



Stormwater in Massachusetts

U.S. EPA MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) 2014 DRAFT PERMIT



DRAFT PERMIT AT-A-GLANCE

- ✓ Stormwater is the number 1 cause of water quality impairments in Massachusetts
- ✓ This draft permit is proposed to replace the 2003 MS4 permit
- ✓ 5 Year permit term
- ✓ Covers 263 municipalities in Massachusetts plus state and federal facilities
- ✓ Permit contains no end-of-pipe limits
- ✓ **No retrofits required during the permit term**

FLEXIBILITY

This draft permit has the same 6 minimum control measures as the 2003 MA MS4 permit

This draft permit has more direction and anticipated end-points, but still allows flexibility in planning and prioritizing

THIS PERMIT ALLOWS:

- **Permittee to prioritize** catch basin inspection and cleaning based on their knowledge of the system
- **Credit for past work**, tailor their inspection priorities and up to **10 yrs** to complete illicit discharge requirements
- **Allows 1 yr to update** from 2003 Stormwater Management Plan

POST-CONSTRUCTION

- ▶ Routine road maintenance and paving will never trigger post-construction requirements
- ▶ There are no retrofits required during the permit term
- ▶ The most costeffective way to treat stormwater is during new and redevelopment opportunities

*In response to constructive comments, the final permit will more closely follow Massachusetts Stormwater Standards

INCREMENTAL COSTS

- incremental cost increase of between **\$15,000 and \$180,000 per year for the permit term**
- **average of 20% increase** above compliance with the 2003 permit
- increased cost primarily associated with IDDE program implementation



COST BREAKDOWN

40%

of program funding is assumed to be used for street sweeping and catch basin cleaning

30%

of program funding is assumed to be used for engineering and system operation and maintenance

18%

of program funding is assumed to be used for planning, public education and other administrative requirements

12%

of program funding is assumed to be used to track and remove illicit connections to the storm sewer (removing sanitary sewage from stormwater systems)

TRAINING AND TOOLS

EPA is creating multiple tools to assist permittees with stormwater management and reduce administrative burden.

BMP Optimization Tool:

Tool to help municipalities prioritize green infrastructure projects

BMP Accounting & Tracking Tool:

Calculates and tracks pollution removal and generates reporting forms

Training sessions and workshops held by EPA:

To assist in permit compliance upon final permit release

Spreadsheet templates:

For illicit discharge and elimination requirements that can be attached to annual reports

Pre-populated Annual Reports:

Based on each permittee's Notice of Intent

Draft NPDES Phase II Small MS4 Permit Requirements and Budgetary Planning Estimates for Westford, MA

To: Paul Starratt, P.E., Town Engineer
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FROM: Emily Scerbo, Tighe & Bond

COPY: Todd Brown, Tighe & Bond

DATE: January 28, 2015

On September 30th EPA released the 2014 draft National Pollutant Discharge Elimination System (NPDES) *General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts*. The draft General Permit substantially increases stormwater management requirements and mandates specific timelines for compliance. **The following table presents preliminary cost projections for the major requirements of this draft. These numbers are preliminary and are for planning and budgeting purposes only.** Actual costs may vary depending on final permit requirements and if the Town elects to use in-house resources to complete some of requirements. Any drainage system maintenance (including catch basin cleaning and street sweeping), correction of illicit discharges and connections, and design and construction of stormwater management facilities are not included in this estimate.

Based upon our conversations with EPA permit writers, some sections of the draft Massachusetts General Permit may change to address Public Comments. Cost projections for Westford will need to be revised once the permit is finalized and EPA's intended scope for some of the new items is more fully defined.

Anticipated Schedule

Following the public comment period and public hearings (ending February 27, 2015), EPA will respond to comments and finalize and promulgate the permit. Based on discussions with EPA staff, it is anticipated that the final permit will be issued in winter 2015/2016. Assuming the permit is effective in the summer of 2016, we suggest the following schedule for implementation of the Action Plan and initial permit compliance activities.

Now – Spring 2016	Prepare and submit Annual Report due May 1, 2015. Request and secure stormwater funding for FY15 and FY16.
Winter 2015/2016	General Permit final .
Summer 2016	General Permit effective . Begin implementing requirements.
Summer 2016 – Fall 2016	Collaborative multi-department meetings to finalize Westford's NOI and Stormwater Management Plan . The Town must provide for the Public Participation requirements in developing these documents.
Fall 2016	Submit Notice of Intent to EPA.
Winter 2016	Finalize Stormwater Management Plan.

Preliminary Costs Based on the 2014 Draft MA General Permit Requirements – Years 1 Through 5

Note: This table is to be used to facilitate understanding about EPA's requirements and potential level of effort to comply. Costs presented will need to be further vetted once EPA finalizes the MS4 permit.

Major Requirements	Details and Assumptions	Schedule Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
PART 1.0 Introduction								
Notice of Intent (NOI) and Stormwater Management Program (SWMP)	Assumes that the NOI and SWMP are prepared concurrently during careful planning. <i>The SWMP elements will be completed as a part of the NPDES Stormwater Program Compliance Plan under the Town-wide Stormwater Management Master Plan. Budget includes updates that may be needed to address final permit, hold required public meeting, and submit NOI to EPA and DEP.</i>	Submit signed NOI to EPA and MassDEP within 90 days of the effective date of the permit. Develop and sign updated written SWMP within one (1) year of the effective date of the permit.	\$5,000	\$0	\$0	\$0	\$0	\$5,000
PART 2.0 Non-Numeric Effluent Limitations								
Impaired Waterbody Requirements								
Meet the Phosphorus Reduction Requirements for the Assabet River Watershed	Public Education & Outreach: Distribute an annual message in the spring that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorous-free fertilizers; in the summer encouraging the proper management of pet waste, noting any existing bylaws and regulations where appropriate; and in the fall encouraging the proper disposal of leaf litter. New Development: Ensure BMPs selected optimize for phosphorus reduction. Good Housekeeping: Properly manage grass cuttings and leaf litter on permittee property, increase street sweeping frequency.	<i>See schedules and budgets for Part 2.3.2 Public Education, Part 2.3.6 Stormwater Management in New Development and Redevelopment, and Part 2.3.7 Good House Keeping and Pollution Prevention.</i>	<i>This budget was carried under Public Education and Outreach, Stormwater Management in New Development and Redevelopment, and Good Housekeeping and Pollution Prevention.</i>					
Meet Requirements to Manage Discharges to Waterbodies Impaired by Bacteria or Pathogens	Public Education: Include pet waste and, as applicable, septic system maintenance information in education program. Illicit Discharge: Implement IDDE program, consider areas discharging to bacteria or pathogen impaired waterbodies high priority.	<i>See schedules and budgets for Part 2.3.2 Public Education and Part 2.3.4 IDDE.</i>	<i>This budget was carried under Public Education and Outreach and IDDE.</i>					
Meet Requirements to Manage Discharges to Waterbodies Impaired by Solids	New Development: Ensure that stormwater management systems incorporate designs for shutdown and containment in the event of an emergency spill. Good Housekeeping: Increase street sweeping frequency in target areas with potential for high pollutant loads. Prioritize inspection and maintenance for catch basins.	<i>See schedules and budgets for Part 2.3.6 Stormwater Management in New Development and Redevelopment and Part 2.3.7 Good House Keeping and Pollution Prevention.</i>	<i>This budget was carried under Stormwater Management in New Development and Redevelopment and Good Housekeeping and Pollution Prevention.</i>					
Requirements to Reduce Pollutants to the Maximum Extent Practicable								
Part 2.3.2 Public Education and Outreach								
Education	Distribute a minimum of two (2) educational messages to each of four audiences – residential, business/commercial/institutional, developers/construction, and industrial. <i>Include budget for program evaluation method, such as a survey, to evaluate effectiveness of education effort. Cost is for assistance with development of materials. Note that costs do not include postage or other distribution efforts.</i>	Beginning the first year of the permit and extending over the permit term. The distribution of materials to each audience shall be spaced at least a year apart. At least eight (8) messages must be distributed during the permit term. Document in Annual Reports.	\$5,000	\$2,000	\$2,000	\$2,000	\$2,000	\$13,000
Part 2.3.3 Public Involvement and Participation								
Public Meeting	Provide the public an opportunity to participate in the review and implementation of the SWMP.	Annually. <i>The Year 1 budget is included in the SWMP.</i>	\$0	\$500	\$500	\$500	\$500	\$2,000
Part 2.3.4 Illicit Discharge Detection and Elimination (IDDE) Program								

Major Requirements	Details and Assumptions	Schedule Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Identify and Document Sanitary Sewer Overflows (SSOs)	Develop an inventory of known locations of SSOs that occurred within the previous five years. Not applicable to Westford given age, type, and extent of sewer collection system.	Develop an inventory of all known SSOs within 120 days of the effective date of permit. Document in SWMP, summarize in Annual Reports, and update inventory annually. Provide oral notice to EPA within 24 hours of identifying an SSO. Provide written notice to EPA and MassDEP within five (5) days.	\$0	\$0	\$0	\$0	\$0	\$0
Outfall/Interconnection Inventory & Dry Weather Screening	Inventory outfalls and interconnections discharging from the MS4, purchase and install outfall markers. Assumes need to revisit all 620 outfalls. For dry weather screening, we assume 1 field staff will complete effort together with 1 Town staff. To be conservative, we assume 10 outfalls/interconnections visited per day and 25% of the outfalls/interconnections (approximately 160) will have dry weather flow. For each flowing outfall, we assume analysis will cost approximately \$150 (laboratory analysis). In addition, a YSI meter is assumed to be rented for \$200 a day and GPS unit rented for \$1,500 per month. Field markers cost approximately \$15 per marker. Labor assumes 10-hour days and time for planning and summary report development. Our estimate also includes contingency. Costs also include analysis of impaired waterbody parameters. Cost does not include follow up activities to identify source, remove source, or complete follow up sampling.	Inventory to be completed no later than one (1) year from the effective date of the permit. Include the inventory in Annual Reports. Update annually. Label all outfalls by the end of the permit term. Dry weather sampling must be completed no later than three (3) years from the effective date of the permit. However, to save costs of duplicate field efforts, we budgeted all dry weather screening to be completed in PY1 in conjunction with the inventory and installation of labels.	\$105,000	\$500	\$500	\$500	\$500	\$107,000
Drainage System Mapping	Work to develop a more complete GIS-based storm drain system map within the MS4, including all outfalls, interconnections with other MS4s (i.e., MassDOT), catch basins, manholes, pipes, flow direction, and public and private BMPs. This includes incorporating necessary data attributes. The costs presented in the table are placeholders until the recommendations of the Stormwater Management Master Plan are finalized and reviewed by Town staff. This cost assumes plans will be digitized, research to identify interconnections and Town-owned BMPs, field work to verify location of structures, and other data management efforts.	Complete within two (2) years of the effective date of permit, document progress in annual reports.	\$100,000	\$100,000	\$10,000	\$10,000	\$10,000	\$230,000
Written IDDE Program (including Delineation and Prioritization of Catchments)	Update IDDE Plan with new permit requirements, including delineation of catchments and ranking as "excluded," "problem," "high priority," or "low priority" for its potential to have illicit discharge. Review current protocol for eliminating illicit discharges, called "Catchment Investigation Procedure," for consistency with new permit requirements. Append the <i>Town of Westford Stormwater Sampling Manual</i> for screening and sampling outfalls and interconnections from the MS4 in dry and wet weather as needed. Develop a written procedure for catchment investigation.	Complete within one (1) year of the effective date of the permit. Document information in Annual Reports. Year 1 cost includes budget to update IDDE plan and to delineate, assess, and priority rank catchment areas for all outfalls. We carried an allowance for annual updates and record keeping.	\$13,000	\$1,000	\$1,000	\$1,000	\$1,000	\$17,000

Major Requirements	Details and Assumptions	Schedule Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Outfall Monitoring (Wet Weather)	<p>Wet weather monitoring requirements will be based on the outcome of the written IDDE program. Document the number of outfalls screened and any monitoring results each year in SWMP and annual reports. <i>Wet weather assumptions are as follows: 130 outfalls (approx. 20% of total have Vulnerability Factors), \$150 cost per outfall for laboratory analysis, 1 field staff accompanied by Town staff, 15 outfalls sampled per day, sampling all outfalls in wet weather. Rental of YSI meter for \$200 per day. Labor assumes 10-hour days and time for planning and summary report development. Our estimate also includes contingency.</i></p> <p><i>Cost also includes analysis for impairments in Beaver Brook and Stony Brook.</i></p> <p><i>Cost does not include follow up activities to identify source, remove source, or complete follow up sampling.</i></p>	Complete dry weather screening by Year 3. Perform wet weather screening in the spring only for those catchments that indicate the presence of one or more System Vulnerability Factors.	\$12,000	\$12,000	\$12,000	\$0	\$0	\$36,000
Catchment Investigation	<p>Begin systematic implementation of the illicit discharge detection procedure in all "Problem Catchments" and catchments identified as priorities with the highest rankings. Includes key junction manhole inspections and screening. <i>The actual budget will depend on Delineation and Prioritization of Catchments in the IDDE Plan, number of structures to investigate, and cost to remove any illicit discharges identified.</i></p> <p><i>Our cost assumes 1 key junction manhole per outfall (total of approximately 620 key junction manholes), screen 40% for ammonia, surfactants, and chlorine using field kits (\$8 per sample). We assume up to five days of police detail will be needed for a total of \$800. Assuming 15 manholes a day can be inspected by 1 field staff and 1 Town staff together. Labor assumes 10 hour days and time for planning and summary report development. Our estimate also includes contingency.</i></p> <p><i>Cost does not include follow up activities to identify source, remove source, or complete follow up sampling.</i></p>	Complete investigations for 40% of all catchments by Year 5. Complete 100% of all catchments by Year 10. <i>We carried a budget allowance here because the work required and schedule depends on mapping, priority ranking, and sampling/screening results. Some field investigations and corrective measures may be completed by Town staff.</i>	\$6,000	\$10,000	\$10,000	\$10,000	\$15,000	\$51,000
Annual Employee Training	Provide annual training for employees involved in the IDDE program about the program, and how to recognize illicit discharges and SSOs.	Report on the frequency and type of training in Annual Reports. <i>These costs assume a combination of Town staff-lead trainings using low-cost materials developed by others and Year 1 customized training developed by the Town's stormwater consultant to accompany other components of the MS4 Program.</i>	\$7,000	\$1,000	\$1,000	\$1,000	\$1,000	\$11,000
Part 2.3.5 Construction Site Stormwater Runoff Control								
Regulatory Updates and Review	<p><i>Complete in conjunction with effort under Part 2.3.6.</i></p> <p>Review existing bylaws & regulations for consistency with permit requirements. Confirm documents define responsibility for site inspections and person with authority to enforce, etc.</p>	Complete within one (1) year from effective date of permit.	Cost included in Regulatory Updates and Review Section.					
Written procedures for site plan review and inspection and enforcement	<p><i>Complete in conjunction with effort under Part 2.3.6.</i></p> <p>Develop written procedures that detail review categories and timing, and procedures for long-term tracking.</p>	Complete development within one (1) year from effective date of permit.	Cost included in Regulatory Updates and Review Section.					

Major Requirements	Details and Assumptions	Schedule Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Parts 2.3.6 Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)								
Regulatory Updates and Review	<p>Amend or modify existing bylaws and regulations for development of 1 or more acre to retain first one inch of runoff from all impervious area or provide equivalent pollutant removal. BMPs must be consistent with the MA Stormwater Handbook. Modify existing bylaws and regulations to require submission of as-built plans and long-term O&M procedures.</p> <p>Develop a report assessing current street design and parking lot guidelines to support low impact design, and develop a report assessing existing regulations to determine feasibility of making green infrastructure practices allowable. This task will also include the regulatory requirements under Part 2.3.5 Construction Site Stormwater Runoff Control.</p>	<p>Procedures for site inspections and enforcement of sediment and erosion control measures, site plan review and requirements for as-built plans and O&M procedures shall be completed within one (1) year from the effective date of the permit.</p> <p>Modifications to bylaws & regulations to be completed within two (2) years of effective date of permit. The cost to develop additional legal language, including regulations. Additional costs shown are for updates, including forms and guidance.</p> <p>Street design and parking lot assessment to be completed three (3) years after effective date of the permit. Local regulatory assessment for green infrastructure practices must be completed in four (4) years from effective date of the permit. Costs assume these efforts will be completed concurrently and finalized in Permit Year 3.</p>	\$10,000	\$7,500	\$12,500	\$500	\$500	\$31,000
Impervious Cover Estimates and Tracking	Estimate number of acres of impervious area (IA) and directly connected impervious area (DCIA); report tabulated results and estimation methodology if baselines provided by EPA are not used. Estimate the number of acres of DCIA added or removed to each sub-basin during the prior year.	Beginning with the second year annual report and in each subsequent annual report, report the numbers of acres of impervious areas and directly connected areas that have been added or removed. Assumes development of tracking process in Permit Year 1 and annual tracking completed by Town staff.	\$3,000	\$0	\$0	\$0	\$0	\$3,000
Retrofit Inventory	Report on those MS4 owned properties and infrastructure that have the potential to be retrofitted with BMPs designed to reduce the frequency, volume, and peak intensity of stormwater discharges as well as their pollutant loadings. Annually report on MS4-owned properties that have been retrofitted with BMPs to mitigate impervious area and directly connected impervious area.	Assess feasibility of retrofits within four (4) years from the effective date of the permit. Provide annual report BMP retrofits at MS4-owned property annually beginning in Year 3. Costs in PY3-5 include identifying potential retrofit locations using a desktop process to pre-screen sites and then limited field visits to further evaluate potential sites. Budget also includes applying for grants/loans to assist with BMP implementation and may be completed by Town Staff.	\$0	\$0	\$25,000	\$25,000	\$3,000	\$53,000
Part 2.4.7 Good House Keeping and Pollution Prevention for Permittee Owned Operations								
Inventory Town-Owned Facilities and Floor Drains, and Develop Written O&M Procedures for Parks, Buildings/Facilities, Vehicles/Equipment, and Infrastructure	<p>Develop inventory of municipally-owned facilities and equipment. Develop written operations and maintenance procedures for the municipal activities.</p> <p>Establish a program to repair and rehabilitate its MS4 infrastructure in a timely manner to reduce or eliminate the discharge of pollutants from the MS4.</p> <p>Completed as a part of the Stormwater Management Master Plan.</p>	Within one (1) year from the effective date of permit. Include written procedures in SWMP.	\$0	\$0	\$0	\$0	\$0	\$0
Stormwater Pollution Prevention Plans (SWPPPs) for Highway Garage	Assume only one SWPPP is needed for Highway Garage. Assumes minor updates to the existing SWPPP. Budget carried for annual training by contractor.	Two (2) years from the effective date of the permit. Report on annual inspections in Annual Report.	\$0	\$5,000	\$1,000	\$1,000	\$1,000	\$8,000
Catch Basin Cleaning	<p>Use GPS application to track catch basin inspection and cleaning. Optimize catch basin cleaning program to ensure that no catch basin is more than 50% full.</p> <p>Assume these budget items carried elsewhere. Completed by Town staff or contractor.</p>	Annually, beginning in Year One.	\$0	\$0	\$0	\$0	\$0	\$0

Major Requirements	Details and Assumptions	Schedule Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Street Sweeping	Sweep streets and parking lots directly connected to MS4 once in the spring. For areas discharging to waterbodies impaired by solids (i.e. Beaver Brook and Stony Brook from Forge Pond to Brookside Road), sweeping frequency will need to be increased. Assume these budget items carried elsewhere. Completed by Town staff or contractor.	Annually, beginning in Year One.	\$0	\$0	\$0	\$0	\$0	\$0
Winter Road Maintenance	Establish procedures for winter road maintenance, including use and storage of salt and sand. Consider documenting salt use in wellhead protection areas. Assume these budget items carried elsewhere. Completed by Town staff or contractor.	No schedule provided.	\$0	\$0	\$0	\$0	\$0	\$0
Storm Drain System Inspection	Inspect and maintain the storm drain system and all stormwater treatment structures. Use GPS application to track system inspection and maintenance. Assume these budget items carried elsewhere. Completed by Town staff or contractor.	Annually, beginning in Year One.	\$0	\$0	\$0	\$0	\$0	\$0
PART 4.0 Program Evaluation, Record Keeping, and Reporting								
Annual Reports and Record Keeping	Self-evaluate compliance with the terms and conditions of the permit. Keep all records required by the permit for at least five (5) years. Report on outfall monitoring. The Town currently prepares reports in-house. Cost assumes a contractor will provide some assistance.	Submit Annual Reports each year. Reporting period is from one year; Annual report due ninety (90) days from the close of each reporting period.	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Total Estimated Budget (Rounded)			\$271,000	\$144,500	\$80,500	\$56,500	\$39,500	\$592,000