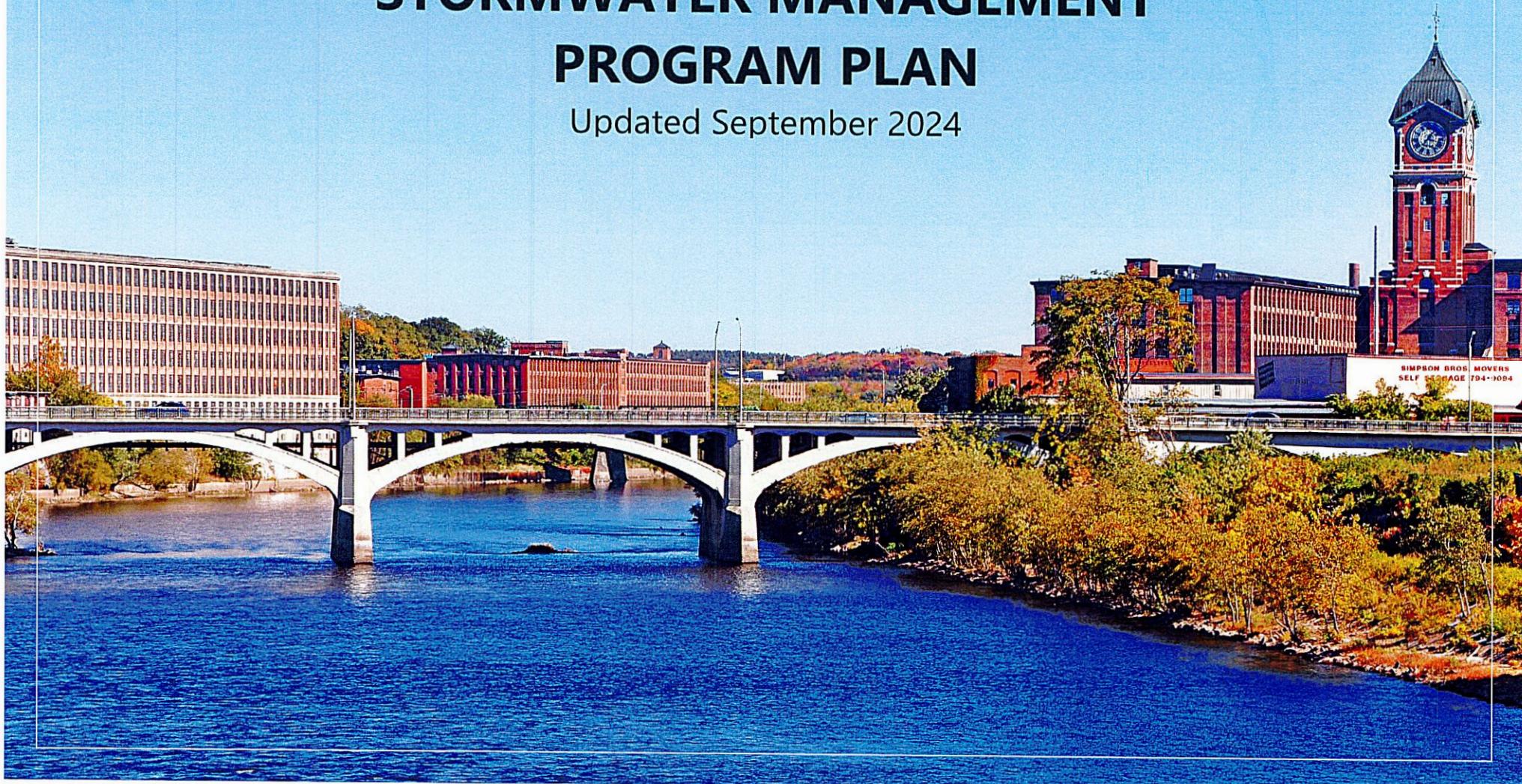
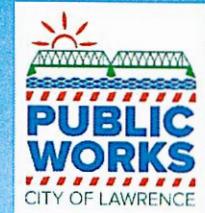


# CITY OF **LAWRENCE**

## STORMWATER MANAGEMENT PROGRAM PLAN

Updated September 2024





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## 1. STORMWATER PROGRAM OVERVIEW

### WHY IS THIS IMPORTANT?

Stormwater runoff frequently transports pollutants through municipal separate storm sewer systems (MS4s), where it is discharged, often untreated, into local water bodies. To the public, the MS4 is more commonly known as a stormwater drainage system or simply as the "drain." These stormwater drains have been constructed in developed areas to reduce the risk of flooding and damage to our infrastructure. Unfortunately, stormwater drainage systems carry pollution during rain events and snow melt – this can include oil, trash, and any other materials found on lawns, streets, and parking lots.

In the City of Lawrence, Massachusetts (City), stormwater runoff discharges that are conveyed by the MS4 to the environment are regulated under the Clean Water Act and require a Permit. Lawrence is one of thousands of communities and institutions across the country that must comply with these regulations. The stormwater drainage system discharge Permit is known as the "MS4 General Permit" and is issued and managed jointly by the U.S. Environmental Protection Agency (EPA) and the State of Massachusetts Department of Environmental Protection (MassDEP).

### WHAT DOES LAWRENCE HAVE TO DO?

The City has had MS4 Permit coverage since 2003. As part of the Permitting requirements, the City is required to develop a written Stormwater Management Program (SWMP). This SWMP (or Plan) is a "living" reference document that will guide the City's implementation of requirements within the Permit. The City is required to keep records of, and report on, the activities and measures that are implemented and consistent with this Plan. MS4 General Permit requirements are summarized (and simplified) as follows:



**Implement** public education programs to help City residents, business owners, and developers understand their role in keeping stormwater clean.

**Engage** the public in decision-making throughout the program.

**Find** and fix leaky or unauthorized sanitary sewer lines that might be discharging into the drainage system.



**Ensure** that construction projects do not pollute runoff with sediments and debris.



**Ensure** that new development and redevelopment control and treat runoff before it leaves the property.



**Engage** in pollution prevention actions like road and parking area best practices (cleaning drainage systems and sweeping pavements), and ensure that municipal activities like vehicle washing, lawn maintenance, and materials storage do not contribute to stormwater pollution.



The City is located within the Merrimack River watershed, with the Merrimack River running directly through Lawrence. The Merrimack River has played a significant role in the City's history, starting with colonial settlement in the 1600s. The City also contains the Spicket River and Shawsheen River, both of which are tributaries to the Merrimack River.

The Lawrence Department of Public Works maintains approximately 40 miles of drainage pipe, thousands of drainage structures (catch basins and manholes) and discharges stormwater to the environment in over 100 locations. The City continues to make improvements to its stormwater management program every year to protect its water resources. A map of the City's water resources is shown in Appendix C of this Plan.

## 1.1 CONTROL MEASURES AND MEASUREABLE GOALS

The MS4 General Permit is structured around the following six control measures (CMs).

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping

Permittees are required to prepare a SWMP describing specific actions they will implement to reduce stormwater pollution that align with the Permit requirements for each CM. These actions, called Best Management Practices (BMPs), are described in this Plan, along with the measurable goal for each BMP and deadline for development and implementation. Section 1.5 of this SWMP identifies the person(s) or department(s) responsible for implementing the BMPs identified in this SWMP.

The Permit Year (PY) referenced within this document corresponds to each regulatory year starting on July 1, 2018. Updates to the original version of this SWMP, dated September 7, 2018, have been incorporated into this document to reflect the City of Lawrence's stormwater management program modifications until a new MS4 General Permit is reissued. A revision log tracking these updates is located in Appendix E.

The original SWMP and this most recent SWMP amendment are available for public access on the City's website. Public comment and suggestions for improvement are welcome and should be directed to the City of Lawrence Water and Sewer office.

## CM 1: Public Education and Outreach (Permit Part 2.3.2)

Objective: Implement an education program that addresses stormwater issues of significance. The ultimate objective of a public education program is to increase knowledge of and help change behaviors of the public so that pollutants in stormwater are reduced. The "public" as defined in the MS4 General Permit are residents, businesses/institutions, developers/contractors, and industrial facilities. All written public outreach will be in English and Spanish.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
1.1	Develop public education program plan (Education and Outreach Plan)	2.3.2.a	<p>Develop an Education &amp; Outreach (E&amp;O) program which will outline an implementation approach that is inclusive of all education requirements across the Permit and for all impaired waters' special provisions.</p> <ul style="list-style-type: none"> <li>Develop educational messages to be distributed to target audiences, considering the topics listed in Part 2.3.2.d of the MS4 General Permit.</li> <li>Develop educational messages specific to the areas that discharge to priority waters, impaired waters, and drinking water supplies (where applicable).</li> <li>Plan to provide educational web content and other publicly accessible resources.</li> <li>Consider needs specific to the community: language, types of businesses, etc.</li> <li>Develop methods to evaluate effectiveness of the messages and overall education program.</li> </ul>	End of Permit Year (PY) 1
1.2	Deliver targeted/timed educational messages	2.3.2.c	<p>Post educational messages on the City website or similar web-based forum. Maintain educational content throughout the Permit term.</p>	End of PY 1
			<p>Distribute a minimum of 2 educational messages to each of the 4 target audiences (residents, commercial, construction, industrial) on Permit-specified topics during the Permit term. Ensure that messages to each audience are at least 1 year apart.</p>	Annually

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
1.2	Deliver targeted/timed educational messages	2.3.2.c	<ul style="list-style-type: none"> <li>• Suggested residential topics:           <ul style="list-style-type: none"> <li>◦ Lawn care effects on water quality (pesticide/herbicide/fertilizer application);</li> <li>◦ Benefits of onsite stormwater infiltration;</li> <li>◦ Vehicle/equipment washing effects on water quality;</li> <li>◦ Proper disposal of swimming pool water;</li> <li>◦ Proper management of pet waste; and</li> <li>◦ Septic system maintenance.</li> </ul> </li> <li>• Suggested Business/Commercial/Institutional topics:           <ul style="list-style-type: none"> <li>◦ Lawn care effects on water quality (pesticide/herbicide/fertilizer application);</li> <li>◦ Benefits of onsite stormwater infiltration;</li> <li>◦ Use of detergents in building maintenance, vehicle/equipment washing;</li> <li>◦ Use of de-icing/anti-icing materials, including proper storage;</li> <li>◦ Proper storage of materials/waste/dumpster maintenance;</li> <li>◦ Proper management of parking lot surfaces; and</li> <li>◦ Proper disposal of swimming pool water.</li> </ul> </li> <li>• Suggested Developer/Construction topics:           <ul style="list-style-type: none"> <li>◦ Proper sediment and erosion control practices;</li> <li>◦ Use of low impact development; and</li> </ul> </li> <li>• Information about the EPA Construction General Permit.</li> </ul>	Annually

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
	Deliver targeted/timed educational messages	2.3.2.c	<ul style="list-style-type: none"> <li>Suggested Industrial topics:           <ul style="list-style-type: none"> <li>Equipment inspection/maintenance;</li> <li>Proper storage of materials;</li> <li>Dumpster management;</li> <li>Use of de-icing/anti-icing materials, including proper storage;</li> <li>Benefits of onsite stormwater infiltration;</li> </ul> </li> </ul> <p>Information about the EPA Multisector General Permit.</p>	Annually
1.3	Deliver supplemental educational messages in areas that discharge to Total Phosphorus impaired waterbodies. (Merrimack River Segment ID: MA84A-04 and MA84A-03)	2.2.2.b.i.1 & Appendix H Part II	For areas that discharge to waterbodies with a Total Phosphorus impairment, distribute one educational message in the June/July timeframe of each PY that pertains to proper pet waste management, noting any existing regulations where appropriate.	Annual (June/July)
			For areas that discharge to waterbodies with a Total Phosphorus impairment, distribute one educational message in August/September/October timeframe of each PY that pertains to proper disposal of leaf litter.	Annual (Aug/Sept/Oct)
			For areas that discharge to waterbodies with a Total Phosphorus impairment, distribute one educational message in March/April timeframe of each PY that pertains to proper disposal of grass clippings and using slow-release and phosphorus-free fertilizers.	Annual (March/ April)
1.4	Deliver supplemental educational messages in areas that discharge to bacteria or pathogen impaired waterbodies (Spicket River – Segment ID: MA84A-10, Merrimack River Segment ID: MA84A-04 and MA84A-03,	2.2.2.c.i.1 & Appendix H Part III	For areas that discharge to bacteria or pathogen impaired water bodies, provide educational materials to dog owners at the time of issuance or renewal of a dog license, or other appropriate time. These education materials describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for noncompliance, noting any existing	Through-out Permit term



BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
	and Shawsheen River Segment ID: MA83-19)		regulations where appropriate.	
			For areas that discharge to bacteria or pathogen impaired water bodies, provide educational materials to owners of septic systems about proper maintenance (as applicable).	Annual
<b>1.5</b>	Assess educational program and modify if needed	2.3.2.e	Assess effectiveness of the educational program and modify messages if needed. Modify ineffective messages, if any, prior to next message delivery.	Annual

## CM 2: Public Involvement and Participation (Permit Part 2.3.3)

Objective: Provide opportunities to engage the public in the review and implementation of the SWMP.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
2.1	Conduct Public Participation Activities	2.3.3.b	<p>Allow public participation in the implementation of the SWMP, annually. All public involvement activities will comply with state public notice requirements.</p> <p>Document and report on activities.</p>	Annual
2.2	Provide Opportunity for Public to Review SWMP	2.3.3.b & c	<p>Allow public participation in review of the SWMP annually. Facilitate public review of SWMP, annually. Allow public to comment on SWMP, annually. All public involvement activities will comply with state public notice requirements.</p> <p>Document public review and public comments.</p> <p>This will be accomplished in partnership with the City of Lawrence Conservation Commission. The Conservation Commission will hold a presentation that is open to the public. The SWMP and Annual MS4 Report updates will be open for review by the public for every September.</p>	Annual
2.3	Make program documents available to the public	2.3.3.a	Post the SWMP and all Annual Reports on City website (following public notice requirements).	Annual

## CM 3: Illicit Discharge Detection and Elimination (IDDE) (Permit Part 2.3.4)

Objective: Implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
3.1	Conduct Sanitary Sewer Overflow (SSO) Reporting and Inventory	2.3.4.4	<p>After identifying new SSOs, notify EPA within 24 hours and provide written notice to EPA and MassDEP within five days.</p> <ul style="list-style-type: none"> <li>Document and file SSO reports and corrective measures implemented for annual reporting. Maintain database or summary of SSOs through Permit term.</li> </ul>	Throughout Permit Term
			<p>Obtain and assess historic SSO reports.</p> <ul style="list-style-type: none"> <li>Develop inventory of all identified SSOs (discharged to the MS4 within the past 5 years) indicating location, date/time, volume, suspected causes, and corrective measures.</li> </ul>	End of PY 1
3.2	Continue MS4 System Mapping	2.3.4.5	Phase I – Update the system map required by the MS4-2003 Permit to include: outfalls and receiving waters, open channel conveyances, interconnections with other MS4s and other storm sewer systems, municipally-owned stormwater treatment structures, waterbodies (name and use impairments), and initial catchment delineations.	End of PY 2

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
3.3	Continue MS4 System Mapping	2.3.4.5	<p>Phase II – Update separate storm sewer system map annually, include information for all MS4 outfalls (catchments) within 10 years of the Permit effective date.</p> <p>Update the system map annually as the following information becomes available during implementation of catchment investigation procedures: outfall spatial location, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer, and combined sewer systems (if available or applicable).</p>	<p>Update: Annually</p> <p>Info for all drainage infra-structure: End of PY 10</p>
	Develop Written IDDE Program Manual	2.3.4.6	<p>Develop a written IDDE Program document that includes at a minimum:</p> <ul style="list-style-type: none"> <li>• Legal authority, statement of responsibilities, outfall/interconnection inventory and initial priority ranking, outfall/interconnection screening and sampling procedures, follow-up ranking, catchment investigation procedures, illicit discharge confirmation and removal procedures, indicators or IDDE Program progress, ongoing screening, and training.</li> </ul>	End of PY 1
		2.3.4.7.a & Appendix H	<p>Designate catchments draining to any waterbody impaired for bacteria or pathogens as either Problem or High Priority catchments in implementation of the IDDE program. Also prioritize catchments that drain to surface public drinking water supplies and waterbodies with recreational use as High Priority.</p>	End of PY 1

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
3.3	Develop Written IDDE Program Manual	2.3.4.8	<p>Outline Catchment Investigation Procedures: Develop a written systematic procedure to investigate each catchment associated with an outfall or interconnection within the MS4 system, that:</p> <ul style="list-style-type: none"> <li>Identifies maps, historic plans and records, and other sources of data that will be used in identifying system vulnerability factors (SVFs) within each catchment.</li> <li>Includes a description of manhole inspection methodology that involves systematically and progressively observing, sampling, and evaluating key junction manholes to determine location of suspected illicit discharges and SSOs.</li> <li>Establishes procedures to isolate and confirm sources of illicit discharges.</li> </ul> <p>Available data to be used for SVFs will be listed in the IDDE Program Manual.</p>	End of PY 1
3.4	Conduct dry weather Outfall/Interconnection screening and sampling	2.3.4.7.b	<p>Conduct dry-weather Outfall/Interconnection screening annually to meet Permit requirements of all outfalls screened by the end of PY 3.</p> <p>Dry weather screening and sampling (no more than 0.1-inch of rainfall in past 24 hours):</p> <ul style="list-style-type: none"> <li>Record condition and information for inventory and priority ranking.</li> <li>If flow, sample for ammonia, chlorine, conductivity, salinity, E. coli (freshwater) or enterococcus (salt water), surfactants, temperature, and pollutants of concern.</li> <li>If no flow but evidence of illicit flow exists, revisit within one week to perform screening/sampling.</li> </ul>	All outfalls screened by end of PY 3

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
3.6	Reprioritize Outfalls and Interconnections	2.3.4.7.c	<p>Update outfall and interconnection ranking (2.3.4.7.a) based on information gathered during dry weather screening. Ranking can be updated continuously as new screening information becomes available.</p> <p>Update IDDE Program Manual with refined prioritization for catchment investigations based on dry weather screening results collected through PY 3.</p>	Update prioritization by end of PY 3
3.7	Conduct catchment investigations	2.3.4.8	<p>For each catchment, conduct investigations consistent with IDDE Program Manual; inspect key junction manholes and refine mapping information on the location of pipes, manholes, and extent of catchment.</p> <ul style="list-style-type: none"> <li>• Dry weather investigation in manholes: if flow, sample for ammonia, chlorine, and surfactants. If no flow, but visual/olfactory evidence of illicit discharges are present, conduct sandbag placement during dry weather. Return to verify presence or absence of flow. Sample as needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete investigation of problem outfalls by end of PY 7</li> <li>• Investigate all catchments by end of PY 10</li> </ul>
3.5	Conduct wet weather Outfall/Interconnection screening and sampling	2.3.4.8	<p>Conduct wet-weather Outfall/Interconnection screening in catchments with SVFs prior to initiation of catchment investigation. Provide data annually.</p> <ul style="list-style-type: none"> <li>• Wet weather screening and sampling will be conducted during or after a precipitation event of sufficient intensity to produce a discharge. Recommended in the Spring. Sample for ammonia, chlorine, conductivity, salinity, E. coli or enterococcus, surfactants, temperature, and pollutants of concern.</li> </ul>	Complete all wet-weather screening in identified catchments by end of PY 7

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
3.8	Conduct expeditious removal of verified sources of illicit discharge or SSO, and confirmatory screening	2.3.4.8	<p>Upon verification of an illicit discharge, locate, identify, and eliminate the illicit discharge as expeditiously as possible. Where elimination of an illicit discharge within 60 days is not possible, establish an expeditious schedule and report the dates of identification and schedule for removal in annual report.</p> <ul style="list-style-type: none"> <li>Confirm removal of verified illicit discharges through dry (and/or wet) bracket sampling.</li> </ul>	During Permit term, document annually
3.9	Evaluate the overall effectiveness of the IDDE Program	2.3.4.9	<p>Evaluate the overall effectiveness of the IDDE Program using the indicators for tracking program success as defined in the IDDE Program Manual. Indicators include: number of SSOs and illicit discharges identified and removed, number and percent of total catchments investigated, dry and wet weather screening and sampling results, and volume of sewage removed.</p> <ul style="list-style-type: none"> <li>Provide evaluation of IDDE program annually via annual report.</li> </ul>	During Permit term, document annually
3.10	Ongoing screening	2.3.4.10	<p>Reprioritize each outfall and interconnection upon completion of all catchment investigations (2.3.4.8) and schedule ongoing screening once every 5 years that includes dry weather screening and sampling. Ongoing wet weather screening and sampling is also required at outfalls where previous wet weather screening was required due to SVFs.</p> <ul style="list-style-type: none"> <li>Conduct outfall screening once every five years upon completion of all catchment investigations.</li> </ul>	Upon completion of all catchment investigations, then ongoing screening once every five years
3.11	Conduct employee training	2.3.4.11	Provide annual training (at a minimum) to employees involved in the IDDE Program. Report on the frequency and type of employee training in annual report.	Annually (at a minimum)



## **CM 4: Construction Site Stormwater Runoff Control (Permit Part 2.3.5)**

**Objective:** The objective of an effective construction stormwater runoff control program is to minimize or eliminate erosion on regulated construction sites within the regulated MS4 area and to ensure that sediments and other pollutants are not transported in stormwater from construction sites and allowed to discharge to a water of the United States through the MS4. The Best Management Practices for this minimum control measure are displayed on the proceeding pages.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
4.1	Ensure construction stormwater runoff control ordinances, local site development, and wetland protection Permit application process are consistent with MS4 General Permit	2.3.5.c.i.	<p>Review City Stormwater Control Ordinance/Bylaw and regulations, wetland protection, and local Permit application process to ensure that site development applicants meet Construction General Permit obligations.</p> <ul style="list-style-type: none"> <li>Continue to implement an effective construction stormwater runoff control program. An ordinance or other regulatory mechanism that requires the use of sediment and erosion control and waste management practices at construction sites that disturb greater than one acre (or common plan of development) was required to be in place by May 1, 2008 under the MS4-2003 Permit.</li> <li>Continue to require construction site operators performing land disturbance activities that exceed one acre (or common plan of development) to implement an erosion and sediment control program consistent with the Construction General Permit.</li> </ul>	End of PY 1

4.2	Develop written construction site stormwater runoff control program procedures	2.3.5.c.ii. & 2.3.5.c.v.	<p>Develop written Construction and Post-Construction Program Manual (Manual) or independent documentation for the following procedures:</p> <ul style="list-style-type: none"> <li>• Procedures and workflow for site plan review, pre-construction review, receipt and consideration of information submitted by the public, inspections, responsible parties, and data tracking.</li> <li>• Procedures for enforcement of sediment and erosion control measures.</li> <li>• Procedures to consider potential water quality impacts to impaired waters, construction waste handling, and evaluation of opportunities for use of LID and green infrastructure.</li> </ul> <p>Include references to local ordinance/bylaw and regulations</p>	End of PY 1
4.3	Track, inspect, and document applicable construction projects	2.3.5.c.v.	Track the number of erosion and sediment control plan reviews, construction site inspections, and enforcement actions and include in annual report.	Throughout Permit term, annually

## CM 5: Stormwater Management in New Development and Redevelopment (Post-Construction Stormwater Management) (Permit Part 2.3.6)

**Objective:** The objective of this control measure is to reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater on regulated new or redevelopment sites within the regulated MS4 area.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
5.1	Develop written post-construction stormwater runoff program procedures	2.3.6.a	<p>Develop written Construction and Post-Construction Program Manual (Manual) or standalone documentation meeting the following requirements:</p> <ul style="list-style-type: none"> <li>Include references to City Stormwater Control Ordinance/Bylaw and regulations.</li> <li>Document procedures and workflow for site plan review, post-construction installation inspections, responsible parties, and stormwater control structure tracking.</li> <li>During development of the Manual or independent procedures: <ul style="list-style-type: none"> <li>Review City Stormwater Control Ordinance/Bylaw and regulations, wetland protection, and local Permit application process to ensure that site development applicants meet Post-Construction General Permit obligations consistent with Permit requirements in Part 2.3.6.a (see BMP 5.2) and provisions related to management of Phosphorus in discharges to impaired waters.</li> <li>Evaluate the effectiveness of City Stormwater Control Ordinance/Bylaw related to Permit Part 2.3.6.a.iii requirements (see BMP 5.2).</li> <li>Recommend and implement changes to Ordinance/Bylaw (or Regulations), as necessary.</li> </ul> </li> </ul>	End of PY 1

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
5.2	<p>Update Local Ordinance/Bylaw</p> <p>Update Local Ordinance/Bylaw (or regulations) on Stormwater Management in New &amp; Redevelopment. This includes the BMP for areas that discharge to waterbodies impaired by solids, oils, and grease (hydrocarbons), or metals.</p>	2.3.6.a.ii	<p>Based on outcome of BMP 5.1, update the Ordinance/Bylaw or other regulatory mechanism (as needed).</p> <ul style="list-style-type: none"> <li>Require LID site planning and design strategies be implemented to the maximum extent feasible.</li> <li>Require that design of stormwater management systems be consistent with, or more stringent than, the requirements of the 2008 Massachusetts Stormwater Handbook.</li> <li>Require that stormwater management systems on new development sites be designed to meet an average annual pollutant removal equivalent to 90% of the annual average load of Total Suspended Solids (TSS) and 60% of Total Phosphorus (TP) generated from the total post-construction impervious area on the site.</li> <li>Require that stormwater management systems on redevelopment sites be designed to meet an average annual pollutant removal equivalent to 80% of the average annual load of TSS and 50% of TP generated from the total post-construction impervious area on the site.</li> <li>Provide options for offsite mitigation meeting the same standards as the new/redevelopment sites within the same United States Geological Survey (USGS) Hydrologic Unit Code 12 (HUC12) as the new/redevelopment site.</li> </ul>	End of PY 3
		2.3.6.a.ii & Appendix H Part V	<ul style="list-style-type: none"> <li>Design stormwater management systems on commercial and industrial land such that designs incorporate for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event.</li> </ul>	

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
5.2	Update Local Ordinance/Bylaw Update Local Ordinance/Bylaw (or regulations) on Stormwater Management in New & Redevelopment. This includes the BMP for areas that discharge to waterbodies impaired by solids, oils, and grease (hydrocarbons), or metals.	2.3.6.a.iii  &  Appendix H Part II	<ul style="list-style-type: none"> <li>Require the submission of as-built drawings no later than two years after completion of construction projects. Document in the Annual Report the measures/procedures utilized to meet this requirement.</li> <li>Establish a mechanism to ensure that long-term operation and maintenance (O&amp;M) of BMPs will occur. This can be accomplished by establishing dedicated accounts or funds, maintenance contracts, annual certification or assumed ownership of the BMPs. Document in the Annual Report the measures/procedures utilized to meet this requirement.</li> <li>Require that new development or redevelopment stormwater management BMPs be optimized for Phosphorus removal for areas that discharge to waterbodies with a Total Phosphorus impairment.</li> </ul>	End of PY 3
5.3	Assess Local Standards	2.3.6.b	<p>During review of Ordinance/Bylaw (or other regulatory mechanism) in PY 3 (see BMP 5.2).</p> <ul style="list-style-type: none"> <li>Evaluate existing zoning or other municipal standards to determine if the requirements are stormwater-friendly, per Permit Part 2.3.6.b and 2.3.6.c.</li> <li>Recommend changes to zoning or other municipal standards.</li> </ul> <p>Street Design and Parking Lot Requirements Assessment.</p> <ul style="list-style-type: none"> <li>Develop a report assessing street design and parking lot requirements that affect the creation of impervious cover.</li> <li>Involve the local planning board and local transportation board and include recommendations for policies that will minimize impervious area attributable to parking areas and street designs, schedules for implementing</li> </ul>	End of PY 3  End of PY 4, document status annually



BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
5.3	Assess Local Standards	2.3.6.b	<p>recommendations, and subsequent assessment.</p> <ul style="list-style-type: none"> <li>Document status of the assessment and planned or completed changes to local regulations/guidelines in annual report.</li> </ul>	End of PY 4, document status annually
		2.3.6.c	<p>Assessment of local regulation's effect on integration of infiltration/water reuse practices:</p> <ul style="list-style-type: none"> <li>Develop a report assessing how local regulations affect the ability of development to include infiltration practices (e.g., green roofs, rain gardens, curb extensions, planter gardens, and porous &amp; pervious pavement) and water harvesting devices (e.g. rain barrels and cisterns) that promote the use of stormwater for non-potable uses.</li> <li>Create a schedule for revising regulations, if necessary. Include this schedule, assessment findings, and progress towards making infiltration and water harvesting practices feasible in the annual report.</li> </ul>	
5.4	Identify BMP Retrofits for Reduction of Impervious Area	2.3.6.d	<p>During municipal facility inventory conducted in PY 2 (BMP 6.1), identify sites with likely reconstruction activity during the Permit term. Where appropriate, these facilities with planned reconstruction will include stormwater control measures.</p> <ul style="list-style-type: none"> <li>Complete an inventory of at least five municipal properties/ roadways that could be modified through the reduction of Impervious Areas by end of PY 4 and include in annual report.</li> <li>Retrofits to municipal properties with significant Impervious Areas should be considered at a minimum.</li> <li>Conduct retrofit assessment on facilities without planned improvements and within impaired watersheds (as applicable) in PY 4. Also see Section 1.2.1 Impaired Waters.</li> </ul>	End of PY 4, document status annually



BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
5.4	Identify BMP Retrofits for Reduction of Impervious Area	2.3.6.d	<ul style="list-style-type: none"> <li>Continue to identify additional municipal properties/infrastructure that could be retrofitted such that a minimum of five sites are maintained in the inventory, until such a time as when there are less than five sites remaining. Update inventory annually beginning with PY 5 annual report.</li> <li>Report on inventoried MS4 properties that have been retrofitted with BMPs that mitigate Impervious Areas. Non-MS4 retrofitted properties may also be included. Report on retrofits annually beginning with PY 5 annual report.</li> </ul>	End of PY 4, document status annually

## CM 6: Pollution Prevention and Good Housekeeping for Municipal Operations (Permit Part 2.3.7)

Objective: To implement a *Pollution Prevention & Good Housekeeping Program* for municipal operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all municipal operations and municipal facilities.

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
6.1	Develop Operations & Maintenance (O&M) Program documentation	2.3.7.a	<p>Develop written O&amp;M procedures per Part 2.3.7.a of the Permit.</p> <ul style="list-style-type: none"> <li>Develop Clean Water Best Practices Manual or standalone standard operating procedures (SOPs, Procedures) inclusive of all City facilities, drainage system operations activities, inspection obligations, and including specific impaired waters provisions. Program procedures will include the following:           <ul style="list-style-type: none"> <li>Municipal facilities/equipment inventory by watersheds/catchments</li> <li>Proper use, storage, and disposal of potential stormwater pollutants such as pesticides, herbicides, fertilizers, and petroleum products</li> <li>Pet waste management</li> <li>Waterfowl congregation area</li> </ul> </li> </ul>	End of PY 2

BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
6.1	Develop Operations & Maintenance (O&M) Program documentation	2.3.7.a	<ul style="list-style-type: none"> <li>- management</li> <li>- Management of trash receptacles</li> <li>- Vehicle and equipment maintenance, including wash water management</li> <li>- Municipal infrastructure maintenance: street sweeping and catch basin cleaning</li> <li>- Road salt use and optimization</li> <li>- Stormwater treatment structures O&amp;M</li> <li>- Landscape maintenance (including grass clippings and leaf litter)</li> <li>• Report on status of inventory and program documentation.</li> </ul>	End of PY 2
6.2	Implement O&M Program	2.3.7.a	Report on status of O&M programs, maintenance activities, best practices, and provide documentation in annual report consistent with reporting requirements outlined in 2.3.7.a.	End of PY 2, document status annually
6.3	Infrastructure Operation and Maintenance Plan in areas that discharge to solids, oils, and grease (hydrocarbons), or metals impaired waterbodies	2.3.7.a.iii & Appendix H Part V	<ul style="list-style-type: none"> <li>• Develop a program detailing the routine inspections, cleaning, and maintenance of catch basins such that no catch basins at any time will be more than 50% full.</li> <li>• Establish and implement procedures for increased street sweeping frequency of all municipal owned streets and parking lots while targeting areas with potential for high pollutant loads.</li> </ul>	End of PY 2
6.4	Develop/Refine Stormwater Pollution Prevention Plan (SWPPP) for maintenance garages, public works yards, transfer stations, and waste handling facilities	2.3.7. b	Develop SWPPP (and SPCC as needed) for maintenance garage, public works yard, transfer station, and waste handling facilities. SWPPP will include the elements listed in Part 2.3.7.b. ii. Keep all records associated with the development and implementation of the SWPPP. Report status of SWPPP annually.	End of PY 2, document annually thereafter
6.5	Conduct site inspection procedures consistent with	2.3.7.b.iii.	Inspect all areas exposed to stormwater and all stormwater control measures at each facility at least once per calendar quarter and report findings in annual report.	Once per quarter upon completion of BMP 6.3,



BMP ID #	BMP Description	Permit Part Reference	Measurable Goal(s)	Deadline(s)
	SWPPP for maintenance garages, public works yards, transfer stations, and waste handling facilities	2.3.7.b.iii.	Inspect all areas exposed to stormwater and all stormwater control measures at each facility at least once per calendar quarter and report findings in annual report.	Document annually.
<b>6.6</b>	Conduct employee training program consistent with SWPPP	2.3.7. h.	Conduct employee training consistent with SWPPP.	Every other Permit Year



## 1.2 WATER QUALITY STANDARDS

### 1.2.1 Impaired Waters

Discharges to waterbodies with approved Total Maximum Daily Load (TMDL) or to water quality limited water bodies, or discharges causing or contributing to impairments have additional requirements in Parts 2.1, 2.2, Appendix H and Appendix F of the MS4 General Permit. According to MassDEP's Final 2022 Integrated List of Waters, the City of Lawrence's MS4 discharges to waterbodies that have an approved TMDL and waterbodies that are considered impaired but do not have an approved TMDL. A list of impaired waters that are within the City of Lawrence and their TMDL/impairment causes is provided in Table 1-1 in this Section. A map showing MassDEP's Final 2022 Integrated List of Waters located in the City of Lawrence is provided in Appendix C of this SWMP.

#### ***Additional Requirements for Discharges to Impaired Waterbodies with an Approved TMDL***

The City of Lawrence is located within the Merrimack River watershed. As noted in Table 1-1, the City discharges to the Shawsheen River, which has a TMDL. There are additional requirements for areas that discharge into this waterbody segment in the General Permit, which are discussed in this Section.

##### Shawsheen River TMDL for Fecal Coliform and Escherichia Coli

The following is a summary of the additional requirements associated with the Shawsheen River Fecal Coliform and Escherichia Coli TMDLs, per Appendix F Part A.III of the General Permit:

- Enhancement of BMPs required by Part 2.3 of the permit that will be implemented during this permit term:
  - Public Education and Outreach
    - Once per year, the City will produce a message to pet owners, encouraging the proper management of pet waste. Educational materials will be distributed to dog owners at the time of issuance or renewal of a dog license, or other appropriate time. Education materials will describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance, noting any existing regulations where appropriate.
    - Once per year, the City will provide information to owners of septic systems in catchments that discharge to the Shawsheen River, about proper maintenance (as applicable). There are very limited, if any, septic systems within the City.
  - Illicit Discharge
    - Catchments draining the Shawsheen River will be designated either Problem Catchments or HIGH priority in implementation of the IDDE program.

#### ***Additional Requirements for Discharges to Impaired Waterbodies Without an Approved TMDL***

For the areas within the City that directly discharge to impaired waterbody segments without an approved TMDL, there are additional BMPs that have been established, in Parts 2.1, 2.2, and Appendix H of the MS4 General Permit. Among the impairment causes are the following:

- Total Phosphorus



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- Bacteria or pathogens (i.e., Escherichia Coli or Fecal Coliform)
- Aquatic Macroinvertebrate Bioassessments
- Copper
- Curly-Leaf Pondweed
- DDT in Fish Tissue
- Debris
- Trash
- Fish Passage Barrier
- Nutrients
- Physical Substrate Habitat Alterations
- Polychlorinated biphenyls (PCBs) in Fish Tissue
- Mercury in Fish Tissue
- Mercury in Water Column

A description of the Permit requirements and BMPs related to impaired waters and measurable goal(s) for each BMP have been integrated into Section 1.1 of this Plan and are summarized below:

For the areas that discharge to waters impaired by **Total Phosphorus** or **Nutrients** where stormwater or combined sewer overflows are the cause of the nutrient impairment but have no approved phosphorus TMDL (Merrimack River, Spicket River):

- Public Education and Outreach
  - The City will supplement annual messages to the public in the springtime (March/April) on disposal of yard waste and use of slow-release and phosphorus-free fertilizers.
  - The City will supplement annual messages to the public in the summertime (June/July) on pet waste management, noting any existing regulations where appropriate.
  - The City will supplement annual messages to the public in the fall (September/October) on proper disposal of leaf litter.
- Stormwater Management in New Development and Redevelopment
  - The City will require that new development or redevelopment stormwater management BMPs be optimized for phosphorus removal.
  - Consider BMPs that infiltrate stormwater where feasible in retrofit inventory and priority ranking of municipal properties/infrastructure.
- Good House Keeping and Pollution Prevention
  - The City will establish housekeeping procedures to manage grass cuttings and leaf litter on municipal property.
  - The City will increase street sweeping frequencies on municipally owned streets and parking lots.
- Phosphorous Source Identification Report



- Within four years of the permit effective date, the City will develop a Phosphorous Source Identification Report (that will be submitted to EPA as part of the year 4 annual report) that includes:
  - Calculation of total MS4 area draining to the water quality limited receiving water segments or their tributaries
  - Incorporation of updated mapping of the MS4 and catchment delineations produced pursuant to Part 2.3.4.5
  - All screening and monitoring results pursuant to Part 2.3.4.7.b., targeting the receiving water segment(s)
  - Impervious area and DCIA for the target catchment
  - Identification, delineation and prioritization of potential catchments with high phosphorus loading
  - Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area
- The City will post the Phosphorus Source Identification Report and any related progress reports to their City website annually.
- Potential Structural BMPs
  - Within five years of the permit effective date, the City will evaluate all of its properties identified as presenting retrofit opportunities or areas for structural BMP installation under permit Part 2.3.6.d.ii or identified in the Phosphorus Source Identification Report that are within the drainage area of the water quality limited water or its tributaries. The evaluation will include:
    - The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date
    - The estimated cost of redevelopment or retrofit BMPs
    - The engineering and regulatory feasibility of redevelopment or retrofit BMPs.
  - The City will provide a listing of planned structural BMPs and a plan and schedule for implementation in the year five annual report.
  - The City will plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the permit effective date. The demonstration project will be installed targeting a catchment with high phosphorus load potential.
  - The City will install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year five annual report.

For the areas that discharge to waters impaired by **bacteria or pathogens** but have no approved bacteria TMDL (Merrimack River and Spicket River):

- Public Education and Outreach
  - The City will supplement residential public education and outreach program with an annual

message encouraging the proper management of pet waste and proper maintenance of septic systems, noting any existing regulations where appropriate.

- IDDE Program
  - Designate catchments draining to any waterbody impaired for bacteria or pathogens as either Problem or High Priority catchments in implementation of the IDDE program.

For the areas that discharge to waters impaired by **solids, oils, and grease (hydrocarbons), or metals**, but have no approved TMDL (Spicket River):

- Stormwater Management in New Development and Redevelopment:
  - The City will ensure that stormwater management systems designed on commercial and industrial land use area draining to the water quality limited waterbody will incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event.
- Good House Keeping and Pollution Prevention
  - The City will increase street sweeping frequency of all municipal owned streets and parking lots to target areas with potential for high pollutant loads. This may include, but is not limited to, increased street sweeping frequency in commercial areas and high-density residential areas, or drainage areas with a large amount of impervious area.
  - The City will prioritize inspection and maintenance for catch basins to ensure that no sump will be more than 50 percent full.

This section will be updated to incorporate additional Appendix H requirements associated with excess algal growth, dissolved oxygen, and/or nutrient/eutrophication biological indicators if these impairments are identified in receiving waterbodies during future iterations of the Massachusetts Integrated List of Waters and the impairment source is stormwater related. The City will continue to analyze samples for these parameters during outfall and interconnection screening activities, as needed.

**Table 1-1: Impaired Waters in Lawrence, MA (Based on Draft Integrated List 2022)**

Segment ID	Waterbody	Impairment Category Classification	Impairment Cause	Impairment Source	EPA TMDL Control No.	Pollutant of Concern Sampling Requirements (Permit Appendix G)
<b>Waterbodies in the Merrimack Watershed:</b>						
MA84A-03	Merrimack River	Category 5	(Fish passage barrier*)	Dam or Impoundment	No TMDL required	- Non-pollutant
			Escherichia coli	Source Unknown, Wet weather discharges (point source and combination of stormwater, sso or cso)	NA	- E. coli
			PCB in Fish Tissue	Unknown	NA	- NMR*
			Phosphorus (total)	Municipal Point Source Discharges, Unspecified Urban	NA	- Phosphorus, Total

Segment ID	Waterbody	Impairment Category Classification	Impairment Cause	Impairment Source	EPA TMDL Control No.	Pollutant of Concern Sampling Requirements (Permit Appendix G)
				Stormwater Upstream/Downstream Source		
			Mercury in Fish Tissue	Unknown Atmospheric Deposition – Toxics	NA	- NMR
MA84A-04	Merrimack River	Category 5	Escherichia coli	Source Unknown, Wet Weather Discharges (point source and combination of stormwater, sso or cso), Combined Sewer Overflows	NA	- E. Coli
			PCB in Fish Tissue	Source Unknown	No TMDL required	- Non-pollutant
			Phosphorus (total)	Unspecified Urban Stormwater, Municipal Point Source Discharges, Upstream/Downstream Source	NA	- Phosphorus, Total
MA84A-10	Spicket	Category	(Debris/Trash*)	Unspecified Urban Stormwater	NA	- NMR
			(Physical substrate habitat alterations*)	Unspecified Urban Stormwater, Channelization, Loss of Riparian Habitat	NA	- NMR
			(Fish passage barrier*)	Dam or Impoundment	No TMDL required	- Non-pollutant
			Benthic Macroinvertebrates	Unspecified Urban Stormwater, Municipal Point Source Discharges, Loss of Riparian Habitat	NA	- Contact MassDEP
			Mercury in Fish Tissue	Source Unknown	NA	- NMR

Segment ID	Waterbody	Impairment Category Classification	Impairment Cause	Impairment Source	EPA TMDL Control No.	Pollutant of Concern Sampling Requirements (Permit Appendix G)
	River	5	Copper	Combined Sewer Overflows, Unspecified Urban Stormwater	NA	- Copper, Total
			Escherichia coli	Combined Sewer Overflow, source Unknown, Discharges from MS4	NA	- E. coli
			DDT in Fish Tissue	Source Unknown	NA	- NMR
			Nutrients	Unspecified Urban Stormwater, Combined Sewer Overflows	NA	- Phosphorus, Total
<b>Waterbodies in the Shawsheen Watershed:</b>						
MA83-19	Shawsheen River	Category 5	(Curly-leaf Pondweed*)	Introduction of Non-Native Organisms	No TMDL Required	- Non-pollutant
			(Fish Passage Barrier*)	Dam or Impoundment	No TMDL Required	- Non-pollutant
			Benthic Macroinvertebrates	Source Unknown	NA	- Contact MassDEP
			Fecal Coliform	Discharges from MS4, Illicit Connections/Hook-ups to Storm Sewers	2587	- Fecal Coliform
			Escherichia coli	Discharges from MS4, Illicit Connections/Hook-ups to Storm Sewers	2587	- E. coli

\*NMR indicates that no monitoring is required.

Note: Future reissuance and/or approval of the Massachusetts Integrated List of Waters may necessitate additional modifications to this Plan to maintain compliance with applicable requirements.

## 1.2.2 Surface Public Drinking Water Supplies

The City of Lawrence Water Treatment Facility draws water from the upstream portion of the Merrimack River, a Class B surface water. The City will continue to take measures to minimize impacts to surface public drinking water supply sources through the use of the BMPs discussed in Section 1.1 and 1.2 of this SWMP.



In addition, the City's IDDE Program Plan prioritizes investigating the potential for illicit stormwater discharges proximate to drinking water supplies.

In addition to the stormwater BMPs discussed in this plan, the City maintains a drinking water supply emergency response plan to manage emergencies and inform citizens of drinking water emergencies.

A list of known waterbody segments that receive discharge from Lawrence's MS4 is included in the City's MS4 General Permit Notice of Intent (NOI) submission to the EPA dated December 18, 2018, which can be accessed on the EPA's website. Any updates to the waterbody segments receiving discharge from Lawrence's MS4 will be included in future revisions of this document, if necessary.

### **1.2.3 Increased Discharges**

The City will comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for increased discharges where appropriate. Any authorization of an increased discharge by MassDEP will be incorporated within this SWMP.

There will be no increased discharges, including increased pollutant loading(s) from the MS4 to impaired waters listed in categories 5 or 4b on the most recent Massachusetts Integrated Report of waters listed pursuant to Clean Water Act Section 303(d) and 305(b) unless the discharger demonstrates that there is no net increase in loading from the MS4 to the impaired water of the pollutant(s) for which the waterbody is impaired.

Unless otherwise determined by the EPA or MassDEP, compliance with the Part 2.2.2 and 2.3.6 requirements of the MS4 General Permit, including all reporting and documentation requirements, are considered as demonstrating no net increase or increased discharge. Part 2.2.2 and 2.3.6 requirements have been included in the BMPs outlined in Section 1.1 of this SWMP.

If necessary, the City will demonstrate compliance with this provision by either:

- Documenting that the pollutant(s) for which the waterbody is impaired is not present in the MS4's discharge and retaining documentation of this finding with the SWMP; or
- Documenting that the total load of the pollutant(s) of concern from the MS4 to any impaired portion of the receiving water will not increase as a result of the activity and retaining documentation of this finding in the SWMP.

## **1.3 SPECIAL ELIGIBILITY DETERMINATIONS**

Consistent with Part 1.9 of the 2016 MS4 General Permit, the City has completed an assessment of both Endangered Species and Historic Properties. The Information, Planning and Conservation (IPaC) online system process was completed, and the Northern Long-Eared Bat was identified in Lawrence. However, since the action area does not contain one or more of the species listed in Appendix C, Part B, Step 2 for determination of Criterion B, and discharges from the City's MS4 are not likely to adversely affect the Northern Long-Eared Bat habitat, Criterion C is applicable. Therefore, stormwater discharges and discharge related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

Appendix D of the MS4 General Permit was consulted for guidance regarding the National Historic Preservation Act. It was determined that Criterion A is applicable: The discharges authorized under this permit do not have the potential to cause effects to historic properties.



If during Permit implementation the City initiates a project that will result in ground or vegetation disturbance, additional consultation with the appropriate agencies will be initiated. See Appendix B for determination letters.

## **1.4 ANNUAL PROGRAM SELF-EVALUATION, RECORD KEEPING & ANNUAL REPORTING**

Covered entities are required to collect and report information about the development and implementation of their SWMP. The City conducts annual evaluations of its program compliance, the appropriateness of its identified BMPs, meeting new Permit requirements, and progress towards achieving its identified measurable goals, which include reducing the discharge of pollutants to the maximum extent practicable ("MEP").

The City will keep records required by the MS4 General Permit for at least five years after they are generated. Records include but are not limited to: information used in the development of written (hardcopy or electronic) programs required by this Permit, monitoring results, copies of reports, records of screening, follow-up and elimination of illicit discharges; maintenance records; inspection records; and data used in the development of the notice of intent, SWMP, SWPPP, and annual reports. Records will be available for public observation upon request. Records will be submitted to the EPA or MassDEP as requested.

Annual reports are due to the EPA and MassDEP each year within 90 days of the close of the Permit year on June 30 (September 30). The annual reports shall include the following content:

- Self-assessment review of compliance with Permit conditions;
- An assessment/evaluation of:
- The appropriateness of the identified BMPs
- Progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP
- The identified measurable goals for each of the CMs
- All outfall screening and sampling results;
- Summary of stormwater activities planned to be undertaken during the next reporting cycle;
- Any change in identified BMPs or measurable goals and justification for those changes; and
- The information specified under the reporting requirements for each CM.

Changes to the City's stormwater permit compliance program do not need to be updated in their NOI, however, this information will be included in the City's annual reports and SWMP updates. Annual reports are also made available for public access on the City's and the EPA's website.

## 1.5 RESPONSIBLE PARTIES FOR STORMWATER PROGRAM IMPLEMENTATION

Title/ Position of Responsible Person	Name of Responsible Person	Role/Program Element(s)
Water Commissioner	William Hale	Control Measure 1, 2, 3, 6 and all TMDL and Impaired Water Provisions
Assistant City Engineer	Oliver Aguilo	Control Measure 4, 5
DPW Director	Jorge Jaime	Facility Inventory and Standards of Practice for Operations



## 2. PROGRAM DOCUMENTS: PLANS, PROCEDURES, INVENTORIES, AND MAPS

The General Permit requires certain documents to be included in the SWMP. These documents will be developed consistent with the schedule outlined in Section 1.1. This Section provides information on where these documents can be accessed. Some of these documents have been appended to this SWMP, while others are provided in a location external to the SWMP due to size or complexity. Digital copies can be found on the City website and hard copies will be made available by the City, as detailed in the sections below.

### 2.1 IDDE PROGRAM

#### 2.1.1 IDDE Program Manual

The City has developed a written IDDE Program Manual consistent with the requirements of Part 2.3.4.6 of the MS4 General Permit. The IDDE Program Manual includes:

- Responsible parties
- Regulatory authority
- Dry weather and wet-weather outfall screening and sampling procedures
- Interconnection screening procedures
- Initial assessment and priority ranking of outfalls/interconnections
- Catchment investigation procedures
- Enforcement procedures
- Training resources and modules

The IDDE Program Manual can be accessed at the City of Lawrence Water Treatment Facility offices.

#### 2.1.2 Separate Storm Sewer System Map

The City has developed a Separate Stormwater Sewer System Map consistent with the requirements of Part 2.3.4.5.a of the MS4 General Permit. The maps, provided in Appendix A and Appendix C of this SWMP, includes the following information:

- Outfalls and receiving waters
- Open channel conveyances
- Interconnections with other MS4s and other storm sewer systems
- Municipally-owned stormwater treatment structures
- Waterbodies identified by name and indication of all use impairments per the most recent Massachusetts Integrated List of Waters report
- Initial catchment delineations
- Drain pipes, manholes, and catch basins



The maps are updated annually and/or upon receipt of new information relating to the MS4 drainage network.

### **2.1.3 SSO Inventory**

The City has developed a Sanitary Sewer Overflow (SSO) Inventory consistent with the requirements of Part 2.3.4.4 of the MS4 General Permit. The SSO inventory is updated annually and submitted along with the MS4 annual report.

### **2.1.4 Receiving Waterbodies**

Consistent with the requirements of Part 1.10.2 of the MS4 General Permit, a list of all Integrated List waterbody segments that receive discharge from the City's MS4 is provided in Table 1-1. The table also includes estimated number of outfalls that discharge directly to each Integrated List of waterbody segment. The City's MS4 General Permit NOI submission to the EPA dated December 18, 2018 included the estimated number of outfalls that discharge directly to each Integrated List waterbody segment. A copy of the original NOI can be accessed on the EPA's website. Any updates to the numbers reported in the NOI will be included in future revisions of this document, if necessary.

### **2.1.5 Interconnected Separate Storm Sewer Systems**

Consistent with the requirements of Part 1.10.2 of the MS4 General Permit, a list of all known interconnected MS4s and other separate storm sewer systems receiving a discharge from the City's MS4, as well as the waterbody segment(s) that ultimately receive the discharge, are shown on the updated Separate Storm Sewer System Map in Appendix A.

## **2.2 CONSTRUCTION AND POST-CONSTRUCTION STORMWATER MANAGEMENT PROGRAM**

### **2.2.1 Site Plan Review, Site Inspections, and Erosion & Sediment Control Procedures**

Consistent with the requirements of Part 2.3.5 of the MS4 General Permit, the City has developed written procedures for site plan review, site inspections, and enforcement of sediment and erosion control measures. These procedures are detailed in the City's Land Development Program Manual, which can be accessed at the City of Lawrence Water Treatment Facility offices.

### **2.2.2 New Development/ Redevelopment Ordinance**

Consistent with the requirements of Part 2.3.6.a.iii of the MS4 General Permit, the City has developed a regulatory mechanism to require submission of as-built drawings and ensure long-term O&M of post-construction stormwater BMPs. The regulations can be found on the City's website. A paper copy can be accessed at City Hall.

### **2.2.3 Street Design and Parking Lot Report**

Consistent with the requirements of Part 2.3.6.b and 2.3.6.c. of the MS4 General Permit, the City will develop a report assessing current street design, parking lot guidelines, and other "code" requirements to ensure that the creation of impervious cover is minimized, and that innovative stormwater management is not



constrained by local code. This document can be accessed at the City of Lawrence Water Treatment Facility offices.

#### **2.2.4 Green Infrastructure Report**

Consistent with the requirements of Part 2.3.6.c of the MS4 General Permit, the City will develop a report assessing how local regulations affect the ability of development projects to include infiltration practices (e.g. green roofs, rain gardens, curb extensions, planter gardens, and porous and pervious pavement) and water harvesting devices (e.g. rain barrels and cisterns) that promote use of stormwater for non-potable uses. This document can be accessed at the City of Lawrence Water Treatment Facility offices.

#### **2.2.5 Retrofit Properties Inventory**

Consistent with the requirements of Part 2.3.6.d of the MS4 General Permit, the City will develop a report assessing their existing stormwater BMPs, identifying sites where impervious areas can be reduced, and assessing the likelihood and potential impacts of completing such retrofits. This document can be accessed at the City of Lawrence Water Treatment Facility offices.

#### **2.2.6 Clean Water Best Practices Manual**

The City has developed a Clean Water Best Practices (CWBP) Manual consistent with the requirements of Part 2.3.7.a.ii of the MS4 General Permit. The objectives of the CWBP Manual are to provide a general guidance document to the City detailing ways to reduce stormwater-transported pollution during typical activities on municipally-owned properties and to promote behavior that will improve water quality in the City of Lawrence. The manual includes general best practices for managing the following assets:

- Parks and open space
- Vehicles and equipment
- Buildings and facilities
- MS4 infrastructure

This document can be accessed at the City of Lawrence Water Treatment Facility offices.

#### **2.2.7 Municipal Facility Inventory**

The City has developed a Municipal Facility Inventory consistent with the requirements of Part 2.3.7.a.ii of the MS4 General Permit. The inventory includes all municipally-owned facilities with the potential for stormwater polluting activities, including, but not limited to:

- Parks and open space
- Buildings where pollutants are exposed to runoff (e.g., schools, City offices, fire stations, garages, etc.)
- Vehicle and equipment storage areas

The Municipal Facility Inventory is located in Appendix A of the CWBP Manual, which can be accessed at the City of Lawrence Water Treatment Facility offices.

#### **2.2.8 O&M Standard Operating Procedures**



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The City has developed written Operations and Maintenance (O&M) Standard Operating Procedures (SOPs) consistent with the requirements of Part 2.3.7.a of the MS4 General Permit. The objectives of the O&M SOPs are to establish procedures for MS4 infrastructure maintenance that will help reduce the discharge of pollutants from municipally-owned facilities. The O&M SOPs include:

- Winter road maintenance procedures targeting minimal use and proper storage of sodium chloride and other salts
- Catch basin inspection, cleaning, and maintenance procedures, and a plan for optimization of these routine activities
- Street sweeping and cleaning procedures to ensure all City-owned roadways are swept at least once per year
- Management and disposal of catch basin cleanings and street sweepings to avoid discharge into receiving waters
- Stormwater treatment structure inspections and maintenance procedures

The O&M SOPs are located in Appendix B of the CWBP Manual, which can be accessed at the City of Lawrence Water Treatment Facility offices.

### **2.2.9 Stormwater Pollution Prevention Plan**

The City has developed a written Stormwater Pollution Prevention Plan (SWPPP) for the Department of Public Works Facility consistent with the requirements of Part 2.3.7.b of the MS4 General Permit. The SWPPP includes:

- Pollution and prevention team
- Description of the facility and identification of potential pollutant sources
- Identification of stormwater controls
- Material exposure prevention, good housekeeping, preventative maintenance, spill prevention and response, erosion and sediment control, management of runoff, salt storage pile or salt-containing pile management, employee training, and maintenance of control measure practices

The SWPPP can be accessed at the Public Works facility.



## CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

**Signature**

William C. Hale Jr.

Name

**Date**

10/22/24



# Appendices



## APPENDIX A: SEPARATE STORM SEWER MAP



## Stormwater Collection System Overview

City of Lawrence, MA

### Legend

Stormwater Gravity Main  
Storm Open Drains  
Storm Catch Basin  
Storm Manholes  
Storm Interconnections  
Stormwater BMP  
Lawrence Boundary  
Urbanized areas with a population of at least 50,000

**Outfall**  
Owned By

- Andover
- GLSD
- Methuen
- Other
- Private
- State





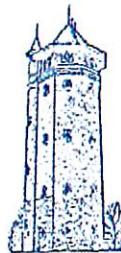
## **APPENDIX B: SPECIAL ELIGIBILITY DETERMINATION LETTERS**



## CITY OF LAWRENCE

### WATER & SEWER DEPARTMENT

City Hall • 200 Common Street, Suite 204 • Lawrence, MA 01840  
Tel: (978) 620-3110 • [www.cityoflawrence.com](http://www.cityoflawrence.com)



BRIAN PEÑA  
COMMISSIONER

*Established 1872*

August 17, 2018

Newton Tedder  
US Environmental Protection Agency  
Stormwater and Construction Permits Section (OEP06-1)  
Five Post Office Square, Suite 100  
Boston, MA 02109

Re: Endangered Species Determination for Lawrence, MA Associated with the MA MS4  
General Permit

Dear Mr. Newton Tedder:

The City of Lawrence, MA is a non-federal representative designated by the Environmental Protection Agency (EPA) for conducting formal or informal consultation with the U.S. Fish and Wildlife Service.

I have evaluated the United States Fish & Wildlife Service iPAC Biological and Conservation Data System files in response to new regulation promulgation under the 2016 Massachusetts Municipal Separate Sewer System (MS4) General Permit. The objective of this review is to determine the presence of endangered or threatened species within the program implementation area in Lawrence, MA.

Our review evaluated the area of impact of required program activities, analysis of these program activity areas within the iPAC database, examining maps, other sources of information, and the personal knowledge of staff or cooperating experts.

According to the information currently in the iPAC database, there is one threatened species within the proposed project area (Northern Long-Eared Bat) and no critical habitat. Please see Attachment 1 as the official species list.

The proposed stormwater program activities are a continuation of previous permitted activities and include non-structural management of stormwater runoff as required by the MA MS4 General Permit. These activities will include education, investigation, and pollutant source control on existing municipal facilities and roadways and will not disturb terrestrial vegetation. Both listed species are sensitive to land disturbance and as the program implementation will not disturb vegetation we have therefore determined that our programmatic activities will have “no affect” on the listed species.

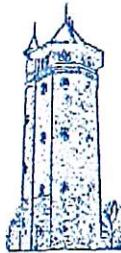


## CITY OF LAWRENCE

### WATER & SEWER DEPARTMENT

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City Hall • 200 Common Street, Suite 204 • Lawrence, MA 01840  
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BRIAN PEÑA  
COMMISSIONER

*Established 1872*

If during the course of the permit term we plan to install structural stormwater treatment practices or engage in other land disturbing activities as a result of compliance within the MS4 General Permit, the Town of Lawrence will initiate further informal or formal consultation with the USFWS.

Based on this review and an evaluation of determination requirements outlined in Appendix C of the MA MS4 General Permit, we have determined that we meet Criterion C. We request EPA's concurrence of this determination for inclusion in our Stormwater Management Program Plan.

Please do not hesitate to contact me if you have further questions about Lawrence's stormwater management program.

Sincerely,

Brian Pena, Water and Sewer Commissioner  
City of Lawrence, MA



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>



In Reply Refer To:

July 25, 2018

Consultation Code: 05E1NE00-2018-SLI-2509

Event Code: 05E1NE00-2018-E-05857

Project Name: Lawrence MA MS4 General Permit Implementation

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
(603) 223-2541

## Project Summary

Consultation Code: 05E1NE00-2018-SLI-2509

Event Code: 05E1NE00-2018-E-05857

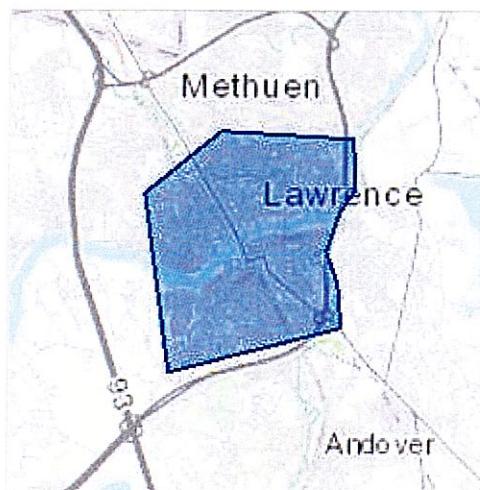
Project Name: Lawrence MA MS4 General Permit Implementation

Project Type: Regulation Promulgation

Project Description: Lawrence MA is required to conduct planning, policy and other non-structural stormwater management activities associated with the MA MS4 General Permit.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.69895983875216N71.16562126715468W>



Counties: Essex, MA

## Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

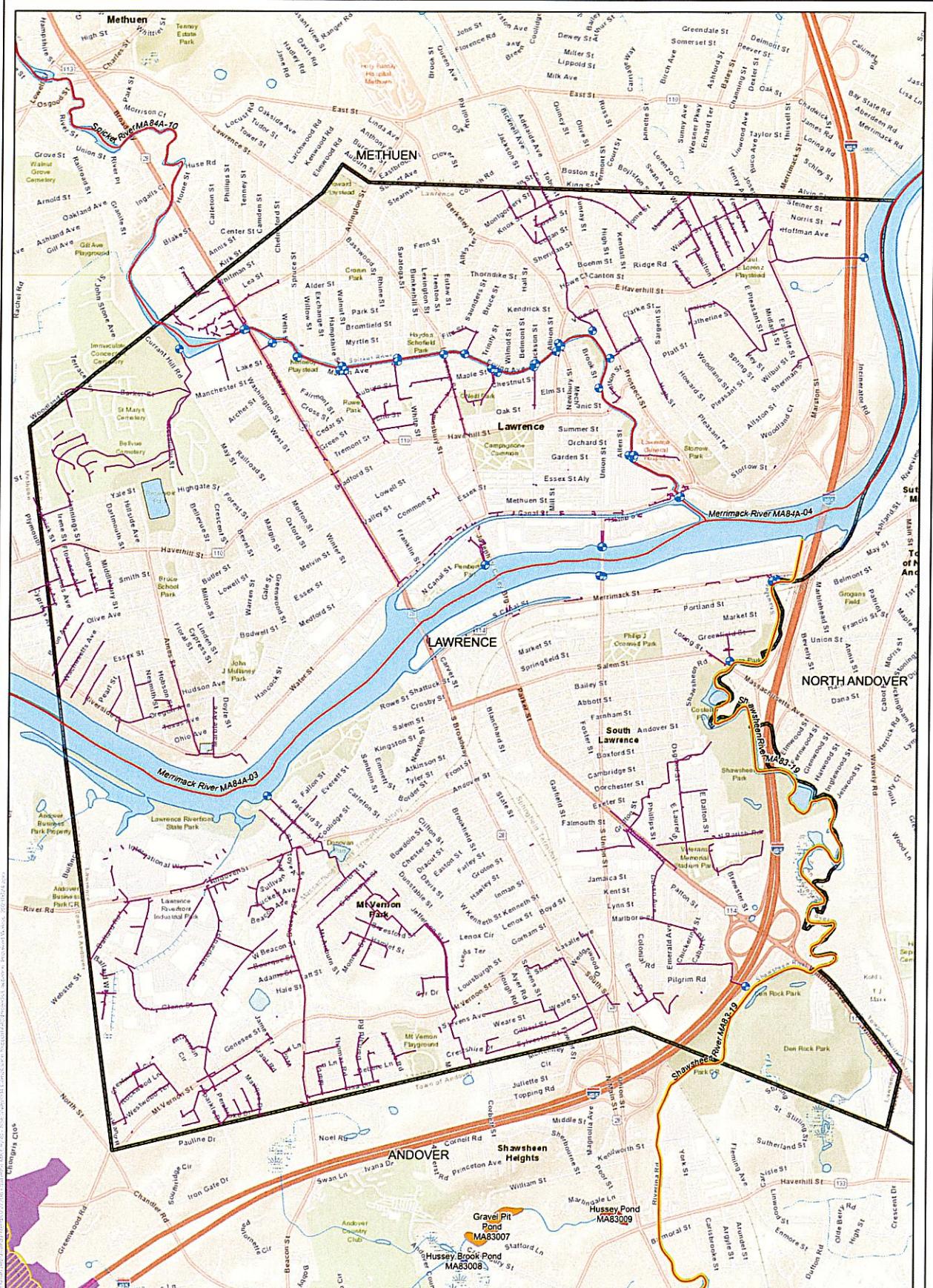
NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



## **APPENDIX C: IMPAIRED WATERS AND SPECIAL RESOURCE WATERS**



## City of Lawrence Water Resources

City of Lawrence, MA

### Legend

- ZONE A
- Outstanding Resource Waters
- MassDEP Approved Zone II
- Lawrence Boundary
- <all other values>
- Stormwater Pipe
- <all other values>

- Surface Water Protection Area Zone A
- Outstanding Resource Waters Public Water Supply Watershed
- <all other values>

- Outfalls with Direct Discharge to Impaired Waters
- Ownership
- No Ownership Assigned

- Final 2022 Integrated List Data - 305(b)/303(d) Category
- 2 - Alarming some uses; other uses not assessed
- 3 - No uses assessed
- 4A - Impaired - TMDL is completed
- 4C - Impairment not caused by a pollutant
- 5 - Impaired - TMDL required



Woodard & Curran

Project #: 227206.04  
Map Created: September 2024



## APPENDIX D: DEFINITIONS

## **Definitions, Abbreviations and Acronyms**

**Best Management Practices (BMPs)** – Schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Common Plan of Development** – A "larger common plan of development or sale" is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. For example, if a developer buys a 20-acre lot and builds roads, installs pipes, and runs electricity with the intention of constructing homes or other structures sometime in the future, this would be considered a larger common plan of development or sale. If the land is parceled off or sold, and construction occurs on plots that are less than one acre by separate, independent builders, this activity still would be subject to stormwater Permitting requirements if the smaller plots were included on the original site plan.

**Control Measure** – Refers to any BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the United States.

**Discharge** – When used without qualification, means the "discharge of a pollutant."

**Discharge of a Pollutant** – Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source". This includes additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man; or discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

**Discharge-related Activities** – Activities which cause, contribute to, or result in stormwater and allowable non-stormwater point source discharges, and measures such as the siting, construction and operation of BMPs to control, reduce, or prevent pollution in the discharges.

**Disturbance** – Action to alter the existing vegetation and/or underlying soil of a site, such as clearing, grading, site preparation (e.g., excavating, cutting, and filling), soil compaction, and movement and stockpiling of top soils.

**Existing Discharger** – An operator applying for coverage under this Permit for discharges covered previously under an NPDES general or individual Permit.

**Facility or Activity** – Any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

**Illicit Discharge** – Any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES Permit (other than the NPDES Permit for discharges from the municipal separate storm sewer) and discharges resulting from firefighting activities.

**Impaired Water** – A water is impaired if it does not meet one or more of its designated use(s). For purposes of this Permit, "impaired" refers to categories 4 and 5 of the five- part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program. Impaired waters compilations are also sometimes referred to as "303(d) lists." Category 5 waters are



impaired because at least one designated use is not being supported or is threatened and a TMDL is needed. Category 4 waters indicate that at least one designated use is not being supported but a TMDL is not needed (4a indicates that a TMDL has been approved or established by EPA; 4b indicates other required control measures are expected in result in the attainment of water quality standards in a reasonable period of time; and 4c indicates that the non- attainment of the water quality standard is the result of pollution (e.g. habitat) and is not caused by a pollutant). See USEPA's 2006 Integrated Report Guidance, July 29, 2005 for more detail on the five part categorization of waters [under EPA National TMDL Guidance <http://www.epa.gov/owow/tmdl/policy.html>].

**Impervious Surface** – Any surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas and other areas created using non-porous material; buildings, rooftops, structures, artificial turf and compacted gravel or soil.

**Industrial Activity** – The ten categories of industrial activities included in the definition of "stormwater discharges associated with industrial activity," as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi).

**Industrial Stormwater** – Stormwater runoff associated with the definition of "stormwater discharges associated with industrial activity."

**Interconnection** – The point (excluding sheet flow over impervious surfaces) where the Permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is eventually conveyed to a water of the United States. Interconnections will be treated similarly to outfalls throughout the Permit.

**Junction Manhole** – For the purposes of this plan, a junction manhole is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.

**Key Junction Manhole** – For the purposes of this plan, key junction manholes are those junction manholes that can represent one or more junction manhole without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the Permittee's ability to determine the possible presence of an upstream illicit discharge. A Permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

**Municipal Separate Storm Sewer** – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man- made channels, or storm drains):

- (i) Owned or operated by a 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 wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, 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 United States;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a combined sewer; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.



**Municipal Separate Storm Sewer System (MS4)** – Means all separate storm sewers that are defined as “large” or “medium” or “small” municipal storm sewer systems pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7), or designated under paragraph 40 CFR 126.26(a) (1)(v). For the purposes of this Permit “MS4” may also refer to the Permittee with jurisdiction over the sewer system.

**New Development** – Any construction activities or land alteration resulting in total earth disturbances greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) on an area that has not previously been developed to include impervious cover (see Part 2.3.6. of the Permit).

**Outfall Catchment** – The land area draining to a single outfall or interconnection. The extent of an outfall’s catchment is determined not only by localized topography and impervious cover but also by the location of drainage structures and the connectivity of MS4 pipes.

**Owner or Operator** – The owner or operator of any “facility or activity” subject to regulation under the NPDES program.

**Point Source** – Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, 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. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

**Pollutant** – Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal and agricultural waste discharged into water.

**Pollutant of Concern** – A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing an impairment in a State's 303(d) list.

**Redevelopment** – For the purposes of this plan, any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances greater than 1-acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

**Site** – For the purposes of this plan, the area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover.

**Stormwater** – Stormwater runoff, snow melt runoff, and surface runoff and drainage.

**Stormwater Discharges Associated with Construction Activity** – A discharge of pollutants in stormwater runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavating), construction materials, or equipment storage or maintenance (e.g., fill piles, borrow areas, concrete truck washout, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (See 40 CFR 122.26(b)(14)(x) and 40 CFR 122.26(b)(15)).

**Total Maximum Daily Loads (TMDLs)** – A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes waste load allocations (WLAs) for point source discharges, load



allocations (LAs) for nonpoint sources and/or natural background and must include a margin of safety (MOS) and account for seasonal variations. (See Section 303(d) of the Clean Water Act and 40 CFR 130.2 and 130.7.)

**Urbanized Area** – US Census designated area comprised of a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. For the purposes of this Permit, Urbanized Areas as defined by any Census since 2000 remain subject to stormwater regulation even if there is a change in the reach of the Urbanized Area because of a change in more recent Census data.

**Water Quality Limited Water** – For the purposes of this Permit, a water quality limited water is any waterbody that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act Section 303(d) and 305(b).

**Water Quality Standards** – A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and EPA adopt WQS to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (See CWA Sections 101(a)2 and 303(c)).



## **Abbreviations and Acronyms**

BMP – Best Management Practice  
CGP – Construction General Permit  
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)  
DCIA – Directly Connected Impervious Area  
EPA – U. S. Environmental Protection Agency  
ESA – Endangered Species Act  
USFWS – U. S. Fish and Wildlife Service  
IA – Impervious Area  
IDDE – Illicit Discharge Detection and Elimination  
LA – Load Allocations  
MOS – Margin of Safety  
MS4 – Municipal Separate Storm Sewer System  
MSGP – Multi-Sector General Permit  
NHPA – National Historic Preservation Act  
NMFS – U. S. National Marine Fisheries Service  
NOI – Notice of Intent  
NPDES – National Pollutant Discharge Elimination System  
NRHP – National Register of Historic Places  
PCP – Phosphorus Control Plan (pertaining to Charles River Watershed phosphorus)  
POTW – Publicly Owned Treatment Works  
SHPO – State Historic Preservation Officer  
SPCC – Spill Prevention, Control, and Countermeasure  
SWMP – Stormwater Management Program  
SWPPP – Stormwater Pollution Prevention Plan  
TBD – To Be Determined  
TMDL – Total Maximum Daily Load  
USGS – United States Geological Survey  
WLA – Wasteload Allocation  
WQS – Water Quality Standard



## APPENDIX E: REVISION LOG

Revision No.	Revision Date	Section of SWMP	Revision(s) Made/Reasoning
00	09/07/2018	--	--
01	6/17/2020	1.2.1	Note added to address how the approved 2016 Massachusetts List of Integrated Waters will be incorporated into this SWMP; reference added related to updates for potential future additional Appendix H requirements for nutrient related impairments during future Massachusetts Integrated List of Waters issuances.
		1.2.2	Revised language to reflect that receiving waterbodies are listed in the City's MS4 General Permit NOI submission to the EPA
		1.5	Revised Responsible Parties table to reflect personnel changes
		2.1.4	Revised language to reflect that receiving waterbodies are listed in the City's MS4 General Permit NOI submission to the EPA
		2.2.1	Revised language to reflect that a Land Development Program Manual has been completed
		2.2.4	NEW SECTION: Added language to reflect that the City will develop a Green Infrastructure Report in PY4
		2.2.5	NEW SECTION: Added language to reflect that the City will develop a Retrofit Properties Inventory in PY4
		2.3.1	NEW SECTION: Added language to reflect that the City has developed a Clean Water Best Practices Manual
		2.3.2	Revised language to reflect that a Municipal Facility Inventory has been completed
		2.3.3	Revised language to reflect that O&M SOPs have been completed
		2.3.4	NEW SECTION: Added Language to reflect that the City has developed a SWPPP for its of Public Works Facility
		Appendix A	Revised Separate Storm Sewer Map
		Appendix E	Replaced SSO Inventory Table with Revision Log. SSO Inventory is updated annually and can be found in the MS4 annual report.
02	6/22/2021	1.1	Revised BMP 5.2 language to reflect MS4 General Permit modifications effective January 6, 2021
		1.2.1	Revised section text and Table 1-1 to reflect any changes between the MassDEP's 2014 and 2016 Integrated List of Waters
		1.5	Revised Responsible Parties for Stormwater Program Implementation table
		Appendix A	Revised Separate Storm Sewer Map
		Appendix C	Revised Impaired Waters and Special Resource Waters Map
03	6/24/2022	1.2.1	Revised section text and Table 1-1 to reflect changes between Mass DEP's 2016 and 2018/2020 Integrated List of Waters

Revision No.	Revision Date	Section of SWMP	Revision(s) Made/Reasoning
03	6/24/2022	1.5	Revised Responsible Parties for Stormwater Program Implementation table to reflect changes in staff and staff titles.
		Appendix A	Revised Separate Storm Sewer Map
		Appendix C	Revised Impaired Waters and Special Resource Waters Map
04	6/30/2023	1.1	Revised section text to reflect new permit year
		1.2.1	Revised section text and Table 1-1 to reflect changes between Mass DEP's 2018/2020 Integrated List and Draft 2022 Integrated List of Waters
		Appendix C	Revised Impaired Waters and Special Resource Waters Map
05	9/30/2024	1.1	Revised section text within table.
		1.2.1	Revised section text and Table 1-1 to reflect changes between Mass DEP's 2018/2020 Integrated List and Draft 2022 Integrated List of Waters
		1.2.3	Revised section text to reflect changes between Mass DEP's 2018/2020 Integrated List and Draft 2022 Integrated List of Waters
		1.5	Updated Responsible Party Table
		Appendix A	Revised Separate Storm Sewer Map
		Appendix C	Revised Impaired Waters and Special Resource Waters Map