

MS4 General Permit
City of Middletown 2020 Annual Report
Existing MS4 Permittee
Permit Number GSM 000011
January 1, 2020 – December 31, 2020
Primary MS4 Contact: Tom Nigosanti, City Engineer
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This report documents Middletown's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2020 to December 31, 2020.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
1-1 Implement public education and outreach	Ongoing	See details below	Document how many brochures have been distributed.	Kim O'Rourke, Recycling Coordinator	Ongoing	In Progress as of 2018
1-2 Address education/outreach for pollutants of concern	Ongoing	Bacteria (E. coli) is addressed in the "Protect the Waterways" brochure. The City installed pet waste receptacles (bags and containers)	Create educational materials to target: a. Septic systems b. Sanitary cross connections c. Waterfowl d. Pet waste	Kim O'Rourke, Recycling Coordinator	Ongoing	2020 and prior

		in many of the parks and promoted it on social media.	e. Manure piles associated with livestock & horses			
1-3 Target education to specific properties known to contribute bacteria to stormwater	Not started	Specific properties will be identified and targeted during the 2022 reporting period.	Identify properties and owners based on historic sanitary system failures, proximity to bacteria impaired waters, low infiltrative soils, and shallow groundwater.	Kim O'Rourke, Donald Fisco and Tom Nigosanti	Ongoing	This BMP is expected to commence in 2022.

Additional descriptions of BMP activities:

BMP	
1-1 Implement public education and outreach	<p>1) Educational brochures have been developed and distributed to various segments of the population; elementary schools, Russell Library, Wesleyan, Household Hazardous Waste Collection participants, public meetings and/or included with water bills. Some topics may include green lawns, household hazardous waste, pet waste, fertilizers, herbicides, and pesticides, impervious cover and impacts of illicit discharges and improper disposal of waste. Kim O'Rourke ensures that the brochures are available at many outreach events. They are also available at the City Hall and Russell Library.</p> <p>2) A specific brochure was developed for Project Green Lawn. The purpose was a public awareness campaign to encourage residents and businesses to maintain healthy, lush lawns free of chemicals that are harmful to people, pets and the environment.</p> <p>3) Middletown uses the "SeeClickFix" program to allow for citizen reporting of suspected illicit discharges into the stormwater system.</p> <p>4) Brochures have been made available at the following events:</p> <ul style="list-style-type: none"> • Compost Bin sales in Fall of 2020 • Household Hazardous Waste Events in the Summer & Fall of 2020 <p>5) A series of monthly video presentations on recycling, including a tour of our recycling center has been created. These started in July 2020 and are ongoing.</p>

1.2 Public Education and Outreach activities planned for the next year.

Brochures will be made available at the following events:
 Middletown Farmers Market – every Friday June – October 2021
 Compost Bin sales in Spring and Fall of 2021
 Household Hazardous Waste Events – Spring, Summer & Fall of 2021
 Composting presentation (virtual) Spring, Summer & Fall 2021
 Distributed through summer camp in summer 2021
 Paper Shred Events in Spring & Fall 2021
 Reboot Eco Opening (a new Zero Waste Refill Store) in Nov. 2021

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.
BMPs are listed in Section 1-1 above.	N/A	N/A	N/A	N/A

2. Public Involvement/Participation

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
2-1 Final Stormwater Management Plan publicly available	Completed	The plan has been developed and implementation dates updated to reflect realistic resources. A copy of the Stormwater Management Plan can be found at: https://www.middletownct.gov/DocumentCenter/View/646/StormwaterManagementPlan	Post the Stormwater Management Plan on the City website.	Tom Nigosanti	April 1, 2017	The Stormwater Management Plan was posted on the City website in early 2017.

2-2 Comply with public notice requirements for Annual Reports	In Progress	An agreement has been made with "Save the Sound", and the public notice will be posted on Feb 15, 2022 for the 2020 reporting period.	Post the Annual Report on the City website by Feb 15 each year. (This is due at least 45 days prior to submission of the Report to the CTDEEP. The Report must be submitted to the CTDEEP by April 1 each year.)	Tom Nigosanti	Annually by Feb 15	The public notice for the 2020 Annual Report is expected to be posted on or before Feb 15, 2022 in accordance with the "Save the Sound" agreement.
		m-Water-Management-Plan-PDF?bidId=				Exact date is not available.

2.2 Public Involvement/Participation activities planned for the next year.

No additional Public Involvement/Participation activities are planned during this reporting period. Future plans for 2022 include a link to UConn NEMO's comprehensive online library of stormwater educational material on the Middletown website which can be found at <https://www.middletownct.gov/>.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan to public	Yes	April 2017	Town Hall and Russell library and https://www.middletownct.gov/
Availability of Annual Report announced to public	Yes, the 2020 report is to be announced in 2022.	Feb 15, 2022	Town Hall and Russell library and https://www.middletownct.gov/

3. Illicit Discharge Detection and Elimination

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
3-1 Develop written IDDE program	In progress	City is in process of completing written IDDE program using the CT IDDE program template.	Develop written plan of IDDE program.	Public works Tom Nigosanti	Past Due	Anticipate completing by the deadline of July 1, 2022.
3-2 Develop list and maps of all MSA4 stormwater outfalls in priority areas	Not Started	In 2019, a bid for Geographic Information System Services was posted (RF #2019-018).	50% complete by November 1, 2022.	Public works/Tom Nigosanti & Hired Contractor	Past Due	Anticipate completing by July 1, 2023
3-3 Implement citizen reporting program	Ongoing	Middletown began "SeeClickFix" program to allow for citizen reporting.	Assign a tracking # to each report. Issue follow up report.	Public works/Tom Nigosanti	Ongoing	The "SeeClickFix" program will be implemented in 2021.
3-4 Establish legal authority to prohibit illicit discharges	Complete	Already fulfilled.	N/A	N/A	Jul 1, 2018	Article II of Chapter 258, Stormwater Management— Illicit Discharges and Connections was Adopted 6-3-2013 by Ord. No. 16-13.
3-5 Develop record keeping system for tracking IDDE abatement	In progress	IDDE abatement actions will be recorded in Table 1-7 in the IDDE Program.	Record reports from "SeeClickFix".	Public works/Tom Nigosanti	Past Due	Projected completion July 1, 2022.

3-6 Address IDDE in areas with pollutants of concern	In progress	Areas most likely to contribute bacteria to the MS4 system need to be identified.	Begin baseline outfall and interconnection screening (dry weather).	Public works/Tom Nigosanti	Not specified	Projected completion July 1, 2023
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3.2 Describe any IDDE activities planned for the next year.

No additional IDDE activities are planned during the next reporting period.

3.3 List of citizen reports of suspected illicit discharges received during this reporting period. Illicit discharges are any unpermitted discharge to waters of the state that do not consist entirely of stormwater or uncontaminated groundwater except those discharges identified in Section 3(a)(2) of the MS4 general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4.

Date of Report	Location / suspected source	Response taken
N/A	N/A	There have been no such reports on the "SeeClickFix" program as of the writing of this Annual Report.

3.4 A record of illicit discharges and SSOs occurring during the reporting period.

SSOs are reported annually to the CT Department of Energy and Environmental Protection and the EPA under the Capacity, Management, Operation, and Maintenance (CMOM) program.

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)
River Road Pump Station	6/18/2020 1 hour	CT River	500-1,000 gallons	City DPW	Washed down street same day	N/A
River Road cause: The station was turned off to test the maximum flow of the new Frances T. Patnaude pump station located on East Main Street. As soon as the bypass event occurred the River Road pump station was turned back on and the bypass event ended.						

574 Butternut Hollow	7/3/2020 4.25 hours	Manhole	50-500 gal, minimized by jetted sewer line	Grease/ roots	The cover on the manhole adjacent to 574 Butternut Street was replaced with a watertight cover and approximately 1,000 LF of sewer upstream of the manhole was cleaned and lined to prevent future bypass events. Lime was applied to the backyard same day.	N/A
Butternut cause: root blockage in the sewer main and caused a release into a private yard.						
42 Columbus Avenue	8/16/2020 Duration unk	Homeowner basement	Unk	Rags/ Section of PVC pipe/ General construction contractor	Jetted sewer line to minimize the release and blockage removed. Same day.	N/A
Columbus cause: blockages in the sewer main which caused releases into basements served by the utility. This occurred during construction activity and was believed to be the general contractor's responsibility.						
189/195 Newfield Street	9/5/2020 1 hour	Homeowner basement	Unk	Rags/ grease	Jetted sewer line to minimize the release and blockage removed same day.	N/A
Newfield cause: blockages in the sewer main which caused releases into basements served by the utility.						

3.5 Method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

IDDE abatement actions will be recorded in Table 1-7 in the IDDE Program. Tom Nigosanti of the Public Works department is responsible.

3.6 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
No information to report at this time.	N/A	N/A

3.7 IDDE reporting metrics

Metrics	
<p>Estimated or actual number of MS4 outfalls: NW Section 1 = 32 outfalls identified (suburban area) NW Section 2 = 34 outfalls identified (suburban area) Total Estimated Acres NW Sections 1 + 2 = 2,789.5 (see calc below) Total Town Acres = 27,171.80 (data source from CTDEEP website www.ct.gov/deep/municipalstormwater and Municipality Factsheets) % Acreage Mapped = 10% Total outfalls identified = 66 / 10% total acreage = 660 estimated plus: Multiplier estimated for urbanized area = 1.5 660 x 1.5 = 990</p>	<p>990 estimated</p>
<p>Estimated or actual number of interconnections (2% estimated)</p> <p>Outfall mapping complete – Northwest Section 1 (estimated 2.5 x larger than NW 2) 1,992.5 + (NW 2 complete) 797 acres = 2,789.5 acres mapped / Total Town acres 27,171.80 = 10%</p>	<p>22 estimated</p> <p>10%</p>
<p>Interconnection mapping complete (with other MS4s)</p> <p>System-wide mapping complete (detailed MS4 infrastructure)</p>	<p>0% (expected to be minimal)</p> <p>10%</p>
<p>Outfall assessment and priority ranking</p>	<p>Catchment areas have been assessed and a priority ranking matrix has been developed in the IDDE program, Table 6-1. 4 of the 8 ranking factors have been assessed. Additional factors, such as development/ infrastructure age and aging septic systems, need to be assessed.</p>
<p>Dry weather screening of all High and Low priority outfalls complete</p> <p>Catchment investigations complete</p>	<p>0% Scheduled to begin in 2022</p> <p>0% Scheduled to begin in 2022</p>
<p>Estimated percentage of MS4 catchment area investigated</p>	<p>0% Scheduled to begin in 2022</p>

3.8 IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given.

Annual IDDE training will be made available to all employees involved in the IDDE program. This training will, at a minimum, include information on how to identify illicit discharges and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. The training program is scheduled to commence in 2022.

4. Construction Site Runoff Control

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	Complete	N/A	Existing regs were amended to meet permit requirements.	Director of Planning, Conservation & Development	Jul 1, 2019	Adopted 1-7-1980
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Complete	N/A	Site plans are reviewed by the Planning, Conservation & Development and DPW Engineering Division for sedimentation and erosion controls. Develop a procedure to conduct site plan	Director of Planning, Conservation & Development and DPW	Ongoing	Completed in 2011. The City established requirements in Section 4.2 of its Stormwater Management Plan to address this issue.

4-3 Review site plans for stormwater quality concerns	Ongoing	No activities to report	reviews that incorporate consideration of stormwater controls or management practices to prevent or minimize impacts to water quality.	Director of Planning, Conservation & Development	Ongoing	Ongoing as construction projects and plans are developed
4-4 Conduct site inspections	Ongoing	No activities to report	Procedures are in place to assess the adequacy of the installation, maintenance, operation, and repair of construction and post construction control measures. ¹	Director of Planning, Conservation & Development and/or Inland Wetlands Enforcement Officer and Third Party Inspectors	Ongoing	Ongoing as construction and post construction control measures are completed. Section 10.09.03 of the City's Planning and Zoning Code addresses this and was effective as of 2/28/95.
4-5 Implement procedure to allow public comment on site development	Completed	No activities to report	Site development projects are announced on the city website with a link for public comment. Public involvement includes receipt and consideration of input submitted	Director of Planning, Conservation & Development	Completed and Ongoing	No date available

4-6 Implement procedure to notify developers about DEEP construction stormwater permit	Completed	Section 42 of the City's Planning and Zoning Code addresses this requirement.	through the link. ² Develop a procedure to notify developers of their potential obligation to obtain a "construction general permit" from DEEP.	Director of Planning, Conservation & Development	Completed	Section 42 of the City's Planning and Zoning Code was amended effective 5/26/98.
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Note:

- 1) Progress reports are prepared by the developer and/or the Zoning Enforcement Officer. A checklist of issues and prioritizing rating system will be implemented as a measuring tool going forward.
- 2) Public comments can be made during hearings held by the City's Planning and Zoning Commission or Inland/Wetlands and Watercourses Agency.

4.2 Construction Site Runoff Control activities planned for the next year.

No Construction Site Runoff Control activities are planned for the next reporting period.

5. Post-construction Stormwater Management

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	Complete	N/A	Existing regs were amended to meet permit requirements. The regulations can be found at: https://www.middletownct.gov/508/Zoning-Code Cluster Design standards are written in the Middletown Zoning Code, Section 44. Also please see: https://www.middletownct.gov/DocumentCenter/View/1550/Section-44--Special-Exception-PDF The stormwater detention requirements can be found in Section 10 of the City's Planning and Zoning Code: https://www.middletownct.gov/DocumentCenter/View/1475/Section-10--General-Provisions-PDF	Director of Planning, Conservation & Development	Jul 1, 2021	Prior to Jul 1, 2021
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	As needed	No activities to report	Implement appropriate enforcement procedures and actions as needed.	Director of Planning, Conservation & Development	Ongoing beginning Jul 1, 2019	As needed

5-3 Identify retention and detention ponds in priority areas	Complete	N/A	Detention basins have been identified and mapped. Identify those in priority areas.	Thomas Nigosanti, City Engineer, DPW	Jul 1, 2019	ID of basins in priority areas projected for 2022
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	In Progress	N/A	Annually inspect all such ponds and structures.	William Russo, DPW Director	Ongoing beginning Jul 1, 2019	Projected to start in 2022
5-5 DCIA mapping	Not started	N/A	Calculate and document DCIAs that contribute SW runoff to each MS4 outfall.	Thomas Nigosanti, City Engineer, DPW	Jul 1, 2020	Projected to start in 2022
5-6 Address post-construction issues in areas with pollutants of concern	Not started	N/A	Address erosion and sediment problems noted during inspections of retention ponds and treatment structures for discharges to impaired waters. Develop, fund, implement, and prioritize a program to address these problems under the Retrofit program. Establish a schedule to correct the problems and establish a short and long-term maintenance program.	Director of Planning, Conservation & Development	Not specified	Projected to start in 2022

5.2 Post-Construction Stormwater Management activities planned for the next year.

No Post-Construction Stormwater Management activities are planned during the next reporting period (2021).

The following projects will be assessed in 2022 under the Post-Construction Stormwater Management program. Erosion and sediment problems for discharges to impaired waters will be addressed, if any, depending on available funding. Issues will be prioritized and addressed accordingly under the Retrofit program; a short and long-term maintenance program will be established. Additionally, any improvements to the DCA (disconnections of impervious surfaces) will be assessed.

- Municipal Field (Pat Kidney)
- Woodrow Wilson Middle School Renovation
- Recreation Building Renovations
- Columbus Avenue, Mazzotta Place & Berlin Street Water, Sanitary Sewer, Drainage & Roadway Improvements
- Harbor Park Boardwalk and Handrail Improvements
- J.S. Roth Water Treatment Plant Roof Renovations
- John S. Roth Wellfield Improvements
- Community Boathouse Remediation
- South Fire District Building Renovations
- Water Pollution Control Facility (WPCF) Decommissioning
- Reconstruction of Millbrook Road
- Woodrow Wilson Middle School Phase I
- Potential Renovations at Russell Library Following Assessment
- Forest City Laundry Property - Future Brownfield Project
- Riverfront Restaurant, Canoe Club
- Installation of Concrete Sidewalks and Extruded Concrete Curbing

5.3 Post-Construction Stormwater Management reporting metrics

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

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA) (based on factors and formulas by development type as presented by nemo.uconn.edu) See Excel sheet 3.2 IC and Priority Areas	Total Town Acres = 27,171.80 (data source: CTDEEP website www.ct.gov/deep/municipalstormwater and Municipality Factsheets) DCIA: 250.70 acres
DCIA disconnected (redevelopment plus retrofits)	0 acres this year / 0 acres total
Retrofit projects completed	0
DCIA disconnected	0 % this year / 0 % total since 2012
Estimated cost of retrofits	No estimates available at this time
Detention or retention ponds identified	90 (including pipe easements)

5.4 Method used to determine baseline DCIA.

The baseline DCIA was determined using the impaired waterbodies map developed by NEMO and impervious cover (IC) by CTDEEP Basin IDs (11-84% IC) and data obtained from the attribute tables for each basin within which there is an impaired water. Factors and formulas as presented by nemo.uconn.edu were used in calculations. "Development type" was determined by visual review/judgement of the land use map within each basin (catchment area). The factors in the calculation include: Total Impervious Cover (acres), Total Impervious Cover (%), Connectivity Level, Exponent Factor and Connectivity Level Factor.

6. Pollution Prevention/Good Housekeeping

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date

6-1 Develop/implement formal employee training program	In Progress	An extensive list of training topics has been developed. Program may include other trainings coordinated by UConn CLEAR or NEMO.	Present training of main topics at least annually.	Tom Nigosanti	Ongoing and Annually	Not completed in 2020. Program is expected to commence in 2021 and be in full force in 2022.
6-2 Implement MS4 property and operations maintenance	Ongoing	A Spill Prevention, Control and Countermeasure Plan (SPCC) has been in effect for the City Yard since 2014. Pet waste bags and receptacles have been installed at the city parks. ¹	List each property type with relevant BMPs (ie, parks and open space, buildings and facilities, etc). Develop relevant metrics to measure progress of each.	Tom Nigosanti and Bob Russo	Ongoing beginning Jul 1, 2018	Property and operations maintenance has been in effect for many years. The programs are ongoing.
6-3 Implement coordination with interconnected MS4s	Not started	No activities to report, however interconnections with other towns are expected to be minimal. ²	Make contact with Middlesex Hospital, CT Valley Hosp, Wesleyan Univ, Middlesex Community College.	Tom Nigosanti	Not specified	Coordination with Middlefield and Berlin and institutions is expected to begin in 2022.
6-4 Develop/implement program to control other sources of pollutants to the MS4	Not started	No activities to report in the current period.	Focus on commercial and industrial facilities that are not regulated under a stormwater permit.	Tom Nigosanti	Not specified	Coordination with relevant facilities is expected to begin in 2022.

6-5 Evaluate additional measures for discharges to impaired waters	In Progress	No activities to report in the current period.	Create a list of dog parks, parks with open water, sites with failing septic systems. Locate the closest outfalls. Correct any problems. Prohibit feeding geese or waterfowl and implement a program to manage these.	Tom Nigosanti	Not specified	These additional measures are expected to begin in 2022.
6-6 Track projects that disconnect DCIA	Not started	DCIA has been calculated to be 250.70 acres.	Annually track total acreage of DCIA disconnected as a result of redevelopment or retrofit projects. Document the amount of existing DCIA that is modified/disconnected.	Tom Nigosanti	Ongoing	Goal is to reduce 1% of total DCIA acreage per year starting in 2022, however this is dependent on funding.
6-7 Implement infrastructure repair/rehab program	Not started	No activities to report in the current period.	Evaluate and prioritize repairs, retrofits or upgrades of conveyances, structures and outfalls. Monitoring results, impaired waters, inspection observations or observations made during outfall mapping will be used to develop this program.	Tom Nigosanti	Jul 1, 2021	This program is expected to begin in 2022.
			1) Identify and prioritize developed sites with DCIA of 40%			

6-8 Develop/implement plan to identify/prioritize retrofit projects	Ongoing	No activities to report in the current period. As projects arise, efforts to minimize impervious surfaces will be made.	or more. Develop a plan to retain half the water quality volume, or retain runoff volume to the maximum extent achievable. 2) Develop a similar plan for developed sites with DCIA less than 40%. Goal is to retain all the water quality volume for the site, or provide documentation of site constraints that prevent retention.	Tom Nigosanti	Jul 1, 2020	This program is expected to begin in 2022.
6-9 Implement retrofit projects to disconnect 2% of DCIA	Not started	No activities to report in the current period.	Identify potential areas for retrofits to reduce DCIA.	Tom Nigosanti	Jul 1, 2022	This program is expected to begin in 2022.
6-10 Develop/implement street sweeping program	Ongoing	The City sweeps streets in priority areas beginning in the spring of each year, after the salt/sanding season is over for the winter months.	1) Identify streets and parking lots within the Urbanized Area, and outside the Urbanized Area with either DCIA of greater than 11% or which discharge to impaired waters. Develop a program to inspect and sweep and/or cleaned (as necessary) with a minimum frequency of once per year in the	Tom Nigosanti	Ongoing beginning Jul 1, 2017	This program has been ongoing informally for years. More formal documentation will be made for tracking and reporting.

			spring. 2) Complete the same for areas outside Urban Areas			
6-11 Develop/implement catch basin cleaning program	Ongoing	Approx 1,000 catch basins are cleaned annually.	Conduct routine cleaning of all catch basins. Document data such as total # of catch basins, # inspected, # cleaned, the total volume or mass of material removed from all catch basins and, if practicable, the volume or mass of material removed from each catch basin draining to priority areas.	Tom Nigosanti	Ongoing beginning Jul 1, 2020	This program has been ongoing for years. More formal documentation will be made for tracking and reporting.
6-12 Develop/implement snow management practices	Ongoing	3350.08 tons of salt were applied in 2020. Annual records of salt use are kept. Add'l details are in the metrics table below. The City converted from a sand and salt mix to salt only. The current standard procedure is for straight rock salt to be applied.	Develop and implement SOPs for the use, handling, storage, application, and disposal of salt and sand to minimize exposure to stormwater. Track efforts to minimize the use and optimize the application of chloride-based or other salts or deicing products.	Tom Nigosanti	Ongoing beginning Jul 1, 2018	This program has been ongoing for years. More formal documentation will be made for tracking and reporting.

Notes:

- 1) The City follows procedures in Section 6.2 of the Stormwater Management Plan to address properties and vehicles, grass clippings, leaf management and waterfowl management. Additionally, a Stormwater Pollution Prevention Plan was developed for the 3 regulated industrial properties (City Yard, Parks and Rec and Recycling Center) and updated in 2017.
- 2) Interconnections with other municipalities are expected to be minimal because the N, and NE of Middletown is bordered by the Mattabesset R., and the E is bordered by the CT River. There are no priority areas on the S bordering Durham or Haddam. The SW border with Middlefield may have connections to Basins 4607-13-1 and 4607-00-3-12. The N border with Berlin may have connections to Basins 4600-16-1 and 4600-13-2-R3.

6.2 Pollution Prevention/Good Housekeeping activities planned for the next year.

No additional Pollution Prevention/Good Housekeeping activities are planned during the next reporting period.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	Planned for 2021
Employee training provided for key staff	
Street sweeping	
Curb miles swept	400 Miles (every street at least 1/yr)
Volume (or mass) of material collected	360 Tons (approx 0.9 tons/mile)
Catch basin cleaning	
Total catch basins in priority areas	4,400 (estimated 40% of total)
Total catch basins town-wide	11,000
Catch basins inspected	# 0
Catch basins cleaned	1,000 were cleaned by subcontractor Thomas P. Shaw
Volume (or mass) of material removed from all catch basins	100 Tons (approx 2 cu.ft./CB x 100 lbs/cu.ft.)
Volume removed from catch basins to impaired waters (if known)	Ukn
Snow management	
Type(s) of deicing material used	Rock salt
Total amount of each deicing material applied	3350.08 tons (July 2020 to July 2021)
Type(s) of deicing equipment used	Conventional truck with spreader or, where practicable, automated application equipment (e.g. zero-velocity spreaders)
Lane-miles treated (miles of roadway in a single driving lane)	400 miles per storm

Snow disposal location	Palmer Field on gravel parking lot
Staff training provided on application methods & equipment	Ukn
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	Not applicable to Middletown
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$0
	There have been no retrofitting projects at this time, and anticipated pollutant reduction has not been assessed.

6.4 Catch basin cleaning program

Updates or modifications to the catch basin cleaning program	
There have been no modifications to the program to date.	

6.5 Retrofit program

Description of the Retrofit Program identification and prioritization process, projects selected for implementation, rationale for the selection of those projects and the total DCA to be disconnected upon completion of each project.	
Monitoring results, impaired waters, inspection observations or observations made during outfall mapping will be used to develop this program. The program is expected to begin in 2022.	

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

Catchment areas (basins) with either Directly Connected Impervious Area (DCIA) of greater than 11% or which discharge directly to impaired waters (priority areas) have been identified and ranked. Those with the highest ranking priority will be addressed as funding becomes available.

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

The plan described above will be followed to achieve a goal of 1% DCIA disconnection in future years. Catchment areas (basins) with either Directly Connected Impervious Area (DCIA) of greater than 11% or which discharge directly to impaired waters (priority areas) have been identified and ranked. Those with the highest ranking priority will be addressed as funding becomes available.

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart. Ms. Karen Allen, DEEP Water Permitting and Enforcement Division, and staff in the Water Planning and Standards Division clarified: "The MS4 impaired waters mapping on the UCONN CLEAR MS4 website identifies "stormwater impaired waters", a subset of the surface waters of the state identified as impaired as a result of stormwater runoff. These are the impairments to be prioritized under the MS4 general permit." Accordingly, PCBs are not pollutants of concern with regard to MS4 permitting. See the Stormwater Management Plan for further detail.

1.1 Stormwater pollutant(s) of concern in Middletown. This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus Bacteria Mercury Other Pollutant of Concern

1.2 Monitoring program status.

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.
The monitoring project is expected to begin in 2022.
As part of the SWPPP for industrial sites in Middletown, monitoring has been conducted at the following locations in recent years. The analyses, however do not address the bacteria issues. E. coli has not been tested in the industrial program:
<ul style="list-style-type: none"> • City Yard • Recycling Center • Parks and Recreation

2. Screening data for outfalls to impaired waterbodies

2.1 Screening data

The table below shows data for any wet weather sampling completed for MS4 outfalls that discharge directly to a stormwater impaired waterbody during the reporting period. Each Annual Report will add on to the previous year's data showing a cumulative list of sampling data. (or see Excel spreadsheet with the same data)

ID	Latitude / Longitude	Sample date	Parameter ¹ (Bacteria)	Results	Name of Laboratory (if used)	Follow-up required? *
<i>Sampling is planned to begin in 2022.</i>						

Outfall ID	Status of drainage area investigation	Control measure to address impairment
		<i>To be completed following the initial sampling events in 2022.</i>

The following information is provided for outfalls exceeding the pollutant threshold.

3. Follow-up investigations

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

The Pollutants of Concerns in the following table are *not applicable* to the City:

Pollutant of concern	Pollutant threshold
Bacteria (fresh waterbody) ¹	<ul style="list-style-type: none"> E. coli > 235 col/100ml for swimming areas or 410 col/100ml for all others Total Coliform > 500 col/100ml

Note 1): Bacteria (fresh waterbody) is the only pollutant of concern for Middletown.

*Follow-up investigation required if the following pollutant thresholds are exceeded.

Outfall	Latitude / Longitude	Sample date	Parameter (Nitrogen, Phosphorus, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *
<i>No sampling was completed under the 2004 MS4 permit.</i>						

Outfalls to impaired waters that were sampled under the 2004 MS4 permit count towards the monitoring requirements under the modified 2017 MS4 permit. The table below shows sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

2.2 Credit for screening data collected under 2004 permit

Note: 1) Nitrogen, Phosphorus are not pollutants of concern in Middletown

4. Prioritized outfall monitoring

Once outfall sampling has been completed for at least 50% of outfalls to impaired waters, the 6 highest contributors of pollutants of concern will be identified. These outfalls will then be monitored on an annual basis.

Outfall	Latitude / Longitude	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)
<i>To be completed once 50% of outfalls to impaired waters have been sampled.</i>					

Part III: Additional IDDE Program Data

1. Assessment and Priority Ranking of Catchments Data

Below is a list of all catchments with ranking results (DEEP basins were used instead of manual catchment delineations).

1. Catchment ID (DEEP Basin ID)	2. Water Body Name	3. Category	4. Rank
4604-00-2-R1	Sawmill Br 4604-00-1	High	8
4600-00-3-R10 Tiny section in NW near Berlin	Mattabesset R 4600-00_02	High	8
4600-00-3-R13	Mattabesset R 4600-00_02	Low	7
4600-26-2-R1	Miner Br 4600-26_01	Low	7
4600-25-1	Miner Br 4600-26_01	Low	7
4600-25-1-L1	Miner Br 4600-26_01	Low	7
4600-24-1 (does not appear to discharge to an impaired water body)	Miner Br 4600-26_01	Low	7
4600-30-2-R1 (does not appear to discharge to an impaired water body)	Mattabesset R (Discharge point is not clear on the map)	High	8
4600-00-3-R15	Mattabesset R 4600-00_01	High	8
4600-00-3-R16	Mattabesset R 4600-00_01	High	8
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_01	High	8
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_02	High	9
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_03	High	9
4607-00-3-L2	Coginchaug R 4607-00_04	High	8
4607-13-1	Coginchaug R/ Laurel Br 4607-13_01	Low	7
4000-00-6+R24 (Downtown)	Connecticut R 4000-00_02	High	11
4000-00-6+R25 (SE of Downtown incl CT Valley Hosp)	Connecticut R 4000-00_02	Low	6
4000-00-6+R30 (SE corner with Pratt & Whitney)	Connecticut R 4000-00_02	Low	7
4000-00-6+R30 (Southernmost section of Pratt & Whitney)	Connecticut R 4000-00_01	High	8
4013-00-3-R1	Sumner Brook Middletown-02	Low	6
4013-00-3-R2	Sumner Brook Middletown-02	Low	7

Priority areas determined by NEMO impaired waterbodies map + impervious cover (IC) by DEEP Basin ID (11-84% IC). Data was obtained from the attribute tables for each basin within which there is an impaired water body.

2. Outfall and Interconnection Screening and Sampling data

2.1 Dry weather screening and sampling data from outfalls and interconnections

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

An “interconnection” is the point where Middletown’s stormwater discharges to another MS4 or other storm sewer system (such as neighboring municipalities, institutions and DOT), through which the discharge is conveyed to waters of the state or to another storm sewer system and eventually to a water of the state.

The table below shows sample data for outfalls where flow is observed. Samples must be analyzed at a minimum for those listed in this table. All analyses with the exception of indicator bacteria can be performed with field test kits or field instrumentation. In addition, where the discharge is directly into a water quality limited water or a water subject to an approved TMDL, the sample shall be analyzed for the pollutants identified as the cause of the impairment; Since E. coli is the only pollutant of concern in Middletown, there are no additional analyses required other than those listed below.

Outfall / Interconnection ID	Latitude / Longitude	Screening / sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli	Surfactants	Water Temp	If required, follow-up actions taken
No data to report for 2020. Dry weather screening is expected to begin in 2022.										

2.2 Wet weather sample and inspection data

For details on this requirement, visit <https://nemo.uconn.edu/ms4/tasks/monitoring.htm>.

The table below shows sample data for outfalls and key junction manholes of catchment areas with at least one System Vulnerability Factor (or see Excel spreadsheet).

Outfall / Interconnection ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli	Surfactants	Water Temp	Pollutant of concern
No data to report for 2020. Wet weather screening is expected to begin in 2022.										

3. Catchment Investigation data

3.1 System Vulnerability Factor Summary

The presence or absence of System Vulnerability Factors (SVF) for catchments that are being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) are documented below. If present, the specific SVF is identified.

Outfall ID	Receiving Water	System Vulnerability Factors
	No data to report at this time.	

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).

3.2 Key junction manhole dry weather screening and sampling data

Key Junction Manhole ID	Latitude / Longitude	Screening / Sample date	Visual/olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
No data to report for 2020. Key junction manhole screening in dry weather is expected to begin in 2022.						

3.3 Wet weather investigation outfall sampling data

Outfall ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Surfactants
No data to report for 2020. Wet weather investigations are expected to begin in 2022.					

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
No data to report for 2020. Identifying illicit discharge sources is expected to begin in 2022.							

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:	Benjamin Florshelm, Mayor	Print name:	Sharon Finney
Signature / Date:	 2/15/22	Signature / Date:	February 14, 2022 
Email:	mayor@MiddletownCT.gov	Email:	sharonfinney@comcast.net