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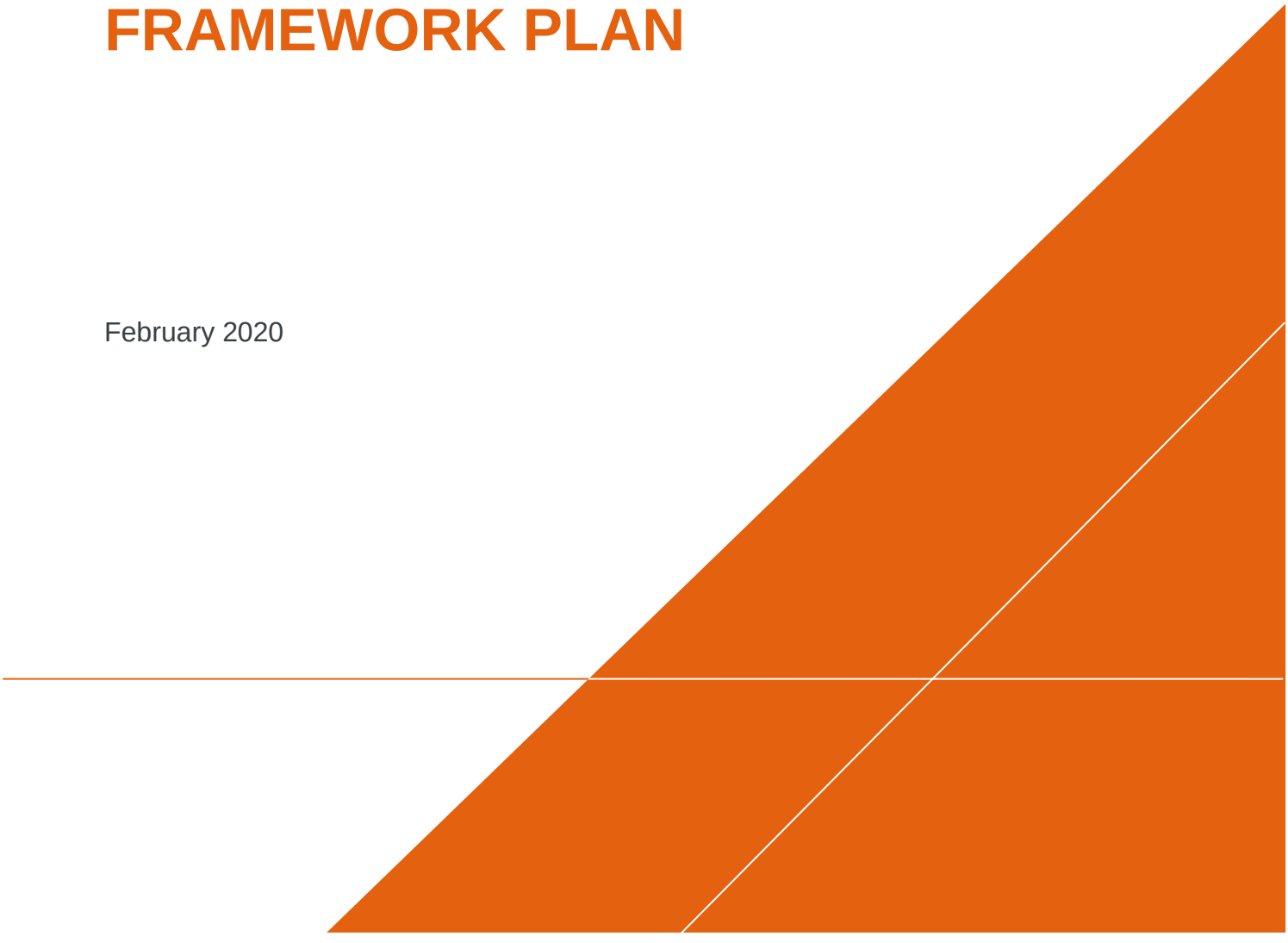
City of New London, Connecticut

WATERSHED MANAGEMENT FRAMEWORK PLAN

February 2020



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ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CWA	Clean Water Act
DCIA	Directly Connected Impervious Area
DEEP	Connecticut Department of Energy and Environmental Protection
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
IC	Impervious Cover
IDDE	Illicit Discharge Detection and Elimination
IWQR	Integrated Water Quality Report
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer System
MS4 Permit	General Permit for Small Municipal Separate Storm Sewer Systems
NLSC	New London Sustainable Committee
NOAA	National Oceanic and Atmospheric Administration
NRWI	Natural Resources and Wildlife Inventory
TMDL	Total Maximum Daily Load
UCONN	University of Connecticut
WQS	Water Quality Standards

1 INTRODUCTION AND GOALS

1.1 Background

The City of New London is uniquely situated on the Thames River and Long Island Sound and is one of only three deep harbors identified in the State of Connecticut. The City is the state's smallest municipality with only 5.7 land square miles and 5.2 water square miles. Approximately 130 acres are considered freshwater wetlands, which provide critical flood control, ecological integrity, wildlife habitat, nutrient retention and sediment trapping, and the overall aesthetic quality of a small urban shoreline community.

The City of New London is committed to protecting the overall quality of life of its citizens and the quality of its water resources, as demonstrated by the desire for a holistic Watershed Management Plan. Through the Watershed Management Plan approach to protecting all of its water resources, the City and its citizens will continue to enjoy the health, economic, and recreational benefits that clean water brings.

1.2 Watershed Management Planning Process

The City of New London received a design/planning grant from the National Fish and Wildlife Foundation – Long Island Sound Futures Fund to conduct an assessment of the current condition of the City's natural resources and watershed health, in conjunction with efforts to achieve Sustainability Certification through the Sustainable CT initiative. The most recent environmental inventory and evaluation of the City's water resources was published in January 1991. Due to water resource shifts and changes that have occurred in the almost three decades since the last assessment, the City recognizes the urgent need to evaluate hydrology, soils, flora, and fauna as they currently exist as a more reliable and research-based tool for developing a Natural Resource and Watershed Plan. The City engaged Arcadis to guide the process, engage stakeholders and the general public in the planning, and develop a plan with recommendations on how the City can move forward to protect and manage its natural resources most effectively. The Watershed Management Plan work will directly compliment the City's efforts in partnership with the Sustainable CT initiative, to achieve the vision to be a thriving, resilient, collaborative, and forward-looking community to support the health of the valuable water resources that are a vibrant and vital part of the City of New London.

This project creates the Watershed Management Plan Framework (Framework) into which additional planning, stakeholder engagement, and implementation will nest, and builds a foundational understanding of the City’s vision for Watershed Management.

The study process began in June 2019 with a kick-off meeting and visioning session that provided the foundation for the project by confirming mutual objectives and establishing the high-level priorities for the City’s water resources. The next step was an analysis of existing conditions using available GIS information and interviews with key City stakeholders.

Following these steps, the Steering Committee and other stakeholders participated in a Stakeholder Workshop to gather additional information on existing potential pollutant sources, critical areas and sensitive receptors, and potential best management practices (BMPs) to improve water quality within the

City to be incorporated into this Framework. A second stakeholder engagement opportunity by way of a Public Open House was held to refine the Framework, base mapping, and recommendations.

The overall approach for this phase of planning consisted of conducting workshop meetings with the City and watershed stakeholders to set priorities for the Watershed Management Plan work. The intent was to build from the available information and focus on efforts that can improve the water quality for the City's water resources based on the existing impairments identified by the Connecticut Department of Energy and Environmental Protection (DEEP).

It is the intent that the City will continue the planning process and concurrently implement recommended projects from this framework to fulfill identified gaps and near-term watershed needs. The general Watershed Management Planning Process is presented in **Figure 1**.

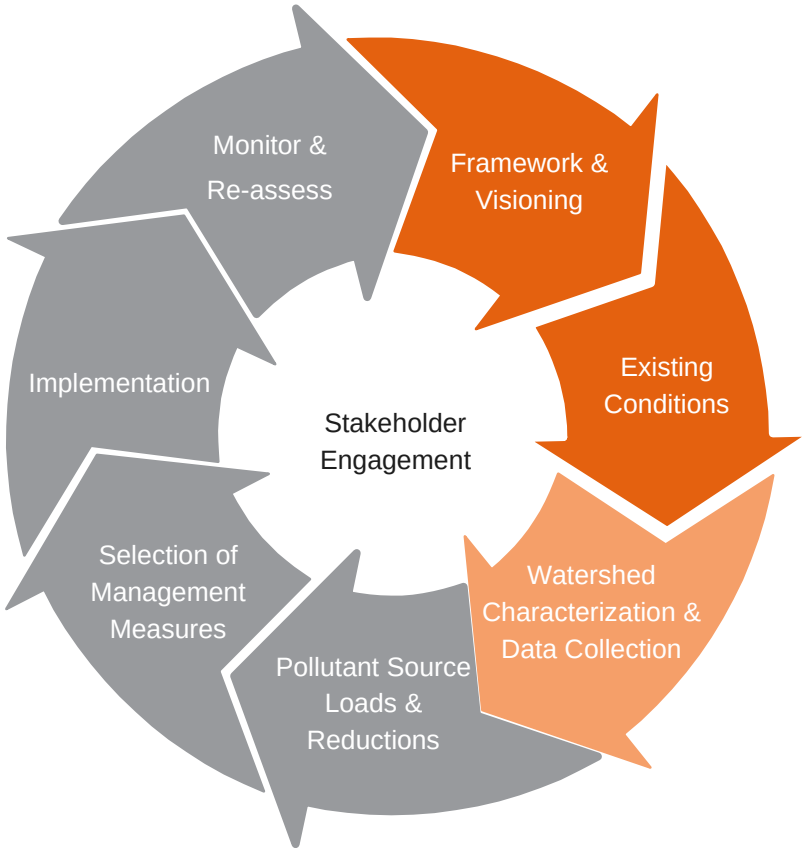


Figure 1. Watershed Management Planning Process

The United States Environmental Protection Agency (EPA) has described Nine Elements that must be addressed in an approved Watershed Based Plan to qualify for funding under Section 319 of the Clean Water Act. The CT DEEP Watershed Management Program recommends that all watershed management plans for impaired or threatened basins include all nine elements of a Watershed Based Plan. **Table 1** defines the 9 elements and identifies where some of the elements have been addressed within this Framework.

Table 1. EPA's Nine Elements of a Watershed Based Plan

Element	Description	Framework Plan Section
1 – Impairment	An identification of the cause and sources of pollution, that will need to be controlled to achieve the load reductions estimated to fix the impairment, and to achieve any other watershed goals identified I the watershed based plan.	Section 2. Water Quality & Impairments Section 5. Pollutant Sources and Critical Areas
2 – Load Reduction	An estimate of the load reductions expected for the management measures described. Modelling can be simple or quite complex depending on the application. Spreadsheets and landcover mapping are typically employed in these models to estimate load reductions.	To be calculated in future planning phase.
3 – Management Measure	A description of the NPS management measures that will need to be implemented to achieve the estimated load reductions. (include a map or detailed description).	Section 4.3 – Best Management Practices (BMPs) Selection and location of specific BMPs to be included in future planning phase.
4 – Technical and Financial Assistance	An estimate of the amounts of technical and financial assistance needed, and/or the sources and authorities that will be relied on, to implement this plan.	Section 7. Funding & Technical Assistance To be refined in future planning phase.
5 – Public Information and Education	An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.	Section 4. Stakeholder and Public Involvement Section 8.2 Public Education and Outreach
6 – Schedule	An expedited schedule for implementing NPS management measures identified.	To be developed in future planning phase.
7 – Milestones	A description of interim, measurable milestones for determining whether NPS management measures or other controls are being implemented.	Section 8. Milestones To be refined in future planning phase.
8 – Performance	Criteria to determine whether loading reductions are being achieved over time, and if progress is being made towards attaining water quality standards and, if not, the criteria to determine if this plan, or a related TMDL, needs to be revised.	To be developed in future planning phase.
9 – Monitoring	A monitoring component to evaluate the effectiveness of the implementation efforts over time.	To be developed in future planning phase.

1.3 Objectives

This Watershed Management Plan Framework is intended to serve as a roadmap as the City begins to address the community's need for coordinated planning and aligned investment across agencies, programs, communities, and watersheds. To that end, a Steering Committee, consisting of a core group of stakeholders, was formed. These stakeholders have served as a sounding board for ideas and participated in the planning process. The Steering Committee is made up of members from the following entities, departments, and roles: New London Sustainable Committee (NLSC), Conservation Commission, New London Public Utility, local watershed groups, and City departments, including Public Works and Engineering, Public Utilities, Development and Planning, and others.

The goals of the framework planning phase included: holding stakeholder workshops, creating a watershed planning framework document, conducting a gap analysis of program needs, and providing updated mapping.

The Steering Committee held a Kickoff Meeting in June 2019 and provided feedback on the planning process as well as their desired outcomes of the project, including:

- Update maps & natural resources inventory
- Provide public education
- Assist with Sustainable CT Certification
- Expand and build upon existing projects
- Address MS4 Permit and impaired waters
- Help set priorities for MS4 outfall catchment area investigations
- Provide recommended updates to the Plan of Conservation and Development
- Consider equality

2 WATER QUALITY & IMPAIRMENTS

Surface waters within the City are part of either the Southeast Coast Watershed or Thames River Watershed as defined by the CT Department of Energy & Environmental Protection (DEEP). Both watersheds ultimately contribute to Long Island Sound. Under Section 303(d) of the Clean Water Act (CWA), states are required to develop, and update every two years, lists of surface waters that are impaired, or threatened, by one or more pollutants. Impaired waters are waters that do not meet Water Quality Standards (WQS) or the intended beneficial use of the waterbody even after point sources of pollution have installed required levels of pollution control measures.

Seven segments (7) of the surface waters in or in close proximity to the City are classified by DEEP under the Connecticut WQS and Integrated Water Quality Report (IWQR) which assigns all inland, coastal, and marine surface waters a class in accordance with the intended beneficial uses of each surface water. The locations of these surface waters are shown in **Figure 2** along with those designated a usage classification by DEEP.

The seven surface water segments classified in and surrounding the City under the WQS and IWQR include:

- Class A – Surface water is known or presumed to meet Water Quality Criteria which support designated uses, which may include potential drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other legitimate uses, including navigation;
- Class SA – Coastal or marine surface waters which support designated uses including habitat for fish and other aquatic life and wildlife; fish consumption, shellfish harvesting for direct human consumption where authorized; recreation; water supply for industry; and navigation; or
- Class SB – Coastal or marine surface waters which support designated uses including fish and aquatic life and wildlife; commercial shellfish harvesting; recreation, water supply for industry; and navigation.

Additionally, the Connecticut Year 2018 IWQR prepared by the DEEP has categorized the same 7 surface waters within the City. The document provides assessments on the quality of Connecticut surface waters pursuant to Sections 303(d) and 305(b) of the EPA's Clean Water Act (CWA). Section 305(b) of the CWA outlines the process by which surface waters are to be evaluated or classified with respect to their uses and Section 303(d) of the CWA requires the categorization of surface waters. The process of assessing surface waters under Section 305(b) and listing impairments under Section 303(d) of the Clean Water Act is inextricably linked to the Connecticut Surface WQS, as the standards define the uses that are to be evaluated for any given water body.

The State's surface waters are categorized based on the five-category system developed by the US EPA. These categories determine which waters require an allowable total maximum daily load (TMDL) for a given pollutant or impairment. The IWQR is developed every two years and contains a growing list of impairments, many of whose primary sources are stormwater runoff.

FIGURE 2: IMPAIRED WATERBODIES & CLASSIFICATIONS

N

- Impaired Waterbody
- Class A
- Class AA
- Class B, B*
- Class SA
- Class SB
- Parcel Boundary
- Town Boundary

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

Name: Thames River (Middle), Ledyard (CT-E1_015-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform, Enterococcus

Name: Thames River Mouth, New London (CT-E1_014-SB)
Class: SB
Category(s): 5, 4a
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform (TMDL)

Name: Fenger Brook
Class: A
Category(s): 5, 4a
Impairment(s): Unknown, E. Coli (TMDL)

Name: Thames River Mouth (East), Groton (CT-E2_009-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen Estuarine Bioassessments

Name: Thames River Mouth (West), New London (CT-E2_010-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform

Name: Alewife Cove (CT-E1_017)
Class: SA
Category(s): 5, 4a
Impairment(s): Dissolved Oxygen, Nutrient/Eutrophication Biological Indicators, Fecal Coliform (TMDL)

Name: Thames River (West), Waterford (CT-E3_005-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments

Connecticut College Pond
Briggs Brook
State Route 32
Perry Pond
Thames River
Interstate 95
State Route 85
Spring Lake
Dye House Pond
New London
Fenger Brook
US Route 1
Groton
Connecticut
State Route 213
Waterford

The categories are defined as follows:

- Category 1 – Waters attaining all designated uses
- Category 2 – Waters attaining some uses; other uses not assessed
- Category 3 – No uses assessed
- Category 4a – Total Maximum Daily Load (TMDL) completed
- Category 4b – Impairment controlled by alternative pollution control requirements
- Category 4c – Impairment not caused by a pollutant – TMDL not required,
- Category 5 – Waters requiring a TMDL

Table 2 summarizes New London's receiving waters and corresponding impairments and **Figure 2** shows the locations of these waters along with their classifications, categories, and impairments.

As shown in **Figure 3**, New London falls within two watersheds, the Thames River Watershed and the Southeast Coast Watershed. Both watersheds ultimately drain to Long Island Sound.

Table 2. Receiving Waters and Impairments

Receiving Waterbody and Segment ID	Surface Water Class	TMDL Category	Impairment(s)	Aquatic Life	Recreation	Shellfishing
Thames River (Middle), Ledyard (CT-E1_015-SB)	Class SB	Category 5	Fecal Coliform, Enterococcus, Dissolved Oxygen, Estuarine Bioassessments, Escherichia coli (2012)	Not Supporting	Not Supporting	Not Supporting
Thames River Mouth, New London (CT-E1_014-SB)	Class SB	Category 5, 4a	Dissolved Oxygen, Estuarine Bioassessments; Fecal Coliform (TMDL)	Not Supporting	Fully Supporting	Not Supporting
Thames River Mouth (East), Groton (CT-E2_009-SB)	Class SB	Category 5	Dissolved Oxygen, Estuarine Bioassessments	Not Supporting	Fully Supporting	Not Supporting
Thames River Mouth (West), New London (CT-E2_010-SB)	Class SB	Category 5	Fecal Coliform, Dissolved Oxygen, Estuarine Bioassessments	Not Supporting	Fully Supporting	Not Supporting
Thames River (West), Waterford (CT-E3_005-SB)	Class SB	Category 5	Dissolved Oxygen, Estuarine Bioassessments	Not Supporting	Fully Supporting	Not Supporting
Fenger Brook (CT2000-30_01)	Class A	Category 5, 4a	Unknown; Escherichia coli (2012)	-	-	-
Alewife Cove (CT-E1_017)	Class SA	Category 5, 4a	Dissolved Oxygen, Nutrient/Eutrophication Biological Indicators; Fecal Coliform (TMDL)	Not Supporting	Unassessed	Not Supporting

Figure 3 - Watersheds

Thames River Watershed
Southeast Coast Watershed
Waterbody
Town Boundary

N

Norwich
Bozrah
Preston
Salem
Montville
East Haddam
North Stonington
Ledyard
Lyme
Waterford
New London
Groton
Stonington
East Lyme
Old Lyme

Shetucket River
Yantic River
Stony Brook Reservoir
Stony Brook
Wheeler Pond
Thames River
Oxobox Brook
Lake Konomoc
Hunts Brook
Morgan Pond Reservoir
Ledyard Reservoir
Powers Lake
Pattagansett Lake
Groton Reservoir
Poquonnock River
Fenger Brook
Long Island Sound

2.1 TMDL Action Plans Summary

Connecticut and New York have developed a TMDL for nitrogen within the Long Island Sound that specifies the maximum amount, or the Total Maximum Daily Load, of nitrogen that can be discharged to Long Island Sound without significantly impairing the health of the Sound. On April 3, 2001 the US EPA approved the Long Island Sound TMDL for implementation. Nitrogen is commonly the primary pollutant causing significantly low oxygen levels, or hypoxia, in the waters of the Sound. Higher levels of nitrogen enhance the growth of algae, which will eventually decay and consume oxygen during this process. Connecticut's dissolved oxygen standard is 6.0 mg/L and New York's standard is 5.0 mg/l, both of which are violated nearly every summer in the Sound due to the algae blooms fed by the nitrogen levels. The TMDL from 2001 specified a 58.5% reduction in nitrogen discharges from human generated point and nonpoint sources.

In New London, there are currently Fecal Coliform TMDLs established for Thames River Mouth and Alewife Cove, along with an Escherichia coli TMDL for Fenger Brook.

2.1.1 Groton/New London Estuary

The Groton/New London Estuary covers an area of approximately 14.08 acres and includes two impaired segments in New London (*CT-E1_014-SB and CT-E1_017*) and one off-shore of New London (*CT-E3_004*). All were found to be not supporting of aquatic life and not supporting of shellfish for both direct consumption and commercial harvesting due to bacteria.

Potential sources of bacteria identified in the watershed include: permitted sources, illicit discharges, failing septic systems, marinas, stormwater runoff, nuisance wildlife/pets, and other.

Permitted Sources and Illicit Discharges

Table 3 includes a summary of the permitted sources in the watershed (as of 2013). Portions of New London rely on the municipal sanitary sewer system. The sewered area is clustered along the Thames River and New London's wastewater system consists of a 10-MGD activated sludge wastewater pollution control facility (WPCF), nine wastewater pump stations, and an 80-mile collection system. The WPCF is a permitted source of bacteria to the Thames River. The City has experienced sanitary sewer overflows (SSOs) in the collection system in the past, but an evaluation of the SSOs indicates that the SSO events have been singular occurrences due to pipe blockages or infrastructure issues that were resolved in a timely fashion. There are no chronic sewer issues causing SSOs currently.

There are also properties with septic systems in New London. Failing or poorly maintained septic systems can contribute bacteria to the water resources of the community.

Another potential source of bacteria is illicit discharges to the stormwater system. The City, under its Municipal Separate Storm Sewer System (MS4) permit issued by DEEP must investigate, locate, and remove illicit discharges to the stormwater system.

Table 3. Summary of Permitted Sources of Bacteria for Groton/New London Estuary (2013)

City	Permittee	Permit Type	Site Name	Address
New London	City of New London	Stormwater Associated with Industrial Activities & Surface Water Permit	New London WPCF	100 Trumbull St.
New London	CJ Fort Trumbull Office LLC	Stormwater Registration – Construction Activities 5-10 Acres	One Chelsea St. at Fort Trumbull	1 Chelsea St.
New London	State of Connecticut Department of Transportation	Stormwater Associated with Industrial Activities	New London Salt Storage	State Pier Rd.
New London	City of New London	Part B Municipal Stormwater MS4	New London	MS4 Permit
New London	The Thames Shipyard & Repair Company	Stormwater Associated with Industrial Activities & Surface Water Permit	50 Farnsworth St.	50 Farnsworth St.
New London	Faria LTD. LLC	Stormwater Associated with Industrial Activities	Sheffield Pharmaceuticals	170 Broad St.
New London	Logistec USA, Inc	Stormwater Associated with Industrial Activities	Logistec USA, Inc	200 State Pier Rd.
New London	City of New London	Stormwater Associated with Industrial Activities	Transfer Station	63 Lewis St.
New London	Crocker's Boatyard, Inc.	Stormwater Associated with Industrial Activities	Crocker's Boatyard	56 Howard St.

Source: Final Estuary 11: New London and Groton Summary, Figure 4: Potential bacteria sources to the impaired segments in the New London and Groton Estuary, CT DEEP, 2013.

Figure 4. Groton New London Estuary Pollution Sources

Stormwater Runoff from Developed Areas

The coastline along the Thames River is developed with residential and commercial uses along with some limited areas of salt marsh and protected open space. There are several roads and other impervious surfaces that allow for stormwater runoff rather than infiltration into vegetated areas and soils. Sections of the land bordering the Estuary are in the >16% impervious surface range. These areas have the potential to contribute more contaminated runoff to the City's waterways.

Animal Waste

Wildlife (waterfowl and domestic animals) are another potential source of bacteria to the impaired waterways. Elevated levels of bacteria due solely to a natural population of wildlife are not subject to the WQS; however, exacerbation of wildlife population size or residency times influenced by human activities is subject to the WQS. Concentrations of migratory waterfowl have been identified in New London along the edges of the shoreline near CT-E1_014-SB (see **Figure 3**). Waste from domestic animals, such as dogs, may also be contributing to the bacteria levels in the watershed.

Marinas and Recreation

Marinas are also a potential source of pollutants including parking lots, hull maintenance areas, stormwater runoff, boat maintenance materials, fish waste, and sewage from public restrooms and boat pump outs.

People in direct contact with surface waters is also a source of bacterial contamination. Public bathing beaches in the area represent a potential for this type of pollutant contribution.

Other Sources

A 2011 New London Estuary Report concluded that there are no active sanitary landfills in New London, and the transfer station located at the public works complex has no impact on shellfish growing waters.

Summary of TMDL Action Plan Recommendations

The TMDL Action Plan recommended the following next steps:

- Continued monitoring of permitted sources.
- Identification of areas in new London to implement BMPs to control stormwater runoff.
- Implement a program to evaluate the sanitary sewer system and inspect conditions of lines.
- Develop a system to monitor septic systems.
- Evaluate municipal education and outreach programs regarding animal waste.
- Improve education and outreach programs regarding boats and marinas.

Framework Plan Additional Recommended Actions

As part of this Framework Plan, a map showing septic system locations in New London has been developed and is included in the NRWI maps (Appendix A). Based on a review of the existing data, it is recommended that the City also provide public education on septic system maintenance. Public Education materials on Septic System maintenance have been provided in Appendix C as part of this Framework.

2.1.2 Fenger Brook

The Southeast Shoreline watershed covers an area of approximately 27,390 acres in the southern coastal area of Connecticut. There are several towns located at least partially in the watershed, including the municipalities of New London and Waterford. Fenger Brook falls within the Southeast Shoreline watershed and is impaired for recreation due to elevated bacteria levels. The impaired segment consists of the entire length of Fenger Brook, located in Waterford and New London. Designated uses are potential drinking water supplies, habitat for fish and other aquatic life and wildlife, recreation, navigation, and industrial and agricultural water supply. There are no designated beaches in this segment of Fenger brook; the recreation impairment is for non-designated swimming and other water contact related activities.

Potential sources of bacteria include permitted sources, illicit discharges, failing septic systems, stormwater runoff, and nuisance wildlife/pets. The descriptions of these types of sources and their potential to contribute to bacteria levels in the watershed are largely covered in **Section 2.1.1**.

Table 4 provides a summary of Permitted Bacteria Sources for the Southeast Shoreline Watershed and **Figure 5** shows the location of potential sources of bacteria.

Table 4. Summary of Permitted Sources for the Southeast Shoreline Watershed (2012)

City	Permit Type	Site Name	Address
New London	Part B Municipal Stormwater MS4	City of New London	MS4 Permit
Waterford	Part B Municipal Stormwater MS4	Town of Waterford	MS4 Permit
Waterford	Stormwater Associated with Industrial Activities	Waterford Bulky Waste Landfill	85 Miner Lane
Waterford	Stormwater Associated with Industrial Activities	Murphy Rd Recycling LLC	56 Miner Lane
Waterford	Stormwater Discharge Associated with Commercial Activity	Waterford & Miner LLC	104-106 Boston Post Road & 22 Miner Lane
Waterford	Stormwater Registration – Construction Activities >10 Acres	Waterford High School	20 Rope Ferry Rd

Source: Southeast Shoreline Watershed Summary, Figure 6: Potential bacteria sources in the Southeast Shoreline watershed, CT DEEP, 2012.

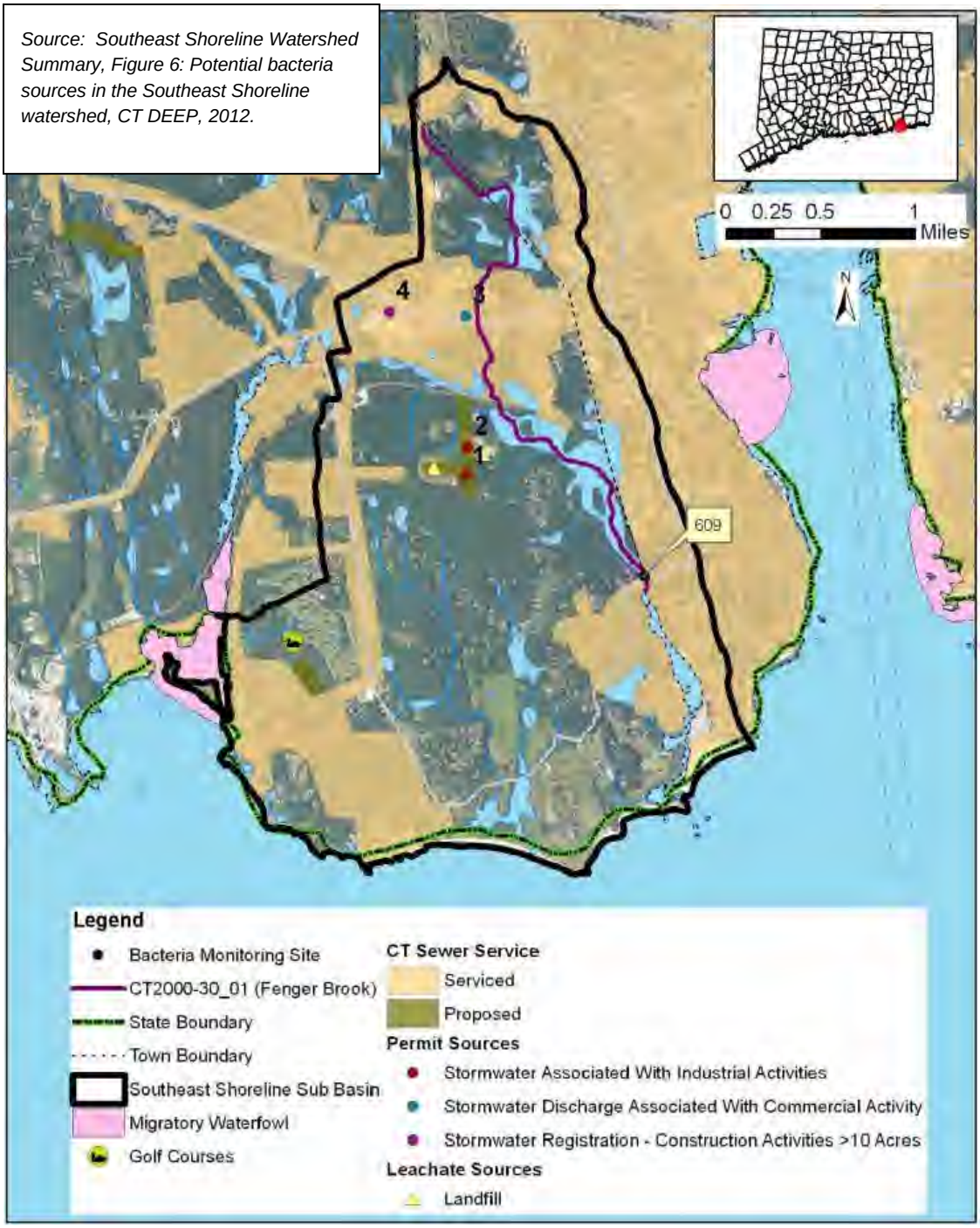


Figure 5. Fenger Brook Pollution Sources

Connecticut Watershed Response Plan for Impervious Cover:

The CT DEEP has conducted numerous studies on the relationship between impervious cover (IC) in upstream watersheds and the water quality and aquatic life in adjacent waterbodies. In order to control the negative impacts the IC can have on the waterbodies, the DEEP developed the *Connecticut Watershed Response Plan for Impervious Cover.* The Plan presents percent reductions of watershed IC for the CT impaired surface waters and provides recommendations for managing stormwater and impervious cover to support water quality improvements The waterbodies included in the Plan have been assessed as not meeting the designated use criteria for Habitat for Fish, Other Aquatic Life and Wildlife contained within the regulations for Connecticut Water Quality Standards (CT DEEP, 2013).

Fenger Brook, (Segment: CT2000-30_01) is part of the Plan and as of 2015 had a current watershed impervious cover of 20%. Based on the studies conducted, an IC that exceeds 20% is predicted to lead to negative impacts on the surface waters' water quality and aquatic life. With that, the target IC for this Fenger Brook segment is 11%. The amount of IC affects quantity in the surrounding surface waters as it prevents precipitation from infiltrating into the ground and thus increases surface runoff. There is a greater focus on the effects the IC has on the water quality, as the IC increases the increase in surface runoff serve as pollutant transport directly to the waterbodies.

Summary of TMDL Action Plan Recommendations

The TMDL Action Plans recommended the following next steps:

- Identify areas along Fenger Brook to implement Best Management Practices (BMPs) to control stormwater runoff.
- The City should also identify areas along the more developed sections of Fenger Brook, particularly along the impaired segment, to install BMPs that encourage stormwater to infiltrate into the ground before entering Fenger Brook. These BMPs would disconnect impervious areas and reduce pollutant loads to the brooks. More detailed information and BMP recommendations can be found in the core TMDL document.

Framework Plan Additional Recommended Actions

Based on a review of the existing data, it is recommended that the City conduct a review and identify options to reduce the impervious cover in this area to the target 11%. This may include retrofits of stormwater BMPs, ordinance and policy changes, and public/private partnerships to implement pilot projects.

3 EXISTING DATA

3.1 Geographic Information System (GIS) Data

In order to determine priority areas within the City and isolate environmentally sensitive areas, available GIS data on natural resources, infrastructure, and flora and fauna were gathered and updated maps were developed. A majority of the data were extracted from the DEEP GIS database, with supplemental data extracted from the University of Connecticut Map and Geographic Information Center and the National Oceanic and Atmospheric Administration (NOAA). Additionally, the City of New London Department of Public Utilities provided buried infrastructure data for the Stormwater system.

Below is a list of the sources previously listed and the corresponding data that was mapped for the City:

DEEP:

- Shellfish
- Eelgrass beds
- Environmentally Sensitivity Index features
- Critical Habitats
- Natural Diversity Database Areas
- Erosion Susceptibility
- Soil Types
- Soil Drainage Class
- Soil Parent Material
- Farmland Soils
- Wetlands
- DEEP Property
- Open Space Mapping
- FEMA Flood Zones

University of Connecticut Map and Geographic Information Center:

- Potentially Hazardous Discharge and Site Locations

NOAA:

- Sea Level Rise

City of New London Department of Public Utilities

- Stormwater System
- Zoning
- Parcel Ownership
- Buildings
- Septic System Locations

3.2 Natural Resources and Wildlife Inventory

As part of this Framework and in alignment with Sustainable CT, an updated Natural Resources and Wildlife Inventory (NRWI) was developed via mapping the following natural features in New London:

Wildlife & Habitat: Data on Natural Diversity, Critical Habitats, Eelgrass Beds, and Shellfish areas will assist the City in identifying critical areas and sensitive receptors which require protection from potential pollutant sources.

Soils: Data on soil types, drainage class, and parent material will assist the City in identifying areas where infiltration practices can more easily be accommodated and successfully implemented.

Land Use: DEEP Property, Open Space, City Owned Parcels, and other land use data allow the City to readily identify potential areas where new projects could be implemented.

Hydrography: Hydrography, Wetlands, Sea Level Rise, and FEMA Flood Zone mapping allow the City to identify both sensitive receptors and create awareness around existing and future risks.

Potentially Hazardous Discharge and Site Locations: These GIS data combined with community feedback and TMDL action plan areas provide insight into pollutant sources affecting water resources within the City and surrounding watershed areas.

Maps of the natural resources, properties, habitats, and other data from above can be found in **Appendix A.**

The updated mapping provides a baseline understanding of where sensitive receptors are located within the City, such that project impacts can be evaluated prior to implementation.

3.3 Data Gap Analysis

In development of the Framework, available data were reviewed to determine any gaps in or missing information that would inform the Watershed Management Plan. A review of the data indicates that there are some critical data layers that have not yet been developed or are not up to date.

Vernal Pools. It appears that GIS data on vernal pools in the City are not readily available. Vernal pools play an important ecological role; these wetland habitats are essential breeding locations for many species. Protecting vernal pool areas is critical in maintaining a healthy environment and ecosystem.

Project-Delineated Wetlands. Recent project proponents who have delineated wetlands submit their files electronically to the City and the Public Utilities GIS coordinator has been updating wetlands layers

based on project-delineated wetlands. However, there is a gap of time where applicants submitted hard copy as-builts only and project-delineated wetlands have not been entered into the City's GIS.

Groundwater/Aquifer Protection Zones. It is of note that New London is not part of the Aquifer Protection Program in Connecticut. However, groundwater is still considered a water resource of the City. As such, it is recommended that potential projects also be evaluated for their potential impacts to groundwater.

Illicit Discharges to the Stormwater System. Stormwater system mapping updates are ongoing through the work being conducted by the Department of Public Utilities to comply with the MS4 Permit. The City has put significant resources towards updating their stormwater system GIS mapping, which is a critical step in addressing any potential illicit discharges to the system.

An illicit discharge is defined as any non-stormwater discharge to a drainage system, with the exception of discharges considered allowable non-stormwater discharges, such as discharges resulting from fire-fighting activities. Illicit discharges may take a variety of forms. They may enter the drainage system through direct or indirect connections. Direct connections may be relatively obvious, such as cross-connections of sanitary sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis. Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters. Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Dry weather outfall screening (inspection and sampling) of outfalls is currently underway. As such, at this time, recent outfall data is just becoming available for prioritizing based on screening results. Outfall inspection results to date for this MS4 permit year indicate four (4) catchment areas which should be prioritized for further investigation to identify potential sources of illicit discharges / pollutant loading:

- OF_NL_4
- OF_NL_8
- OF_NL-29
- OF_NL_63

As of 2018, the City's reported Illicit Discharge Detection and Elimination (IDDE) metrics were:

- 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%

4 STAKEHOLDER & PUBLIC INVOLVEMENT

In order to enhance public understanding of the project and invite early participation in the planning process, stakeholders and the public were invited to participate in two meetings during the course of Framework development. Interviews with key stakeholders were also conducted. This engagement has created a foundation for future public participation in the Watershed Management Planning process.

4.1 Stakeholder Meeting

Key stakeholders were invited to participate in a Stakeholder Meeting on October 3, 2019. The following departments and organizations were represented at the meeting:

- City of New London Conservation Commission
- City of New London Planning and Zoning Commission
- City of New London Sustainability Team
- City of New London Residents
- City of New London Water/Water Pollution Control Authority (WWPCA)
- Town of Waterford
- Save the Sound
- CT DEEP
- Veolia Water North America

The meeting began with an introduction to watershed planning and a review of the Steering Committee's stated goals. The intent of the workshop was to gather information and feedback from the stakeholders on the updated mapping, potential sources of pollution to the City's water resources, and to identify sensitive receptors and critical areas. A table-top mapping exercise was conducted in order to locate these areas within the City and the surrounding area.

A second mapping exercise allowed stakeholders to identify and describe any existing projects, initiatives, or potential improvement opportunities within the City and surrounding watershed area which address or have the opportunity to address pollutant sources.

The combined table-top mapping results for potential sources of pollution and potential best management practices are included in a map and corresponding index table in **Appendix B.**

The subsequent sections of this Framework highlight many of the sources of pollutants and potential project opportunities identified during the stakeholder meeting. Meeting invites, maps, and details can be found in **Appendix B.**

4.2 Public Open House Meeting

Residents of New London, key stakeholders, and the general public were invited to attend a Public Open House on January 22, 2020. The objectives of this meeting were to present the Watershed Management

Plan Framework to the public, update the public and stakeholders on the project progress, and obtain additional input for refinement of the Framework. The public meeting included a presentation on the Watershed Management Plan project and engaged the public by inviting feedback via interactive stations. Stations included information on what a watershed is, stormwater management and pollution prevention, and best management practices. Attendees provided feedback on pollutant hot spots and existing projects. Attendees were also able to provide input on preferred types of best management practices and opportunities to participate in the project in the future.

The figures used for each station can be found in **Appendix B.** Public Education Materials and flyers that were available to the public at the Open House can be found in **Appendix C.**

Public and stakeholder engagement

4.3 Best Management Practices

New London residents and local community members had the opportunity to learn about a variety of structural BMPs that could be implemented in the City to control and treat stormwater runoff. Attendees were also asked to provide input on which BMPs they would like to see implemented in New London. The results are presented in **Figure 6**.

Preferred BMPs include bioretention areas or rain gardens, and treebox filters.

Figure 6. Best Management Practice Preferences

4.4 Potential Partnerships

Public / private partnerships can be a critical component for implementing BMPs that disconnect impervious area and address water quality concerns. The residents were asked at the Public Open House to list potential partners the City could consider as they move forward with planning and ultimately, implementation. The following list was generated through the Open House process:

- CT DOT
- Save Ocean Beach
- Alewife Cove Conservancy
- Avalonia Land Conservancy
- Eastern Connecticut Conservation District
- Connecticut Nonpoint Education for Municipal Officials (NEMO)
- UCONN Center for Land Use Education and Research (CLEAR)
- Thames River Basin Partnership
- Connecticut Sea Grant

4.5 Future Public Engagement

Public education and engagement are an ongoing component of the watershed management planning process. As part of the Public Open House, attendees reviewed types of opportunities to participate in the planning process in the future. The preferred participation opportunities, based on feedback at the Open House were:

- Participate in a watershed tour or hike throughout the City and surrounding area
- Attend meetings and presentations on watershed management plan progress
- Participate in a tour or demonstration of BMPs and ongoing projects

5 POLLUTANT SOURCES AND CRITICAL AREAS

5.1 Potential Pollutant Sources

Stakeholders identified a number of potential sources of pollutants, as seen in the mapping provided in Appendix B.

Some general types of sources identified include:

- Homeless Encampment
- Pig Farm
- Railroad
- Illegal Dumping
- Salt Storage and Excess Plowed Snow
- Brownfields
- Transfer Station
- Manicured lawns
- Large impervious areas – car dealerships, strip malls, etc.
- Failing infrastructure – collapsed culvert under the railroad
- Runoff from construction sites

5.2 Critical Areas and Vulnerable Populations

Critical Areas

Critical areas and sensitive receptors were largely identified through the NRWI mapping (Appendix A) discussed in Section 3 and pertain mainly to water quality and wildlife and their habitat. Stakeholder feedback on the NRWI mapping was received throughout the project, including at the Stakeholder workshops, and has been incorporated.

It was noted that Ocean Beach, in the Southeast Coast Watershed, is an important community amenity and protecting the water quality at the beach is important to stakeholders.

After reviewing the observations recorded at the Public Open House, it was made clear that reducing the large stretches of impervious area and cutting off direct sheet flow into the surrounding waterbodies is a top priority. These areas included the car dealerships on Colman Street and the New London Mall.

Environmental Justice Communities

A preliminary review of vulnerable populations and environmental justice communities was performed in order to inform the Framework. The EPA defines Environmental Justice in the following way:

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys:

- *the same degree of protection from environmental and health hazards, and*
- *equal access to the decision-making process to have a healthy environment in which to live, learn, and work.*

Figure 7 shows the results of the Framework-level screening of such populations.

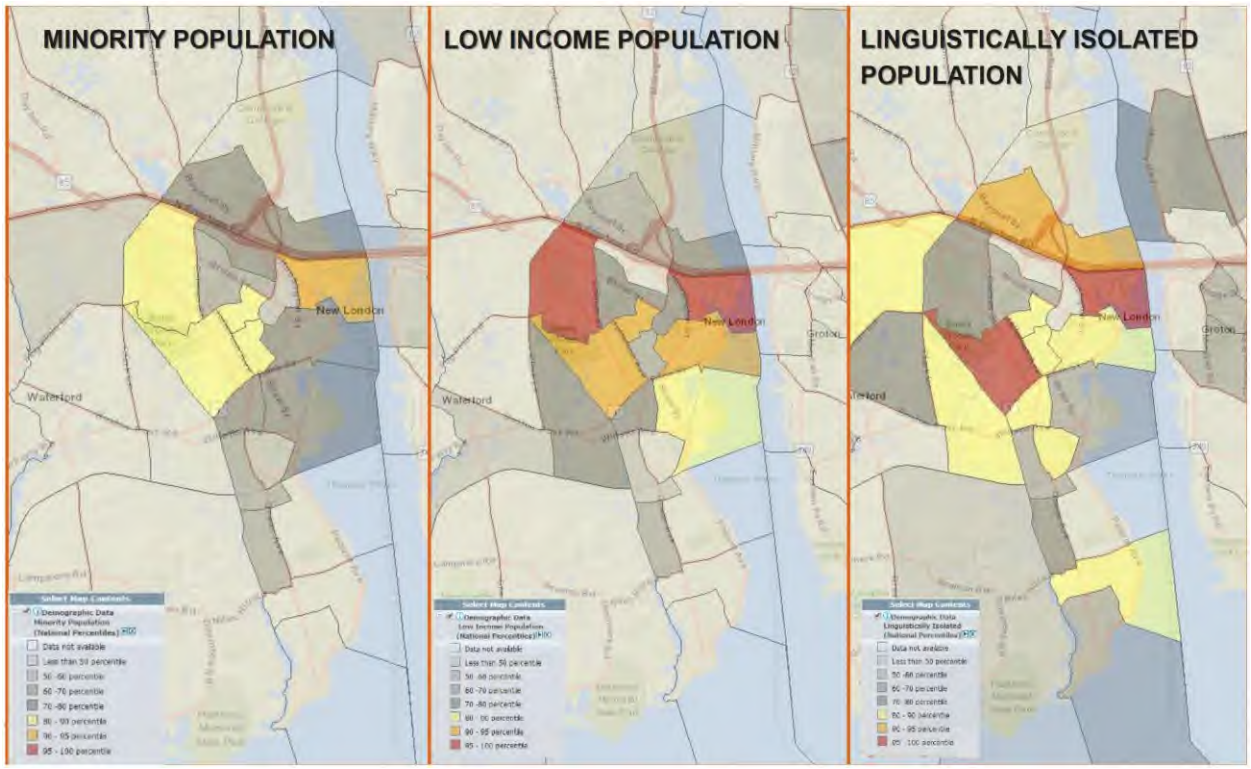


Figure 7. Environmental Justice Screening Demographics Data

Source: EJ Screen by EPA (https://www.epa.gov/ejscreen)

6 EXISTING & ONGOING INITIATIVES

6.1 Stormwater Management Projects

6.1.1 IDDE Work

Dry weather outfall screening and sampling will provide insight into which drainage areas are contributing bacteria and other pollutants to the City's receiving waters. To support recreational uses of surface waters, the CT DEEP Water Quality Standards indicate that the amount of indicator bacteria that should be present in samples. These targets have been included in the statewide bacteria TMDLs. Individual stormwater sample results that exceed the applicable single sample maximum value for bacteria could impact water quality. As such, the MS4 requires follow-on investigations of these areas and evaluation of the associated outfalls for additional stormwater management.

6.1.2 Stormwater Design Guidelines

The City's Stormwater Authority, with input from other City departments, is working on design guidelines which aim to address MS4 permit requirements as they relate to site development/redevelopment planning. Guidelines will encourage and guide project proponents on the use of LID and will aim to enforce LID/runoff reduction requirements for development and redevelopment projects. The guidelines will prioritize areas impaired by nitrogen, phosphorus, and bacteria.

6.1.3 Disconnection of Directly Connected Impervious Area

The MS4 Permit, in support of the Statewide Impervious Area TMDL, requires Connecticut municipalities to disconnect Directly Connected Impervious Area (DCIA) and complete retrofit projects to address pollutants of concern found in stormwater runoff. The City has identified several areas for disconnection of impervious areas, particularly median areas along roadways. The City has been working to identify areas where bioswales can be implemented to disconnect impervious area. Future areas include Gardner Circle, Ashcraft/Ledyard St and Connecticut Avenue, all of which are located in the Thames River Watershed

6.1.4 Green Harbor Park & Beach Drainage Improvements

Green Harbor Park and Beach, off of Pequot Avenue in the Thames River Watershed, historically flooded creating a safety hazard and damaging infrastructure. The City has undertaken a $1.9 million drainage improvement plan at Greens Harbor Beach to address flooding and associated erosion. The project includes installation of new rain gardens and underground piping to help naturally control, filter, and infiltrate water coming off the hillside. The project also includes installation of underground pipes to channel stormwater from Pequot Ave to a new drainage pipe to be situated under the water and adjacent to a jetty at the public beach.

6.2 Other City Projects

6.2.1 Riverside Park

In 2018, the City's Public Works department began a rejuvenation project of Riverside Park, in the Thames River Watershed. The work includes clearing and trimming overgrown trees and landscaping work. Other improvements include installation of a pavilion on the upper level, resurfacing of the basketball courts, creation of five parking areas, protective drainage around the playscape, installation of nine additional picnic table areas, installation of solar/wind powered combination LED lighting/personal device power stations, and creation of a walking trail. In 2020, additional design and construction work will be undertaken for the lower promenade area.

6.2.2 Urban Forestry Revitalization Plan and Invasive Species Best Management

The City of New London received a grant from America the Beautiful Forestry Grants to compile a survey of New London's current stock (species, age, condition, location, etc.) and produce a plan for revitalization. The survey was conducted Citywide, with the exception of school properties and a few parks. Feedback received at the Open House indicates that the tree/vegetation inventory has been completed but the revitalization plan has not yet been completed.

6.3 Alewife Cove Conservancy Projects

The Alewife Cove Conservancy (Conservancy) recently received a grant from the Long Island Sound Futures Fund to remove the dam located just north of Niles Hill Road, New London. It was installed in the 1970s in Fenger Brook at the headwaters to Alewife cove. Removal of the dam is expected to restore a migratory pathway from the Sound to the river and will benefit alewife, sea lamprey, American eel, and other species. The project is located in the Southeast Coast Watershed / Fenger Brook Sub-watershed.

The Conservancy is also planning a dredging project to address the tons of sand and silt from the Sound blown into the estuary as a result of super storm Sandy. The added sand and silt have had a negative impact on spawning of several fish species and as a result, the ecosystem of local birds, including osprey.

7 FUNDING AND TECHNICAL ASSISTANCE

There are a variety of local, state, and federal funding sources that may be available to assist with funding implementation of Watershed Management Plan BMP projects. Additional funding may be provided by local organizations, concerned citizens, and other public/private partnerships.

Grant programs that may be able to provide funding assistance for these types of projects include:

- Section 319 (DEEP)
- Long Island Sound Futures Fund
- Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation, Hazard Mitigation, and other flood mitigation grant programs
- EPA Urban Waters Small Grants Program
- EPA Smart Growth Grants

Other types of funding include bonds, low interest loans, and other miscellaneous fees.

Funding and technical assistance needs will be evaluated in more detail as the planning process progresses, and as the particular Best Management Practices projects are identified and located within the City's watersheds.

8 MILESTONES

Specific milestones will be developed for New London's Watershed Management Plan as the planning process progresses. Examples of milestones which may be considered as the plan progresses include:

- Public Outreach and Education (many milestones may be combined with MS4 program schedules and requirements):
    - Develop a Watershed Campaign or Committee to conduct watershed tours, and demonstration project tours to educate the public about ongoing projects.
    - Develop and implement a campaign or committee to partner with schools and volunteer groups to help monitor water quality and assist with maintenance of completed projects.
    - Provide continued pollution prevention outreach to homeowners.
    - Provide education to local businesses and commercial landowners on illicit discharges, facility best management practices, and stormwater management retrofits.
    - Track the number of public education flyers distributed.
- Funding and Technical Assistance:
    - Review and prioritize funding opportunities.
    - Create and maintain a Watershed Management website.
    - Gather resources and funding for a Watershed Coordinator.
- Projects:

- Track the number of stormwater management projects in-progress or completed, including retrofits and BMPs.
- Track the amount of impervious area removed.

9 FRAMEWORK FOR WATERSHED MANAGEMENT

It is recommended that the City work with partners and stakeholders to pursue the following best management practices, which includes further study and planning, data analysis, education and outreach, and potentially infrastructure investment.

9.1 Mapping and Data Gaps

The work of this plan identified data gaps, and likely others which exist, that when filled will provide the City with additional information on habitats and potential pollutant sources to be addressed through action projects.

Recommended Actions:

1. Inventory and map (in GIS) existing vernal pools within the City.
2. The City should determine a reasonable timeframe for looking back at project-delineated wetlands data and updating the City's GIS with project-delineated wetland areas.
3. If one does not yet exist, the City should create an inventory of septic systems with information on installation date and maintenance records for the septic systems, where available.
4. Complete outfall inspections and sampling under the MS4 Permit IDDE program and prioritize catchment areas for action based on outfall inspection results and potential for sanitary sewer flows entering the drainage system.

9.2 Public Education and Outreach

The MS4 permit requires the City to provide public education and outreach on stormwater management. Planned public education includes dissemination of information on pollutants of concern for the City's waterways, including phosphorus, nitrogen, bacteria, and mercury. Information is to be made available on the website and in printed format.

Stakeholders indicated that there is also no interpretive signage within the City when crossing watershed lines or information on which areas drain to which receiving waters.

Additionally, stakeholders in the planning and zoning departments provided feedback indicating that there is a need for educational materials on what MS4 permit is, why it exists, and why it is important. This type of information would be helpful in communicating MS4 requirements to project proponents and parties interested in development within the City.

Recommended Actions:

1. Review, further customize, and distribute the public education materials provided in **Appendix C** to fulfill MS4 requirements for both public education and stormwater management in new development

and redevelopment. Distribution of these materials will support the overall goals of this plan and positively impact the City's watershed areas.

2. Consider watershed management / watershed identification signage in targeted areas of the City.
3. Provide outreach to Environmental Justice communities and vulnerable populations so that they are also informed and empowered to participate in improvements to the quality of the City's water resources.

9.3 Resilience Planning

City Stakeholders indicated that future projects should be guided by and consider resilience strategies and that a sea level rise study was being conducted at the University of Connecticut (UCONN). The professor who is undertaking the study was contacted during the development of this Framework, but as of the writing of this plan, there has been no response.

The neighboring City of Groton is also undertaking a resilience study to understand risks and sea level rise vulnerabilities.

Additional stakeholder feedback on resilience considers the impact of more frequent and intense storms as a result of the changing climate. There are streams within the City that are culverted or flow in underground pipes. There is growing concern that the existing pipes are undersized for future events.

Recommended Actions:

1. Follow-up with UCONN and obtain the results of the sea level rise study and determine any local follow-on studies necessary to understand the potential impacts of climate change on the City.
2. Assess the capacity of culverts carrying streams and other critical pipes based on future predicted precipitation levels.

9.4 Confirm City-Owned Parcels

A GIS screening of City-owned parcels was performed for this Framework. Often, best management practices and projects disconnecting impervious area are more easily implemented on City-owned property.

Recommended Actions:

1. Review and confirm the inventory of City-owned parcels.
2. Determine if there are retrofit opportunities or opportunities for disconnecting impervious areas on the parcels.
3. Review opportunities for public/private partnerships either during development, redevelopment, or in other instances where the City can partner with private entities to implement pilot projects that disconnect impervious cover and address pollutants of concern.

9.5 Regulatory Updates

Ordinances for Non-stormwater discharges and establishment of the Stormwater Authority have been adopted by the City of New London. The ordinance does give the City the authority to require implementation of BMPs to prevent pollutants from entering the MS4.

New London's City departments, boards and commissions should also begin to integrate the updated NRWI into municipal planning and the land-use decision making process. The New London Conservation Commission, and Planning & Zoning should work with applicants to ensure that any new development and redevelopment will not have an adverse impact on the identified natural resources, water quality, and wildlife habitats.

The Stormwater Authority currently reviews development and redevelopment projects for stormwater impacts during the design phase, but it is recommended that a formalized procedure for such a review be put in place.

9.6 Desktop Screening Tool for Projects

As part of this Framework, a desktop screening tool for projects has been created. Evaluating projects under several different categories allows the City to prioritize projects which will provide the most benefit to the City and its waterways.

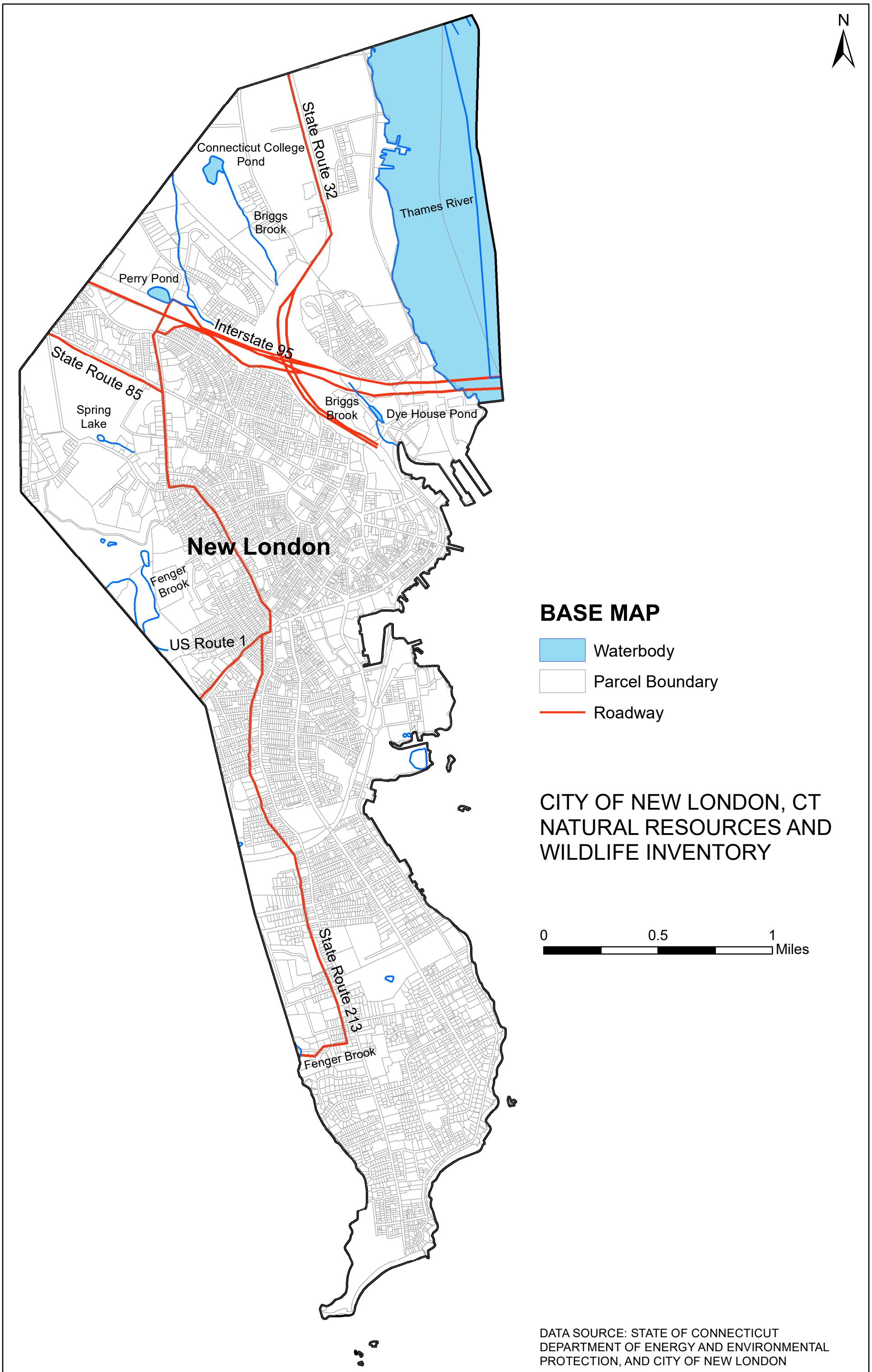
The tool is MS Excel based and allows the user to input basic project information and then score the project on the basis of the types of benefits it provides.

The evaluation tool includes the following fields:

- Project Information:
  - Project Name
  - Project Location
  - Watershed Name
- Does the Project…:
  - Provide co-benefits?
  - Benefit vulnerable populations?
  - Remove bacteria?
  - Remove nitrogen?
  - Address MS4 Permit requirements?
  - Integrate with existing initiatives?
  - Qualify for outside funding?
  - Flood resilience benefits/mitigation?

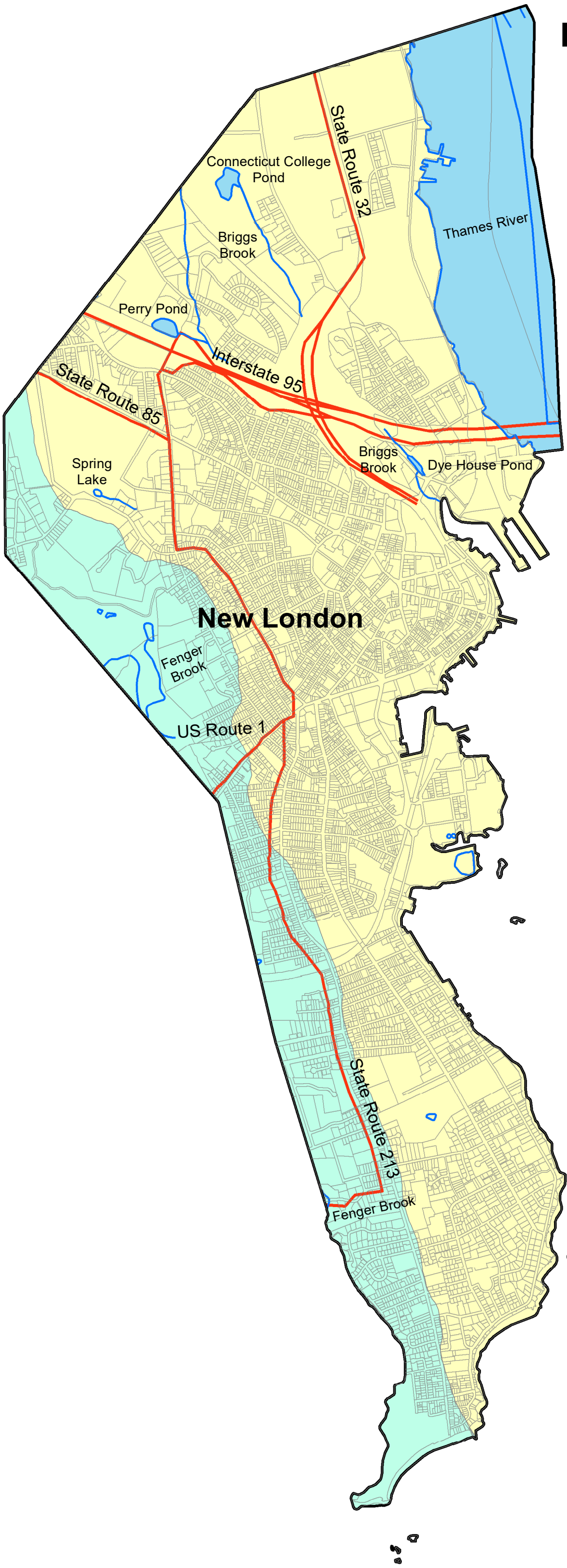
APPENDIX A

Natural Resources and Wildlife Inventory Maps


N
Connecticut College Pond
State Route 32
Thames River
Briggs Brook
Perry Pond
Interstate 95
State Route 85
Spring Lake
Briggs Brook
Dye House Pond
New London
Fenger Brook
US Route 1
State Route 213
Fenger Brook
BASE MAP
Waterbody
Parcel Boundary
Roadway
CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY
0
0.5
1
Miles
DATA SOURCE: STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL
PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N



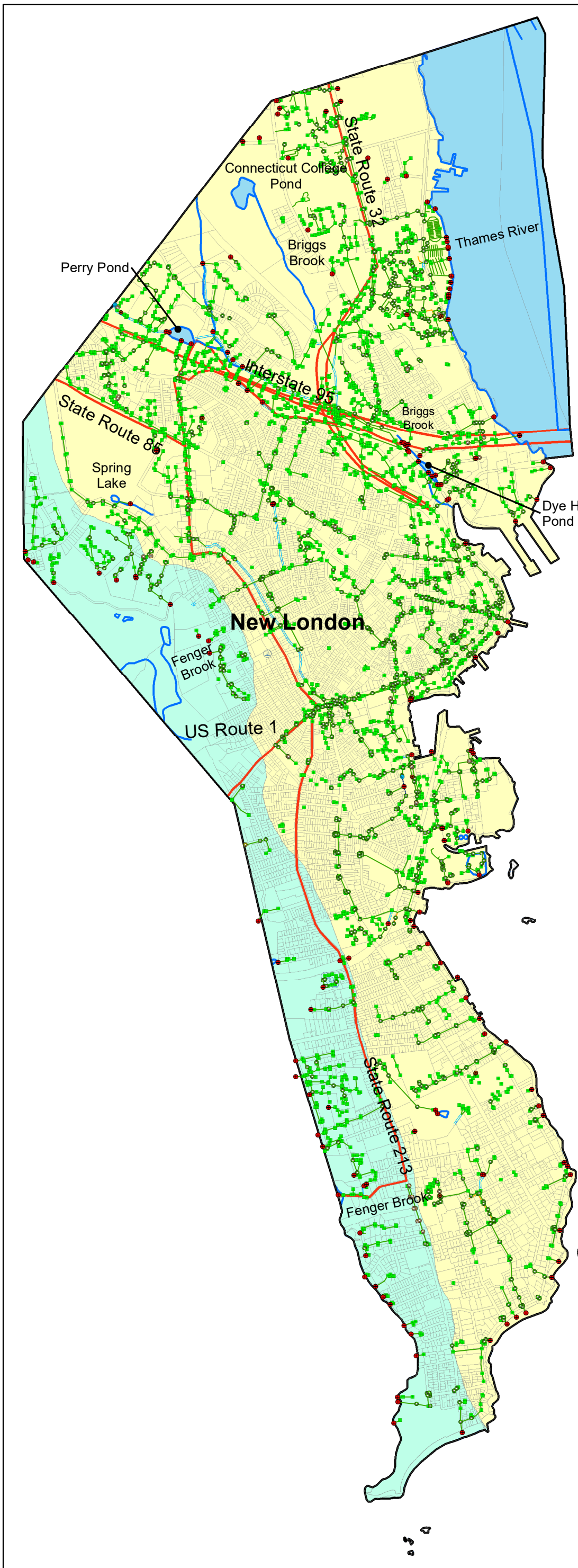
WATERSHEDS

- Southeast Coast Watershed
- Thames River Watershed
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON



N

STORMWATER SYSTEM

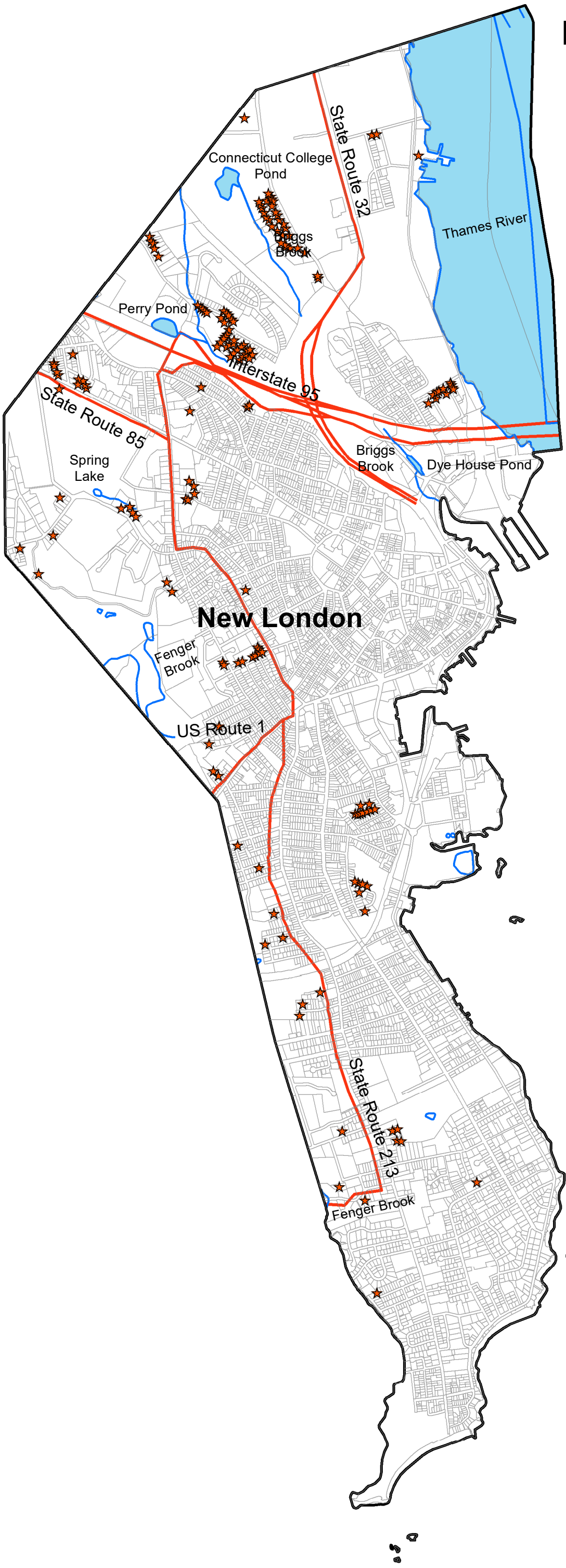
- Stormwater Pipe
- Catchbasin
- Drain Manhole
- Hydrodynamic Seperator
- Interconnection
- Outfall
- Underground Storage
- Inlet
- Underdrain
- Open Conveyance
- Culvert
- Detention Pond
- Parcel Boundary
- Roadway
- Waterbody
- Southeast Coast Watershed
- Thames River Watershed

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N



SEPTIC SYSTEM LOCATIONS

- Septic System (160)
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

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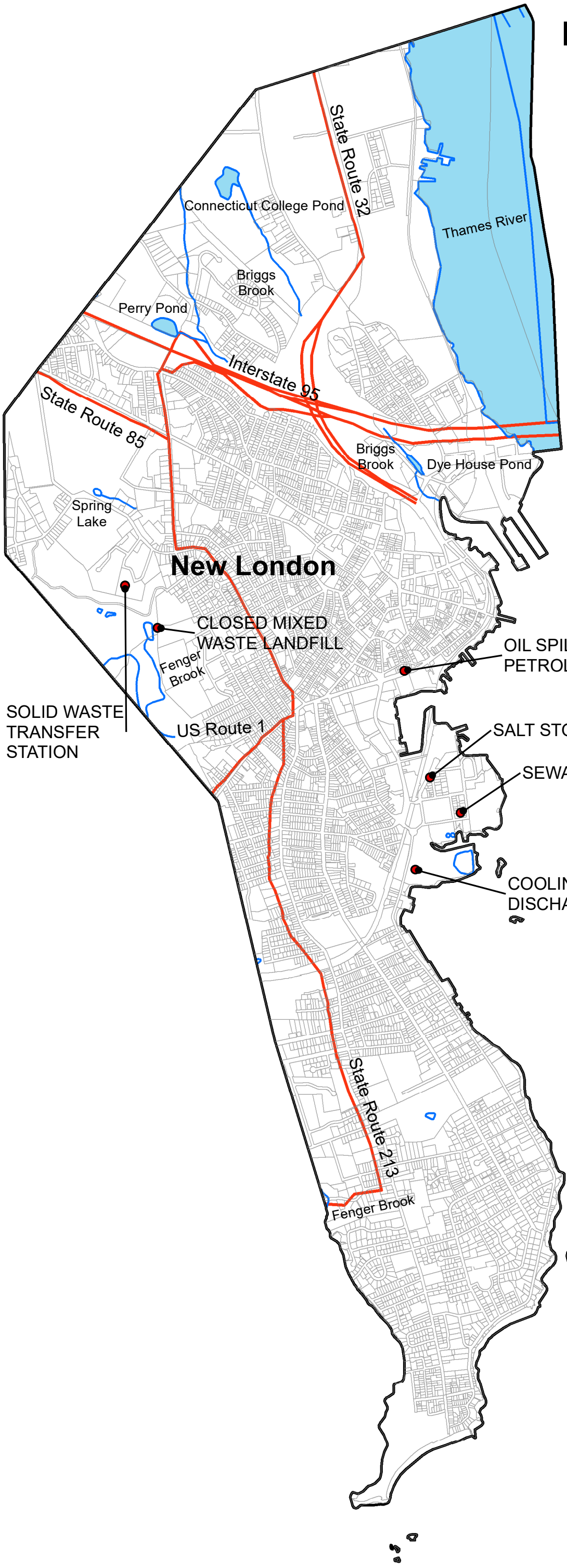
N

POTENTIALLY HAZARDOUS DISCHARGE & SITE LOCATIONS

- Hazardous Site/Discharge
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles



DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, CITY OF NEW LONDON, UCONN MAP AND GEOGRAPHIC INFORMATION CENTER

DRAFT - October 2019

N

Connecticut College Pond

Briggs Brook

State Route 32

Thames River

Brandegee Lake

Perry Pond

Interstate 95

State Route 85

Briggs Brook

Dye House Pond

Spring Lake

New London

Fenger Brook

US Route 1

Fenger Brook

Groton

Waterford

State Route 213

Fenger Brook

Alewife Cove

WATERBODY CLASSIFICATION

- A
- AA
- B, B*
- SA
- SB
- Waterbody
- Parcel Boundary
- Town Boundary
- Roadway

0 0.5 1 Miles

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

Name: Thames River (Middle), Ledyard (CT-E1_015-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform, Enterococcus

IMPAIRED WATERBODIES & CLASSIFICATIONS

- Impaired Waterbody
- Class A
- Class AA
- Class B, B*
- Class SA
- Class SB
- Parcel Boundary
- Town Boundary
- Roadway

N

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

Connecticut College Pond
Briggs Brook
State Route 32
Perry Pond
Thames River
Interstate 95
State Route 85
Spring Lake
Briggs Brook
Dye House Pond
New London
Fenger Brook
US Route 1
Groton
Connecticut
Fenger Brook
Fenger Brook
State Route 213
Waterford

Name: Thames River Mouth, New London (CT-E1_014-SB)
Class: SB
Category(s): 5, 4a
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform (TMDL)

Name: Thames River Mouth (East), Groton (CT-E2_009-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen Estuarine Bioassessments

Name: Fenger Brook
Class: A
Category(s): 5, 4a
Impairment(s): Unknown, E. Coli (TMDL)

Name: Thames River Mouth (West), New London (CT-E2_010-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments, Fecal Coliform

Name: Alewife Cove (CT-E1_017)
Class: SA
Category(s): 5, 4a
Impairment(s): Dissolved Oxygen, Nutrient/Eutrophication Biological Indicators, Fecal Coliform (TMDL)

Name: Thames River (West), Waterford (CT-E3_005-SB)
Class: SB
Category(s): 5
Impairment(s): Dissolved Oxygen, Estuarine Bioassessments

DRAFT - October 2019

N

Connecticut College Pond

State Route 32

Briggs Brook

Thames River

Perry Pond

Interstate 95

State Route 85

Spring Lake

Briggs Brook

Dye House Pond

New London

Fenger Brook

US Route 1

Fenger Brook

Waterford

State Route 213

Fenger Brook

Groton

STREAM FLOW CLASSIFICATIONS

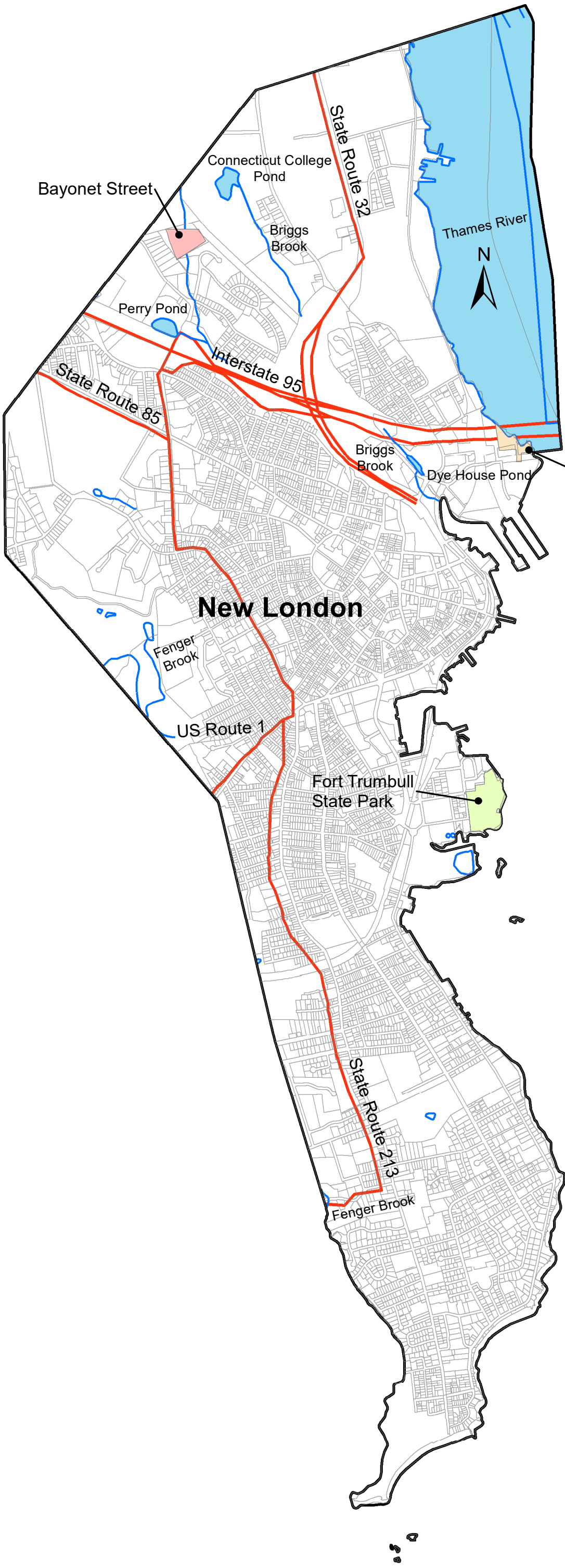
- 1
- 2
- 3
- 4
- Waterbody
- Parcel Boundary
- Town Boundary
- Roadway

0 0.5 1 Miles

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019



N

CT DEEP PROPERTY

- State Park
- Water Access
- Other
- Waterbody
- Parcel Boundary
- Roadway

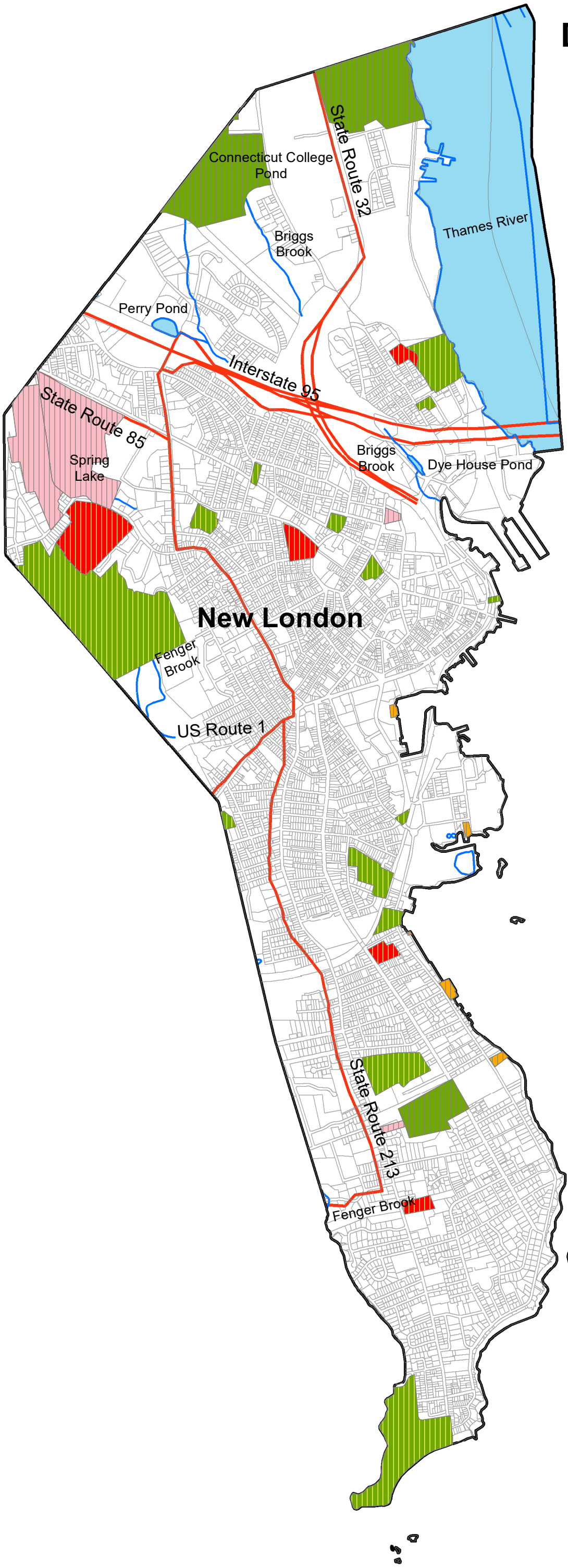
CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N



1997 MUNICIPAL AND PRIVATE OPEN SPACE

- Municipal
- Private
- Cemetery
- Existing Preserved Open Space
- School
- Conservation
- General Recreation
- Preservation
- Recreation
- Uncategorized
- Parcel Boundary
- Roadway
- Waterbody

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N

FEMA FLOOD ZONES

- Zone VE - 1% Annual Chance Flood Hazard
- Zone AE - 1% Annual Chance Flood Hazard
- Zone A - 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Zone X
- Zone X Protected by Levee
- Waterbody
- Parcel Boundary
- Town Boundary
- Roadway

0 0.5 1 Miles

State Route 32
Briggs Brook
Interstate 95
State Route 85
Spring Lake
Briggs Brook
New London
US Route 1
Thames River
State Route 213

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N

SEA LEVEL RISE

- 0 feet
- 5 feet
- 10 feet
- Waterbody
- Parcel Boundary
- Town Boundary
- Roadway

Connecticut College Pond
State Route 32
Thames River
Briggs Brook
Perry Pond
Interstate 95
State Route 85
Briggs Brook
Dye House Pond
Spring Lake
New London
Fenger Brook
US Route 1
State Route 213
Fenger Brook

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, CITY OF NEW LONDON, AND NOAA

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N

WETLAND LOCATIONS

- USFWS Wetland
- Tidal Wetland (1990)
- Poorly Drained and Very Poorly Drained Soil
- Waterbody
- Parcel Boundary
- Town Boundary
- Roadway

Connecticut College Pond
State Route 32
Thames River
Briggs Brook
Perry Pond
Interstate 95
State Route 85
Briggs Brook
Dye House Pond
Spring Lake
New London
Fenger Brook
US Route 1
State Route 213
Fenger Brook

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

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SHELLFISHING LOCATIONS

N

- Approved
- Conditionally Approved
- Restricted-Relay/Depuration
- Conditionally Restricted-Relay/Depuration
- Restricted-Relay
- Conditionally Restricted-Relay
- Prohibited
- Oyster
- Hard Clam
- Soft Clam
- Oyster / Hard Clam / Soft Clam
- Oyster / Hard Clam
- Oyster / Soft Clam
- Hard Clam / Soft Clam
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

Connecticut College Pond
State Route 32
Briggs Brook
Thames River
Perry Pond
Interstate 95
State Route 85
Briggs Brook
Dye House Pond
Spring Lake
New London
Fenger Brook
US Route 1
State Route 213
Fenger Brook

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N

EELGRASS BEDS

- High Density
- Medium Density
- Low Density
- Parcel Boundary
- Town Boundary
- Waterbody
- Roadway

Connecticut College Pond
State Route 32
Thames River
Briggs Brook
Perry Pond
Interstate 95
State Route 85
Spring Lake
Briggs Brook
Dye House Pond
Groton
New London
Fenger Brook
US Route 1
State Route 213
Fenger Brook
Waterford

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

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ENDANGERED SPECIES HABITATS

- Natural Diversity Data Base Area
- Estuarine Beachshore Class B
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

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N

EROSION SUSCEPTIBILITY

- 1 - Most Susceptable to Erosion
- 2- Highly Suscepable to Erosion
- 3- Surficial Materials Susceptable to Erosion
- 4 - Soils Susceptable to Erosion
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL
PROTECTION, AND CITY OF NEW LONDON

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N

FARMLAND SOILS

- Prime Farmland Soil
- Statewide Important Farmland Soil
- Waterbody
- Parcel Boundary
- Roadway

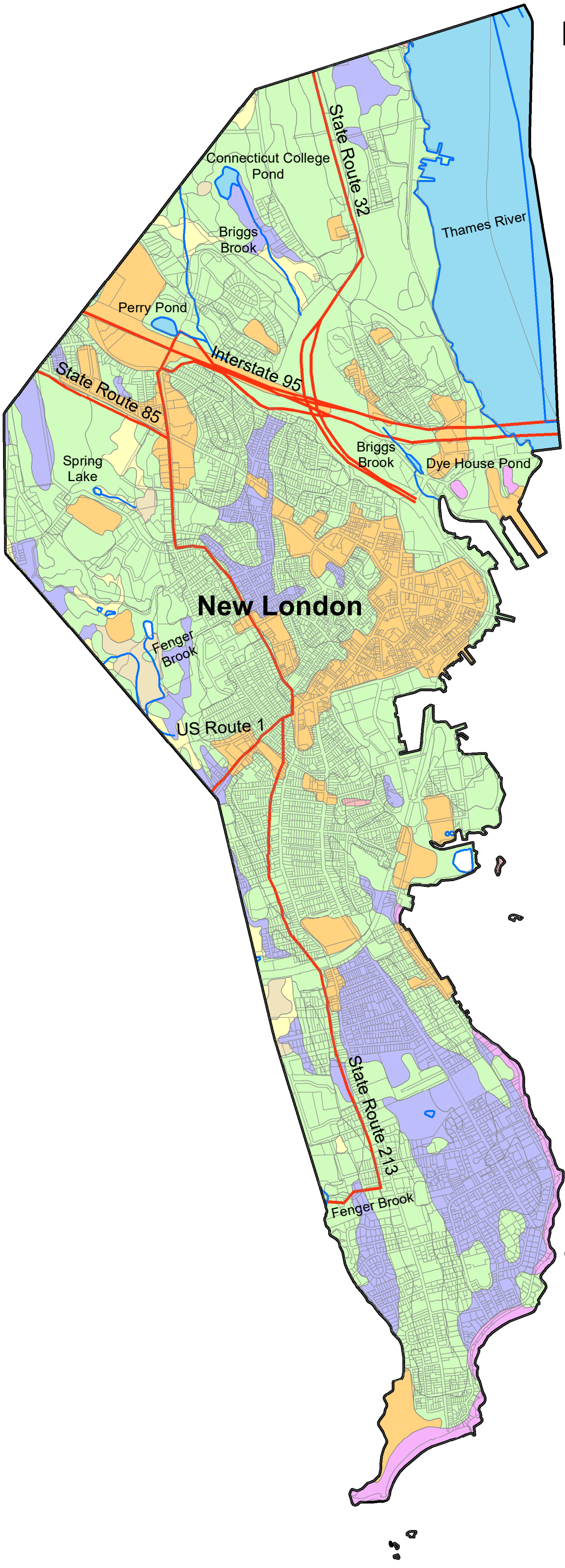
CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL
PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

N



SOIL DRAINAGE CLASS

- Well Drained
- Moderately Well Drained
- Somewhat Excessively Drained
- Excessively Drained
- Poorly Drained
- Very Poorly Drained
- Not Rated
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

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N

SOIL PARENT MATERIAL

- Glaciofluvial
- Lodgement Till
- Melt-out Till
- Melt-out Till - Moderate to Bedrock
- Melt-out Till - Shallow to Bedrock
- Shallow Organic - Inland
- Shallow to Bedrock
- Urban Influenced
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT
NATURAL RESOURCES AND
WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL
PROTECTION, AND CITY OF NEW LONDON

DRAFT - October 2019

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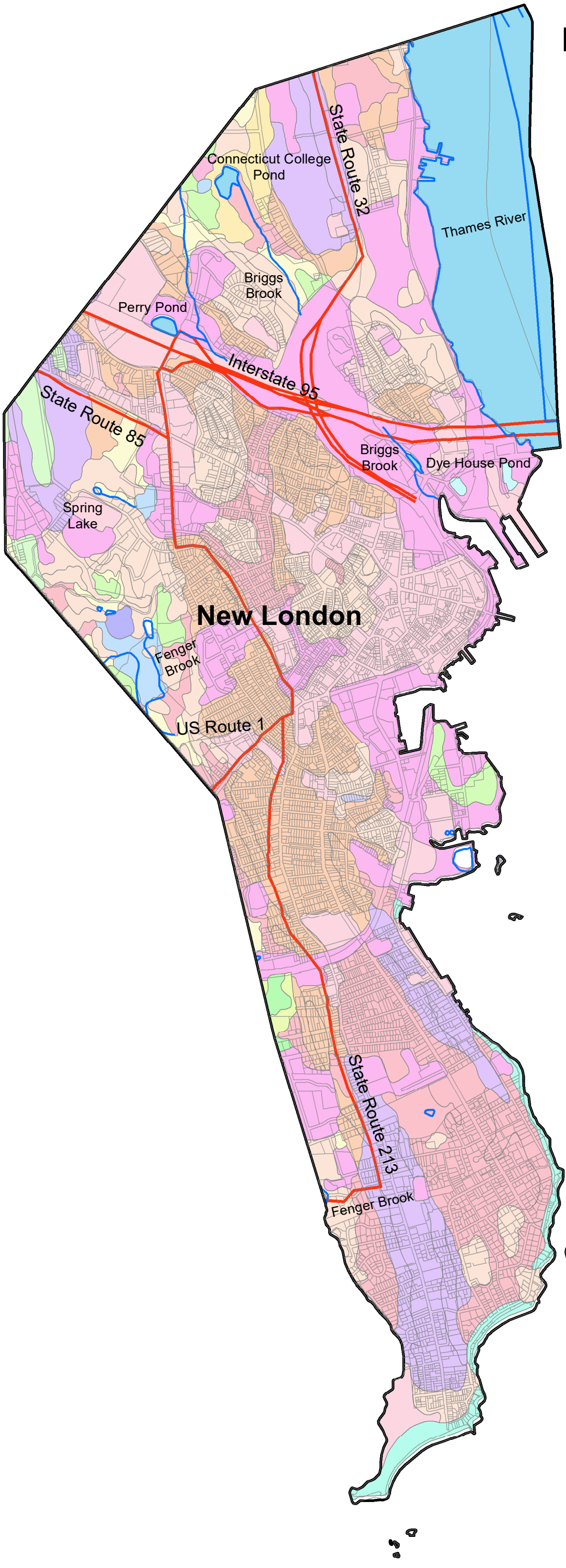

SOIL TYPES

- Adrian and Palms Soil
- Beaches-Udipsamments Complex
- Canton and Charlton Soil
- Charlton-Chatfield Complex
- Dumps
- Hinckley Gravelly Sandy Loam
- Hollis-Chatfield Rock Outcrop Complex
- Merrimac Sandy Loam
- Narragansett Silt Loam
- Narragansett-Hollis Complex
- Paxton and Montauk Soil
- Ridgebury, Leicester and Whitman Soil
- Rock Outcrop-Hollis Complex
- Scarboro Mucky Loamy Sand
- Sutton Fine Sandy Loam
- Udorthents-Urban Land Complex
- Urban Land
- Walpole Sandy Loam
- Woodbridge Fine Sandy Loam
- Waterbody
- Parcel Boundary
- Roadway

CITY OF NEW LONDON, CT NATURAL RESOURCES AND WILDLIFE INVENTORY

0 0.5 1 Miles

DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

APPENDIX B

Public Engagement Results

Identification of Potential Pollutant Sources & Best Management Practices

CITY OF NEW LONDON, CT
WATERSHED MANAGEMENT PLAN PROJECT

SIGN-IN SHEET

	NAME	ORGANIZATION	Email
1.	Kate Edwards	Arcadis	Kate.Edwards@arcadis.com
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4.	Bob Stuller	Sustainability	bob@stuller.org
5.	SETH MACDONALD	ARCADIS	SETH.MACDONALD@ARCADIS.com
6.	Marianna McGuirk	City of New London	mmcguirk@ci.new-london.ct
7.			
8.	Brian Nixon	Veolia	brian.nixon@veolia.com
9.	Susan Munger	Sustainable NL	shmunger@sbcglobal.net
10.	Barry Levine	PqZC.	
11.	Margaritta Mogollon	NNPCA	mmogollont@gmail.com
12.	Andreu Lopez	Sustainability	alopez6@conncoll.edu
13.	MAUREEN FITZGERALD	Town of Waterford	mfitzgerald@waterfordct.org
14.	Gwen Macdonell	Save the Sound	gmacdonell@savethesound
15.	Alex Krofta	Save the Sound	akrofta@savethesound
16.	Eric Thomas	DEEP	eric.thomas@ct.gov
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			

City of New London
Connecticut

ARCADIS Design & Consultancy for natural and built assets

CITY OF NEW LONDON, CT
WATERSHED MANAGEMENT PLAN PROJECT

SIGN-IN SHEET

	NAME	ORGANIZATION	Email
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5.	Barry Weiner	WWPCA	barry.weiner@
6.	Rose Oliveira	NL Chairman	sbcglobal.net
7.	Rob Schmidt	Waterford	rose.roliveir@gmail.com
8.	Bryan Doughty	NL	DOUGHTY@NewLondon.org
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10.	Anthony [illegible]	N/A	NEK[illegible]@gmail.com
11.	Sharmaine Gregor	Southeastern CT Community Land Trust	sgregor41@gmail.com
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13.	[illegible] Stuller	Riverside Park	rstuller@snet.net
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15.	Andrew Lopez	NL	NDRW.LPZ@gmail.com
16.	Joseph Lanzafame	NL WWPCA	jlanzafame@ci.new-london.ct.org
17.			
18.			
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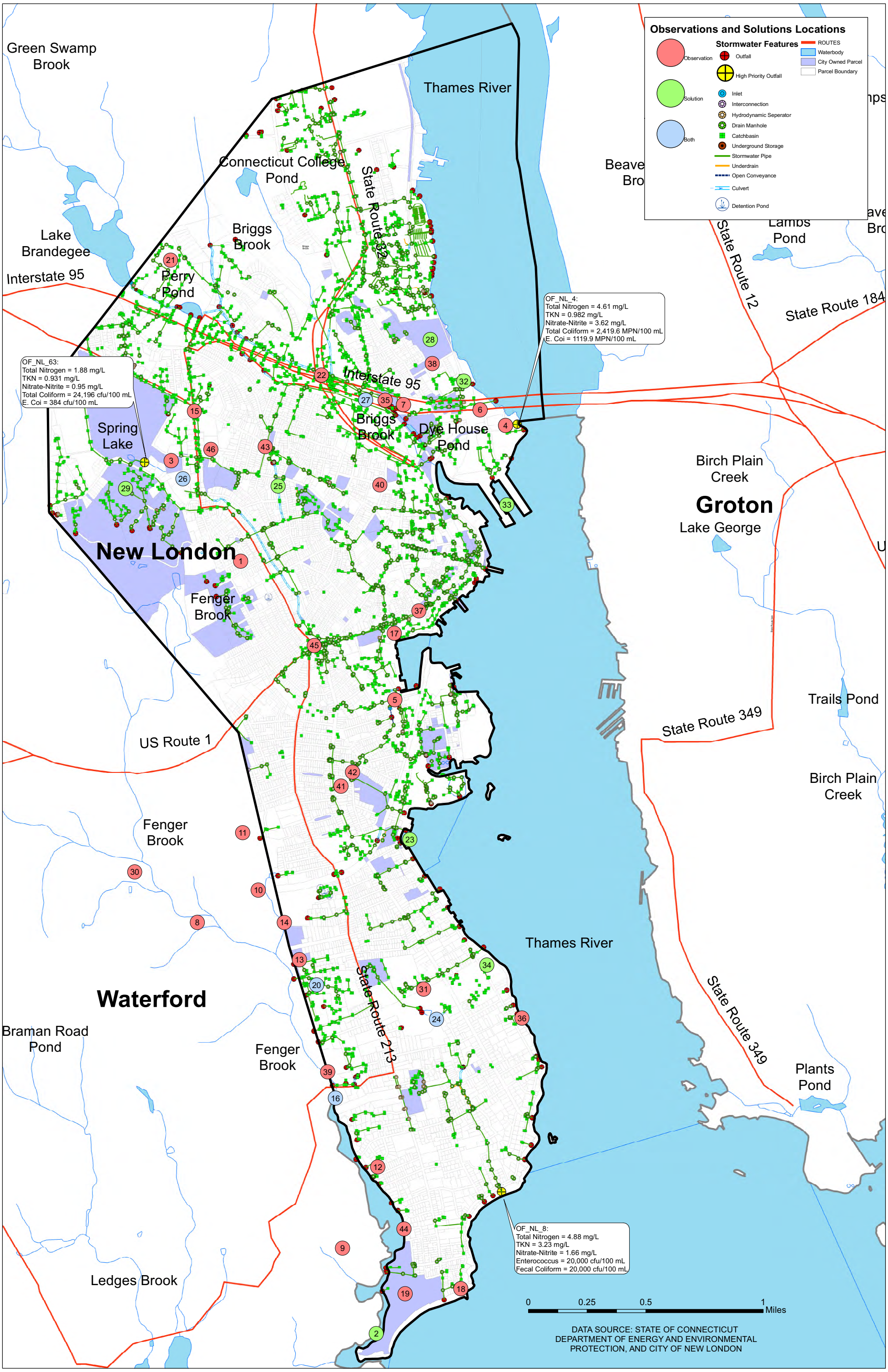
23.			
24.			


Observations and Solutions Locations
Observation
Solution
Both
Stormwater Features
Outfall
High Priority Outfall
Inlet
Interconnection
Hydrodynamic Seperator
Drain Manhole
Catchbasin
Underground Storage
Stormwater Pipe
Underdrain
Open Conveyance
Culvert
Detention Pond
ROUTES
Waterbody
City Owned Parcel
Parcel Boundary
Green Swamp Brook
Thames River
Connecticut College Pond
State Route 32
Briggs Brook
Lake Brandegee
Interstate 95
Perry Pond
Lambs Pond
State Route 12
State Route 184
OF_NL_4:
Total Nitrogen = 4.61 mg/L
TKN = 0.982 mg/L
Nitrate-Nitrite = 3.62 mg/L
Total Coliform = 2,419.6 MPN/100 mL
E. Coi = 1119.9 MPN/100 mL
OF_NL_63:
Total Nitrogen = 1.88 mg/L
TKN = 0.931 mg/L
Nitrate-Nitrite = 0.95 mg/L
Total Coliform = 24,196 cfu/100 mL
E. Coi = 384 cfu/100 mL
Spring Lake
Briggs Brook
Dye House Pond
Birch Plain Creek
Groton
Lake George
New London
Fenger Brook
US Route 1
Trails Pond
State Route 349
Waterford
Braman Road Pond
State Route 213
Plants Pond
Ledges Brook
OF_NL_8:
Total Nitrogen = 4.88 mg/L
TKN = 3.23 mg/L
Nitrate-Nitrite = 1.66 mg/L
Enterococcus = 20,000 cfu/100 mL
Fecal Coliform = 20,000 cfu/100 mL
0
0.25
0.5
1
Miles
DATA SOURCE: STATE OF CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, AND CITY OF NEW LONDON

City of New London, CT

Watershed Management Plan Project Oberservations and Solutions Log

ID #	Observation (O) or Solution (S)?	Location of Potential Pollutant Source, "Hot Spot" or Critical Area (address, street intersection, landmark name, etc.)	Description of the problem and why the area is critical/sensitive OR Potential Solution/Existing Project
1	O	Walden & Holmes	Dumped construction debris
2	S	Alewife Cove / Ocean Beach Park	Alewife Cove Conservancy Dredging Project and tidal wetland protection
3	O	Spring Lake	Was a dump site
4	O	Winthrop Point	Salt storage and excess snow piled here in winter nearby
5	O	Howard / Hamilton St Brownfield	Former gas station
6	O	New London Snow & Ice Emergency	Present transfer sttaion
7	O	Under I-95 by Briggs Brook	Tent city under I-95
8	O	Seccharoli Pig Farm	Seccharoli Pig Farm
9	O	Ridgewood	Septic system are on sewer now
10	O	Railroad tracks on Waterford/New London borders	Amtrak sprays pesticides
11	O	End of Henry Street/	Illegal dumping area
12	O	Alewife Parkway / Bayshore Drive Streets	Very manicured lawns, with lawn company treatments
13	O	Thames Street / Farmington Avenue	Outfalls in eroded area
14	O	Evergreen Avenue	Pump station
15	O	Bishop Street Car Dealerships	Area full of impervious surfaces due to car dealerships
16	O / S	Niles Hill Road / Alewife Cove	Alewife Cove - major resource; potential contamination by stormwater; dam removal, cleanups and Niles Hill Road Dam Removal by "Save the Sound"
17	O	Bank Street Pump Station	Shaw's Cove Pump Station
18	O	Mott Avenue / Long Rock	Tidal Marsh Area getting a lot of foot traffic from Beach Area
19	O	Ocean Beach Park	Ocean Beach good potential for green infrastructure
20	O / S	Villages at Shore Landing / Nautilus Drive	Apartments/high infiltration, show collapsed culvert under railroad, Fenger Brook watershed plan, Jordan Brook WMP
21	O	Frontage Road shopping area	Connecticut College - impervious surface Burlington, Staples - impervious Shoprite, etc.
22	O	I-95 interchange	I-95 **huge** impact at interchange
23	S	Green Harbor Beach	Green Harbor Beach Project; New London Public Works and Storm Water Utility (Current Project)
24	O / S	Gardner Circle	Overflow area from Mitchell Pond, possibe future bioswale project
25	S	Ashcraft & Ledyard Street & Connecticut Avenue	Adding median strip / Bioswale as potential project in EJ area
26	O / S	Old "Coleman Swamp" area	Foul odors, Brownfield paved over, needs a remediation project
27	O / S	Winthrop Cove	May be state-owned, recieves highway discharge; large outfalls: 120" pipe & 96" RCP pipe & a lot of impervious surface going down Ledyard Street to that area, opportunities for Bioswales & BMPs
28	S	Riverside Park	Riverside Park Conservancy, possible invasive removal
29	S	Bates Woods	Clean up trash - Josh Smith was organizing post cleanup
30	O	Fenger Brook in Waterford	Failing infrastructure (culvert)
31	O	Stream from Mitchell College, SE New London	Daylight of stream
32	S	Winthrop Point	Possible park space between city and state boat launches
33	S	Winthrop Point Pier	Dive cleaning is conducted each year (trash/dredging)
34	S	Mitchell College	Green roof, mentioning of sailing team
35	O	DOT drain channels feed storm drain under I-95 (near Briggs Brook)	I-95 Stormwater down spouts are channeled into a drain here, pollution from I-95; possible solution: large rain garden instead of drain
36	O	Pequot Ave., south to Gardener Ave.	Lawn fertilizers, goose poop
37	O	Bank St. (Tilley St. to Howard St.)	Excessive impervious surface and regular flooding during larger storms; possible solution: rain gardens
38	O	Lower Riverside Park	Large amount of free flowing/overland runoff
39	O	Fenger Brook (Georgetown Rd. / Mansfield Rd.)	Construction site in wetlands; concern about impervious area and following permit/city's rules & regs
40	O	Huntington St. @ Federal St.	Extremely clogged storm drains creating flooding and minimal water drainage; stormwater just rushes into the river; maintenance/cleaning concers throughout the city
41	O	Montauk Ave. @ Bellevue Place	Storm drains almost always clogged
42	O	Caulkins Park (Riverview Ave. / Alger St.)	Existing bioswale / rain garden was recently destroyed; would like to see BMP re-established and expanded
43	O	Broad St. @ Ledyard St.	Re-occuring flooding during heavy rain events; would like to see if rain gardens could help
44	O	Alewife Cove	Lawns along coast may be over-fertilized, runoff collecting fertlizer may put clam population in danger as people clam in the cove
45	O	Bank St. @ Jefferson Ave. (N.E. corner)	Erosion control and permit concerns at construction site, would like to see
46	O	131 Cedar Grove Ave.	Possible increase in impervious area and pollution concern, proposal for parking buses at this location

City of New London, Connecticut

Watershed Management Plan

Public Open House – January 22, 2020

STATION 3

BEST MANAGEMENT PRACTICE (BMP)		DESCRIPTION	VOTE for 3 BMPs You'd Like to See in the City!
Bioretention Areas & Rain Gardens (photo: MA Stormwater Handbook)		Bioretention areas use soils, plants, and microbes to treat stormwater before it is infiltrated or discharged.	
Dry Detention Pond (photo: MA Stormwater Handbook)		Dry detention ponds, also known as "dry ponds" or "detention basins", are stormwater basins designed to capture, temporarily hold, and gradually release a volume of stormwater runoff.	
Wet Pond / Retention Basin (photo: UNH Stormwater Center)		Wet basins use a permanent pool of water as the primary mechanism to treat stormwater. The pool allows sediments to settle and removes pollutants.	
Treebox Filter (photo: WERF / City of Reno, NV)		Stormwater is directed through the top of the soil media in the barrel of the treebox and percolates through the media to the underlying ground.	
Infiltration Basin / Trench (photo: MA Stormwater Handbook)		Infiltration practices are designed to capture stormwater runoff and infiltrate it into the ground over a period of days. These BMPs reduce runoff volume, remove pollutants, and recharge groundwater.	
Porous Pavement (photo: MA Stormwater Handbook)		Porous pavement is a paved surface that allows water to pass through it and infiltrate into the soil underneath.	
Sand and organic filters (photo: MA Stormwater Handbook)		Sand and organic filters consist of self-contained beds of sand or peat. Stormwater runoff is filtered through the sand, and in some designs may be subject to biological uptake.	

ARCADIS for natural and built assets

Kate → Send Susan Munger the map of City Owned Parcels

City of New London, Connecticut

Watershed Management Plan

Public Open House – January 22, 2020

ARCADIS Design & Consultancy for natural and built assets

STATION 5

OPPORTUNITY TO PARTICIPATE

VOTE HERE! for opportunities you'd like to see in the future

- **Meetings & Presentations on Watershed Management Plan Progress**
- **Annual Spring/Fall River Cleanup**
- **Volunteer to Sample / Monitor Water Quality**
- **Tour of Demonstration Best Management Practices & Projects**
  (Rain Gardens, Bioretention Areas, Stream Restoration etc.)
- **Watershed Tour / Hike**
- **Presentations & Workshops for Youth Groups**
  (Schools, Scouts, etc.)
- **Tree and Vegetation Planting Events**

partner with School/Volunteer groups to conduct the counts

meaning more biological / species profiling + counting (how many) indicators of overall quality. Brooktrout Silversands Alewife

provide access in (library) public places existing WQ video

Library outreach prog w/ KIDS

Call for Partnerships!

Suggest an Organization that may be willing to partner with the City on a Project or future Outreach Campaign!

CTDOT
Save Ocean Beach
Alewife Cove Conservancy
LISF
Thames River Basin
Avalonia Land Conservancy
Eastern CT Conservation District
UCONN NEMO
UCONN CLEAR
CT SeaGrant
L&M Hospital

APPENDIX C

Public Education Materials

CITY OF NEW LONDON, CONNECTICUT

Do Your "Doody" for Clean Water

You hate stepping in it. And fish hate swimming in it, too! Dogs produce a lot of waste which, if not disposed of properly, can end up in our waterways. Do your part to keep our waters and public areas clean and healthy! Bag your pet's waste and throw it in a trashcan.

DO

DON'T

Did you know that the average dog can produce nearly a pound of waste each day and over 7 billion bacteria daily?

- Pet waste left on lawns and in public spaces is not only gross, it can be quite harmful too.
- Pet waste contains twice as much bacteria as human waste!
- If left in your yard, pet waste can kill grass and other plants.
- Adults and children who come in contact with it can get sick.
- When pet waste washes into storm drains and waterways, it can make the water unhealthy for people and wildlife.
- Pet waste in waterways can even cause algae to grow, making the water turn an unpleasant green color.

How you can help:

- BRING IT: Always bring a plastic bag when you go out with your pet.
- BAG IT: Use the bag as a glove to pick up the waste and turn the bag inside out around the waste.
- DISPOSE IT: Properly dispose of the waste by putting it in a trash can. NEVER throw waste in a storm drain.

Do your "doody" in both public areas and in your yard.

Adopted from materials provided by Neponset Stormwater Partnership.
Adopted from materials available from www.ThinkBlueMassachusetts.org and www.nemo.uconn.edu.

CITY OF NEW LONDON, CONNECTICUT

Stormwater Pollution Prevention Guide for Homeowners

What is Stormwater?

Stormwater is rain and melted snow that runs off the roofs, lawns or paved areas, like driveways and roads and is carried away by a system of stormwater pipes or culverts and ditches. As it flows over the land surface, stormwater picks up or is contaminated by debris, chemicals, dirt and other pollutants.

Why Should I Care?

Anything that enters a storm drain system is discharged untreated into the water bodies we use for swimming, boating and fishing! According to the EPA, stormwater pollution is one of the most significant sources of water pollution today. Contaminated or polluted stormwater can lead to serious water quality problems. Found below are just a few pollution problems:

- Sediment clouds the water, harming important aquatic habitats.
- Excess nutrients cause algae blooms. Oxygen levels are depleted when the algae die and decompose. Fish and other aquatic organisms can't live when oxygen levels decrease.
- Bacteria and other pathogens (commonly found in fecal waste) discharged in swimming areas create health hazards and cause beach closings.
- Debris washed into the water can choke, suffocate or disable aquatic life (ducks, fish, turtles and birds).
- Polluted stormwater often affects drinking water sources – human health is at risk and water treatment costs rise.

For more information on stormwater & resources visit:

- https://nemo.uconn.edu/ms4/implement/public-education.htm
- https://www.epa.gov/npdes-permits/npdes-stormwater-permit-program-new-england
- https://www.ct.gov/deep/cwp/view.asp?q=325702

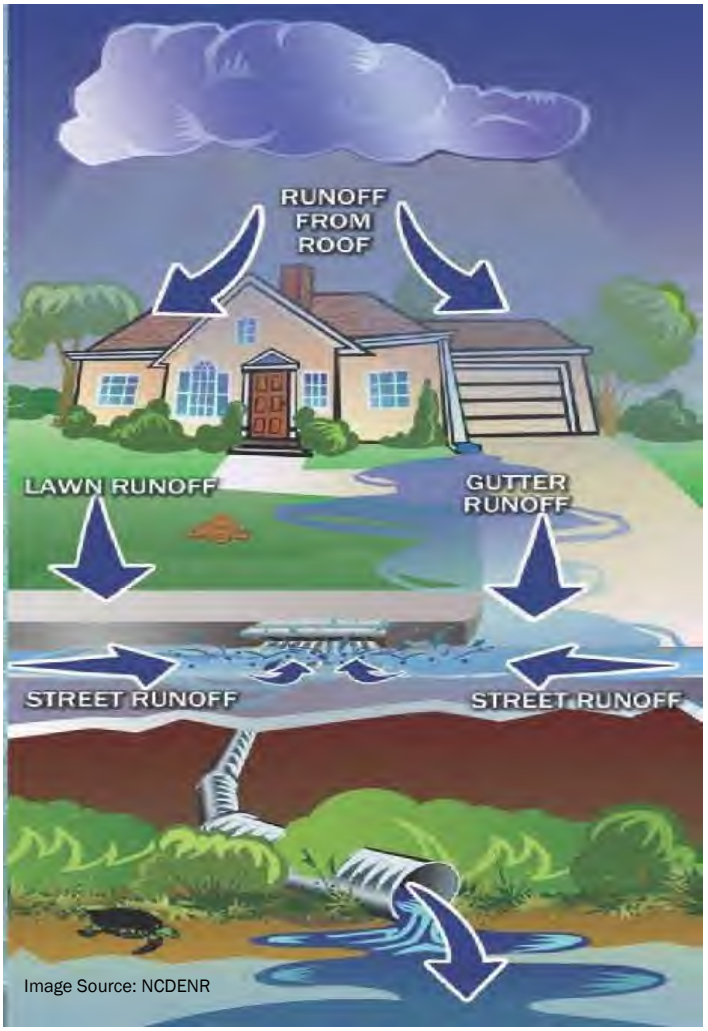


Image Source: NCDENR

LAWN AND GARDEN MAINTENANCE

- Choose organic lawn chemicals whenever possible. Use fertilizers and pesticides sparingly, especially near waterbodies.
- Plant grass or vegetation where soil is exposed.
- Select native plants and grasses that are drought tolerant and pest resistant.
- Compost or recycle yard waste. Don't pile yard waste near or deposit into streams, wetlands or storm drains.
- Cover piles of dirt and mulch to prevent them from washing into drains.
- Sweep up yard debris, rather than hosing down areas.
- Redirect downspouts toward grassy areas, trees and shrubs, so that runoff from your roof can soak into the ground.
- Set a rain barrel under your downspout to capture water for another use.
- Plant rain gardens to help filter and soak up water before it runs onto the street.

TRASH MANAGEMENT

- Put your cigarette butts and other litter in trash bins.
- If there is no trash bin handy, hold onto your litter until you find one.
- Pitch in and help clean up littered areas.
- Sweep up and properly dispose of construction debris like concrete and mortar.

CITY OF NEW LONDON, CONNECTICUT

SWIMMING POOL AND SPA CARE

- Drain your pool or spa only when the test kit does not detect chlorine levels and obtain permission from DPW to drain to the storm or sewer system.
- Whenever possible, drain your pool or spa into the sanitary sewer system.
- Properly store pool and spa chemicals to prevent leaks and spills, preferably in a covered area.

HOUSEHOLD HAZARDOUS WASTES

- Use the least toxic products (biodegradable, Green Seal or EcoLogo certified) and appropriate amount of paints, solvents, or cleaners for the job.
- Store substances in leak proof containers inside a building or shed or under cover, away from rainwater and drainage areas.
- Clean up spills immediately using rags or absorbent material such as kitty litter. Sweep up absorbent material and dispose in the trash.
- Filter and reuse paint thinner.
- Dispose of excess paints and solvents during household hazardous waste collection programs.
- Dispose of solvent waste by following the instructions printed on the label.
- Never use a hose to wash down paved areas. This washes pollutants into the storm drains.
- Never pour wash water or chemicals down storm drains.

SEPTIC SYSTEM MAINTENANCE

- Have your system inspected by a professional every three to five years.
- Pump your tank as necessary (every three to five years).
- Care for the septic leach field by not driving or parking vehicles on it.
- Plant only grass over and near the leach field to avoid damage from roots.
- Don't dispose of household hazardous waste in sinks or toilets.

PET WASTE MANAGEMENT

- When walking your pet, pick up waste and dispose of it properly.
- Do not flush pet waste bags.
- Do not dispose of pet waste near storm drains or waterbodies.

WINTER MAINTENANCE

- Avoid over salting/sanding walkways and driveways in the winter and use non-toxic products whenever possible. Sweep up excess sand after snowmelt.
- Do not apply salt on vegetation or near waterways.
- Do not dispose of snow/ice in wetlands or waterways or directly on top of storm drains.

VEHICLE MAINTENANCE AND REPAIR

- Use a commercial car wash or wash your vehicle on a lawn or other unpaved surface to minimize the amount of dirty, soapy water flowing into the storm drain, culvert, or ditch.
- Use organic or mild soaps and detergents.
- Always use a hose nozzle with a trigger and shut it off when you're not using it to conserve water.
- Check your car, boat, motorcycle, machinery and equipment for leaks and spills.
- Store automotive parts, such as batteries, engines, transmissions, and parts, that may have oily or greasy residue on them under cover and off the ground. Rainwater can wash pollutants off these parts and into the storm drains.
- Clean up spilled fluids with an absorbent material like kitty litter or sand.
- Recycle used oil and other automotive fluids at participating service stations. Don't dump these chemicals down the storm drain, in culverts or ditches, or dispose of them in your trash.

Adopted from materials provided by USEPA, www.nemo.uconn.edu, and Saugus MA.

Do Your Part, Be SepticSmart:

The Do's and Don'ts of Your Septic System

Learn these simple steps to protect your home, health, environment and property value:

septicsmart™
U.S. Environmental Protection Agency

Protect It and Inspect It:

Do:

- Have your system inspected (in general) every three years by a licensed contractor and have the tank pumped, when necessary, generally every three to five years.

Think at the Sink:

Don't:

- Pour cooking grease or oil down the sink or toilet.
- Rinse coffee grounds into the sink.
- Pour household chemicals down the sink or flush them.

Do:

- Eliminate or limit the use of a garbage disposal.
- Properly dispose of coffee grounds & food.
- Put grease in a container to harden before discarding in the trash.

Don't Overload the Commode:

Don't:

- Flush non-degradable products or chemicals, such as feminine hygiene products, condoms, dental floss, diapers, cigarette butts, cat litter, paper towels, pharmaceuticals.

Do:

- Dispose of these items in the trash can!

Shield Your Field:

Don't:

- Park or drive on your drainfield. The weight can damage the drain lines.
- Plant trees or shrubs too close to your drainfield, roots can grow into your system and clog it.

Do:

- Consult a septic service professional to advise you of the proper distance for planting trees and shrubs, depending on your septic tank location.

Don't Strain Your Drain:

Don't

- Concentrate your water use by using your dishwasher, shower, washing machine, and toilet at the same time. All that extra water can really strain your septic system.

Do:

- Stagger the use of water-generating appliances. This can be helpful especially if your system has not been pumped in a long time.
- Become more water efficient by fixing plumbing leaks and consider installing bathroom and kitchen faucet aerators and water-efficient products.

For more SepticSmart tips, visit: **www.epa.gov/septicsmart**

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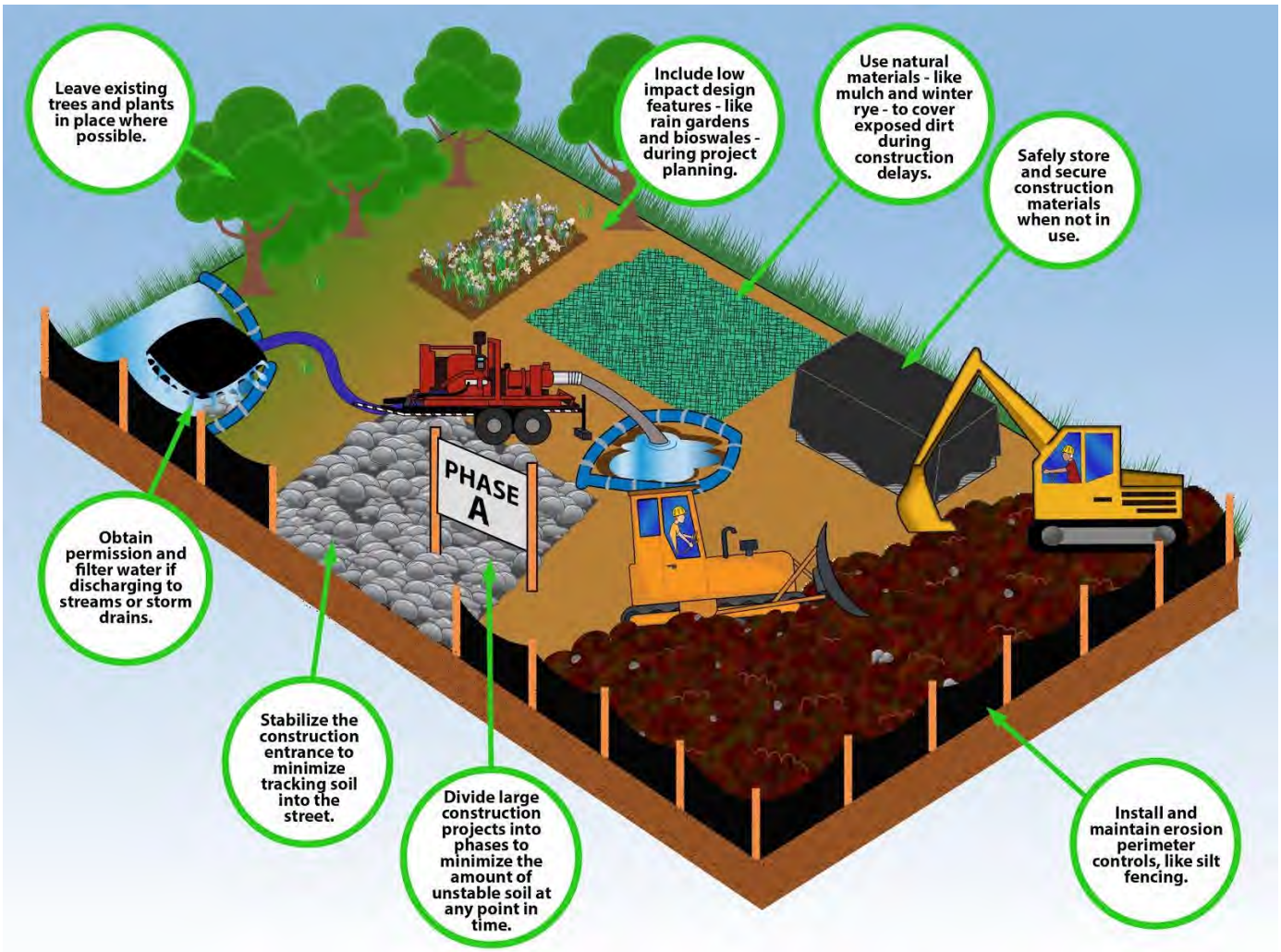
CITY OF NEW LONDON, CONNECTICUT

Plan Ahead to Prevent Pollution:

Tips to Reduce Stormwater Runoff During Construction



- Contact EPA and the Planning and Public Utilities departments to make sure you have the proper permits before beginning construction.
- Construction companies can do their part to keep Connecticut's waterways clean.

Adopted from materials provided by Neponset Stormwater Partnership.
Adopted from materials available from www.ThinkBlueMassachusetts.org.

CITY OF NEW LONDON, CONNECTICUT

Stop Erosion in its Tracks to Keep Our Waters Clean

DO

DON'T

What can you do?

- Find out if you need a Construction General Permit.
- Visit New London's Planning and Public Utilities Departments before you disturb the soil.
- Pick a combination of erosion and sediment controls that work for your site.
- These controls include practices that protect natural landscape features, like streams and wetlands, and stabilize soil.
- You will also need to use practices to protect and maintain silt fences, storm drain inlets, and construction entrances.

Why is this necessary?

- Water that falls on your construction site either soaks into the ground or runs off into storm drains.
- This water and pollution that goes into storm drains eventually ends up in lakes, rivers, and streams.
- Once these pollutants reach waterways, they can harm fish and other wildlife. They can even make our water unsafe to drink.
- Most importantly, allowing polluted runoff to leave your site and enter a storm drain or waterway is against the law.

Adopted from materials provided by Neponset Stormwater Partnership and US EPA.
Adopted from materials available from www.ThinkBlueMassachusetts.org.

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