

MS4 General Permit
City of New London 2018 Annual Report
Existing MS4 Permittee
Permit Number GSM00111
January 1, 2018 — December 31, 2018

This report documents the City of New London’s efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 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	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	In progress	Conduct a public meeting to inform residents and discuss the program	Educate residents on common stormwater topics	Stormwater Management Authority	Jul 1, 2018	Public meetings held in the successful passage of Ordinance Number 06-18-18-2 for the establishment of a Municipal Stormwater Management Authority (Authority). Continued public education will be conducted through the Authority.	
1-2 Address education/outreach for pollutants of concern*	In progress	Develop stormwater section on the City’s website and post materials to website	Disseminate information	Department of Public Works / Director	Jul 1, 2018	Posting of materials to be scheduled	Links to public information on stormwater section of City’s website.
1-3 Storm Drain Marking	In progress	Continue adding to existing storm drain markers	Inform the public about restrictions for disposal	Department of Public Works / Director	Jul 1, 2018	Markers were installed	Continued planning for stenciling

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

New London will also provide select materials in printed format to be on display at the New London Department of Public Works main office at 111 Union Street and at City Hall and are made available for pick up.
 New London will distribute information on common sources of phosphorus, nitrogen, bacteria and mercury pollution and how to prevent or reduce the amount reaching the MS4 and discharging into waterways. The primary means of publishing educational materials will be through a dedicated section of the City's website.
 New London created a Municipal Stormwater Management Authority through the passage of Ordinance 06-18-18-2.

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.
Select materials in printed format on display	Residents and stakeholders	Proper disposal of hazardous products and yard waste, limit use of fertilizers and pesticides	Phosphorus, nitrogen and bacteria	Stormwater Management Authority and Southeastern Connecticut Regional Resources Recovery Authority
Information on website	Residents and stakeholders	Annual report	Phosphorus, nitrogen and bacteria	Stormwater Management Authority

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

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
2-1 Comply with public notice requirements for the Stormwater Management Plan	Complete	Prepare and post report	Postannually to the City's stormwater website section	Stormwater Management Authority	Apr 3, 2017	Feb 9, 2018	
2-2 Comply with public notice requirements for Annual Reports	Complete	Prepare and post report	Postannually to the City's stormwater website section	Stormwater Management Authority	Feb 15, 2019	June 2019	
2-3 Conduct a Household Hazardous Waste Collection	Yearly	Collection event held and noticed	Continue to participate in the	Stormwater Management Authority	Dec 31, 2017	April through November 2018	Event held at participating SCRRA facilities
2-4 Coordinate with Local Stakeholder Groups	In progress	In process of reaching out to stakeholders	Provide stormwater program updates	Stormwater Management Authority	July 1, 2017	To continue until permit expires	Provide stormwater program updates at partner organization and/or local council meetings.

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

The City plans to involve the community in planning and implementing the City's stormwater management activities. Stakeholders have been identified.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan announced to public	yes	October 2017	http://ci.new-london.ct.us/content/7429/7431/7459/18132.aspx
Availability of Annual Report announced to public	yes	June 2019	http://ci.new-london.ct.us/content/7429/7431/7459/18132.aspx

3. Illicit Discharge Detection and Elimination (Section 6(o)(3) and Appendix 8 / page 22)

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
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	Stormwater Management Authority	Jul 1, 2018	Anticipate completing in 2020	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	In progress	City dedicated significant resources and mapped approximately 90% of outfalls	Develop list and maps of all outfalls in priority areas	Stormwater Management Authority	Jul 1, 2019	Anticipate completing in 2019	Outfall map attached
3-3 Implement citizen reporting program	complete	Incorporated stormwater complaints through the existing reporting program	Implement citizen reporting program	Stormwater Management Authority	Jul 1, 2018	Completed	
3-4 Establish legal authority to prohibit illicit discharges	Complete	None	Establish legal authority to prohibit illicit discharges	Stormwater Management Authority	Jul 1, 2018	Completed June 5, 2017	
3-5 Develop record keeping system for IDDE tracking	In progress	City conducted best efforts	Develop a system for tracking and developing an SSO inventory	Stormwater Management Authority	Jul 1, 2017	Anticipate completing in 2020	
3-6 Address IDDE in areas with pollutants of concern	In progress	City conducted best efforts	Conduct an initial assessment and use for prioritization of corrective actions once plan is in place	Stormwater Management Authority	Not Specified		No known illicit connections detected.

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

Find the source of any illicit discharges, eliminate those illicit discharges and ensure ongoing screening and tracking to prevent and illuminate future illicit discharges. Develop written IDDE program.

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

Date of Report	Location / suspected source	Response taken

No citizen reports of suspected illicit discharges received during this reporting period.

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.

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)
Farnsworth Street New London, CT	6/27/2012	Yes, Thames River	3000-5000	Obstruction	Cleared Obstruction 6/27/12	
Sludge Tanks at WWTF	12/19/2014	Yes; Bentley Creek	900	Sludge line failure	Cut, capped and abandoned line, new line installed	
State Pier Road and Thomas Griffin Road	3/20/2015	Yes, Thames River	750	Obstruction	Cleared Obstruction 3/20/15	
Caulkins Park, 43 Crescent Street	6/15/2017	Yes, Thames River	500	Obstruction	Cleared Obstruction 6/15/17	
Orchard and Montauk Ave	8/10/2017	Yes; Thames River	Unable to estimate	Pipe failure	Replaced line 8/11/17	
Montauk Ave and Bank Street	9/1/2017	Yes; Shaw's Cove	11,250	Obstruction	Cleared Obstruction 9/1/17	
Huntington and Williams	10/18/2017	Yes, Thames River	300	Obstruction	Cleared Obstruction 10/18/17	
Huntington and Williams	9/19/2017	Yes, Thames River	22	Obstruction	Cleared Obstruction 9/19/18	
Granite and Williams	5/7/2018	No	860	Obstruction	Cleared Obstruction 5/7/18	

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

SSO's are tracked by DEEP guidelines. Stormwater Authority is in the process of developing an illicit discharge report tracking system.

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

Ledge Light Health district reports no septic failures noted this reporting period.

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	71, estimated
Estimated or actual number of interconnections	45, estimated
Outfall mapping complete	90%
Interconnection mapping complete	30%
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	0
Catchment investigations complete	0
Estimated percentage of MS4 catchment area investigated	30%

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).

Training was provided to staff by a seminar entitled "MS4 IDDE Workshop", September 27, 2017. Stormwater Management Authority staff will maintain annual training going forward.

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

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	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	In progress	City conducted best efforts	Review land use regulations and revise if required	Planning, Zoning and Wetlands Division and Stormwater Management Authority	Jul 1, 2019	Discharge ordinance adopted June 5, 2017	Stormwater Management Authority is in process of developing a Stormwater Design Guideline
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Completed	Stormwater Management Section added to Planning and Zoning Regulations	Evaluate current practices and update as needed	Department of Public Works/ City Civil Engineer/Stormwater Management Authority	Jul 1, 2017	In place	Stormwater Management Authority put in place
4-3 Review site plans for stormwater quality concerns	Ongoing	City conducted best efforts	Evaluate current practices and update as needed	Department of Public Works/ City Civil Engineer	Jul 1, 2017	In place	Stormwater Management Authority put in place. Dedicated staff for site plan review.
4-4 Conduct site inspections	Ongoing	City conducted best efforts	Develop an inspection program that includes new permit requirements	Planning, Zoning and Wetlands Division	Jul 1, 2017	In place	Stormwater Management Authority put in place. Dedicated staff for inspections.
4-5 Implement procedure to allow public comment on site development	Complete	City conducted best efforts	Develop a system to track and log comments	Planning, Zoning and Wetlands Division	Jul 1, 2017	In place	Stormwater Management Authority put in place to assist.

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	On going	City conducted best efforts	Include notification to developers about DEEP construction stormwater permit in permit application materials	Planning, Zoning and Wetlands Division/ Stormwater Management Authority	Jul 1, 2017	In place	Stormwater Management Authority put in place to assist.

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

Minimize polluted stormwater runoff from construction sites and prevent it from carrying sediment into waterways via MS4 infrastructure. Stormwater Management Authority is developing design guidelines.

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

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	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 progress	City conducted best efforts. Site reviews done consistently with Connecticut Stormwater Quality Manual.	Review legal authority and guidelines in order to verify compliance approach	Planning, Zoning and Wetlands Division/ Stormwater Management Authority	Jul 1, 2021	Design guidelines will be complete in 2019.	Stormwater Management Authority is developing Stormwater Design Guidelines.
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	In progress	City conducted best efforts. Site reviews done consistently with Connecticut Stormwater Quality Manual.	Promote LID techniques, project bid requirements, and information meetings with developers on stormwater section of the City's website	Planning, Zoning and Wetlands Division/ Stormwater Management Authority	Jul 1, 2021	Design guidelines will be complete in 2019.	Stormwater Management Authority is developing Stormwater Design Guidelines.
5-3 Identify retention and detention ponds in priority areas	In progress	City conducted best efforts	Inventory relevant structures	Stormwater Management Authority	Jul 1, 2019	ongoing	Stormwater Management Authority is in the process of identifying.
5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	In progress	City conducted best efforts	Inventory relevant structures and develop a schedule	Stormwater Management Authority	Jul 1, 2019	ongoing	Stormwater Management Authority is in the process of developing.

5-5 Complete DCIA mapping	In progress	City conducted best efforts	Conduct best effort to complete DCIA mapping	Stormwater Management Authority	Jul 1, 2020	Anticipate completing by July 1, 2020	Stormwater Management Authority created, and dedicated staff completed mapping as described in 3.7
5-6 Address post-construction issues in areas with pollutants of concern	In progress	City conducted best efforts	Prioritize areas impaired by nitrogen, phosphorous and bacteria	Stormwater Management Authority	Jul 1, 2019	ongoing	Stormwater Management Authority was created, site inspections are conducted, and efforts are in place for the development of Stormwater Design Guidelines.

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

Mitigate the long-term impacts of new and re-development projects on water quality through proper use of low impact development and runoff reduction practices. Stormwater Design Guidelines are being developed.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	915 acres
DCIA disconnected (redevelopment plus retrofits)	2 acres total
Retrofits completed	1
DCIA disconnected	<1% this year / <1% total since 2012
Estimated cost of retrofits	unknown
Detention or retention ponds identified	0 this year / 0 total

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

Used MS4 Map provided by NEMO to determine City wide impervious cover percentage. Assumed mostly storm sewered with curb and gutter, residential rooftops not connected to MS4. Percent DCIA approximately 26% of the City area.

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

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	In progress	City conducted best efforts	Conduct annual MS4 training	Stormwater Management Authority	Jul 1, 2018	Training complete, but will be ongoing	
6-2 Implement MS4 property and operations maintenance	In progress	City conducted best efforts	Identify standard maintenance procedures and evaluate improvements for city-owned properties, parks and other facilities	Department of Public Works/ Stormwater Management Authority	Jul 1, 2018	Ongoing	
6-3 Implement coordination with interconnected MS4s	In progress	City conducted best efforts	Meet with relevant MS4s and CT DOT to discuss coordination	Department of Public Works/ Stormwater Management Authority	Not specified	Ongoing	Coordinate with adjoining municipalities
6-4 Develop/implement program to control other sources of pollutants to the MS4	In progress	City conducted best efforts	Identify commercial, industrial, municipal, institutional and other facilities not otherwise authorized by a CT DEEP stormwater permit	Stormwater Management Authority	Not specified	Ongoing	City created a Stormwater Management Authority to implement

6-5 Evaluate additional measures for discharges to impaired waters	In progress	City conducted best efforts	Implement turf management practices and identify retrofits where needed for discharges to impaired waters	Department of Public Works/ Stormwater Management Authority	Not specified	Ongoing	City created a Stormwater Management Authority to implement
6-6 Track projects that disconnect DCIA	On going	City conducted best efforts	Annually track the total acreage of DCIA disconnected from the MS4 and reflect in the Annual Report	Stormwater Management Authority	Jul 1, 2017	ongoing	City created a Stormwater Management Authority to implement
6-7 Implement infrastructure repair/rehab program	In progress	City conducted best efforts	Prioritize infrastructure for repair / rehab based on inspections and outfall screening data	Stormwater Management Authority	Jul 1, 2021	Anticipate completing by July 1, 2021	City created a Stormwater Management Authority to implement
6-8 Develop/implement plan to identify/prioritize retrofit projects	In progress	City conducted best efforts	Identify potential DCIA disconnection projects	Department of Public Works/ Director	Jul 1, 2020	Anticipate completing by July 1, 2020	City created a Stormwater Management Authority to implement
6-9 Implement retrofit projects to disconnect 2% of DCIA	In progress	City conducted best efforts	Implement DCIA disconnection plan	Department of Public Works/ Director	Jul 1, 2022	Anticipate completing by July 1, 2022	City created a Stormwater Management Authority to implement
6-10 Develop/implement street sweeping program	On going	City conducted best efforts	Continue to sweep all parking lots and streets at least once per year	Department of Public Works/ Director	Jul 1, 2017	ongoing	City created a Stormwater Management Authority to implement

6-11 Develop/implement catch basin cleaning program	On going	City conducted best efforts	Track catch basin cleaning and develop a schedule	Department of Public Works / Director	Jul 1, 2020	Anticipate completing by July 1, 2020	City created a Stormwater Management Authority to implement
6-12 Develop/implement snow management practices	On going	City conducted best efforts	Track and work to reduce salt application	Department of Public Works/ Stormwater Management Authority	Jul 1, 2018	ongoing	City created a Stormwater Management Authority to implement

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

Prevent or reduce pollutant runoff as a result of municipal operations.

6.3 Pollution Prevention/Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	Yes; Sept 7, 2017
Street sweeping	
Curb miles swept	20 miles
Volume (or mass) of material collected	13 tons
Catch basin cleaning	
Total catch basins in priority areas	0
Total catch basins in MS4	Estimated 1,700
Catch basins inspected	1,450
Catch basins cleaned	100
Volume (or mass) of material removed from all catch basins	50 tons
Volume removed from catch basins to impaired waters (if known)	0 tons
Snow management	
Type(s) of deicing material used	Safe Salt
Total amount of each deicing material applied	1,000 tons
Type(s) of deicing equipment used	Sander / Spreader
Lane-miles treated	63 miles

Snow disposal location(s)	New London Parade Plaza; Riverside Park
Staff training provided on application methods & equipment	Yes; continuous
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	\$0.00

*since 2017

6.4 Catch basin cleaning program

Briefly describe the method used to optimize your catch basin inspection and cleaning schedule.
City created a Stormwater Management Authority to continue to implement

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.
City created a Stormwater Management Authority to implement

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years.
City created a Stormwater Management Authority to implement

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

City created a Stormwater Management Authority to implement

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.

Mapping activities have progressed significantly, and a Stormwater Authority was created. The Stormwater Authority will examine screening data collected under the 2004 permit and start investigations and monitoring.

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?
None					

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?
<i>See attached report with samples taken in 2010 and 2014</i>					

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

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.

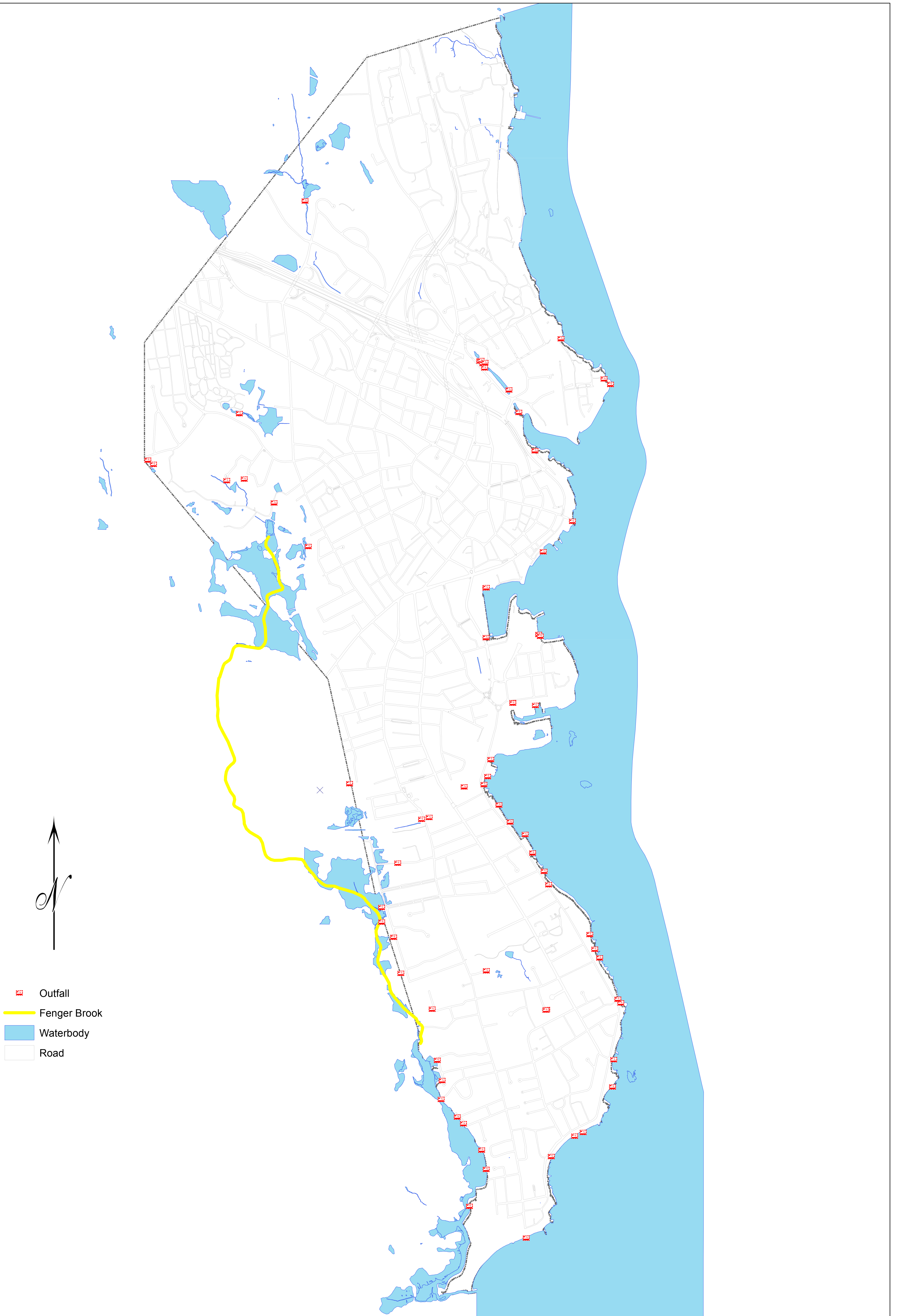
Part IV: Certification

“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.”

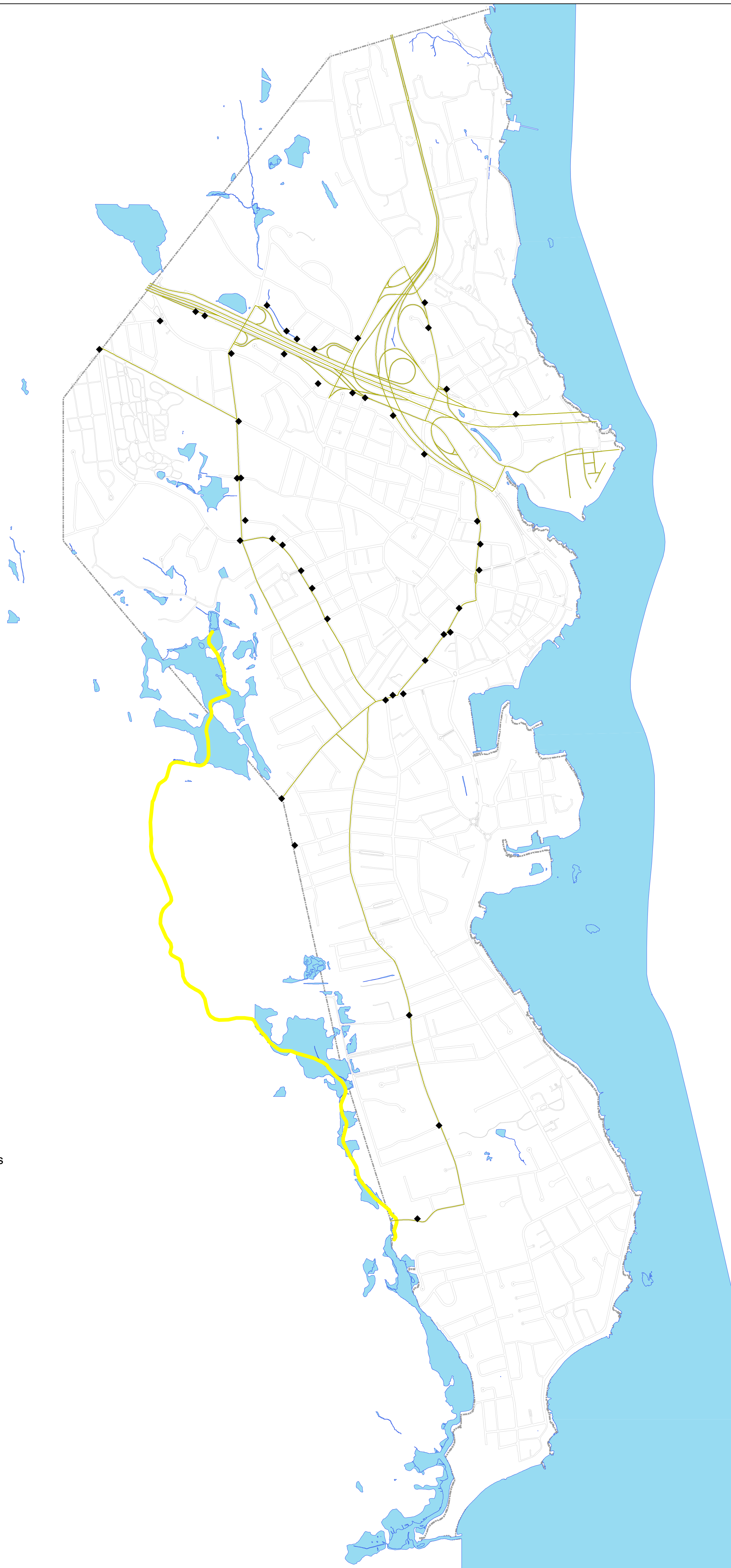
Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name:	Print name:
Signature / Date:	Signature / Date:

ATTACHMENTS

City of New London Outfall Map



City of New London Interconnections Map



- ◆ Interconnections
- State Roads
- Fenger Brook
- Waterbody
- Road

Factsheet: City of New London Water Quality and Stormwater Summary

This document was created for each town that has submitted monitoring data under the current Small Municipal Separate Storm Sewer System (MS4) General Permit. What follows is information on how stormwater can affect water quality in streams and rivers and a summary of data submitted by your town. This factsheet is intended to help you interpret your monitoring results and assist you in compliance with the MS4 program.

Water Quality in Connecticut

Surface waters are important resources that support numerous uses, including water supply, recreation, fishing, shellfishing and sustaining aquatic life. Water quality conditions needed to support these uses are identified within the Connecticut Water Quality Standards (WQS). In order to protect and restore these uses, we need acceptable environmental conditions (physical, chemical and biological) to be present within surface waters.

To assess and track water quality conditions, CT DEEP conducts monitoring across the State. The data is synthesized into a biennial state water quality report called the Integrated Water Quality Report. Currently, specific water quality monitoring in the state encompasses about 50% of rivers, 47% of lakes, and 100% of estuary/coastline. In addition, CT DEEP may have information about certain land uses or discharges which could indicate a potential for water quality to be impacted, even if the waterbody has not been fully monitored and assessed.

To find more detailed information on water quality in your town, please see the Integrated Water Quality Report (IWQR) on the CT DEEP website at www.ct.gov/deep/iwqr. Information on water quality within your town is also presented on the maps included in this fact sheet.

Impacts of Impervious Cover on Water Quality

Impervious cover (IC) refers to hard surfaces across the landscape such as roads, sidewalks, parking lots and roofs. Studies have focused on the amount of hard surfaces to evaluate the impacts of stormwater runoff from these hard surfaces on water quality and found that IC affects both the quantity and quality of stormwater. IC forces rain to runoff the land, carrying pollutants quickly and directly to lakes and streams instead of soaking into the ground and being filtered by the soil. For more information on impervious cover, please see the CT DEEP web page www.ct.gov/deep/imperviouscoverstudies and EPA's web page www.epa.gov/caddis/ssr_urb_isl.html.

In general, the higher the percentage of IC in a watershed, the poorer the surface water quality. Research in Connecticut strongly suggests that aquatic life will be harmed when the IC within a

watershed exceeds 12%. Stormwater pollution from IC is a likely cause of impairment for these waterbodies.

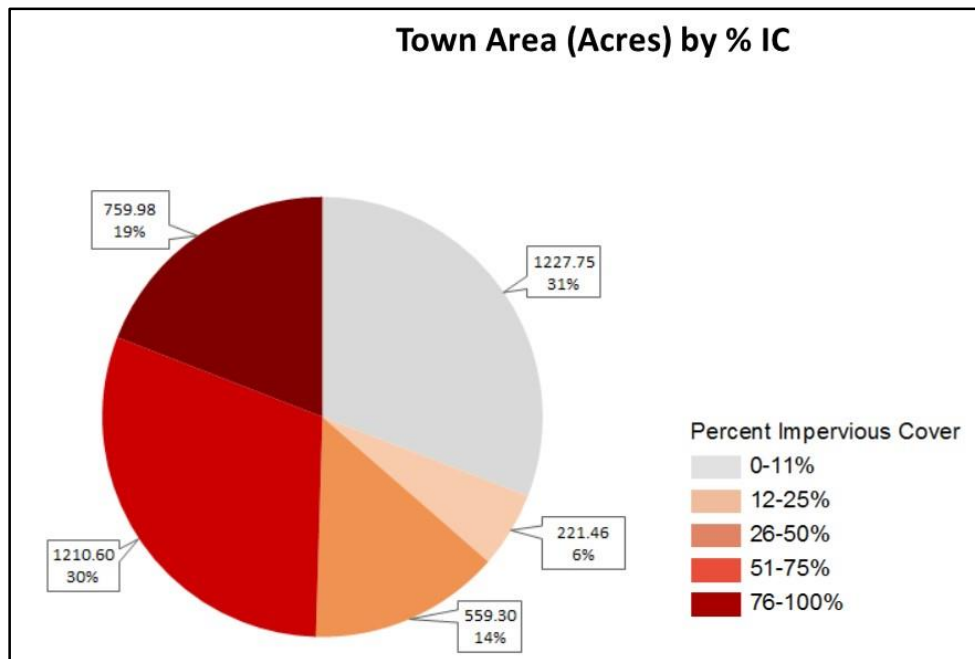
City of New London: Impervious Cover Data

This chart shows the amount of area within your town that contains IC. Data is grouped by acres and percent IC. While all levels of IC can contribute stormwater to streams, it is important to note that land with IC greater than 12% in town is likely to be contributing enough stormwater to streams to have a negative impact on water quality.

Towns should aim to make stormwater improvements in areas with IC greater than 12% in an effort to reduce the amount of stormwater pollution reaching surface waters which will protect and improve water quality.

For more information on areas of impervious cover within your town, please see the maps at the back of this factsheet.

Amounts of Impervious Cover within the City of New London



Pollution Reduction

Waterbodies often can handle a certain amount of pollutants and still maintain good water quality. However, impaired waterbodies have too much pollution impacting their water quality and therefore the streams do not support all uses for the waterbody. Total Maximum Daily Loads (TMDLs) are pollution reduction budgets developed for impaired waterbodies in order to meet water quality. If the pollution budget is achieved through the recommended pollution reduction

measures, then the waterbody is expected to meet water quality. CT DEEP also supports impaired waters restoration through watershed based plans (www.ct.gov/deep/watershed) which provide more specific non-point source pollution control measures. The following TMDLs or pollution reduction strategies have been developed and apply to areas within your town.

TMDLs or Strategies Applicable to the City of New London

Name of TMDL or Strategy	Pollutant	Waterbody Name	Link
Statewide Bacteria TMDL	Bacteria	Southeast Shoreline/ Fenger Brook	www.ct.gov/deep/lib/deep/water/tmdl/statewidebacteria/southeastshoreline2000.pdf
Statewide Bacteria TMDL	Bacteria	Estuary 11: New London / Groton	www.ct.gov/deep/lib/deep/water/tmdl/statewidebacteria/estuary11newlondon_groton.pdf
Statewide Bacteria TMDL	Bacteria	Thames River / Flat Brook	www.ct.gov/deep/lib/deep/water/tmdl/statewidebacteria/thamesflatbrook3000.pdf
A TMDL Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound	Nitrogen	Long Island Sound and contributing watersheds	www.ct.gov/deep/lib/deep/water/lis_water_quality/nitrogen_control_program/tmdl.pdf
Northeast Regional Mercury TMDL	Mercury	All CT Inland waters	www.ct.gov/deep/lib/deep/water/tmdl/tmdl_final/ne_hg_tmdl.pdf
Interim Phosphorus Reduction Strategy	Phosphorus	Certain CT Inland waters	www.ct.gov/deep/lib/deep/water/water_quality_standards/p/interimmgntphosstrat_042614.pdf

For more information on these TMDLs or strategies please go to our website www.ct.gov/deep/tmdl.

Stormwater Quality Monitoring

Regular monitoring for targeted pollutants in stormwater provides an indication of potential for water quality impacts and helps identify sources and unlawful discharges. Annual monitoring at 6 locations from different areas of town has been a requirement of the MS4 permit since 2004. CT DEEP uses that information to evaluate the quality of stormwater and the potential for impacts to surface waters as well as to make sure that stormwater is managed properly.

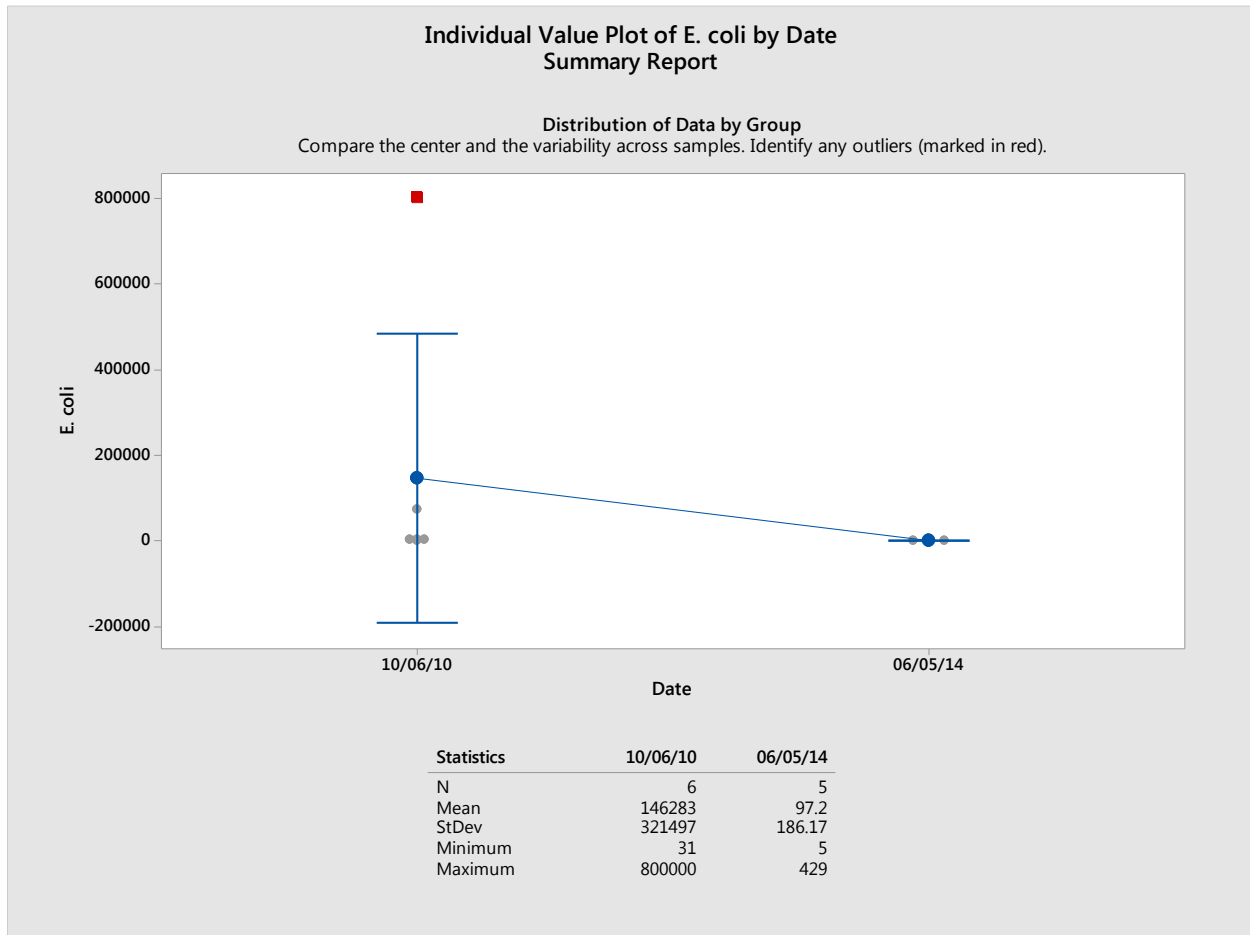
Below are 5 graphs tracking stormwater results submitted by your town for 5 parameters reported under the current MS4 General Permit. The results of each stormwater test submitted to CT DEEP by your town is shown. Individual sample results are shown in grey while the average of the samples collected on a particular day is shown in blue, with a line connecting the averages for the various sample dates. The bars show the statistical range of samples for each day with the red squares showing results which are considered to be outliers, that is, very different from the other samples collected on that day. The chart on the graph lists the sample dates and some basic statistics:

Statistic	Description
N	Number of stormwater samples collected on that date
Mean	Average of the results reported for that sample date
Standard Deviation (StdDev)	A measure of the variability of the results for the sample date
Minimum	The lowest sample result for the sample date
Maximum	The highest sample result for the sample date

Bacteria

Escherichia coli (*E. coli*) is a bacteria that lives in the intestines of humans and other warm-blooded animals and is used to indicate the presence of fecal matter in surface waters. Some strains of *E. coli* and other pathogens found in fecal material cause serious illness in people coming in contact with it. For this reason, high amounts of bacteria will cause authorities to close beaches for swimming. Bacteria is measured as the number of colony forming units, or CFU, per 100 ml of water. Any result that was reported as “to numerous to count” is included on the chart as 800,000 CFU/100 mL.

Results of annual stormwater monitoring under MS4 permit for *E.coli* (CFU/ 100 mL of sample)
City of New London

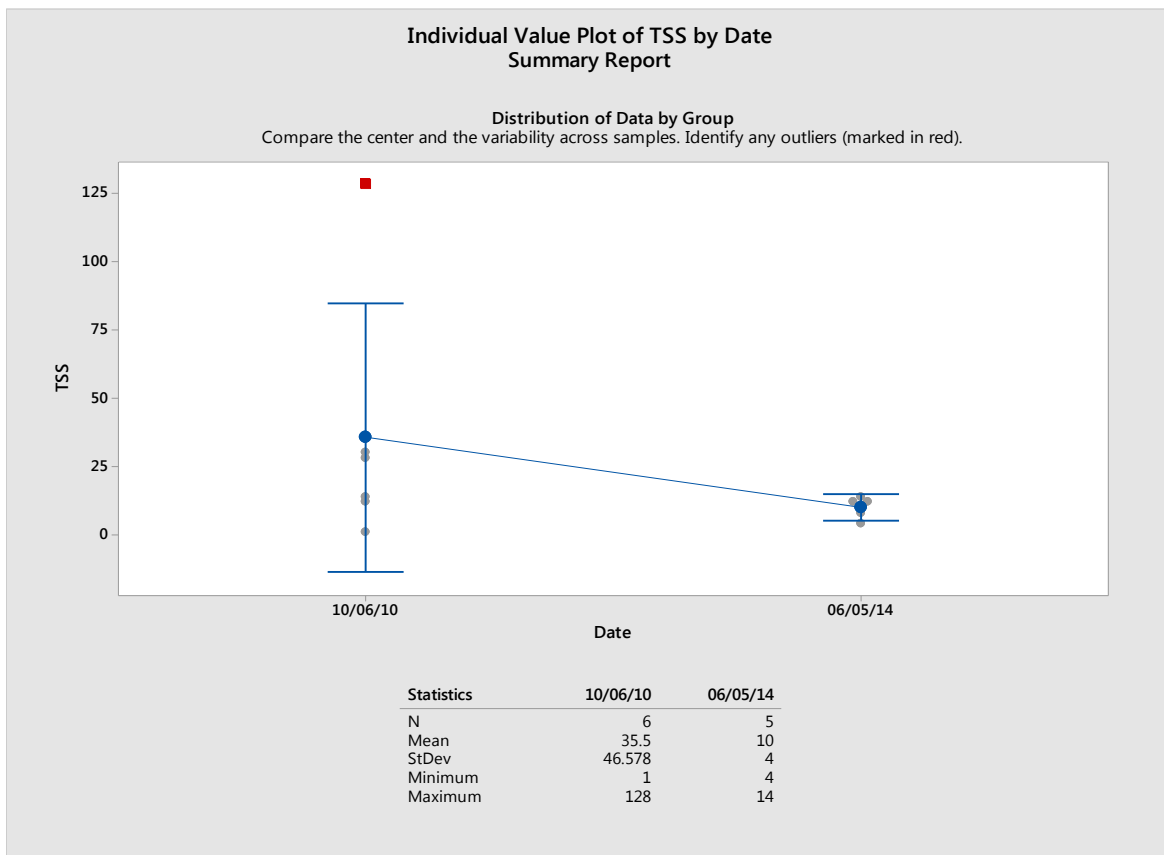


To support recreational uses of surface waters, the CT DEEP Water Quality Standards indicate that the average amount of *E. coli* found in a freshwater water body should be less than 126 CFU/100 mL and that a single sample tested for *E. coli* should be less than 235 CFU/100 mL at a designated swimming area and less than 410 CFU/100 mL in other areas. Monitoring for *E. coli* is currently required in the MS4 permit. Enterococci is another bacteria used to indicate the presence of fecal material in salt water environments. For recreation in salt water the Water Quality Standards indicate that average amount of Enterococci should be less than 35 CFU/100 mL in a designated swimming area and that a single sample tested for Enterococci should be less than 104 CFU/100 mL and in all other areas less than 500 CFU/100 mL. These targets have been included in the statewide bacteria TMDLs. In the Draft MS4 permit, *E.coli* results higher than 235 CFU/100 mL at a designated swimming area or greater than 410 CFU/100 mL in other areas requires a follow-up investigation. Individual stormwater sample results that exceed the applicable single sample maximum value for bacteria could impact water quality, so the associated outfalls should be evaluated for additional stormwater management.

Total Suspended Solids

Total Suspended Solids (TSS) is a measurement of the amount of solids (including sand and silt) found in the stormwater sample. High concentrations of TSS can lower water quality in the receiving stream by transporting various pollutants to the waterbody where they can directly affect aquatic life or affect aquatic life by absorbing light, reducing photosynthesis, and by making the water warmer. TSS can also clog fish gills and smother fish eggs and suffocate the organisms that fish eat. TSS comes from erosion and is found in agricultural, urban and industrial runoff. TSS can be reduced by protecting land from erosion and allowing stormwater time to settle before discharging to surface waters.

Results of annual stormwater monitoring under the MS4 general permit for TSS (mg/L) City of New London

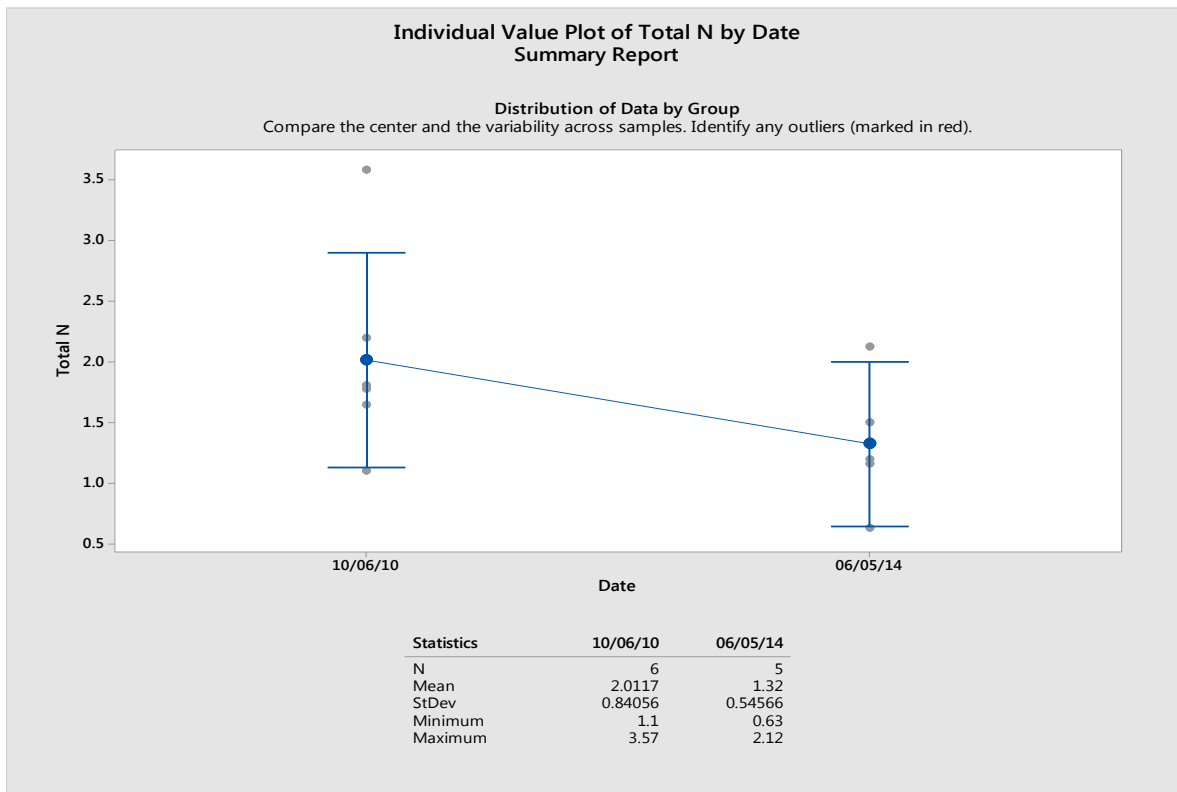


Currently, there is not a water quality based target for TSS in stormwater but TSS is a general indicator of water quality and, lower amounts of TSS are better. For comparison purposes, the average MS4 stormwater result reported for TSS by all towns covered by this permit is 48 mg/L. Areas within your town which have elevated TSS may be places to consider additional stormwater management efforts.

Total Nitrogen

Nitrogen is an important nutrient in marine and estuarine waters such as Long Island Sound, as well as a concern in fresh water lakes and rivers. High amounts of nitrogen can lead to excessive growth of water plants and algae which then reduces the amount of oxygen available to living things in these waters. Unlawful discharges, animal waste, failing septic systems, leaves, litter and fertilizers are common sources of high nitrogen in stormwater. Responsible use of fertilizers, maintaining septic systems and proper disposal of pet waste will help reduce nitrogen in stormwater.

Results of annual stormwater monitoring under MS4 general permit for total nitrogen (Total N mg/L) City of New London

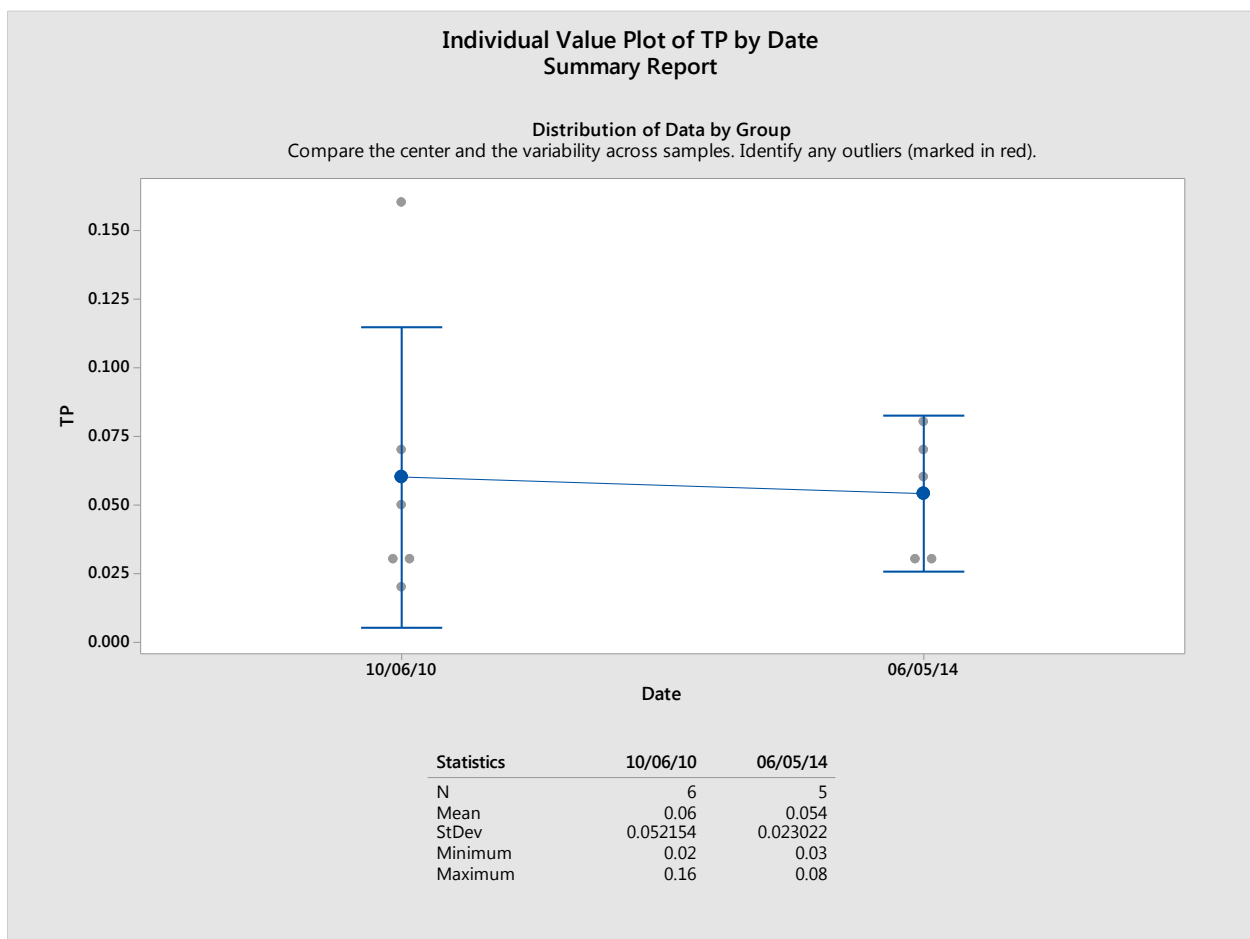


The TMDL for Long Island Sound requires a 10% reduction of nitrogen in stormwater discharges to prevent low oxygen conditions in Long Island Sound. Each town should be working to reduce the amount of nitrogen in their stormwater to address this issue. Under the current draft MS4 permit, any result for total nitrogen greater than 2.5 mg/L will require a follow-up investigation. Areas within your town which have elevated nitrogen may be places to consider additional stormwater management activities.

Total Phosphorus

Phosphorus is an important nutrient necessary for growth in plants and animals in freshwater. Too much phosphorus in the water can throw off the balance of aquatic ecosystems causing excessive growth of water plants and algae blooms, which reduces the amount of oxygen in the water, potentially harming the fish. Sometimes these algae blooms can contain toxic forms of algae which are harmful to people and animals that come into contact with it. Sources of high phosphorus can be unlawful discharges, fertilizers, litter, leaves, erosion and animal waste.

Results of annual stormwater monitoring under MS4 permit for total phosphorus (mg/L) City of New London

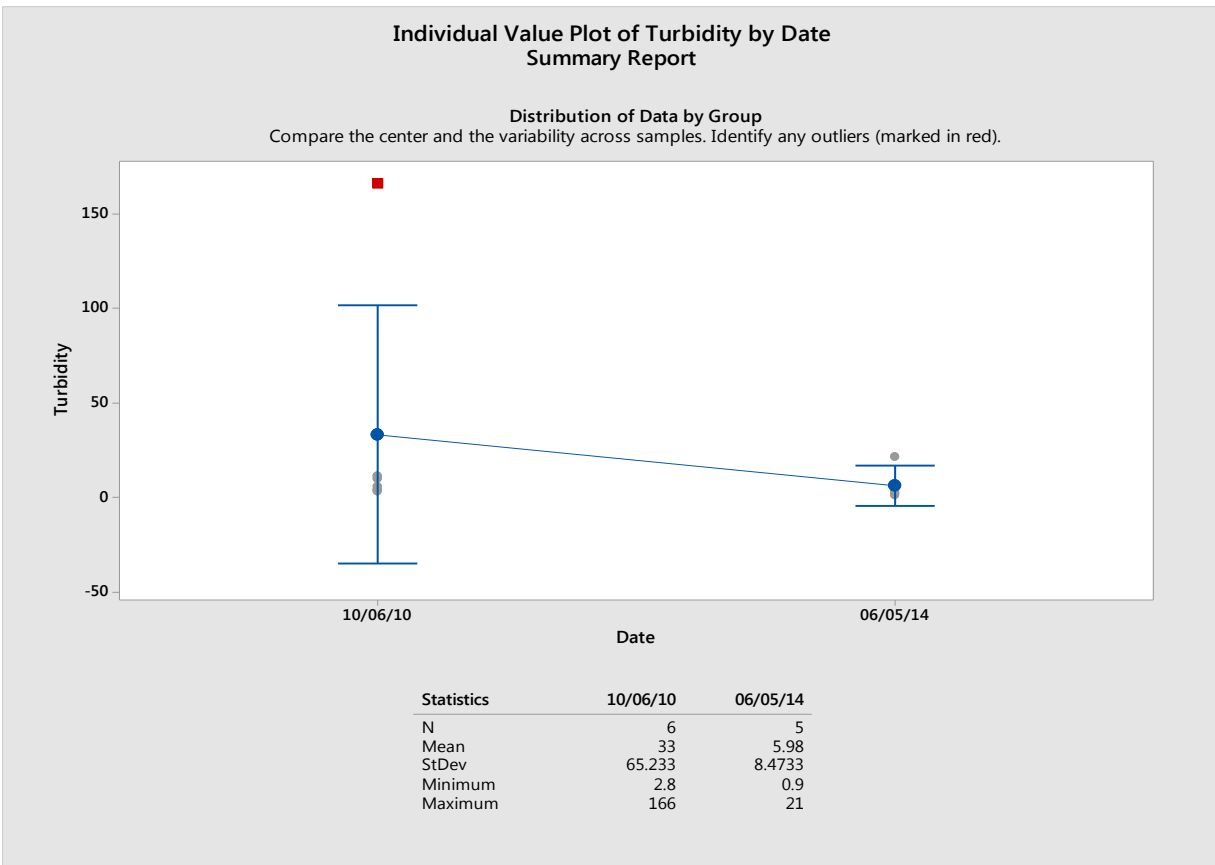


CT DEEP is actively working with many towns to reduce the amount of phosphorus reaching Connecticut's streams and rivers. Under the current draft MS4 permit, a total phosphorus result greater than 0.3 mg/L will require a follow-up investigation. Areas of your town that have elevated levels of phosphorus in the stormwater are good places to develop additional stormwater controls.

Turbidity

Turbidity measures the clarity of the stormwater sample. It measures how much material (soil, algae, pollution, microbes etc.) is suspended in the sample. High turbidity lowers the water quality of a surface water by blocking sunlight for the plants and makes food harder for the fish to find and may be an indication of a higher amounts of other pollution in the water. Surface waters with high turbidity are visually less appealing for recreational use. High turbidity can be caused by erosion, failing septic systems, decaying plants or animals, and excessive algae growth. Turbidity is reported in Nephelometric Turbidity Units (NTU) which is related to how easily light passes through the water sample.

Results of annual stormwater monitoring under MS4 permit for turbidity (NTU) City of New London



The Water Quality Standards have a criterion that indicates turbidity should not to exceed 5 NTU above ambient levels. In the draft MS4 permit, a turbidity result greater than 5 NTU over in-stream conditions will require a follow-up investigation. While there is not a fixed statewide criterion for turbidity, lower results are better for the health of the surface waters in town. Areas

with higher levels of turbidity in stormwater would be a good place to develop additional stormwater controls.

Town Maps

The following maps were created to show the impervious cover (IC) in your town as well as the water quality in the rivers, streams, lakes and estuaries in and around your town.

Impervious Cover on the Town Maps

IC is shown in red on the maps. Dark red areas indicate a higher percentage of IC, lighter red areas have less IC, while the grey areas indicate very little or no IC.

Water Quality on the Town Maps

Separate maps are provided for the different uses of the waterbodies such as Aquatic Life Uses, Recreation, and Shellfishing (in coastal towns). The waterbodies are colored to show the health of the waterbody. Green means that the waterbody meets the water quality requirements to fully support the specified use. Yellow means that water quality is poor and that the specified use is not met. Blue means that there is not enough information to know whether or not water quality is good or bad to support the specified use. Additionally, a small map is provided on the left side of each larger map to show which watersheds are within your town.

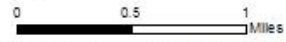
Waters Designated For Aquatic Life in the Town of New London

Percent Impervious Cover	Designated For Aquatic Life
0-11%	Fully Supporting
12-25%	Not Supporting
26-50%	Unassessed
51-75%	
76-100%	

Subregional Basins

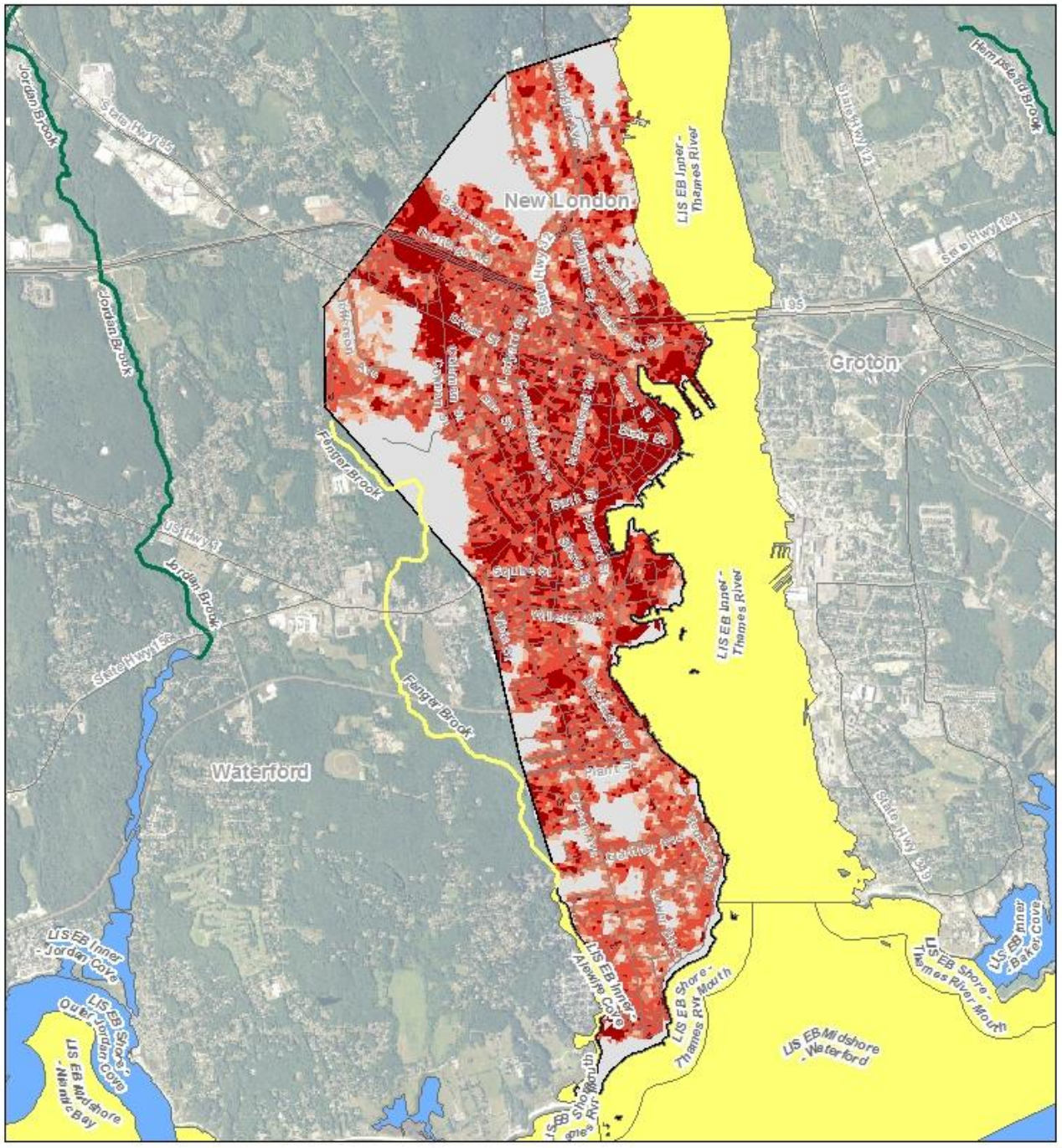


- Jordan Brook
- Thames River
- Southeast Shoreline



These maps were created using the National Land Cover Database (NLCD) 2011 Impervious Cover Percent Data. For more detail please review the metadata document.

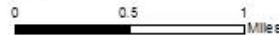
Impervious cover (IC) refers to hard surfaces across the landscape such as pavement or buildings. These hard surfaces do not absorb water and prevent rain from soaking in to the ground. As a result, runoff occurs and easily carries pollutants to nearby lakes and streams.



Waters Designated For Recreation in the Town of New London

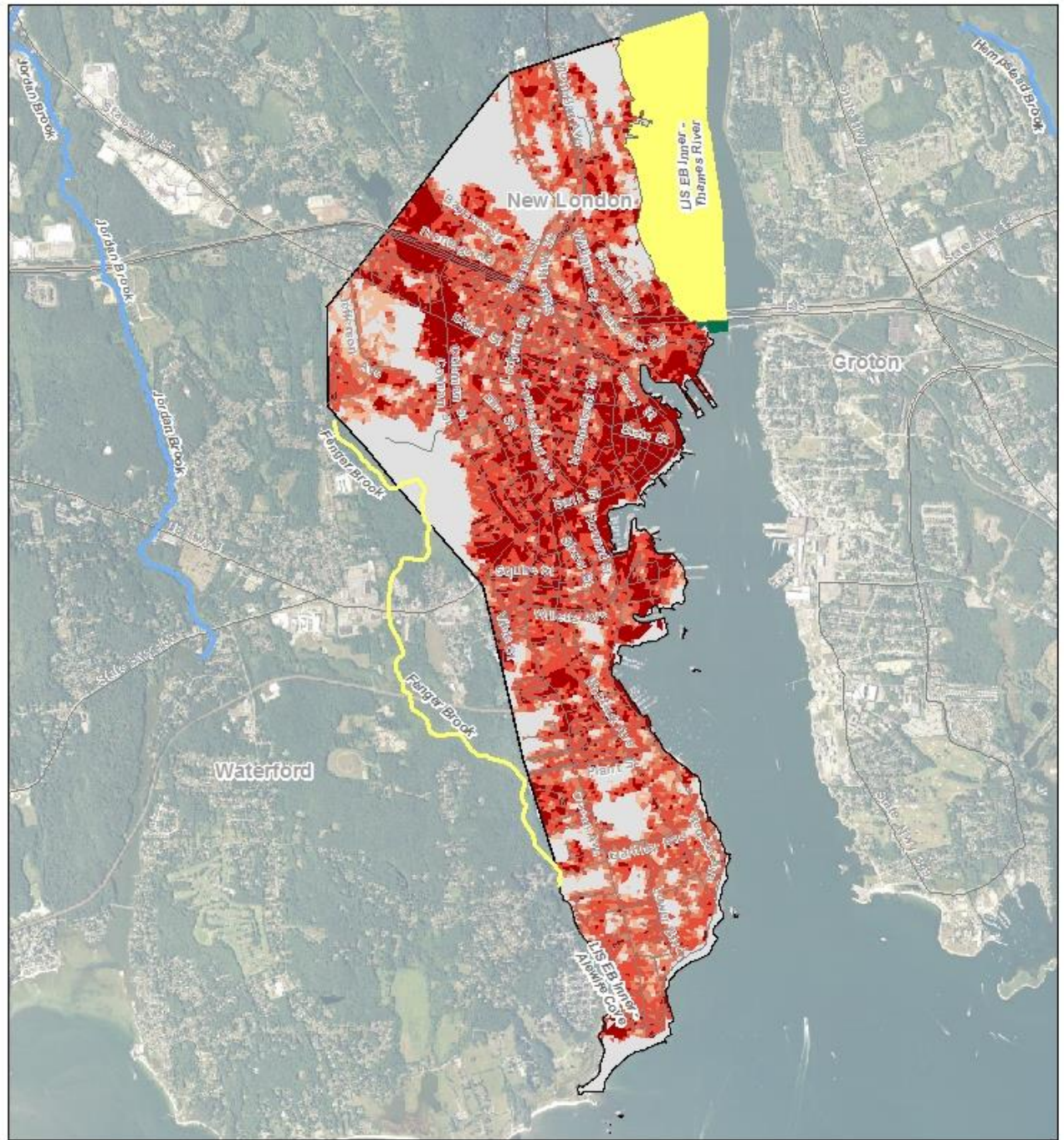


Subregional Basins



These maps were created using the National Land Cover Database (NLCD) 2011 Impervious Cover Percent Data. For more detail please review the metadata document.

Impervious cover (IC) refers to hard surfaces across the landscape such as pavement or buildings. These hard surfaces do not absorb water and prevent rain from soaking in to the ground. As a result, runoff occurs and easily carries pollutants to nearby lakes and streams.



Waters Designated For Shellfishing in the Town of New London

Percent Impervious Cover	Designated For Shellfishing
0-11%	Fully Supporting
12-25%	Not Supporting
26-50%	Unassessed
51-75%	
76-100%	

Subregional Basins



- Jordan Brook
- Southeast Shoreline
- Thames River



0 0.5 1 Miles

These maps were created using the National Land Cover Database (NLCD) 2011 Impervious Cover Percent Data. For more detail please review the metadata document.

Impervious cover (IC) refers to hard surfaces across the landscape such as pavement or buildings. These hard surfaces do not absorb water and prevent rain from soaking into the ground. As a result, runoff occurs and easily carries pollutants to nearby lakes and streams.

