

Funding Stormwater Management

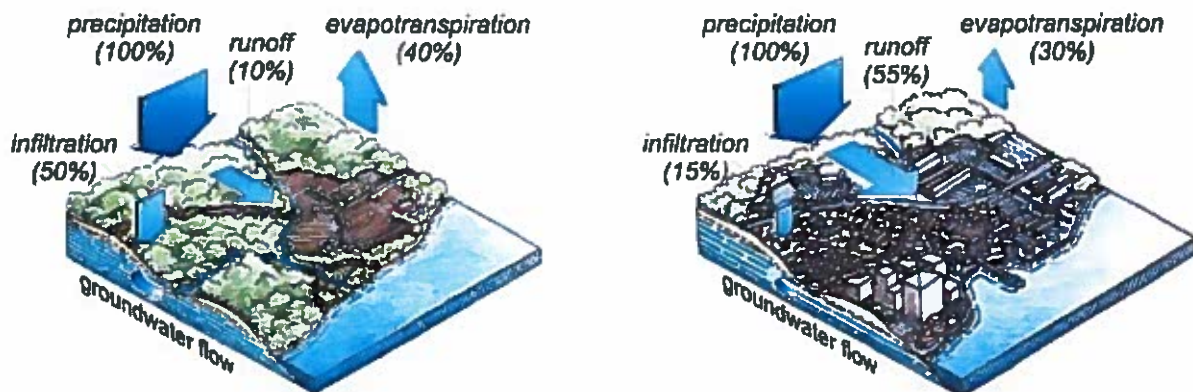
INTRODUCTION

Stormwater management is a growing challenge for local governments. As a natural resource that is increasingly regulated, municipalities must develop approaches that protect and enhance how stormwater is handled. These approaches to address stormwater impacts like flooding and degradation of water bodies require an adequate and stable funding source.

The purpose of this handout is to present a set of possible alternatives that can be used to support stormwater management in a community. It provides a brief overview of stormwater impacts, a summary of existing and potential future municipal stormwater management activities, and then identifies possible funding sources. In particular, the structure and implementation of a Stormwater Utility is explored as an option for funding a sustainable and effective stormwater program. Examples of stormwater utilities in Massachusetts and the United States are provided.

1. Stormwater Overview

Stormwater is the natural result of rain storms and other wet weather events. Normally, it flows into the ground or to surface waters allowing for recharge and filtering. However, as more of the landscape is covered with impervious surfaces that prevent these processes, stormwater has become an issue that increasingly affects people's lives and the environment.

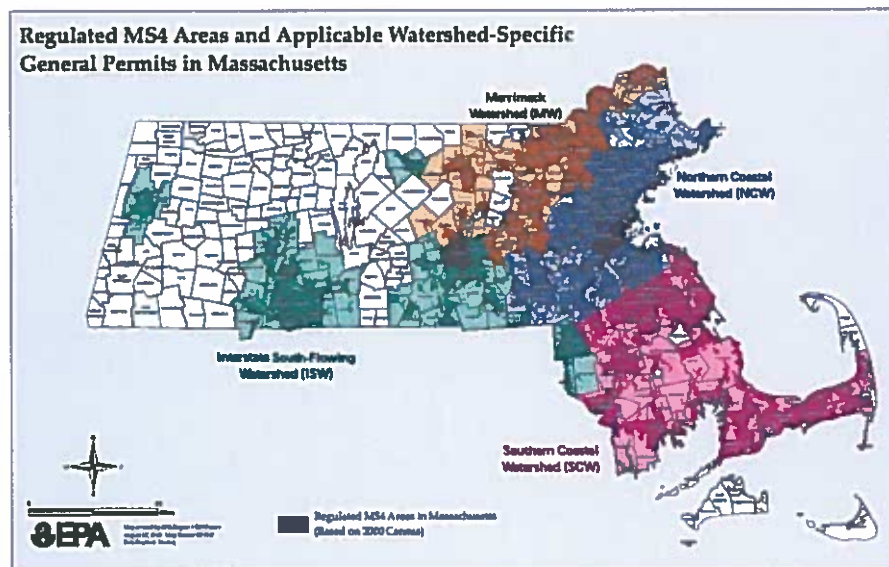


If stormwater is not directed to natural or man-made facilities designed to treat it, water quality can be adversely impacted by chemical and biological materials. For example, oils, pesticides and animal waste can be picked up by water flowing across developed sites and deposited into nearby water bodies. Water

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quantity can also become an issue if stormwater is not able to permeate into the ground. When stormwater runoff from impervious surfaces is channeled directly into basins, pipes and surface waters, it can potentially overwhelm streams, ponds and entire sewer systems. These impacts to water quality and quantity directly relate to drinking water supplies, the ability for water recreation, wildlife habitats and flood damage to personal property and public infrastructure.

Due to these potential impacts, stormwater has come under more scrutiny and regulation. In particular, the Environmental Protection Agency's (EPA) has advanced the Stormwater Permitting Program, through its National Pollutant Discharge Elimination System (NPDES), to mitigate these impacts. The program has set a series of regulatory requirements for stormwater which first applied to large cities and then to smaller cities and towns. The specific application of this program is the Municipal Separate Storm Sewer Systems (MS4) general permit.



Recently, EPA has initiated a pilot project¹ that goes beyond the MS4 general permit to address developments that continue to contribute higher than desired amounts of phosphorous in stormwater runoff. When high levels of phosphorous are discharged, it can lead to excessive vegetative growth that covers the surface of water bodies and algae blooms that can be harmful to people and aquatic life. The pilot project,

¹ The authority for EPA to regulate other sources based on storm water's localized adverse impact on water quality through NPDES permits is commonly referred to as the Residual Designation Authority (RDA).

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which applies to three (3) towns at the headwaters of the Charles River (Milford, Franklin and Bellingham), will focus on properties that have two (2) or more acres of impervious surfaces. These properties, or Residually Designated Discharge sites (DD sites), will be required to initiate or participate in more intensive storm water management activities focused on reducing phosphorous levels in the Charles River.

2. Municipal Activities to Manage Stormwater

At present, municipalities perform numerous activities to address stormwater. Many of these activities are the result of requirements under the NPDES MS4 program, but some are locally driven efforts to meet community goals. A summary of stormwater activities is provided below.

- **Public Outreach and Involvement** – Municipalities have developed educational programs and materials about stormwater impacts for school children, property owners and specific businesses (e.g., mechanics, landscapers, etc.). Most municipalities have also sponsored events where residents and others can participate in clean-ups of water bodies, marking of stormwater inlets and testing water flowing from outfalls.
- **Illicit Discharge Detection and Elimination (IDDE)** – Illicit discharges are the release of materials not containing stormwater into the municipal storm sewer system. Examples of illicit discharges are sanitary waste, oil and laundry wastewater. Municipalities are mapping their storm sewer system and outfalls, and part of this effort is to identify locations of illicit discharges. In some cases, these locations have already been identified and local projects are underway to eliminate illegal connections.
- **Construction Site Runoff Control** – Stormwater runoff from construction sites can contribute sediments like dirt and gravel to lakes and streams if proper control measures are not used. Municipalities have or are reviewing their bylaws to enhance local regulations controlling construction site runoff and site development characteristics to reduce these possible impacts.



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- **Post-Construction Runoff Control** – On developed or redeveloped sites, stormwater runoff can collect harmful elements like nutrients and chemicals which then end up in water bodies. In addition, the volume of water being diverted from these sites into the storm sewer system and waterways is increased due to the amount of impervious surfaces. In response to these impacts, municipalities have developed bylaws for managing stormwater on-site and post-construction site review to monitor performance over time.
- **Pollution Prevention/Good Housekeeping** – Under this category, municipalities are performing activities such as street sweepings, catch basin cleanings, inspection of sewer systems and hosting of hazardous waste disposal events. Additionally, municipalities are developing new procedures and methods to control the quantity of stormwater entering the sewer system. Along with the IDDE, activities in this category consume the most municipal time and resources available for stormwater management.



Performance of these activities will continue into the future as part of the MS4 program. In fact, more requirements are anticipated as EPA renews permits for the program. New requirements under the MS4 general permit could necessitate that towns advance their Stormwater Master Plan, develop local plans to meet new phosphorous Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA), program more frequent public education events, complete mapping of their sewer system, perform continual outfall inventory and analysis, and initiate more projects to remove illicit connections. Additional steps could be necessary to coordinate municipal activities with actions major land uses may need to take in response to the proposed phosphorous reduction requirements.

3. Funding Alternatives for Stormwater Management

Maintenance activities and capital improvements to address stormwater-related issues require financial resources. Fortunately, there are several possible sources that could provide this support. The sources include locally controlled funds such as taxes, fees and special assessments, as well as competitive sources

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like grants and bonds. These funding sources can serve as individual elements or be used in combination. However, although there are multiple options, two key considerations are: 1) whether the source provides a practical connection between costs and the stormwater impacts created, and 2) whether the source is a stable and sustainable. Seven possible funding sources are detailed below.

- **Property Taxes/General Fund**: The most common source for funding stormwater management is through the municipal general fund. The general fund, which consists primarily of property taxes, covers a full range of municipal services and is subject to competing demands. Stormwater management activities are regularly low on the list for general funds unless recent events have garnered attention (e.g., flooding, algal blooms in local waterway, etc.) or regulatory requirements have been enacted. In addition, use of the general fund does not reflect the true cost certain sites have in relation to their stormwater impacts. This is the case for sites with large areas of impervious surface and for tax-exempt properties that contribute stormwater to the system but do not contribute to the general fund.
- **Grants**: There are state and federal grants available for stormwater management activities, such as educational programs, maintenance and physical improvements. These grants are competitive, typically one-time or time-constrained funding sources, and likely to require a local funding match. A grant that is available to Massachusetts municipalities for stormwater management is the Massachusetts Department of Environmental Protection (MassDEP) Section 319 Nonpoint Source Competitive Grants Program.
- **Bonds/Loans**: Bonds and loans also represent funding that is available for stormwater management. They typically provide project specific financing that requires proposed improvements be ready for construction and meet the priorities set by the funder. Although repayment terms can offer low or no interest financing, these sources do require full repayment from municipal recipients. An example of this funding source is the MassDEP Clean Water State Revolving Loan Fund.
- **Stormwater Permit/Connection Fee(s)**: Permit and connection fees are applicable mainly to new developments. Stormwater permits are assessed for construction activities that disturb an existing site and could potentially discharge stormwater to surface waters. Connection fees are assessed when the new development connects into the municipal stormwater system. The permit and connection fees are valuable sources of funding to manage stormwater impacts and infrastructure needs in developing or redeveloping areas; however, they are site specific and can be an unreliable source when development slows.

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- **Special Assessment/Benefit Districts:** Special assessments can be used in locations or districts that benefit exclusively from a particular public investment. This would be the case where several neighborhoods in a town need to have stormwater infrastructure installed or replaced. These improvements can be offset by charges only to those properties located within the neighborhoods. As with the permit and connection fees, special assessments are a method to improve conditions within a specific area, but after work is complete, funding is not available for other stormwater management projects or needs.
- **Local Option Sales Tax on Meals:** In Massachusetts, municipalities have the ability to impose a local sales tax on the sales of restaurant meals originating with the city or town by a vendor. The local tax, which is allowable at the rate of 0.75% of the gross sales of restaurant meals, is in addition to the state's sales tax of 6.25%. Unless the sales tax returns were dedicated to funding stormwater management, the income would likely go into the general fund. Also, there is not a strong connection between the meals sales tax and stormwater impacts.
- **Stormwater Utility/Enterprise Fund:** A stormwater utility treats stormwater management as a public service that is provided like electricity, heating and water. The utility operates as a dedicated enterprise fund and is supported by property assessments based on contribution of stormwater runoff to municipally managed stormwater system. In most locations the assessment is based on the amount of impervious surface on a site. Due the structure of the utility, fees are directly related to stormwater management benefits received and create a reliable source of funding that is dedicated to meeting stormwater needs and impacts.

A comparative matrix that identifies the benefits and challenges of these sources is included on the following page.

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Comparative Matrix

Funding Source	Benefits	Challenges
Property taxes/General fund	<ul style="list-style-type: none"> Existing funding source for stormwater management Utilizes existing funding system Can be leveraged to payback bonds or loans Tax deductible 	<ul style="list-style-type: none"> Funds dependent on competing needs and priorities Tax exempt properties do not contribute Does not fully reflect contribution of stormwater runoff
Grants	<ul style="list-style-type: none"> Existing sources available for stormwater-related funding Does not require repayment 	<ul style="list-style-type: none"> One-time source Competitive process Requires local funding match Time-constrained
Bonds/Loans	<ul style="list-style-type: none"> Existing sources available for stormwater-related funding Can support construction ready projects 	<ul style="list-style-type: none"> One-time source Required to pay back bond/loan amount Possible interest charges May require design level documents to be prepared in advance
Stormwater permit/Connection fees	<ul style="list-style-type: none"> Addresses potential stormwater impacts related to new construction Addresses new connections to the stormwater sewer system 	<ul style="list-style-type: none"> Specific only to stormwater impacts from sites under construction Does not address stormwater impacts other than drainage to stormwater sewer system Funding not available for larger projects or system wide improvements
Special Assessment/Benefit Districts	<ul style="list-style-type: none"> Can assist with improving stormwater system in specific locations Directly connect improvements to those receiving the benefit 	<ul style="list-style-type: none"> Only addresses improvements in specific location(s) Funding not available for larger projects or system wide improvements
Stormwater Utility/Enterprise Fund	<ul style="list-style-type: none"> Directly related to stormwater impacts Dedicated funding source Stable funding source Creates funding that can be leveraged to meet grant and bond requirements 	<ul style="list-style-type: none"> Feasibility study needed for implementation, fee structure and administration of utility Approval by vote of the legislative body subject to the local charter

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4. Focus on Stormwater Utilities

As described above, a stormwater utility is based on users paying a fee in relation to their stormwater impacts and the benefits that they receive from municipal stormwater management services. The following section explores this funding option in more detail and describes the general structure and administration of stormwater utilities in Massachusetts. Ultimately, the form of a stormwater utility reflects the unique characteristics and objectives of a community. For more information about stormwater utilities, a set of resources is provided at the end of this document.

Legal Framework

There are two (2) general laws that provide the authority for municipalities to establish a stormwater utility: Massachusetts General Law (MGL) Chapter 83 – Section 16 and MGL Chapter 40 – Section 1A. Through MGL Ch. 83, municipalities have the right to set up a stormwater utility and to charge utility fees in support of stormwater-related services performed. In 2006, this particular section was strengthened to clarify a municipality's ability to establish stormwater utilities. MGL Ch. 40 complements MGL Ch. 83 by providing a definition of a district for the purpose of water pollution abatement, water, sewer, and/or other purposes. Jointly, these pieces of legislation provide a municipality with the authority to charge utility fees for stormwater management services just as fees are charged for providing other public services such as drinking water, sanitary sewerage and electricity.

Administrative Structure

Stormwater utilities can be set up as a new department or integrated into an existing division in the municipality such as the Department of Public Works (DPW). Creation of a new department allows for direct funding from the stormwater utility and the prioritization of stormwater projects. It also avoids possible internal conflicts in an existing department and may enhance eligibility of the utility to receive outside funding. Conversely, housing a stormwater management division within an existing department can offer opportunities for shared equipment and pairing of stormwater infrastructure capital improvements with other public works projects.

Establishing a Work Program and Budget

As described in [Section 2. Municipal Activities to Manage Stormwater](#), there are a number of ongoing activities and projects, as well as additional future tasks that will be necessary to meet new stormwater

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requirements. In developing a stormwater utility, staffing, capital projects (ongoing and proposed) and operations and maintenance activities should be inventoried. This will provide an estimate of the funds needed to run the program and a foundation program budget. This process should be performed in coordination with the establishment of stormwater fees so anticipated costs are balanced against projected revenue.

Establishing Stormwater Fees

A stormwater utility fee can be structured in a variety of methods. However, the fee is typically based on the amount of impervious surface on a property, since it is the primary element influencing the amount of stormwater runoff.

The most common method of setting the stormwater fee is the Equivalent Residential Unit (ERU). The monthly fee per equivalent residential unit (ERU) is developed using a scientific process which investigates the amount of impervious surface in the town and, possibly, the overall amount of runoff in the town. Typically, the impervious surface of typical single-family home, or ERU, is determined (e.g., 2,500 square feet) and then used to build a range of assessments. Single family homes are typically charged a fee equivalent to 1 ERU and other properties would be charged based on the amount of impervious surface relative to the ERU (e.g., commercial properties are 2 ERU's, industrial properties are 4 ERU's, etc). Other popular methods of fee structures are:

- Land Use Category, which assigns a flat fee based on whether a property is a residential use or a non-residential use.
- Intensity of Development, which is based on the proportion of impervious surface to the entire size of a specific parcel.
- Equivalent Hydraulic Area, which calculates a fee based on the estimated runoff from both impervious and pervious surfaces on a site.

Credits for Stormwater Mitigation Measures

Credits (or exemptions, abatements, etc.) can be built into the utility to provide incentives for certain practices and to give opportunities for fee reductions. Credits should be clearly described and can include approved Best Management Practices (BMPs) such as more frequent parking lot sweeping, rainspout disconnections, use of porous pavers, installation of rain gardens or hosting of educational programs.



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There are a number of options for reducing fees, but there must be a balance between the base charge and the type of incentive that is used. Before setting the credit standard, municipalities should determine the types of stormwater management goals they wish to achieve (e.g. reduce impervious cover, increase infiltration, increase green roofs, etc.). Once defined, officials can then decide what a menu of options that would provide credit to property owners.

Methods of Billing

Assessment of the stormwater fee can be handled through separate billing or by including it with existing wastewater and sewer bills. Most existing stormwater utilities integrate billing with existing water and sewer bills since it is inexpensive and simple to add the new assessment on the existing bill.

Public Involvement

A strong public education program is critical both during development of the stormwater utility and over time as the utility is administered. Most residents and property owners are likely unaware of the increasing costs and regulatory requirements of stormwater management and the options to fund it. Public engagement and outreach should communicate how a well-funded and managed stormwater program can help reduce flooding, improve drought conditions, create better circumstances for fishing and water recreation, and improve water quality. While there will be expected resistance to a new fee, demonstration of how a utility will directly support necessary services and benefit the community is essential.

Important aspects of an organized public information and education effort are outreach to the specific properties that generate significant amounts of runoff, creation of an advisory committee with cross-section of community stakeholders, coordination with local media and distribution of projected fee amounts to property owners in advance of actual billing.

Town Utility vs. Regional Utility

Although stormwater utilities in the US are mainly administered at the municipal level, there are examples in states like Florida and Washington where the utility has been established at the regional level. These utilities take a multi-jurisdictional approach to stormwater management and are based on interlocal agreements. In some instances a new regional organization is formed to manage the utility and is directed by representatives from the participating entities. In other instances, an existing town or regional body (e.g.,

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county government, regional water or sewer utility provider, etc.) takes on the responsibility for administering the utility and stormwater activities as a supplement to existing services.

5. Examples of Stormwater Utility Programs – Existing or Under Consideration

Stormwater utilities have been in existence for over 20 years and it is estimated that stormwater utilities have been implemented in over 800 communities across the country. A series of profiles are provided below for locations that have advanced or are considering use of stormwater utilities. The first set of profiles focuses on municipalities in Massachusetts and the second set provides examples from around the United States.

Massachusetts Stormwater Utility Profiles

- **Reading.**

The impetus for the stormwater utility in the Town of Reading was the NPDES Phase II MS4 general permit. The utility was developed between August 2003 and January 2006, and was approved by Town Meeting in April 2006. Under the stormwater utility, single and two-family properties are assessed a flat fee and other properties including condominiums are charged fees based on the amount of impervious surface on their lot. Undeveloped property is not assessed a storm water fee. Other financing options like service fees and property taxes were considered, but the stormwater utility was chosen since it would provide a dedicated, stable funding source and an equitable method for assessing impacts. Funding from the utility is now used to cover a variety of costs including administrative, engineering and capital costs.

- **Newton**

The purpose of establishing and implementing a stormwater fee in the City of Newton was to generate a stable and adequate source of funding to pay for capital improvement projects, staff and other stormwater management expenses. Newton's costs for managing stormwater (e.g., repairs and maintenance of drain pipes) had continued to rise and the city needed to meet state and federal requirements to reduce pollution in stormwater runoff. Newtown's stormwater fee is a set charge based on whether a property is residential or non-residential, and the city does offer a discounted fee for senior residents.

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- Chicopee

Chicopee passed an ordinance in 1998 to collect fees for the purpose of managing stormwater. Fees are charged monthly per Equivalent Residential Unit (ERU) based on impervious area. Chicopee instituted their stormwater fee rather than increase sewer fees for two reasons. It allowed Chicopee to assess fees based on the amount of stormwater generated by each property and set up an incentive system for large stormwater generators to invest in stormwater BMPs and reduce their stormwater fee. The revenue from the fee has led to increased stormwater management activities and the ability for the city to leverage funds for state loans.

- Fall River

The City of Fall River enacted a stormwater fee in 2008 with the purpose of addressing debt service for a combined sewer overflow (CSO) separation project and existing deficits in city's sewer program. The fee is structured so that residential properties pay a flat fee and industrial and commercial sites pay according to the amount of impervious surfaces on their site. A goal of the fee was to shift costs from residents to commercial and industrial uses, particularly those with large properties.

- Westfield

The City of Westfield stormwater fee was enacted in 2010 with the purpose of financing a storm water management division. The division will lead efforts to meet federal requirements for stormwater monitoring and maintenance of the city collection system. The fee structure in Westfield will charge homeowners a flat fee and charge commercial sites a fee based on amount of land covered by buildings and other impervious surfaces.

- Gloucester

With the possibility of looming sewer rate increases, the City of Gloucester proposed to increase funding for stormwater management through higher property taxes. This effort did not pass, and as a result the city pursued the use of a stormwater fee, which was approved in September 2009. Since its approval, city officials have been making progress on the structure and implementation of the fee. Currently, the city is determining how different properties will be assessed and developing a billing system.

- Yarmouth

The Town of Yarmouth conducted a study in 2009 to explore future requirements for their stormwater management program and the feasibility of setting up a stormwater utility. As a result of the study, Yarmouth determined that an increase in property taxes or a use of stormwater fee would be the only measures to raise a stable and adequate funding source. Recommended next steps for the town

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Included coordination with local officials and town approval to develop the administrative and assessment structure for a stormwater fee in Yarmouth.

US Examples

- Lewistown, Maine

The City of Lewistown adopted a Stormwater Utility in 2007 to provide a mechanism that would fund work required to meet federal mandates for storm water, fairly distribute the cost of stormwater management and provide tax relief to residents. Lewiston's stormwater utility fee is based on the run-off generated from a property, charging single and two-family properties a flat fee and other properties the flat fee plus a rate for the amount impervious coverage in excess of that found on a single family property. Prior to the fee, residential properties were paying 53% of the costs related to stormwater management even though they generated less runoff than parcels with large parking lots. As an example, if property taxes were raised, a typical single family home valued at \$80,000 would pay an additional \$102 in property taxes. With the use of the stormwater utility, this same home will pay \$40.

- South Burlington, Vermont

It was determined that unmanaged stormwater runoff and unmaintained private stormwater systems in the City of South Burlington were causing water pollution, erosion and flooding. In response, South Burlington convened a multidisciplinary advisory committee to work with the city council as part of establishing a stormwater utility. The resulting stormwater utility provides a stable and adequate source of revenue to complete required maintenance, implement new stormwater treatment measures and manage stormwater-related activities in the city. The utility assesses residential properties on a set of flat fees and assesses other uses according the actual amount of impervious surface on their property.

- Brevard County, Florida

The Brevard County Stormwater Program (BCSP) was created in 1990 and accompanied by the establishment of a stormwater utility to fund program activities. In 1999, the county program was joined by the City of West Melbourne and the Town of Malabar to create a regional coordinated stormwater program. The program uses an ERU approach based on the typical impervious square footage of a single family home and is administered by the County. The program also features a credit program that provides a reduction in stormwater assessments for various levels of stormwater treatment implemented and maintained by property owners.

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6. FY10 EPA Region 1 Wetland Program Development Grant Award

In response to a request for assistance with the proposed residual designation, the towns of Bellingham, Franklin, and Milford have been awarded a grant by the EPA. The funding will be provided in the form of technical assistance, and offer engineering, planning, and other consulting services. The study is likely to assess the feasibility of using different approaches (local vs. regional, structural vs. non-structural, etc.) to meet the proposed stormwater requirements and manage costs as part of reducing phosphorous levels in the Charles River.



7. Conclusion

Stormwater management is and will continue to grow as a major task to be performed by municipalities. Maintenance and capital improvements to address stormwater require local funding support that is dedicated, sustainable and equitable. This handout provides a snapshot of ongoing stormwater management activities, possible funding source to support this work and how a stormwater utility could be a resource for municipalities. In combination with the state and national examples provided, the information in this document can serve as the foundation for building a strong stormwater management program.



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Resources which were used to develop this handout and that can be used to find further information on funding for stormwater management are listed below.

- NPDES Stormwater Discharges From Municipal Separate Storm Sewer Systems (MS4s) (<http://cfpub.epa.gov/npdes/stormwater/munic.cfm>)
- NPDES Small MS4 General Permit Update (<http://www.epa.gov/region1/npdes/stormwater/updated-info-sms4gp.html>)
- NPDES Phase II Small MS4 General Permit Annual Reports (<http://www.epa.gov/region1/npdes/stormwater/2003-permit-archives.html>)
- Draft General Permit for Residually Designated Discharges in Milford, Bellingham, and Franklin, Massachusetts (<http://www.epa.gov/ne/npdes/charlesriver/index.html>)
- FY10 EPA Region 1 Wetland Program Development Grant Proposal for Milford, Bellingham, and Franklin, Massachusetts
- Charles River Watershed Association (CRWA) How to Fund Stormwater Management Programs (<http://www.crwa.org/projects/stormwater/swutility.html>)
- EPA Region 1 Fact Sheet – Funding Stormwater Programs (<http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/FundingStormwater.pdf>)
- EPA Managing Wet Weather with Green Infrastructure Handbook Series (<http://cfpub.epa.gov/npdes/greeninfrastructure/munichandbook.cfm>)
- National Association of Flood and Stormwater Management Agencies (NAFSMA) – Guidance for Municipal Stormwater Funding (<http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf>)
- Indiana University-Purdue University Indianapolis (IUPUI) – An Internet Guide to Financing Stormwater Management (<http://stormwaterfinance.urbancenter.iupui.edu/>)
- Salem Sound Coastwatch - How to Fund Your Municipal Stormwater Program (<http://www.salemsound.org/stormwater.htm>)
- Stormwater, The Journal for Surface Water Quality Professionals – “Stormwater Utilities Where Do They Stand Now” (<http://www.stormh2o.com/september-october-2004/stormwater-utilities-programs.aspx>)

