City of Bristol
Bristol, Connecticut

2018 ANNUAL REPORT

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

DEP Permit No.: GSM000042
January 26, 2019

Introduction

The following is the Annual Report, prepared in accordance with the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, permit number GSM000042. In accordance with General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (effective July 1, 2017), Section 4(d)(3), the Annual Report shall be made available for public review and comment at least 45 days prior to submission to CT DEEP. Comments on the Annual Report may be made to the City of Bristol and are not submitted to Connecticut Department of Energy and Environmental Protection (CT DEEP). The draft report shall be made available on the City's website for public inspection and copying, consistent with the federal and state Freedom of Information Acts and at least one other location (City Hall Public Works Division Office, Ground Floor, 111 North Main St., Bristol, CT 06010). Following submission of the Annual Report to CT DEEP, a copy of the final report shall be made available for public inspection during regular business hours.

The annual reporting requirements are stipulated in Section 6 (j)(2) of the General Permit. By April 1 of the second year following the effective date of permit and annually thereafter by April 1, the permittee shall submit an Annual Report for the preceding calendar year electronically to the Department. The DEEP MS4 stormwater webpage (www.ct.gov/deep/municipal/stormwater) will provide guidance of the Annual Report submittal. The Annual Report must be in Microsoft Word ©, Adobe Acrobat © or other format acceptable to the Commissioner. The report shall include:

(A) A municipal plan review fee of $187.50 (submitted separately);
(B) A written discussion of the status of compliance with the general permit, but not limiting to *(Note: Italicized text provides reference for the reporting location within this report*):
    (i) A listing and brief description (including, where appropriate, the address or latitude and longitude) of all BMPs within each Minimum Control Measure *(See Summary of Minimum Control Measures section of this report)*;
    (ii) Any reporting requirements enumerated in the controls section 6(a) and its subsections *(Refer to Summary of Minimum Control Measures and appendix sections of this report)*;
    (iii) An implementation schedule for each BMP and an indication of whether or not the BMP or any portion of the BMP was scheduled to be implemented during the year covered by the Annual Report *(Refer to Summary of Minimum Control Measures section of this report)*;
    (iv) The status of implementation for each BMP scheduled to be completed or partially implemented during the year covered by the Annual Report, including an assessment of the appropriateness of the BMP and progress made toward achieving the implementation dates and measureable goals of the BMP *(Refer to Summary of Minimum Control Measures section of this report)*;
    (v) For any portion of a BMP implementation scheduled for the year covered by the Annual Report that was not completed as scheduled, a discussion of the circumstances and reasons for non-implementation, a modified implementation schedule, and if necessary, a modified or alternate BMP to replace the BMP not

implemented including the rationale for such modification or alternate BMP *(See Summary of Minimum Control Measures section of this report)*;

(vi) An overall status of each of the six categories of the Minimum Control Measures and a discussion of the effectiveness of each category in achieving its goals *(Refer to Summary of Minimum Control Measures section of this report)*;

(vii) A discussion of any changes to personnel responsible for the Plan or BMP implementation *(Personnel changes of those responsible for BMP implementation are discussed in the Summary of Minimum Control Measures section of the report);*

(viii) A description of any new BMP added to the Plan during the year, including a description of the BMP, the reason or rationale for adding the BMP, the timeline for implementation, the party responsible for implementation and the measureable goal for the BMP and where appropriate, the location for each BMP, including the address and latitude and longitude *(See Summary of Minimum Control Measures section of this report for BMPs and schedule);*

(ix) A discussion of the progress and status of the MS4's IDDE program (see General Permit (GP) Section 6(a)(3)) including outfall screening, mapping, drainage area evaluation and prioritization, illicit discharge tracking activities, IDDE field monitoring results, number and type of illicit discharges detected, and number of illicit discharges eliminated *(See Summary of Minimum Control Measures section and appendices of this report)*;

(x) A discussion of the measures included in the Plan for the control of discharges to impaired waters (see GP Section 6(k)) including a list of BMPs in the Minimum Control Measures that are targeted for such discharges, progress in implementing these measures, any evaluation of the effectiveness of these measures in meeting the goals of the Plan's Impaired Waters program, and any new or modified BMPs to be added to the Plan to improve its effectiveness *(See Monitoring and appendix sections of this report*);

(xi) A discussion of the MS4's stormwater monitoring program describing the status of monitoring for the year of the report, the overall status of the monitoring program. A summary of the findings, any significant observations regarding the results, any modifications of the Plan as a result of the monitoring results *(See Monitoring and appendix sections of this report*);

(xii) A discussion of any planned BMP implementation in the coming year, including a discussion of any new or modified BMPs planned for future implementation *(See Summary of Control Measures section*).

(C) All monitoring data collected and analyzed pursuant to Section 6(i) *(See Monitoring and appendix sections of this report*);

(D) All other information collected and analyzed, including data collected under the Illicit Discharge Detection Protocol (General Permit Appendix B), during the reporting period *(See Monitoring and appendix sections of this report*).

MS4 General Permit
City of Bristol, CT 2018 Annual Report
Existing MS4 Permittee
Permit Number GSM 000042
January 1, 2018 – December 31, 2018

This report documents City of Bristol, CT's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2018 to December 31, 2018.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach

Goals:

- *Raise public awareness that polluted stormwater runoff is the most significant source of water quality problems;*
- *Motivate residents to use Best Management Practices (BMPs) that reduce polluted stormwater runoff; and*
- *Reduce polluted stormwater runoff in town as a result of increased awareness and utilization of BMPs.*

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	Completed, with updates	) Update PW community page(s) for additional stormwater education links	At least once per year, update the public works community page to include additional links with information on impacts of stormwater discharges on water bodies and impacts of stormwater discharges to reduce pollutants in stormwater runoff.	Department of Public Works-Engineering (DPW-Env Engineer for reporting	Annual update	Ongoing – see activities in current reporting period for specific dates	Current City education programs include both printed and electronic information for the community, at main locations, including those listed below:

Additional details 1-1, cont

-) City website http://www.ci.bristol.ct.us/ provides overall City department information, contact information and departmental webpage links, links to Facebook page for Mayor, Public Works, Parks and Recreation and other City Departments.
-) Public Works office, 111 North Main St., Bristol, CT 06010, provides printed information on MS4, construction BMPs, solid waste and recycling disposal guidelines, pet waste, invasive species, and information on the CT Construction Stormwater General Permit requirements.
-) Public Works webpage, http://www.bristolct.gov/publicworks provides public information on services including street maintenance, tree and roadside maintenance, solid waste (rubbish) and recycling collection, leaf and branch collection, maintenance of municipal vehicles and equipment, winter snow and ice control, and wastewater collection and treatment. The webpage provides links to City services, a calendar, frequently asked questions section and contact information. Public Works also maintains twitter and facebook pages, which are linked to the webpage.
-) Bristol Public Works Water Pollution Control website page (http://www.ci.bristol.ct.us/index.aspx?NID=241) provides information about the City's sanitary sewer system, such as: major service upgrades and accomplishments, blockage and back-up prevention information, frequently asked questions information, contact information and indicates the WPC staff will conduct educational tours of the treatment facility for local schools and clubs upon request.
-) Bristol Water Department information and education page is located at http://www.bristolwaterdept.org/education.php. The page includes fun stuff for kids, teacher pack for environmental education and links to local, state and federal topics.
-) Additional poster (2019 Environmental Resolutions) was added at DPW entry at City Hall in 2018, and additional link at http://www.bristolct.gov/enginfo.
-) In addition to brochures rack, community bulletin board was added in PW office lobby, including posting of information and events

1-2 Address education/ outreach for pollutants of concern*	Completed, with updates	) Bristol Eastern students & PRWA installed rain garden at Bristol Eastern) FRWA & Bristol Parks Dept. to install demonstration rain garden in Page Park (included on Bristol Parks and Rec Facebook page, Nov 2018)	At least once per year, update the public works community page to include additional links with information on impacts of stormwater discharges on water bodies and impacts of stormwater discharges to reduce pollutants in stormwater runoff.	City-wide Public Works-Engineering (DPW-Env Engineer for reporting	Annual updates	Ongoing	) Updated the PW community page for additional information on pollutants of concern by adding a link to Riversmart CT in 2018, which provides River Smart steps for BMPs around the house, including pollutants of concern (Bacteria, phosphorus, nitrogen and mercury) See also Detail Section 1.3 for additional information on) Pequabuck River Watershed Association (PRWA) programs within Bristol) Farmington River Watershed Association (FRWA) programs within Bristol) Environmental Learning Center (ELCCT) youth-based programs at schools, Indian Rock Nature Center and Barnes Memorial Nature Center
Additional BMPs) Sustainable CT participation	Completed	) Submitted initial Sustainable CT	Continue to improve BMPs in watershed education and protection, LID, and green grounds and maintenance program	Department of Public Works-Facilities (DPW-Env Engineer for reporting)	Certification update due August 2019	Initial submittal competed August 2018	City initiated participation with Sustainable CT, a voluntary certification program to recognize thriving and resilient Connecticut municipalities and provide them with a wide-ranging menu of best practices. Municipalities choose Sustainable CT actions, implement them, and earn points toward certification.

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

-) Public Education program to elementary schools for recycling (grant from Covanta) to include a water quality component.
-) Additional work to incorporate Sustainable CT watershed education and sustainability goals into City's programs
-) Pequabuck River Watershed Association (PRWA): Public education and outreach events which may include Composting class at BEHS, Enviroscape Model (non-point source pollution model)/Interactive social media photo booth of Pequabuck River support at Rockwell Park Festival, Gloria Dei "Solarbration", Earth Day (Indian Rock Nature Preserve), Earth Day (Bristol Public Library), Forestville Duck Race, Imagine Nation Water Carnival, and Bristol Mum Festival, (See also next section Public Involvement)
-) Farmington River Watershed Association (FRWA): Outreach activities planned include training for direct downwater disconnections, stormwater and rain gardens; Boys and Girls Club stormwater education activities, RBV training and sampling (See also next section Public Involvement)

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.
Pequabuck River BMP tour (PRWA, FRWA, ELCCT, City of Bristol)-June 16, 2018	Citizens and community leaders (approx. 20)	Stormwater treatment systems (Including phosphorus, nitrogen removal), Low Impact Development (LID), Erosion and slope stabilization, dam removal topics	Included discussion of Impaired waters, phosphorus, nitrogen and bacteria	PRWA organized tour with speakers from PRWA, Bristol Public Works and Environmental Learning Center
My Healthy Stream books, provided by Farmington River Watershed Association have been distributed to citizens through the IWW permitting and reporting process	Citizens (approx. 40)	Watershed protection, stream condition and habitat, riparian area protection, including impact from pesticides and herbicides, invasive species, extreme weather	Addresses reduction of pesticides, herbicides, bacteria, turfgrass, invasive species	FRWA publication distributed by Bristol PW
PRWA Enviroscape Model and PRWA Interactive Photo Booth	Citizens Rockwell Park festival (up to 12,000 attend) Gloria Dei Festival Earth Day (Bristol Library) Earth Day (Indian Rock Nature Preserve) Imagine Nation Water Carnival Forestville Duck Race Bristol Mum Festival (up to 100,000 festival goers attend)	Water cycle and non-point source pollution prevention	Stormwater pollution prevention, including nutrients from erosion, fertilizers and failing septic systems bacteria	PRWA and FRWA
PRWA Student Watershed Education	Stafford School (15 cub scouts) Gloria Dei Troop (325 cub scouts) Edgewood Brownie and Girl Scout troops	Composting, Non-point source pollution and water cycle programs with cloud experiment	Stormwater pollution prevention, including nutrients from erosion, fertilizers and failing septic systems bacteria	PRWA

PRWA Watershed Stewardship Outreach	Rotary Club and 2 environmental classes at BEHS	Raingardens, Why and How	Reduction of runoff, including pollutants, from directly connected impervious areas	PRWA

2. Public Involvement/Participation

Goals:

- *Involve the community in planning and implementing the town's stormwater management activities.*
- *Provide a minimum 30 day notice to the public for comment on annual reports.*

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
BMP 2-1 Comply with public notice requirements for Annual Reports	On target	Complete annual report	Publish a public notice on City's Public Works website with contact information for public input and information on annual report.	DPW/Env Eng reporting	April 2019	Annual report completed Jan 2019	In accordance with the MS4 general permit requirements, at least 45 days prior to April 1, 2019 and continuing annually until the permit expiration, the City of Bristol (Public Works Department- Engineering Division) will publish a public notice on its website (http://www.bristolct.gov/enginfo). The notice will provide a contact name, phone number, address, and email to whom the public can send comments. Additionally, the City's Stormwater Management Plan and the Annual Reports will be publicly accessible on the website and in the Bristol Public Works office at 111 North Main Street, Bristol, CT 06010. The public notice will allow for a 30-day comment period, at a minimum. Comments on the Annual Report may be made to the City of Bristol and are not submitted to CT DEEP. Following submission of the Annual Report to CT DEEP, a copy of the final report shall be made available for public inspection during regular business hours.
BMP 2-2 Public Information/Participation	Completed	PRWA Water Awareness Forum, January 27, 2018 (approx. 45 Citizens and Community Activists PRWA, FRWA, Save Our Water CT, City of Bristol Water Dept., 350 CT.org, Sierra Club of CT)	Cross agency postings – IWW meetings, fb, City website	Community /DPW/Env Eng reporting	Ongoing with annual reporting	See activities column for dates	The majority (approximately 84%) of Bristol's watershed areas discharge to the Pequabuck River (or its tributaries), which continues to drain east through the City to the Farmington River. The active Watershed Associations are the Pequabuck River Watershed

		PRWA: River Clean-up (April 28, 2018) FRWA completed plans for a rain garden at Page Park for planting in Spring 2019. Bristol Eastern High School students worked with PRWA to prepare plans, permits and initiate rain garden at Bristol Connecticut Aquatic Resources Education (CARE) free family fishing class – Page Park Pavilion (Sept 19, 2018) and Birge Pond hands-on (Sept. 22, 2018) PRWA and FRWA: Water monitoring: Aquatic Insect Monitoring (RBV Eastern High School. FRWA provide macroinvertebrate training (Nov 2018)					Association, working for "Collaborating and Advocating for a Healthy Pequabuck River" and Farmington River Watershed Association "dedicated to preserving, protecting and restoring the Farmington River and its watershed". The City of Bristol will continue to participate with these organizations and assist in cross posting of information and public participation activities related to reduction of polluted stormwater runoff and resource management.
BMP 2-3 Participation for Pequabuck River Watershed Plan	In Progress	Watershed Plan report writing in progress	Stakeholders meeting(s) participation	DPW/Env Eng reporting	Per DEEP rep, draft plan was due to Stakeholders in 2018	Awaiting draft plan	When available, the engineering division will continue to provide input and participate in public meetings for the Watershed Plan. The City of Bristol will continue to host stakeholder and public participation meetings for the Watershed Plan completion and implementation.

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

- Program-assisting homeowners and businesses in removing large amounts of debris or sediments for the river Residential Waterway Maintenance
- Continue recycling and disposal notifications and events
- Pequabuck River Watershed Association (PRWA): Public involvement/participation include Water Awareness Forum (Jan 26) 2019, complete planting at BEHS rain garden, BMP workshop, RBV training/sampling participation (See also previous section Public Education/Outreach), river clean-up
- Farmington River Watershed Association (FRWA): Public involvement/participation include completing Page Park rain garden demonstration project, Boys and Girls Club stormwater education activities, RBV training and sampling (See also previous section Public Education/Outreach), river clean-up

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of Annual Report announced to public	On target	Annually, 45 days prior to CT DEEP due date of April 1	http://www.bristolct.gov/enginfo and announcement of PW fb page
PRWA Water Awareness Forum, (approx. 45 Citizens and Community Activists PRWA, FRWA, Save Our Water CT, City of Bristol Water Dept., 350 CT.org, Sierra Club of CT)	Yes	January 27, 2018	PRWA, Bristol IWW
Pequabuck River Clean-up in Bristol, Plainville and Terryville (47 volunteers)	Yes	April 28,2018	PRWA
Pequabuck River BMP tour (see also Stormwater Education Section)	Yes	June 16, 2018	PRWA, Bristol IWW, FRWA
Connecticut Aquatic Resources Education (CARE) free family fishing class – Page Park Pavilion (Sept 19, 2018) and Birge Pond hands-on (Sept. 22, 2018) Angling enthusiasts – promoted on Bristol Parks and Rec FB page	Yes	Sept. 19 and 22, 2018	Bristol Parks and Recreation fb page
PRWA Enviroscape Model and PRWA Interactive Photo Booth at: Rockwell Park festival (up to 12,000 attend) Gloria Dei Festival Earth Day (Bristol Library) Earth Day (Indian Rock Nature Preserve) Imagine Nation Water Carnival Forestville Duck Race Bristol Mum Festival (up to 100,000 festival goers attend)	Yes	Misc. dates	Postings vary, including PRWA, FRWA, Bristol fb, Bristol IWW
Water monitoring: Aquatic Insect Monitoring (RBV training), Barnes Nature Center	Yes (Classroom)	Nov. 8, 2018	PRWA
FRWA completed plans for a rain garden at Page Park for planting in Spring 2019. Bristol Eastern High School students worked with PRWA to prepare plans, permits and initiate rain garden at Bristol	Partially	Fall 2018	PRWA, Bristol IWW

3. Illicit Discharge Detection and Elimination

Goal:

Find the source of any illicit discharges; eliminate those illicit discharges; and ensure ongoing screening and tracking to prevent and eliminate future illicit discharges.

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
3-1 Develop written IDDE program	Completed	N/A Written IDDE program using the CT IDDE program template completed	Develop written plan of IDDE program	PW -Env Eng and EPT	Jul 1, 2018	Dec. 19, 2017	Continue to train and implement
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	Completed for overall City based on existing mapping references	Set-up GIS forms (Outfall monitoring record) and begin to populate sampling data	Development of base maps and outfalls	PW-Eng/Env Eng reporting	Jul 1, 2019	Completed with initial data– ongoing updates will be needed	Basin outfall maps completed-update with field verification
3-3 Implement citizen reporting program	Complete	Make reporting easier by adding/updating more specific website link	Review and update website annually	PW-Eng	June 2018	Completed, with updates as needed	Direct reporting link added in 2018
3-4 Establish legal authority to prohibit illicit discharges	Complete	No change	Legal authority is established to prohibit illicit discharges in Section 22 - Water			Bristol currently has a legal authority to prohibit illicit discharges in Section 22 – Water, Sewers and Sewage Disposal into its Code of Ordinances (adopted Dec. 10, 1984). The	Continue to review and update ordinances to comply with regulatory updates

						provisions of Article II-Public Sewer Systems, and specifically Sec 22-23 for Enforcement and Penalties provides the City of Bristol with adequate legal authority	
3-5 Develop record keeping system for IDDE tracking	Complete	No change	IDDE reports are currently investigated, recorded and reported.	PW - EPT	June 2018	The 2018 reports are provided in this Annual Report Appendix B.	May be updated for GIS recording as program develops
3-6 Address IDDE in areas with pollutants of concern	Partially completed	In 2018, Outfall inspections were initiated in outfalls to impaired waters (Coppermine and portions of lower Pequabuck)	Complete initial illicit discharge assessment and initial priority ranking (See also BMP 3-7)	PW – Env Eng	July 2019	June 30, 2020	Continue to field verify drainage basin and outfall maps while collecting samples
3-7 Incorporate written procedure for screening and sampling of outfalls & MS4 interconnections/catchment investigation procedure	Partially complete- Forms and procedures are incorporated in written IDDE plan	Dry weather outfall screening records were initiated in 2018	Formalize written catchment investigation/manhole inspection/outfall screening procedure for IDDE program (use BMP 5-4 for implementation)	PW – EPT and Env Eng reporting	Update annually	Complete dry weather screenings July 2022	May be updated for GIS recording as program develops
3-8 Sanitary Sewer Overflow (SSO) Inventory	Completed, with annual updates	Updated for 2018	Incorporate all known SSOs to the MS4 for past 5 years into excel database	WPC, with Env Eng reporting	October 2017	The 2018 reports are provided in this Annual Report Appendix A.	Update to GIS record as program develops
BMP 3-9 Develop Illicit Discharge Prevention procedures	Completed, with continual updates		Incorporate into IDDE plan (BMP 3-1) and public education program (BMP 1-2)				

BMP 3-10 Perform IDDE staff training	Completed, with annual updates	Updated for 2018	Staff training on initial program and at least annual refresher for program updates	DPW training at garage, WPC and TS	Update annually	Annually	Continue to train and expand program.

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

Continue with inspections, sampling, departmental coordination and training.

Per permit, all MS4 outfalls that discharge directly to impaired waters must be sampled at least once during the 5-year term of the permit. 2019 IDDE activities will include additional dry weather outfall screening, including visual documentation record and laboratory sampling, of high and low priority outfalls.

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

Date of Report	**Location / suspected source**	**Response taken**
See Appendix B for Inspection and IDDE Investigation Records	See Appendix for locations	Record of inspections and NOV documentation is provided in Appendix B

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table.

Location (Lat long/ street crossing /address and receiving water)	**Date and duration of occurrence**	**Discharge to MS4 or surface water**	**Estimated volume discharged**	**Known or suspected cause / Responsible party**	**Corrective measures planned and completed** (include dates)	**Sampling data** (if applicable)
See Appendix A for SSO records. See Appendix B for Inspection and IDDE Investigation Records						

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

Bristol's Environmental Protection Tech (EPT) and Environmental Engineer receive complaints from referred calls or on-site forms. Generally, the EPT responds to the complaint and addresses the action in monthly report, which is reviewed by Environmental Engineer, City Engineer and Inland Wetland Commission. If warning letter is issued, EPT may include "Summary of Urban Stormwater Pollutants" table from 2004 CT Stormwater Quality Manual to educate homeowners on water quality issues.

3.6 Provide a summary of actions taken to address septic failures using the table below.

Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
From Public Health Dept records, one report of septic system overflow at 1166 Burlington Ave Bristol CT - Residential	Housing court in New Britain, application for arrest warrant for owners	Polkville Brook watershed (4314-08-1-L1)

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	See maps
Estimated or actual number of interconnections	See maps
Outfall mapping of Kahn maps has been completed [(1)] - post-construction or field verification updates are not included	100%[(1)]
Interconnection mapping complete	100%[(1)]
System-wide mapping complete (detailed MS4 infrastructure)	100%[(1)]
Outfall assessment and priority ranking – 30 outfalls have been initially assessed	30 outfalls initially assessed in 2018
Dry weather screening of all High and Low priority outfalls complete [(3)] initial 2018 investigation	30[(3)]
Catchment investigations complete	1 follow-up location
Estimated percentage of MS4 catchment area investigated	0%

3.8 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given (minimum once per year).

MS4 and IDDE Training was performed with Public Works Garage employees (August 13, 2018), Transfer Station Supervisor (August 21, 2018) and WPC employees (August 15, 2018). Carol Noble listened to MS4 year 2 tasks webinar on-line recording on 7-17-2018. See Appendix B for training itinerary and sign-in sheets.

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

Goal:

Minimize polluted stormwater runoff from construction sites and prevent it from carrying sediment into waterways via MS4 infrastructure.

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	Partially implemented	None	Review and revise, where necessary, land use regulations to comply with MS4 mandates	Land Use / Env Eng reporting	Jul 1, 2019	ongoing	Below
Additional details: Construction sites are regulated by "General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities", a general permit issued under the authority of section 22a-430b of the Connecticut General Statutes. The general permit (effective date October 1, 2013) authorizes the discharge of stormwater and dewatering wastewaters for surface waters from construction activities on a site (as defined by the permit) with a total land disturbance of one or more acres of land area on a site, regardless of project phasing. The general permit defines requirements for registration. It allows "small construction" projects, i.e. construction projects with a total land disturbance of between one and five acres, to adhere to the erosion and sediment control land use regulations of the municipality in which the construction activity is conducted, as well as the Guidelines and Stormwater Quality Manual. According to the general permit, no registration or Plan review shall be required for "small construction" activity provided a land-use commission of the municipality (i.e. planning, wetland, conservation) reviews and issues a written approval of the proposed erosion and sediment control							

measures, pursuant to the requirements of section 22a-329 of the Connecticut General Statutes. In the absence of such municipal commission approval, registration with Connecticut Department of Energy and Environmental Protection (DEEP) is required.

Section IX A of the City of Bristol's Zoning Regulations, Soil Erosion and Sediment Control Regulations, identifies the basic requirements for the regulations as "No development the disturbed area of which is cumulatively more than one-half acre in area shall be undertaken in any zoning district unless certification therefor in compliance with the provision of this Section has been first obtained from the Commission or its designated agent."

The land use regulations review and if necessary, revision to establish the legal authority to control stormwater runoff from construction sites, as required by the MS4 permit may include:
developers, construction site operators, or contractors maintain consistency with the 2002 Guidelines for Soil Erosion and Sedimentation Control, as amended, the Connecticut Stormwater Quality Manual, and all stormwater discharge permits issued by the DEEP within the municipal or institutional boundary pursuant to CGS 22a-430 and 22a-430b; [currently required by Land Use development review]
the implementation of additional measures to protect/improve water quality (in addition to the above requirements) as deemed necessary; [Water quality requirements in accordance with 2004 CT Stormwater Quality Manual is currently implemented]
authorization to carry out all inspection, surveillance and monitoring procedures necessary to determine compliance with municipal regulations, ordinances or programs or institutional requirements related to the management of Bristol's MS4. Inspections shall be conducted, where allowed, to inventory the number of privately-owned retention ponds, detention ponds and other stormwater basins that discharge to or receive drainage from the permittee's MS4;
the owner of a site seeking development approval from Bristol shall provide and comply with a long term maintenance plan and schedule to ensure the performance and pollutant removal efficiency of privately-owned retention ponds, detention ponds and other stormwater basins that discharge to or receive discharge from Bristol's MS4 including short-term and long-term inspection and maintenance measures to be implemented by the private owner; [currently implemented]
Bristol will control, through interagency or inter-jurisdictional agreements, the contribution of pollutants between the permittee's MS4 and MS4s owned or operated by others.

4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Complete	Subdivision and site plan reviews for erosion control and stormwater management are conducted in accordance with MS4 and local criteria	Land Use reviews include state MS4 criteria for stormwater controls during construction and post-development	Land Use/Eng	Jul 1, 2017	Complete	The City's Land Use Division the review, permitting, or approval of land disturbance projects.
4-3 Review site plans for stormwater quality concerns	Complete	Subdivision and site plan reviews for erosion control and stormwater management are conducted in accordance with MS4 and local criteria	Land Use reviews include state MS4 criteria for stormwater controls during construction and post-development	Land Use/Eng	Jul 1, 2017	Complete	The City of Bristol conducts site plan reviews that incorporate consideration of stormwater controls or management practices to prevent or minimize construction impacts to the MS4's water quality.

4-4 Conduct site inspections	Ongoing	See Appendix B for Inspection reports	Continue site inspection program, including coordination with BMP 3-10 and BMP 6-4	EPT and other DPW-Inspectors	Jul 1, 2017	Ongoing	The City of Bristol performs construction site inspections and where necessary, initiates enforcement actions to ensure the adequacy of the installation, maintenance, operation, and repair of all construction and post-construction runoff control measures as it relates to the City's MS4 system.
4-5 Implement procedure to allow public comment on site development	Complete	Procedure is in place.			Jul 1, 2017	Complete	See below.
Additional Information BMP 4-5: Land development is regulated under the City of Bristol's Code of Ordinances, which is publicly available on the City's website and in the City Clerk's office. The City's website provides information on the City Government Boards, Committees, meeting schedules, agendas, and minutes relating to site development projects. Meetings are held in public hearing format, with opportunity for public comment on site development projects. Public comment opportunity is currently implemented in the development review process with the use of public hearings for applications and proposed ordinance changes. The review Boards and Commissions are made of City of Bristol citizens, elected or appointed by an elected Mayor.							
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	Complete	The City Engineering Department continues to provide flyers to contractors and residences through the Building Department permit process and Public Works offices. A copy of the flyer is provided in appendix.			Jul 1, 2017	Complete	See Additional Information BMP 4-6 below.
Additional Information BMP 4-6: The City of Bristol formalized and makes available a notification to developers and contractors of their potential obligation to obtain authorization under DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (construction general permit) if their project disturbs more than 1 acre of land and results in a point source discharge to Connecticut surface waters directly or through the MS4, including the requirement to provide a copy of the Storm Water Pollution Control Plan be made available on request.							

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

Continue to educational, inspection and enforcement actions.

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

Goal:

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

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	See activities planned for next year section	None	Update LID and runoff reduction site planning and development standards	PW Land Use and Eng	Jul 1, 2021	Initiate in 2019	See additional details BMP 5-1 below.

Additional details BMP 5-1: The MS4 General Permit requires the establishment of a legal authority by ordinance, bylaw, regulation, standard condition of approval, or other means to require, to the maximum extent practicable (MEP), *that developers and contractors seeking the City's approval consider the use of low impact development (LID) and runoff reduction site planning and development practices that meet or exceed those LID and runoff reduction practices in the CT Stormwater Quality Manual prior to other stormwater management practices allowed in the land use regulations, guidance or construction project requirements.* This legal authority shall include the following standards:
for redevelopment of sites that are currently developed with Directly Connected Impervious Area (DCIA) of forty percent or more, the project must retain on-site half the water quality volume for the site, or
for new development and redevelopment of sites with less than forty percent DCIA, retain the water quality volume for the site, or
if those retention standards cannot be met, the developer will be required to provide a report indicating why the standard could not be met and a mitigation project on another property or pay a fee to fund a DCIA retrofit.
In developing this legal authority, the following watershed protection elements to manage the impacts of stormwater on receiving waters shall be considered:
Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each municipality by minimizing the creation, extension, and widening of parking lots, roads, and associated development and encourage the use of Low Impact Development or green infrastructure practices.
Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.

Implement stormwater management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots. Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges. Implement standards to protect trees, and other vegetation with important evapotranspirative qualities. Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils. Coordinate with state or local health officials to ensure no interference with performance of on-site septic systems. Limit turf areas.							
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	In progress for 2019	None, except as noted in Additional Details column	Update stormwater management standards	PW Land Use and Eng	Jul 1, 2019	In progress	Runoff reduction in development and site redevelopment projects is currently implemented in accordance with local ordinances and General Permit. It is anticipated that LID practices in site development planning will be documented in accordance with the General Permit requirements.
5-3 Implement long-term maintenance plan for stormwater basins and treatment structures	Complete for City's stormwater trust ponds	GIS map of existing stormwater trust ponds completed in 2018 Maintenance & inspection of City's stormwater trust ponds are completed semi-annually	Establish GIS database for pond and structures. Establish and implement a plan for ongoing inspection and maintenance.	PW Facilities Maintenance and Eng	Jul 1, 2019	In progress	Long term maintenance plans are currently established for the City of Bristol Stormwater Trust Ponds and associated stormwater structures. The systems are inspected and reported at least semi-annually by City staff and the Stormwater Trust Committee inspects the systems annually. The City's Stormwater Trust program is a 2014 New England STORMY award-winning program for Best Stormwater funding idea.
5-4 DCIA mapping	In review	State IA layer added to GIS	Complete DCIA for each MS4 outfall (See also BMP 3-2)	DPW-Eng /Env Eng, EPT and GIS	Jul 1, 2020	In progress	Impervious areas are established by basin. Mapping of the City watersheds is currently underway. It is anticipated that the permit requirements will be addressed on-schedule.
5-5 Address post-construction issues in areas with pollutants of concern	None	Establish and implement retrofit plan (See BMP 6-8)	Establish and implement retrofit plan (See BMP 6-8)		June 2020		See also BMP 6-8. It is anticipated that as the priority implementation framework is completed, the City will continue to address permit requirements concerning post-construction issues of Pollutants of Concern.

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

Continue LID practices development and GIS stormwater system mapping in accordance with permit requirements.

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	NA
DCIA disconnected (redevelopment plus retrofits)	Not reported in 2018
Retrofits completed	Not reported in 2018
DCIA disconnected	Not reported in 2018
Estimated cost of retrofits	Not reported in 2018
Detention or retention ponds identified	Not reported in 2018

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

NA in 2018. Methods are in review for compliance.

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

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	Completed in 2018	Eng, PW Streets, Garage, WPC and Transfer Station staff attended training. See sign-in and agenda in Appendix.	Continue to expand its MS4 training program for town employees to increase awareness of water quality issues.	DPW-Eng / Env Eng	Annually	July and August 2018	Training records are provided in Appendix.

6-2 Implement MS4 property and operations maintenance	Partial	Coordinate initial BMP guidance and tracking documents for annual report (See BMPs 6-9, 6-10, and 6-11)	Coordinate initial BMP guidance and tracking documents for annual report (See BMPs 6-9, 6-10, and 6-11)	Env Eng reporting	Annually	July and August 2018	Training records are provided in Appendix.
6-3 Implement coordination with interconnected MS4s	Annually	Mapping completed. 2018 communications are provided in appendix	Establish interconnection locations and appropriate contacts. Coordinate MS4 strategies in communication(s).	DPW-Eng / Env Eng reporting	June 2017	May 2018	Additional watershed coordination anticipated in 2019 related to Pequabuck Watershed Plan coordination meetings
6-4 Develop/implement program to control other sources of pollutants to the MS4	On-going	On-going	Coordinate BMPs and outreach to Public Works Divisions (fertilizers and pesticides applications and use. Material storage, pet waste, waterfowl management, mowing, clipping disposal, alternative landscapes, pollution prevention, leaf and trash management)		June 2017	On-going	Continue education and coordination efforts
6-5 Evaluate additional measures for discharges to impaired waters*	On-going	On-going	Using BMP 3-2 progress, coordinate BMPs with BMP 1-2, 6-1, 6-2, 6-4, 6-7 through 6-11		Annually		

6-6 Track projects that disconnect DCIA	None		Using database for BMP 5-4, establish procedure to document DCIA removal projects and assign tracking responsibilities		June 2019		See BMP 6-6 additional details below.
BMP 6-6 additional details: The MS4 permit requires annual tracking of the total acreage of Directly Connected Impervious Area (DCIA) that is disconnected from the MS4 as a result of redevelopment or retrofit projects within the town. For each retrofit/redevelopment project, Bristol will document the amount of existing DCIA that is disconnected. The total amount of disconnected DCIA will be reported each year in the Annual Report. Starting on July 1, 2021, a 1% reduction of its total DCIA acreage per year to the maximum extent possible is the MS4 permit goal. Bristol will provide updates on this goal in its annual report, documenting and incorporating all DCIA disconnections which occurred in the town since July 1, 2012 towards meeting this goal.							
6-7 Implement infrastructure repair/rehab program	Ongoing	Coordinating with BMP 5-3 database and plan, prioritize and track MS4 infrastructure maintenance	Continue the program to identify MS4 structures to repair, rehabilitate, or upgrade to reduce or eliminate the discharge of pollutants into water bodies.	DPW / Env Eng reporting	June 2020	Ongoing	
6-8 Develop/implement plan to identify/prioritize retrofit projects	None		Using BMPs 3-2, 5-4, 5-5, monitoring and/or other resources, identify retrofit projects. Develop initial priority implementation framework with the goal of 1% DCIA removal in each of 4th and 5th years (2021 and 2022)		Jul 1, 2020		Implement retrofit projects to disconnect 2% of DCIA

6-9 Develop/implement street sweeping program	Ongoing	Ongoing	Compile BMP and annual tracking documents. Consider future updates after completion of BMP 5-4 document.	DPW / Env Eng reporting	Annually		
6-10 Develop/implement catch basin cleaning program	Ongoing	Ongoing	Coordinate BMPs, procedure and annual tracking documents	DPW / Env Eng reporting	Annually		
6-11 Develop/implement snow management practices	Ongoing	Ongoing	Compile BMP and annual tracking document	DPW / Env Eng reporting	Annually		

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

Continue and expand implementation, education and recording of BMP activities.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	See appendix
Street sweeping	
Curb miles swept	See appendix
Volume (or mass) of material collected	See appendix
Catch basin cleaning	
Total catch basins in priority areas	See appendix
Total catch basins in MS4	See appendix
Catch basins inspected	See appendix
Catch basins cleaned	See appendix
Volume (or mass) of material removed from all catch basins	See appendix
Volume removed from catch basins to impaired waters (if known)	See appendix
Snow management	
Type(s) of deicing material used	__
Total amount of each deicing material applied	18,000 gal
Type(s) of deicing equipment used	__
Lane-miles treated	325 miles
Snow disposal location	Depot Square
Staff training provided on application methods & equipment	Not available
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	Not available
Reduction in turf area (since start of permit)	Not available
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	Not available

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution. This data is available on the MS4 map viewer: http://s.uconn.edu/ctms4map.

Nitrogen/ Phosphorus ☐ Bacteria ☒ Mercury ☐ Other Pollutant of Concern ☐

1.2 Describe program status.

Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.
Sampling plan summary: 2018 sampling included dry weather sampling and inspections of Priority outfalls in the Coppermine impaired waters section of the City, which includes the area south of Maltby to the confluence with the Pequabuck River. (Portions of the area are located in an aquifer protection area). The area of the lower Coppermine (CT 4314-00_01) below the potable water intakes (surface and groundwater) is considered impaired for bacteria and is listed as high priority in the CT DEP "A Total Maximum Daily Load Analysis for the Pequabuck River Sub-Regional Basin" publication dated Sept. 29, 2009 . In the initial monitoring event (July 25, 2018), 13 culverts of the eastern Pequabuck in Bristol (CT), were monitored, from the eastern end of the urban culvert (Memorial Boulevard and Mellen St) along the Pequabuck River to the intersection of Broad St/Broad Place, along with a portion of the tributary from Pine Lake. Culverts were visually inspected for dry weather flow and a monitoring record, with photograph, was made. If flow was noted the culverts were marked for follow-up sampling. The second and third monitoring dry weather monitoring events, on December 4 and 5, 2018, included an additional 17 culverts in the area of the lower Coppermine detailed above. In addition to the visual monitoring and photo record, field parameters for pH, temperature, ammonia, chlorine were measured and recorded on the Outfall Monitoring reports. Additionally, samples were taken at these 7 locations for laboratory analysis of e. coli and conductivity. Locations without sampling were either dry or inaccessible.

2. Screening data for outfalls to impaired waterbodies

2.1 Screening data collected under 2017 permit

Complete the table below for any outfalls screened during the reporting period. Each Annual Report will add on to the previous year's screening data showing a cumulative list of outfall screening data.

Outfall ID	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required?
See Appendix					

2.2 Credit for screening data collected under 2004 permit

If any outfalls to impaired waters were sampled under the 2004 MS4 permit, that data can count towards the monitoring requirements under the modified 2017 MS4 permit. Complete the table below to record sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required?
See Appendix					

3. Follow-up investigations (Section 6(i)(1)(D) / page 43)

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall	**Status of drainage area investigation**	**Control measure implementation to address impairment**
See Appendix		

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

Once outfall screening has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 1, 2020.

Outfall	**Sample Date**	**Parameter(s)**	**Results**	**Name of Laboratory (if used)**
N/A in 2018				

al IDDE Program Data

Priority Ranking of Catchments data

chments with ranking results (DEEP basins may be used instead of manual catchment delineations).

Category	3. Rank

connection Screening and Sampling data

ning and sampling data from outfalls and interconnections
or outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into waterbodies.

g	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken

ple and inspection data

or outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor.

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

3. Catchment Investigation data

3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Receiving Water	System Vulnerability Factors
N/A in 2018		

Where SVFs are:

History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
Common or twin-invert manholes serving storm and sanitary sewer alignments.
Common trench construction serving both storm and sanitary sewer alignments.
Crossings of storm and sanitary sewer alignments.
Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.
Areas formerly served by combined sewer systems.
Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.
Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).
History of multiple local health department or sanitarian actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

3.2 Key junction manhole dry weather screening and sampling data

Key Junction Manhole ID	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
N/A for 2018					

3.3 Wet weather investigation outfall sampling data

Outfall ID	Sample date	Ammonia	Chlorine	Surfactants
N/A for 2018				

3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed
N/A for 2018							

Part IV: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name: Ellen Zoppo-Sassu, Mayor	Print name: Carol Noble, P.E.
Signature / Date:	Signature / Date: