



Town of Old Saybrook, Connecticut

2018 Annual Report

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

Permit Number GSM000078

MS4 General Permit
 Town of Old Saybrook 2018 Annual Report
 Existing MS4 Permittee
 Permit Number GSM 000078
 January 01, 2018 - December 31, 2018

This report documents the efforts of the Town of Old Saybrook to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 01, 2018 to December 31, 2018.

Part I: Summary of Minimum Control Measure Activities

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

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	In Place	<p>The Town of Old Saybrook website has the following resources contained in the Town Initiatives tab on the town website main page at:</p> <p>http://www.oldsaybrookct.org/Pages/index/</p> <p>Things the Town's Doing - Stormwater Plans & Reports</p> <p>2017 Stormwater Management Plan 2017, 2016 and 2015 MS4 Annual Reports Low Impact Development Interactive Stormwater Outfall Map</p> <p>Things You Can Do - Resources</p> <p>Backyard Water Resources Guide Pet Waste, Water Quality & Your Health</p>	Met	Carl Fortuna, Jr., First Selectman, Board of Selectmen	July 01, 2018	Prior to July 01, 2017 and Continuing	Additional materials will be added when developed

		Build a Rain Garden Use a Rain Barrel Don't Dump Anything into Catch Basins					
1-2 Address education/ outreach for pollutants of concern*	In Place	The Town of Old Saybrook website has the following resources contained in the Town Initiatives tab on the town website main page at: http://www.oldsaybrookct.org/Pages/index/ Things You Can Do - Resources Backyard Water Resources Guide Pet Waste, Water Quality & Your Health Don't Dump Anything into Catch Basins	Met	Carl Fortuna, Jr., First Selectman, Board of Selectmen	July 01, 2017	Prior to July 01, 2017 and Continuing	Additional materials will be added when developed
1-3 WPCA Public Education and Outreach		The Town of Old Saybrook website has the following resources contained in the <i>Townwide Initiatives</i> tab at the bottom of the WPCA page at: http://www.oldsaybrookct.org/Pages/OldSaybrookCT_WPCA/ The Rain Garden: A Runoff Solution Lawn Reduction Suggestions Posted 09/04/14 What is a Rain Garden? Posted 12/06/13 Long Island Sound: Impact of Septic Systems on Environment Posted 07/12/12	Met	Old Saybrook WPCA	July 01, 2017	Prior to July 01, 2017 and Continuing	
1-4 Public Education and Outreach		Articles and images regarding the following were published in the Old Saybrook Events magazine: Quarter 4 2016 New Stormwater Actions are in the Pipeline Quarter 1 2017 Springtime Stormwater: Know Where It Goes April: Looking on the bright Side of rain and jpg image May: A Smart Look Forward to Summer Gardening and jpg image June: "Running Off" To the Beach and jpg image	Met	Christine Nelson, Town Planner, Land Use Department	July 01, 2017	Prior to July 01, 2017 and Continuing	

	<p>Quarter 2 2017 A Re-introduction to the Old Saybrook WPCA Septic Tank Pumpout Program Polluted Runoff Initiatives Rain Gardens 101</p> <p>Free Electronics Recycling</p> <p>Summertime Stormwater: Know Where It Goes Parades, Pet Waste and Pollution and jpg image Give Your Water Use A Vacation, Too and jpg image It's That (Lawn Feeding) Time of Year! Once Is Enough! and jpg image</p> <p>Quarter 3 2017 Leaf Pick-up in Old Saybrook</p> <p>Autumn Stormwater: Know Where It Goes October: What Do Leaves and Storm Drains Have In Common and jpg image November: Don't Be A Turkey - Protect Waterways from Stormwater Pollution and jpg image December: Giving Gifts That Give Back and jpg image</p> <p>Quarter 4 2017 Pubic Works Snow & Ice Removal for Winter 2017-2018</p> <p>Winter Stormwater: Know Where It Goes January: A Non-Toxic New Year February: Have a Heart - Keep Pavements Clean March: Spring Cleaning Sweeps In</p> <p>Quarter 1 2018 WPCA Update A Homemowner's Guide to Septic Systems, Protect Your Septic System and More Septic System Dos and Don'ts</p> <p>Quarter 3 2018 WPCA Update Conservation Commission - What is Plastic?</p> <p>Quarter 4 2018 Pet Waste, Water Quality & Your Health: <i>Why You Should Give a Bark</i> Old Saybrook Honored for Sustainable CT Certification</p>					
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1-5 Public Education and Outreach	<p>The following are posted on the Town of Old Saybrook website:</p> <p>Non-Point Source Pollution is caused by Stormwater Runoff, Impervious surface, Atmospheric Deposition, Marinas & Recreational Boating, and Septic Systems. Definition by LISS [Long Island Sound Study] Nutrient Pollution What is Stormwater Pollution? Residential Runoff - Pipeline Magazine Article What can I do for my Beach?: EPA Why is idling harmful?: CT DEEP Septic Systems and Their Impact by LISS</p> <p>Residential Runoff Solutions: Suggestions for Managing Your Property and Reducing Runoff In Your Own Backyard - Soundkeeper Turfgrass Madness Reducing the Lawn Asking More of the Landscape Rain Garden Manual</p> <p>Nitrogen & Pollution Reduction Projects & Studies: Ongoing Studies and Municipal Solutions What is Pervious Surface? - EPA Bioswales: Designing for the Future - New Haven Nitrogen Removing Biofilters by SUNY Stony Brook CT DEEP 2nd Generation Nitrogen Study Emerging Contaminants: Yale OWTS Nitrogen Study: CT DEEP</p>	Met	Robbie Marshall, Old Saybrook WPCA Coordinator	October 01, 2018	Continuing	
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1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.

Additional Public Education and Outreach activities will be added to the town website and will be incorporated into the Old Saybrook Events magazine publication to educate residents on MS4 stormwater.

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.

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

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
2-1 Comply with public notice requirements for the Stormwater Management Plan	Completed	2017 - A copy of the Draft 2017 Stormwater Management Plan (SMP) was added to The Town of Old Saybrook website as a resource contained in the <i>Town Initiatives</i> tab on the town website main page at: http://www.oldsaybrookct.org/Pages/OldSaybrookCT_LandUseDept/MS4	Complied with requirements	Board of Selectmen/ Carl Fortuna, Jr., First Selectman	April 03, 2017	The 2017 SMP was available to the public on April 12, 2017.	No public comments were received by the Office of the First Selectman
2-2 Comply with public notice requirements for Annual Reports	Completed	2017 - The Draft 2017 MS4 Annual Report was made available for public review and comment on the Town Initiatives tab on the town website main page at: http://www.oldsaybrookct.org/Pages/OldSaybrookCT_LandUseDept/MS4 The Draft 2017 MS4 Annual Report was also made available for public review and comment at the Office of the First Selectman	Complied with requirements	Board of Selectmen/ Carl Fortuna, Jr., First Selectman	February 15, 2018	February 20, 2018	The Annual Report will be revised if public comments are received.
2-3 Community Coastal Resilience Study and Infrastructure Evaluation	Completed	2017 - GZA conducted the study which provided a detailed assessment of the impact of sea level rise on coastal infrastructure including town storm drainage systems. The workshops were attended by land use commission members, land use consultants and residents.	Public Involvement	Land Use Department	Not Applicable	Fall 2017	
2-4 Community Volunteer Clean Up	Completed	2017 - The general public participates in annual Town Beach, Town Park and Town Hall clean ups of anthropogenic materials. 40 cubic yard roll-off containers (dumpsters) are provided by the Department of Public Works.	Public Involvement	Department of Public Works/ Larry Bonin, Director	Not Applicable	Fall 2017	
2-5 Kiwanis Club Causeway Clean Up	Completed	2017 - The Kiwanis Club conducts an annual clean up of the Causeway over South Cove to remove anthropogenic materials. 40 cubic yard roll-off containers (dumpsters) are provided by the Department of Public Works.	Public Involvement	Department of Public Works/ Larry Bonin, Director	Not Applicable	Fall 2017	

2-6 Community Volunteer Clean Up	Completed	2018 - The general public participates in annual Town Beach, Town Park and Town Hall clean ups of anthropogenic materials. 40 cubic yard roll-off containers (dumpsters) are provided by the Department of Public Works.	Public Involvement	Department of Public Works/ Larry Bonin, Director	Not Applicable	Spring 2018	
2-6 Kiwanis Club Causeway Clean Up	Completed	2018 - The Kiwanis Club conducts an annual clean up of the Causeway over South Cove to remove anthropogenic materials. 40 cubic yard roll-off containers (dumpsters) are provided by the Department of Public Works.	Public Involvement	Department of Public Works/ Larry Bonin, Director	Not Applicable	Fall 2018	
2-2 Comply with public notice requirements for Annual Reports	Completed	2019 - The Draft 2018 MS4 Annual Report was made available for public review and comment on the Town Initiatives tab on the town website main page at: http://www.oldsaybrookct.org/Pages/OldSaybrookCT_LandUseDept/MS4 The Draft 2018 MS4 Annual Report was also made available for public review and comment at the Office of the First Selectman	Substantial Complied with Requirements	Board of Selectmen/ Carl Fortuna, Jr., First Selectman	February 15, 2019	March 01, 2019	The Annual Report will be revised if public comments are received.

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

Town Beach, Town Park, Town Hall property and Causeway Clean Ups will be conducted in 2019.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
2017 - Availability of the 2017 Stormwater Management Plan announced to public to meet FOIA requirements	Yes	04/03/2017	Town Website
2017 - Availability of 2017 Annual Report announced to public to meet FOIA requirements	Yes	02/20/2018	Town Website and Office of the First Selectman
2018 - Availability of 2018 Annual Report announced to public to meet FOIA requirements	Yes	03/06/2019	Town Website and Office of the First Selectman

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

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
3-1 Develop written IDDE program	In Progress	The Town of Old Saybrook is in the process of completing a written IDDE program using the IDDE program template available from the CT DEEP.	Develop written plan of IDDE program	Board of Selectmen/ Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2018	Anticipate completing by the deadline of July 01, 2018.	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	In Progress	MS4 stormwater outfall mapping was completed during the first permit term by the DPW using a map grade GPS unit. The stormwater outfall mapping was compiled as a ESRI GIS layer of the town GIS mapping and a Interactive Stormwater Outfall Map. A copy of the Interactive Stormwater Outfall Map is on the Town of Old Saybrook website as a resource contained in the <i>Town Initiatives</i> tab on the town website main page at: http://www.oldsaybrookct.org/Pages/OldSaybrookCT_LandUseDept/MS4 The GIS 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 MS4 stormwater outfalls.	Land Use Department/Gillian Carroll, Environmental Planner and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Anticipate completing by July 01, 2018.	
3-3 Implement Citizen Reporting Program	In Progress	A program to allow the general public to report suspected illicit discharges is in the process of being set up. It is anticipated that the Office of the First Selectman will be the entity to accept citizen reporting of suspected illicit discharges.	Program Development	Board of Selectmen/ Carl Fortuna, Jr., First Selectman	July 01, 2018	Anticipate completing by July 01, 2018.	
3-4 Establish legal authority to prohibit illicit discharges	In Place	An Illicit Discharge Detection and Elimination Ordinance was enacted at a Town Meeting on June 26, 2012.	IDDE Ordinance Enactment	Board of Selectmen and Town Meeting	July 01, 2018	June 26, 2012	

3-5 Develop record keeping system for IDDE tracking	To Be Developed	A program to record IDDE tracking is in the process of being developed. It is anticipated that the record keeping system will be maintained by the Office of the First Selectman	Program Development	Board of Selectmen/ Carl Fortuna, Jr., First Selectman	Prior to July 01, 2018		
3-6 Address IDDE in areas with pollutants of concern	To Be Developed	Some MS4 Stormwater Outfalls which directly discharge to the Connecticut River or Long Island Sound which are bacterially impaired, as shown on the MS4 Stormwater Outfall Map will be sampled in 2018 and 2019 as needed to determine if the outfalls are sources of the bacterial impairment.	Program Development	Board of Selectmen/ Carl Fortuna, Jr., First Selectman and Nathan L. Jacobson & Associates, Inc., Town Engineer	Prior to July 01, 2019		

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

The written IDDE Program will be posted on the town stormwater webpage at http://www.oldsaybrookct.org/Pages/OldSaybrookCT_LandUseDept/MS4. The MS4 Annual Reports will update the written IDDE program as needed throughout the permit term.

The Office of the First Selectman will maintain master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the logging process

3.3 List of citizen reports of suspected illicit discharges received during this reporting period.

Date of Report	Location / suspected source	Response taken
Not Applicable		

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table.

The Town of Old Saybrook does not have sanitary sewer systems.

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)

3.5 Briefly describe the method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

To be developed and implemented in 2019.

The Town of Old Saybrook has implemented a Decentralized Wastewater Management District encompassing 15 focus areas of approximately 2,000 properties. The adoption of the WWMD Ordinance and Upgrade Standards was the result of an effort to develop the Legal Documents and a Facilities Plan, hold Public Informational Sessions, and educated town residents about the WWMD Program. In 2010, the WPCA began bidding and construction of Phase 1 On-Site Subsurface Sewage Disposal Upgrades. In 2016, the Phase 2 On-Site Subsurface Sewage Disposal Upgrades was initiated with over 500 subsurface sewage disposal system upgrades installed and over 800 subsurface sewage disposal systems designated as "Upgrade Compliant".

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

Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
See 3.5 above		

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	223
Estimated or actual number of interconnections	TBD
Outfall mapping complete	95
Interconnection mapping complete	0%
System-wide mapping complete (detailed MS4 infrastructure)	70%
Outfall assessment and priority ranking	0%
Dry weather screening of all High and Low priority outfalls complete	2017 - 0% 2018 - 0% It was anticipated to conduct dry weather screening during the Fall of 2018. However, unseasonably high precipitation precluded dry weather screening. It is anticipated that dry weather screening will be conducted in the Fall of 2019.
Catchment investigations complete	0%
Estimated percentage of MS4 catchment area investigated	0%

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

The Department of Public Works 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.

The Department of Public Works will be provided with a copy of the publication entitled *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, and Technical Appendices* Published October 2004 by the Center for Watershed Protection and Robert Pitt of the University of Alabama.

It is anticipated that an illicit discharge education presentation will be provided to DPW employees with the presentation prepared by Nathan L. Jacobson & Associates, Inc.

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

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 General Permit	Completed	The required elements of Minimum Control Measure No. 4 - Construction Site Runoff Control was incorporated into the town land use regulations.	Compliance	Christine Nelson, Town Planner , Land Use Department Land Use Commissions Land Use Town Attorney	July 01, 2019	Completed	It is anticipated that UConn CLEAR and/or a Regional Planning Agency will provide a Construction Site Runoff Control template for use by all MS4 Towns.
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	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	Land Use Department	July 01, 2017	Ongoing	
4-3 Review site plans for stormwater quality concerns	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer encourages the use of LID and Stormwater BMPs practices as contained in the 2004 Connecticut Stormwater Quality Manual and new stormwater management	Compliance	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Ongoing	

		technologies as they are developed.					
4-4 Conduct site inspections	Ongoing	The town conducts construction site inspections for proper implementation and maintenance of soil erosion and sediment control measures.	Compliance with Approved Plans	Christina M. Costa, CZEO, Enforcement Officer, Environmental Planner and Enforcement Officer, Land Use Office, Tom Makowicki, Building Official, Land Use Office and Larry Bonin, Department of Public Works Director	July 01, 2017	Ongoing	
4-5 Implement procedure to allow public comment on site development	Ongoing	The land use application process allows for public comment on land use applications which are submitted to the Inland Wetlands Agency, Planning Commission, Zoning Commission during the Public Hearing Process when applicable.	Compliance	Land Use Department and Land Use Commissions	July 01, 2017	Ongoing	
4-6 Implement procedure to notify developers about the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (CT	Ongoing	Since the inception of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction	Awareness of the need to register for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters	Land Use Department Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Ongoing	

DEEP Construction Stormwater General Permit)		Activities Nathan L. Jacobson & Associates, Inc., Town Engineer has made developer's engineers aware of the need to register for the Construction Stormwater General Permit in engineering review letters which are typically prepared as part of the land use application process.	from Construction Activities				
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4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.

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

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	In Place	The land use regulations were revised to incorporate the Minimum Control Measure No. 5 - Post Construction Runoff Control.	Compliance	Land Use Department Town Planner/Christine Nelson Land Use Commissions and Land Use Town Attorney	July 01, 2021	Anticipate completing by July 01, 2021`	It is anticipated that UConn CLEAR and/or a Regional Planning Agency will provide a Post-construction Stormwater Management template for use by all MS4 Towns.
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	In Place	The town encourages the use of LID and Stormwater BMPs practices as contained in the 2004 Connecticut Stormwater Quality Manual and new stormwater management technologies as they are developed.	Compliance	Land Use Department Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	July 01, 2017	
5-3 Identify retention and detention ponds in priority areas	Partially Developed	Retention Ponds, Detention Ponds and Hydrodynamic Separators will be inventoried. A GIS Map Layer will be created after the inventory.	The stormwater management basin inventory is largely completed and will be updated.	Larry Bonin, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Prior to July 01, 2019	

5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	To Be Developed and Implemented	After the Retention Ponds, Detention Ponds and Hydrodynamic Separators have been inventoried a Long-Term Operation and Maintenance Plan will be implemented.	Under Development	Larry Bonin, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Prior to July 01, 2019	
5-5 DCIA mapping	Starting	Begin 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 2016 Integrated Water Quality Report and in watersheds with a DCIA of greater than 11 percent will be completed in 2018.	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2020	Prior to July 01, 2020	
5-6 Address post-construction issues in areas with pollutants of concern	To Be Addressed	Based on a review of sampling conducted from 2004 to 2016, the town will encourage utilization of new stormwater management technologies to reduce bacteria loading to the Connecticut River and LIS as they are developed.	Stormwater outfalls discharging to waters identified as impaired in the 2016 Integrated Water Quality Report will be subject to enhanced water quality treatment.	Land Use Department Nathan L. Jacobson & Associates, Inc., Town Engineer	Not specified	To be developed and implemented as stormwater quality treatment methods for bacteria emerge.	

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

Sampling of MS4 stormwater outfalls which discharge directly to the Connecticut River and Long Island Sound.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	80.21 Acres
DCIA disconnected (redevelopment plus retrofits)	2012 to 2016 - To Be Determined 2017 - To Be Determined 2018 - To Be Determined Total - To Be Determined
Retrofits completed	2012 to 2016 2017 - To Be Determined 2018 - To Be Determined Total - To Be Determined
DCIA disconnected	2012 to 2016 - To Be Determined 2017 - To Be Determined 2018 - To Be Determined Total - To Be Determined
Estimated cost of retrofits	2012 to 2016 - To Be Determined 2017 - To Be Determined 2018 - To Be Determined Total - To Be Determined
Detention or retention ponds identified	0 this year /0 total

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

Based on information contained in the Factsheet: *Town of Old Saybrook Water Quality and Stormwater Summary*, prepared by the CT DEEP, 2,743.16 acres of the town has an impervious area exceeding 12% which is approximately 27.34% of the town. 576.59 acres have an impervious cover of ranging from 12% to 25%, 1,070.94 acres have an impervious cover ranging from 26% to 50%, 770.86 acres have an impervious cover ranging from 51% to 75% and 324.77 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 338.67 acres of buildings, 393.58 acres of roads and 639.34 acres of other impervious surfaces for a total impervious surface area of 1,371.59 acres.

Based on 2019 revised CT ECO MS4 Mapping, the road impervious area was determined to be 161.03 acres of State roads, Conn DOT Maintenance Facility and State Boat Launch Ramp and 232.55 acres of Town roads. The state road impervious area constituted approximately 40.9% of town-wide road impervious area.

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

The ConnDOT 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 $DCIA\% = 0.01 * (IA\%)^{2.0}$

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 $DCIA\% = 0.10 \cdot (IA\%)^{1.5}$.

For an impervious area between 12% and 18 %:

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

50% was assigned to the high connectivity Sutherland Equation where $DCIA\% = 0.40 \cdot (IA\%)^{1.2}$.

For an impervious area of greater than 18 %:

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

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	Activities in current reporting period	Measurable goal	Responsible Person and Department	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	Ongoing	DPW facility BMPs were presented to the DPW staff	Continuing	Larry Bonin, Director, Department of Public Works	July 01, 2017	Continuing	
6-2 Implement MS4 property and operations maintenance	Ongoing	The Park & Recreation Department continues to utilize BMPs in MS4 property operations and maintenance.	Continuing	Larry Bonin, Director, Department of Public Works	July 01, 2018	Continuing	
6-3 Implement coordination with interconnected MS4s	Not Applicable	None	Not Applicable	Not Applicable	July 01, 2017	Not Applicable	
6-4 Develop/implement program to control other sources of pollutants to the MS4	To Be Developed	None	Educate the General Public on bacteria impairment of waterbodies by pet waste and waterfowl waste.	Nathan L. Jacobson & Associates, Inc., Town Engineer and Town MS4 Consultant	July 01, 2017	Calendar Year 2018	
6-5 Evaluate additional measures for discharges to impaired waters*	To Be Developed	None	Educate the General Public on bacteria impairment of waterbodies by pet waste and waterfowl waste.	Nathan L. Jacobson & Associates, Inc., Town Engineer and Town MS4 Consultant	July 01, 2017	Calendar Year 2018	

6-6 Track projects that disconnect DCIA	To Be Developed	None	Review projects constructed since July 01, 2012 to determine if there was a reduction in DCIA on any of the projects.	Nathan L. Jacobson & Associates, Inc., Town Engineer and Town MS4 Consultant	July 01, 2017	Calendar Year 2018	
6-7 Implement infrastructure repair/rehab program	To Be Developed	None	Begin development of the program.	Larry Bonin, Director, Department of Public Works	July 01, 2021	Prior to July 01, 2021	
6-8 Develop/implement plan to identify/prioritize retrofit projects	To Be Developed	None	Retrofit Plan Development	Larry Bonin, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc.	July 01, 2020	Prior to July 01, 2020	
6-9 Implement retrofit projects to disconnect 2% of DCIA	To Be Developed	None	Review projects constructed since July 01, 2012 to determine if there was a reduction in DCIA on any of the projects.	Larry Bonin, Director, Department of Public Works and Nathan L. Jacobson & Associates, Inc.	July 01, 2022	Prior to July 01, 2022	
6-10 Develop/implement street sweeping program	Ongoing	The Town of Old Saybrook currently implements a road sweeping program whereby all town roads are swept at least one time per year.	Compliance	Larry Bonin, Director, Department of Public Works	July 01, 2017	Continuing	

6-11 Develop/implement catch basin cleaning program	Ongoing	The Town of Old Saybrook currently implements a catch basin cleaning program whereby at least 75% of the catch basins are cleaned every year.	Compliance	Larry Bonin, Director, Department of Public Works	July 01, 2020	Continuing	
6-12 Develop/implement snow management practices	Ongoing	Continue the existing program and modify as needed.	Ongoing Review	Larry Bonin, Director, Department of Public Works	July 01, 2018	Continuing	

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

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.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	DPW Employees are encouraged to attend classes at the CT Technology Transfer Center or Connecticut Interlocal Risk Management Agency (CIRMA). 2017 - None 2018 - American Public Works Association (APWA) Snow Plowing E Learning.
Street sweeping	
Lane miles swept	149.88 (74.94 Road Miles)
Volume (or mass) of material collected	2017 - Undetermined 2018 - 450± C.Y.
Catch basin cleaning	

Total catch basins in priority areas	To Be Determined
Total catch basins in MS4	850±
Catch basins inspected	2017 - 850± 2018 - 640±
Catch basins cleaned	2017 - 640± 2018 - 640±
Volume (or mass) of material removed from all catch basins	2017 - Not determined. Will be estimated in 2018. 2018 - 100±C.Y.
Volume removed from catch basins to impaired waters (if known)	2017 - Not determined. Will be estimated in 2018. 2018 - 50±C.Y.
Snow management	
Type(s) of deicing material used	Deicing Mix Comprised of 3 Parts Sand to 1 Part Salt
Total amount of each deicing material applied	Winter 2017 to 2018 - 196± Tons NaCl Salt and 588± Tons Sand Winter 2018 to 2019 - TBD± Tons NaCl Salt and TBD± Tons Sand
Type(s) of deicing equipment used	9 Snow Plows/Spreaders. 4 Snow Plows/Spreaders were purchased new with Ground Speed Controlled Spreaders. The remaining 5 Snow Plows/Spreaders were retrofitted with Ground Speed Controlled Spreaders. The deicing mix is applied at a rate ranging from 150-300 pounds per lane (curb) mile depending on the storm type.
Lane-miles treated	149.88 (74.94 Road Miles)
Snow disposal location	Generally along the road shoulders. In extreme snowstorms snow is removed and stockpiled at the Town Hall lawn and the old Police Department parking lot.
Staff training provided on application methods & equipment	Larry Bonin is a 2014 graduate of the CT Technology Transfer Center Connecticut Transportation Leadership Program.
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	0 Pounds
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

Briefly describe the method used to optimize your catch basin inspection and cleaning schedule. [Complete this section for the 2017 Annual Report only]

It is estimated that there are approximately 850 catch basins in the Town of Old Saybrook.
2017 - Approximately 75% catch basins were cleaned with a DPW Employee witnessing all catch basin structure cleaning.
2018 - Approximately 75% catch basins were cleaned with a DPW Employee witnessing all catch basin structure cleaning.

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. [Provide information if available in 2017 report. Section to be completed for the 2019 Annual Report.]

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.

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years. [Provide information if available in 2017 report. Section to be completed for the 2019 Annual Report.]

Based on the 2012 Baseline DCIA of 80.21 acres, 1.60 acres of DCIA will need to be disconnected by July 01, 2012 to meet the CT DEEP goal of a 2% disconnection. It is anticipated that the DCIA disconnection goal will be met with a combination of municipal and private commercial redevelopment.

2017 - The Reconstruction of North Main Street project was completed in 2017. The project incorporated stormwater infiltration of the entire pavement area for up to a 10-year design storm. The DCIA disconnected will be determined before submission of the 2018 MS4 Annual Report.

2018 - Redevelopment of a commercial property is proposed and the current redevelopment plan will incorporate treatment of the Water Quality Volume (WQV) and stormwater retention via subsurface infiltration. The DCIA disconnected will be computed after construction of the project has been completed.

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years. [Provide information if available in 2017 report. Section to be completed for the 2019 Annual Report.]

All significant redevelopment projects will be designed to incorporate a reduction in DCIA wherever feasible.

Part II: Impaired waters investigation and monitoring [This section required beginning with 2018 Annual Report]

1. Impaired waters investigation and monitoring program

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:

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.

2017 - No stormwater sampling to impaired waters was conducted.
2018 - No stormwater sampling to impaired waters was conducted.
2019 - It is anticipated that stormwater sampling of at least half of the stormwater outfalls which discharge directly to impaired water (Connecticut River or Long Island Sound) will be completed.

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

2.1 Screening data collected under 2017 permit

Complete the table below for any outfalls screened during the reporting period. Each Annual Report will add on to the previous year's screening data showing a cumulative list of outfall screening data.

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

2.2 Credit for screening data collected under 2004 permit

If any outfalls to impaired waters were sampled under the 2004 MS4 permit, that data can count towards the monitoring requirements under the modified 2017 MS4 permit. Complete the table below to record sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results (Colonies/100 ml)	Name of Laboratory (if used)	Follow-up required?
Commercial	06/28/05	Bacteria - E.coli	460	Connecticut Testing Laboratories, Inc.	No
Commercial	05/18/10	Bacteria - E.coli	1000	PH0448	No
Commercial	06/22/11	Bacteria - E. coli	450	PH0448	No
Commercial	11/27/12	Bacteria - E. coli	95	PH0448	No
Commercial	12/23/13	Bacteria - E. coli	Absent	PH0448	No
Commercial	11/17/14	Bacteria - E. coli	10	PH0448	No
Commercial	12/22/15	Bacteria - E. coli	350	PH0448	No
Commercial	11/15/16	Bacteria - E. coli	4	PH0448	No

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

Provide the following information for outfalls exceeding the pollutant threshold.

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

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Once outfall screening 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 1, 2020.

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

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Part III: Additional IDDE Program Data [This section required beginning with 2018 Annual Report]

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
5101-00-2-R1 25.11% Impervious	High Priority	1
5000-03-1 22.02% impervious	High Priority	2
5000-02-1 14.50% Impervious	High Priority	3
4000-64-1 13.03% Impervious	High Priority	4
5000-01-1 22.69% Impervious	High Priority	5
5101-00-2-LI 16.16% Impervious	High Priority	6

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

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).

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: Carl P. Fortuna, Jr., First Selectman	Print name: Wade M. Thomas
Signature / Date: April 2X, 2019	Signature / Date: April 2X, 2019

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