain roadways have been satisfied and will depend upon the availability of resources.

Schools, Police Department, Fire Department and Library

The Highway Division is not responsible for clearing snow and providing winter treatment to the Town's school access roads and parking lots.

The school superintendent or designated official representative shall contact the Police Department and Highway Foreman to determine the condition of the Town's roads in order to make decision regarding the use of school buses. The school representative(s) shall make the decision to cancel or postpone school for that day.

The Highway Division is not responsible for clearing snow or providing winter treatment to the Police Department, Fire Department and Town Library parking areas.

The Highway Division will maintain only Day Boulevard and the secondary access road to the Police Department.

Parking

The Town has enacted a winter parking ban effective from November 1st to April 1st of each year. This ban prohibits parking on the Town's roads or right-of-way (ROW) between the hours of 12 midnight and 8 a.m. or at any other time in such a manner as to impede snow removal operations. The Town has the right to tow or ticket violators. The purpose of this winter parking ban is to allow winter maintenance crews unobstructed snow removal and ice control routes, as much as possible, to maintain to maximum effectiveness of their efforts.

Fire Hydrants

The Highway Division is not responsible for the clearing of snow from around fire hydrants. This responsibility belongs to the utility companies.

Damage to Private Property

In implementing this winter maintenance policy, the Town is not responsible and assumes no liability for damage to private property that is located within the public right-of-way. (RSA 231:92) The right-of-way (ROW) is often 50' wide and, in most cases, extends 10 to 20 feet from either side of the paved or gravel road.

In the event damage occurs to personal property during the Town's implementation of this winter maintenance policy, the Town may only be responsible to repair or replace the damaged personal property if the personal property was damaged through actual contact with the Town's snow removal equipment at a time when the personal property was located completely upon private property. The Town will not repair or replace private property which is damaged when the private property is within the town's right of way or which is damaged not by the Town's equipment, but by snow, ice, or other material removed from the Town's right of way.

IV. PUBLIC INFORMATION

Town residents are advised prior to each winter season of the Town's winter policies by public notification in the newspaper and on the Town website as follows:

TOWN OF LONDONDERRY NOTICE FROM THE DEPARTMENT OF PUBLIC WORKS

The Department wishes to remind residents of the snow ordinance regarding parking and the placement of snow on the streets. The Winter Parking Ban is in effect from November 1 to April 1. During that time, no person shall park any motor vehicle on any public road or right-of-way between 12:00 midnight and 8:00 A.M. or at any other time in such a manner as to impede snow removal operations. Any vehicle parked in violation will be towed by the Police Department. Any vehicles so towed shall be stored and released to the owner only upon payment of the cost of towing. No person is allowed to place any snow or ice upon the surface of the traveled portion of any Town maintained portion of road or highway. Blowing, shoveling, or plowing snow into the street, creates a very dangerous situation that can cause swerving and accidents. Any person violating this ordinance may be subject to a penalty as specified in Town's snow ordinance.

Location of mailboxes: Mail and newspaper boxes are allowed, at the owner's risk, in the Town's right-of-way. Claims for damages or other liabilities resulting from their installation are the responsibility of the owner. The following are suggestions for reducing the possibility of damage: the mailbox should be installed in such a manner that no part of the mailbox is within three feet of the edge of pavement. Installations should be sufficiently sturdy to withstand the weight of heavy snow resulting from plowing operations. The Town does not repair or replace mailboxes damaged during snow removal operations.

Generally, the Town has a 50 foot right-of-way, which extends 13 feet from the edge of pavement. Residents are asked not to reconstruct road shoulders and swales or place any structures and landscape items within the Town Right-of-Way. Stakes, delineators or rocks create a road hazard and should be removed.

The Town is not liable for damages that may occur to objects placed within its right-of-way.

Cleaning of Driveway Culverts: Londonderry homeowners may not be aware that they are responsible for their driveway culvert. In order for the culvert to remain clean at all times, we ask that residents periodically check their culvert and free it from debris. This will go a long way toward alleviating erosion, ice build up and drainage problems in the future.

Appendix I

Salt Reduction Plan

Town of Londonderry, NH



Salt Reduction Plan For: Beaver Brook Watershed Within the Boundaries of the Town of Londonderry

Approved by Town Council: 2/14/2011

Revision 1: *(July 26, 2019 – updated data on page 32 of 38)*

Revision 2: *(Date)*

Legal Notices:

These are General guidelines used by the Londonderry, NH Public Works and Engineering Department. Each decision to apply de-icing, anti-icing, and pre-treatment materials is made in accordance with the Town of Londonderry's Winter Maintenance Snow and Ice Control Policy and based on particular weather conditions, past experience, and the availability of resources and therefore may not adhere strictly to this plan.

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1.0 Introduction

Beaver Brook has been identified as impaired by the New Hampshire Department of Environmental Services (NHDES) and the US Environmental Protection Agency (EPA) for chloride concentrations that exceed state water quality standards. NH DES has completed a Total Maximum Daily Load (TMDL) analysis to quantify pollutant reductions needed to meet the state water quality standards for chlorides.

In order to meet water quality standards, significant reductions from current chloride loading are required. The Town of Londonderry has agreed to work towards the reduction of the amount of chlorides applied during snow and ice removal operations while maintaining the town's roadway system in accordance of the Town's Winter Maintenance Snow and Ice Control Policy (see Appendix A). See Appendix B for a copy of the approved Municipal Resolution stating same. This salt reduction plan will serve as a scope of work for implementation of salt reduction efforts..

Beaver Brook is a 4.86 mile stream segment located in Auburn, Chester, Derry, and Londonderry, NH. The associated watershed is 30.33 square miles and is located in the vicinity of the I-93 Corridor from Massachusetts to Manchester. (See figure 1).



Figure 1: Beaver Brook Watershed¹

¹ Photo Credit: NHDES TMDL 2008

The Town of Londonderry currently maintains total of 184.39 miles of public roads², and 25.753 acres (1,078,247sq ft) of parking lots throughout the town.

Londonderry is responsible for winter maintenance of 77.91 lane miles³ (38.955 road miles) of town owned roads within the Beaver Brook watershed. Londonderry also maintains 2 municipal parking lots³ (2.395 Acres = 105,072 Sq. Ft.) within the Beaver Brook watershed.

Within the Beaver Brook watershed New Hampshire Department of Transportation (NHDOT) is responsible for winter maintenance operations on a segment of I-93, section of Rte 102, section of Rte 28, small sections of Rte 128, Peabody Row as well as state parking lot at Exit 4 (including driveway).

Roadways and parking lots which are not maintained by Town of Londonderry or NHDOT are classified as private. These paved surfaces are maintained each winter season by a private snow and ice removal company hired by the respective land owners. Within the watershed and within the municipal boundaries of Londonderry there are 16.084 lane miles² (8.042 road miles) of private roads, 141.91 acres of parking lots⁴, and 7.25 miles of parking lot driveways³.

The goal for the Salt Reduction Plan (SRP) is to provide procedural framework for the Town of Londonderry to continuously strive to improve winter maintenance operations while effectively and efficiently using road salt during snow and ice removal operations. New practices, mechanical upgrades, outreach and awareness activities contained within this plan are intended to reduce the amount of road salt applied thus working towards decreasing chloride loading to the watershed and meeting the required TMDL.

2.0 Plan Development

Londonderry will provide winter maintenance to town roadways, parking lots and sidewalks in accordance with Londonderry's Winter Maintenance Snow and Ice Control Policy (see Appendix A) while striving to minimize adverse impacts to the environment. These efforts will be met by:

- Adhering to the procedures contained within this SRP
- Committing to ongoing winter maintenance staff training and education
- Reporting fiscal year salt use data to the NH DES
- Re-evaluating the effectiveness of the SRP as needed to incorporate new technologies or changes in procedures.

The SRP is meant to be dynamic to allow the municipality to evaluate and phase-in any changes, new approaches and technologies in winter maintenance activities in a fiscally sound manner.

To reduce the financial burden on municipal tax payers the town will participate in the I-93 Watersheds municipal salt reduction program developed in 2008 by the NHDOT in cooperation with the FHWA. The program will administer a reimbursement process to assist towns with

² Source: NHDOT 2010 Road Centerline File

³ Source: NHDOT 2010 Road Centerline File

⁴ Plymouth State University Parking Lot Study

implementing TMDL load reductions. This SRP has been prepared in partial fulfillment of program requirements to address chloride load reductions to meet TMDL.

3.0 Winter Maintenance Overview

Documenting the current winter maintenance program in Londonderry is essential to understanding mechanisms in which actions for chloride reduction can take place. The summary below provides detail on paved surface maintained, material usage, application rates. The major activities related to winter maintenance are:

Table 1: Winter Maintenance Activities

Snow Plowing	Snow Storage
Salt/Sand Spreading	Sidewalk Plowing & De-icing
Salt & Sand Storage	Drainage Clearing
Snow & Ice Removal	

The Town of Londonderry currently maintains total of 184.39 miles of public roads⁵, and 25.753 acres (1,078,247sq ft) of parking lots throughout the town. The table below details municipally maintained parking lots town wide which are maintained accordingly to Town's Winter Maintenance Snow and Ice Control Policy.

Table 2: Town Maintained Parking Lots

Facility	Area of Parking (Square Ft)		Total
	Paved	Gravel	
High School	236,328	67,933	304,260
Matthew Thornton School	112,282		112,282
Middle School	175,209		175,209
Nelson Field ⁶	90,712		90,712
North School	95,676		95,676
Senior Center	91,527		91,527
South School ⁶	14,360		14,360
Town Hall	123,056		123,056
South Fire	92,390		92,390
Central Fire	28,134		28,134
Total	1,078,247	67,933	1,146,180

Londonderry roads have been classified as collector and local roads based on the average daily traffic. As a general guideline (as per the Town's Winter Maintenance Snow and Ice Control Policy), heavily traveled roadways are given first priority. The Town attempts to maintain other town roadways during a snowstorm. Sometimes, however, conditions or other factors dictate that snow removal on other town roads is not necessarily shoulder-to-shoulder. Appendix C contains a plow route map.

⁵ Source: NHDOT 2010 Road Centerline File

⁶ Within the Beaver Brook Watershed

Materials used in winter maintenance vary annually and are a function of winter weather severity. The table below provides an overview of average material usage. A detailed 10 year average is provided within Appendix D. The 10 year average is used to evaluate salt usage to normalize the effects of more and less severe winters. NHDOT analysis has found that a 10 year average is approximately equal to the Weather Severity Index (WSI) normalized average.

Table 3: Annual Town Wide Material Usage Summary

Material	2008/2009		10 Year Average	
Solids				
Rock Salt (NaCl)	3918	Tons	4,143.8	Tons
Sand	4734	Tons	4,262.0	Tons

The town wide salt application rates are currently set at approximately 300 lb/lane mile.

4.0 Proposed Best Management Practices (BMPs)

4.1 Equipment Upgrade Pilot: Prewetting, Ground Speed Oriented Spreaders & Pavement Temperature Sensors.

Pre-TMDL: Currently the Town of Londonderry is not using prewetting, or ground speed oriented spreaders. The town does apply chemical (straight salt and sand/salt mix)/prior to and during storm events to reduce the potential for ice/pavement bonding. The Town has documented salt reductions in other areas of the town by using an underbelly (dump/spreader combination) discharge spreaders, and intends to implement this technology coupled with salt prewetting systems, and ground speed oriented spreaders to achieve even greater reductions. For comparison, provided in Appendix E are selected sheets showing salt usage using an underbelly discharge, and traditional rear discharge spreader units. It should be noted that these trucks each have approximately 20 mile routes.

Post-TMDL: Londonderry did not adopt prewetting or ground speed oriented spreaders after the TMDL reports were published.

Proposed BMP: The town will purchase a new 6 wheel dump truck with underbelly (dump/spreader combination) discharge spreader also to be equipped with a sprayer to prewet salt and a ground speed oriented spreader. Londonderry will conduct a prewetting pilot to evaluate its use for salt reduction on municipally maintained roads within the watershed. This will give the town the ability to evaluate effectiveness and refine application rates and usage on a limited scale to determine if prewetting is appropriate for a wider usage. The DOT recommended application rates in conjunction with prevailing industry documentation will be used as a baseline for evaluation. The trial will primarily be focused on one of four plow routes of municipally maintained roads within the Beaver Brook watershed. In addition to the prewetting equipment the truck will be equipped with a pavement temperature sensor with in cab readout. In addition the town will continue to maintain a log of salt usage for routes within the watershed to tabulate salt usage and determine achieved reductions.

Londonderry will conduct field trials with this equipment throughout the winter season. During the trials each element will be evaluated for salt reduction, ease of use, reliability, lifecycle costs, and driver adoption.

Equipment/Materials Needs: To facilitate the pilot Londonderry is anticipating purchasing of Salt Brine from NHDOT at a price to be determined prior to the winter season. The town will work with NHDOT to ensure that brine can be purchased on a schedule which will not present a burden to either organization. Londonderry will also take advantage of NHDOT's knowledge base relative to application rates and best practices to aid in the success of the trial.

A new underbelly discharge 6-wheeled dump truck will be purchased to be used as a platform for new equipment. New prewetting, and groundspeed oriented spreading equipment will be purchased to be installed on the new 6-wheeled dump trucks. This new equipment will include:

- New 6 wheel dump truck: 6 wheel dump capable of underbelly discharge spreading. Specifications will be similar to existing Londonderry trucks.
- **Spreader Control Unit:** Controller with the ability to calibrate and accurately dispense material regardless of vehicle speed. The controller will include the ability to control pre-wetting equipment, ground speed oriented spreaders, and temperature sensor data. The unit will allow management to set application rates which will automatically change with vehicle speed and ground temperature. Prescribed application rates may only be changed with an administrative password. Londonderry may not use the full capacity of the control units in the first winter season, however it will be advantageous for future funding rounds to have this equipment in place to receive potential new equipment upgrades.
- **Brine Tanks & Sprayers:** Truck mounted brine tanks, pumps, and sprayers with the ability to be calibrated and operate with the spreader control unit. Units may vary as appropriate to fit truck configuration (i.e. saddle tanks, top mounted tanks, etc.).
- **In-Cab Air/Pavement Temperature Sensor:** Unit will provide air and pavement temperature readings on an in-cab display and integrate into the spreader control unit.
- **Electronically Controllable Hydraulic Valves:** Necessary to allow the controller to adjust auger and spinner speeds.

Estimated Reduction: The first year reductions estimated in table 4 below are conservatively estimated at 5%. These reductions are only resulting from equipment upgrades. Londonderry acknowledges that these reductions alone are insufficient to meet TMDL requirements.

Table 4: Pre-Wetting Pilot Estimated Reductions

Watershed	Existing Imports⁷	Estimated Reduction	Estimated Reduction	Estimated Reduced Imports	TMDL Allocation
	<i>Tons/Year</i>	<i>Percent</i>	<i>Tons/Year</i>	<i>Tons/Year</i>	<i>Tons/Year</i>
Beaver Brook	854.47	5%	42.72	811.74	719.4

4.2 Calibration Procedures

Pre-TMDL: Londonderry periodically performs calibrations of municipal spreaders.

Post-TMDL: Londonderry did not modify its calibration procedures or schedule post-TMDL.

Proposed BMP: Londonderry will calibrate each spreader unit prior to the winter season using manufacturer information. Calibrated settings will be logged in a master sheet, and stored inside the vehicle. Prior to each storm each truck will be checked to verify that settings are calibrated to dispense the proper amount of chemical. Each unit will be re-calibrated at least once during the season, and hydraulically controlled units will be re-calibrated whenever the hydraulic system is altered or maintained.

Properly calibrated equipment will ensure that each spreader is dispensing the appropriate amount of material for each storm. It is anticipated that this practice will reduce waste and improve efficiency of chemical dispensation.

Equipment/Materials Needs: The town will not require any additional equipment or materials to perform calibrations.

Estimated Reduction: The reductions estimated in table 5 below are conservatively estimated at 1%. These reductions are only resulting from calibration procedures. Londonderry acknowledges that these reductions alone are insufficient to meet TMDL requirements.

Table 5: Equipment Calibration Estimated Reductions

Watershed	Existing Imports	Estimated Reduction	Estimated Reduction	Estimated Reduced Imports	TMDL Allocation
	<i>Tons/Year</i>	<i>Percent</i>	<i>Tons/Year</i>	<i>Tons/Year</i>	<i>Tons/Year</i>
Beaver Brook	854.47	1%	8.54	845.92	719.4

⁷ Per 10 year average

4.3 Public/Private Sector Outreach Program & Training

Pre-TMDL: Prior to the TMDL completion Londonderry had not actively encouraged local contractors to reduce their chloride usage.

Post-TMDL: Subsequent to the TMDL Londonderry did not actively encourage local contractors to reduce their chloride usage.

Proposed BMP: Londonderry will require that all town staff and private contractors hired by the town attend salt reduction trainings. Londonderry will engage in a public outreach program including sending mailers to local business owners encouraging them to require their winter maintenance contractors to attend salt reduction training. A website and local Access TV program will be created to educate homeowners and homeowner associations town-wide about proper salt use. The town will post informational brochures and best management practices information on town websites and in town hall. The town may also investigate other avenues such as posting winter driving tips in the town high school, and speaking to new drivers about safe winter driving. The town will also communicate with the local bus company. In addition the town will communicate with the private contractors who the town is aware of and encourage them to attend training. Londonderry strongly supports HB 1676 requiring the certification of private sector salt applicators.

Equipment/Materials Needs: Stationary supplies, and postage.

Estimated Reduction: The goal of the outreach program is to increase awareness and encourage private sector applicators to become trained and implement best practices. Outreach to new drivers and local bus companies is the first step in changing driver expectation within town and could result in less salt use in the long term. Training of town operators will encourage participation in salt reduction efforts. Londonderry is unable to quantify actual reductions possible because it has no control over the actual behaviour of private contractors or citizens expectations.

4.4 Upgraded Weather Monitoring System

Pre-TMDL: Londonderry has used DTN Meteorlogix to determine current and future weather conditions.

Post-TMDL: The town has not changed its weather monitoring practices subsequent to the TMDL reports.

Proposed BMP: Londonderry will upgrade a contract with a meteorological service to obtain custom storm forecasts for the community, with a dedicated weather workstation for viewing and printing weather reports for use during winter storm events. It is anticipated that this more accurate information will result in more efficient salt use and applications at key points during the storm.

Equipment/Materials Needs: The town will require a new computer work station and peripherals including: monitor, keyboard, mouse and printer for the weather terminal as well as a subscription to a custom meteorological service.

Estimated Reduction: The goal of the improved weather monitoring is to time chloride applications for maximum efficiency. While it is difficult to quantify reductions based on improved weather monitoring, Londonderry anticipates at least several storms each season during which improved weather monitoring will result in less chloride use.

4.5 BMP Overview Matrix

The town intends to continually improve salt reductions through ongoing training and experience and take advantage of annual federal funding opportunities through the I-93 salt reduction program with the ultimate goal of meeting TMDL allocations. The Town's reduction goals are: 6% for year 1, 12% for year 2 and 18% for year 3.

Table 6: BMP Reduction Overview Matrix for Year 1

BMP	Watersheds	Reduction	
4.1 Equipment Upgrade Pilot	Beaver Brook	42.72	Tons/Yr
4.2 Improved Calibrations	Beaver Brook	8.54	Tons/Yr
4.3 Private Sector Outreach	Beaver Brook	0.0	Tons/Yr
4.4 Improved Weather System	Beaver Brook	0.0	Tons/Yr
Total Estimated Reduction:		51.26	Tons/Yr
Total Estimated Salt Imports After Improvements:		803.21	Tons/Yr
TMDL Allocation:		719.40	Tons/Yr

5.0 Implementation Cost & Timeline

Table 7 includes the equipment costs which is Londonderry's best estimate at this time. Costs may change due to factors beyond the town's control. The table below summarizes BMP and the associated estimated costs. It should be noted that matching funds will be compliant with 49 CFR18.24 and 49 CFR19.23.

Table7: Estimated Cost Table

BMP	Equipment	Estimated Cost
4.1 Equipment Upgrade Pilot	New 6-Wheeled Dump	\$120,000.00
	Spreader Control Unit	\$3,500.00
	Air/Ground Temp. Sensors	\$800.00
	Electronic Hydraulic Valves	\$1,500.00
	Prewetting Equipment ⁸	\$5,000.00
	Equipment Installations	\$1,500.00
Purchase Brine	<i>No Equipment Required</i>	\$4,000.00
4.2 Improved Calibrations	<i>No Equipment Required</i>	\$0.00
4.3 Private Sector Outreach	Stationary & Printing	\$700.00
	Postage	\$500.00
	Work Time (\$35/hr)	100 Hrs = \$3,500.00
4.4 Public Sector Outreach	Work Time (\$35/hr)	70 Hrs = \$2,450.00
4.4 Improved Weather Monitoring	Weather Workstation Computer ⁹	\$1,500.00
	Weather Monitoring Service	\$1,200.00
	Total Project Cost:	\$140,200.00
	Total Federal:	\$112,160.00
	Total Municipal Match (20%):	\$28,040.00
Note: Highlight Denotes	Total Soft Match-Match:	\$5,950.00
Municipal Soft Match	80% of Soft Match	\$4,760.00
	Municipal Match Due:	\$23,280.00

⁸ Including v-box tanks/frame mounted tanks, pumps, hoses, sprayers and cab mounted on-off switch)

⁹ Including: 20" Monitor, Printer, Keyboard, Mouse, and computer.

Table 8: Project Timeline

Time Period	Action
July 2010 – August 2010	Municipal Plan Review
September 2010 – December 2010	Municipal Budgeting
March 2011	Town Meeting (Budget Approval)
April 2011-June 2011	Bid document Prep & Bidding
June 2011 – September 2011	Outreach Program
September 2011	Equipment Install & Training
Winter Season 2011-2012	Salt Reduction Opps. & Documentation
April 2012 – May 2012	Data Processing & Evaluation
February 2012 – May 2012	Plan Preparation for Funding Round 2
June 30, 2012	Submit Plan for funding Round 2

6.0 Salt Usage Evaluation & Monitoring

Londonderry is committed to a multi-year program of salt reduction with the eventual goal of meeting TMDL requirements. It is anticipated that salt usage data will be monitored and compiled throughout the winter and be analyzed during the spring. Data will be provided to state agencies on an annual basis, and will be used in future salt reduction plans. Salt usage data will be provided in the total annual usage format on town letterhead and substantiated with all the required information (invoices/cancelled checks / po's, etc).

TMDL compliance will be measured using a 10 year average and confidence intervals per DES document dated, April 15, 2010, included in Appendix F.

7.0 Summary

The Town of Londonderry commits to providing a written report and oral presentation to the salt reduction workgroup. The town is committing to the efforts of reducing its chloride imports into the Beaver Brook Watershed by implementing the BMP's contained herein. This first phase includes implementation of three operational improvements (4.1 Equipment Upgrade Pilot, 4.2 Improved Calibrations and 4.4 Improved Weather Monitoring), and a private sector outreach and training program.

It should be noted that at this time sector allocation meetings have not taken place. This document may be modified to reflect changes in Londonderry's final salt allocation subsequent to a sector allocation meeting.

APPENDIX A

TOWN OF LONDONERRY WINTER MAINTENANCE SNOW & ICE CONTROL POLICY

**TOWN OF LONDONDERRY
DEPARTMENT OF PUBLIC WORKS
WINTER MAINTENANCE
SNOW AND ICE CONTROL POLICY**



NOVEMBER 2003

Janusz Czyzowski, P.E.
Director Public Works & Engineering

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INTRODUCTION

As individuals living in New Hampshire know quite well, each storm situation varies and presents a unique set of circumstances. Each storm, therefore, presents different and unique challenges to the individuals employed by the Town who are charged with the responsibility of meeting the Town's winter maintenance obligations. In meeting these obligations, the individual judgment by those performing the required tasks is an essential component both in conducting and timing all necessary remedial work to overcome ice and snow hazards. This document constitutes a winter maintenance policy for the Town which is intended to provide general guidelines that are strictly advisory in nature. The provisions herein should not be understood or interpreted as restricting the essential freedom of judgment which must be exercised by the Highway Foreman, the Public Works Director, the Town Manager, or other individuals empowered to implement this policy or perform the winter maintenance obligations herein addressed.

I. RESOURCES AVAILABLE

The Town of Londonderry has the following resources available to it in its winter operations:

A. Weather Information

Local Radio: WZID 95.7 FM
Local T.V.: WMUR Ch. 9
Cable T.V.: Weather Channel
Weather Services: Meteorlogix

B. Personnel

Personnel available to the Town varies depending upon many economic, political, social, and health related factors. At present, the Town D.P.W. Highway Division has five truck driver/laborers, two equipment operator/mechanics, two equipment operators/truck drivers, one assistant foreman and one foreman available for storm responses. In addition, depending upon need five independent contractors with equipment and two temporary drivers without equipment are called upon to assist the Town personnel with winter maintenance operations.

C. Equipment

Equipment available to the Town varies depending upon many economic, political, social, and mechanical related factors. At present, the Town has the following equipment available:

- 9 International 6 Wheelers (with plows & spreaders)
- 1 Back-Ho
- 2 Pick-Ups (with plows)
- 3 1-Ton Pick Up Trucks (with plows & spreaders)
- 2 Loader
- 1 Grader

D. Materials

Sand is purchased by the Town on an annual basis and stockpiled at the Town Garage. The amount of sand used for winter varies from year to year. The amount the Town budgets for sand each year varies depending upon economic, political, and other factors. At present the Town budgets for 4,500 tons of sand per year.

Sodium Chloride (Salt) is purchased from three suppliers. The Town strives, as is possible, to keep the salt shed as close to full as possible. The salt stock is replenished after each storm when possible. The amount the Town budgets for salt each year varies depending upon economic, political, and other factors. The amount of salt used per year varies from year to year. The Town budgets for 3,700 tons of salt per year.

II. OPERATIONS

A. General

Winter weather in northern New England is difficult to predict. There are many variables affecting winter maintenance operations such as type of precipitation, air temperature and pavement temperature, traffic, wind, time of day, and day of week.

The Londonderry Public Works Department has the responsibility for maintaining approximately 175 miles of Town roadways. The Public Works Department's snow removal and ice control policy is based on many years of experience with due consideration for the many competing social, economic, and political considerations that are a necessary component of the Public Works Department's ability to perform snow removal and ice control. This policy expressly recognizes that it is impossible to provide bare pavement throughout the Town on all Town roads during a winter storm.

Traffic volume and speed are two of several major factors affecting the level of winter maintenance service. Heavily traveled roadways are given first priority. The Town attempts to maintain other Town roadways during a storm. Sometimes, however, conditions or other factors dictate that snow removal on other Town roads is not necessarily shoulder-to-shoulder.

It is impractical to develop specific rules on winter maintenance operations. Due to numerous variables involved in winter storms, the judgment of the Highway Foreman, the Public Works Director, or other individual specifically so empowered governs the quantities and types of material used to control snow and ice. In general, the purpose of using salt is to reduce adherence of snow to the pavement, keep snow in a “mealy” condition and thereby permit nearly full removal by plowing, and, prevent the formation of ice or snow ice (hard pack). Salt is not intended to eliminate the need for snowplowing

The Public Works Director under the general direction of the Town Manager has direct responsibility for daily operation of the Department. The Highway Foreman supervises the day-to-day operations of the Highway Division.

B. Communications:

The following provides a guideline for the normal manner in which communication is to take place within the Town regarding its winter maintenance obligations. This section, however, is not intended nor should it be construed to be the exclusive manner in which communication must take place. This policy recognizes that each given circumstance warrants discretionary decisions by the individuals empowered with the responsibility for the Town’s winter maintenance policy and therefore authorizes these individuals to exercise discretion in determining, based upon the circumstances, the best method for communicating to ensure that winter maintenance obligations are met.

1. Prior to Storm

The Director and Highway Foreman communicate prior to the storm to determine the level of readiness and probable initiation of snow and ice control operations. The Director and Highway Foreman utilize the various weather forecasting sources available.

2. Onset of Storm:

Police Department calls Highway Foreman to inform him that roadway conditions are requiring initiation of snow and/or ice control operation. Highway Foreman then calls in the response team as required according to procedures. If the storm begins during the regular work hours, the Highway Foreman may not wait for the Police Department to request the initiation of snow and ice control operation.

3. During Storm Operations

Radio communication is maintained with all response vehicles. Requests and special instructions for service are taken via telephone or radio at the Highway garage or D.P.W. Requests are relayed to the Highway Foreman who dispatches personnel and equipment when they become available or immediately if it is

deemed to be an emergency. The Highway Foreman or designee will determine the extent of the emergency.

Telephone and radio communications with the Highway Foreman, the Director, School Administrators, Bus Managers, Police Department, and Fire Department continue on an as needed basis during the storm.

Any problems with communications or communications equipment may be noted in the log.

4. Wrap Up After The Storm

At the end of the snow/ice operations the Highway Foreman notifies the Police Department that operations are ended and ask to monitor any potential weather related problems, i.e., drifting snow, icing conditions, etc.

Following the storm, generally on Monday of next week the storm log is delivered by the Highway Foreman to the D.P.W. secretary for the director's review and filing.

C. Applications

1. Application of Materials

The use of salt, sand or salt-sand mixtures is a discretionary decision that is dependent upon many factors including not only the conditions of the roadway and the weather conditions, but also anticipated changes in these conditions and fiscal constraints experienced by the Public Works Department. The decision also depends upon the effects of peak traffic periods, approaching nightfall, daybreak, predicted temperature changes, and the anticipated time for the end of the storm. All of these factors, and more, are considered and evaluated prior to selecting the proper materials or rate of application.

Adverse roadway conditions existing during periods of low temperatures, which are predicted to rise would generally be treated in accordance with the recommendations for the higher temperature. If the time of day and weather forecast is such that a drop in temperature may reasonably be expected, treatment would generally be for the lower temperature. Generally, neither salt nor sand should be used at low temperatures if the pavement is dry and snow is blowing off the pavement. However, changing circumstances may warrant such an application.

Salt is the chemical of choice for most storm situations. Salt is used to prevent snow and ice build-up on the pavement and to aid removal of any build-up that occurs. Salt is most effective for melting purposes at temperatures above 20

degrees Fahrenheit becoming slower acting at temperatures below 20 degrees Fahrenheit.

Approximately 300 lbs. per lane mile of salt is applied during initial salt application. However, the actual amount applied during a particular application is left to the discretion of the individual performing the application.

Salt is generally applied to the middle 1/3 of pavement width and on high side of super-elevated curves. Spread width may be increased or decreased at the discretion of the individual applying the substance and depending upon the action of traffic. Salt is applied early in the storm so that brine develops on the pavement and prevents build-up of packed snow. If snow continues and accumulates on the pavement plowing should follow. At the end of the storm when all roadways have been plowed, an additional treatment of salt and/or sand may be applied if deemed necessary.

There are many additional circumstances which, in the discretion of the individuals applying the materials, may necessitate modification to these treatments. Some circumstances are:

- Rising or falling temperatures
- When pavement is cold and dry and dry snow is falling, salt may not be applied. Plowing and treatment of icy spots, if they develop is recommended.
- In low temperatures or on very lightly traveled roadways the effectiveness of salt is reduced and sand or salt/sand mixture may be needed for traction.

2. Spreading Practices

Timing of the initial application during each storm is very important. Generally, spreading should be delayed until there is sufficient accumulation on the pavement to hold and contain the material. However, each circumstance is unique and the decision regarding the timing of the application is left to the discretion of the individuals charged with the responsibility for implementing the winter maintenance policy.

Portions of the town are peculiar due to various physical conditions and will require a greater application rate or an additional application during some storms. However, these areas should be judged and treated separately and not used as a barometer to evaluate and subsequently direct complete applications over the entire town. In order to conduct efficient operation, when possible periodic observation of the pavement surface conditions may be performed.

When possible and at the discretion of the individual responsible for performing the task, the width of material spread (throw plus roll) may be restricted to increase the concentration of the salt where it is needed and therefore increase the effectiveness of the application. Spreading operations should be conducted at

lower speeds. Air turbulence created at high speeds makes it difficult to retain all the material discharged within the desired width. Spinner and belt speeds and spread pattern may be adjusted to obtain the correct spread rate and to retain the material within the required width.

3. Plowing Operations:

Each storm presents unique circumstances dictating different decisions regarding the initiation of plowing operations. Generally, however, plowing begins after two inches of snow has fallen and continues until the storm has ended. In some cases, at the discretion of the individuals empowered with the responsibility for implementing this policy, plowing may be suspended in order to allow drivers to rest and/or sleep. Widening and intersection sight distance clearing is performed at the discretion of the individuals implementing this policy with due consideration for the many factors that must be considered. If possible, it generally occurs following the storm during daylight hours when best visibility exists.

For light accumulation snowfalls, snow squalls, and so-called “Alberta Clippers” of short duration, plowing may begin immediately and may include simultaneous salting and/or sanding to provide desired results quickly and efficiently.

Truck mounted front plows and in some cases wing plows are utilized for, among other things, to clear roadways of snow and frozen precipitant. Storm intensity generally measured in inches per hour varies considerably in New Hampshire but average major snowstorms are approximately one inch per hour. This one-inch per hour intensity rate and the allowable snow accumulation is one consideration used in planning the availability of equipment necessary for snowplow operations. The planned allowable snow accumulation of most roads in town is 4 inches with a maximum allowable accumulation in non-emergency situations of 8 inches and a planned plowing frequency of 3 ½ hours. These above mentioned figures are only an approximation and are based on an average of 1” per hour under optimum conditions (i.e., no traffic tie-ups due to accidents or stuck vehicles and no equipment breakdowns). The maximum allowable depth of snow that a motorist may encounter on highway pavements does not include blizzard conditions, heavy wind, drifting conditions, or other emergency conditions.

Frozen precipitation, including sleet and the build up of ice caused by freezing rain or special situations are not subject to the procedures indicated above. When a changeover from snow or sleet to freezing rain is predicted or anticipated, the individuals implementing this policy exercise discretion in deciding whether to leave the snow and ice on the pavement as it may capture the freezing rain and thereby prevent a glare ice situation.

D. Storm Log

Maintaining records is a desirable objective. When possible, beginning with the arrival of the Highway Foreman or responding supervisor at the town garage, a storm log may be initiated and kept throughout the storm event in which, if possible, notes may be maintained regarding communications, conditions and major events.

At a minimum, when possible, the following information may be noted on the log:

- a. Approximate time each piece of equipment and personnel begin and end operation.
- b. Weather conditions, total snow accumulations and maximum and minimum temperature.
- c. Any reported major problems from drivers or operators including equipment failure.
- d. Approximate time equipment is down and time that equipment is back in service.
- e. Report on accidents and special situations, especially Police calls.
- f. Approximate amount of salt and sand used.
- g. Communication with town or school officials regarding road conditions or other storm related matters.
- h. Other situations that occur which, at the discretion of the individual maintaining the log, is potentially significant

E. Response Teams

Department responses will vary with the conditions encountered, personnel, who are available for work. The time of day and day of week, the temperature, overall road conditions, preceding weather, anticipated weather, etc.

The Department response teams are as follows:

1. *Spot Salting* – Depending upon the circumstances two to three men may be called. The Highway Foreman or another individual specifically empowered to do so will determine whether additional help is needed to cover the icy spots and if contractors need to be called to assist with the operation.
2. *Ice/Snow Winter Storms* – The Highway Foreman or another individual specifically empowered to do so will contact the Town's personnel and contractors to start salting and plowing operations.

F. Blowing and Drifting Snow

Quite often after a cold, dry snowstorm blowing and drifting snow will begin to drift across roadways creating hazardous travel conditions. If identified, the Police Department or other individuals who observe this condition may, depending upon the circumstances, call and request the Highway Foreman to improve the conditions. The Highway Foreman or other individual specifically empowered to do so will determine an appropriate response to the situation identified including, but not limited to, the pieces of road equipment, personnel, and materials that need to be utilized to address the situation.

G. Post Storm Operations

At an appropriate time following the completion of winter maintenance obligations, additional activities may take place to ensure readiness for subsequent winter operations which may include, but need not be limited to, the following:

1. Equipment inspected using preventative maintenance techniques and repair as necessary.
2. Materials, especially salt, may be reordered in order to insure adequate stockpile.
3. Depending upon available resources and at the discretion of the individuals implementing this policy, plow routes may be checked for problems, especially for snow piles created by driveway contractors.
4. Depending upon available resources and at the discretion of the individuals implementing this policy, following a major storm the snow on the sides of roads may be pushed further off the road.
5. Depending upon available resources and at the discretion of the individuals implementing this policy, the height of snow banks may be decreased.

H. Towing

Often during snow removal operations, stranded or parked vehicles will be encountered on Town roads. When such a vehicle is on a Town roadway or right-of-way it may be towed under the Town's winter parking ban/ordinance. Generally, the procedures for having a car such as one so identified towed are as follows:

- Operating personnel call the garage base station that notifies the Londonderry Police Department and requests removal of the vehicle.
- Persons contacting the Public Works Department to retrieve their car after a storm are referred to the Londonderry Police Department.

I. Sidewalks

Sidewalk snow clearance will be conducted after the needs to maintain roadways have been satisfied and will depend upon the availability of resources.

J. Schools, Police Department, Fire Department and Library

The Highway Division is not responsible for clearing snow and providing winter treatment to the Town's school access roads and parking lots.

The school superintendent or designated official representative shall contact the Police Department and Highway Foreman to determine the condition of the Town's roads in order to make decision regarding the use of school buses. The school representative(s) shall make the decision to cancel or postpone school for that day.

The Highway Division is not responsible for clearing snow or providing winter treatment to the Police Department, Fire Department and Town Library parking areas.

The Highway Division will maintain only Day Boulevard and the secondary access road to the Police Department.

K. Parking

The Town has enacted a winter parking ban effective from November 1st to April 1st of each year. This ban prohibits parking on the Town's roads or right-of-way (ROW) between the hours of 12 midnight and 8 a.m. or at any other time in such a manner as to impede snow removal operations. The Town has the right to tow or ticket violators. The purpose of this winter parking ban is to allow winter maintenance crews unobstructed snow removal and ice control routes, as much as possible, to maintain to maximum effectiveness of their efforts.

L. Fire Hydrants

The Highway Division is not responsible for the clearing of snow from around fire hydrants. This responsibility belongs to the utility companies.

M. Damage to Private Property

In implementing this winter maintenance policy, the Town is not responsible and assumes no liability for damage to private property that is located within the public right-of-way. (RSA 231:92) The right-of-way (ROW) is often 50' wide and, in most cases, extends 10 to 20 feet from either side of the paved or gravel road.

In the event damage occurs to personal property during the Town's implementation of this winter maintenance policy, the Town may only be responsible to repair or replace the damaged personal property if the personal property was damaged through actual contact with the Town's snow removal equipment at a time when the personal property was located completely upon private property. The Town will not repair or replace private property which is damaged when the private property is within the town's right of way or which is damaged not by the Town's equipment, but by snow, ice, or other material removed from the Town's right of way.

IV. PUBLIC INFORMATION

Town residents are advised prior to each winter season of the Town's winter policies by public notification in the newspaper and on the Town website as follows:

TOWN OF LONDONDERRY NOTICE FROM THE DEPARTMENT OF PUBLIC WORKS

The Department wishes to remind residents of the snow ordinance regarding parking and the placement of snow on the streets. The Winter Parking Ban is in effect from November 1 to April 1. During that time, no person shall park any motor vehicle on any public road or right-of-way between 12:00 midnight and 8:00 A.M. or at any other time in such a manner as to impede snow removal operations. Any vehicle parked in violation will be towed by the Police Department. Any vehicles so towed shall be stored and released to the owner only upon payment of the cost of towing. No person is allowed to place any snow or ice upon the surface of the traveled portion of any Town maintained portion of road or highway. Blowing, shoveling, or plowing snow into the street, creates a very dangerous situation that can cause swerving and accidents. Any person violating this ordinance may be subject to a penalty as specified in Town's snow ordinance.

Location of mailboxes: Mail and newspaper boxes are allowed, at the owner's risk, in the Town's right-of-way. Claims for damages or other liabilities resulting from their installation are the responsibility of the owner. The following are suggestions for reducing the possibility of damage: the mailbox should be installed in such a manner that no part of the mailbox is within three feet of the edge of pavement. Installations should be sufficiently sturdy to withstand the weight of heavy snow resulting from plowing operations. The Town does not repair or replace mailboxes damaged during snow removal operations.

Generally, the Town has a 50 foot right-of- way, which extends 13 feet from the edge of pavement. Residents are asked not to reconstruct road shoulders and swales or place any structures and landscape items within the Town Right-of-Way. Stakes, delineators or rocks create a road hazard and should be removed.

The Town is not liable for damages that may occur to objects placed within its right-of-way.

Cleaning of Driveway Culverts: Londonderry homeowners may not be aware that they are responsible for their driveway culvert. In order for the culvert to remain clean at all times, we ask that residents periodically check their culvert and free it from debris. This will go a long way toward alleviating erosion, ice build up and drainage problems in the future.

APPENDIX B

RESOLUTION 2008-18 RELATING TO MUNICIPAL APPLICATION OF ROAD SALT

RESOLUTION 2008-18

A Resolution Relative to the Relating to Municipal Application of Road Salt

First Reading: 10/06/08
Second Reading: Waived
Adopted: 10/06/08

WHEREAS Beaver Brook, Dinsmore Brook, and Policy Brook do not meet water quality standards for chloride; and

WHEREAS the Total Maximum Daily Load (TMDL) studies show that municipal road salt application must be reduced to meet water quality standards, and

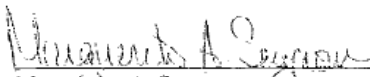
WHEREAS the I-93 corridor municipalities, private transportation facility managers, and the Department of Transportation are working together as the I-93 Salt Reduction Work Group to collectively reduce road salt application in impaired watersheds;

NOW THEREFORE BE IT RESOLVED by the Londonderry Town Council that the Town commits to reduce municipal application of road salt and to work with the New Hampshire Department of Transportation, the New Hampshire Department of Environmental Services and private salt applicators to reduce chloride loading to impaired watersheds in the I-93 corridor.

This Resolution does not bind the Town to any specific salt reduction technique.



Marty Bove, Chairman
Town Council


Marguerite A. Seymour
Town Clerk/Tax Collector

(TOWN SEAL)

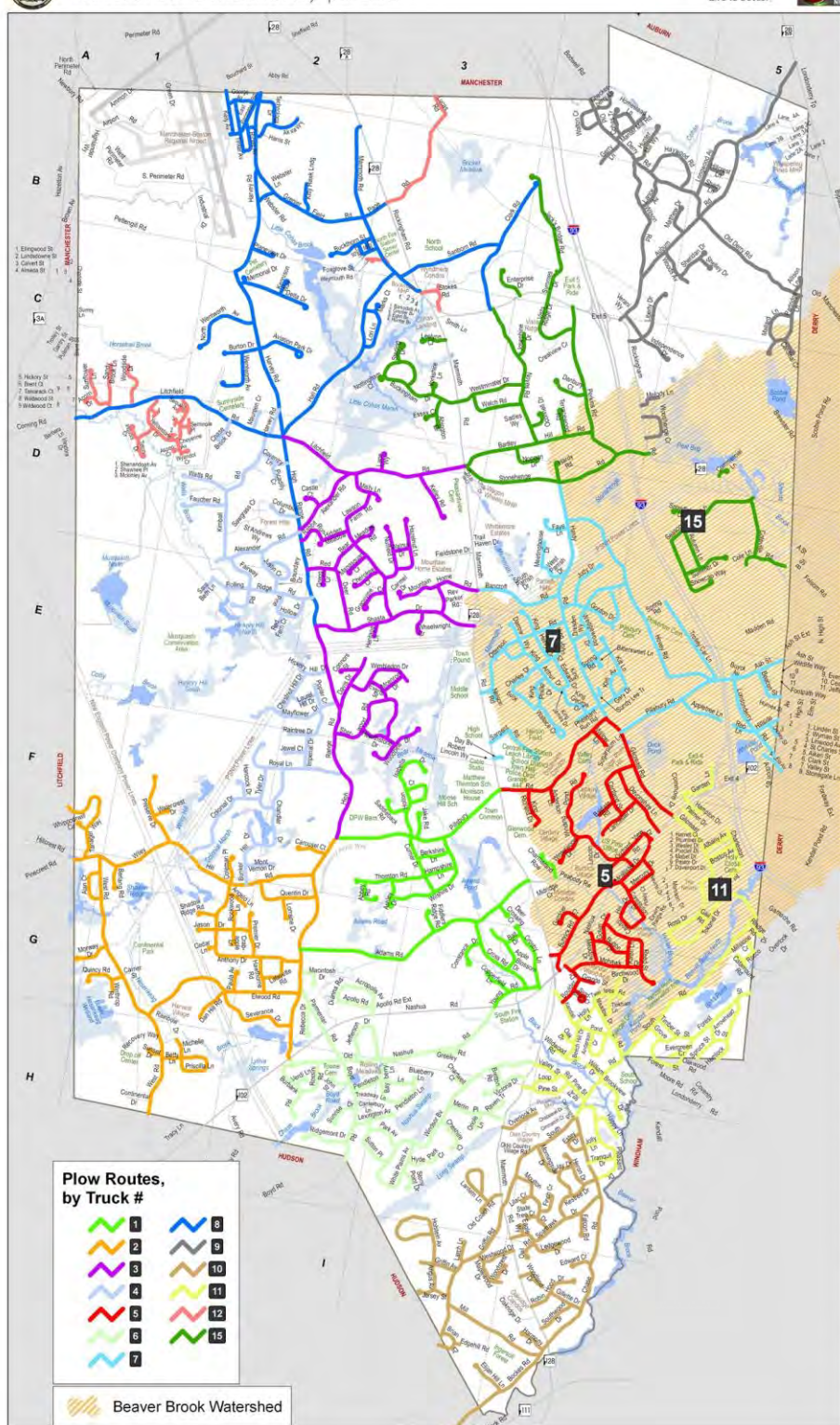
A TRUE COPY ATTEST:
10/06/08

APPENDIX C

SNOW PLOW ROUTES



Londonderry
Business is good.
Life is better.



This map was prepared by the Town of Londonderry Department of Planning and Economic Development and printed in Winter, 2009. Roadways are current as of December, 2009 and were mapped from orthophotography obtained from a spring 2003 flyover followed by updates from submitted site plans. Base mapping was performed by Vargis LLC for the Town GIS program. Additional copies of this map are available from the Londonderry Town Hall or on-line at www.londonderrytown.com.

1 inch = 2,500 feet

Map prepared by Londonderry Community Development Department. Sheet 3/20/80.

APPENDIX D

10 YEAR AVERAGE MATERIAL USAGE

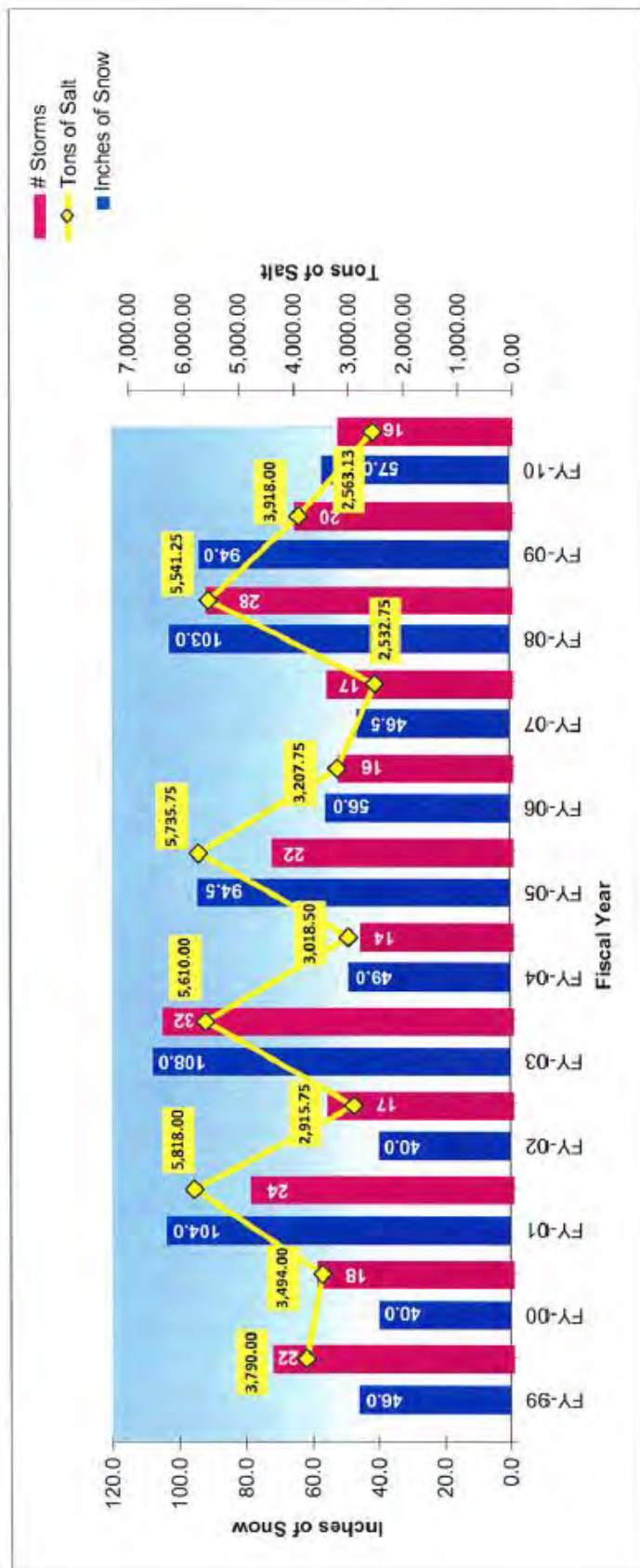
Total Salt Usage-Town Wide

<u>Fiscal Year</u>	<u>Salt-Tons</u>	<u># Storms</u>	<u>Inches of Snow</u>	<u>Sand Tons</u>
FY-99	3,790.00	22	46	
FY-00	3,494.00	18	40	
FY-01	5,818.00	24	104.0	5,268
FY-02	2,915.75	17	40.0	2,588
FY-03	5,610.00	32	108.0	8,429
FY-04	3,018.50	14	49.0	3,800
FY-05	5,735.75	22	94.5	6,300
FY-06	3,207.75	16	56.0	3,300
FY-07	2,532.75	17	46.5	1,500
FY-08	5,541.25	28	103.0	3,900
FY-09	3,918.00	20	94.0	4,734
Total	45,581.75	190	735	39,819
11 Yr Average FY-99 to FY-09	4,143.80	21	74	4424

<u>Fiscal Year</u>	<u>Salt-Tons</u>	<u>Brine-Gallons</u>	<u># Storms</u>	<u>Inches of Snow</u>	<u>Sand Tons</u>
FY-10	2,873.25		16	57.0	2,801
FY-11	3,828.38		24	85.5	3,415
FY-12	1,668.75		10	35.0	1,519
FY-13	3,397.50		19	82.0	2,390
FY-14	5,159.75		36	95.0	3,727
FY-15	4,160.38		29	121.0	3,747
FY-16	2,736.88	695	16	37.0	1,873
FY-17	5,096.81	1,746	24	96.5	3,551
FY-18	4,571.31	2,080	22	101.8	3,316
FY-19	4,223.75	1,909	20	54.0	
Total	37,716.76	6,430	216	765	26,339
	6.10	Tons of brine			
	37,722.86				
10 Yr Average FY-10 to FY-19	3,772.29		22	76	3121

Salt Use in the Beaver Brook Watershed Area Only

	<u>Salt Tons</u>
FY-10	400.00
FY-11	544.50
FY-12	483.50
FY-13	555.25
FY-14	592.88
FY-15	440.00
FY-16	407.35
FY-17	659.17
FY-18	687.08
FY-19	489.54
Total	5,239.27
10 Yr Average FY-10 to FY-19	523.93



APPENDIX E

STORM REPORTS

Snow Report

⑦

Date: 1/1-2-3/10

	<u>am</u>	<u>pm</u>	<u>Day of Week</u>
<u>Storm Started</u>		5:00	Friday

<u>Storm Ended</u>	11:00	Sunday
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<u>Temperature</u>	<u>Max.</u>	<u>Min.</u>	<u>Depth of Snow</u>
	32	19	9"

Sanding From - While Plowing

312 yds. / 468 ton

Salting From - 9:00pm(1-1) - 12am(1-2) 10am(1-3) - 2pm(1-3)

232½ yds. / 232½ ton

Plowing From - 3:00am-11:00pm(1/2) 4:00am - 4:00pm (1-3)

Personnel Called @ 7:00pm Friday 1/1/2010

Done @ 4:00pm Sunday 1/3/2010

	<u>Equip. Name & #</u>	<u>Salt</u>	<u>Sand</u>
<u>Russ</u>	<u>Loader & Pick/up # 2</u>	<u>Yards</u>	<u>Yards</u>
<u>Don</u>	6 Wheeler # 7	20	30
<u>Paul</u>	Loader & Maint		
<u>Scott</u>	6 Wheeler # 6*	15	27
<u>Brian H.</u>	6 Wheeler # 9*	15	36
<u>Bill</u>	6 Wheeler # 8	20	24
<u>Brian S.</u>	6 Wheeler # 15	20	30
<u>Mark</u>	6 Wheeler # 10*	15	36
<u>Dan</u>	?????		
<u>Bob</u>	6 Wheeler # 11	20	30
<u>Ken</u>	6 Wheeler # 5	20	24

<u>B. Bubelnyk</u>	44 Hrs. 1 Ton	# 4	7½	9
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<u>W. Elwood</u>	44 Hrs. 1 Ton	# 14	15	12
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<u>School - 1 Ton - Chris</u>	10	6
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<u>School - 1 Ton - Paul</u>	5	6
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Contractors Called @ 7:00pm Fri 1/1/2010

<u>RCI</u>	6 Wheeler out	@ 3:00pm	Sun 1/3	=	44 Hrs.	* 3,168
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<u>Johnson</u>	1 Ton out	@ 3:00pm	Sun 1/3	=	44 Hrs.	* 2,640
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<u>D. Grande</u>	1 Ton out	@ 3:00pm	Sun 1/3	=	44 Hrs.	* 2,640
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Material For Contractors 50 yds Salt 42 yds Sand

* Truck dump/spreader combination (underbelly spreader)

Snow Report

(9)

Date: 1/18/10

	<u>am</u>	<u>pm</u>	<u>Day of Week</u>
<u>Storm Started</u>		7:00 as Rain	Sunday (1-17)
	Turned to Snow around 10:00pm		Sunday (1-17)
<u>Storm Ended</u>	1:00		Monday (1-18)

<u>Temperature</u>	<u>Max.</u>	<u>Min.</u>	<u>Depth of Snow</u>
	37	29	8"
<u>Sanding From</u> -	4:00am - 4:00pm (While Flowing)		
	222 yds. / 333 ton		
<u>Salting From</u> -	1:00am - 4:00am		
	117½ yds. / 117½ ton		
<u>Flowing From</u> -	1:00am - 4:00pm		

Personnel Called @ 12:01am Monday 1/18

Done @ 5:00pm Monday 1/18

	<u>Equip. Name & #</u>	<u>Salt Yards</u>	<u>Sand Yards</u>
Russ	Loader & Pick/up # 2		
Don	6 Wheeler # 7	10	18
Paul	Loader & Maint		
Scott	6 Wheeler # 6*	7½	9
Brian H.	6 Wheeler # 9*	7½	27
Bill	6 Wheeler # 8	10	24
Brian S.	6 Wheeler # 15	10	12
Mark	6 Wheeler # 10*	7½	18
Dan	?????		
Bob	6 Wheeler # 11	10	12
Ken	6 Wheeler # 5	10	18

B. Bubelnyk	16 Hrs. 1 Ton	# 4	5	6
W. Elwood	16 Hrs. 1 Ton	# 14	7½	15

School - 1 Ton - Chris	2½	6
School - 1 Ton - Paul	2½	6

Contractors Called @ 12:01am Mon 1/18/2010

RCI	6 Wheeler out	@ 4:00pm	Mon 1/18	=	16 Hrs.
Johnson	1 Ton out	@ 4:00pm	Mon 1/18	=	16 Hrs.
D. Grande	1 Ton out	@ 4:00pm	Mon 1/18	=	16 Hrs.

\$152.00
\$960.00
\$960.00

Material For Contractors 27½ yds Salt 222 yds Sand

* Truck dump/spreader combination (underbelly spreader)

APPENDIX F

TMDL IMPLEMENTATION PLAN CONSIDERATIONS

TMDL IMPLEMENTATION PLAN CONSIDERATIONS

Paul M. Currier, DES Watershed Management Bureau

April 15, 2010

I. There are Four TMDL watersheds for which salt reduction implementation plans are needed. For DOT, I-93 should get a separate allocation from other DOT roads that includes the planned expansion. There would be a separate allocation for municipal and private salt use for each town in a TMDL watershed

Table 1

DINSMORE BK.	N. TRIB. CANOBIE LAKE	BEAVER BK	POLICY – PORCUPINE BK
DOT I-93	DOT I-93	DOT I-93	DOT I-93
DOT other roads	DOT other roads	DOT other roads	DOT other roads
Windham municipal	Windham municipal	Londonderry muni.	Salem municipal
Windham Private	Windham Private	Derry municipal	Windham municipal
Windham Future	Windham Future	*Chester&Auburn	Salem private
		Londonderry private	Windham private
		Derry private	Salem future
		Londonderry future	Windham future
		Derry future	
123.1 tons salt/yr	26.9 tons salt/yr	5863.4 tons salt/yr	3,449 tons salt/yr

II. The measure of salt reduction success should be a rolling 10-year average of salt use. An interim measure of success for any given year would be the year's salt use weighted by the Winter Severity Index for I-93.

II. The starting point for all implementation plans is the "equally shared reduction" scenario presented in the approved TMDLs. The final implementation plans may contain different allocations for sectors, and a future growth allocation. These must be negotiated among DOT and municipalities.

A. Municipalities MAY negotiate on behalf of private sector salt users. Private sector allocations should be different from the initial TMDL allocation ONLY if there is a municipally-based plan for how private salt use will be tracked and a municipal commitment to help implement it.

III. In the absence of negotiated agreement among municipalities and DOT, sector allocations for municipalities and DOT should remain as in the TMDLs.

IV. In the absence of a municipally-based plan for how private salt use will be tracked and a municipal commitment to help implement it, private sector salt allocations should remain as in the TMDLs.

V. In the event that municipal salt reduction plans, DOT salt reduction plans, and discussions and negotiations among DOT, municipalities, and private sector salt users do not result in consensus-based sector allocations and plans for each sector that are expected to meet the overall watershed allocation, DES may either:

A. Prepare and publish an implementation plan, and use state law authorities to implement it as necessary; OR

B. Defer to EPA to implement the needed salt use reductions by using their NPDES permit authority. This might involve NPDES small MS4 stormwater general permits, issuing individual permits, and issuing general stormwater permits to categories of salt users (property owners and municipalities) under residual designation authority.

VI. The best scenario is one in which DOT, DES, and municipalities work together, leverage the FHWA earmark \$\$, and develop a long-term (probably a decade or more) strategic plan for overall salt use reduction.