



Town of Bolton, Connecticut

2022 Annual Report

**General Permit for the Discharge of Stormwater
from Small Municipal Separate Storm Sewer Systems**

Permit Number GSM000104

MS4 General Permit
Town of Bolton 2022 Annual Report
Permit Number GSM 000104
January 01, 2022 - December 31, 2022

Primary MS4 Contact: Wade M. Thomas, Nathan L. Jacobson & Associates, Inc., wthomas@nlja.com, 860.526.9591

This report documents the Town of Bolton’s efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 01, 2022 to December 31, 2022.

Sandra Pierog replaced Robert Morra as First Selectman in November 2017.

Joshua S. Kelly replaced Joyce M. Stille as Administrative Officer in November 2019.

James Rupert replaced Joshua S. Kelly as Administrative Officer in April 2021.

Pamela Sawyer replaced Sandra Pierog as First Selectman in November 2021.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach (Section 6 (a)(1) / page 19)

1.1 BMP Summary

BMP	Activities in current reporting period	Sources Used (if applicable)	Method of Distribution	Audience (and number of people reached)	Measurable Goal	Person Responsible, Department	Additional details
1-1 Implement public education and outreach	2017 - None 2018 - See Below	NEMO Fact Sheets	https://town.boltonct.org.com	100s	Public Education	Kathleen McCavanaugh, Assistant to the Town Administrator	Additional Public Education resources will be added as they are developed.
	2017-2022 Ongoing	Salmon River Watershed Partnership	https://salmonriverct.org/	100s	Public Education	Pat Young SRWP Watershed Coordinator	The Salmon River Watershed Annual Newsletter is posted on the

	<p>2018 - 2022 Seven NEMO Program Clean Waters Starting in Your Home and Yard Fact Sheets were made available to the public on the town website at: https://bolton.govoffice.com Fact Sheet 1 What's the Big Deal About Water Quality Fact Sheet 2 Managing Your Household Chemicals Fact Sheet 3 Caring for Your Septic System Fact Sheet 4 Integrated Pest Management and Biological Controls for the Homeowner Fact Sheet 5 Conservation Landscaping for Water Quality Fact Sheet 6 Animal Waste and Water Quality Fact Sheet 8 Lawn Care the Environmental Friendly Way</p>	NEMO Fact Sheets	https://town.boltonct.org.com	100s	Public Education	Kathleen McCavanaugh, Assistant to the Town Administrator	<p>Hard copies of the NEMO fact Sheets were also made available to the public at the Town Library and Town senior Center for disbursement.</p> <p>The hard copies of the Fact Sheets are replenished as needed.</p> <p>Additional Public Education resources will be added as they are developed.</p>
1-2 Address education/ outreach for pollutants of concern	<p>Link to UConn CLEAR Website</p> <p>Three NEMO Program Clean Waters Starting in Your Home and Yard Fact Sheets were made available to the public on the town website at: https://bolton.govoffice.com</p> <p>Fact Sheet 1 What's the Big Deal About Water Quality</p> <p>Fact Sheet 3</p>	NEMO Fact Sheets	https://town.boltonct.org.com	100s	Public Education and Outreach	Kathleen McCavanaugh, Assistant to the Town Administrator	Additional Public Education resources will be added as they are developed.

	Caring for Your Septic System Fact Sheet 6 Animal Waste and Water Quality						
	2018 - 2022 The Salmon River Watershed Partnership Conducted Outreach & Monitoring Activities Related to Stormwater & Water Quality	Salmon River Watershed Partnership	https://salmonriverct.org/	100s	Public Education and Outreach	Pat Young SRWP Watershed Coordinator	The Salmon River watershed Annual Newsletter is made available every spring

1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.

It is anticipated that several more public education and outreach resources to educate the public will be added to the town website and that the Salmon River Watershed Partnership will continue outreach and monitoring activities related to stormwater and water quality.

2. Public Involvement/Participation (Section 6(a)(2) / page 21)

2.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Person Responsible, Department	Date completed or projected completion date (include the start date for anything that is 'in progress')	Location Posted	Additional details
2-1 Final Stormwater Management Plan publicly available	Complete	2021 – None 2017 A hard copy of the Draft 2017 Stormwater Management Plan (SMP) was made available to the public for review and comment on the town website at:	Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	April 03, 2017	https://town.bo-tonct.org.com	No public comments were received
2-2 Comply with public notice requirements for Annual Reports (Annually by 02/15)	Complete	2018 The Draft 2017 MS4 Annual Report was made available for public review and comment on the town website.	Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	02/15/18	https://town.bo-tonct.org.com	No public comments were received
	Complete	2019 The Draft 2018 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	02/21/19	https://town.bo-tonct.org.com	No public comments were received
	Complete	2020 The Draft 2019 MS4 Annual Report was made available for public	Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	02/12/20	https://town.bo-tonct.org.com	No public comments were received

		review and comment on the town website.					
	Complete	2021 The Draft 2020 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	03/01/21	https://town.boitonct.org.com	No public comments were received.
	Complete	2022 The Draft 2021 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	04/04/22	https://town.boitonct.org.com	No public comments were received.
	In Progress	2023 The Draft 2022 MS4 Annual Report was made available for public review and comment on the town website.	Substantial Compliance	Kathleen McCavanaugh, Assistant to the Town Administrator	02/27/23	https://town.boitonct.org.com	Wade Thomas of Nathan L. Jacobson & Associates, Inc. was listed as the contact.
2-3 SRWP Planners Workshop	Complete	2017 May Salmon River Watershed Partnership Town Planners Workshop on land use and water quality preservation.	Public Participation	Pat Young SRWP Watershed Coordinator	May 2017		
2-4 Community Leaders and Board Member Meetings	Complete	2022 January to December SRWP initiated a long-term visioning process with a goal of establishing a path	Public Participation	Pat Young SRWP Watershed Coordinator	December 2022		

		towards long-term sustainability					
2-5 SRWP Bolton Conservation Commission Presentation	Complete	2022 March SRWP presentation on water quality monitoring initiatives related to Bolton and the watershed as a whole as well as opportunities to collaborate with the commission.	Public Involvement	Pat Young SRWP Watershed Coordinator	March 2022		
2-6 Consider Establishing a stormwater committee	In progress	In process of identifying committee members	Provide forum to coordinate SWMP implementation across depts. and commissions	James Rupert, Interim Town Administrator	Summer 2022		Committee will represent town departments & commissions with stake in stormwater management.

2.2 Describe any Public Involvement/Participation activities planned for the next year, if applicable.

Consideration will be given to holding semi-annual stormwater committee meetings to review SMP implementation progress.

3. Illicit Discharge Detection and Elimination (Section 6(a)(3) and Appendix B / page 22)

3.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Person Responsible, Department	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
3-1 Develop written IDDE program (Due 07/01/19)	In progress	Town is in process of completing a written IDDE program.	Began development of the written IDDE program.	Wade Thomas, Nathan L. Jacobson & Associates, inc.	Anticipate completing by December 01, 2023.	The IDDE Program will be developed in 2023.
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas (Due 07/01/20)	Complete	MS4 stormwater outfall mapping was conducted in August 2007. The stormwater outfall mapping was compiled on a ESRI GIS layer. The MS4 stormwater outfall mapping will be updated to include impaired waters as contained in the State of Connecticut, Department of Energy and Environmental Protection 2016 Integrated Water Quality Report. The stormwater outfalls in the impaired waters will be identified.	Development of an ESRI GIS map layer with Impaired Waters, Urbanized Areas and watersheds with impervious area greater than 11%.	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	Completed in 2017.	
3-3 Implement citizen reporting program (Ongoing)	Complete	A program to allow the general public to report suspected illicit discharges has been established.	Compliance	Board of Selectmen/ Joyce M. Stille, Administrative Officer	January 01, 2019	The town website lists the telephone number at Town Hall to report suspected illicit discharges. The Administrative Officer will than notify the appropriate department for follow up.

3-4 Establish legal authority to prohibit illicit discharges (Due 07/01/19)	Complete	A Stormwater Ordinance was accepted by the Board of Selectmen on June 05, 2018 with an Effective Date of July 19, 2018.	IDDE Ordinance enacted. Substantial Compliance	Board of Selectmen/ Joyce M. Stille, Administrative Officer	June 05, 2018	
3-5 Develop record keeping system for IDDE tracking (Due 07/01/17)	Complete	2017 through 2018 - None 2019 - Completed	Substantial Compliance	Joyce M. Stille, Administrative Officer	January 01, 2019	The Highway Department is the listed contact.
3-6 Address IDDE in areas with pollutants of concern	Complete	Three NEMO Program Clean Waters Starting in Your Home and Yard Fact Sheets were made available to the public on the town website at: https://bolton.govoffice.com Fact Sheet 1 What's the Big Deal About Water Quality Fact Sheet 3 Caring for Your Septic System Fact Sheet 6 Animal Waste and Water Quality	Compliance	Nathan L. Jacobson & Associates, Inc., Town Engineer	Before July 01, 2018	
3-7 Consolidate IDDE tracking spreadsheets	Not started	Compile all the IDDE tracking requirements into one spreadsheet	Substantial Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2023	Simplify IDDE tracking activities.

3.2 Describe any IDDE activities planned for the next year, if applicable.

The written program will be posted to the Dept of Public Works webpage and a link listed in the 2022 MS4 Annual Report; will update the written IDDE program as needed throughout the permit term.

Maintain master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the logging process

3.3 Provide a record of all citizen reports of suspected illicit discharges and other illicit discharges occurring during the reporting period and SSOs occurring July 2017 through end of reporting period using the following table. Illicit discharges are any unpermitted discharge to waters of the state that do not consist entirely of stormwater or uncontaminated groundwater except those discharges identified in Section 3(a)(2) of the MS4 general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4.

Location (Lat long/ street crossing /address and receiving water)	Date and duration of occurrence	Discharge to MS4 or surface water	Estimated volume discharged	Known or suspected cause / Responsible party	Corrective measures planned and completed (include dates)	Sampling data (if applicable)

2017 through 2022 - Based on review of records maintained by the Eastern Highlands Health District no SSOs have occurred.

3.4 Provide a summary of actions taken to address septic failures using the table below.

Method used to track illicit discharge reports	Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known	Person Responsible, Department
2017 Not Applicable - No illicit discharges were reported	The following subsurface sewage disposal system (SSDS) repairs were made in 2017: 15 Dean Drive 18 Hebron Road 272 French Road 841 Hop River Road 34 Valerie Drive 127 Vernon Road 44 Lookout Landing 33 Laurwood Drive	Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair	4500-11-1 3108-01-1-L1 4707-00-2-L:2 3108-00-2-R2 3107-02-1 3108-02-1-L3 4707-02-1-L1 4504-01-1-L1	Holly Hood, MPH, RS, Sanitarian II, Eastern Highlands Health District
2018 Not Applicable - No illicit discharges were reported	The following subsurface sewage disposal system (SSDS) repairs were made in 2018: 14 Laurwood Drive 3 Hebron Road 87 Country Club Road 22 Carter Street 123 Notch Road 219 Hebron Road	Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair	4504-01-1-L1 3108-01-1-L1 3108-00-1 4504-03-1-L1 4707-01-1 3107-01-1	Holly Hood, MPH, RS, Sanitarian II, Eastern Highlands Health District

	46 Fairway Drive 125 Bolton Center Road 152 Hebron Road 129 French Road 110 Birch Mountain Road 135 Brandy Street 10 Westview Drive 154 South Road 1 Stony Road 766 Hop River Road 52 Bolton Center Road 41 Box Mountain Road 33 Volpi Road 56 Brandy Street 39 West Street	Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair Septic System Repair	3108-00-1 4707-00-2-I2 4707-02-1 4707-00-2-L2 4707-02-1 3108-04-1 3107-01-1 3108-00-1 3108-00-1 3108-00-1 3108-00-2-R2 4504-02-1-L1 4500-12-1-L2 4504-03-1-L1 3108-04-1 4707-01-1	
2022 Not Applicable- No illicit discharges were reported	The following subsurface sewage disposal system (SSDS) repairs were made in 2022: Eastern Highlands Health District is compiling the SSDS repairs list and the list will be added when provided.			Thad D. King, MPH, REHS, Eastern Highlands Health District

3.5 Briefly describe the method and effectiveness of said method used to track illicit discharge reports.

To be developed and tracked.

3.6 IDDE reporting metrics.

Metrics	
Estimated or actual number of MS4 outfalls	130
Estimated or actual number of interconnections	2
Outfall mapping complete	100%
Interconnection mapping complete	90%
System-wide mapping complete (detailed MS4 infrastructure)	40%

Outfall assessment and priority ranking	10%
Dry weather screening of all High and Low priority outfalls complete	0%
Catchment investigations complete	10%
Estimated percentage of MS4 catchment area investigated	10%

3.7 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often it is given (minimum once per year).

The Highway Department will be provided with a copy of the publication entitled *Illicit Discharge Detection and Elimination Manual, A Handbook for Municipalities*, Published January 2003 by the New England Interstate Water Pollution Control Commission.

4. Construction Site Runoff Control (Section 6(a)(4) / page 25)

4.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Person Responsible, Department	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit (Due 07/01/20)	Ongoing	The existing in-place system works effectively.	Compliance	Patrice Carson, AICP, Director of Community Development, Land Use Department	July 01, 2019	Ongoing
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval (Ongoing)	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, prepares land use review letters for most applications for the Inland Wetlands Commission, Planning Commission and Zoning Commission.	Interdepartmental Coordination	Patrice Carson, AICP, Director of Community Development, Land Use Department	July 01, 2017	Ongoing
4-3 Review site plans for stormwater quality concerns (Ongoing)	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, encourages the use of LID BMPs as contained in the 2004 Connecticut Stormwater Quality Manual.	Compliance	Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	July 01, 2017	Ongoing
4-4 Conduct site inspections (Ongoing)	Ongoing	The town conducts construction site inspections for proper implementation and maintenance of soil erosion and sediment control measures.	Compliance with Approved Plans	Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	July 01, 2017	Ongoing
4-5 Implement procedure to allow public comment on site development (Ongoing)	Ongoing	The land use application process allows for public comment on land use applications which are submitted to the Inland Wetlands Agency and the Planning & Zoning Commission during the Public		Patrice Carson, AICP, Director of Community Development, Land Use Department	July 01, 2017	Ongoing

		Hearing Process when applicable.				
4-6 Implement procedure to notify developers about DEEP construction stormwater permit (Ongoing)	Ongoing	Since the inception of the MS4 program Nathan L. Jacobson & Associates, Inc., Town Engineer, has made developer's engineers aware of the need to register for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities in engineering review letters which are typically prepared as part of the land use application process.	Awareness of the need to register for the General permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities	Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	July 01, 2017	Ongoing

4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.

There are no large-scale projects currently in the land use review process, so it is anticipated that development will be limited to single residential lots or small-scale commercial development.

5. Post-construction Stormwater Management (Section 6(a)(5) / page 27)

5.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Person Responsible, Department	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning (Due 07/01/22)	In Progress	The land use regulations will be revised to incorporate the requirements contained in Minimum Control Measure No. 5 - Post-Construction Runoff Control.	The requirements contained in Minimum Control Measure No. 5 - Post-Construction Runoff Control will be forwarded to the First Selectman.	Patrice Carson, AICP, Director of Community Development, Land Use Department	July 01, 2023	Anticipating this will be completed by July 01, 2022.
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects (Due 07/01/22)	Ongoing	Integrate LID/runoff reduction into all site development when appropriate.	Compliance	Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	July 01, 2019	July 01, 2017
5-3 Identify retention and detention ponds in priority areas (Due 07/01/20)	Complete	Retention Ponds, Detention Ponds and Hydrodynamic Separators will be inventoried. A GIS Map Layer will be created after the inventory. Part of the inventory process will be facility maintenance requirements.	Develop Detention Pond Inventory	Lance Dimock, Supervisor, Highway Department and Joseph M. Dillon, P.E., Town Engineer, Nathan L.	July 01, 2019	Anticipating this will be completed by July 01, 2022.

				Jacobson & Associates, Inc.		
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures (Ongoing)	In Progress	Inventory Retention Ponds, Detention Ponds and Hydrodynamic Separators Implement the Post-Construction Stormwater Management Facility Operation and Maintenance Plan Manual.		Lance Dimock, Supervisor, Highway Department	July 01, 2019	A Post-Construction Stormwater Management Facility Operation and Maintenance Plan Manual with an Effective Date of July 01, 2019 was developed.
5-5 DCIA mapping (Due 07/01/20)	Complete	Completed the process of DCIA Mapping from base mapping prepared by UConn CLEAR.	The DCIA to MS4 stormwater outfalls discharging to waters identified as impaired in the 2020 Integrated Water Quality Report and in watersheds with a DCIA of greater than 11 percent will start in 2018.	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2020	Completed in December 2018.
5-6 Address post-construction issues in areas with pollutants of concern	Ongoing	2017 through 2021 - No significant construction projects have occurred within the impaired segment of the Hop River.	Stormwater outfalls discharging to waters identified as impaired in the 2020 Integrated Water Quality Report and	Nathan L. Jacobson & Associates, Inc., Town Engineer	Not specified	The town MS4 stormwater outfalls to impaired waters are limited and the impairment may be due largely to the state MS4 stormwater outfalls.

			in watersheds with a DCIA of greater than 11 percent will be subject to enhanced water quality treatment.			

5.2 Describe any Post-Construction Stormwater Management activities planned for the next year, if applicable.

2023 - Procedures outlined in the Post-Construction Stormwater Management Facility Operation & Maintenance Plan Manual will be implemented.

5.3 Post-Construction Stormwater Management reporting metrics

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/post-construction.htm>. Scroll down to the DCIA section.

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	5.05 acres
DCIA disconnected (redevelopment plus retrofits)	2012 - 2017 To Be Determined 2017 through 2022 0 Acres this year
Retrofit projects completed	0
DCIA disconnected	2012 - 2017 To Be Determined 2017 through 2022 - 0 No significant storm drainage improvements have been constructed that allowed for DCIA disconnection.
Estimated cost of retrofits	\$0
Detention or retention ponds identified	Six to eight detention ponds were noted during 2017 outfall mapping field checking. All of the detention ponds will be compiled in a three-ring binder and an operations and maintenance plan will be developed for each detention basin.

5.4 Briefly describe the method to be used to determine baseline DCIA.

Based on information contained in the Factsheet: *Town of Bolton Water Quality and Stormwater Summary*, prepared by the CT DEEP, 675.70 acres of the town has an impervious area exceeding 12% which is approximately 7.16% of the town. 232.83 acres have an impervious cover of ranging from 12% to 25%, 344.14 acres have an impervious cover ranging from 26% to 50%, 77.24 acres have an impervious cover ranging from 51% to 75% and 21.49 acres have an impervious cover ranging from 76% to 100%.

Based on information contained in the MS4 mapping tab of Connecticut Environmental Conditions Online The impervious surface area consists of 129.50 acres of buildings, 209.78 acres of roads and 229.33 acres of other impervious surfaces for a total impervious surface area of 568.61 acres.

The DCIA Mapping was conducted in substantial accordance with the methodologies presented in the October 25, 2017 UConn CLEAR Webinar entitled *CT MS4 Mapping Details, Clarifications and Tools*, the October 19, 2018 UConn CLEAR Workshop entitled *CT MS4 Mapping Workshop* as well as information contained in the EPA reference entitled *Estimating Change in Impervious Area (IA) and Directly Connected Impervious Area (DCIA) for Massachusetts Small MS4 Permit utilizing Sutherland equations*.

The DCIA computations were prepared utilizing Connecticut Environmental Conditions Online MS4 base mapping prepared by UConn CLEAR.

Impaired waters were determined from the report entitled *2016 Integrated Water Quality Report*, dated April 2017, prepared by the State of Connecticut Department of Energy and Environmental protection.

The method to determine the 2012 baseline DCIA was to first compile the CT DEEP drainage basin characteristics in a Microsoft Excel spreadsheet. Information on the Connecticut Environmental Conditions Online MS4 Mapping was used to determine the impervious area breakdown as Buildings, Roads and Other. For CT DEEP drainage basins that fell in two or more municipalities the advanced mapping tab of Connecticut Environmental Conditions Online was used to delineate and determine the applicable town CT DEEP basin area. It was assumed that the entire drainage basin characteristics were directly proportional to the applicable town CT DEEP drainage basin area.

In that Conn DOT has a MS4 Stormwater Program which applies to state owned roads and facilities which the town has no control over, it was decided that the impervious state road area would be determined and deducted from the total impervious road area for each CT DEEP drainage basin as the impervious road areas associated with state highways and facilities constitutes a considerable portion of the total town impervious road area.

The Conn DOT state highway, parking lot and facility impervious road areas were then determined for each CT DEEP drainage basin.

The Conn DOT state highway, parking lot and facility impervious road areas were then deducted from the total town impervious road area to determine a town owned impervious road area for each CT DEEP drainage basin.

Subsequent to the above deduction, the total impervious area in acres and percentage was then recomputed for each CT DEEP drainage basin.

The DCIA formula for each of four development types was then utilized to compute the DCIA. The impervious area in acres was assigned to each of the four Sutherland equations which were modified for the northeastern United State. The Sutherland equation to be utilized was determined using the following methodology:

For impervious percentage less than 6%:

100% of the impervious area was assigned to the slight connectivity Sutherland Equation where $DCIA\% = 0.01 \cdot (IA\%)^{2.0}$

For an impervious area between 6% and 12 %:

50% of the area was assigned to the partial connectivity Sutherland Equation where $DCIA\% = 0.04*(IA\%)^{1.7}$
And
50% was assigned to the average connectivity Sutherland Equation where $DCIA\% = 0.10*(IA\%)^{1.5}$

For an impervious area between 12% and 18 %:

50% of the area was assigned to the average connectivity Sutherland Equation where $DCIA\% = 0.10*(IA\%)^{1.5}$
and
50% was assigned to the high connectivity Sutherland Equation where $DCIA\% = 0.40*(IA\%)^{1.2}$

For an impervious area of greater than 18 %:

100% of the area was assigned to the high connectivity Sutherland Equation where $DCIA\% = 0.40*(IA\%)^{1.2}$

The DCIA for each CT DEEP drainage basin was then summed to determine the entire town DCIA.

Subsequent to completion of 2012 Baseline DCIA computations, UConn CLEAR Mapping available on Connecticut Environmental Conditions Online (CT ECO) was revised to separate road impervious area into State Road Impervious Area (Acres) and Town Road Impervious Area (Acres).

The original 2012 Baseline DCIA computations were revised utilizing the UConn CLEAR State Road Impervious Area (Acres) and Town Road Impervious Area (Acres). No major 2012 Baseline DCIA computation discrepancies were noted.

Land use files will be reviewed to determine disconnection of DCIA since July 01, 2012 for utilization in reaching the CT DEEP goal of 2% disconnection of DCIA by June 30, 2022.

6. Pollution Prevention/Good Housekeeping (Section 6(a)(6) / page 31)

6.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable Goal	Person Responsible, Department	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
6-1 Develop and implement formal employee training program (Ongoing)	To Be Developed	2017 through 2021 - None	Ongoing Employee Training	Lance Dimock, Supervisor, Highway Department and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	
6-2 Implement MS4 property and operations maintenance (Ongoing)	Ongoing	Ongoing	Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2018	
6-3 Implement coordination with interconnected MS4s	Ongoing	The Town of Bolton continued to coordinate MS4 responsibilities with the Towns of Vernon, Manchester, Glastonbury, Hebron, Andover and Coventry as well as Conn DOT.	Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2017	
6-4 Develop and implement program to control other sources of pollutants to the MS4	To Be Developed	It is anticipated this will be completed by December 01, 2023.	Substantial Compliance	Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	Anticipate completing by December 01, 2023	

6-5 Evaluate additional measures for discharges to impaired waters*	Not Started	2017 through 2022 - None		Joseph M. Dillon, P.E., Town Engineer, Nathan L. Jacobson & Associates, Inc.	Anticipate completing by December 01, 2023	
6-6 Track projects that disconnect DCIA (Ongoing)	Ongoing	No significant projects have allowed for DCIA disconnection.	Compliance	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	
6-7 Implement infrastructure repair/rehab program (Due 07/01/21)	Not Started	2017 through 2022 - MS4 storm drainage improvements have been made in areas where the storm drainage infrastructure was showing signs of age.	It is anticipated that the program will begin in 2022. Substantial Compliance	Lance Dimock, Supervisor, Highway Department and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2021	
6-8 Develop and implement plan to identify/prioritize retrofit projects (Due 07/01/20)	Not Started	2017 through 2022 - None	It is anticipated that the program will begin in 2022. Substantial Compliance	Lance Dimock, Supervisor, Highway Department and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2020	
6-9 Implement retrofit projects to disconnect 2% of DCIA (Due 7/1/22)	Not Started	2017 through 2022 - None	It is anticipated that the program will begin in 2022. Substantial Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2022	
6-10 Develop and implement street sweeping program (Ongoing)	Ongoing	The Town of Bolton currently implements a road sweeping program whereby all town roads are swept one time per year.	Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2017	

6-11 Develop and implement catch basin cleaning program (Ongoing)	Ongoing	The Town of Bolton currently implements a catch basin cleaning program whereby all catch basins are cleaned in alternate years and catch basins with high sediment loads or catch basins which discharge to sensitive waters are cleaned every year	Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2020	
6-12 Develop and implement snow management practices (Due 07/01/18)	Ongoing	Continuing	Compliance	Lance Dimock, Supervisor, Highway Department	July 01, 2018	
6-13 develop a map and inventory highly erosive areas in town right-of-way.	Not started	Collect information on eroding areas in the town right-of-way from highway maintenance personnel over course of normal operations	identify areas contributing large volume of sediment to town waterbodies	Lance Dimock, Supervisor, Highway Department	Anticipate completing by December 01, 2023	Reduce erosion and sedimentation to waterways.

6.2 Describe any Pollution Prevention/Good Housekeeping activities planned for the next year, if applicable.

2023 - It is anticipated that all town roads will be swept and all catch basins will be vactored.

6.3 Pollution Prevention/Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	2017 through 2019 - None 2020 through 2022 - None Due to the COVID-19 pandemic. 2023 - It is anticipated that Employee Training will be initiated.
Street sweeping	
Curb miles swept	2017 through 2022 - 86.70
Volume (or mass) of material collected	2017 and 2018 - Not Determined 2019 - 300± C.Y. 2020 - 200± C.Y. 2021 - 200± C.Y. 2022 - 150± C.Y.
Catch basin cleaning	
Total catch basins in priority areas (value will be less than or equal to total catch basins town or institution-wide)	2017 through 2022 - Not Determined 2023 - To Be Determined

Total catch basins town-wide	800-850
Catch basins inspected	2017 through 2022 - 800-850
Catch basins cleaned	2017 - 400-450 2018 - 400-450 2019 - More than 500 2020 - 450± 2021 - 450± 2022 - 470±
Volume (or mass) of material removed from all catch basins	2017 - 2018 Not Determined 2019 - 200± C.Y. 2020 - 150± C.Y. 2021 - 125± C.Y. to 150± C.Y. 2022 - 175± C.Y.
Volume removed from catch basins to impaired waters (if known)	2017 through 2022 - Not Determined
Snow management	
Type(s) of deicing material used	Deicing Mix 1 Part Sand to 1 Part NaCl Salt By Volume
Total amount of each deicing material applied	Winter 2017-2018 - 1,100± Tons Sand/800± Tons NaCl Winter 2018-2019 - 1,500± Tons Sand/1,100± Tons NaCl Winter 2019-2020 - 1,000± Tons Sand/750± Tons NaCl Winter 2020-2021 - 930± Tons Sand/700± Tons NaCl Winter 2021-2022 - 500± Tons Sand/500± Tons NaCl Winter 2022-2023 - 300± Tons Sand/350± Tons NaCl (to early February 2023)
Type(s) of deicing equipment used	Four Large Snow Plow/Spreaders. The spreaders are manually controlled at an estimated application rate of 150 - 200 pounds per lane (curb) mile.
Lane-miles treated (A lane-mile is a mile of roadway in a single driving lane)	2017 through 2022 - 86.70
Snow disposal location	Herrick Park parking lot when needed during exceptionally heavy snowfall events.
Staff training provided on application methods & equipment	2017 through 2019 - None 2020 through 2022 - None due to the COVID-19 pandemic. It is anticipated that Employee Training will be initiated again in 2023 if the COVID-19 pandemic allows.
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	0%
Reduction in turf area (since start of permit)	0 acres
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$0

6.4 Catch basin cleaning program

Provide any updates or modifications to your catch basin cleaning program.

It is estimated that there are approximately 800-850 catch basins in the Town of Bolton.

2017 - 400-450 catch basins were cleaned.

2018 - 400-450 catch basins were cleaned.

2019 - More than 500 catch basins were cleaned.

2020 - 450± catch basins were cleaned.

2021 - 450± catch basins were cleaned.

2022 - 470± catch basins were cleaned.

Currently no optimization methods are being implemented as the catch basin cleaning inspection and cleaning schedule appears to be working well based upon field investigation of accumulated sediment depths.

6.5 Retrofit program

Briefly describe the Retrofit Program identification and prioritization process, the projects selected for implementation, the rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project.

(Due 07/01/20)

Storm Drainage Retrofit prioritization will be given to stormwater outfalls that are known to result in soil erosion and sedimentation. Prioritization will be given to the outfalls within the impaired water drainage basins with particular emphasis placed on stormwater outfalls which are located on fine grained glacial till soils.

2017 through 2022 - No significant MS4 stormwater retrofits were constructed. The retrofit program will be prioritized based on setback distance from watercourse and/or waterbodies.

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection annually in future years.

(Due 07/01/22)

Land use files will be reviewed to determine disconnection of DCIA since July 01, 2012 for utilization in reaching the CT DEEP goal of 2% disconnection of DCIA by June 30, 2022.

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution.

This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus Bacteria Mercury Other Pollutant of Concern

1.2 Describe program status

Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.

2018 through 2019 - It was anticipated that dry weather screening of MS4 stormwater outfalls that discharge directly to impaired waters would be conducted in the Fall. However, due to the unseasonably high rainfall and resulting high groundwater conditions no dry weather screening or sampling of observed flows was conducted.

2020 through 2022 - No dry weather screening was conducted.

2023 - It is anticipated that dry weather screening, and sampling where appropriate, will be conducted.

The impaired water consists of a 3.22 mile segment of the Hop River in Bolton and Andover, of which approximately a 1.80 mile segment is located in Bolton. In Bolton the Hop River flows under Connecticut Route 6 several times in the Town of Bolton. However, there the Hop River does not flow under or proximal to town roads. Consequently, there are not many potential town MS4 stormwater outfalls discharging directly to the Hop River. Therefore, it would appear that the bacteria impairment of the Hop River may be due to natural causes or associated with Conn DOT MS4 outfalls on Connecticut Route 6.

2023 - Outfalls located on town roads proximal to the Hop River will be sampled to determine bacteria counts.

2. Screening data for outfalls to impaired waterbodies (Section 6(i)(1) / page 41)

2.1 Screening data

Complete the table below to report data for any wet weather sampling completed for MS4 outfalls that discharge directly to a stormwater impaired waterbody during the reporting period. For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

Each Annual Report will add on to the previous year's data showing a cumulative list of sampling data.

You may also attach an excel spreadsheet with the same data rather than copying it into this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall ID	Latitude & Longitude	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *

2023 - It is anticipated that wet weather sampling of direct MS4 stormwater outfalls to impaired waterbodies if needed. It should be noted that the Bolton section of the impaired segment of the Hope River has few possible MS4 stormwater direct discharges to the Hop River.

Follow-up investigation required (last column) if the following pollutant thresholds are exceeded:

Pollutant of concern	Pollutant threshold
Nitrogen	Total N > 2.5 mg/l
Phosphorus	Total P > 0.3 mg/l
Bacteria (fresh waterbody)	<ul style="list-style-type: none"> E. coli > 235 col/100ml for swimming areas or 410 col/100ml for all others Total Coliform > 500 col/100ml
Bacteria (salt waterbody)	<ul style="list-style-type: none"> Fecal Coliform > 31 col/100ml for Class SA and > 260 col/100ml for Class SB Enterococci > 104 col/100ml for swimming areas or 500 col/100 for all others
Other pollutants of concern	Sample turbidity is 5 NTU > in-stream sample

3. Follow-up investigations (Section 6(i)(1)(D) / page 43)

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall ID	Status of drainage area investigation	Control measure to address impairment

4. Prioritized outfall monitoring (Section 6(i)(1)(D) / page 43)

Once outfall sampling has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 01, 2021.

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall	Latitude & Longitude	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)

Part III: Additional IDDE Program Data

1. Assessment and Priority Ranking of Catchments data (Appendix B (A)(7)(c) / page 5)

Provide a list of all catchments with ranking results (DEEP basins may be used instead of manual catchment delineations).

1. Catchment ID (DEEP Basin ID)	2. Category	3. Rank
3108-00-1	High Priority	1
3108-00-2-R1	Intermediate Priority	2
3108-02-1	Intermediate Priority	3

2. Outfall and Interconnection Screening and Sampling data (Appendix B (A)(7)(d) / page 7)

2.1 Dry weather screening and sampling data from outfalls and interconnections

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the blue column of the Monitoring comparison chart and the IDDE baseline monitoring flowchart.

Provide sample data for outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into stormwater impaired waterbodies.

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall / Interconnection ID	Latitude & Longitude	Screening or sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken

2017 through 2022 - No dry weather screening or dry weather sampling was conducted.

2023 - It is anticipated that dry weather screening and dry weather sampling, if appropriate, will be conducted.

2.2 Wet weather sample and inspection data

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

Provide sample data for outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor.

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall / Interconnection ID	Latitude & Longitude	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern

2017 through 2022 - No wet weather screening or wet weather sampling was conducted.

2023 - It is anticipated that wet weather screening and wet weather sampling, if appropriate, will be conducted.

3. Catchment Investigation data (Appendix B (A)(7)(e) / page 9)

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Receiving Water	System Vulnerability Factors

Where SVFs are:

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

To be completed by December 31, 2022.

3.2 Key junction manhole dry weather screening and sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Key Junction Manhole ID	Latitude & Longitude	Screening/ Sample date	Visual/olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants

2017 through 2022 - No junction manhole dry weather screening or dry weather sampling was conducted.

2023 - It is anticipated that junction weather dry weather screening and dry weather sampling will be conducted.

3.3 Wet weather investigation outfall sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

If you do attach a spreadsheet, please write "See Attachment" below.

Outfall ID	Latitude & Longitude	Sample date	Ammonia	Chlorine	Surfactants

2017 through 2022 - No wet weather investigation or wet weather sampling was conducted.

2023 - It is anticipated that wet weather investigation and wet weather sampling will be conducted.

3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed

2023 - To be completed if encountered.

Part IV: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print Name: James Rupert, Town Administrator	Print Name: Wade M. Thomas, CPESC, CPSWQ, CPMSM
Signature: Date: April , 2023	Signature: Date: April , 2023
Email: jrupert@boltonct.org	Email: wthomas@nlja.com