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REPORT

January 16, 2024

CITY OF
Stamford
CONNECTICUT

Reporting Period 7/1/2021 – 6/30/2022

CT DEEP National Pollutant Discharge Elimination System Permit for the Discharge of Stormwater from Municipal Separate Storm Sewer Systems (MS4)

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1.0 INTRODUCTION

1.1 Introduction & Overview

The City of Stamford (the City) was issued its current NPDES Permit (No. CT0030279) for discharge of stormwater from its municipal separate storm sewer system (MS4) on June 4, 2013. Renewal for this permit was submitted to Connecticut Department of Energy and Environmental Protection (CTDEEP) on August 6, 2021. This permit requires many actions to reduce pollution from stormwater runoff.

This Annual Report (Report) covers the period from July 1, 2021 through June 30, 2022 (Reporting Period). It summarizes the activities conducted and measures taken to comply with the previous and current NPDES Permit during this Reporting Period. This Annual Report was prepared in accordance with the terms and conditions of the NPDES Permit, as well as the Stormwater Management Plan, City of Stamford, Stamford, Connecticut, September 2, 2014 (the SMP), and as revised, August 2020. The updated SMP was posted on the city website on January 2, 2024.

The 2020-2021 MS4 final Annual Report was submitted to CTDEEP on December 26, 2023.

On January 2, 2016, the City submitted an application for modification of its NPDES Permit. The City, in conjunction with the CTDEEP, completed many efforts to work through the requested permit modification items during the 2016-17 fiscal year. Many meetings, phone calls, emails, and letters related to the process were conducted over a period of two (2) years to complete the permit modification process, which took a considerable amount effort. CTDEEP worked with the City and the Environmental Protection Agency (EPA) in efforts to complete the process. A NPDES Permit Modification for the City of Stamford was issued by the CTDEEP on August 14, 2017.

On February 6, 2018, the City submitted a permit renewal application for the newly modified NPDES Permit, which was set to expire on June 3, 2018. The City received minimal comments from the CTDEEP's review of the application and has since submitted all of the requested information. The new permit is pending renewal from CTDEEP.

Notice of Sufficiency from the CTDEEP was received on July 9, 2019. The letter indicates the application is in technical review and permit # CT 0030279, which expired on June 3, 2018 will continue to be effective until the commissioner disposes of the renewal application.

1.2 Annual Report Development Team

Table 1.1 SWMP DEVELOPMENT TEAM		
Name	Organization & Title	Address & Phone
Thomas Turk	City of Stamford, Road Maintenance Division Manager	90 Magee Ave, Stamford, CT 06902 (203) 977-5919
Tyler Theder	City of Stamford, Stormwater Management Department Regulatory Compliance and Administrative Officer	90 Magee Ave, Stamford, CT 06902 (203) 977-5281
Matthew Quinones	City of Stamford, Office of Operations Director of Operations	888 Washington Blvd, Stamford, CT 06901 (203) 977-4141
Ralph Blessing	City of Stamford, Land Use Bureau Land Use Bureau Chief	888 Washington Blvd, Stamford, CT 06901 (203) 977-4714
James Lunney	City of Stamford, Land Use Bureau-Zoning Office 888 Zoning Enforcement Officer	888 Washington Blvd, Stamford, CT 06901 (203) 977-5944
Louis Casolo	City of Stamford, Engineering City Engineer	888 Washington Blvd, Stamford, CT 06901 (203) 977-5796
Robert Clausi	City of Stamford, Environmental Protection Board Executive Director	888 Washington Blvd 5th floor, Stamford, CT 06901 (203) 977-1541
Cindy Barber	City of Stamford, Land Use Bureau-Information Technology	888 Washington Blvd, Stamford, CT 06901 (203) 977-5360
Raju Vasamsetti	Weston & Sampson Project Manager	712 Brook Street, Suite 103, Rocky Hill, CT 06067 (860) 513-1473

2.0 PROGRAM EVALUATION

2.1 Stormwater Management Plan (SMP) Objectives

The City of Stamford (the City) was issued a NPDES Permit for discharge of stormwater from its municipal separate storm sewer system (MS4) on June 4, 2013. This permit was renewed in February 2018. The new modified permit renewal is pending approval from CTDEEP. The City developed and is implementing a Stormwater Management Plan (SMP) based on the requirements of the NPDES Permit.

The SMP provides the framework for compliance with the terms and conditions of the NPDES Permit with the overall objective of improving the quality of stormwater runoff and protecting the surface waters of the State. The SMP seeks to achieve this objective through:

- Establishment of a Pollution Prevention Team
- Development of Stormwater Mapping
- Establishment and Implementation of Control Measures, including:
    - Public Education and Involvement
    - Source Controls for Pollution Prevention
    - Future Land Disturbance and Development Management
    - Infrastructure Operations and Maintenance
- Establishment and Implementation of an Illicit Discharge Detection and Elimination (IDDE) Program
- Establishment and Implementation of a Water Quality Monitoring Program
- Establishment and Implementation of Legal Authority to Control Discharges
- Establishment and Implementation of Procedures to Coordinate Stormwater Activities between various Departments and Agencies
- Maintaining Consistency with Other Plans and Permits

Additional details on each of these of these methods to achieve the objectives of the SMP are presented in the Summary Table of SMP Components (*Section 3.0*) and the Narrative Report (*Section 4.0*).

2.2 Major Findings

The objective of the SMP is to improve stormwater runoff quality and protect the surface waters of the State. This discussion of major findings should provide an overall evaluation as to whether stormwater and surface water quality in the City and from the City's MS4 is improving or degrading in the City.

The major findings during this Reporting Period of the modified NPDES Permit are the steps that the City has taken to implement the permit requirements, including but not limited to:

- Continued development of an understanding of the permit requirements and the resources necessary to achieve compliance.

- Continued allocation of additional resources (personnel, equipment, and budget) to/within the Road Maintenance Division to specifically address stormwater management and stormwater runoff quality improvement issues.
- Continued coordination of the Stormwater Pollution Prevention Team with City Departments for stormwater-related issues
- Implementation of the SMP and associated public outreach activities.
- Continuation of city-wide geographic information system (GIS) mapping related to stormwater infrastructure and management.
- Continued development of legal authority and zoning regulations to address stormwater discharges and quality.
- Continued coordination of public outreach with local environmental and business groups
- Continued coordination with consultants to assist in the implementation of the SMP and to perform surface water, stormwater, and outfall monitoring.

2.3 SMP Strengths and Weaknesses

2.3.1 EPA Review of the Status of the NPDES Permit

Representatives from the US Environmental Protection Agency (EPA) and the CTDEEP visited with members of the City's Stormwater Pollution Prevention Team on June 15 and 16, 2015 to conduct a compliance audit of the City's NPDES Permit. The compliance audit included a "five-year look-back" period. After the compliance audit, the EPA indicated that several areas of the permit needed improvement, which are outlined in *Section 2.3.1* of the 2014 & 2015 Annual Report.

The EPA issued an Administrative Order and Request for Information, regarding the compliance audit, to the City of Stamford on October 1, 2015. The City of Stamford has been working with the EPA of this Reporting Period to address items identified during the compliance audit.

Per the request of the CTDEEP, on September 17, 2018, the City of Stamford provided the CTDEEP with a 52-page document discussing the current status of the findings of the EPA's Violation and Order for Compliance – Docket No. CWA-01-AO-15-012, September 30, 2015.

2.4 Future Direction of the SMP

The SMP will continue to be evaluated in greater detail as part of the 2021-22 Reporting Period. A component of that evaluation will be a review of goals, schedules, and procedures referenced in the SMP as "to be established" and a detailed analysis of the status of these items.

The City considers the SMP to be a dynamic document and will continue to work towards updating and revising it as conditions and regulations change in an effort to maximize its ability to be utilized as a tool to manage and improve stormwater runoff quality.

The City will continue to focus more of its resources in the coming years to achieving compliance with the SMP, particularly in the areas of:

- Public education and involvement
- Stormwater mapping
- Illicit discharge detection and elimination
- Control measures
- Infrastructure operations and maintenance
- Legal authority and regulatory changes
- Water quality monitoring

Specific goals or requirements are discussed in the Narrative Report, *Section 4.0*, of this Annual Report.

The Team Coordinator and Regulatory Compliance and Administrative Officer will continue to be responsible for closely tracking individual activities and events in each of these areas.

2.5 NPDES Permit Modification SMP Updates

On August 14, 2017, a permit modification was issued for the City's NPDES Permit. During the 2017- 18 Reporting Period, the City reviewed the permit modification for any new requirements. During the 2019-20 Reporting Period, the City received a draft revised SMP from Fuss & O'Neill and will be reviewing and finalizing the SMP. The SMP is complete, as of August 2020, and has been uploaded to the city website as of January 2, 2024.

3.0 SUMMARY TABLE OF SMP COMPONENTS

A summary table of SMP components was not completed for this reporting period. *Appendix B* is intentionally left blank.

4.0 NARRATIVE REPORT

4.1 Pollution Prevention Team

The Pollution Prevention Team (Team), *Section 1.0*, was established to implement the SMP, to keep it up to date as conditions and/or regulations change, to maintain the control measures to improve stormwater quality, and to take corrective actions, as necessary. With the issuance of the new NPDES Permit in 2013, the City decided to transfer the majority of the responsibility for compliance with the permit from the SWPCA to the Traffic and Road Maintenance Division. Responsibility for Traffic functions within this department has since been shifted to the newly created Traffic, Transportation, and Parking Department (TT+P), as of approximately 2017.

Much of the first year of the new permit was utilized by the Road Maintenance Division becoming familiar with the permit requirements and establishing the necessary schedules, procedures, personnel, equipment, financing, and other resources necessary to successfully implement the permit requirements and the SMP.

The Team that has been established under the current SMP (see Appendix B of the SMP and *Section 1* of this report) consists of personnel from many City departments whose operations may affect the current and future stormwater quality. Team members supply the City with a wide range of experience and expertise in managing and controlling stormwater runoff quality.

Since 2013, the Team has continued improving their understanding of the new NPDES Permit requirements, communicating these requirements amongst themselves, establishing areas of responsibility and cooperation, brainstorming on public education and control measure ideas, and working with the appropriate legal counsel to establish legal authority and new regulations.

The Team's activities are coordinated by the Road Maintenance Division Manager. Many of the day-to-day stormwater permit compliance activities are managed by the Regulatory Compliance and Administrative Officer; this position was created in early 2014 specifically as a result of the issuance of the current NPDES Permit.

As of 2014, the City created and filled five positions under the direction of the Regulatory Compliance and Administrative Officer; the positions currently include seven (7) Heavy Equipment Operators (HEO's) to operate equipment related to the required stormwater control measures contained in the Permit.

In the fall of 2021, the five (5) HEOs from road maintenance and the one HEO position from stormwater were reinstated. Additionally, the stormwater management department requested three (3) new HEO positions to assist with MS4 compliance work. Two (2) of these positions were approved and fully funded. As of 8/5/2021, the total number of HEOs in stormwater management was seven (7). Additional information regarding this is available on the city's OPM budget page.

It is anticipated that the Team will continue these activities during the next year of the discharge permit as well as develop and coordinate additional specific goals with the objective of improving the overall quality of stormwater runoff in the City of Stamford.

4.2 Mapping

The City maintains a strong GIS department that can coordinate city-specific, as well as environmental data, available from the DEEP and other sources. Information that has been mapped includes city roadways, city properties, aerial photography, topography, zoning map, surface water bodies, watershed areas, surface water quality classifications, impaired waters, mapped inland wetlands, mapped tidal wetlands, and the coastal boundary.

The City continues to update and reuse mapping for sanitary sewer lines, stormwater lines, and stormwater outfalls. Mapping efforts have focused on the more developed sections of the City, closest to Long Island Sound, with the most stormwater outfalls mapped south of Interstate 95 and many more mapped between I-95 and the Merritt Parkway (Connecticut Route 15). Initially, 154 stormwater outfalls were mapped. Several of the initially mapped outfall locations were determined to be inaccurate and 90 MS4 outfalls have been confirmed/identified/mapped. Two of the previous 92 MS4 outfalls were eliminated from the list, outfalls number SON-0021 and SON-0060. These outfalls were removed from the monitoring list because one was identified as the SWPCA's Facility discharge location and the other was a structure inlet.

The City continued to identify and map new MS4 outfalls in the City throughout the Reporting Period. As of June 30, 2022, the City has mapped 972 outfalls. Efforts were completed to canvas the entire City for identifying outfalls and approximately 95% of the City has been mapped. The City understands that there is continual maintenance being conducted on the stormwater system throughout the city and that the outfall mapping will require constant updating. Current updated outfall mapping is provided in Appendix C.

The City is currently in the process of confirming the accuracy of the outfall locations and whether they are part of the City's MS4 stormwater system or another entity's responsibility. Several of the potential new outfalls have been identified as duplicates and others have been noted as inlets or discharges under state DOT control. The City continues communication with the DEEP to identify more specific criteria for the outfalls that will be required for monitoring as part of the IDDE program and the wet weather monitoring. See *Section 4.5* and *Section 4.4.2* for additional details on the IDDE program and the wet weather monitoring program. A new Interconnected MS4 plan was prepared in June 2016 and is further discussed in *Section 4.3.5.10*.

This component of the SMP is to be expanded to include the following GIS mapping:

- Storm line material and size data
- Responsibility, if part of another MS4 stormwater system (such as DOT's)
- Completed and proposed cleaning and repair activities
- Outfall discharge monitoring data

- IDDE screening and investigation results
- Proposed IDDE investigations
- Completed and proposed capital projects.
- Connections to any other public or private storm drainage systems
- Drainage areas for each MS4 outfall
- Areas served by on-site subsurface disposal areas.
- Storm drains that do or may receive discharges form underdrain systems.

For an update on the impervious cover and directly impervious cover area (DCIA) see *Section 4.3.4.1*.

4.3 Control Measures

4.3.1 Public Education and Involvement

City residents can contribute to the pollution transported via stormwater by misapplying lawn pesticides, herbicides and fertilizers, littering, dumping pollutants into storm drains, failing to dispose of pet waste properly, and other actions, which can be detrimental to the quality of stormwater discharging into water bodies. Many people are unaware that they are polluting when engaged in these activities. Therefore, public education and outreach and public involvement and participation will help minimize the amount of pollution contributed to the City's water bodies by local residents. Also, public education and outreach coupled with public involvement and participation allows city residents to have a voice with regard to stormwater.

During this Reporting Period, the following public education and involvement activities have been completed:

- The City has continued to maintain and update the stormwater section that was previously added to the City of Stamford's website at http://www.stamfordct.gov/stormwater-management. The website provides basic information about stormwater as well as key contacts within the City of Stamford. Additionally, it provides links to:
    - The NPDES Permit
    - The SMP
    - The MS4 Stormwater Ordinance
    - The Annual Reports
    - The household hazardous waste collection events schedule and information on the materials managed.
    - Best management plans for pesticides
    - Information on preventing stormwater pollution in English and Spanish
    - How to report a stormwater issue, violation, or complaint

The City maintains a Frequently Asked Questions section that includes 25 questions and answers that city residents may view.

- The Regulatory Compliance and Administrative Officer for the City of Stamford, in an effort to aid in the public participation of stormwater management added a link to Stormwater Management Website for the RiverSmart CT project at: https://www.stamfordct.gov/stormwater-management.

  In 2014, the department adjusted internal operations to receive and respond to citizen questions and complaints regarding stormwater related issues. The City's stormwater management department responded to hundreds of citizen inquiries regarding snow storage, sweeping, catch basin cleaning, and IDDE program during the Reporting Period.

- Due to the ongoing nature of the COVID pandemic, there was no annual public meeting for the 2021-22 Reporting Period. However, hundreds and hundreds of phone calls and service requests were received by the Stormwater Management Division.

- On 5/24/22 stormwater management department delivered 825 of the pet waste flyers to the Town Clerks office, to be passed out when people obtain their dog license. Flyers make reference to ordinance 111-7, which requires pet owners to pick up after their pet, either on public property or private property.

- The City maintains 65 dog waste dispensers and signs informing park patrons of the need to pick up after their dogs. Five (5) new dispensers were added during the 2021-2022 reporting period by the Parks Department in the most used parks. These signs refer to the existing municipal dog waste ordinance in the City Charter (Section 111) and the City is installing new signs in hot spot locations, based on field observations. The City's Parks Department has taken over ordering responsibilities for pet waste bags with the exception of Mill River Park. The budget for pet waste bags was increased to $23,181 during the Reporting Period as these stations have been popular with park visitors. City staff have observed the used bags disposed of in the trash containers throughout the areas with dispensers. Nearly 500,000 bags were used during the 2021-2022 reporting period.

- The Mill River Collaborative performs annual clean ups, improvements, and provides educational programming within the City. Approximately 1179 volunteer hours were provided from over 378 individual volunteers/ 25 volunteer groups during this Reporting Period. These hours included everything from stuffing envelopes, to removing invasive plant species from the meadows, to creating erosion barriers in the river. A specific list of volunteer activities includes:
  - reinforcing riverbanks using organic biologs
  - invasive species removal by hand (mugwort, Queen Anne's lace, loosestrife, wild lettuce, white clover, ailanthus, burdock, bindweed)
  - planting nearly 1,000 native perennials
  - cleaning up litter in and near the river
  - building rock veins to funnel water away from banks to reduce undercutting.
  - mulching
  - harvesting native seeds
  - removing silt around drainage areas
  - cutting overgrown shrubs and trees

  - weeding paths, lawns, flower beds, gardens
  - spreading organic fertilizers (sparingly)

- SoundWaters is the leading environmental education organization on Long Island Sound. Over 25,000 students learn and explore with SoundWaters, through education and action, every year. The City and SoundWaters are in the process of coordinating a vacuum truck demonstration for kids to strengthen the relationship with the community. During the reporting period, SoundWaters began construction of a 17.5-million-dollar new education center at Boccuzzi Park. The building opens 11/22/23.

- The Mianus Chapter of Trout Unlimited continued work to educate, rebuild, restore and protect the area of the Mianus River.

- The Nature Conservancy (TNC), a non-profit organization which promotes environmental conservation, gifted the City's first bioswale which was approved by the Board of Representatives on May 22, 2019. The bioswale removes contaminants from stormwater surface runoff and complies with the MS4 permit. Installation was completed in Rippowam Park on September 16, 2019. This bioswale was honored with a Changemakers Resiliency Award by the Business Council of Fairfield County in partnership with the Stamford 2030 District. The City has received a proposal for construct additional bioswales throughout the City. Based on the success of the Rippowam Place bioswale installation, the City looks to work in the future with the Downtown Special Services District (DSSD) and other City agencies to plan, install, and maintain additional bio-swale structures.

- Currently, the City estimates it has installed medallions on approximately 60-65% of the City-maintained catch basins during the 2019-2020 reporting period. The City was unable to significantly add to the medallion program in 2021-2022 due to staffing shortages related to COVID. These medallions were installed both English and Spanish to help raise public awareness for stormwater quality issues. These medallions are being installed by City staff members or by seasonal employees and are primarily installed on curb-backed catch basins. The City has recognized that the medallions are a useful and effective tool and has been great for assisting in educating the public and hopes to resume this work for the 2023-2024 period.

- The City has collaborated with a marketing and public relations firm to develop stormwater management outreach materials in English and Spanish. These are available online and at the government center.

- The City celebrated Earth Day on 4/24/2022 by hosting the Arbor Earth Day Festival at the Bartlett Arboretum. This event including a tree planting, live music and local venders. The City's food waste task force was able to participate at the event.

  The City's Recycling and Sanitation Department conducted a Household Hazardous Waste Collection event where 473 households and 427 half-household participated on July 17, 2021.

- On April 30, 2022, the Stamford Police Department hosted a National Rx Drug Take-Back event. As part of the event, the police department provided services for residents to drop off their unused or expired medications. The event was publicized through informative links for the event posted on the City's website, under Public Safety, Health and Welfare Administration. A detailed description of the environmental benefits was provided. The event was staffed from 10am to 2pm at a drive through setup at police headquarters. Clearly some portion of this material could have been flushed by residents, and ultimately make its way to the WPCA treatment plant, which does not have the ability to remove certain chemicals from treated waste, prior to discharging to Long Island Sound.

- City staff continued to engage with Downtown Special Services District (DSSD) regarding the condition of their dumpster storage and grease area. The area was professionally cleaned with the reclamation of any wash water used in the process. An emergency spill kit was purchased and provided to DSSD by the City on 4/21/2023.

4.3.2 Industrial Dischargers

During the 2015 NDPES Permit compliance audit, the EPA indicated that the City is required to educate owners and operators of commercial, industrial, and institutional facilities as to their responsibility to control pollutants in stormwater discharges from their properties into the City's MS4.

The City's Stormwater Management Department has obtained a CTDEEP list of stormwater discharge General Permit sites for commercial or industrial activity and has prepare informational outreach materials to target these businesses. During the reporting period, the City as well as CTDEEP worked directly with permitters on housekeeping and stormwater BMP measures.

4.3.3 Source Controls and Pollution Prevention

4.3.3.1 Motor Oil Collection

The City collects used motor oil and cooking oil at the Katrina Mygatt Recycling Center so that residents will have a place to properly dispose of these materials and to limit the potential for them to be improperly disposed and adversely affect stormwater quality. As of August 3, 2021, the Recycling Center hours of operation were increased to five (5) days per week. During the Reporting Period, approximately 4,320-gallons of used motor oil and 2,611-gallons of used cooking oil were collected. The City intends to continue its used motor oil collection activities.

4.3.3.2 Household Hazardous Waste (HHW) and Electronic Waste Collection Programs

The City holds at least one HHW collection day within the City limits each year so that residents will have a place to properly dispose of these materials and to limit the potential for them to be improperly disposed of and potentially affecting stormwater quality. The City hosted an HHW collection day on July 17, 2021, at the Rippowan Middle School on High Ridge Road. During this Reporting Period 473 households and 427 half-households participated. In addition, Stamford residents can utilize HHW collection days in Darien, Greenwich, New Canaan, Norwalk, Westport, Weston, or Wilton approximately seven other days per year (throughout the spring and fall). The City intends to continue its involvement in these collection events.

The City collects used consumer electronics at the Katrina Mygatt Recycling Center during normal operating hours. Acceptable materials include computers, monitors, televisions, VCRs, DVDs, cell phones, copiers, fax machines, printers, radios, stereos, and small electronics. In addition, inks and toners, rechargeable batteries, lithium-ion batteries, vehicle batteries, compact fluorescent light bulbs, and linear lamps are also accepted at the Recycling Center. During the Reporting Period, approximately 6.70 tons of universal wastes and 120.5 tons of consumer electronics were collected. The City intends to continue its waste electronics collection activities.

4.3.3.3 Spills and Leak

In June 2016, a city-wide Spill Prevention and Response Plan (SPRP) was completed to prevent, contain, and clean up spills of oils, petroleum products, and other potentially hazardous materials to minimize stormwater impacts and protect surface waters.

During the reporting period, SMD responded to numerous spills on the City's roadways and coordinated with first responders (Police, Fire, DEEP) to limit impacts to the City's MS4. A list of recent spills during the Reporting Period is presented in ***Appendix D***. In September 2023, Stamford's fire chief after eight years of service requests for the fire department spill list have been sent to the interim chief, but no information from SFD is available at the time of report preparation.

For additional information on training for spill prevention and response see ***Section 4.3.5.1***.

4.3.3.4 Pesticide, Herbicide and Fertilizer Use Limitations

The City is required to limit the use of pesticides, herbicides, and fertilizers (PHF) in City-owned or operated areas. The City has developed the Best Management Practices (BMPs), found in Appendix G of the SMP, for PHF application in city-owned or operated areas. Further development of standard operating procedures (SOPs) for the use of PHFs is ongoing. It is anticipated that they will be modeled based on the CTDEEP Integrated Pest Management (IPM) Plans. Completion of the PHF SOPs is anticipated during the 2023–24 Reporting Period.

Fertilizers and herbicides are used on the municipal athletic fields, as described in the SMP. Every year, in April, Dimension (18-0-40) is applied to the fields and contains both fertilizer and herbicides. In May, ProPendi (13-0-4) is applied to the fields and contains both herbicides and fertilizer. In September, just fertilizer (25-0-5) is applied to the fields. The City applied a total of 1,530 pounds of nitrogen to the ball parks during the 2021-2022Reporting Period. See *Appendix E* for a table of the total nitrogen used at the City-owned ball parks.

As required by the NPDES Permit, the City is in the process of establishing reduction goals, including consideration of alternatives, for PHFs being used at City-owned or operated areas, specifically at the municipal athletic fields.

No PHFs are used on city park green spaces.

The Mill River Park/Mill River Collaborative completely avoids the use of synthetic fertilizers. They employ a "feed the soil ecology" program where the soil is infused with sixteen or more species of bacteria and fed with a fish emulsion/kelp/yucca blend as a substitute for traditional fertilizers. Additionally, the Mill River Collaborative maintains its lawns at four inches to build deeper, more drought tolerant root systems. All grass clippings are returned to the lawns, and they use organic products, such as soybean meal, to add nitrogen to the soil. The Mill River Collaborative uses minimal herbicides on invasive plant species per DEEP guidelines. They have found that as they continue this program, they require less herbicide use each year.

With respect to the City-owned golf courses, the NPDES Permit requires that the City implement practices which achieve a ten percent (10%) reduction in total nitrogen by June 3, 2018. The reduction will be determined by the average annual usage, by weight, of the three years preceding the current NPDES Permit. The current SMP discusses these reductions, see *Appendix E* for nitrogen used at golf courses for the 2021-22 periods.

During the Reporting Period, the Sterling Farms Golf Course used a total of 200 pounds of nitrogen and the E. Gaynor Brennan Municipal Golf Course used a total of 1,703 pounds of nitrogen. The total 1,903 pounds of nitrogen used in the Reporting Period represents a 21.1 percent reduction from the total nitrogen that was used in 2020-21 (2,159 pounds). See *Appendix E* for a table of the total nitrogen used at the City-owned golf courses.

The Pollution Prevention Team will work with the golf course staff to help reduce the total amount of nitrogen used at these facilities. It is the City's intention to establish goals for reducing the amount of PHFs used at all city-owned or operated areas.

4.3.3.5 Salt Storage and Usage

The City stores road salt at the Highway Department (90 Magee Avenue), the Town Yard (106 Haig Avenue), and the Scofieldtown Transfer Station (612 Scofieldtown Road). At each facility, salt is stored

on an impervious pad and under a salt shed in accordance with the requirements of the DEEP's General Permit for the Discharge of Stormwater Associated with Industrial Activities.

The City used approximately 11,975 tons of salt during 19 storms for a combined total of 27.65 inches of snow during the winter of 2021-22. Salt usage quantities will continue to be tracked and the City's goal is to reduce the amount of salt utilized on its roadways by increasing efficiencies and investigating alternate methods. However, salt usage will continue to vary based on storm frequency and intensity. The winter of 2021-2022 brought significant icing events, which the City continued to address with a Special Hazard Area program for ice control. These areas were especially vulnerable to roadway icing conditions due to a variety of factors including high groundwater table, improper road design, inadequate roadway drainage, residential sump pumps draining to the street, blocked catch basins, and other factors. Salt trucks were deployed to these Special Hazard Areas when nighttime temperatures fell below freezing levels in an effort to maintain safe roadway conditions at all times. In an effort to reduce salt usage, the stormwater management department has worked to correct the factors and field conditions which contribute to water and ice on city roadways. Much progress has been made eliminating conditions where water flows onto the roadway.

Throughout the reporting year, the SMD worked with the Vehicle Maintenance Department to develop a pilot program to demo new zero-velocity salt spreaders for selected trucks; however, the V.M. Department was unable to procure the equipment due to supply shortages. The City intends to move forward with this as the equipment becomes available. Additional information to be provided in future reporting years.

The City's brine system was operational during the 2021-2022 reporting period with the 5,000-gallon brine tank located at the Town Yard Facility (105 Haig Ave.). See *Section 4.3.5.6*, Snow Removal, for additional discussion on salt usage.

4.3.4 Land Disturbance and Development

Construction site runoff and post-construction site runoff should be reduced so that water bodies are not receiving additional pollutants or sediment. Sediment causes water bodies to become physically and biologically altered. Decreases in habitat quality can result from significant amounts of sediment covering these habitat areas.

Under the terms of the NPDES Permit, the City of Stamford is required to implement and enforce a program to address construction and post-construction stormwater discharges from land disturbing activities and after site stabilization has been achieved. This program needs to be based on the Connecticut Guidelines for Soil Erosion and Sediment Control (latest edition) and the Connecticut Stormwater Quality Manual (as amended).

The City has a well-developed process for ensuring that applicants for building permits have received all appropriate City approvals prior to issuance of a building permit. As part of this review and approval process, the Engineering Department reviews stormwater and drainage for proposed developments

and site plan revisions. The Drainage Manual was implemented on 6/10/2020, and examples, standards and worksheets are available on the Engineering Department's website.

The NPDES Permit requires the City of Stamford to develop and enforce a program to control stormwater discharges from development and redevelopment activities with one-half acre (21,780 sf) or more of soil disturbance. The one-half acre threshold applies both individually and collectively as part of a larger common plan. Modifications to the Zoning Regulations include provisions to encourage low impact development (LID) practices to maximize infiltration and minimize stormwater runoff. The regulations also limit barriers to LID design and construction.

The Engineering Bureau is also tracking the DCIA on development projects to ensure that treatment/retention volume standards are met. DCIA trading worksheets and plan graphics are available upon request. Refer to the summary table in *Appendix L.*

The NPDES Permit requires the City to conduct site-plan review and pre-construction review meetings that incorporate consideration of stormwater controls or management practices to prevent or minimize impacts to water quality. The City currently conducts such meetings internally as part of staff review of many projects. Meetings with developers occur when the project has significant potential for environmental impact.

As part of the application review process, the City is now providing applicants with information on the DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. Applicants are being informed about stormwater management issues at the time Environmental Planning Board (EPB) and Planning & Zoning signoffs are being obtained. Applicants have been made aware of their responsibility to obtain DEEP Construction Stormwater General Permits. This notification of responsibility has been met with some resistance from the builder / developer community. Therefore, the City continues to explore alternative ways for providing information to the builder / developer community.

The City's building permit process is facilitated electronically through a software package called "View Permit". The plan is to attach standard text to all applications notifying the applicants of their responsibility, if applicable, to obtain DEEP permits.

The NPDES Permit also requires site inspection and enforcement to assess the adequacy of the installation, maintenance, operation, and repair of construction and post-construction control measures. The City's staff performs site visits when the project is near a wetland or other water body. Current staffing levels limit the opportunities for site inspections to only those projects with the greatest potential for impact to stormwater quality. Site visits frequently occur prior to the issuance of a Certificate of Occupancy. The SMD (Stormwater Management Department) makes referrals as necessary to EPB where ESC's and construction site stabilization issues are observed.

4.3.4.1 Impervious Cover

The NPDES Permit calls for completion of DCIA (directly connected impervious area) mapping associated with each MS4 outfall within four years. The City continued the process of estimating the DCIA throughout the City. Sub-meter aerial photogrammetry of the City is being used in determining the DCIA. The initial estimate will be based on the total area of impervious cover, including roadways, driveways, sidewalks, parking lots, and building footprints, that discharge to the MS4. Allocating the amount of the DCIA to each MS4 outfall and evaluating each drainage area to determine if the roof tops are connected to the DCIA will be performed in the next couple of years. Estimates will be revised in the future as development, re-development, or retrofit projects or new information effectively add or remove DCIA to or from the MS4.

In April 2022, the City of Stamford Stormwater Management Department coordinated the submission of a federal congressional earmark request for $1,000,000 to locate, design, and construct bioswales in the downtown area of the city. The request was successful, and the funding award was announced in February 2023. Additional details regarding the program will be detailed in future annual reports, as the City works toward meeting DCIA reduction goals.

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4.3.5 Infrastructure Operations and Maintenance

Pollution prevention and good housekeeping are critical minimum control measures because they concentrate on municipal operations including the maintenance of other control measures. These activities can make an immediate difference with local water body pollutant levels. Street sweeping and other maintenance activities reduce the amount of sediment, salt and pollutants entering the drainage system thereby minimizing pollutant loads to local water bodies.

4.3.5.1 Employee Training

Employee training is essential for maintaining and increasing the awareness of water quality related issues in the management of any MS4. Training also enables facility staff to have an improved understanding of the stormwater system and how to minimize the impact the facility has on the MS4.

All employees working at City-owned facilities participate in annual training to meet the requirements of the DEEP's General Permit for the Discharge of Stormwater Associated with Industrial Activity. This annual training includes:

- Overview of the NPDES MS4 Permit
- Review of the goals and objectives of the SMP
- Review of facility Stormwater Pollution Prevention Plan
- Review of good housekeeping
- Identifying and reporting illicit discharges
- Review of spill prevention and response procedures

Training was conducted on June 16, 2022 for Universal Waste Management, Spill Prevention Control and Countermeasures Plan, and Stormwater Pollution Prevention Plan training. Seventeen (17) employees were in attendance from City-owned facilities at this training event.

The City is dedicated to ensuring that its employees continue to gain the necessary knowledge needed for understanding and implementing the SMP to increase the quality of the stormwater in the City's MS4. The City will continue to update and implement its training programs for all employees working at City-owned facilities. A copy of the sign-in sheets for each of the training events are provided in *Appendix G*.

4.3.5.2 Infrastructure Repair and Rehabilitation

It is important that the City make timely repairs to the infrastructure of its MS4 to help reduce the discharge of pollutants from the MS4 to the receiving waters. The City is dedicated to giving priority to those projects discharging pollutants to impaired waters or that have other concerns related to the mapping and IDDE process. A schedule for implementation of repairs is developed and updated once the need for the repairs is established.

The SWCPA performs routine maintenance and any necessary repairs on the four (4) stormwater pump stations on an annual basis. Funding for WPCA Maintenance is allocated to the Stormwater Management Operating Budget and back charged by the WPCA, annually.

During the Reporting Period, the City received a total of approximately 46.03-inches of liquid equivalent water (LEW). LEW is a measure of liquid precipitation, which has fallen to the ground in any precipitation type (rain, sleet, hail, snow, etc.). This data was retrieved from the National Climate Data Center (NCDC) for the Westchester County Airport weather station in New York located immediately west of the City. The precipitation amount received is 3.32-inches less than the 1981-2010 climatological average of 49.35-inches for the Westchester Airport. This information is important due to the impact heavy rainfall has on MS4 Permit compliance regarding maintaining City stormwater infrastructure and responding to emergencies that arise after heavy precipitation events.

As of January 1, 2016, the Road Maintenance Department/Stormwater Management Department are responsible for tracking the catch basins and stormwater manholes that require repairs. Previous lists of required repairs were maintained by the Engineering Department. Drainage structures that require repair will be prioritized and assigned for repair by private contractors, accordingly.

The City hired Grasso Companies to conduct infrastructure maintenance and repairs on the MS4 system during this Reporting Period. This work was part of the city-wide street patch and resurfacing Capital Work. In total, 47 catch basin frames were replaced, 59 bell traps were installed, 60 manhole covers and frames were reset, 501 catch basins rebuilt, and 26 manholes rebuilt/reconstructed.

The City hired Arnow Construction to conduct drainage work on the MS4 system during this Reporting Period. In total, 8 pipes were repaired, 169 repairs completed from this list, 136 catch basins were

repaired, and 18 manholes were repaired. See *Section 4.3.5.7* for additional details on catch basin cleaning. A list of 2021-22 catch basin/manhole repairs is presented in *Appendix H*.

The City also understands that the refinement of the standard operating procedures and good housekeeping practices for the management of the MS4 is essential to improving stormwater quality.

In 2014, the City purchased a camera truck, which is used for implementing the IDDE program and for inspecting catch basins, manholes and stormwater piping. The truck was deployed in 2015 after employees completed the necessary one-week training on the truck and equipment. Employees were re-certified in 2018. The City is working on arranging new training session for all SMD employees at this time. Initially, the camera truck is being used to inspect areas identified as needing maintenance within the MS4 and has proved to be a valuable asset for mapping/GIS work required by the permit.

During the 2021-2022 reporting period, the City hired a private contractor, OneVac, LLC, to clean catch basins, high pressure jet storm piping, and conduct CCTV inspections on all stormwater infrastructure for roads to be paved during the upcoming paving season. It is the City's intent to ensure that stormwater infrastructure is in good condition, and repaired, if necessary, to protect the investment in paving. The total linear footage of piping videoed during the reporting period is estimated to be many thousands of feet, and the City maintains paper and electronic records of all piping inspected and televised, which can be made available upon request. A review of invoices for work performed by the contractor during the 2021-2022 period reveals an expenditure of $27,865 from the Operating Budget to assist the SMD. $179,900 for CCTV and clearing work related to the paving program was also reporting, totaling $207,800 for this work. The contractor also generates sketches of piping configurations, which are maintained with these records. The Stormwater Management Department communicates data generated from this important fieldwork to the GIS department in an effort to maintain the GIS data base with the latest and most current information. The contract for OneVac has been extended and will also cover the same types of work for the 2022-2023 reporting period.

The City has prioritized the areas that it inspects with the camera truck based on flooding issues, complaints about collapsing areas and complaints about illicit discharges. See *Section 4.5* for further discussion on the progress of identifying illegal connections in the IDDE program.

Catch basin inspections also include inspecting the condition of catch basin “bells.” Some City catch basins have bells (metal 90-degree bends covering catch basin outlets) to control floatables. Bells are hung on pins set in the side of catch basins. The City continues to install bells on additional catch basins in parts of its MS4 where trash and floatables are a problem. During the reporting period, City staff installed bell traps in seven (7) catch basins.

The city currently maintains a fleet of three (3) vacuum trucks, and during the reporting year, submitted a request to purchase a fourth (4) vacuum truck using American Rescue Plan (ARP) funding.

The Road Maintenance Division has acquired funding in an Environmental Compliance Capital account to make improvements to MS4 piping when property owners cannot, or will not, make repairs in the timeframe provided in the permit.

4.3.5.2a FEMA Disaster Declaration

The City of Stamford received wide-spread flooding and damage after Hurricane Ida made landfall on 9/1/2021. The amount of stormwater produced from this incident lead the Federal Emergency Management Agency (FEMA) to declare a state of emergency for the City. The agency sent out its Disaster Survivor Assistance (DSA) team for door-to-door outreach in the area.

The DSA visited over 1,100 homes and recorded the flooding impacts residents faced from the storm. This storm produced 8.5 inches of rain in the city of Stamford, causing damage to other MS4 infrastructure and roadways, which were repaired by other departments (i.e., culvert and MH damage at Cummings Park). This was coordinated and repaired by a private contractor as directed by Parks / Facilities Dept. Also, other MS4 infrastructure was assessed and repaired by the Engineering Bureau. Farms Road was under construction at time of the storm, and Engineering Bureau worked with the utility company to rebuild and restore the roadway.

A stormwater culvert at 1260 Hope St. was damaged and needs to be entirely rebuilt. Although the work is not yet complete, it is expected to be in excess of $1M to repair. This appears as a capital budget request by Engineering Bureau. The repair and restoration work coordinated by the SMD after the IDA event was significant and is detailed in *Appendix K*.

4.3.5.3 Roadway Maintenance

Roadway maintenance activities can directly affect water quality. An important task of roadway maintenance is keeping the highway drainage system functioning. The City is dedicated to ensuring that routine road maintenance is conducted frequently and that roadside ditches are cleaned and inspected periodically to verify that flow is not being restricted.

Beginning in 2016, the Road Maintenance Department is overseeing the City's paving program. The SMD reviews and directs repair and restoration efforts on these roads. See *Appendix M* for work during this reporting period.

4.3.5.4 Sweeping

Properly swept streets are a key element to limiting stormwater impacts as sediment and debris can transport other pollutants into the stormwater system and because copious quantities of these materials can inhibit the proper function of MS4 components. During the reporting period, the City of Stamford Road Maintenance sweeper crew collected, hauled, and disposed of 1,182 tons of street material that is 2,364,000 pounds of road debris (i.e., sand, gravel, dirt, leaves, trash, etc.)

The city is able to document total sweeper mileage for the period at 3,434 miles swept. However, the City believes this is an incomplete total as some of the mileage books kept in the machines were not returned and may have been in the sweepers when they were traded in. There are 315 centerline miles

of city owned and maintained roads. This data indicates that on average, each curb mile was swept over 5 times during the reporting period.

Sidewalk and curbside sweeping are performed weekly in the Downtown Special Services District (DSSD), along 9.5 miles of sidewalk and curbside during this Reporting Period. This work is coordinated and paid for by the DSSD.

The NPDES Permit requires the City to implement a street sweeping program to remove snow, sediment, and debris from all city-owned streets and parking lots. One goal is to compress the spring sweeping schedule between March 1st and June 30th to maximize the quantity of material collected at the end of the winter season.

The City has been implementing a "Post & Tow" policy where they will be posting sweeping dates and times and subsequently towing away any cars that are parked in the areas posted for sweeping events. This system helps the City to effectively sweep in the areas posted instead of having to sweep around parked cars, missing large areas of the road. The City understands the importance of sweeping completely to the curb line or edge of pavement.

The City used ARPA funding to purchase three (3) new Global sweepers, which were delivered and put into service in December 2022, during the City's leaf pick up program. The three new sweepers are unit #'s 251, 252, and 253. The City retained Elgin Pelican Sweeper #150, which was purchased with grant funding in 2015. Unit #'s 151, 152, and 153 were traded in as part of the new sweeper purchase. The city currently has a total of four (4) sweepers.

4.3.5.5 Leaf Collection

In 2021, the City's leaf pickup program was substantially completed on December 23, 2021. Every street in the City is swept clean as a part of this program. A total of 12,362 tons of leaves were collected that is 24,724,000 lbs. of leaves and is 4,573 tons less than the 2020 to 2021 period.

According to the NPDES Permit, the City shall conduct city-wide leaf pickup program annually to be completed by December 15th. The City has established a procedure that breaks the City of Stamford down into three areas (these are also described in the SMP):

- Area #1 - north of the Merritt Parkway
- Area #2 - between Merritt Parkway and I-95
- Area #3 - south of I-95

Leaf pick-up typically begins the first business day after Veterans Day in November. The exact completion date depends on weather conditions and competing demands (snow removal and road salting for staff and equipment). The first snowfall occurred on December 8th, which resulted in the City converting trucks from leaf duty to snow duty. It is important to note that the City finishes leaf pick-up even after snow fall. This process takes approximately four weeks of full-time work for all available road

maintenance crews. Approximately 20-30 additional seasonal workers are hired to assist with the leaf program.

The current leaf disposal policy is that the leaves will be piled at the curb prior to pick-up and off the streets. During the Reporting period, 500 doubled sided color flyers were printed and distributed to municipal buildings throughout the city. Over 20,000 postcard mailers were sent to single family homes, a half-page ad was placed in the Stamford Advocate and on the City's website, flyers were placed throughout the City to remind the citizens that leaves collected were not to be placed in the roadways. Information regarding the program was also posted to the City's website at www.stamfordct.gov/leaves. Communications Director provided updates regarding progress of the city crews as they moved through the City using the Stamford Government Center Facebook page. Additionally, door hangers were used as an enforcement mechanism for any violators of the City's ordinances. Yellow door hangers were used as NOVs for properties with leaves in the street far in advance of the program. Red door hangers were used as NOVs for properties with leaves placed in the street after the city completed leaf pick in that area.

Tropical Storm Elsa (7/1/2021) and Hurricane Ida (9/1/2021-9/2/2021) brought destruction to the City of Stamford. This resulted in staff from Highways/Stormwater Operating Heavy Equipment (loaders and heavy trucks) to collect and haul this storm and tree debris, city-wide. Other city services (catch basin cleaning, pothole patching, sweeping, etc.) were impacted due to staff being reassigned to storm cleanup.

The Elsa and Ida events in 2021 caused a significant amount of flooding. As a result of this, the administration contacted the SMD, who suggested the City conduct a city-wide drainage assessment. The SMD suggested funding over $500,000 to cover engineering services by a third-party engineering firm. The City Engineering Bureau will manage this work and near the end of the 2021-2022 reporting period, a request for proposals was issued.

4.3.5.6 Snow Removal

Timely snow removal and the appropriate application of de-icing materials is another key element to a successful SMP. The City follows the DEEP's *Best Management Practices (BMPs) for Disposal of Snow Accumulation from Roadways and Parking Lot*. A copy of this BMP is presented in *Appendix K* of the SMP. The purpose of the BMPs is to prevent accumulation of sand, other solids, and pollutants in the MS4 and in sensitive areas, such as streams and wetlands.

The NPDES Permit requires that the City implement and refine its SOPs, regarding its snow and ice control operations, to minimize the discharge of pollutants. Goals must be established for the optimization of chemical application rates through the use of automated equipment including zero velocity spreaders, anti-icing and pre-wetting techniques, implementation of pavement management systems and alternate chemicals.

The City is already well on its way to meeting these goals. The Highway Crew continues to perform anti-icing using liquid calcium chloride (brine) to pre-treat city streets with the highest traffic volume.

Once the storm begins, patrols are sent throughout the City to monitor road conditions. Hills and intersections are spot treated to minimize chemical usage. The City tracks chemical usage; however, given the variability in the amount of snow and ice that needs to be treated each year, it is difficult to set goals for chemical optimization. As noted in *Section 4.3.3.5*, the City intends to expand its use of brine trucks for pre-treatment in the future, which will help reduce the road salt usage.

The City continues to minimize its use of de-icing materials. This goal is being pursued in part to respond to shortages of de-icing materials in recent years. Salt is generally applied only twice for each storm – once at the beginning to prevent ice from binding and once at the end of prevent re-freezing. The regulatory compliance and administrative officer has been enforcing illegal discharges of private basement sump pumps into the right-of-way, rather than simply treating these areas with removal of additional de-icing materials.

During this Reporting Period, the City compiled a list of Special Hazard Areas which were more prone to icing conditions due to a variety of factors including: high groundwater table, improper roadway design, blocked catch basins, sump pumps from residential properties, and other factors. These areas were checked and treated by City staff whenever temperatures dropped below freezing levels. A recent review of the special hazard list revealed numerous roads were removed from the list as a direct result of the efforts of the SMD.

During this Reporting Period, the West Beach parking lot was prepared from November through April with haybales, catch basin filter fabric, etc. in the event that additional snow stockpiling was necessary. This space was not utilized during this Reporting Period.

4.3.5.7 Catch Basin Cleaning

Clogged or overloaded catch basins can lead to unwanted stormwater quality impacts. Catch basin sumps provide a first line of defense in improving stormwater quality. Maintenance and cleaning activities are important to the proper operation of each catch basin.

For the 2021-22 Reporting Period, 2,522 catch basins throughout the city were inspected and cleaned (approximately 25% of the City's. 3,132-tons of materials were removed from the basins during the Reporting Period. This equates to 6,264,000 pounds of waste that was captured and processed and did not enter the City's waterways, streams, rivers, or Long Island Sound. These numbers do not include drainage structures pumped and cleaned by the City's supplementary drainage contractor (One Vac., LLC), for roads to be paved. See 4.3.5.3 for information on paving efforts.

The City continues to maintain a catch basin inspection, cleaning, and repair program. This program helps to identify and map each MS4 catch basin and determine flow direction, inspect its condition, determine the amount of sediment in each, clean catch basins with less than 50% of their sump capacity available, gather information over time on sediment accumulation rates, and develop a routine maintenance and cleaning schedule as prescribed by the NPDES Permit.

To support this program, the City has obtained or purchased the following equipment:

- (3) Vactor vacuum trucks purchased between 2014 and 2015. Requisition submitted to purchasing for new vacuum truck from ARP funds during the reporting period.
- (1) Elgin Pelican sweeper purchase, also (3) new global M3 sweepers purchased with ARP funds and places in service December 2023.
- Rapid View CCTV truck w/ Pipe Logix software – purchased in 2015. CCTV truck has three cameras and a manhole/ stick camera.
- (2) one-ton dump trucks with Stetco hydraulic cranes – purchased in 2016
- Caterpillar mini-excavator – purchased in 2014 and used for culvert cleaning work.
- Caterpillar loader / backhoe – purchased around 2010 and used for culvert cleaning work.
- (~10) One-ton dump trucks used for typical highway department work.
- (~25) Large dump trucks – used as necessary for haul away of sediment per culvert cleaning work.
- Utility truck with a crane and lift gate to assist with catch basin replacement, manhole replacement, stormwater drain medallion installation, curb back bolts, water barrier installation, and spill response.

As of 8/10/2021, the SMD had seven (7) heavy equipment operators to support this program for stormwater management and compliance activities. See *Appendix N* for reference.

Additionally, the City continues to use a software tracking program and iPads to track catch basin inspections, cleaning, and repair progress. The MS4 Front software was brought on-line in October 2014 and has proven to be a valuable assessment tool.

4.3.5.8 Culvert Cleaning

During the Reporting Period, the City performed maintenance activities at 33 culverts over approximately 28 days. Various maintenance activities were conducted at the culverts including, but not limited to: stabilizing inlet and outlet areas, cleaning out culvert, removing debris and vegetation from around the culvert, CCTV inspections, excavating culvert discharge area, and wetlands. During the Reporting Period, over 119 cubic yards of sediment, brush, and debris was removed from the culverts and drainage channels. A list of 2021-22 culverts cleaned is attached in *Appendix I*.

4.3.5.9 Detention and Retention Ponds

Detention and retention ponds that become overloaded with sediment deposition can negatively impact stormwater quality in the City's MS4. MS4 Ponds are required to be cleaned out when solids levels reach 50% of design capacity.

A list of detention and retention basins was developed, and the City is maintaining an inspection schedule. To date, 77 basins were identified, and the City continues its efforts to inspect the basins

identified. The detention and retention basins were added to the GIS mapping. The City is considering utilizing outside contractors to assist with inspections and any follow-up work that may be needed.

4.3.5.10 Interconnected MS4s

Connections of other MS4s to the City's MS4 can affect the performance of the City's stormwater system and the quality of its discharges. There are no known interagency agreements between any other municipalities, institutions, or agencies and the City of Stamford. However, it appears that the following municipalities and agencies may be contributing stormwater to the City of Stamford's MS4:

- State of Connecticut (CTDOT)
- Town of New Canaan, CT
- Town of Darien, CT
- Town of Greenwich, CT
- Town of Pound Ridge, NY

The Connecticut Department of Transportation (CTDOT) operates several roadways within the City, including: Interstate 95; the Merritt Parkway (Route 15); Long Ridge Road (Route 137); High Ridge Road (Route 104); and Route 1. The City's MS4 flows into CTDOT's MS4 in some locations and CTDOT's MS4 flows into the City's MS4 at other locations. The City communicates with CTDOT, frequently and as necessary.

The City has mapped out most of the interconnected MS4 areas during the development of the new SMP. A map of the interconnected MS4 areas is provided in Appendix C of the Spill Prevention Response Plan. Currently, there are no interagency agreements established. The City of Stamford will correspond with neighboring municipalities to refer maintenance items on an as-needed basis.

4.3.5.11 Referrals

During the Reporting Period, the Stormwater Management Department provided referrals to other City departments and organizations for maintenance and repairs. These referrals are outlined below:

<u>City of Stamford Highway Department</u>

- Approximately 17 referrals were provided to the City's Highway Department for items including: potholes, utility work, contractor trenches, aprons to control stormwater flow, curbing to direct flow and limit erosion, sidewalk trip hazards and sinkholes in the roadway.

<u>City of Stamford Engineering Bureau</u>

- 15 referrals were provided to the City's Engineering Bureau for items regarding: failing bridge with sinkhole and road plate, management and oversight of utility contractors as related to street opening permits, poor trench compaction or failing subbase prior to pavement activities, poor trench compaction at newly installed manholes in city right of way for private development,

compromised or failing corrugated metal culvert piping, flooding, water and icing over road with no piping installed with the need for easements and piping and drainage design, installation of new catch basins and curbing, sink holes related to storm pipe issues, roadway ponding after storms, requesting capital projects to design and install and control roadway damage, failing headwall and eroding roadway at storm culvert. Some of these referrals included damage from Ida event 9/1/21.

- Management of contractors engaged in the Engineering Bureau work to maintain proper ESC's and site controls (roadway sweeping and tracking pads).
- 0 referrals were completed by the City's Engineering Bureau. A report was generated by third-party engineers, which details structural issues at the compromised bridge.

Sweeping Referrals Provided to Various Entities

- Approximately 20 referrals were provided to Road Maintenance/Highway Department regarding dirt/rock/gravel/debris spilled on roadway, sweeping targeted areas (e.g., roadside swale excavation), General Permit compliance purposes, as related to milling and road paving, leaves, tree debris, heavy trash areas.
- Conducted at least six (6) post and tow operations.
- Conducted targeted sweeping on dozens of streets where Highway Department Supervisors observed trash, debris, sand, gravel, etc.

Stormwater Referrals Provided to the Environmental Planning Board (EPB)

- 4 referrals were provided from the EPB for items regarding: building permit work, failed erosion and sediment controls on active construction site, asphalt patching work in roadway, work in and around wetlands and watercourses.
- 5 referrals were provided to the EPB for items regarding: grading and filling with no erosion controls, river and bridge obstructions, tree removals proximate to wetlands.

Referrals Provided to the CTDOT

- 11 referrals were provided to CTDOT for items regarding: performance of CTDOT MS4 drainage infrastructure where interconnected to the City's MS4, citizen requests to pump and clean catch basins, potholes, sinkholes or failing pavement at CTDOT storm manholes, water on road, open or damaged CTDOT manhole covers, damaged CTDOT catch basins, CTDOT piping in need of maintenance and cleaning, CTDOT regulated work in watercourses causing flow obstructions.

Referrals to Traffic, Transportation, and Parking

- 1 referral to transportation related to parking issues related to winter road maintenance efforts.
- 6 referrals requesting assistance for post and tow work to clear cars, Spring of 2022

Curbing Referrals

The Road maintenance department handles curbing requests and estimates at least 200 were received during the 2020-21 Reporting Period. The average curbing request is about 40 linear

feet based on the average repair length. The city estimates many thousands of linear feet of asphalt curbing repair work occurred during the reporting period.

Other Referrals

- Referrals to Aquaria Water Co.: nine (9) total referrals regarding leaking piping, including significant leak on Weed Hill Avenue., confirmed to be more than 500,000 gal/day.
- Referrals made to Eversource: eight (8) referrals made regarding utility trenches, which were failing, electrical manholes, vaults, sinkholes and other structures in need of repair. A referral was also made regarding a gas pipe running through a storm pipe.
- Referrals made to WPCA: 17 referrals made regarding issues with sanitary infrastructure (damage or paved over manholes), sanitary lateral repair work, pavement sinking, plan review item, sinkholes, and sanitary system overflows (SSO's).
- Referrals from WPCA: 19 referrals were received regarding wastewater treatment plant permit exceedances (13 exceedances during monitoring period), reporting issues with stormwater infrastructure (damaged manholes and catch basins), correspondence from the public about regulatory procedure and wastewater/stormwater discharge.
- Referrals made to Parks Department: 26 referrals made regarding requests to prune trees, shrubs, vegetation to gain access to catch basins, requests to cut or remove trees for culvert cleaning and swale construction, requests to remove logs and debris at bridges stuck on the upstream side, requests to prune or remove low hanging trees.
- Referrals made to City of Stamford Health Department: one (1) referral was made regarding leaking sanitary treatment facilities at city owned care facility.
- Referrals to Signs and Lines Department: (1) one referral to add new pet waste sign.
- Referrals to Frontier: (1) one regarding faulty communications manhole in roadway.

4.4 Monitoring Program

In addition to the screening and monitoring activities associated with the IDDE Program (see *Section 4.5*), the NPDES Permit calls for stormwater outfall monitoring throughout the life of the permit.

As prescribed in the modified NPDES Permit, the City is no longer required to conduct in-stream samples.

Fairfield County utilizes Harbor Watch to address pollution threats to Long Island Sound. In 2021 the monitoring team studied over 350 field sites and processed over 1600 water samples for bacteria concentration. Testing was conducted approximately twice per month (May- September) on each river for a total of 10 sampling days per watercourse. E. col (enterococci) and coliform contaminates are tested for and recorded by Harbor Watch. Harbor Watch also produced a Fairfield County River Report which provided valuable information about the water quality data for the Mianus and Norton Rivers during both wet and dry sampling events which occurred during the Spring / Summer / Fall of 2021. Summary tables of the analytical data for these screening and sampling efforts are presented in *Appendix O*.

4.4.1 Dry Weather Outfall Screening for Illicit Discharges

Dry weather outfall screening was conducted by Harbor Watch during this period as part of the IDDE follow up. Summary tables of the analytical data for the dry weather outfall monitoring are presented in *Appendix J*.

4.4.2 Wet Weather Outfall Monitoring

To date, 108 of the 191 known wet weather outfalls were sampled.

Wet weather screening was not conducted during this period due to COVID protocols.

4.5 Illicit Discharge Detection and Elimination (IDDE) Program

IDDE will mitigate the extent of pollutants discharging to local water bodies. Some people unknowingly dump pollutants into the storm drain or have illegal connections to the drainage system. The permit requires inspection of outfalls during dry weather conditions to determine whether illicit discharges are suspected and then to conduct extensive evaluation and follow-up to eliminate the illicit discharges that are found.

Additionally, City personnel continue to follow-up on known or suspected illicit discharges as well as any complaints associated with potential illicit discharges through calls to Road Maintenance Division or reported via the City's stormwater management website.

4.5.1 Dry Weather Outfall Screening for Illicit Discharges

Due to COVID protocols, dry weather outfall screening was not conducted.

4.5.2 Illicit Discharge Investigations

Additionally, during the Reporting Period, the City continued to utilize Harbor Watch / Earthplace to assist efforts related to illicit discharge detection and source identification. Harbor Watch was directed to go into the field to gather and analyze samples during wet and dry weather conditions, in an effort to quickly ascertain and isolate suspected illicit discharges, in the interest of public health, safety, and welfare. When there is a discharge of suspected contamination or pollutants in stormwater, efforts to inspect and identify are very time sensitive. In the interest of promptness, these efforts are sometimes directed regardless of precipitation events. In some cases, multiple samples are collected at the same location over an extended time period in an effort to build a more comprehensive data set and gain a better understanding of how precipitation events can impact a discharge. A good example of this occurred in early 2019 when a failing septic field was found to be leaking onto the roadway and

ultimately into down gradient catch basins. During the 2018-2019 Reporting Period, Harbor Watch was awarded a Five Star and Urban Waters Restoration Grant from the EPA for their efforts to reduce pollutants to numerous watersheds.

Results of IDDE investigations conducted during the reporting period:

- Outfalls DIS-70 and DIS-71 also confirmed to have evidence of sanitary contamination as per EPA Administrative Order from 2015. On 5/13/21, cast in place concrete stormwater culvert, vicinity of 1900 Summer St. was inspected by contractor as directed by SMD. Contractor indicated open hole at top of concrete culvert and flow coming into top of the chamber. Sample collected and confirmed sanitary discharge infiltrating into the chamber. Subsequent dye testing in existing 18"tile WPCA sanitary main, which is located above the cast in place concrete stormwater culvert, confirmed the leak from sanitary to storm occurring at this location. Estimated sanitary flow was 1-2 GPM. On 3/10/2022, contractor working on behalf of WPCA lined this leaking segment of 18" tile piping. Subsequent confined space entry confirmed no leaks into ceiling after sanitary pipe successfully lined. Significant funding: Wardwell St, Givens Ave, Lenox Ave, Dundee Rd, and Haig Ave.

- Outfalls DIS-70 and DIS-71 also confirmed to have evidence of sanitary contamination as per EPA Administrative Order from 2015. On 5/13/21, cast in place concrete stormwater culvert, vicinity of 1900 Summer St. was inspected by contractor as directed by SMD. Contractor indicated open hole at top of concrete culvert and flow coming into top of the chamber. Sample collected and confirmed sanitary discharge infiltrating into the chamber. Subsequent dye testing in existing 18"tile WPCA sanitary main, which is located above the cast in place concrete stormwater culvert, confirmed the leak from sanitary to storm occurring at this location. Estimated sanitary flow was 1-2 GPM. On 3/10/2022, contractor working on behalf of WPCA lined this leaking segment of 18" tile piping. Subsequent confined space entry confirmed no leaks into ceiling after sanitary pipe successfully lined. Significant funding and construction efforts were allocated to repairing this issue during the 2021-2022 reporting period.

- As part of regular catch basin cleaning operations, on 7/6/2021, City of Stamford Stormwater Management Department pumped and cleaned a catch basin located at 83 Wardwell St. This is part of the alternate side parking program and is accessible for cleaning only one day per month. After cleaning, City staff reported a rush of flow coming into the bottom of the catch basin, and the flow had a strong sanitary odor. Reported that the catch basin did not appear to have a concrete bottom or base. This information was reported to the Regulatory Compliance and Administrative Officer and referred to WPCA. WPCA inspected 7/8/21 and reported all flows normal and no service requests related to backups in the area. On 8/3/2021, the process was repeated where vacuum truck pumped and removed contents from the catch basin, and this time Harborwatch/Earthplace was standing by to collect a

grab sample of the inflow to the catch basin. Sample showed >241,960 MPN/100mL for total coliform and 104,624 MPN/100mL for E. coli. Ammonia was .5 ppm. Assumed the inflow to be in the range of 1-2 GPM, and likely could be greater during storm events which could push more flow into the catch basin. This data was referred to WPCA for assessment and field review on 12/13/21. WPCA indicated the sanitary sewer piping in this area was lined on 8/28/20. The Stormwater Management Department then assigned this catch basin to a contractor to be demolished and replaced with new precast, watertight sump. On 6/21/22 and 6/22/22 contractor completed repairs. On 10/4/2022, Harborwatch/Earthplace returned to the catch basin for post-verification screening work. The catch basin sump was vacuumed and cleaned. Harborwatch reported no inflow to the sump and no sample collected. This area is hydraulically connected and discharges to Outfall DIS-8, which is located at the east branch of Stamford Harbor.

- Suspicious discharge leaking into stormwater manhole at #73 / #79 Givens Ave. was observed by Regulatory Compliance and Administrative Officer 12/10/21. Harborwatch/Earthplace collected samples 12/13/21 and confirmed that sanitary waste entering storm system at this location. Referred to WPCA 12/13/21. Tracing dye introduced to sanitary conveyance piping and confirmed in storm MH on 12/13/21. WPCA conducted CCTV work in sanitary piping 12/14/21 and confirmed numerous pipe defects in clay tile sanitary piping from 1923. On 12/22/2021, contractor working for WPCA excavated and replaced about 65' - 75' linear feet of clay piping with new SDR-35 pipe with gasketed fittings. Subsequent inspections revealed no further leaks or infiltration to storm MH-7562. This portion of the MS4 system discharges to DIS-50, which is located in Cummings Park North, just to the south of East Ave. There has previous evidence of sanitary contamination at DIS-50. This outfall was sampled again 9/19/22.

- Harborwatch/Earthplace conducted track down / IDDE work on 6/1/22 and 6/13/2022, which discharges to DIS-63 on Lenox Ave. Samples were collected at four (4) stormwater MH's and at the outfall. No action taken in response to the data.

- In stream samples collected on Dundee Rd. Site work and possible visual evidence of issues with on-site sanitary treatment facilities. Samples in stream collected and sent to lab. Lab data inconclusive. Sample location was in stream and located downstream from DIS-370. Referred to EPB, Zoning, Engineering, Land Use because of land clearing, tree cutting, and impacts to possible wetlands. No further action required by SMD.

- 3/24/22 Harborwatch/Earthplace dispatched to vicinity of Haig Ave. regarding report of discharge of liquid to road. Sampled and determined flow to road is groundwater.

4.5.3 Illegal Connections

The City continues to track, identify, and eliminate illegal connections as information about possible origins is reviewed and assessed.

4.6 Legal Authority

In 2015, the Board of Representatives approved Section 201 (Regulation of MS4), to the City code of ordinances as related to the NPDES Permit. The legal authorities established the following:

- The authority to administer the stormwater management program and all elements of the SMP.
- The authority to control the contribution of pollutants to the MS4 by permittees registered under the DEEP's General Permit for the Discharge of Stormwater Associated with Industrial Activity; by other commercial, industrial, municipal, institutional, or other facilities; and from any site that may affect water quality to the MS4.
- The authority to establish ordinances, bylaws, regulations, or other mechanisms to require developers and construction site operators to maintain consistency with the Guidelines for Soil Erosion and Sedimentation Control, the Connecticut Stormwater Quality Manual, and all DEEP -stormwater discharge permits issued with the City of Stamford.
- The authority to identify existing regulations that may represent barriers to low impact development (LID) practices to minimize the quantity of impervious cover.
- The authority to perform inspections, surveillance, and monitoring related to the MS4.
- The authority to establish ordinances, bylaws, regulations, or other mechanisms to ensure a developer's or construction site operator's proposed use of LID practices by right or exception.
- The authority to revise regulations to eliminate or reduce potential barriers to LID.
- The authority to perform adequate inspection and maintenance activities to optimize the performance and pollutant removal efficiency of privately-owned retention or detention ponds that discharge to or receive discharge from the City's MS4.
- The authority to control through interagency or inter-jurisdictional agreement, the contribution of pollutants between the City's MS4 and MS4 owned or operated by others.
- The authority to prohibit by statute, ordinance, rules and regulations, permit, easement, contract, or any other means, illicit discharges to its MS4; to require the removal of these discharges; and to assess fines, penalties or cost recoupment for violations.
- The authority to control by statute, ordinance, rules and regulations, permit, easement, contract, or any other means, the discharge of spills into its MS4; to prohibit the dumping and disposal of materials into its MS4; and to assess fines, penalties or cost recoupment for violations.

The schedule for establishment of these legal authorities is documented in the NPDES Permit. On March 20, 2015, a final MS4 Ordinance, Ordinance 1153, adding Chapter 201 to the City Charter, became effective. Section 15 of the Zoning Regulations became effective June 2, 2020, and the City's first ever Drainage Manual became effective 6/10/20. The SMP was updated in 2020 and is posted on the City's SMD website.

Several written and verbal enforcement actions were conducted during this Reporting Period as part of the implementation of the stormwater ordinance. The actions are listed below:

4.6.1 Written Warnings

Written Warnings Issued: 4
Violation: Discharge of water to roadway, contributing pollutants to MS4 system.

No doorhangers placed during the 2021-2022 reporting period due to conditions related to COVID pandemic.

4.6.2 Verbal Warnings

Verbal Warnings Issued: 2
Notes: Verbal warnings were issued for items including:

- Shared grease storage area needs cleaning.
- Leaves placed in roadway.

5.0 SUMMARY OF PROPOSED SMP MODIFICATIONS

The SMP was updated and submitted to the DEEP on September 2, 2014. Revisions to the SMP were completed in 2020 and the SMP and Appendices are posted on the SMD website. The City will update the SMP as necessary.

6.0 PROGRAM RESOURCES ANALYSIS

6.1 Fiscal Analysis

During this Reporting Period, the City continued to make efforts to secure budget, staffing, and resources necessary to develop and implement the SMP, to comply with the NPDES Permit requirements, and to improve the overall quality of stormwater discharging from its MS4. The City is committed to identifying these details and adequately funding them in an effort to achieve compliance with the NPDES Permit.

Some line items in the City's Capital and Operating Budgets are obviously related to MS4 stormwater compliance, such as the "Environmental Compliance" and "Stormwater Management". However, there are other line items for infrastructure and other public improvement projects (drainage, catch basin, storm lines, etc.), special projects, and operating expenses that will result in direct improvements to stormwater runoff quality and the quality of discharge from the City's MS4.

There are also budget line items for vehicle, equipment, and information technology upgrades throughout the City which include Departments with responsibility for stormwater quality improvements and implementation of the SMP.

The Road Maintenance Division has an overall total operating budget of $6,494,471 for Fiscal Year 2021-2022 ($116,483 increase from the FY 2020-2021 Adopted Budget).

The FY 2021-22 operating budget for MS4 stormwater management is $1,236,906 (an increase of $73,372 from the FY 2020-21 Adopted Budget).

The operating budget for snow removal is $1,190,137 (a decrease of $109,214 from FY 2020-21 Adopted Budget).

The operating budget for leaf collection is $388,332 (an increase of $442 from FY 2020-21 Adopted Budget).

The operating budget for road maintenance, including: street sweeping, pothole repairs and debris removal is $3,625,271for Fiscal Year 2021-22 (an increase of $141,118 from the FY 2020-21 Adopted Budget).

The capital budget covers long term projects to provide improvements to the City. These capital projects have the potential to impact the quality of stormwater discharged to waterbodies.

Capital project C56119, Citywide Roadway Correction managed by the Engineering Bureau, requested $450,000 in construction related costs for FY 2021-22. The requested funds are for design work and construction activities associated with the project. The requested funds and current

balance will be used to fund road failure at June Road, June Road/ Guinea Road Intersection, and other various locations based on citizen reports. The Boards adopted $250,000 for this work.

Capital project C16012, Citywide Storm Drains managed by the Engineering Bureau, requested $3,250,000 in construction related costs for FY 2021-22. The requested funds are to fund drainage improvements in order of the project's severity and readiness. The projects are Westhill Road/Drum Hill Lane, Bird Song Lane, Newfield court, Tod lane, and Wire Mill Road. The current balance will be used to fund drainage improvements at Leory Place, Stanwick Circle, Pheasant Lane, and city-wide drainage improvement. The Boards adopted $1,000,000 for this work.

Capital project CP2703, Bouton Street Culvert Replacement, requested $200,000 for FY 2021-22. The requested funds are to be used towards the replacement of the concrete box culvert under Bouton Street West which is significantly deteriorated. The Boards adopted $200,000 for this work.

Capital project CP0123, West Beach Boat Ramp Replacement, requested $820,000 for FY 2021-22. The requested funds are to replace the existing boat ramp, add another row of floating docks, parking lot improvements, timber jetty repairs and dredging. The Boards adopted $820,000 for this work.

Capital project CP1074, Pine Hill Drainage, requested $2,500,000 for FY 2021-22. The requested funds are to upgrade the existing undersized drainage system. The current budget managed by Engineering Bureau will be used to perform the final design upon approval of the construction budget request. The drainage system design will increase water intake into the stormwater system and requires the acquisition of 2 property easements and street closure. The project will upgrade the system from a 2-year storm to a 25-year storm event. The Boards adopted $0 for this work.

Capital project, C16020 Toilsome Brook, requested $50,000 for FY 2021-22. The requested funds managed by the Engineering Bureau will be used to prepare hydrologic and hydraulic analysis of Toilsome Brook Culvert and flooding in the vicinity of Dannell Drive. The Boards adopted $0 for this work.

Capital project, CP0093 Scofieldtown Park Design and Remediation, requested 210,000 for FY 2021-22. The current balance will be used to fund asphalt parking lot, entry way plaza & connect pathway, 2 compost toilets, picnic shelter and benches, and paving pathway/drainage to the tennis courts. The requested funds will be used towards completing the playground. The Boards adopted $0 for this work.

Capital project, CP7908 Mill River Greenway North, requested $100,000 for FY 2021-22. The requested funds are a provisional figure to help ensure the lighting conduits can be used in the project. This project includes new paths, lighting, green infrastructure that will protect water quality, new plantings and an environmental education landscape, managed by the Land Use Bureau. The project will be funded from repurposed Federal funds originally for a ferry terminal project totaling $1, 949,920 of Federal funds with $487,480 local (20%) match. The Boards adopted $100,000 for this work.

Capital project, C56169 Paving & Drainage, requested $100,000 for FY 2021-22, managed by the Parks Department. The requested funds will be used for grading and filling of park property access/parking lot upgrades. Cove Island and K Park walking paths to be upgraded, Stamford Driveway and Parking Lot, Kosciuszko Park Driveway and Parking Lot. Remaining balance will towards the Barrett Park Playground area with installation of a curtain drain to prevent flooding. The Boards adopted $0 for this work.

Capital project, CP0232 Athletic Fields Renovation, requested $100,000 for FY 2021-22, managed by the Parks Department. The requested fund will be used on the Cummings Field #1 Softball Turf Infield to create new drainage/ infield. The Boards adopted $0 for this work.

Capital project, CP8701 John Bocuzzi Park at Southfield, requested $500,000 for FY 2021-22, managed by the Parks Department. The requested funds are for Phase 2 of the project. Phase 2 includes relocating the park lot out of the flood plain, Interim dun escape where current parking lot is located with interim walkways, and entrance relocation to Congress street. The Boards adopted $700,000 for this work.

Capital project CP0211, Environmental Compliance, requested $50,000 for FY 2021-22, managed by Road Maintenance and Stormwater Departments. The requested fund is to ensure compliance with MS4 related issues. It is used to investigate and access and correct as necessary of drainage systems discharging into water body rivers, ponds, etc. and to evaluate Public Service facilities and modify practices in compliance with state and federal regulations. The Boards adopted $0 for this work.

Capital project C56182, Street Patch and Resurfacing, requested $10,000,000 for FY 2021-22, managed by the Road Maintenance and Stormwater Departments. The requested funds are to patch and resurface Stamford's roadway infrastructure using accepted engineering standards. Including milling, overlay, reconstruction, associated fixes to public streets and associated subsurface replacements for drainage systems. The Boards adopted $10,000,000 for this work.

Capital project C56129, Citywide Manhole and Basin, requested $1,000,000 for FY 2021-22, managed by Stormwater Department. The funds will be used to maintain and make repairs when needed to over 12,000 catch basins manholes which are located in the City's road network. The Boards adopted $500,000 for this work.

Capital project CP8711, Traffic/Road Paving and Drainage, requested $400,000 for FY 2021-22. The funds will be used to repair or replace any drainage structure which are located in roads which are scheduled to be repaved. The Boards adopted $200,000 for this work.

In addition, other Departments, such as Engineering (catch basin and manhole improvements and replacement program), Land Use (environmental reviews), Solid Waste (motor oil recycling and HHW events), SWPCA (stormwater pump operation), and Administration provide services through their capital and operating budgets.

The City's Annual Capital and Operating Budgets for 2021-22 are available on the City's website at http://www.stamfordct.gov/, under the Office of Policy and Management Link.

An increase in funding associated with additional staffing discussed in the next section of this Annual Report, will also be required in coming fiscal years.

6.2 Staff and Resources

The City transferred responsibility for many of the stormwater management tasks and MS4 permit compliance from the SWPCA to the Road Maintenance Department with the issuance of the NPDES Permit in June 2013. While evaluating the permit requirements, the Road Maintenance Supervisor and Pollution Prevention Team Coordinator, Thomas Turk, began to assess the staff and resources necessary to achieve and maintain compliance. Since Road Maintenance Department took over responsibilities for implementing the MS4 permit.

In the 2021-2022 Reporting Year, there are: seven (7) heavy equipment operators to complete field work including catch basin investigation, cleaning, and maintenance. These operators are also responsible for assisting with sweeping, snow removal, leaf pickup and other activities designed to improve the quality of stormwater runoff.

Over the course of the Reporting Period, the Stormwater Department assessed these new staffing levels as the SMP was being implemented and additional schedules and goals are continuously being generated to meet the demands of the City's MS4.

In addition to these individuals, the Road Maintenance Division maintains a work force of skilled operators, laborers, administrative, support, and management personnel that provide many of the direct services outlined in this report, such as: catch basin maintenance, roadway sweeping, leaf pickup, snow removal, and infrastructure improvements and maintenance. They are also available to assist on other stormwater management projects, as directed.

Several other City Departments provide personnel to support compliance with the NPDES Permit and implementation of the SMP, including Engineering, Land Use, Planning, Zoning, Environmental Protection, Information Technology (GIS), SWPCA, Solid Waste, Recreation and Leisure Services, Parks, Parking & Transportation, Fleet Maintenance, Legal, and the Fire Department. The Environmental Protection Board has four full-time technical staff (3 Environmental Analysts and an Executive Director.) See Appendix F for the Environmental Protection Board Report.

During the next year of implementation of the SMP and the municipal stormwater ordinance and the changes to the Zoning Regulations, City Departments will be better able to assess the adequacies of their staffing levels with the added MS4 permit compliance requirements. As discussed during the compliance audit conducted by the EPA (see *Section 2.3.1*) and the City's own assessments, it is anticipated that additional staffing may be necessary in the following areas:

- Information Technology – There is a substantial amount of stormwater mapping and information management to be set up and managed, particularly during the first several years of the permit. The City needs to finalize the outfall identification mapping, and confirmation process and begin the DCIA analysis.

- Engineering and Land Use Offices – Additional staff is required to perform technical review of land use permits due to volume and complexity of work. Performing site inspections before permit issuance, during construction, and prior to Certificate of Occupancy are a critical component for compliance.

- Stormwater Management Department – Additional staff is required (Heavy Equipment Operators) to operate vacuum trucks, the camera truck, and equipment to maintain storm drainage piping. The addition of an Office Support Specialist (OSS) is required in the Stormwater Management Department to assist with data collection, record keeping, and correspondence requirements. New types of data are being generated in the field and it must be properly managed so that it can be put into effective use. An Environmental Enforcement Officer, working under the direction of the Regulatory Compliance Officer in the Stormwater Management Department, is also needed to assist with inspections and field work. This position was created in November 2021 and will greatly increase productivity of the SMD.

Once the revised Zoning Regulations have been enacted, there will be a need for additional construction site inspections, retention and detention basin inspections and maintenance, stormwater infrastructure (swales, ditches, storm drain lines, etc.) inspections and maintenance, post-construction inspections and maintenance, and illicit discharge detection and elimination program implementation. Additional staffing will be necessary to complete these tasks; the City's ability to complete these activities in the past has been hampered due to limited staff resources.

As mentioned in *Section 4.3.5.7*, the City is implementing a software tracking program using field tablets for tracking catch basin inspections, cleaning and repair progress. The MS4 Front software was brought on-line in October 2014.

Additional software and equipment needs will be assessed during the coming year and requested in the City's next fiscal year budget.

APPENDIX A

DEFINITIONS

DEFINITIONS

"*BMPs" or "Best Management Practices"* means either structural or engineered control devices and systems (e.g., retention ponds) to treat polluted stormwater, as well as operational or procedural practices (e.g., minimizing use of chemical fertilizers and pesticides).

"Commissioner" means the commissioner as defined by section 22a-2(b) of the Connecticut General Statutes.

"CTDEEP" or "DEEP" means the Connecticut Department of Energy and Environmental Protection, whose mission is to conserve, improve and protect the air, water and other natural resources and environment of the State of Connecticut while fostering sustainable development.

"DCIA" or "Directly Connected Impervious Area" means that part of the total impervious area that is hydraulically connected to the City of Stamford's MS4. DCIA typically includes streets, sidewalks, driveways, parking lots, and roof tops. DCIA typically does not include isolated impervious areas that are not hydraulically connected to the MS4 or otherwise drain to a pervious area.

"EPA" means the United State Environmental Protection Agency, whose mission is to protect human health and the environment.

"EPB" means the City of Stamford's Environmental Protection Board.

"GIS" or "Geographic Information System" is a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographic data.

"HHW" or "Household Hazardous Waste" means post-consumer waste which qualifies as hazardous waste when discarded. It includes household chemicals and other substances for which the owner no longer has use, such as consumer products sold for home care, personal care, automotive care, pest control and other purposes.

"IDDE" or "Illicit Discharge Detection and Elimination" means a program to detect and eliminate existing illicit discharges and to prevent future illicit discharges.

"IDDP" or "Illicit Discharge Detection Protocol" means a protocol established to identify, prioritize, and investigate separate storm sewer catchments for suspected illicit discharges of pollutants.

"Illicit Discharge" means any discharge to the MS4 that is no composed entirely of stormwater, with the exception of discharges authorized by another NPDES Permit, or discharges described in the "Non-Stormwater Discharges" section (Section 4(A)(3)) of the permit.

"Impaired Waters" means those surface waters of the state designated by the Commissioner as impaired pursuant to Section 303(d) of the Clean Water Act and as identified in the most recent State of Connecticut Integrated Water Quality Report.

"LID" or "Low Impact Development" means land planning and engineering design approach to manage stormwater runoff. LID emphasizes conservation and use of on-site natural features to protect water quality.

"MS4" or "Municipal Separate Storm Sewer System" means conveyance, or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains, which is or are (i) owned or operated by state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial waters, stormwater, or other wastes, including special districts under state law such as sewer districts, flood control districts or drainage districts, or similar districts, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the state; (ii) designed or used for collecting or conveying stormwater; (iii) which is not a combined sewer; an (iv) which is not part of a POTW.

"NOV" or "Notice of Violation" means a noticed provided by the CTDEEP informing the permittee that a violation of law has occurred.

"NPDES Permit" or "National Pollutant Discharge Elimination System Permit" means the program authorized by the Clean Water Act which controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

"Outfall" means the discharge point of a waste stream into a body of water.

"PHFs" means pesticides, herbicides, and fertilizers.

"Point Source" means any discernable, confined, and discrete conveyance (including, but not limited to any pipe, ditch, channel, tunnel, conduit, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft) from which pollutants are or may be discharged.

"POTW" or "Publicly Owned Treatment Works" means sewage treatment plants.

"Reporting Period" refers to the period of time that the Annual Report is based on. In this report it pertains to July 1, 2020, through June 30, 2021.

"SMP" or "Stormwater Management Plan" sets forth a program to provide for the implementation of specific control measures, stormwater monitoring, illicit discharge detection and elimination, and other appropriate means to control the quality of the authorized discharge.

"SPRP", "SP&R Plan" or "Spill Prevention and Response Plan" means a plan to prevent, contain, and respond to spills entering the MS4.

"Stormwater" means waters consisting of rainfall runoff, including snow or ice melt during a rain event, and drainage of such runoff.

"SWPCA" or "Stamford Water Pollution Control Authority" controls the City of Stamford Water Pollution Control Facility, which processes wastewater from the City and the neighboring Town of Darien and discharges clean water into the East Branch of Stamford Harbor.

APPENDIX B

STORMWATER MANAGEMEN PLAN SUMMARY TABLE

Appendix B is intentionally left blank.

APPENDIX C

UPDATED CITY OUTFALL LOCATION MAPS

City of Stamford Outfalls as of June 30, 2022

Map Key

- Outfalls (972 points)
- Hydrology
- Parks
- I-95 & Merritt Pkwy
- Major Arterials
- All Other Roads
- Railroads

Notes: Map created by Ciy of Stamford, CT GIS staff for MS4 annual reporting. Questions regarding this map should be directed to the City of Stamford MS4 program.
map created 12/2022.

APPENDIX D

2021-2022 SPILLS

City of Stamford - No. CT0030279

Spills and Leaks 7/1/21 - 6/30/2022

Date	Address / Location	Material Spilled	Quantity Released	Receiving Stream	Notes
8/30/2021	Intersection of Dock St. and Atlantic St.	Motor oil	Appx. 1 Gal.	Long Island Sound	Appeared to have been related to automotive engine failure. Origin unknown. No disabled vehicles on scene upon arrival. No discharge to drainage structures or surface waters. Applied speedy dry and used mechanical sweeper to recover material. No impacts to MS4.
12/19/2021	Riverbank Rd. between Riverbank Dr. and June Rd.	Petrolium based spill - likely gasoline	Unknown	Mianus River	Stamford Fire Dept. contacted Stamford Highway Dept. 6pm requesting sander. Applied sand to extents of the spill area. Could have been caused by tipped over gas container on truck. Material did not enter drainage structures - surface spill. Spill area mechanically swept 12/20/21. No impacts to MS4.
1/5/2022	16 Paragon Ln.	#2 Fuel Oil	100 gal.	Rippowam River	SFD contacted WPCA regarding 100 gal of fuel oil spillage in basement of residence at 16 Paragon Ln. CT DEEP was on site. Case number unknown. Sump pump pumped out fuel oil. No sheen or reports of discharge to river were recieved by SMD. Basement sump pump may be illegally routed to WPCA sanitary conveyance system, which could have recieved discharge of fuel oil. Issue reported to SMD by WPCA. No reports or impacts to MS4.
1/26/2022	69 Jefferson St.	Diesel Fuel	30 Gal.	Long Island Sound	CT DEEP Case No: 2022-00356. Contractor working for CT DOT/MNRR refueling locomotives had PTO equipment failure resulting in spillage from fuel truck to ground. Reported to CTDEEP/SFD by City of Stamford Highways/SMD. ACV dispatched for clean up. Confirmed no impact to recieving waters / MS4.

1/31/2022	Intersection of Washington Blvd. at Tresser Blvd.	Antifreeze	1 gal.	Rippowam River	CT DEEP Case No: 2022-00436. CT Transit bus had radiator failure. SFD contacted. Area sanded by SMD/Highways. Sand and product recovered by mechanical sweeper.
3/18/2022	125 Prospect St	Confirmed #4 Fuel Oil by York Labs.	Unknown	Rippowam River	While cleaning catch basins on Prospect St., SMD observed evidence of spill and/or illicit discharge to MS4. SMD observed and reinspected over subsequent days, contacted Harborwatch to collect lab samples of product in CB, and engaged contractor to expose previously paved over stormwater manhole cover. SMD contacted SFD, and SFD contacted CT DEEP. Determined in ground fuel tank for large residential builidng was leaking. CT DEEP ordered tank removal and abatement work. This also part of IDDE work from SMD. Subsequent inspections by SMD revealed petrolium discharge has ceased. This represented a significant discharge of pollutants which could have occured over the span of a few years. Discovered by SMD and subsequent discharge abated.
3/20/2022	200 Shippan Ave.	Hydraulic Oil	10 gal.	Long Island Sound	CT DEEP Case No: 2022-01147. Commercial hose failure of private contractor solid waste collections truck. Hose failure resulted in discharge to ground. DEEP Contacted. Area was sanded. SMD inspected 3/25/22 and no evidence of spill was present. No impact to MS4.
3/25/2022	333 Hunting Ridge Rd.	#2 Fuel Oil - Tank overfill to ground surface and possible fuel tank leaking.	5 gal.	Rippowam River	CT DEEP Case No: 2022-01216. Levco fuel oil overfill at residential dwelling. CT DEEP contacted ACV for cleanup. SFD notified. No impacts to MS4.
3/25/2022	333 Hunting Ridge Rd.	#2 Fuel Oil	20 gal. release under sub floor.	Rippowam River	CT DEEP Case No: 2022-01215. Unknown release under sub floor. FD notified. ACV to assist in clean up. No known impacts to MS4.

APPENDIX E

2021-2022 PESTICIDE, FERTILIZER, AND HERBICIDE USE

Athletic Field Fertilizer use only, we do not use any Fertilizers on park Green space

1st application April 2nd Dimension application 18-0-40- 60 bags total used, each bag is 50lbs

2nd application May 2nd Propendi- 60 bags total used, each bag is 50lbs

3rd application Sept Fertilizer- 60 Bags total used, each bag 40lbs

<u>Little League/Softball/Baseball</u>

Troy #1 Field and Troy # Field 2- Cove

Federal #1 Field and Federal #2 Field

Kane Ave Field

Vine Road Field

Scalzi Little League Field/Scazli #1, #2 and #3

Cubeta Stadium

Springdale Little League Field

Kosciusesko LL and Softball Field

Cummings #1 Field #2 Field #4 field and #5

Chestnut Field

Dorthey Heroy Field

Northrop (Stark school) Field

```
Dimension (18-0-40) - 50lbs/bag x (18/100) = 9lbs/bag x 60 bags = 540lbs N
ProPendi (13-0-4) - 50lbs/bag x (13/100) = 6.5lbs/bag x 60 bags = 390lbs N
Fertilizer (25-0-5) - 40lbs/bag x (25/100) = 10lbs/bag x 60 bags = 600lbs N
                                                    Total N Used = 1,530lbs
```

Sterling Farms Golf Course
Nitrogen Totals up to June 30, 2022

	Greens (4 Acres)	Total	Tees (3.5 Acres)	Total	Fairways (23 Acres)	Total	Rough (10 Acres)	Total
Granular	None	None	None	None	None	None	.5 LB/N/m	200 LBS N
Liquid	2.9 LBS/N/m		2 LB/ N/m		1.8 LBS N/m		n/a	

Nitrogen Application by site For E Gaynor Brennan Golf Course 7/1/2021-6/30/2022

Greens 4 Acres 176,000 sq ft

7 iron 7-7-7	Granular	Total product	1000#	Total N	70
Nitro 28	liquid		30 gal		87.6
Classic 18-0-6	liquid		30 gal		55.8
12 1 1	Granular		500#		60
extra iron 6-0-0	liquid		15 gal		16.8
				Total GR	290.2

Tees 2 Acres 88,000 sq ft

Product					
21-22-4	Granular	Total product	560#	Total N	117.6 lbs
18-24-12	Granular		800#		144
nitro 28	liquid		10 gal		29.2
extra iron 6-0-0	liquid		10 gal		11.2
				Total Tee	302

Fairways 18 Acres

Product					
Gravity s 20-20-20	soluble	Total product	900#		180
28-8-18	soluble		1500#		420
Nitro-28	liquid		60 gal		175.2
extra Iron	liquid		40 gal		35.7
				Total FWY	810.9

Roughs/Green Banks

Product					
30-0-10	Granular	Total product	1000#	TOTAL N	300 lbs
				Total RGH	300
				Total YR	1703.1 lbs

APPENDIX F

2021-2022 ENVIRONMENTAL PROTECTION BOARD SUMMARY TABLE

Environmental Protection Board – FY 2021-2022

The Land Use Bureau's Environmental Protection Board (EPB) has regulatory responsibilities, including issuing special permits for development activities on properties with inland wetlands, watercourses, flood hazard, and coastal areas. The EPB also reviews and provides technical assistance on the potential impact of subdivisions, coastal and other site plans, variances, special permits, drainage and erosion control plans, utility installations, open space areas, and public points of access to Stamford's waterfront and shoreline. In cooperation with other City departments, EPB staff inspect development projects to ensure conformance with issued permits, approvals, and City standards, and the office acts as the City's designated liaison with State and Federal officials on matters of wetland, floodplain, and coastal management.

Four full-time technical employees staff the EPB. The third Environmental Analyst came on board in early 2022 and a new Executive Director was hired following the retirement of the prior long-serving Executive Director in late 2021.

EPB operations continued though these personnel changes. Staff reviewed 1,465 applications for building/septic permits and evaluated 126 formal applications submitted to the EPB and other land use boards. Included in these reviews were numerous projects of value and interest to Stamford residents, such as improvements to Cummings Park, renovation of City bridges, and implementation of large private developments. EPB staff continued to assist the public during this ongoing period of pandemic-limited public access to Government Center offices by responding to thousands of phoned and emailed inquiries.

Over the past year, EPB staff also assisted in the implementation of Stamford's Municipal Separate Storm Sewer System (MS4) Program, helped to revise the City's "Hazard Mitigation Plan", contributed to development of grant applications for a South End resiliency study, enhanced the EPB webpage, and maintained Stamford's excellent standing in FEMA's Community Rating System program.

APPENDIX G

CITY STAFF TRAINING EVENTS SIGN-IN SHEETS

FUSS & O'NEILL

Employee Training
Stormwater Pollution Prevention Plan (SWPPP)
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	Arthur Springer Jr.		Hwy
2	Chris Rivera		Hwy
3	Rob Bucco		Hwy
4	Phil Markey		Hwy
5	Giancarlo Raimondi Jr		Hwy
6	Hanhet Castillo		Hwy
7	Michael Estremera		Hwy
8	Derek Alma		Hwy
9	John Cornelio Jr		Hwy
10	Robert Ashland		Hwy

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: General Permit for the Discharge of Stormwater Associated with Industrial Activities
Connecticut General Statures (CGS) Section 22a-430-3b:
Site's Stormwater Pollution Prevention Plan (SWPPP)
SWPPP Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

_____, _____, Fuss & O'Neill, Inc
Printed Name Signature

FUSS & O'NEILL

Employee Training
Stormwater Pollution Prevention Plan (SWPPP)
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	Joseph Caplon	[signature]	HWY
2	Liam Kenny	[signature]	HWY
3	Dylan Pellini	[signature]	HWY
4	Aaron Moses	[signature]	HWY
5	Jean Prosper	[signature]	Hwy
6	[illegible]	[signature]	" "
7	Tyler Theder	[signature]	Stormwater
8			
9			
10			

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: General Permit for the Discharge of Stormwater Associated with Industrial Activities
Connecticut General Statures (CGS) Section 22a-430-3b:
Site's Stormwater Pollution Prevention Plan (SWPPP)
SWPPP Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

______________________, ______________________, Fuss & O'Neill, Inc
Printed Name Signature

FUSS & O'NEILL

Employee Training
Universal Waste, Used Oil and CT Regulated Wastes
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	ROB Buzzeo		Hwy
2	Arthur Springer Jr		Hwy
3	John Cornelio Jr.		HWY
4	Giancarlo Raimondi Jr		Hw
5	HANLet Castillo		Hy
6	Derek Aime		HWy
7	Phil Markey		Hwy
8	Michael Estremera		Hwy
9	Robert Ashlund		Hwy
10	Aaron Moses	Aaron Moser	Hwy

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: US Environmental Protection Agency (EPA) Regulations of 40 CFR 262.34(a)(4) and 265.16
Regulations of Connecticut State Agencies (RCSA) Section 22a-449(c)-102(a)(1)
Universal Waste, Used Oil and CT Regulated Waste Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

_____, _____, Fuss & O'Neill, Inc
Printed Name Signature

FUSS & O'NEILL

Employee Training
Universal Waste, Used Oil and CT Regulated Wastes
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	Liam Kenny	Liam Kenny	HWY
2	Dylan Pellini	Dylan Pellini	HWY
3	Joseph Coplon	Joseph Coplon	Highway's
4	Ronnie Caporale		" "
5	JEAN PROSPER		Hwy
6	Chris Rivera		Hwy
7	TYLER THEDOR		Stormwater
8			
9			
10			

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: US Environmental Protection Agency (EPA) Regulations of 40 CFR 262.34(a)(4) and 265.16
Regulations of Connecticut State Agencies (RCSA) Section 22a-449(c)-102(a)(1)
Universal Waste, Used Oil and CT Regulated Waste Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

_____, _____, Fuss & O'Neill, Inc
Printed Name Signature

FUSS & O'NEILL

Employee Training
Spill Prevention Control and Countermeasure (SPCC) Plan
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	Chris Rivera		Hwy
2	Arthur Springer Jr		Hwy
3	Rob Buzzeo		Hwy
4	Phil Markey		Hwy
5	Giancarlo Raimondi Jr		Hwy
6	Hanlet Castillo		Hwy
7	Michael Estremera		Hwy
8	Derek Almo		Hwy
9	John Cornelio Jr		Hwy
10	Robert Ashlund		Hwy

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: US Environmental Protection Agency (EPA) regulations of 40 CFR 112:
Site's Spill Prevention Control and Countermeasures (SPCC) Plan
SPCC Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

_____, _____, Fuss & O'Neill, Inc
Printed Name Signature

FUSS & O'NEILL

Employee Training
Spill Prevention Control and Countermeasure (SPCC) Plan
City of Stamford – Highway Department
Date of Training: June 16, 2022

Attendees Sign-In:

	Name Printed	Name Signed	Company / Work Function
1	Joseph Coplon	Joseph Coplon	HWY
2	Liam Kenny	Liam Kenny	HWY
3	Dylan Pellini	Dylan Pellini	HWY
4	Aaron Moses	Aaron Moses	HWY
5	JEAN PROSPER	JP	HWY
6	Ronnie Capocelli	RC	" "
7	TYLER THEECK	TT	Stormwater
8			
9			
10			

Training Location: City of Stamford – Highway Department
100 Magee Avenue
Stamford, CT

Resources: US Environmental Protection Agency (EPA) regulations of 40 CFR 112:
Site's Spill Prevention Control and Countermeasures (SPCC) Plan
SPCC Training Power Point Presentation (by F&O)

Training Facilitator: Justin Penfield, P.E., Fuss & O'Neill

_____, _____, Fuss & O'Neill, Inc
Printed Name Signature

APPENDIX H

2021-2022 CATCH BASIN / MANHOLE REPAIRS LIST

7-21 To 6-22

	Line Item	Quantity	Total Cost
#5	M.H. Reset	60	30,000
#6	Reconstruct M.H.	26	9,782.5
# 7	Catch Basin reset	47	23,500
# 8	Greater than 2"	501	175,350
#25	M.H. Cover + Frame	40	12,000
# 26	Ci Catch Basin Frame	650	45,500
#26A	Ci FLAT Catch Basin	28	18,200
#27	Ci Bell Trap	59	11,800

APPENDIX I

2021-2022 CULVERT CLEANING LIST

City of Stamford - CT0030279

Open Drainage Channel (Culvert Cleaning and Backhoe Work) 7/1/21 - 6/30/2022

Date	Address / Location	Duration	Manpower	Quan. Of Material Removed	Receiving Stream	Notes
7/7/2021	Laurel Rd. at Ingleside Dr.	1/2 Day	2 men, small dump truck	appx. 2 cubic yard - sediment, brush, and debris	Rippowam River	Cleaned and cleared pipe inlets by hand. Cut and removed log debris, pavement scraped clean
7/20/2021	248 Thornwood Rd.	1 Day	4 men, mini ex., small dump trucks.	appx. 4 cubic yards - sediment, brush, and debris	Rippowam River	Removed logs, brush, leaves, debris. Opened inlet pipe to ensure proper drainage. Seed and hay all disturbed areas.
8/24/2021	Between 267 and 253 Silver Hill Ln.	1/2 Day	2 men, stetco and small dump truck	appx. 1 cubic yards - sediment, brush, and debris	Rippowam River	Cleaned and cleared bar screen area at culvert inlet.
8/30/2021	284 Vine Rd.	1/2 Day	4 men, mini ex., small dump trucks.	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleaned and cleared culvert inlet pipes.
8/30/2021	Behind 534 Pepper Ridge Circle	1/2 Day	2 men, small dump truck	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cut logs, cleared brush, opened up catch basin
8/30/2021	16 Westhill Ln on Westhill Rd.	1/2 Day	4 men, mini ex., small dump trucks.	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleaned and cleared culvert inlet pipes.
10/13/2021	167 Wood Ridge Dr. South	1/3 Day	2 men, small dump truck	appx. 1 cubic yard- logs and brush	Rippowam River	Removed logs at culvert inlet pipe.
10/13/2021	127 Westover Lane	1/3 Day	2 men, small dump truck	appx. 1 cubic yard- logs and brush	Mianus River	Cut brush at head wall pipe inlet
10/13/2021	30 / 27 Lumanor Dr.	1/2 Day	2 men, small dump truck	appx. 1 cubic yard- logs and brush	Rippowam River	Cut brush at head wall pipe inlet/outlet
10/15/2021	49 Bouton St. West	1 Day	2 men, small dump truck	appx. 2 cubic yards - sediment, brush, and debris	Noroton River	Parks department cut back and cleared area around culvert inlets.
10/30/2021	Riverbank Rd., just north of bridge	1/3 Day	2 men, small dump truck	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleared twin 24" inlet pipes
11/4/2021	125 Turn of River Rd.	1 Day	4 men, small dump trucks	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleaned and cleared area around culvert inlet.
12/3/2021	7 Rockridge Ln	1/3 Day	4 men,mini excavator and small dump trucks	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleared debris at inlet pipe.
12/20/2021	1576 Hazard Ln.	1/2 Day	2 men, small dump truck	appx. 2 cubic yards - sediment, brush, and debris	Rippowam River	Cleaned and cleared area around culvert inlet.
3/4/2022	11 Woodbrook Dr. at Eden Rd.	1 Day	4 men, small dump truck	Four (4) tubs, 20 yds. Each, removed and hauled	Noroton River	Cleaned and cleared area around asphalt leakoff near stream
3/17/2022	336 Rock Rimmon Rd.	1/2 Day	2 men, small dump truck	appx. 2 cubic yard - sediment, brush, and debris	Rippowam River	Cleaned and cleared pipe inlets by hand.
3/21/2022	EG Brennan Golf Course at Stillwater Rd.	1 Day	2 men, small dump truck	appx. 2 cubic yard - sediment, brush, and debris	Rippowam River	Cleaned and cleared pipe inlet by hand.
4/4/2022	105 Klondike Ave.	2 Day	4 men, mini ex., small dump trucks.	appx. 8 cubic yards - sediment, brush, and debris	Rippowam River	Trees growing over outlet headwall were cut by tree warden. Mini ex cleared sediment at outfall pipe, seed and hay all disturbed soils.
4/6/2022	Scofieldtown Rd. at Hannahs Rd.	1 Day	2 men, small dump truck	appx. 1 cubic yard - sediment, brush, and debris	Rippowam River	Cleared pipe inlet and removed large black box in stream.
4/8/2022	1 Mill Rd.	1/3 Day	2 men,small dump truck	appx. 1 cubic yards - sediment, brush, leaves,and debris	Rippowam River	Cleared debris at edge of pavement. Storm flow to drain off of road.
4/10/2022	1187 Riverbank Rd.	1/2 Day	4 men,mini excavator, loader and small dump trucks	appx. 6 cubic yards - sediment, brush, and debris	Rippowam River	Created roadside swale to guide flow into cb.

4/18/2022	8 Phesant Lane	1/2 Day	4 men, mini ex., small dump trucks.	appx. 4 cubic yards - sediment, brush, and debris	Rippowam River	Removed logs, brush, leaves, debris. Opened inlet pipe to ensure proper drainage.
4/19/2022	Howard Rd. - twin 24" RCP inlets	1 Day	4 men, mini ex., small dump trucks.	appx. 4 cubic yards - sediment, brush, and debris	Mianus River	Removed logs, brush, leaves, debris. Opened up inlets.
4/20/2022	73 Mill Rd. on Mohawk Trail	1/3 Day	2 men, small dump truck	appx. 4 cubic yards - sediment, brush, and debris	Mianus River	Removed logs, brush, leaves, debris. Opened up inlet pipe to ensure proper drainage.
5/11/2022	Howard Rd. - excavated and dug out three (3) buried catch basins.	1 Day	6 men, mini ex., small dump trucks.	appx. 8 cubic yards - sediment, brush, and debris	Mianus River	Removed logs, brush, leaves, debris. Opened up catch basins to ensure proper drainage.
5/19/2022	53 and 71 Arrowhead Dr.	1 Day	4 men, stetco, small dump trucks	appx. 5 cubic yards total of dirt and debris removed from pipe inlets.	Rippowam River	Cleared inlet pipes
5/24/2022	216 East Middle Patent Rd.	1 Day	4 men, mini ex., small dump trucks.	4 cubic yards brush, logs, leaves, and debris.	Rippowam River	Cleared accumulated debris and sediment at twin 24" inlets.
5/24/2022	295 Woodbine Rd.	1 Day	4 men, mini ex., small dump trucks.	4 cubic yards brush, logs, leaves, and debris.	Rippowam River	Excavated 12" CMP inlet which was completely buried. Jetted and CCTV existing pipe. Added to list for pipe replacment.
6/1/2022	Trinity Pass Rd. past Bonny Glen Rd.	2 Days	4 men, mini ex., small dump trucks.	Added 10 yds backfill, surge stone, seed and hay.	Rippowam River	Stabalized road edge and directed storm flow off the road. All soils stabalized seed and hay.
6/1/2022	Chestnut Hill Rd. at Jordan Ln.	1 Day	3 men, small dump trucks.	4 cubic yards brush, logs, leaves, and debris.	Rippowam River	Cut back brush at headwall, created leakoff, cleared inlets.
6/1/2022	66 West View Lane	3 Days	4-6 men,mini excavator and small dump trucks	appx. 10 cubic yards - sediment, brush, debris, rocks blocking inlet.	Rippowam River	Cleared debris at bank, stabalized stream bank, rip rap at outlet, seed and hay. Coconut fiber/jute mat used on slope. Also opened up inlet pipe.
6/2/2022	88 Minaus Rd.	1 Day	4 men,mini excavator and small dump trucks	appx. 2 cubic yards debris removal at storm pipe inlets on east side of road.	Mianus River	Removed debris from RCP pipe inlets.
6/3/2022	40 Laurel Rd.	1 Days	6 men,mini excavator and small dump trucks	appx. 4 cubic yards - sediment, brush, and debris	Rippowam River	Cleared leaves and debris at storm pipe inlet.

APPENDIX J

2021-2022 IDDE DRY WEATHER SCREEN DATA SUMMARY TABLE

Site Name	Date	Time	Ammonia	Surfactants	pH	Chlorine	Total Coliform Reported MPN	E. coli Reported MPN	Enterococccus Reported MPN		Notes
MH-1900	8/2/2021	956					3973	47			Half of inside ledge collapsed (see photo)
MH-6609	8/2/2021	1006					> 2420	63			Very small flow
MH-1888	8/2/2021										Couldn't open
MH-266	8/2/2021										Side pipe dry indicating branch is dry. Did not sample main flow
MH-6608	8/2/2021	1013					> 2420	34			Billowy iron slime-looking substance in both CB pipes. Looked gross. Flow only apparent from one CB.
MH-6608 SP	8/2/2021	1015	0.0				> 2420	326			From CB. Side pipe in CB where flow was intermittent is filled with roots (tried to break through, but couldn't
MH-6605	8/2/2021	1025					> 2420	28			
MH-6604	8/2/2021	1027	0.0				> 2420	41			Side pipe of prior concern is wet, but no flow. CB is stagnant with bubbles (likely from decay)
Noroton 2	8/2/2021	1054					> 2420	365			
Noroton 1.75	8/2/2021	1102					> 2420	435			
DIS-63	8/2/2021	1113					> 2420	23			On Lennox
Noroton 1.6	8/2/2021	1113					> 2420	308			Middle of river from Lennox (Stamford Side)
Noroton 1.55	8/2/2021	1128					> 2420	201			Brookside Drive just upstream of I-19 bridge (Stamford side)
Noroton 1.5	8/2/2021	1137					> 2420	222			
Wardwell Street CB	8/3/2021	935	0.50	n/a		0.00	> 241960	104624			Sample was heavily sedimented.
Noroton 1.75	8/12/2021	1002					> 2420	> 2420			
Noroton 1.75	8/26/2021	1013					> 4839	313			Recalibrated DO
Noroton 1.75	8/31/2021	1126					> 4839	1540			
Noroton 4	10/21/2021	957					1961	59			
DIS-9	10/21/2021	956									Dry
MH-1900	10/21/2021	1000	0.0				3106	163			
DIS-98	10/21/2021	1015									Trickle. Couldn't sample. Currently emptying pool. Maybe the pipe was wet from that?
MH-1899	10/21/2021	1018									Dry
DIS-97	10/21/2021	1026									Dry
DIS-95	10/21/2021	1030									Dry
DIS-94	10/21/2021	1038									Dry
DIS-89	10/21/2021	1042									Dry
DIS-96	10/21/2021	1044									Dry
Noroton 3	10/21/2021	1045					> 4839	247			Scared ducks when sampling
DIS-1412	10/21/2021	1047									Dry
DIS-1338	10/21/2021	1100					4839	288			Huge outfall, lots of flow
Noroton 2	10/21/2021	1104					4839	2092			
DIS-1268	10/21/2021	1110									Dry
DIS-1266	10/21/2021	1125									Cannot easily access. Looks partially submerged. CBs stagnant
DIS-1267	10/21/2021	1125									Cannot easily access. Looks partially submerged. CBs stagnant
DIS-58	10/21/2021	1133					1159	6			Small trickle
Noroton 1.75	10/21/2021	1133					4839	651			
DIS-63	10/21/2021	1142					> 4839	> 4839			trickle
DIS-62	10/21/2021										Homeowner let us in their fenced in yard to check outfall. Dry
MH-7731	10/21/2021	1147									This was the first MH in the system we could open. Dry
DIS-902	10/21/2021	1210									Cannot locate but CB mapped is filled with dirt
DIS-892	10/21/2021	1215					4839	83			North Pipe
DIS-893	10/21/2021	1215					> 4839	73			South Pipe
DIS-785	10/21/2021	1225									Can see under 95 but cannot walk to it. Flowing.
Unnamed Darien OF unc	10/21/2021	1222					> 4839	74			
MH-7562 Pipe	12/13/2021	951	3.00	0.00	7.20	0.00	> 241960	> 241960	> 24196		Side pipe to CB had flow and was discolored. Alkalinity 80, Harness 120
MH-7562	12/13/2021	1009		0.00			> 241960	> 241960	> 24196		Main line sampled after dye test, sample was green tinted.
MH at 82 Givens Avenue	12/13/2021	1011	0.50	0.00	6.8	0.00	> 24196	8664		1246	Alkalinity 40, Harness 120
MH-7563	12/20/2021	925	0.25		6.2	0.00	46111	13540		1296	Hardness 425, Alkalinity 40, Free chlorine 0
Haig	3/23/2022	1120	0.00			0.37	770	< 1			Sample ice cold. Also used chlorine test strips which came back 0.
MH-7562	4/5/2022	938	0.00	0.25	6.8	0.01	4611	2098		594	No flow observed
MH-7563	4/5/2022	938	0.00	0.25	6.8	0.02	2407	870		369	Minimal flow observed
MH-7564	4/5/2022	947	0.00	0.25	6.8	0.00	2827	690		279	Flow
MH-7562SP	4/5/2022	943	0.25								Slightest trickle. Could only get enough sample to run an ammonia test
MH-7480	4/5/2022	1015	0.00	0.50	6.8	0.01	7270	3654		2187	
MH-667	4/5/2022	1020	0.00	0.50	6.8	0.04	4884	2282		1334	

Site Name	Date	Time	Ammonia	Surfactants	pH	Chlorine	Total Coliform Reported MPN	E. coli Reported MPN	Enterococccus Reported MPN	Notes
MH-666	4/5/2022	1023	0.00	0.50	6.8	0.05	5475	2014	1421	
MH-7561	4/11/2022	1400	0.00	0.50	7.2	0.07	> 24196	2098	933	
MH-7561 E	4/11/2022	1404	0.00				> 24196	5172	1043	Sample only large enough for bacteria and ammonia
MH-7561 W	4/11/2022	1406	0.00							Trickle tight against wall. Only enough sample for ammonia
MH-7577	4/11/2022	1445	0.00	0.50	6.90	0.01	24196	1674	443	MH on East Ave. Flow into basin from both side pipes but couldn't grab samples of side pipes
DIS-50	4/11/2022	1435								Pipe half submerged and no visible flow in either direction
DIS-370	4/21/2022	1320	0.00	0.50	6.00	0.02	4839	13		
MH-4037	4/21/2022	1315	0.00	0.50	6.20	0.02	3466	32		
By bridge	4/21/2022	1400	0.25	0.50	6.50	0.01	> 4839	357		
Stakes 10-11	4/21/2022	1405	0.00	0.50	6.50	0.01	> 4839	387		An odor consistently smelled here when walking by. Faint and shited with the wind.
DIS-63	6/1/2022	1017					> 4839	83		Lots of foam at base of outfall
MH-7734A	6/1/2022	1042	0.00				> 4839	17		
MH-7734B	6/1/2022	1059					> 4839	15		
MH-X	6/1/2022									Dry
MH-1105	6/1/2022									Unable to locate
MH-1104	6/1/2022	1119					> 4839	20		
MH-7733	6/1/2022									Dry
MH-1092	6/1/2022									Unable to locate
MH-1091	6/1/2022									Unable to locate
MH-1090	6/1/2022									Unable to locate
MH-1102	6/1/2022									Did not open, DOT MH
MH-1103	6/1/2022									Did not open, in grass
MH-1900	6/1/2022	1217					4839	321		
MH-6610	6/1/2022	1222		0.25			4839	498		Bubbles (white) in pipe. Did surfactants at lab.
MH-266	6/1/2022	1225								Bubbles in pipe. Unable to sample due to traffic.
MH-1889	6/1/2022	1226								Flow from both pipes. Unable to sample due to traffic.
MH-6609	6/1/2022	1229					4839	345		
MH-6608	6/1/2022	1236					4839	303		
MH-6605	6/1/2022	1240					4839	98		
MH-6604	6/1/2022	1245					4839	172		Unidentificable fowl organic odor coming from MH?
New uncovered MH on Hidden Brook Dr	6/1/2022	1252								Dry
DIS-63	6/13/2022	1007	0.00				4839	977		Foam at base of OF
MH-7734A	6/13/2022	1040					2419	1046		
MH-7734B	6/13/2022	1030					2419	579		
MH-1104	6/13/2022	1059					2419	921		
MH-7733	6/13/2022	1043								Had pooled water, but no flow

Site Name	Date	Time	Water Temp ° C	Dissolved Oxygen mg/L	Conductivity µmho/cm	Salinity ppt	Total Coliform Reported Outside range?	Total Coliform Reported MPN	E. coli Reported Outside range?	E. coli Reported MPN	Enterococcus Reported Outside range?	Enterococcus Reported MPN	Notes	305B Segment	Latitude	Longitude	Sample Location Type
Noroton 8	5/4/2022	1009	12.9	10.27	249.7		>	2419.6		68.9				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	5/4/2022	1019	12	10.35	224.8		>	2419.6		24.6				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	5/4/2022	1029	12.7	10.11	275			2419.6		17.9				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	5/4/2022	1040	13.4	10.04	271.3			2419.6		5.2				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	5/4/2022	1046	13	9.95	280.1		>	2419.6		50.4				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	5/4/2022	1057	13.2	8.47	365.1		>	2419.6		160.7				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	5/4/2022	1105	13.2	9.41	305.2		>	2419.6		261.3				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	5/4/2022	1120	13	9.83	418		>	2419.6		435.2		413.5		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	5/25/2022	940	18.8	4.59	317.3		>	2419.6		686.7				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	5/25/2022	1000	16.3	7.65	256.9		>	2419.6		30.1				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	5/25/2022	1025	19	8.3	327.6			193.5		5.2				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	5/25/2022	1038	19.4	7.99	324.6		>	4839.2		1454				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	5/25/2022	1051	17.7	7.98	324.7		>	2419.6		275.5				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	5/25/2022	1105	18.3	7.28	422.8		>	2419.6		261.3				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	5/25/2022	1117	17.1	7.54	420.4		>	2419.6		488.4				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	5/25/2022	1129	18.9	3.54	30885	21.9	>	4839.2		113.7		119.9		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	5/31/2022	946	22.5	4.3	397.2			1011.2		344.1				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	5/31/2022	958	19.7	6.72	278.1		>	2419.6		48.8				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	5/31/2022	1010	22	8.72	338			1732.9		6.2				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	5/31/2022	1024	23.2	7.21	347.6		>	4839.2		88.7				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	5/31/2022	1031	21.6	7.92	351.3		>	2419.6		517.2				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	5/31/2022	1046	22.3	6.69	457			461.1					Values for	CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	5/31/2022	1057	20.7	6.37	449.8		>	2419.6		1299.7				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 8	6/15/2022	1244	23.2	2.59	372.5		>	2419.6		125.9				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	6/15/2022	1233	21.7	7.54	309.3		>	2419.6		13.2				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	6/15/2022	1220	22	7.58	347.2		>	2419.6		71.7				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	6/15/2022	1207	23.4	7.41	323.7		>	2419.6		79.8				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	6/15/2022	1159	21.3	7.38	340.7		>	2419.6		344.8				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	6/15/2022	1148	21.3	6.06	450.2		>	2419.6		579.4				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	6/15/2022	1142	20.1	6.04	474	0.2	>	4839.2		581.9				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 8	7/6/2022	1017	21.3	0.24	311.4		>	2419.6		260.3				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	7/6/2022	1028	21.8	5.5	215.8		>	2419.6		12.2				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	7/6/2022	1038	25.3	7.33	273		>	2419.6		13.2				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	7/6/2022	1048	24.1	7.7	256.8		>	2419.6		290.9				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	7/6/2022	1054	22	7.06	257.3		>	2419.6		1732.9				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	7/6/2022	1105	23.3	4.55	416.5		>	2419.6		185				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	7/6/2022	1111	21.8	5.98	403.7		>	4839.2		1158.9				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	7/6/2022	1120	24.5	3.28	29110	18.1	>	4839.2		317.1		259		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	7/21/2022	924	25.8	1.08	332.2		>	2419.6		235.9				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	7/21/2022	935	23.7	4.51	272		>	2419.6		141.4				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	7/21/2022	950	26.4	6.6	301.4		>	2419.6		30.5				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	7/21/2022	1005	26.2	7.15	318.6		>	2419.6		93.2				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	7/21/2022	1014	24.8	6.79	330.1		>	4839.2		1373.3				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	7/21/2022	1024	25.9	4.93	418		>	2419.6		275.5				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	7/21/2022	1035	24.8	4.67	421.5		>	4839.2		774.6				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	7/21/2022	1047	27.1	0.62	33128	20.8	>	2419.6		488.4		857.4	Water look	CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	8/11/2022	936	22	0.13	506		>	2419.6		248.1				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	8/11/2022	951	23.6	4.63	287.1		>	2419.6		6.3				CT7403-00_03	41.14108	-73.51167	Instream

Site Name	Date	Time	Water Temp ° C	Dissolved Oxygen mg/L	Conductivity µmho/cm	Salinity ppt	Total Coliform Reported Outside range?	Total Coliform Reported MPN	E. coli Reported Outside range?	E. coli Reported MPN	Enterococcus Reported Outside range?	Enterococcus Reported MPN	Notes	305B Segment	Latitude	Longitude	Sample Location Type
Noroton 5	8/11/2022	1000	26.6	4.13	315.7		>	2419.6	<	1				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	8/11/2022	1009	23.4	8.67	303.9		>	2419.6		206.4				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	8/11/2022	1017	21.8	6.01	337.9		>	2419.6		1986.3				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	8/11/2022	1028	25.2	3.25	577		>	2419.6		43.7				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	8/11/2022	1041	24.2	5.13	578		>	2419.6		1986.3				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	8/11/2022	1050	26.5	4.95	37642	23.8	>	4839.2	>	4839.2		1019.3		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	8/18/2022	942	18.8	4.48	421.4		>	2419.6		70.3				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	8/18/2022	954	19.1	6.33	307.3		>	2419.6		2				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	8/18/2022	1010	24.2	5.38	323.8		>	2419.6		11			Water a bit	CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	8/18/2022	1021	19.9	4.91	325.8		>	2419.6		113				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	8/18/2022	1029	18.9	6.93	355.1		>	4839.2		1540.2				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	8/18/2022	1038	21.4	5.07	620		>	2419.6		35				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	8/18/2022	1044	20.4	5.28	609		>	4839.2		626				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	8/18/2022	1053	23.8	2.31	41343	26.5	>	4839.2	>	4839.2		793.6		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	9/7/2022	955	20.7	3.54	371.3		>	9678.4		3683.4				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	9/7/2022	1005	19.6	7.29	269.1		>	9678.4		6931.6				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	9/7/2022	1019	20.8	7.64	362.5		>	9678.4		1379.2				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	9/7/2022	1031	22.6	7.15	353.6		>	9678.4		689.3				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	9/7/2022	1040	22	7.38	354.5		>	9678.4		898.7				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	9/7/2022	1049	20.8	6.32	299.8		>	9678.4		2068.8				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	9/7/2022	1108	20.6	6.31	279.5		>	9678.4		3465.8				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	9/7/2022	1118	22.8	2.4	40199	25.7	>	9678.4		2746.7		4884.4		CT-W1_016-SB	41.06093	-73.50735	Instream
Noroton 8	9/15/2022	1039	20.2	6.01	305.7		>	2419.6		613.1				CT7403-00_03	41.15925	-73.51421	Instream
Noroton 7	9/15/2022	1050	18.5	7.61	293.8		>	2419.6		344.8				CT7403-00_03	41.14108	-73.51167	Instream
Noroton 5	9/15/2022	1059	20.7	8.3	298.6		>	2419.6		54.5				CT7403-00_03	41.11868	-73.5013	Instream
Noroton 4	9/15/2022	1111	20.4	8.8	325.7		>	2419.6		228.2				CT7403-00_02	41.1029	-73.50982	Instream
Noroton 3	9/15/2022	1120	19.3	8.33	334		>	4839.2		321.4				CT7403-00_02	41.0953	-73.514425	Instream
Noroton 2	9/15/2022	1128	20.5	7.99	406.3		>	2419.6		365.4				CT7403-00_01	41.0753	-73.5155	Instream
Noroton 1.75	9/15/2022	1137	19.8	7.3	402.1		>	4839.2		480.1				CT7403-00_00	41.07218	-73.510991	Instream
Noroton 1	9/15/2022	1149	20.5	6.91	3050	1.6	>	9678.4		373.7		135		CT-W1_016-SB	41.06093	-73.50735	Instream

Site Name	Date	Time	Water Temp ° C	Dissolved Oxygen mg/L	Conductivity µmho/cm	Salinity ppt	Total Coliform Reported Outside range?	Total Coliform Reported MPN	E. coli Reported Outside range?	E. coli Reported MPN	Enterococcus Reported Outside range?	Enterococcus Reported MPN	Notes	305B Segment	Latitude	Longitude	Sample Location Type
Rippowam 12	5/2/2022	903	12.8	9.02	155.1		>	2419.6		39.3				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	5/2/2022	913	12.4	10.02	163.6			2419.6		19.9				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	5/2/2022	920	14.1	9.47	172.5			1119.9		36.4				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	5/2/2022	927	13.9	9.55	186.8			1413.6		19.9				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	5/2/2022	937	12.7	9.3	219.7			1011.2		72.7				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	5/2/2022	952	12.8	9.77	304.8			980.4		112.6				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	5/2/2022	1004	12.8	10	330			1553.1		73.3				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	5/2/2022	1015	12.7	9.69	349.6		>	2419.6		365.4				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	5/2/2022	1028	12.7	9.63	356.1		>	2419.6		1553.1				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	5/2/2022	1036	12.7	10.18	377.9		>	2419.6		1732.9				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	5/2/2022	1050	12.9	10.02	390.7		>	2419.6		2419.6		1789		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	5/26/2022	1151	16.9	8.52	87.6		>	2419.6		48				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	5/26/2022	1143	16.4	9.18	188.8			1732.9		33.1				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	5/26/2022	1134	19.1	8.56	197.7			1553.1		10.9				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	5/26/2022	1125	19.3	8.78	106.7			2419.6		39.9				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	5/26/2022	1115	16.6	9.63	238.7		>	2419.6		56.3				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	5/26/2022	1056	16.2	9.54	355.8			2419.6		104.3				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	5/26/2022	1043	15.9	10.8	5.7		>	2419.6		365.4				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	5/26/2022	1030	15.5	9.87	417.4		>	2419.6		365.4				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	5/26/2022	1015	15.5	9.83	416.3		>	4839.2		551				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	5/26/2022	1001	15.4	9.35	434.1			4839.1		581.9				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	5/26/2022	943	15.5	8.4	564		>	4839.2		1002.4		359.2		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	5/31/2022	954	22.1	6.67	214		>	2419.6		23.1				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	5/31/2022	1006	21.5	8.04	219.3			1011.2		41.4				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	5/31/2022	1021	23.5	7.34	214.2		>	2419.6		20.9				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	5/31/2022	1033	23.5	7.41	245.8		>	2419.6		48.7				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	5/31/2022	1047	21.5	7.04	280.5			960.6		80.1				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	5/31/2022	1106	19.8	8.78	418.2		>	2419.6		228.2				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	5/31/2022	1125	20.4	8.67	454.9		>	2419.6		547.5				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	5/31/2022	1144	20.7	8.14	495		>	2419.6		261.3				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	5/31/2022	1157	21.2	8.57	492		>	4839.2		651.1				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	5/31/2022	1211	21.6	8.96	102.2		>	4839.2		689.6				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	5/31/2022	1226	19.1	9.13	36994	23.6	>	4839.2		1373.3		203.4		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	6/14/2022	951	20.5	6.02	217.2		>	2419.6		156.5				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	6/14/2022	1001	20.1	7.68	213.8		>	2419.6		70.3				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	6/14/2022	1007	21.2	7.14	218.4		>	2419.6		35.9				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	6/14/2022	1017	21.2	7.58	220.8		>	2419.6		146.7				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	6/14/2022	1025	19.7	7.35	239.4		>	2419.6		145				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	6/14/2022	1052	20.2	8.44	367.6		>	2419.6		172.5				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	6/14/2022	1102	19.4	8.42	439.5		>	2419.6		648.8				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	6/14/2022	1116	19.6	7.76	418.7			1732.9		488.4				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	6/14/2022	1130	19.7	9.09	423.9		>	4839.2		976.9				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	6/14/2022	1144	20	9.35	447		>	4839.2		2092.5				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	6/14/2022	1157	17.3	7.08	35196	26.3	>	9678.4		1252		575.6		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	7/12/2022	1154	20	6.65	243.4			1986.3		209.8				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	7/12/2022	1147	22.1	7.71	245.5			2419.6		52.9				CT7405-00	41.17561	-73.5292	Instream

Site Name	Date	Time	Water Temp ° C	Dissolved Oxygen mg/L	Conductivity µmho/cm	Salinity ppt	Total Coliform Reported Outside range?	Total Coliform Reported MPN	E. coli Reported Outside range?	E. coli Reported MPN	Enterococcus Reported Outside range?	Enterococcus Reported MPN	Notes	305B Segment	Latitude	Longitude	Sample Location Type
Rippowam 11	7/12/2022	1142	24.6	4.33	233.8		>	2419.6		43.5				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	7/12/2022	1124	23.5	4.65	259.7		>	4839.2		689.6				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	7/12/2022	1112	20.4	6.91	302.6		>	2419.6		98.5				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	7/12/2022	1054	21	7.97	410		>	2419.6		920.8				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	7/12/2022	1042	20.5	8.12	367		>	2419.6		816.4				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	7/12/2022	1028	20.8	7.77	518		>	2419.6		365.4				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	7/12/2022	1018	20.9	8.19	526			4839.1		774.6				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	7/12/2022	1007	21.5	6.55	582			3972.6		321.4				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	7/12/2022	955	22.5	6.38	30702	19.1	>	9678.4		2908		520.1		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	7/18/2022	1252	21.6	5.04	230.5		>	9678.4		7945.2				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	7/18/2022	1240	22.2	6.22	249.2		>	9678.4		3683.4				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	7/18/2022	1239	25.3	4.97	249		>	9678.4		1045				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	7/18/2022	1231	29.8	6.12	264.9		>	9678.4		87.3				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	7/18/2022	1222	21.9	6.07	303.7		>	9678.4		1844.4				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	7/18/2022	1157	21.9	7.51	476		>	9678.4		6931.6				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	7/18/2022	1148	22.3	6.83	519		>	9678.4		9678.3				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	7/18/2022	1137	22.1	6.05	577			9678.3		1302.2				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	7/18/2022	1129	22.4	5.61	577		>	9678.4	>	9678.4				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	7/18/2022	1118	22.8	6.2	604		>	9678.4	>	9678.4				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	7/18/2022	1107	23.4	5.78	4299	2.3	>	24196	>	24196	>	24196		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	8/8/2022	1027	23.8	4.79	238.7		>	2419.6		275.5				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	8/8/2022	1044	25.5	5.91	251.7		>	2419.6		19.9				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	8/8/2022	1100	28.2	4.2	249.3		>	2419.6		579.4				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	8/8/2022	1112	26.6	0.47	276.5		>	4839.2		109.2				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	8/8/2022	1130	30.5	7.72	282.2		>	2419.6		86				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	8/8/2022	1153	24.7	7.44	437.3			4839.1		104.1				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	8/8/2022	1200	25.8	8.01	329		>	4839.2		1732.9				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	8/8/2022	1212	25.6	1.89	550			4839.1		456.4				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	8/8/2022	1221	26.4	7.47	553			4813.3		550.4				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	8/8/2022												GPS broug	CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	8/8/2022												Ran out of	CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	8/25/2022	1137	20.8	5.77	251.3		>	2419.6		193.5				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	8/25/2022	1127	22.6	7.02	254.5		>	2419.6		10.8				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	8/25/2022	1112	24.8	2.87	268.6		>	2419.6		25.6				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	8/25/2022												Too dry- n	CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	8/25/2022	1052	20.9	7.22	303.9		>	2419.6		488.4				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	8/25/2022												Constructi	CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	8/25/2022	1021	21.6	8.62	531		>	4839.2		3106.2				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	8/25/2022	1007	21.8	1.74	553			3972.6		344.9				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	8/25/2022	953	21.9	7.42	553			3080.4		498.3				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	8/25/2022	940	22.3	6.85	613			3683.4		857				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	8/25/2022	920	24.5	2.92	39493	24.6	>	24196		24195.7		268.6		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	9/1/2022	1130	19.2	6.53	249.8		>	2419.6		547.5				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	9/1/2022	1123	21	7.16	259.4		>	2419.6		27.2				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	9/1/2022	1113	23.3	2.57	278.7		>	2419.6		69.7				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	9/1/2022	1104	21.3	1.67	303.2		>	2419.6		95.9				CT7405-00	41.16153	-73.5384	Instream

Site Name	Date	Time	Water Temp ° C	Dissolved Oxygen mg/L	Conductivity µmho/cm	Salinity ppt	Total Coliform Reported Outside range?	Total Coliform Reported MPN	E. coli Reported Outside range?	E. coli Reported MPN	Enterococcus Reported Outside range?	Enterococcus Reported MPN	Notes	305B Segment	Latitude	Longitude	Sample Location Type
Rippowam 9	9/1/2022	1052	21.1	7.69	304.6		>	2419.6		115.3				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	9/1/2022												Constructi	CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	9/1/2022	1028	20.2	8.57	519			6212.5		1642.3				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	9/1/2022	1016	20.2	7.28	501			4185		335.7				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	9/1/2022	1008	20.3	7.74	508			3683.4		503.6				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	9/1/2022	957	20.6	7.45	562			6931.6		525.4				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	9/1/2022	947	22	6.66	12704	7.3	>	48392		2909.8		553.9		CT-W1_01	41.04813	-73.5454	Instream
Rippowam 12	9/22/2022	1136	18.3	6.89	246.3		>	4839.2	>	4839.2				CT7405-00	41.18524	-73.53	Instream
Rippowam 11.5	9/22/2022	1126	18.7	7.98	199.9		>	2419.6		980.4				CT7405-00	41.17561	-73.5292	Instream
Rippowam 11	9/22/2022	1118	21	6.87	216.4		>	2419.6		24.1				CT7405-00	41.17234	-73.5313	Instream
Rippowam 10	9/22/2022	1105	20.8	7.94	255.4		>	2419.6		101.9				CT7405-00	41.16153	-73.5384	Instream
Rippowam 9	9/22/2022	1058	18.3	7.52	309.1		>	2419.6		579.4				CT7405-00	41.15023	-73.5341	Instream
Rippowam 7	9/22/2022	1040	18.6	8.6	416.8		>	4839.2	>	4839.2				CT7405-00	41.10559	-73.5586	Instream
Rippowam 5	9/22/2022	1028	19	8.58	411			4044.6		4044.6				CT7405-00	41.08559	-73.5566	Instream
Rippowam 4	9/22/2022	1015	18.8	8.4	515		>	9678.4		3465.8				CT7405-00	41.06617	-73.5576	Instream
Rippowam 3	9/22/2022	1006	19.6	10.68	426.2		>	9678.4		9678.3				CT7405-00	41.06593	-73.5491	Instream
Rippowam 2	9/22/2022	955	20	7.61	478		>	9678.4	>	9678.4				CT7405-00	41.05904	-73.5466	Instream
Rippowam 0.5	9/22/2022	943	22	5.17	33610	21.1	>	48392		6510.8		1721.6		CT-W1_01	41.04813	-73.5454	Instream

APPENDIX K

2021-2022 IDA Event Road Damages

Applicant:	**DR #:**																			
County Road Name or Number	Force Account (FA) or Contract	Start Latitude	Start Longitude	End Latitude	End Longitude	Road Composition	Exact Culvert Location Lat/Long	Complete Damage Description with Dimensions	Additional Comments	Damaged Area Linear FT	Damaged Area Width FT (Average)	Damaged Area Depth FT (Average)	Reshaped Area Linear FT	Reshaped Width FT (Average)	Square Yds Of Reshaping	Reclaimed Gravel (G)/Dirt (D) CY	Material Invoice #	Gravel (Tons)	Asphalt (Tons)	Repairs completed to pre-disaster condition as of 7/1/22	Approximate Year Built or Last Paved
#83 / 97 Acre View Dr.	Contract	41.149323	-73.546497	41.149323	-73.546497	Asphalt	41.149323/-73.546497	City of Stamford stormwater manhole damaged by hydraulic pressure and flow from Ida. MH frame disconnected from base. Structural damage to MH base. During the storm, the water volume exceeded the ability of 18" RCP storm pipe and associated MH to contain and convey flow. MH was engineered to turn the primary storm conveyance 90 degrees in an easterly direction, and discharge to nearby pond. Available constructuction technologies during roadway constuction from the 1960's utilized concrete block to constructe MH base, which failed during the storm. Area damgaged appx. 15' x 15'.	Existing block MH demoed and rebuilt w/ parged and harded invert elevations to faciliate smooth transition of flow in easterly direction toward pond. MH frame secured to base. Soil, seed, and hay to stabailze all exposed soils.	n/a	n/a	3' - 5' average depth to structures and MH base	n/a	n/a	n/a	n/a	Arnow 19146	8 CY	3 ton	Yes	Stormwater infrastructure built appx. 1960
30 Parry Road	Contract	41.116032	-73.52672	41.116032	-73.52672	Asphalt	41.116032/-73.52672	Initial damage assessment this area captured a sink hole which opened up along the shoulder at the north side of roadway. Sinkhole occurred at location where lateral pipe from adjancent catch basin tied to 36" RCP culvert. Culvert and associated drainage constructed to convey flow from stream generally in a north-south alignment under roadway when it was built 1960's vintage. Area damaged appx. 15' 20'.	Sink hole excavated to expose damage to existing infrastructure. Determined that piping, adjacent catch basin, and connection to 36" RCP culvert required to be replaced and reconstructed to ensure reasonable drainage performance.	n/a	n/a	4' - 6' average depth to structures and MH base	n/a	n/a	n/a	n/a	Arnow 19149	16 CY	4 ton	Yes	Stormwater infrastructure built appx. 1960
Plymouth Road	Contract	41.069262	-73.530685	41.069381	-73.526869	Asphalt	N/A	Plymouth road significantly damaged as a result of Ida on 9/1/21. Prior to the storm, pavement was in good condition. Post – storm, the road had an 8'deep open hole from the road surface, all the way down to the clay tile storm pipe, installed in 1927. Storm flow exploded up and out of the surface of the road. Grasso was directed to conduct the drainage repairs, which included excavation and portions of pipe replacement, repairing catch basins damaged from the storm, and pavement restoration. Field work included coordination, correction, and repair of utility conflicts which exacerbated the impact of the storm.	Drainage work occurred December / January 2021. Final mill and pavement restoration activities occurred March/April 2022	100' (roadway)	24' (roadway)	8" - 12" depth	100' (roadway)	24' (roadway)	250 sy	see invoice	Grasso Plymouth One Vac - CCTV	per invoice	see invoice	Yes	Stormwater infrastructure built 1927. South side of roadway paved by utility company as related to their resortation work between 2013-2016. North side of roadway paved prior to 1998 based on review of aerial photograph.
Eden Road at Woodbrook Dr.	Contract	41.111883	-73.522085	41.111883	-73.522085	Asphalt	n/a	Springdale Brook overtopped its banks due to storm flow from Ida 9/1/21-9/2/21. Storm flow undermined roadways, damaged pavement, and curbing. Roadway was impassable due to pavement damage.	Portions of Eden Rd. and Woodbrook Drive were reclaimed. New bituminous concrete (aspahlt) was placed on top of new sub base material.	150'LF	24'	2'	150'LF	24'	400 sy	n/a	Grasso 9-20-2021	per invoice	per invoice	Yes	Roadway paved prior to 1998 based on review of aerial photos.
Quarry Road	Contract	41.125874	-73.536998	41.131236	-73.528683	Gravel	N/A	Existing asphalt road surface was in poor condition and was reclaimed during summer of 2021, prior to the Ida storm. At time of Ida 9/1/21 - 9/2/21, the road surface was compacted gravel which was prepared to receive new asphalt surfacing. The storm caused erosion and ruts to the prepped gravel surface, which had to be regraded in order to receive asphalt. The extents of the repair work were generally the entire length and width of the road. Due to topography, some areas required more work than others. Contractor recovered as much gravel from washouts as possible, but additional material was necessary and shown on 9-20-21 invoice.	Road was repaved in fall 2021	3,700 LF	24'	1'	3,700 LF	24 '	+/- 1,000 SY	see invoice	Grasso 9-20-2021	per invoice	N/A	Yes	Roadway paved prior to 1998 based on review of aerial photos.
Blue Rock Drive	Contract	41.130718	-73.532283	41.127898	-73.53202	Gravel	N/A	Existing asphalt road surface was in poor condition and was reclaimed during summer of 2021, prior to the Ida storm. At time of Ida 9/1/21 - 9/2/21, the road surface was compacted gravel which was prepared to receive new asphalt surfacing. The storm caused erosion and ruts to the prepped gravel surface, which had to be regraded in order to receive asphalt. The extents of the repair work were generally the entire length and width of the road. Due to topography, some areas required more work than others. Contractor recovered as much gravel from washouts as possible, but additional material was necessary and shown on 9-20-21 invoice.	Road was repaved in fall 2021	1,100 LF	24'	6" -12"	1,100 LF	24'	+/-1,500 SY	see invoice	Grasso 9-20-2021	per invoice	n/a	Yes	Roadway paved prior to 1998 based on review of aerial photos.
Green Briar Road	Contract	41.129551	-73.534139	41.129575	-73.535308	Gravel	N/A	Existing asphalt road surface was in poor condition and was reclaimed during summer of 2021, prior to the Ida storm. At time of Ida 9/1/21 - 9/2/21, the road surface was compacted gravel which was prepared to receive new asphalt surfacing. The storm caused erosion and ruts to the prepped gravel surface, which had to be regraded in order to receive asphalt. The extents of the repair work were generally the entire length and width of the road. Due to topography, some areas required more work than others. Contractor recovered as much gravel from washouts as possible, but additional material was necessary and shown on 9-20-21 invoice.	Road was repaved in fall 2021	300 LF	24'	6" -12"	300 LF	24'	+/-400 SY	see invoice	Grasso 9-20-2021	per invoice	n/a	Yes	Roadway paved prior to 1998 based on review of aerial photos.
Richmond Hill Ave.	Contract	41.047837	-73.549726	41.047837	-73.549726	Asphalt	41.047837/-73.549726	Asphalt at locking storm MH in vicinity of #150 Richmond Hill was damaged due to pressure and velocity of stormwater flows. Appears that water under high pressure was forced up the MH frame and found its way between the frame and concrete base material and undermined adjacent pavement. Appx. dimensions of damaged asphalt 15' x 15'.	MH opened, mortared, parged, and sealed interior of structure. Asphalt roadway was saw cut and replaced.	15'	15'	8" - 12" depth	15'	15'	n/a	n/a	Arnow 19147	n/a	n/a	Yes	Roadway paved November 2019
Westover Lane	Contract	41.069691	-73.572098	41.069691	-73.572098	Asphalt	41.069691/-73.572098	Storm flow from Ida exceeded the ability of stormwater drainage system to convey flow. Pavement in vicinity of MH-2285 damaged due to storm flow erupting at MH.	MH -2285 to be reset. Interior of MH to be parged and sealed. All open joints to be sealed. Shoulder of roadway to be filled and repairs. Temporary ashphalt placed adjacent to MH (10'x10'). Roadway to be reclaimed and finish paved spring 2022. Area of new pavment appx. 80' x 24' wide.	80' (roadway)	24' (roadway)	8" - 12" depth	80' (roadway)	24' (roadway)	n/a	see invoice	Grasso Westover One Vac - CCTV	see invoice	see invoice	Yes	Roadway paved between 2005 - 2011

County Road Name or Number	Force Account (FA) or Contract	Start Latitude	Start Longitude	End Latitude	End Longitude	Road Composition	Exact Culvert Location Lat/Long	Complete Damage Description with Dimensions	Additional Comments	Damaged Area Linear FT	Damaged Area Width FT (Average)	Damaged Area Depth FT (Average)	Reshaped Area Linear FT	Reshaped Width FT (Average)	Square Yds Of Reshaping	Reclaimed Gravel (G)/Dirt (D) CY	Material Invoice #	Gravel (Tons)	Asphalt (Tons)	Repairs completed to pre-disaster condition as of 7/1/22	Approximate Year Built or Last Paved
200 Willowbrook Avenue	Contract	41.042443	-73.514457	41.042443	-73.514457	Asphalt	41.042443/-73.514457	Post-Ida CCTV work condcuted in stormwater drainage system revealed possible pipe defect at this location. Area was excavated, investigated, and additional concrete and patching made to RCP storm main pipe to secure it.	Area of work occurred in lawn area, off of roadway. No asphalt work included.	10'	6'	6'	10'	6'	n/a	n/a	Arnow 19148 One Vac - CCTV	n/a	n/a	Yes	Stormwater infrastructure built 1954. Roadway last paved prior to 1998.
238 Willowbrook Avenue	Contract	41.040795	-73.514607	41.040795	-73.514607	Asphalt	41.040795/-73.514607	Buried MH at this location erupted due to pressure and flow from Ida. Contractor exavated and exposed 42" RCP storm main pipe. Installed and concreted in place a new steel roadplate at this location to secure pipe as per recommedation by contractor.	Work occurred in lawn area, off of roadway. No asphalt work included. Reestablished finish grade and all exposed soils seeded and hay mulch installed.	10'	6'	6'	10'	6'	n/a	n/a	Arnow 19148 One Vac - CCTV	n/a	n/a	Yes	Stormwater infrastructure built 1954. Roadway last paved prior to 1998.
East Middle Patent Rd.		41.147731	-73.624352	41.140081	-73.625015	Asphalt	n/a	The East side of East Middle Patent Rd. was significantly eroded and damaged as a result from Ida. Damaged areas were backfilled and asphalt patched. New curbing was added along east side of the road to prevent further washouts. New curbing also installed adjacent to the twin 30" culvert crossing. All exposed soils were seeded and hay mulched. All work completed by Highway Dept.	No CCTV work, no significatnt pipe damage this area.	400'	4'	2'	400'	4'	n/a	n/a	n/a	n/a	n/a	Yes	Roadway paved appx. 2013 based on review of aerial photographs.
366 Den Road at Flint Rock Rd.		41.107885	-73.580893	41.107885	-73.580893	Asphalt	41.107885/-73.580893	Storm flow exceeded capacity of existing catch basin on east side of road. Storm flows went over crown of roadway and eroded side of road. Excavation work in ditch required, need to stabilize edge of road with surge stone, pack with process, topsoil, seed, and hay mulch.		100'	4'	12"	100'	4'	n/a	n/a	n/a	n/a	n/a	Yes	Roadway paved appx. Between 2011 - 2005 based on review of aerial photographs.
Interlaken Rd. at Lakeside Rd.		41.123807	-73.535807	41.123807	-73.535807	Asphalt	41.123807/-73.535807	Storm flow exceeded capacity of existing culvert inlet on north side of Lakeside Drive. Storm flows washed over Lakeside Drive and flowed down Interlaken Rd. Storm flows washed away at least 50 lf of curbing into adjacent wetland, and damaged edge of road. Excavation work in ditch , need to stabilize edge of road with surge stone, pack with process, topsoil, seed, and hay mulch.	CCTV work by City of Stamford Stormwater Management Dept. revealed piping issue at intersection. Currently unable to locate inlet on east side of the road. Excavation of road required to CCTV and locate inlet. Roadway excavation underway 7/7/22.	200'	4'	12"	200'	4'	n/a	n/a	n/a	n/a	n/a	No	Portions of roadway paved 2014 and 2008 due to utility restoration. No information available on stormwater infrastructure.
#8 Rockridge Lane / 40 Northwood Lane		41.105351	-73.570493	41.105351	-73.570493	Asphalt	41.105351/-73.570493	Significant damage from Ida in this vicinity. Repair work performed by City staff and included: Clear, remove and haul debris at culvert inlets (Stormwater Management Department) • Sawcut edge of existing asphalt roadway - remove and haul debris (Highway) • Backfill void area with breaker rock / surge stone and compact (Highway) • New asphalt and prep to receive curb (Highway) • +/- 100 lf new 6" curb (Highway) • Establish finish grade, topsoil, seed, and hay (Highway) • Pump and clean upgradient catch basins and jet piping as necessary (Stormwater Management Dept)		100'	2'	12"	100'	2'	n/a	n/a	n/a	n/a	n/a	Yes	Appears to have been paved prior to 1998.

APPENDIX L

2021-2022 DCIA Tracking Sheet

CITY OF STAMFORD

STORMWATER MANAGEMENT STANDARDS - EXEMPTION FORM

SQUARE FEET OF NEW IMPERVIOUS COVERAGE

7/1/21-6/30/22

1	250
2	400
3	288
4	221
5	360
6	60
7	221
8	375
9	33.5
10	-85
11	-29
12	263
13	156
14	85
15	273
16	170
17	183
18	-52.6
19	23
20	394
21	2
22	285
23	221
24	192
25	-283
26	0
27	-810
28	23
29	0
30	190
31	315
32	-377
33	392
34	-385
35	381.54
36	385
37	194
38	384
39	49
40	83
41	324
42	220

43	121
44	-283
45	61
46	70
47	-10
48	42
49	156
50	130
51	152
52	216
53	217
54	235
55	330
56	120
57	-387
58	184
59	219
60	397.3
61	369
62	239.5
63	186
TOTAL	**8139.24**

APPENDIX M

2021-2022 Road Paving Program

6/11/21.

CITY OF STAMFORD PAVING for 2021

ROADS BEING WORKED ON IN THE NEAR FUTURE

= on paving list

ESTIMATED TIME OF COMPLETION

	SPRING PAVING - PAVED BY MAY 31st			as of 6/8/2021	
1	Summer St # 9	Hoyt Street to Broad Street	Paved May 2021	City	
2	Cedar Heights (utility coordination)	Wire Mill Rd to Duke Dr	Paved April 2021	Utility & City	
3	Turn of River Rd # 57	Entire road - Paved	Paved April 2021	City	
4	Gerick Rd (part of neighborhood)	Entire road	Paved April 2021	City	
5	Talmadge Ln (part of neighborhood)	Entire road	Paved April 2021	City	
6	5th Street #35	Between Summer and Bedford	Drainage In Progress	City	– Jose - Mon 6/14/21.
7	3rd Street #130	Between Summer and Bedford	Paved May 2021	City	
8	2nd Street (part of neighborhood)	Between Summer and Bedford	Paved May 2021	City	
9	Oak Street # 50	Between Summer and Bedford	Paved May 2021	City	
10	Lindale St #27	Entire road - sidewalk work Nov 2020	Paved April 2021	City	
11	Highland Rd #56	Entire road - sidewalk work Nov 2020	Paved April 2021	City	
12	Hillcrest Ave (part of neighborhood)	Entire road - sidewalk work Nov 2020	Paved April 2021	City	
13	Largo Dr #31	Entire road	Paved May 2021	City	
14	Riverbend Dr (part of neighborhood)	Entire road	Paved May 2021	City	
15	Eden Rd #46	Entire road	Paved April 2021	City	
16	Brook Run Ln #34	Entire road	Paved May 2021	City	
17	Baker pl (part of neighborhood)	Entire road	Paved May 2021	City	
18	Lakeview Dr (part of neighborhood)	Entire road	Paved May 2021	City	
19	Stone Wall Dr (part of neighborhood)	Entire road	Paved May 2021	City	
20	Coopers Pond Rd (part of neighborhood)	Entire road	Paved May 2021	City	
21	Richmond Pl	Entire road - delayed until Summer	Spring 2021	City	
22	Madison Pl #74	Entire road - delayed until Summer	Spring 2021	City	
23	Spruce Street #43	W. Main St to Stillwater Ave - delayed	Spring 2021	City	
24	Progress Drive	Entire Rd	Spring 2021	City	
25	Butternut Lane	Long Ridge Rd to 125 Butternut Lane	Spring 2021	City	– AFTER 5th.

	SUMMER PAVING - PAVED FROM June 1st to August 31st			
26	Ursula Pl #42	Entire Rd	milling 6/11/2021	City
27	Blachley Rd	Entire rd	Milling 6/14/2021	City
28	Quarry Rd #45	Entire Rd	Survey Done	City
29	Lakeside Dr (part of neighborhood)	Quarry Rd - 500 ft North	Survey Done	City
30	Chapin Ln (part of neighborhood)	Entire Rd	Survey Done	City
31	Greenbrier Ln (part of neighborhood)	Entire Rd	Survey Done	City
32	Blue rock Dr (part of neighborhood)	Entire Rd	Survey Done	City
33	New England Dr (part of neighborhood)	Entire Rd	Survey Done	City
34	Lumanor Dr (part of neighborhood)	Entire Rd	Survey Done	City
35	Cypress Dr (part of neighborhood)	Entire Rd	Survey Done	City
36	Ingleside Dr #49	High Ridge Rd - Laurel	Summer 2021	City
37	Briar Bae Rd #95	Ingleside to Rock Rimmon Rd	Summer 2021	City
	Wynnewood Lane (off of Ingleside)	entire road	Summer 2021	City
38	Scofieldtown Rd	Campbell Dr to Rock Rimmon Rd	Summer 2021	City
39	Brookdale Rd (part of neighborhood)	Entire Rd	Summer 2021	City
40	Campbell Drive (part of neighborhood)	Entire Rd		
41	Rock Rimmon Rd (unfinished)	Scoffieldtown Rd to Mayapple Rd	Summer 2021	City
42	Echo Hill Dr #90	Entire Rd	Summer 2021	City

	FALL PAVING - PAVED FROM September 1st to November 1st			
43	Dale St (utility coordination)	Entire Rd - Utility contributions	Fall 2021	City/Utility
44	St. Benedict Cir #87 (utility coordination)	Entire Rd	Fall 2021	City/Utility
45	Warren St (utility coordination)	Entire Rd - Utility contributions	Fall 2021	City/Utility
46	William St (utility coordination)	Entire Rd - Utility contributions	Fall 2021	City/Utility
47	Myrtle Ave @ William (utility coordination)	small section at William St	Fall 2021	City/Utility
48	Lockwood Ave (utility coordination)	intersections	Fall 2021	City/Utility
49	Woodrow St (utility coordination)	Entire Rd - Utility contributions	Fall 2021	City/Utility
50	West Hill Rd #33	Westover Rd to Stony Brook Dr, 524 West Hill Rd to Roxbury Rd	Survey In Progress	City
51	Cove Rd (utility coordination)	from Cove Park to Avery	Fall 2021	City
52	Dora St (off of Cove)	Cove to Middlebury St (turns into Webb Ave)	Fall 2021	City
53	Windward Lane	off of Riverbank Rd - entire road	Fall 2021	City
54	Hillandale Ave #16	Entire Rd	Fall 2021	City
55	Underhill St (utility coordination)	Entire Rd	Fall 2021	City
56	Arlington Rd (utility coordination)	Entire Rd	Fall 2021	City
57	Valley Rd (utility coordination)	Entire Rd	Fall 2021	City
58	Fenway St (utility coordination)	Entire Rd + entry way	Fall 2021	City
59	Wenzel Terrace # 85 (utility coordination)	Entire Rd	Fall 2021	City
60	Treat Ave (utility coordination)	Entire Rd	Fall 2021	City
61	Cowan Ave (utility coordination)	Entire Rd	Fall 2021	City
62	Abel (utility coordination)	Entire Rd	Fall 2021	City
63	Coolidge Ave (utility coordination)	Entire Rd	Fall 2021	City
64	Glenbrook Rd (utility coordination)	Hope to Arlington	Fall 2021	City
65	Daskam Pl # 69 (utility coordination)	Entire Rd	Fall 2021	City

	SPRING 2022 PAVING			
66	Friar Tuck Ln	entire road	Spring 2022	City
67	Robin Hood Rd	entire road	Spring 2022	City
68	Little John Ln	entire road	Spring 2022	City
69	Nottighham Dr	entire road	Spring 2022	City

CITY OF STAMFORD PAVING for 2022

= on paving list

			ESTIMATED TIME OF COMPLETION		Miles
	SPRING 2022 PAVING				
1	Brookdale Rd (part of neighborhood)	Entire Rd -some curbing left	Spring 2022	City	0.68
2	Plymouth Rd	repair storm damaged area in middle of road	Spring 2022	City	0.02
3	Westover Lane	repair storm damaged area, about 60 feet	Spring 2022	City	0.01
4	Wesgate Dr	part of West Hill Rd drainage work, entire rd	Spring 2022	City	0.13
5	West View Lane #91	part of West Hill Rd scope, entire rd	Spring 2022	City	0.21
6	Ingleside Dr #49	High Ridge Rd - Laurel - apron and curbs left	Spring 2022	City	0.85
7	Briar Bae Rd #95 - milled	Ingleside to Rock Rimmon Rd - drainage in progress	Spring 2022	City	0.81
8	Wynnewood Lane (off of Ingleside)	entire road	Spring 2022	City	0.12
9	Scofieldtown Rd	Gary Rd to Rock Rimmon Rd	Spring 2022	City	1.18
10	Campbell Drive (part of neighborhood)	Entire Rd - curbing finishing this week		City	0.25
11	Rock Rimmon Rd (unfinished)	Scoffieldtown Rd to Mayapple Rd	Spring 2022	City	2.08
12	Echo Hill Dr #90	Entire Rd	Spring 2022	City	0.52
13	Progress Drive	Entire Rd	Summer 2022	City	0.16
14	Dale St (utility coordination)	Entire Rd - Utility contributions	Summer 2022	City/Utility	0.37
15	St. Benedict Cir #87 (utility coordination)	Entire Rd	Summer 2022	City/Utility	0.12
16	Warren St (utility coordination)	Entire Rd - Utility contributions	Summer 2022	City/Utility	0.27
17	William St (utility coordination)	Entire Rd - Utility contributions	Summer 2022	City/Utility	0.31
18	Myrtle Ave @ William (utility coordination)	small section at William St	Summer 2022	City/Utility	0.11
19	Lockwood Ave (utility coordination)	intersections	Summer 2022	City/Utility	0.47
20	Woodrow St (utility coordination)	Entire Rd - Utility contributions	Summer 2022	City/Utility	0.12
21	Windward Lane	off of Riverbank Rd - entire road	Summer 2022	City	0.17
22	Hillandale Ave #16	Entire Rd	Fall 2022	City	0.65
23	Underhill St (utility coordination)	Entire Rd	Fall 2022	City	0.13
24	Arlington Rd (utility coordination)	Entire Rd -drainage in progress	Fall 2022	City	0.15
25	Valley Rd (utility coordination)	Entire Rd	Fall 2022	City	0.19
26	Fenway St (utility coordination)	Entire Rd + entry way - drainage in progress	Fall 2022	City	0.19
27	Wenzel Terrace # 85 (utility coordination)	Entire Rd	Fall 2022	City	0.08
28	Treat Ave (utility coordination)	Entire Rd	Fall 2022	City	0.2
29	Cowan Ave (utility coordination)	Entire Rd	Fall 2022	City	0.13
30	Abel Ave (utility coordination)	Entire Rd	Fall 2022	City	0.02
31	Coolidge Ave (utility coordination)	Entire Rd	Fall 2022	City	0.31
32	Glenbrook Rd (utility coordination)	Hope to Arlington - sidewalk in progress	Fall 2022	City	0.17
33	Daskam Pl # 69 (utility coordination)	Entire Rd - sidewalk in progress	Fall 2022	City	0.05
34	Friar Tuck Ln	entire road	Fall 2022	City	0.25
35	Robin Hood Rd	entire road	Fall 2022	City	0.19
36	Little John Ln	entire road	Fall 2022	City	0.15
37	Nottingham Dr	entire road	Fall 2022	City	0.2
38	Cove Rd (utility coordination)	from Cove Park to Avery	Fall 2022	City	0.33
39	Dora St (off of Cove)	Cove to Middlebury St (turns into Webb Ave)	Fall 2022	City	0.34
40	Euclid Ave (utility coordination)	entire road	Fall 2023	City	0.27

Miles to be Paved 12.96

Paved so far 5.32

Excel

Bank unaccepted roads easy to find

Mill Brook Rd
Mill Brook

16

June Rd
Tod Ln
Guinea Rd
Howard

120	2nd Street	Between Summer and Bedford	Paved May 2021	Mill & Pave	**0.11**	17
121	Oak Street	Between Summer and Bedford	Paved May 2021	Mill & Pave	**0.14**	18
122	Summer St	Hoyt Street to Broad Street	Paved May 2021	Mill & Pave	**0.40**	19
123	5th Street #35	Between Summer and Bedford	Paved June 2021	Relaimed/Paved	0.11	20
124	Richmond Pl	Entire road	Paved June 2021	Mill & Pave	0.10	21
125	Madison Pl #74	Entire road	Paved June 2021	Mill & Pave	0.11	22
126	Spruce Street #43	W. Main St to Stillwater Ave	Paved June 2021	Mill & Pave	0.16	23
127	Butternut Lane	Long Ridge Rd to 125 Butternut Lane	Paved June 2021	Relaimed/Paved	0.44	24
128	Ursula Pl #42	Entire Rd	Paved June 2021	Mill & Pave	0.52	25
129	Blachley Rd	Entire rd	Paved June 2021	Mill & Pave	0.18	26
130	Cypress Dr	Entire rd	Paved Sept 2021	Reclaim & Pave	0.15	27
131	Lumanor Dr	Entire rd	Paved Sept 2021	Reclaim & Pave	0.11	28
132	New England Dr	Entire Rd	Paved Oct 2021	Reclaim & Pave	0.40	29
133	Quarry Rd	Entire Rd	Paved Oct 2021	Reclaim & Pave	0.68	30
134	Blue Rock Dr	Entire Rd	Paved Oct 2021	Reclaim & Pave	0.21	31
135	Greenbrier Ln	Entire Rd	Paved Oct 2021	Reclaim & Pave	0.07	32
136	Chapin Ln	Entire Rd	Paved Oct 2021	Reclaim & Pave	0.05	33
137	Lakeside Dr	From Quarry Rd 600 ft north	Paved Oct 2021	Reclaim & Pave	0.12	34
138	West Hill Ln	Entire road	Paved Nov 2021	Mill & Pave	0.07	35
139	West Hill Rd	Westover Rd to Stony Brook Dr, 524 West Hill Rd to Roxbury Rd	Paved Nov 2021	Mill & Pave	1.53	36

Total Miles Paved by the City since June 2016 | **47.59 Miles**

Year	# Of Roads Paved	Miles of paving
2016	3	**3.23**
2017	39	**16.25**
2018	10	**3.6**
2019	21	**7.17**
2020	30	**7.62**
2021	36	**9.74**
Total	**139**	**47.61**

Past 3 years	
linear feet of piping installed	**14391 ft**
catch basins frames & grates installed	**1399**
manhole covers & frames	**842**
total tons of asphalt	**67085 tons**

CITY OF STAMFORD PAVING LIST

as of December 22, 2021

COLOR CODE KEY
Has Been Paved
Cannot work on road
Crack Seal = road has had cracks filled
In progress = actively working on project
Pending = no actions being taken at this time

129 Roads
74 roads addressed - 57%
55 pending - 43%

Street Name	Draft Rank	STATUS	SEGMENTS
BROAD ST - East	1	Milling to start 10/15/18 at night, paving 10/22/18 at night	East Main to Washington
W. BROAD ST	1	Paved May 2019	Washington to Stillwater
GREENWICH AVE	2	paved July 2020	from Richmond Hill to trian tracks
		Partially paved - working with round-a-bout project	Richmond Hill south to Selleck
ATLANTIC ST	3	waiting on state project	South of 95 -intersection @ Henry to Woodland
		milling to start 10/31/17 at night paved by 11/3	Tresser Blvd to Bedford
		scheduling paving	North State Street to Tresser Blvd
SKYMEADOW DR	4	paved in 2016 by Engineering	
WEST AVE	5	Home Depot intersection - only crack seal	Entire length of road
MAIN ST as well as (Bank St. & W. Park Pl)	6	paved in 2016	Washington Blvd to Clinton Ave
	7	paved 6/21/18	Washington to Atlantic
		Paved Sep 2020	Greyrock to dead end by Sheraton
MYRTLE AVE	8	part of URC project - complete November 2017	Elm St to E. Main St
SUMMER ST	9	PAVED 9-8-2017	Bullshead to Hoyt
		Paved May 2021	Hoyt St to Lower Summer
HOPE ST	10	Paved 12/01/17	Bennett St to Theatre/ Church to Glen Ave
		paved May 22, 2019	Church Street to Viaduct Rd
STILLWATER AVE	11	Sep-19	Spruce to West Main Street
		Apr-19	West Broad to Spruce
MAPLE TREE AVE	12	9/21/2017	entire length, Courtland Ave to Darien border
SELLECK ST	13	Paved July 2020	Southfield to Fairfield
GREYROCK PL	14	Paved July 2020	Broad St to North State St
GREYROCK PL	15	Paved 10/25/2017	Broad St to Grove St
HILLANDALE AVE	16	scheduled for Spring 2022	Entire road
HIGH RIDGE RD	17	PAVED 9-8-2017	Coldspring Rd to Summer St
STRAWBERRY HILL AVE	18	crack seal	
BEDFORD ST	19	paved Sept 2020	Forest St to First St & North St - Bedford to Prospect
GROVE ST	20	crack seal	
NEWFIELD AVE	21	Paved September 12, 2017	Eden Rd to Davenport Ridge Rd circle
		paved May 2019	Denicola Rd to Knox
FARMS RD	22	11/15/2017	Riverbank Rd to town line
HAIG AVE	23	9/1/2017 (Upper Haig (repaved by Aquarion 11-2018))	Weed Hill Ave to Pershing Ave
BERRIAN RD	24	Sep-19	entire road
CHURCH ST	25	Paved 12/01/17	entire road
ELM ST	26	crack seal - 50% complete	Fall 2018
LINDALE ST	27	Paved 10/22/18	from East Main to Forest St
LINDALE ST	27	Paved April 2021	East Main to Hillcrest Ave
PALMERS HILL RD (Havemeyer Rd)	28	Apr-19	from Stillwater Ave to Havemeyer Greenwich line to Palmers Hill
DAVENPORT ST	29	O & G work - waiting for approvals	Entire Road
TACONIC RD	30	11/17/2017	entire portion in Stamford
LARGO DR	31	Paved May 2021	Entire Road
GLENBROOK RD (Hamilton Ave)	32	Drainage complete, milling and paving between 10/22/18 and 10/31/18 - Paved 11/20/18	Hope to Frankel Glenbrook to just past railroad bridge
WESTHILL RD	33	Paved November 2021 (West Hill Ln paved as well)	Westover Rd to Stony Brook Dr, 524 West Hill Rd to Roxbury Rd
BROOK RUN LN	34	Paved May 2021	Entire Road
5TH ST	35	Paved June 2021	Between Bedford St and Summer St
CLEARVIEW AVE	36	schedule for Summer 2022 - crack seal	Entire Road
CRYSTAL ST	37	paved by Eversource gas Sep 2020	2/3 width for entire length
CANAL ST	38	Paved Jul 2020	North St to Tressor
ROXBURY RD	39	Paved June 2017 - HIP + microseal	West Hill Rd to Riverbank Rd
KNOX RD	40	Paved June 2017 - HIP + microseal (repaved by Aquarion 11-2018)	Newfield to Lund - Utility to pave
SOUTHFIELD AVE	41	milled 11/3 - paved 11/09/17	Sunnyside south to Top Gallant
URSULA PL	42	Paved June 2021	Entire Road
SPRUCE ST	43	Paved June 2021	W. Main St. to Stillwater Ave
COLONIAL RD	44	Paved Jul 2020	entire road
QUARRY RD	45	paved entire neighborhood October 2021	Etire Road
EDEN RD	46	Paved April 2021	Entire Road
PULASKI ST	47	round-a-bout project	
VIADUCT RD	48	PENDING	
INGLESIDE DR	49	drainage in progress	Etire Road
OAK ST	50	Paved May 2021	Between Bedford St and Summer St
SCOFIELDTOWN RD	51	scheduled for Spring 2022	Brookdale Rd to Rock Rimmon Rd
UNDERHILL ST	52	traffic redesign at Hillandale	
TRAVIS AVE	53	paved April 2020	Entire road and neighborhood
COOLIDGE AVE	54	Eversource work	
WESTOVER RD	55	Jul-16	entire road
HIGHLAND RD Hillcrest Ave	56	Paved April 2021	Entire Road
TURN OF RIVER RD	57	Paved April 2021 - sidewalk in Progress	Entire Road

CITY OF STAMFORD PAVING LIST

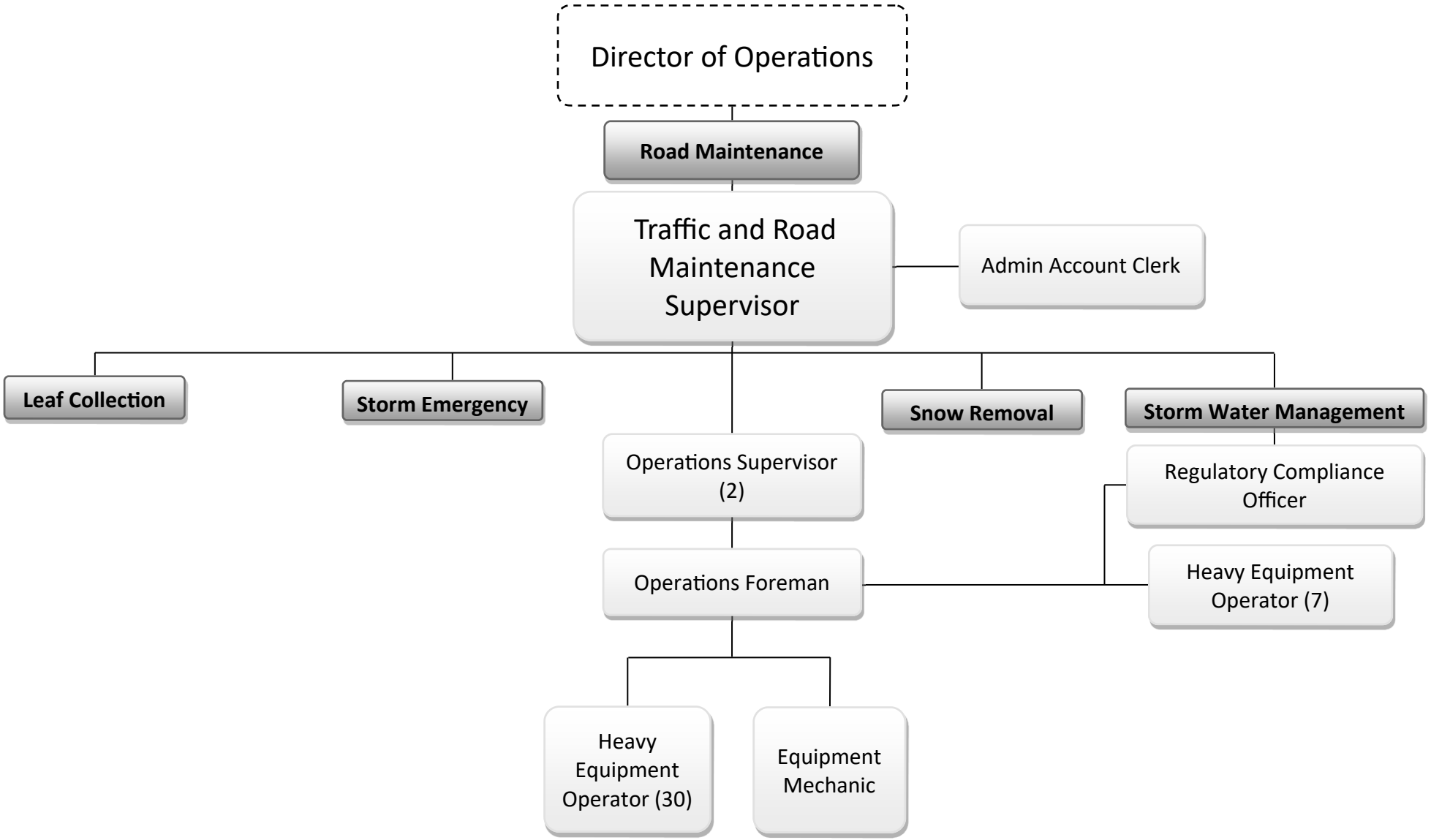
COLOR CODE KEY
Has Been Paved
Cannot work on road
Crack Seal = road has had cracks filled
In progress = activily working on project
Pending = no actions being taken at this time

Street Name	Draft Rank	STATUS	SEGMENTS
SMITH ST (Schuyler Ave)	58	Sep-19	Entire road Entire road
HOME CT	63	PENDING	
DASKAM PL	64	scheduled for Spring 2022	Entire road
WARSHAW PL	65	PENDING	
STONE ST	66	Paved July 2020	entire road along with Cedar and Woodland
WALTON PL	67	Paved 10/26/17	entire road
SHIPPAN AVE	68	Mill and paved July 2017	Southern point to Magee Ave
		Mill and paved November 2020	Magee Ave to Warren St
SHADOW RIDGE RD	69	PENDING	
SHERIDAN ST	70	PENDING	
FOREST ST	71	Paved 10/25/17	Bedford Street to Grove Street
SEASIDE AVE	72	PENDING	
MADISON PL	73	Paved June 2021	Entire Road
WARDWELL ST	74	PENDING	
RICHMOND HILL AVE	75	Paved Nov 2019	Fairfield Ave to Greenwich Ave
WIRE MILL RD	76	Paved Aug 2020	entire road
SKYLINE LN	77	PENDING	
CARRINGTON DR	78	paved 11/13/17	town line to end
LONGVIEW AVE	79	PENDING	
FAIRFIELD AVE - North	80	PENDING	
FAIRFIELD AVE - South	81	PENDING	
PROSPECT ST	82	PAVED 10/26/17	Walton Pl to Forest
NORTH STATE ST	83	PENDING	
WENZEL TER	84	scheduled for Spring 2022	Entire road
BANK ST	85	drainage in progress	Main St to Atlantic St
SAINT BENEDICT CIR	86	scheduled for Spring 2022	Entire road
HARVARD AVE	87	PENDING	
MOHAWK TRL	88	PENDING	
ECHO HILL DR	89	PENDING	
DONATA LN	90	PENDING	
WEST VIEW LN	91	PENDING	
LUND AVE	92	HIP + microseal June 2017 (repaved by Aquarion 11-2018)	entire road
JANES LN	93	HIP + microseal June 2018	entire road
BRIAR BRAE RD	94	scheduled for Spring 2022	Entire road
WILD DUCK RD	95	PENDING	
DONALD RD	96	PENDING	
SUMMIT PL	97	PENDING	
CORBO TER	98	milling Thursday 11/9/17, paved 11/10/17	entire
RIDGE BROOK DR	99	PENDING	
CLARK ST	100	drainage in progress	Main St to Bell Street garage
SUBURBAN AVE	101	Paved Oct 2018	Entire Rd
GARLAND DR	102	PENDING	
GREEN ST	103	PENDING	
NASH PL	104	Mill and paved June 2016	entire road
PERNA LN	105	PENDING	
CENTRAL ST	106	PENDING	
DALE PL	107	PENDING	
GLEN TERRACE	108	9/21/2017	entire length, Courtland Ave to Oakdale Rd
WALNUT RIDGE LN	109	PENDING	
WATERFORD LN	110	PENDING	
TRUMBULL GATE	111	PENDING	
WINTER ST	112	PENDING	
OLD BARN RD N	113	PENDING	
MARY JOY LN	114	PENDING	
PEPPER RIDGE CIR	115	10/26/2017	entire culdesac
HOLLYWOOD CT	116	PENDING	
INGALL ST	117	PENDING	
BERGES AVE	118	paved April 2020	entire road
BURLEY AVE	119	Paved 10/27/17	entire road
DERRY ST	120	PENDING	
RIDGE PL	121	PENDING	
FIELDSTONE LN	122	PENDING	
BOUTON CIR	123	paved Dec 2019	entire road
HOLLY COVE CIR	124	PENDING	
LONG RIDGE RD	125	PAVED 9-8-2017	Coldspring Rd to Summer St
STRAWBERRY HILL CT	126	PENDING	
3RD ST	127	Paved May 2021	Between Bedford St and Summer St
HOYT ST	128	PENDING	
BUXTON FARM RD	129	PENDING	

APPENDIX N

2021-2022 SMD Organizational Chart

City of Stamford
Office of Operations
Road Maintenance



APPENDIX O

2021-2022 River Report

FAIRFIELD COUNTY
RIVER REPORT

Harbor Watch | 2021

About Harbor Watch

The mission of Harbor Watch is to improve water quality and ecosystem health in Connecticut.

Each day we strive to reach this goal through research in the lab and field, collaboration with our partners, and education of students and the public. Harbor Watch addresses pollution threats to Long Island Sound and educates the next generation of scientists through hands-on research and experiential learning. As part of the larger organization of Earthplace, the work performed by Harbor Watch also supports the mission of Earthplace to build a passion in our community for nature and the environment through education, experience, and action.

Since its inception, Harbor Watch has trained over 1,000 high school students, college interns, and adult volunteers in the work of protecting and improving the biological integrity of Long Island Sound and has monitored hundreds of sites for a variety of physical and biological parameters.

In 2021, Harbor Watch:

- Studied over 350 field sites in Fairfield County, CT
- Conducted biweekly, May-September monitoring of 14 rivers in 16 towns
- Trained 52 high school and college students in a combination of in-person and virtual education experiences
- Processed over 1600 water samples for bacteria concentration analysis in our laboratory

Visit www.harborwatch.org for more information!

Methods Summary

Each river was visited approximately twice per month from May through September for a total of 10 sampling days per river. Sites were selected based on access and representativeness of the river, with effort made to space sites evenly throughout the length of the river being studied. Monitoring was carried out under a Quality Assurance Project Plan approved by the CT DEEP on 1/20/2021 (RFA #17057).

Monitoring teams left Earthplace in Westport, CT in the morning to begin sampling and would return within 2-4 hours. Each team was comprised of fully trained Harbor Watch staff, sometimes accompanied by volunteers or student interns. At each site, a water sample was collected and kept on ice. Water temperature, dissolved oxygen, and conductivity were measured at each site using a YSI Pro2030 meter.

Upon return to the Harbor Watch laboratory, the water samples were analyzed for total coliform and *E. coli* or *Enterococci* using enzyme substrate methods set forth in Standard Methods (SM9223B). *E. coli* concentrations were evaluated using the criteria published in the CT DEEP Surface Water Quality Standards on 10/10/13 (Table 1). Because the rivers we tested do not contain designated swim areas, the "all other recreational uses" criteria will apply. For additional information on methodology, please refer to the approved QAPP.

Table 1. CT DEEP criteria for *E. coli* and *Enterococci* levels as applied to recreational use, effective 10/10/13. Highlighted cells represent criteria used by Harbor Watch in this report.

Designated Use	Class	Indicator	Criteria
Designated Swimming	AA, A, B	*Escherichia coli*	Geomean less than 126/100 mL; Single Sample Maximum 235/100 mL
Non-designated Swimming	AA, A, B	*Escherichia coli*	Geomean less than 126/100 mL; Single Sample Maximum 410/100 mL
All Other Recreational Uses	AA, A, B	*Escherichia coli*	Geomean less than 126/100 mL; Single Sample Maximum 576/100 mL
Designated Swimming	SA, SB	*Enterococci*	Geomean less than 35/100 mL; Single Sample Maximum 104/100 mL
All Other Recreational Uses	SA, SB	*Enterococci*	Geomean less than 35/100 mL; Single Sample Maximum 500/100 mL

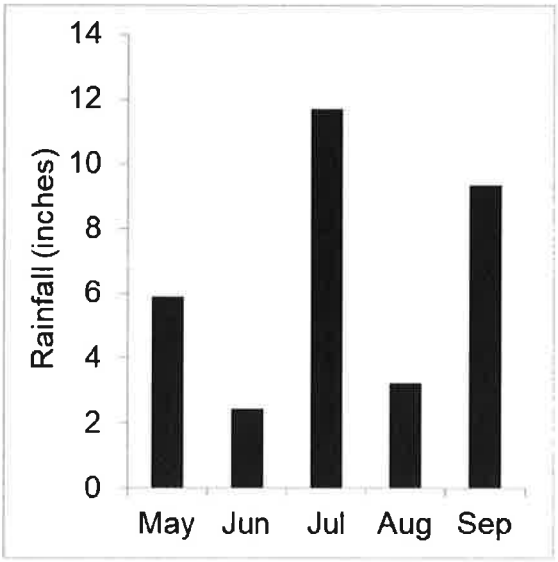
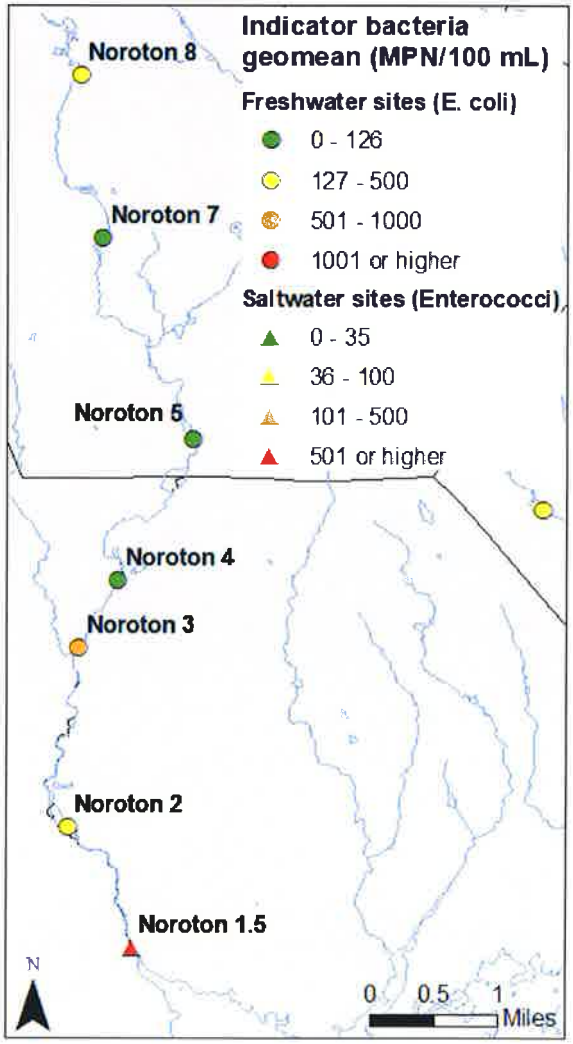


Figure 5. Monthly rainfall totals for 2021 (Norwalk Health Department Rain Gauge).

In the chapters to follow, we present a data summary of each of the 14 river systems monitored by Harbor Watch during 2021. Additional data for each river can be found in an appendix at the end of this report.

9. Noroton River



The Noroton River Watershed encompasses portions of Stamford, Darien, and New Canaan, CT. The watershed is approximately 7,000 acres (11 mi^2). The river begins in New Canaan and flows south along the border of Stamford and Darien. The river discharges into Long Island Sound through Holly Pond. The land use along the river is a mixture of residential and light commercial. This is the 6th consecutive year that Harbor Watch has monitored the Noroton River. Bacteria concentrations at 4 sites (Noroton 1.5, Noroton 2, Noroton 3, and Noroton 8) failed one or both CT DEEP bacteria criteria. Mean dissolved oxygen levels met the state minimum at all sites, but individual dissolved oxygen readings were observed to be below 5 mg/L at Noroton 8 on 6/9, 6/23, 8/12, and 8/31, and Noroton 2 on 6/23. Track-down work to locate sources of pollution was conducted between Noroton 1.5 and Noroton 2 as well as between Noroton 3 and Noroton 4 in 2021. This work will continue in conjunction with our municipal partners in the Town of Darien and City of Stamford. See Appendix 9 for additional data.

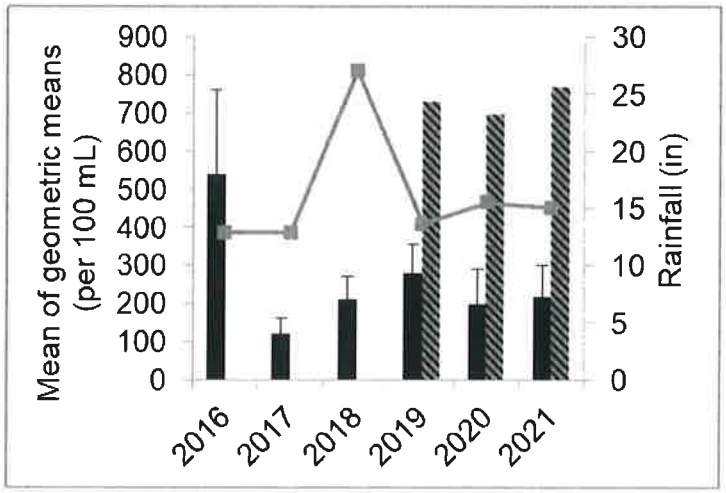
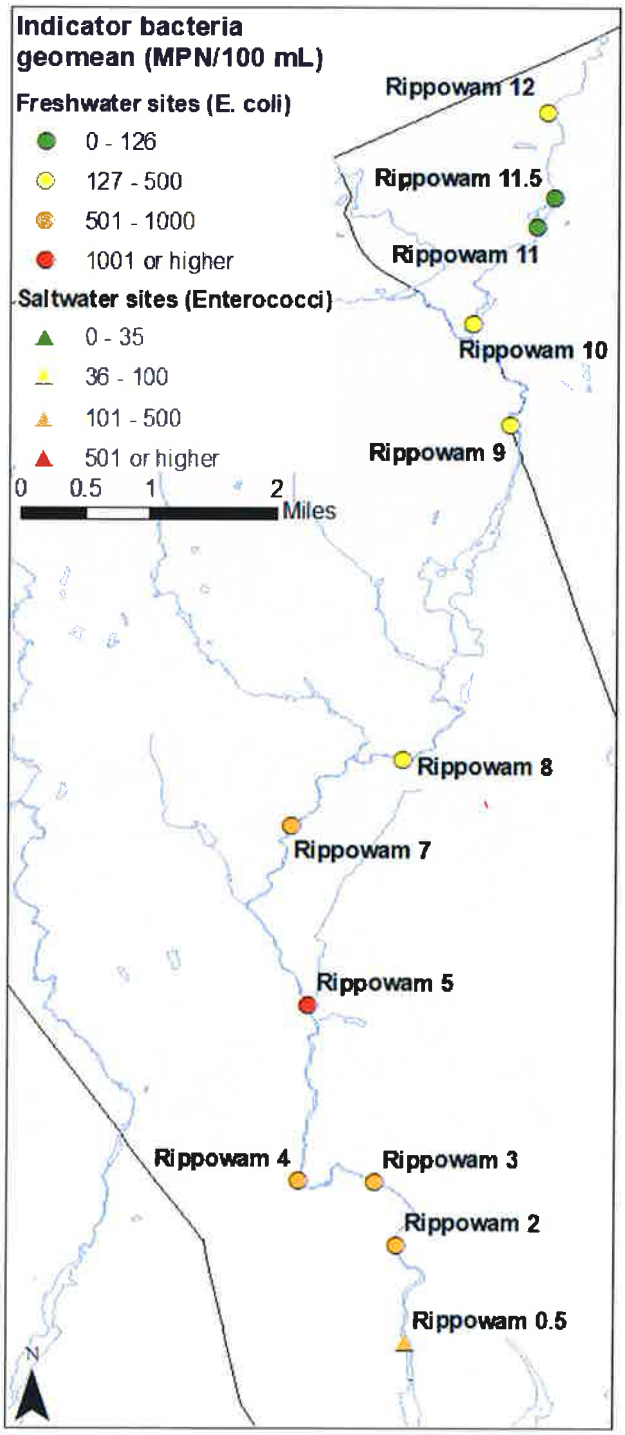


Figure 9.1. (Top) 2021 geometric mean of indicator bacteria concentrations at each site. Unlabeled sites are located on the Fivemile River (chapter 6). **Figure 9.2.** (Bottom) Mean of freshwater site geometric means (black bars) and saltwater site geometric means (striped bars) from 2016-2021 and total rainfall from May through September each year (grey squares and line).

12. Rippowam River

The Rippowam River Watershed covers 37.5 square miles from the NY State border, through parts of New Canaan, Ridgefield, and Stamford, CT, where it discharges into Stamford Harbor. The southern portion of the basin is commercial, industrial, and residential and the northern portion is largely residential, forested, and agricultural (CT DEEP). This river is also known locally as the Mill River.

Harbor Watch has been monitoring the Rippowam River since 2017. All sites except Rippowam 11 and Rippowam 11.5 exceeded the state bacteria criteria in 2021. All dissolved oxygen readings were observed to be above the state minimum criteria of 5mg/L. See Appendix 12 for additional data.



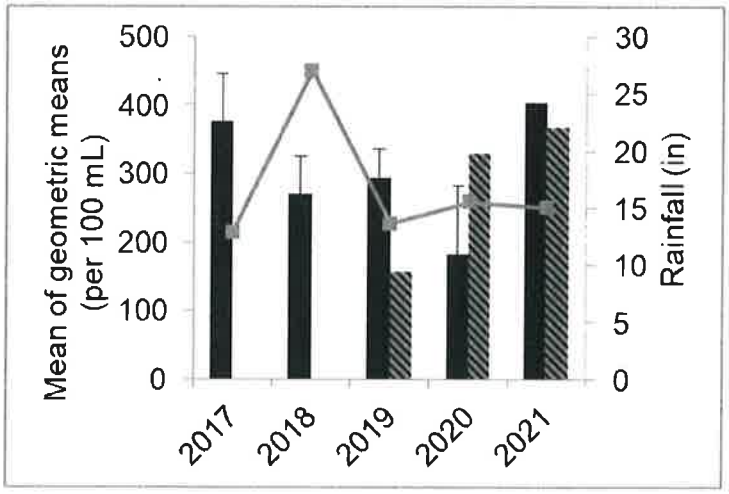


Figure 12.1. (Left) 2021 geometric mean of indicator bacteria concentrations at each site. **Figure 12.2.** (Above) Mean of freshwater site geometric means (black bars) and saltwater site geometric means (striped bars) from 2017-2021 and total rainfall from May through September each year (grey squares and line).

Appendix 9: Noroton River

Table A9.1. GPS coordinates and site locations for the Noroton River.

Site Name	Latitude	Longitude	Site location notes	River Name
Noroton 8	41.15925	-73.51421	West Road and Greenley Road intersection	Noroton River
Noroton 7	41.14108	-73.51167	209 Frogtown Road	Noroton River
Noroton 5	41.11868	-73.50130	47 Jelliff Mill Road	Noroton River
Noroton 4	41.10290	-73.50982	137 Woodway Road	Noroton River
Noroton 3	41.09540	-73.51430	Camp Avenue	Noroton River
Noroton 2	41.07530	-73.51550	668 Connecticut 106	Noroton River
Noroton 1.5	41.06186	-73.50814	1308 E Main Street	Noroton River

Table A9.2. Noroton River *E. coli* and *Enterococci* concentrations (MPN/100mL), geometric means, and % of samples exceeding the CT DEEP single sample maximum (Rainfall data: Weather Underground – Westchester County Airport Station, October 7, 2021).

	Indicator bacteria	5/4/2021	5/17/2021	6/9/2021	6/23/2021	6/30/2021	7/27/2021	8/12/2021	8/26/2021	8/31/2021	9/15/2021	Geomean	% exceeding SSM
Noroton 8	*E. coli*	770	199	138	245	225	35	488	130	127	67	171	10%
Noroton 7	*E. coli*	1633	12	102	111	73	50	58	48	64	137	85	10%
Noroton 5	*E. coli*	1300	27	88	42	58	12	40	16	10	37	43	10%
Noroton 4	*E. coli*	105	27	236	93	225	74	82	141	70	79	96	0%
Noroton 3	*E. coli*	231	461	1120	413	3466	690	782	308	334	437	578	40%
Noroton 2	*E. coli*	2420	120	921	770	99	276	>2420	133	148	456	333	33%
Noroton 1.5	*Enterococci*	4839	N/A	821	977	498	449	1961	115	1454	335	770	56%
		Wet	Dry	Wet	Wet	Dry	Dry	Wet	Wet	Dry	Dry		

Table A9.3. Noroton River mean water temperature, dissolved oxygen, and conductivity for each site.

	Mean Water Temp (°C)	Mean Dissolved Oxygen (mg/L)	Mean Conductivity (µmho/cm)
Noroton 8	22.2	5.84	305
Noroton 7	20.5	7.66	297
Noroton 5	22.8	8.63	360
Noroton 4	22.8	8.06	350
Noroton 3	21.7	7.66	361
Noroton 2	21.4	6.78	456
Noroton 1.5	21.1	7.63	574

Appendix 12: Rippowam River

Table A12.1. GPS coordinates and site locations for the Rippowam River.

Site Name	Latitude	Longitude	Site location notes	River Name
Rippowam 12	41.18524	-73.52999	Oenoke Ridge	Rippowam River
Rippowam 11.5	41.17561	-73.52919	West Road	Rippowam River
Rippowam 11	41.17234	-73.53126	Dans Highway	Rippowam River
Rippowam 10	41.16153	-73.53843	Ponus Ridge Road	Rippowam River
Rippowam 9	41.15023	-73.53412	Cascade Road	Rippowam River
Rippowam 8	41.11302	-73.54619	High Ridge Road	Rippowam River
Rippowam 7	41.10559	-73.5586	Cedar Heights Road	Rippowam River
Rippowam 5	41.08559	-73.55664	Long Ridge Road	Rippowam River
Rippowam 4	41.06617	-73.55763	Cold Spring Road	Rippowam River
Rippowam 3	41.06593	-73.54912	Bridge Street	Rippowam River
Rippowam 2	41.05904	-73.54664	W North Street	Rippowam River
Rippowam 0.5	41.04813	-73.54542	Richmond Hill Avenue	Rippowam River

Table A12.2. Rippowam River *E. coli* and *Enterococci* concentrations (MPN/100mL), geometric means, and % of samples exceeding the CT DEEP single sample maximum (Rainfall data: Weather Underground – Westchester County Airport Station, October 7, 2021).

	Indicator bacteria	5/12/2021	5/27/2021	6/8/2021	6/16/2021	6/28/2021	7/22/2021	8/11/2021	8/19/2021	9/8/2021	9/23/2021	Geomean	% exceeding SSM
Rippowam 12	*E. coli*	22	80	69	73	206	61	345	>4839	80	429	151	10%
Rippowam 11.5	*E. coli*	27	68	34	93	93	16	19	326	32	50	49	0%
Rippowam 11	*E. coli*	24	28	33	31	123	27	46	267	26	69	47	0%
Rippowam 10	*E. coli*	40	173	172	99	163	202	93	921	435	29	146	10%
Rippowam 9	*E. coli*	47	172	120	322	228	156	1733	3973	182	428	300	20%
Rippowam 8	*E. coli*	219	228	227	158	164	79	548	323	90	126	185	0%
Rippowam 7	*E. coli*	91	2420	N/A	126	N/A	334	1159	2747	257	666	516	50%
Rippowam 5	*E. coli*	219	>2420	523	1373	1462	796	3683	3266	445	774	1062	70%
Rippowam 4	*E. coli*	345	1414	227	177	498	221	4839	2599	370	263	552	30%
Rippowam 3	*E. coli*	167	1986	391	615	1226	409	4839	2240	237	258	696	50%
Rippowam 2	*E. coli*	179	>2420	252	275	666	6932	494	1549	714	689	744	60%
Rippowam 0.5	*Enterococci*	<10	2613	109	109	331	464	160	7270	5794	145	369	30%
Weather		Wet	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry	Dry		

Table A12.3. Rippowam River mean water temperature, dissolved oxygen, and conductivity for each site.

	Mean Water Temp (°C)	Mean Dissolved Oxygen (mg/L)	Mean Conductivity (µmho/cm)
Rippowam 12	19.8	6.78	234
Rippowam 11.5	20.0	8.40	240
Rippowam 11	22.5	7.23	230
Rippowam 10	22.5	7.87	231
Rippowam 9	20.3	7.58	281
Rippowam 8	20.2	8.21	371
Rippowam 7	19.7	8.60	441
Rippowam 5	20.2	8.67	510
Rippowam 4	20.6	8.28	506
Rippowam 3	20.6	8.98	529
Rippowam 2	21.0	9.02	557
Rippowam 0.5	21.6	9.16	12801