

Horsley Witten Group

Sustainable Environmental Solutions

30 Green Street • Newburyport, MA • 01950

Phone - 978-499-0601 • Fax - 978-499-0602 • www.horsleywitten.com



A Quick Reference for Defining and Funding Your Municipal Stormwater Program

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Prepared for:
Merrimack Valley Stormwater Collaborative
c/o Merrimack Valley Planning Commission
160 Main Street
Haverhill, MA 01830

Prepared by:
Horsley Witten Group, Inc.

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1. Introduction

The demand for more comprehensive stormwater management programs is increasing across the United States and in Massachusetts in particular. This is due in large part to the increasing requirements of the National Pollutant Discharge Elimination Program (NPDES) Phase 2 Stormwater General Permit for stormwater discharges from small municipal separate storm sewer systems (MS4s). The second generation of the NPDES Phase 2 MS4 Permit for Massachusetts is currently pending, and is expected to be issued in 2016. The draft general permit indicates there will be an increase in program requirements such as MS4 infrastructure mapping; intensive illicit discharge detection and elimination efforts; outfall assessment, monitoring, and prioritization; and public outreach. Elected officials, staff and volunteers in Massachusetts communities are trying to assess their comprehensive stormwater program needs, in terms of both program elements and financing, and to garner support from the public to institute those more comprehensive programs.

The purpose of this document is to provide a basic reference to assist communities in this process. This document is a 'Quick Guide' rather than in-depth exploration of the subject in order to avoid 'recreating the wheel'. This document is meant to be brief so that users can 1) easily digest this information and share it with decision makers and other interested individuals, and 2) find additional relevant resources among the myriad of publications and studies that now exist on this topic. Once you, the readers of this document, become more comfortable with this topic and require additional details, we encourage you to explore the list of resources provided herein to take your stormwater management program to the next level.

2. Defining Your Stormwater Problem – What is Your ‘Driver’?

As the person responsible for managing stormwater in a municipality, you need to know what service you are providing and what problem you are solving. What purpose does the stormwater management system serve in your community? Before you begin to define your program and ask for funding to manage your program, you need to be able to clearly articulate the stormwater problem your community is facing and how you will solve it. In other words, what is the stormwater management ‘driver’ in your community?

Stormwater ‘drivers’ or challenges that are common among municipalities include:

- drainage and roadway safety,
- aging infrastructure,
- regulatory compliance,
- flooding, and
- water quality.

However, each community also has its own unique natural resources, built environment and local identity. With those individual characteristics come unique problems and challenges that likely resonate with the citizenry and create a call to action. It is often these unique challenges that can provide the necessary driver for community support of a stormwater program. Identifying and understanding the stormwater problems that people and businesses in the community care about most and that have a visible economic impact on the community will help to build support for the stormwater management program.

Examples of unique drivers that might resonate with the public in your community include:

- recurring localized flooding,
- beach closures at ponds or coastal beaches,
- shellfish closures,
- drainage problems at public ball fields,
- visible degradation or algae growth in ponds,
- trash and aesthetics issues, or
- significant erosion that affects bridges or roadways or other public infrastructure.

In addition, economic development in a community can be hindered by drainage problems and aging infrastructure, and may be a powerful driver.

3. Stormwater Program Elements

Understanding Your Current Stormwater Management Program

In order to estimate your future stormwater program budget needs, you need to first understand your current stormwater management expenditures as a baseline. You can do this by reviewing your existing stormwater management related tasks to identify what your current stormwater management program entails. This sounds simpler than it often is.

In many municipalities, the stormwater management duties are not organized into a single program or budget category. Instead, they often fall under the purview of a combination of local departments, including the Public Works Department, Planning Department, Highway Department, and/or maybe a voluntary board or commission such as the Planning Board, Conservation Commission, and Stormwater Committee. “If a single program has not been established, stormwater services are likely being provided in a piecemeal fashion, and to determine what set of services relate to stormwater management you will need to gain access to departmental budgets and capital improvement programs, and to interview colleagues in your jurisdiction who provide the pieces of the program; in so doing, you will want to get a general idea of how much your jurisdiction spends on stormwater services and how costs are broken down by department or activity.” (EFC, 2014; page 23)

Existing program elements can be categorized in a variety of ways. One common breakdown is:

- administration,
- engineering and master planning,
- regulation and enforcement,
- operation and maintenance, and
- capital projects, or a similar breakdown.

The 2006 Guidance for Municipal Stormwater Funding (NAFSMA, 2006), funded by a grant from EPA, presents a detailed breakdown of the major stormwater management functional centers, and serves as a useful reference (Table 1). Obviously, communities will differ from one another in the exact program elements that are currently being implemented, and some programs will be larger and more complex than others.

Table 1. Major Stormwater Management Functional Centers (NAFSMA, 2006)

Administration General Administration Program Planning and Development Interagency Coordination	Capital Improvements Major Capital Improvements Minor Capital Improvements Land, Easement, and Right-of-Way
Public Involvement and Education Public Awareness and Education Public Involvement Standing Citizen's Group	Operations General Maintenance Management General Routine Maintenance General Remedial Maintenance Emergency Response Maintenance Infrastructure Management Public Assistance
Billing and Finance Billing Operations Database Management Customer Service Financial Management Capital Overlay Overhead Costs Cost Control Support Services	Regulation and Enforcement Code Development and Enforcement General Permit Administration Drainage System Inspection/Regulation Zoning and Land Use Regulation Special Inspection Programs Flood Insurance Program Multi-Objective Floodplain Management Erosion Control Program
Stormwater Quality Management Quality Master Planning Retrofitting Program Monitoring Program Structural/Non-Structural BMP Programs Pest, Herb, and Fertilizer Used Oil and Toxic Materials Street Maintenance Program Spill Response and Cleanup Program for Public Education and Reporting Leakage and Cross Connections Industrial Program Gen Commercial and Residential Program Illicit Con and Illegal Dumping Landfills and Other Waste Facilities Combined Sewer Overflow Program Groundwater and Wellhead Protection Drinking Water Protection Watershed Assessment and TMDL Septic and I&I Program	Engineering and Planning Design Criteria and Guidance Field Data Collection Master Planning Design, Field and Operations Engineering Hazard Mitigation Zoning Support Multi-objective Planning Support GIS and Database Management Mapping Land Use Planning & Controls

When taking an inventory of your existing stormwater program, it can be helpful to cast a wide net to include all elements that contribute to stormwater management, even if the elements are shared with other programs and traditionally fall under a separate department from your own. A good example of this might be the stormwater-related labor of a GIS staff person and the GIS equipment and license that they use. GIS is used for many purposes, and is often housed in the Planning Department. However, a portion of the GIS staff time may be dedicated to mapping and tracking of the stormwater infrastructure or evaluating drainage areas. Another example is the Town Engineer, who typically expends significant effort toward designing or reviewing municipal stormwater management improvements and reviewing land development project plans for compliance with local codes. A portion of the Town Engineer's position is focused on stormwater management, and that portion of effort should be captured in the baseline stormwater management budget.

Once you identify the stormwater program elements that are currently being provided by the municipality, you need to develop an estimate of the current budget or cost of those elements. This will tell you what you are currently spending on stormwater management, and will help to identify areas that are lacking. Finding this information requires digging into recent municipal budgets, capital improvement plans, town warrant articles and annual reports. The Metropolitan Area Planning Council (MAPC) that serves the greater Boston metropolitan area drafted a Stormwater Financing/Utility Starter Kit (MAPC, 2014) that includes a spreadsheet template to assist you in identifying your existing program elements and tracking the current expenses. An example of the template is provided in Table 2. The full template and Starter Kit are available online here: http://www.mapc.org/Stormwater_Financing (MAPC, 2014). Table 3, excerpted from a stormwater financing analysis for three communities (Bellingham, Franklin and Milford) in the Upper Charles River Watershed in Massachusetts (Horsley Witten Group, 2011), presents the program elements identified for each of those communities, as an example.

Many municipalities in Massachusetts have inventoried their existing stormwater programs in detail as a first step in establishing and financing an expanded program. While the organizational breakdown of the stormwater program elements may differ slightly from community to community, the examples from a variety of communities can be helpful.

Table 2. Template to Help Identify Existing Stormwater Management Expenses (MAPC, 2014)

Service	Description
Debt Servicing	This is the annual amount paid on any bonds that were sold to finance stormwater improvement projects.
Capital Improvements	This is the amount of money required to initiate new physical improvements to town storm sewer systems for either improvement or expansion.
Operations and Maintenance	This cost includes the cost of labor, material and equipment for City crews to perform operations and maintenance for the storm sewer system. Storm sewer related tasks completed by City crews generally include cleaning inlets, responding to street and viaduct flooding, and repairing storm sewer inlets and manhole frames.
Storm Sewer Cleaning	This work is competitively bid each year and is completed by privately contracted firms. Typically these services include cleaning and televising the pipes in the City's Storm Sewer System.
Erosion Control, Grading and Permitting	This is a self-supporting activity where the fees charged for the permits equal the City's cost to review and issue the permits. Erosion control, grading, and drainage permits are issued whenever new construction exceeds municipal standards for surface disruption by construction.
NPDES Compliance	Cities are required to have a NPDES permit for their storm sewer system. To obtain the 5-year NPDES permit, the City has to list activities it planned to complete each year in the six main areas that are referred to by US Environmental Protection Agency as minimum control measures.
Service Requests	This stormwater expenditure funds City staff time to help property owners find solutions to drainage problems on their property.
Hazardous Treatment	The goal of this program is to connect overflow sump pump discharge to the City's storm sewer system. The City typically pays for all right-of-way costs associated with this connection while the property owner pays for all costs on their property. This cost allocation should only reflect the City's expenses for the connection.
Sustainability Provisions	These costs should include any money raised or put aside for improvements in sewer systems that increase efficiency or that reduces runoff from properties. Additionally, any incentives in the forms of either credits or deductions for property owners who actively work to reduce runoff should be factored into this figure.

Table 3: Summary of Key Stormwater Program Cost Centers and Activities (Horsley Witten Group, 2011, Table 4-1)

Cost Centers	Stormwater Program Activity Subcategories
Administration	Stormwater program administration; Legal support services; Inter-agency and inter-municipal coordination; Emergency management coordination; Notice of intent (NOI) and stormwater management plan (SWMP) development; Annual reporting; Public education/involvement programs and staff training; and Grants administration
Regulation/ Enforcement	MS4 Permit compliance; Stormwater/drainage system inspections; Illicit discharge and elimination (IDDE); and Erosion and Sediment Control (ESC) inspections
Engineering and Master Planning	Stormwater Master Planning; IDDE plan; Catch Basin Inventory Plan (CBIP) and street sweeping optimization; Waterfowl & Pet Waste Plans; Pesticide/herbicide/ fertilizer program; Spill response & cleanup program; Capital improvement project (CIP) design/engineering/ permitting assistance; Stormwater pollution prevention plan (SWPPPs); Maintenance and field engineering support; Data collection, management, and mapping for drainage and sewer infrastructure; Technical services/public assistance (hotlines); Code development and zoning support; and Hazard mitigation planning and flood insurance updates
Operations and Implementation	Operations and maintenance management; CIP/infrastructure implementation; IDDE; Storm sewer and culvert maintenance/repair; Inlet, catch basin, and manhole cleaning; Stormwater best management practice (BMP) maintenance; Street sweeping; Organic and leaf pickup and composting; maintenance of BMPs; Stream Restoration; Ditch and channel maintenance; Waterfowl & pet waste pickup; Hazardous materials collection; Emergency repairs
Monitoring	Catchment assessment; Dry and wet weather outfall monitoring

Tables 4 and 5 present examples of actual annual expenditures to implement the existing stormwater program elements identified in Danvers, Bellingham, Franklin, and Milford. The program inventory for Danvers was organized directly around the draft Phase 2 MS4 Stormwater General Permit, explicitly using compliance with the 6 Minimum Control Measures as the basis for presenting current program expenditures. The largest expenditures were associated with debt service on past capital projects to improve the stormwater management infrastructure and staff salaries. These expenditures were developed based on a 5-year average.

Table 4. Estimated Existing Stormwater Expenses in Danvers, MA (Woodard & Curran, 2012)

Description	Estimated Current Annual Expenditure
MCM #1: Public Education & Outreach	\$37,000
MCM #2: Public Involvement & Participation	\$0
MCM #3: Illicit Discharge Detection & Elimination	\$36,000
MCM #4: Construction Site Stormwater Control	\$0
MCM #5: Post Construction Site Stormwater Management	\$0
MCM #6: Pollution Prevention & Good Housekeeping	\$67,000
Drainage Maintenance & Repair (Materials & Supplies Installed by DPW Staff)	\$25,000
Stormwater Vehicle Maintenance	\$10,000
GIS Program	\$15,000
SWMP & MS4 Annual Report	\$5,000
Administrative (Staff Salaries)	\$195,000
Debt Service on Capital Projects	\$235,000
TOTAL	\$625,000

Note: MCM means Minimum Control Measure required under the NPDES MS4 Phase II Stormwater General Permit.

The annual expenditures of the existing programs in Bellingham, Franklin and Milford were inventoried in detail as part of the EPA Upper Charles River stormwater financing analysis (Horsley Witten Group, 2011). These costs were compiled based on actual Fiscal Year 2010 expenditures, and were reviewed in detail by staff in each community for accuracy. In this breakdown, staff labor is included within each individual cost center category rather than separated into its own category. In all three communities, the greatest costs center is clearly Operations and Implementation. “This cost category is for tracking costs associated with managing and implementing construction, maintenance, repair, good housekeeping operations, and public assistance services. Specifically, this category includes the following expenses: construction, maintenance, and repair of stormwater infrastructure; ESC measures; stream restoration and stabilization projects; ditch and channel maintenance projects; public assistance programs to address flooding concerns, removal of illicit discharges, and collection

programs for toxic and hazardous materials; and good housekeeping maintenance operations such as inlet, catch basin, and manhole cleaning, BMP facility maintenance, street sweeping, organic waste and leaf litter pick up, and waterfowl and pet waste management.” (Horsley Witten Group, 2011) The existing program costs in these three communities vary widely based on the basic difference in the three communities in terms of the extent of existing municipal infrastructure, municipal government structure and staffing, and general size and density of the communities.

Table 5. Estimated Existing Annual Stormwater Program Costs (FY 2010) in Bellingham, Franklin and Milford, MA (Horsley Witten Group, 2011)

Stormwater Budget Categories	Existing Stormwater Program Annual Costs		
	Bellingham	Franklin	Milford
Administration	\$18,421	\$58,670	\$18,335
Regulation/Enforcement	\$1,800	\$51,396	\$26,250
Engineering and Master Planning	\$17,000	\$152,671	\$13,100
Operations and Implementation	\$194,918	\$759,978	\$487,966
Monitoring	-	-	-
Total Cost	\$232,139	\$1,022,715	\$545,651

Costs include staff labor and direct costs for equipment, materials, disposal, supplies, etc.

Defining Your Future Program Needs and Expenses

The future stormwater management program needs in communities that fall under the NPDES MS4 Phase 2 Stormwater General Permit program will be driven largely by the requirements of the pending second generation of the general permit expected in 2016. A draft permit was issued by EPA in 2014 for public review and comment. This draft was an update to the 2010 draft permit that was previously issued by EPA. Municipalities can use the draft permit as a guide for estimating the likely additional program needs in their community. However, communities should also consider what elements of the existing stormwater program have been unfunded or underfunded in recent years and incorporate those costs into the estimate of future program needs as well. Often times, maintenance and capital improvements have been deferred due to budget constraints and these costs should be included in the first cut evaluation of future program needs. This will allow you to compile a comprehensive picture of the program elements and associated costs required to implement a stormwater program that meets the MS4 Permit requirements and the broader community’s needs. A brief overview of the expected new requirements per the 2014 Draft Small MS4 General Permit for Massachusetts is provided in Table 6.

Table 6: Major New Requirements of the 2014 Draft Massachusetts Small MS4 General Permit (adapted from Horsley Witten Group, 2011)

Expected New Requirements:
Update written Stormwater Management Plan
Increased reporting/record keeping on annual reports
Targeted public education (2 messages to 4 audiences) and report results
Illicit discharge priority catchment assessments
Outfall monitoring dry weather
Written IDDE program with mapping and prioritization of problem catchments
Conduct impervious cover/DCIA tracking
Street sweeping optimization
Complete stormwater system mapping (all pipes/manholes/inlets/structures)
Catch basin inspection/cleaning/inspection data
Identify/rank retrofit opportunities for municipally owned facilities
Develop a SWPPP for municipally owned facilities; Complete a code review and report
Written O&M procedures for municipal activities for trash, pet wastes, leaf litter control, fertilizer use & yard wastes
Pet waste & waterfowl management plans

The anticipated increase in stormwater program costs can be estimated by calculating the difference between future comprehensive program needs to meet the MS4 Permit and address and existing program expenditures. As an example of this calculation, the existing and projected future program costs for Danvers are presented in Table 7. These estimated costs were developed in response to the 2010 Draft MS4 General Permit for Massachusetts, which included slightly different but generally comparable requirements to the current 2014 draft permit.

The focus of projected cost increases will vary from community to community based on the size and structure of the existing program as well as the dependence on volunteer boards and committees, amount of deferred maintenance costs, deferred capital investments, number of dedicated staff, staff salaries and other variations in existing programs in the community. As presented in the Danvers example, the greatest projected increases in stormwater program costs fall into the categories of debt service on capital projects, staff salaries, GIS program, and illicit discharge and elimination (minimum control measure #3).

Table 7. Existing and Future Projected Future Annual Stormwater Program Costs for Danvers, MA (Woodard & Curran, 2012)

Description	Estimated Current Annual Expenditures	Estimated Future Annual Expenditures	Net Difference in Annual Expenditures
MCM #1: Public Education & Outreach	\$37,000	\$40,000	\$3,000
MCM #2: Public Involvement & Participation	\$0	\$3,000	\$3,000
MCM #3: Illicit Discharge Detection & Elimination	\$36,000	\$60,000	\$24,000
MCM #4: Construction Site Stormwater Control	\$0	\$5,000	\$5,000
MCM #5: Post Construction Site Stormwater Management	\$0	\$12,000	\$12,000
MCM #6: Pollution Prevention & Good Housekeeping	\$67,000	\$80,000	\$13,000
Drainage Maintenance & Repair (Materials & Supplies Installed by DPW Staff)	\$25,000	\$30,000	\$5,000
Stormwater Vehicle Maintenance	\$10,000	\$10,000	\$0
GIS Program	\$15,000	\$70,000	\$55,000
SWMP & MS4 Annual Report	\$5,000	\$10,000	\$5,000
Administrative (Staff Salaries)	\$195,000	\$230,000	\$35,000
Debt Service on Capital Projects	\$235,000	\$760,000	\$525,000
TOTAL	\$625,000	\$1,310,000	\$685,000

The projected stormwater program budgets for Milton and Dedham also serve as useful examples. The Metropolitan Area Planning Council (MAPC) recently worked with the Neponset River Watershed Association and the towns of Milton and Dedham to estimate the program needs and explore potential stormwater service fees for these communities. They did this using the MAPC’s Draft Stormwater Utility Starter Kit (MAPC, 2013; MAPC, 2014), referenced earlier in this document. The budget needs summary information for each of the two communities is presented in slightly different formats for each of the two communities, but they provide useful examples of existing and projected stormwater program budgets for MA municipalities.

Table 8 presents the budget gap between the Town of Dedham’s existing stormwater program and the required elements under year 1 of the pending MS4 Stormwater General Permit. Dedham’s existing program is noted to be “rather proactive in the operations and maintenance of their highly urbanized stormwater system” using resources from the town’s General Fund.

The expenditures presented in the table represent the budget gap that would need to be filled in order to meet the Phase 2 MS4 permit requirements for year 1 of the permit.

Table 8. Dedham Stormwater Program – Estimated Additional Expenditures Required to Meet year 1 of the MA Phase 2 MS4 General Permit (based on the 2014 draft permit) (MAPC, 2014)

Category/Item	Total (Permit Year 1)
Administration	\$83,553
Regulation/Enforcement	\$13,500
Engineering and Master Planning	\$366,795
Operations and Implementation	\$575,113
Monitoring	\$17,650
TOTAL:	\$1,056,611

A similar analysis was performed for the Town of Milton, but is presented in a slightly different format. The summary of the budget gap and total budget estimated to meet Year 1 of the MS4 General Permit is provided in Table 9.

Table 9. Milton Stormwater Program – Estimated Additional Expenditures Required to Meet year 1 of the MA Phase 2 MS4 General Permit (based on the 2014 draft permit) (MAPC, 2014)

Category/Item	Funding Gap (approximate)	Total (Permit Year 1)
Administration	\$35,000	\$70,000
SW Management Operations	\$375,000	\$750,000
Monitoring/Planning	\$190,000	\$380,000
TOTAL:	\$600,000	\$1,200,000

A comparison of the estimated budget needs among the communities included in this document is presented in Table 10. This comparison highlights a common budget gap in the ballpark of approximately \$600,000 for most of these communities. This may be a useful planning estimate for relatively large Phase 2 communities. The profile may be significantly different for many of the smaller Massachusetts communities in the NPDES MS4 program, such as Rowley and Newbury, which may have significantly smaller programs and program expenditures that are significantly lower.

Table 10. Comparison of Estimated Future Stormwater Program Expenditures Among Various MA Municipalities

Town	Pop	Area (mi2)	Pop Density (#/mi2)	Existing Cost	Future Cost (Year 1)	Budget Gap
Danvers	27,500	14.2	1,940	\$625,000	\$1,310,000	\$685,000
Dedham	25,300	10.65	2,380	-	+\$1,056,611	\$1,056,611
Milton	27,270	13.3	2,050	\$600,000	\$1,200,000	\$600,000
Bellingham	16,675	19.0	880	\$232,139	\$871,807	\$639,668
Franklin	32,580	26.6	1,225	\$1,022,715	\$1,651,833	\$629,118
Milford	28,300	14.9	1,900	\$545,651	\$1,097,926	\$552,275

4. Financing Options

Stormwater management programs in Massachusetts are typically funded through the municipality's General Fund. The General Fund is derived from the general tax base of a community. However, there are a number of additional financing options that can be used to support the development and implementation of a municipal stormwater program.

Competition for the funds from the general municipal budget can be tight as a result of increasing costs associated with pensions, healthcare, and insurance, as well as ever increasing demands from schools, police and fire. Therefore, municipal stormwater managers are looking for other ways to fund their programs. Below is a summary table, Table 11, followed by a brief overview of stormwater financing options available to Massachusetts municipalities to fund municipal stormwater programs (EPA, 2014; NAFSMA, 2006; MAPC, 2014; CMRPC, date unknown). In many cases, a combination of funding options may be needed. Some of these funding options are restricted to certain uses, and can only be used for capital investments or operation and maintenance (O&M), but several can be used for both types of expenditures.

Table 11. Funding Options for Stormwater Programs (Adapted from EFC, 2014)

Sources of Funding	Capital Costs	O&M Costs
General Fund	Yes	Yes
Utility/Service Fee	Yes	Yes
Grants	Yes	No
Bonds	Yes	Yes
Loans	Yes	No
Fees for Permit Reviews and Inspections	No	Yes

Taxes and the General Fund. The general fund is derived from local taxes and is the basic source of funding for municipal services and operations. Appropriations from the general fund are approved on an annual basis, and are therefore competing annually among other municipal services such as those provided by the schools, police and fire departments.

Enterprise Fund /Service Fee/Utility. An Enterprise Fund is a dedicated source of funding that is derived from specific service fees. In this case, the service is the management of stormwater from public properties including roadways, public facilities and parking lots. Enterprise Funds are useful because they allow for simple accounting and budgeting of service fees, services provided, and future capital investments. Enterprise Funds are often used for public water and public wastewater management services in Massachusetts communities, so this type of arrangement is not a new concept or unique to stormwater management. However, the idea that stormwater management is a fee service can be a challenging concept for the public.

Grants. Grant programs, particularly Federal grants, focused on elimination of water pollution have been used by many Massachusetts communities to address small discreet problem areas. Some of these grant programs include the Clean Water Act Section 604b and 319 Grant Programs administered by MA DEP, the Coastal Pollutant Remediation Grant Program administered by Massachusetts Office of Coastal Zone Management (CZM), Transportation Equity Act for the 21st Century (TEA-21), administered through the Transportation Improvement Program (TIP). Grant funding for municipal stormwater management purposes has been less and less available in recent years. In addition, grant funding is a challenging source of money because available funding sources are unpredictable, grant funds are competitive, and projects to be funded require a certain level of planning and preliminary design work to be eligible for most funding sources.

Bonds and Loans. Bonds and loans are mechanisms to provide low or no interest financing for large capital projects. However, these funds do require full repayment to the funders. “A bond is a written promise to repay borrowed money on a definitive schedule, and usually at a fixed rate of interest, for the life of the bond. In some cases, voter approval is required for issuing bonds.” (MAPC, 2014) Bonds are typically used for large capital improvement projects, and can require a lot of legal and administrative processing to arrange and issue. A General Obligation bond is the most common type of bond used by municipalities, and they are backed by the “full faith and credit” of the municipality, repayable by general tax revenues rather than a dedicated source of revenue from a specific project, such as a roadway tolls or stadium fees. An example loan source is the MADEP Clean Water State Revolving Loan Fund.

Fees for Stormwater Permits, Permit Reviews and Inspections. Stormwater management permits are required by some local municipalities under local bylaws or ordinances for new and redevelopment projects above a certain threshold size that contribute to the centralized stormwater management system. In addition, wetland permits, site plan review approvals and subdivisions often have stormwater management design elements that require some level of compliance. Communities may charge a fee associated with the obtaining that permit, and to cover engineering review and compliance inspections on the part of the municipality.

A general review of readily available federal and industry group informational resources about municipal stormwater management developed over the past decade reveals that the overwhelming popular recommendation for stormwater financing mechanisms is a stormwater service fee or utility. This source of funding provides a dedicated, sustainable and predictable source of funding. It alleviates the pressure of competing with schools, police and fire for

municipal tax dollars, and shields the budget from annual variations in property assessments in the community. It is also an equitable source of funding, if properly designed, since there is a clear nexus between the runoff produced on a property and the stormwater management services provided by the municipality for that property and all mutually beneficial public facilities (roads, parking lots, public facilities). The Upper Charles River Watershed Stormwater Financing study was designed to identify funding needs to develop municipal stormwater programs that would meet the new draft NPDES Phase 2 MS4 Stormwater General Permit, and to identify a sustainable funding mechanism to support those programs. The recommended mechanism was a stormwater fee that would be collected into a stormwater enterprise fund in each community, creating essentially a stormwater utility in each community.

The MAPC Stormwater Financing/Utility Starter Kit (MAPC, 2014) also clearly supports the implementation of municipal stormwater fees collected and deposited into municipal Stormwater Enterprise Funds as the primary funding mechanism in a municipality. The financing chapter of the starter kit concludes with this comment: “Although there are several alternative financing methods that may be used in certain circumstances, only a drainage fee structure provides a long-term, sustainable, dedicated revenue source for stormwater management.”

However, the experience in Massachusetts and in the northeast as a whole demonstrates that communities are not yet sold on the idea of stormwater fees and utilities. Fewer than 10 stormwater utilities have been established in Massachusetts to date (WKU, 2014). Figure 1 presents a summary of the number of stormwater utilities established to date in each state (WKU, 2014), based on an annual stormwater utility survey conducted by Western Kentucky University. Table 12 presents a basic summary of the monthly single family residential rates in seven utilities established in Massachusetts. The residential monthly fees in these examples range from approximately \$1.67 to \$11.67. The commercial and industrial property rates are generally some multiple of the residential rates, usually higher than the residential rates, based on the impervious cover on the commercial sites. Rates in a given community are not necessarily correlated to the population size in the community. This is partially due to the fact that communities choose to fund varying aspects of their stormwater programs with the fee, and may not fund the full program from the fee to start. Case study information has been collected and presented by a variety of organizations, including in the following selected documents for reference: EPA, 2013; CRWA, 2007; and W&C, 2012. The municipal websites for these communities are also useful references as they contain information for their own paying constituents to understand the program.

Figure 1. Number of Stormwater Utilities by State (WKU, 2014)

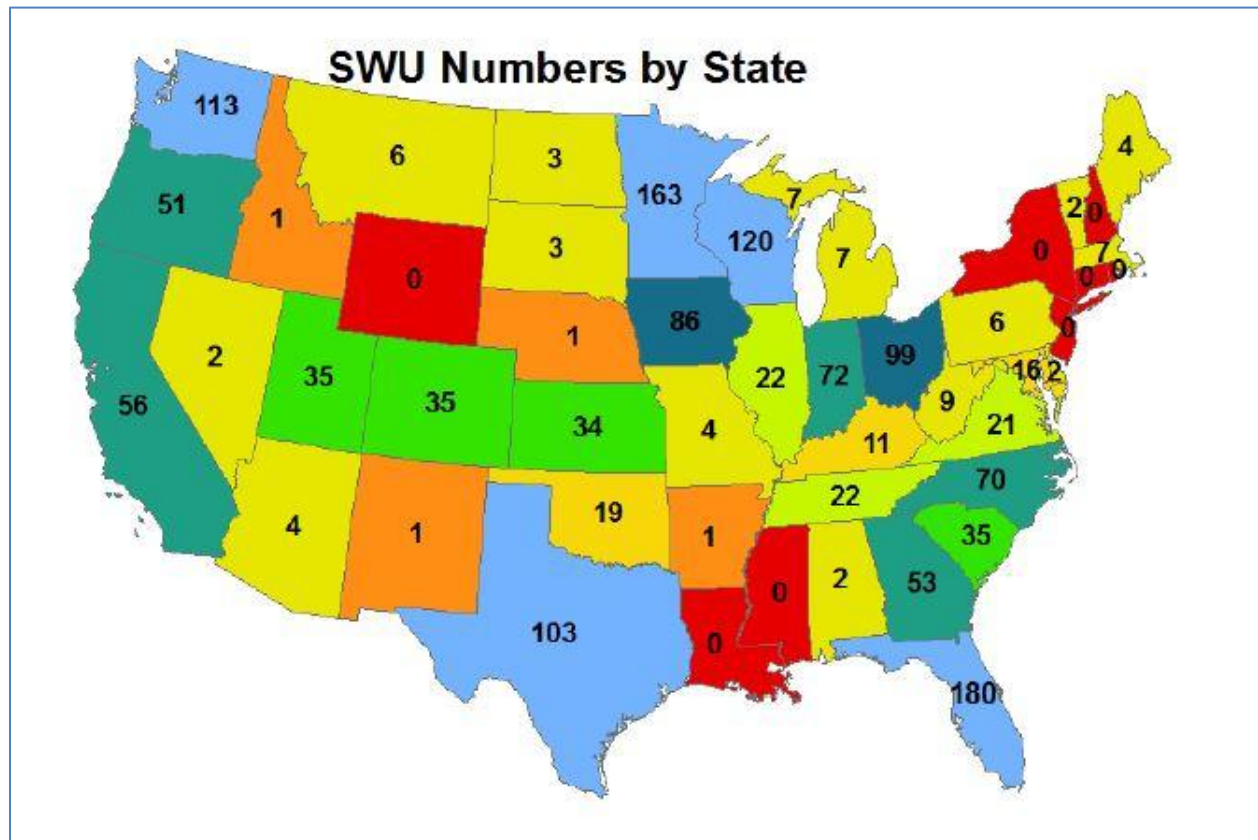


Table 12. Summary of Stormwater Utilities in Massachusetts (WKU, 2014)

Town/City	Single Family Residential Monthly Fee	Year Created	Population
Reading	\$3.33	2006	24,145
Northampton	\$5.00	2014	28,592
Gloucester	\$4.42	2011	30,273
Westfield	\$1.67	2010	41,094
Chicopee	\$8.33	1998	54,653
Newton	\$2.08	2006	83,829
Fall River	\$11.67	2008	91,938

5. How Can I Garner Support? Stakeholder Involvement is Essential

All the planning and number crunching in the world will not miraculously fund your municipal stormwater management program. This can only happen through the support and favorable votes of the local government and citizenry. Whether your community is a city or town government structure, governed by a Mayor and City Council, a strong Town Manager and Select Board, or a Select Board, a shift in municipal funding amounts and mechanisms is achieved only with public support. Unfortunately, most general citizens in Massachusetts still are not aware of stormwater management as a service, as an issue, or as a priority.

Almost every case study document or guidance document about funding for municipal stormwater management programs concludes with lessons learned about the importance of reaching out early in the process to the citizenry, the local business sector and to key decision makers in the municipality. These are your stakeholders. Without their support, the stormwater program and your proposed funding strategy will likely fail.

A handful of Massachusetts communities have been successful in implementing service fee-based stormwater programs, sometimes called utilities, with dedicated sustainable stormwater program funding sources. However, these programs are woefully under-represented in the northeast, with only approximately 7 such programs (Western Kentucky University, 2014), compared to nationwide, where there are over 1500 such programs. A 2013 EPA study investigated in detail the processes undertaken by these New England communities to understand why these programs were successfully established while so many other communities appear to be shying away from this approach or running into conflict during the process. What they concluded was that:

“In order to build stakeholder support and successfully adopt a stormwater funding mechanism, public outreach strategies and focused stakeholder engagement are critical. The specific factors that municipal decision-makers must take into account – such as citizen or business opposition, the policy environment (e.g., enabling legislation), anti-tax sentiments, chronic flooding, and other issues – will differ from town to town. Therefore, the specific design of any public outreach and stakeholder engagement strategy must be tailored to uniquely address the factors and related stakeholder concerns. The specific approaches used by the eleven communities [highlighted in the report] for engaging stakeholders differed. However, communities that effectively addressed their stakeholders’ specific concerns were more likely to adopt and implement their proposed funding mechanism.” (EPA, 2013)

6. References

- Central Massachusetts Regional Planning Commission (CMRPC). Date unknown. *Funding Stormwater Management. Strategies to support stormwater management at the municipal level.*
- Charles River Watershed Association (CRWA). 2007. *Assessment of Stormwater Financing Mechanisms in New England. Final Case Study Report.* Prepared for: Massachusetts Coastal Zone Management. March 30.
- Environmental Finance Center (EFC). 2014. *Local Government Stormwater Financing Manual: A Process for Program Reform.* University of Maryland. January.
- Environmental Protection Agency (EPA). 2013. *Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities.* EPA-100-K-13-0004. June.
- Horsley Witten Group (HW). 2011. *Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin and Milford, MA.* Prepared for US EPA Region 1. September 30.
- Metropolitan Area Planning Council (MAPC). 2014. *Stormwater Financing/Utility Starter Kit (Draft).* Prepared for: The 101 Cities and Towns of Greater Boston. March 23. www.mapc.org.
- Metropolitan Area Planning Council (MAPC). 2015. *Neponset Stormwater Collaborative: DRAFT Stormwater Financing Pilot Report.* With assistance from: Neponset River Watershed Association. April 2.
- National Association of Flood and Stormwater Management Agencies (NAFSMA). 2006. *Guidance for Municipal Stormwater Funding.* Prepared under grant by Environmental Protection Agency. January.
- Woodard & Curran (W&C). 2012. *Town of Danvers Sustainable Stormwater Funding Study.* December.

7. Recommended Resources

The following publicly available resources provide concise, well researched, current information about how to define and fund your municipal stormwater management program. These documents have all been developed in light of the NPDES Phase 2 MS4 Stormwater General Permit Program and, in some cases, specifically for Massachusetts communities facing unique challenges under the pending next generation of the permit. There is an immense amount of information currently available on this topic from around the country; the documents presented here are not an exhaustive list. Instead, these have been selected specifically for this audience of municipal staff and officials in Massachusetts because they are comprehensive, clear, concise, and provide real world relevant case study examples. All of these resources are available free online, except the report published by the Water Environment Federation, which is available in hard copy or electronically for a fee. A brief description of the document and a web link are provided for each.

Central Massachusetts Regional Planning Commission (CMRPC). Date Unknown. *Funding Stormwater Management. Strategies to support stormwater management at the municipal level.* This brief document provides an overview of stormwater impacts, a summary of existing and potential future municipal stormwater management activities, and then identifies possible funding sources. It also provides examples of stormwater utilities in Massachusetts and around the country.

http://www.cmrpc.org/sites/default/files/Documents/CDAP/stormwater%20wrap%20up_secured.pdf

Environmental Protection Agency (EPA). 2013. *Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities.* EPA-100-K-13-0004. June. This report explores the question of why stormwater utilities have been slow to establish in New England, and provides support to the lesson that stakeholder engagement, early and often, is essential to the successful establishment of a fee-supported stormwater program. <http://www.epa.gov/evaluate/pdf/water/eval-sw-funding-new-england.pdf>

Horsley Witten Group (HW). 2011. *Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin and Milford, MA.* Prepared for US EPA Region 1. September 30. This EPA-funded report provides a detailed analysis of the potential budget needs and fee structure for three upper Charles River communities to address potential MS4 and Residual Designation Authority permit requirements, in the event that they were instituted. These requirements are more demanding than the 2014 draft MS4 Permit for Massachusetts, and included a phosphorus control plan with retrofits to existing development. This document provides a useful detailed approach to estimating existing and future program

elements and budget needs, as well as fee calculations, for three MA communities. Full document: <http://www.epa.gov/region1/npdes/charlesriver/pdfs/20110930-SWUtilityReport.pdf>, Fact Sheet: <http://www.epa.gov/region1/npdes/charlesriver/pdfs/20111019-UtilityProjectGPFactSheet.pdf>

Metropolitan Area Planning Council (MAPC). 2014. *Stormwater Financing/Utility Starter Kit (Draft)*. Prepared for: The 101 Cities and Towns of Greater Boston. March 23. MAPC, with support from a technical work group, drafted a starter kit to assist communities in their region with planning for improved, sufficiently funded stormwater management programs. The kit is posted online and includes a report as well as template spreadsheets to assist with inventorying the costs for your existing stormwater program and developing a budget for your comprehensive stormwater program. It also provides a template for calculating a stormwater service fee to support the future needs of the municipal stormwater program. http://www.mapc.org/Stormwater_Financing

National Association of Flood and Stormwater Management Agencies (NAFSMA). 2006. *Guidance for Municipal Stormwater Funding*. Prepared under grant by Environmental Protection Agency. January. This guidance document provides a comprehensive description of stormwater program funding sources, legal considerations, user-fee based funding implementation and case studies. This guide is geared toward a nationwide audience so there are elements that do not apply directly to Massachusetts, but the comprehensive discussion provides very useful context for MA within the nation as a whole. <http://water.epa.gov/polwaste/nps/upload/Guidance-Manual-Version-2X-2.pdf>

Water Environment Federation (WEF). 2013. *User-Fee-Funded Stormwater Programs*. WEF Special Publication. Alexandria, VA. This rigorous document describes the process of planning for and implementing a stormwater utility, including the feasibility study, public involvement, budget and fee calculations, resource requirements for implementation, program evaluations and case studies from around the country. <https://www.e-wef.org/Store/ProductDetails.aspx?productId=28818404>

Western Kentucky University (WKU). 2014. *Western Kentucky University Stormwater Utility Survey 2014*. This is the 8th in a series of surveys conducted by Western Kentucky University on stormwater utilities nationwide. This survey provides a comparison of stormwater fees for over 1500 stormwater utilities in the US and Canada. The seven prior surveys of stormwater utilities are also available online. <http://wku.edu/engineering/civil/fpm/swusurvey/>

Woodard & Curran (W&C). 2012. *Town of Danvers Sustainable Stormwater Funding Study*. December. This document provides a basic assessment of the existing and future stormwater program elements and costs in the Town of Danvers in preparation for anticipated increased

requirements under the NPDES MS4 Stormwater General Permit. It also estimates a potential stormwater service fee that could be instituted to support the municipal stormwater program. This document was intended to provide basic information to decision makers considering whether to establish a stormwater service fee or utility in Danvers.

<http://www.mass.gov/eea/docs/mbp/publications/danvers-sustainable-stormwater-funding-study-r-and-p2012.pdf>

Other MA Stormwater Collaboratives:

- Central Massachusetts Stormwater Collaborative:
http://centralmastormwater.org/pages/crsc_About/approach
- Neponset Stormwater Partnership:
<http://neponsetstormwater.org/>
- Northern Middlesex Stormwater Collaborative:
<http://www.nmstormwater.org/about-us-stormwater-collaborative>
- Southeastern Massachusetts Stormwater Collaborative:
<http://www.semastormwater.org/about-us>
- New England Stormwater Collaborative:
<http://www.newwa.org/Resources/UtilityResources/NewEnglandStormwaterCollaborative.aspx>