Town of Chester, Connecticut

2020 Annual Report

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

Permit Number GSM000058

MS4 General Permit
Town of Chester 2020 Annual Report
Existing MS4 Permittee
Permit Number GSM 000058
January 01, 2020 - December 31, 2020

This report documents the Town of Chester's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 01, 2020 to December 31, 2020.

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	Implemented	2017 - None The following links were added to the Conservation Commission webpage: NEMO Program Fact Sheet 2, *Nonpoint Source Water Pollution* Clean Waters Fact Sheet 8, *Lawn Care the Environmentally Friendly Way* Clean Water Fact Sheet 3, *Caring for Your Septic System*	Improving	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2018	July 01, 2017 and continuing	The program will be expanded as additional suitable resources become available.

		Clean Waters Fact Sheet 6, Animal Waste and Water Quality *Rain Recycling with Rain Barrels* prepared by the Connecticut River Coastal Conservation District, Inc. *Riparian Corridor Plants*, prepare by Sea Grant Connecticut A link to the CT DEEP *Please Do Not Trash Grass* webpage A link to the NEMO Rain Garden webpage					
	Implemented	2019 The following Conservation Commission Enviro Tips were contained in the Town of Chester Town-wide Email sent out on Friday of most weeks: 01/18/19 Accumulation of microplastics in ocean filter feeders (oysters, clams, mussels or scallops). 01/25/19 Accumulation of PCBs and DDT in microplastics and human consumption. 02/01/19 Benefits of reduced plastics in the environment. 02/08/19				July 01, 2017 and Continuing	

		Labeling of plastics as degradable and biodegradable when in fact they fragment into microplastics. 02/15/19 Recommendation to use magnesium chloride as a deicer to minimize environmental effects. 04/05/19 The shedding of microplastics by machine washing of synthetic fleece was discussed. 09/13/19 Notice that cigarette filters are the biggest source of litter in the U.S. and another example of single use plastic entering waterways. 09/20/19 The commission wanted to make the general public aware of "No Dumping" stencils on catch basin heads and to make residents aware that whatever is dumped in the catch basin ends up in the local waterway. 11/15/19 The distinction between dirt and soil was explained as soil can be converted to dirt ("dead soil") by excessive use of non-organic herbicides, pesticides and fertilizers.					

		2020 The following Conservation Commission Enviro Tips were contained in the Town of Chester Town-wide Email sent out on Friday of most weeks: 05/01/20 Tip giving suggestions to use less plastic. 05/15/20 Tip to consider your choice when choosing a soft drink relative to single use plastic pollution in the environment. 07/03/20 Tip to check floating docks to determine if the plastic foam flotation is enclosed as plastic foam degrades and pollutes waterbodies. 09/04/20 Regional Household Hazardous Waste Collections and Paper Shredding Event was advertised. 10/30/20 Tip to the general public that "Drains to Long Island Sound" and "No Dumping" was stenciled on to catch basin heads on Prospect Street, Straits Road, Maple Street, Main Street, North Main Street and Liberty Street and reminding resident that used oil, hazardous materials, dog				July 01, 2017 and Continuing	

		feces, liquid herbicides, pesticides and other pollutants should not be dumped into catch basins. 11/13/20 Conservation Commission Enviro tip regarding leaf management and the recommendation to not blow leaves into the street or down storm drains. 11/20/20 Conservation Commission Enviro tip to mulch leaves with the lawn mower and leave them in place on the lawn and flower and vegetable beds.					
	Implemented	2020 The following were contained in Chester Events Quarterly: Quarter 2 Information on RiverCOG Household Hazardous Waste Collection Dates in 2020 Quarter 4 *What to do with All Those Leaves* recommended composting leaves as opposed to depositing the leaves near a stream or in a wetland				July 01, 2017 and Continuing	
	Implemented	The following were posted on the town website: 2004 Stormwater Management Plan EPA Stormwater Phase II - Fact Sheet 1				July 01, 2017 and Continuing	

		EPA Stormwater Phase II - Fact Sheet 2 *After the Storm* 2017 MS4 Stormwater Management Plan 2017 MS4 General Permit Registration Form 2017 MS4 General Permit Registration Attachment B - USGS Map Final 2016 Chester MS4 Annual Report Final 2017 Chester MS4 Annual Report Draft 2019 Chester MS4 Annual Report					
1-2 Address Public Education and Outreach for Pollutants of Concern*	Implemented	The following links were added to the Conservation Commission webpage: NEMO Program Fact Sheet 2, *Nonpoint Source Water Pollution* Clean Waters Fact Sheet 8, *Lawn Care the Environmentally Friendly Way* Clean Water Fact Sheet 3, *Caring for Your Septic System* Clean Waters Fact Sheet 6, Animal Waste and Water Quality				July 01, 2017 and Continuing	
	Completed	The public was informed on January 17, 2019 of a Special Town Meeting to be held on Thursday, February 07, 2019 to discuss and enact the Stormwater Ordinance.	Email to Residents	Board of Selectmen	July 01, 2018	February 08, 2019	

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

It is anticipated that Conservation Commission Enviro Tips will continue to be contained in the Town of Chester Town-wide Email sent out on Friday of most weeks.

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.

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 2017 Stormwater Management Plan	Completed	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.	Substantial Compliance	Lauren Gister, First Selectwoman, Board of Selectmen	April 03, 2017	The 2017 SMP was available to the public on April 20, 2017.	No public comments were received by the Office of the First Selectwoman
2-2 Comply with public notice requirements for Annual Reports	Completed	2018 The Draft 2017 MS4 Annual Report was made available for public review and comment.	Substantial Compliance	Lauren Gister, First Selectwoman Board of Selectmen	Feb 15, 2018	March 2018	No public comments were received by the Office of the First Selectwoman
	Completed	2019 The Draft 2018 MS4 Annual Report was made available for public review and comment.	Substantial Compliance	Lauren Gister, First Selectwoman, Board of Selectmen	Feb 15, 2019	February 28, 2019.	No public comments were received by the Office of the First Selectwoman
	Completed	2020 The Draft 2019 MS4 Annual Report was made available for public review and comment.	Substantial Compliance	Lauren Gister, First Selectwoman Board of Selectmen	Feb 15, 2020	May 01, 2020	No public comments were received by the Office of the First Selectwoman
	Completed	2021 The Draft 2020 MS4 Annual Report was made available for public review and comment.	Substantial Compliance	Lauren Gister, First Selectwoman Board of Selectmen	Feb 15, 2021	March 26, 2021	The notice indicated that comments were to be directed to Wade Thomas of Nathan L. Jacobson & Associates, Inc.

	Completed	The Household Hazardous Waste Dropoff Schedule was published in Chester Events magazine.	Public Involvement	Board of Selectmen	July 01, 2017	2018 - Quarter 2 2019 - Quarter 2 2020 - Quarter 2	
	Completed	An announcement indicating that Chester joined the CT River Area Health District (CRAHD) was contained in Chester Events magazine.	Public Notice	CRAHD		2018 - Quarter 4	
	Completed	Chester/Deep River Boy Scout Troop 13 conducted a Clean Up Campout on Selden's Island.	Public Involvement	Chester/Deep River Boy Scout Troop 13	July 01, 2017	May 2019	

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

Consider holding quarterly stormwater committee meetings to review the Stormwater Management Plan implementation progress.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
2017 - Availability of the 2017 Stormwater Management Plan announced to the public	Yes	04/20/2017	Town Website
2018 - Availability of the 2017 MS4 Annual Report announced to the public	Yes	March 2018	Town Website
2019 - Availability of the 2018 MS4 Annual Report announced to the public	Yes	02/28/2019	Town Website
2020 - Availability of the 2019 MS4 Annual Report announced to the public	Yes	05/01/2020	Town Website

2021 - Availability of the 2020 MS4Annual Report announced to the public	Yes	02/05/2021	Town Website

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	2017 through 2020 - None A draft IDDE program has been prepared and will be implemented in 2021.	Development of a draft IDDE program	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2018	Anticipate completing by July 01, 2021.	The Department of Public Works will most likely be the listed contact.
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	In Progress	MS4 stormwater outfall mapping was conducted in the Urbanized Area in 2005. 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 2018 Integrated Water Quality Report. The stormwater outfalls in the impaired waters will be identified. The MS4 stormwater outfall mapping was	Development of an ESRI GIS map layer with MS4 stormwater outfalls.	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Anticipate completing by July 01, 2021.	

		completed town wide in 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 Department of Public Works will be the contact to accept citizen reporting of suspected illicit discharges.	None	Lauren Gister, First Selectwoman, Board of Selectmen	July 01, 2017	Anticipate completing by July 01, 2021.	
3-4 Establish legal authority to prohibit illicit discharges	Completed	An Illicit Discharge Detection and Elimination Ordinance and Citation Hearing Procedure was the subject of a Special Town Meeting of February 07, 2019	Adoption of the IDDE Ordinance and amended the Citation Hearing Procedure at the Special Town Meeting of February 07, 2019	Lauren Gister, First Selectwoman, Board of Selectmen	July 01, 2018	Adopted February 07, 2019.	
3-5 Develop record keeping system for IDDE tracking	To Be Developed	2017 through 2020 - None	None	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Anticipate completing by July 01, 2021.	
3-6 Address IDDE in areas with pollutants of concern	To Be Developed	2017 through 2020 - None	None	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017		

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 next year's Annual Report; will update the written IDDE program as needed throughout the permit term.

Maintain the master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the illicit discharge tracking procedure.

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

Date of Report	**Location / suspected source**	**Response taken**
2017	No reports of suspected illicit discharges	None Required
2018	No reports of suspected illicit discharges	None Required
2019	No reports of suspected illicit discharges	None Required
2020	No reports of suspected illicit discharges	None Required

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 Chester has had no SSOs.

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.

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
2017 - No failing septic systems were a source of an illicit discharge to the Town of Chester MS4.	None Required	Not Applicable
2018 - No failing septic systems were a source of an illicit discharge to the Town of Chester MS4.	None Required	Not Applicable
2019 - No failing septic systems were a source of an illicit discharge to the Town of Chester MS4. The following subsurface sewage disposal repairs were conducted: 64 Cedar Lake Road	 Septic Tank and Leaching System Repairs	
2020 - No failing septic systems were a source of an illicit discharge to the Town of Chester MS4. The following subsurface sewage disposal repairs were conducted: 72 Railroad Avenue 226-8 Middlesex Avenue 38 Railroad Avenue 14 Hazen Street 27 Winthrop Road 24 Old Depot Road 3 Bates Lane 16 Ridge Road 35 Middlesex Avenue 3 Lake View Avenue 5 Lake View Avenue 17 Cedar Lake Road 14 Straits Road 36 Bokum Road	 Septic Tank and Leaching System Repairs Pipe Repair Septic Tank and Leaching System Repairs Septic Tank and Leaching System Repairs Septic Tank and Leaching System Repairs Leaching System Repair Septic Tank Repair Septic Tank and Leaching System Repairs Septic Tank and Leaching System Repairs Leaching System Repair Leaching System Repair Septic Tank and Leaching System Repairs Septic Tank and Leaching System Repairs Septic Tank Repair	

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	TBD
Estimated or actual number of interconnections	TBD
Outfall mapping complete	95%
Interconnection mapping complete	0%
System-wide mapping complete (detailed MS4 infrastructure)	95%
Outfall assessment and priority ranking	0%
Dry weather screening of all High and Low priority outfalls complete	0%
Catchment investigations complete	0%
Estimated percentage of MS4 catchment area investigated	95%

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.

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	To be Initiated in 2020	Not Applicable	Not Applicable	Board of Selectmen and Land Use Commission Members	July 01, 2019	Anticipate to complete by July 01, 2021.	It is anticipated that UConn CLEAR or a Regional Planning Agency will develop template guidelines for use by all MS4 municipalities.
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 Commission Members	July 01, 2017	Ongoing	2017 through 2020 No significant land use applications were received.
4-3 Review site plans for stormwater quality concerns	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, encourages the use of LID BMPs as contained in the 2004 Connecticut Stormwater Quality Manual.	Compliance	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Ongoing	2017 through 2020 No significant land use applications were received.
4-4 Conduct site inspections	Ongoing	The town conducts construction site inspections for proper implementation and maintenance of soil erosion and	Compliance with Approved Plans	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Ongoing	2017 through 2020 No significant construction activities warranted site inspections.

		sediment control measures.					
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 and the Planning & Zoning Commission during the Public Hearing Process when applicable.		Land Use Department	July 01, 2017	Ongoing	2017 through 2020 No significant land use applications required a Public Hearing were received.
4-6 Implement procedure to notify developers about the CT DEEP Construction Stormwater General Permit	Ongoing	Since the inception of the MS4 program Nathan L. Jacobson & Associates, Inc., Town Engineer, has made developers and 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	Land Use Department and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	Ongoing	2017 through 2020 No significant land use applications were received.

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

2017 through 2020 - No significant land use applications were received. Significant land use applications are not anticipated in 2021.

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	Under Development	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 Selectwoman.	Board of Selectmen and Town Land Use Attorney	July 01, 2021	Anticipate to complete by July 01, 2021.	It is anticipated that UConn CLEAR or a Regional Planning Agency will develop template guidelines for use by all MS4 municipalities.
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	Ongoing	Nathan L. Jacobson & Associates, Inc., Town Engineer, encourages the use of LID BMPs as contained in the 2004 Connecticut Stormwater Quality Manual.	Compliance	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	July 01, 2017	2017 through 2020 No significant land use applications were received.
5-3 Identify retention and detention ponds in priority areas	To be completed in 2020	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	None	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Anticipate to complete by July 01, 2021	

		facility maintenance requirements.					
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	Completed	A Post-Construction Stormwater Management Facility Operation & Maintenance Plan Manual was prepared.	Implementation of the Post-Construction Stormwater Management Facility Operation & Maintenance Plan Manual.	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2019	Completed with an Effective Date of July 01, 2019. It is anticipated that measures will be implemented beginning in 2020.	The manual will be revised as new BMP technologies become available.
5-5 DCIA mapping	Completed	Completed the process of DCIA Mapping from base mapping prepared by UConn CLEAR.	Completed	Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2020	February 2019	
5-6 Address post-construction issues in areas with pollutants of concern	Under Development		Stormwater outfalls discharging to waters identified as impaired in the 2018 Integrated Water Quality Report and in watersheds with a DCIA of greater than 11 percent will be subject to enhanced water quality treatment.	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	Not specified		2017 through 2020 No significant land use applications were received.

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

Procedures outlined in the Post-Construction Stormwater Management Facility Operation & Maintenance Plan Manual will be implemented in 2021.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	11.89 Acres
DCIA disconnected (redevelopment plus retrofits)	2012 to 2016 - To Be Determined 2017 through 2020 - 0 Acres
Retrofits completed	2012 to 2016 - To Be Determined 2017 through 2020 - 0
DCIA disconnected	2012 to 2016 - To Be Determined 2017 through 2020 - 0 Acre
Estimated cost of retrofits	2012 to 2020 - $0
Detention or retention ponds identified	2012 to 2020 - 0

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

Based on information contained in the Factsheet: *Town of Chester Water Quality and Stormwater Summary,* prepared by the CT DEEP, 633.67 acres of the town has an impervious area exceeding 12% which is approximately 5.90% of the town. 185.65 acres have an impervious cover of ranging from 12% to 25%, 289.68 acres have an impervious cover ranging from 26% to 50%, 121.65 acres have an impervious cover ranging from 51% to 75% and 36.69 acres have an impervious cover ranging from 76% to 100%.

Based on information contained in the MS4 mapping tab of Connecticut Environmental Conditions Online (CT ECO) The impervious surface area consists of 105.95 acres of buildings, 182.31 acres of roads and 221.28 acres of other impervious surfaces for a total impervious surface area of 509.54 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 reports entitled *2016 Integrated Water Quality Report*, dated April, 2017 and the *2018 Integrated Water Quality Report*, dated August 01, 2019, 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 $DCIA\% = 0.10*(IA\%)^{1.5}$

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	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	Developing	2017 through 2020-None	It is anticipated that formal employee training will be conducted in 2020.	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	July 01, 2017	July 01, 2021	
6-2 Implement MS4 property and operations maintenance	Ongoing	Ongoing	Continuing	John Divis, Road Foreman, Department of Public Works	July 01, 2018	July 01, 2017	
6-3 Implement coordination with interconnected MS4s	Ongoing	The Town of Chester continued to coordinate MS4 responsibilities with the Towns of Haddam, Killingworth and Deep River	Continuing	John Divis, Road Foreman, Department of Public Works	July 01, 2017	July 01, 2017	
6-4 Develop/implement program to control other sources of pollutants to the MS4	To Be Developed	None	Developing	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	Not specified		
6-5 Evaluate additional measures for discharges to impaired waters	To Be Developed	2017 through 2020 - None	Developing	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	Not specified		

6-6 Track projects that disconnect DCIA	To be initiated in 2019	2017 through 2019 No significant land use applications were received.	None	Board of Selectmen and Nathan L. Jacobson & Associates, Inc., Town Engineer	Jul 1, 2017		
6-7 Implement infrastructure repair/rehab program	To be initiated in 2021	2019 - None	None	John Divis, Road Foreman, Department of Public Works	July 01, 2021		It is anticipated that a program will begin implementation in 2021.
6-8 Develop/implement plan to identify/prioritize retrofit projects	To be initiated in 2021	None	None	John Divis, Road Foreman, Department of Public Works	July 01, 2020		It is anticipated that a program will begin implementation in 2021.
6-9 Implement retrofit projects to disconnect 2% of DCIA	To be initiated in 2021	None	None	John Divis, Road Foreman, Department of Public Works	July 01, 2022		2017 through 2020 No significant land use redevelopment applications were received.
6-10 Develop/implement street sweeping program	Ongoing	The Town of Chester currently implements a road sweeping program whereby all town roads are swept at one time per year.	Compliance	John Divis, Road Foreman, Department of Public Works	July 01, 2017	Annually	
6-11 Develop/implement catch basin cleaning program	Ongoing	The Town of Chester currently implements a catch basin cleaning program whereby all catch basins south of I-95 and north of I-95 are cleaned in alternate years.	Compliance	John Divis, Road Foreman, Department of Public Works	July 01, 2020	Annually	
6-12 Develop/implement snow management practices				John Divis, Road Foreman, Department of Public Works	July 01, 2018	Annually	

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

It is anticipated that all town roads will be swept at least one time and all catch basins and headwalls will be vactored.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	2017 through 2020 - No Employee Training Conducted To be initiated in 2021.
Street sweeping	
Lane miles swept	2017 through 2020 - 60.98± Downtown swept monthly from May to October.
Volume (or mass) of material collected	2017 - Not Measured 2018 - 180-200 C.Y. 2019 - 165± C.Y. 2020 - 190± C.Y.
Catch basin cleaning	
Total catch basins in priority areas	TBD
Total catch basins in MS4	500±
Catch basins inspected	2017 through 2020 - 500± (All Catch Basins)
Catch basins cleaned	2017 through 2020 - 500± (All Catch Basins) and 100+ Headwalls
Volume (or mass) of material removed from all catch basins	2017 - Not Measured 2018 - 300-350 C.Y. 2019 - 355± C.Y. 2020 - 250± C.Y.
Volume removed from catch basins to impaired waters (if known)	2017 - Not Measured 2018 - Not Measured 2019 - Not Measured 2020 - Not Measured XX C.Y.
Snow management	
Type(s) of deicing material used	Deicing Mix Majority of Town 4 Parts Sand to 1 Part NaCl Salt

	Downtown Area Ice B'Gone Pretreated NaCl
Total amount of each deicing material applied	Winter 2017 to 2018 - Not Determined Winter 2018 to 2019 - Not Determined Winter 2019 to 2020 - Not Determined Winter 2020 to 2021 - Not Determined
Type(s) of deicing equipment used	Two Large Snow Plows/Spreaders One Medium Snow Plow/Spreader Three Small Snow Plows/Spreaders All Spreaders are manually controlled at an estimated application rate 150-200 pounds per lane (curb) mile at the beginning of the plowing season.
Lane-miles treated	2017 through 2020 - 62.02
Snow disposal location	Roadside except for major snowstorms.
Staff training provided on application methods & equipment	2017 through 2020 - None
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

6.4Catch Basin Cleaning Program

Briefly describe the method used to optimize your catch basin inspection and cleaning schedule.
It is estimated that there are approximately 500 catch basins and more than 100 headwalls in the Town of Chester. All of the catch basin and headwalls were cleaned in 2017, 2018, 2019 and 2020. Currently no optimization methods are required.

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.
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. 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 in future years.
Based on the 2012 Baseline DCIA mapping, which was completed in February 2019, the 2012 Baseline DCIA was determined to be 11.89 acres. To meet the CT DEEP goal of a 2% DCIA disconnect by 2022 will require disconnection of 0.238 acre of DCIA. 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. A downtown sidewalk project was designed in 2019 for the 2020 construction season. The design incorporated a hydrodynamic separator which will result in reduction of sediment and pollutant loads from a direct discharge to Pattaconk Brook.

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years.

Part II: Impaired waters investigation and monitoring

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: 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.
2017 through 2020 - No Monitoring Town-wide MS4 stormwater outfall mapping was completed in 2018. All MS4 stormwater outfalls that were field located and discharge directly to the Connecticut River within the limits of the impaired waters of the Connecticut River (northern portion of Chester) will be sampled in 2021.

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?**

2017 through 2019- Dry weather screening was scheduled for the Fall of 2018 but the unseasonably high precipitation, and resulting high groundwater conditions, precluded dry weather screening. It is anticipated that dry weather screening will be conducted in 2019.

2020 - No dry weather screening was conducted.

2021 - It is anticipated that dry weather screening will be conducted in 2021.

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**	**Name of Laboratory (if used)**	**Follow-up required?**
I1	12/07/04	E. coli (#/100 ml)	>60	Phoenix Environmental Laboratories, Inc.	
I1	11/30/05	E. coli	140	Phoenix	
I1	12/01/06	E. coli	360	Phoenix	
I1	09/11/07	E. coli	360	Phoenix	
I1	06/09/09	E coli	14,140	Phoenix	
I1	10/07/09	E coli	14,140	Phoenix	
I1	11/04/10	E coli	2,720	Phoenix	

I1	10/19/11	E coli	590	Phoenix	
I1	11/13/12	E coli	7,700	Phoenix	
I1	12/23/13	E coli	3,450	Phoenix	
I1	08/13/14	E coli	13,000	Phoenix	
I1	08/11/15	E coli	13,000	Phoenix	
I1	11/15/16	E coli	504	Phoenix	

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

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

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 01, 2020.

Outfall	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
4017-01-2-R1 15.8% Imp. **14.2% Imp.**		1
4017-00-2-R1 11.8% Imp. **10.5% Imp.**		2
4000-57-2-R1 11.9% Imp. **10.0% Imp.**		3
4017-03-1* 20.9% Imp. **18.8% Imp.**		4

Note: While CT DEEP Basin 4017-03-1 has the greatest percent of impervious area, a large portion of the impervious area is due to the Chester Airport and a private industrial park (Whelen Engineering).

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

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

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

2017 through 2019 - Dry weather screening was scheduled for the Fall but the unseasonably high precipitation, and resulting high groundwater conditions, precluded dry weather screening.

2020 - No dry weather screening was conducted.

It is anticipated that dry weather screening will be conducted in late Spring and early Summer 2021.

2.2 Wet weather sample and inspection data

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

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

ID									

2018 through 2020 - No wet weather inspection or sampling were conducted.

2021 - It is anticipated that wet weather inspection and sampling will be conducted.

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 that 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 that poor owner maintenance).

3.2 Key junction manhole dry weather screening and sampling data

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

2017 through 2019 - Junction manhole dry weather screening and sampling was scheduled for the Fall but the unseasonably high precipitation, and resulting high groundwater conditions, precluded dry weather screening.

2020 - No junction manhole dry weather screening and sampling was conducted.

2021 - It is anticipated that junction manhole dry weather screening and sampling will be conducted in late Summer or early Fall.

3.3 Wet weather investigation outfall sampling data

Outfall ID	Sample date	Ammonia	Chlorine	Surfactants

2017 through 2019 - Wet weather screening and sampling was scheduled for the Fall but the unseasonably high precipitation, and resulting high groundwater conditions, precluded dry weather screening.

2020 - No wet weather screening and sampling was conducted.

2021 - It is anticipated that wet weather screening and sampling will be conducted in late Summer or early Fall.

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

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: Lauren Gister, First Selectwoman	Print Name: Wade M. Thomas, CPMSM
Signature: Date: May , 2021	Signature: Date: May , 2021