

EXECUTIVE SUMMARY

Town of Lexington Stormwater Enterprise Feasibility Report

The Lexington Department of Public Works considers stormwater management and operation of the drainage system to be a vital municipal service. Although often overlooked by the public, stormwater could be considered a third utility alongside water and wastewater. Because water and sewer utilities are operated under separate Enterprise Funds, the Town has conducted this Stormwater Enterprise Feasibility Report to:

- Summarize program priorities and costs;
- Explore stormwater funding alternatives; and
- Describe the process and timeline to determine if a Stormwater Enterprise Fund is right for Lexington and how to proceed.



Stormwater Enterprise Fund Overview. A Stormwater Enterprise Fund is similar to the funding mechanism for water and sewer utilities, in that it creates a fund and provides a **dedicated** and **stable** source to finance local stormwater management services by generating revenue through user fees. However, unlike water and sewer utilities where flow can be metered, stormwater runoff cannot be directly measured and therefore is typically estimated using **impervious area** as a surrogate measurement for flow. The relationship between increased impervious cover, degraded water quality and increased stormwater runoff is well established in scientific literature.

Because a stormwater fee is calculated based on impact on the drainage system and receiving waters, not property value or land use, this is considered a more **equitable** user fee. While impervious area is a common basis for generating stormwater fees, some communities have used other factors to determine fees dependent upon which stormwater program components generate the most costs. For example, the Equivalent Hydraulic Area method considers the combined impact of both impervious and pervious areas in generating runoff, with the impervious area charged at a much higher rate than the pervious area.

Other benefits of establishing a Stormwater Enterprise Fund include the following:

- Funds to manage stormwater are no longer needed from the General Fund, which are based on property values (assessments).
- Tax-exempt properties (such as schools, churches, medical facilities) that do not contribute to the General Fund pay towards the Town's costs of managing stormwater.
- Credits to user fee charges encourage positive change, including permit compliance, implementation of stormwater retrofits and Green Infrastructure to improve the watershed.
- Utilities provide transparency and accountability, since the budget is based on services provided.

Municipalities across the country are electing to establish Stormwater Enterprise Funds to provide stable and dedicated funding for their stormwater management programs. Additional drivers include insufficient funding for desired level of service; increased regulatory mandates; flooding problems; aging infrastructure; and addressing drought and water supply protection.

Impervious Area

Land cover where rainfall cannot penetrate easily, such as pavement and roof tops, is called *impervious cover*. As stormwater cannot be directly measured, impervious area is a surrogate measurement for flow.



Image: U.S. EPA



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Massachusetts General Law specifically enables municipalities to create a stormwater utility. The first Stormwater Enterprise Fund in New England was adopted by Chicopee in 1998. Since then, the list has grown to more than twenty utilities and counting across New England. In Massachusetts, communities including Newton, Reading, Fall River, Northampton, Chelmsford, and Milton have adopted stormwater utilities. Each municipality had a unique reason for adopting a stormwater fee and customized their structure to equitably address community-specific stormwater goals and challenges. Lexington can look to these cities and towns for lessons learned.



Lexington's Stormwater Program. Lexington is known throughout Massachusetts as a leader in stormwater management. Since 2003, Lexington's stormwater discharges have been regulated under the Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) Small Municipal Separate Storm Sewer System (MS4) General Permit. EPA published the Final 2016 Small MS4 General Permit in Massachusetts, which will replace the 2003 permit on July 1, 2018. The requirements in the 2016 Final General Permit that apply to Lexington are much more specific in terms of required program elements and schedule for compliance. Lexington has taken a proactive approach to meeting the 2016 requirements, and the Small MS4 program will require a sustained effort for the foreseeable future.

The Town's forward-thinking stormwater program strategically combines the Small MS4 program requirements with drainage system operation and maintenance and a town-wide stream management program. The stream management program is the result of a comprehensive planning effort to "develop a cohesive strategy for drainage rehabilitation and long-term stream maintenance that will enable the Town to maintain drainage and stream flow, reduce sedimentation, and enhance streambank stability, to address the flooding and environmental issues." There are three volumes of this plan for each of Lexington's major watersheds; the Shawsheen River, the Charles River, and the Mystic River.



Lexington's stormwater management program is managed within the DPW's Engineering Division under the direction of the Town Engineer. Currently, stormwater management tasks are carried out by various Town departments and volunteer boards, including the Public Works Department, Planning Department, Health Department, Building Department and the Conservation Commission. Town staff have been meeting existing stormwater obligations including catch basin cleaning, street sweeping, and as-needed drainage system maintenance and capital improvements. Town staff also train and supervise the Lexington Stream Team and regularly conduct public outreach and education. Public education and outreach has included presenting at elementary schools, posting stormwater program



information through various forums, and working with local groups like the Boy Scouts. The staff relies on engineering consultants and contractors when possible to augment program capabilities.

To ensure appropriate funding, current and future stormwater program costs must be examined and understood prior to establishing a stormwater utility. Tighe & Bond, with input from Town staff, has taken the initial step in compiling and reviewing the Town's program expenditures from the previous five years, and projecting future program costs for the next five years. The Town currently funds stormwater management activities through the General Fund. Specific activities are defined through development of annual operating budgets (e.g., catch basin cleaning and street sweeping are included in the Highway



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Department's operating budget). Costs also include staff time from various departments. Engineering budgets for current and future capital stormwater projects were used to identify the funding necessary for improving drainage performance and water quality.

The table to the right provides a comparison of current versus projected annual expenditures for Lexington's stormwater program. This is a 16% increase in the current program budget. Because Lexington is already meeting a high level of service, the anticipated increased future costs primarily account for additional staff time, materials, equipment, consulting, and contractors for improved drainage infrastructure assessment, proactive maintenance, and increased small MS4 program requirements, particularly within the Charles River watershed.

Description	Historic Expenditures (FY14-FY18 Average)	Projected Expenditures (FY19-FY23 Average)
Capital Costs	\$1,120,000	\$1,215,000
Operating Costs	\$904,000	\$1,139,000
Total Costs	\$2,024,000	\$2,354,000

Making the Case for a Dedicated Stormwater Fund. The most critical element in developing a successful Stormwater Enterprise Fund is by implementing a strong and thorough public education and outreach program. Developing a sustainable program sufficient to meet Lexington's goals for infrastructure performance and water resources management will have a significant cost, so a case must be clearly communicated to convince stakeholders and citizens to support the local stormwater program. There are many drivers for establishing a dedicated funding source for Lexington's stormwater management program, including:

- **Small MS4 Program Compliance.** Lexington is required to maintain compliance with the Small MS4 General Permit requirements; new and expanded requirements will take effect on July 1, 2018.
- **Protect Local Water Bodies – Water Quality.** The Town will also need to take measures to address **water bodies that are not meeting Clean Water Act's designated uses for fishing, swimming, and/or drinking due to water pollution** (known as "impaired waters"). Several of Lexington's water bodies are impaired for pollutants of concern such as bacteria, phosphorus, low dissolved oxygen, excess algal growth, sedimentation, and more. Most of these pollutants are directly associated with stormwater runoff. The most significant and costly water quality aspect of the Small MS4 General Permit will be the development and implementation of a Phosphorus Control Plan. The goal of this Plan is to reduce phosphorus in stormwater by 37% from the Town's portion of the Lower Charles River watershed.
- **Drainage System Operation & Maintenance.** The Town has an extensive drainage network of approximately 126 miles of drainage pipe and thousands of structures including manholes, catch basins, outfalls, and culverts. As is typically the case throughout New England, water and sewer infrastructure operation and maintenance take precedence over drainage system maintenance. Proactively addressing critical stormwater infrastructure needs before an emergency is more cost-effective, and installation of new infrastructure to detain/retain and treat runoff in the developed areas of Lexington will help address water quality challenges and protect public health and the environment.
- **Equitable Distribution of Costs.** A stormwater fee is usually considered the fairest way to share the cost of this public service. A stormwater fee is based on the property's contribution to stormwater program costs, whereas current stormwater funding through the General Fund is based on property taxes. There are more than a thousand tax-exempt parcels in Town that account for approximately



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16% of the Town’s total impervious cover; these parcels would be subject to a stormwater fee. The fee must allow for a credit system where customers may reduce their individual fee by making improvements to their property that reduce the Town’s stormwater obligations.

- **Sustainable Funding.** While Lexington has been able to fund the current stormwater program using tax funding, the implementation of a stormwater fee will allow the Town to consistently meet future revenue requirements without competing for allowances from the General Fund.
- **Need for Additional Staff Time.** Additional staff time will likely be needed to address the aforementioned needs for program administration, increased drainage system operation and maintenance, documentation of stormwater program milestones, and continued oversight of development and redevelopment projects.
- **Protect Local Water Bodies – Hydraulic Limitations.** *Old and deteriorated drainage and stream passage infrastructure and sediment buildup in Lexington’s waterbodies has reduced the capacity of the drainage system, causing flooding, and has negatively affected water quality and quantity, leading to poor stream health.*¹ Lexington developed stream management plans for the Town’s three major drainage basins. The Town has been allocating a capital improvement budget each year for more than five years to implement the prioritized recommendations in these plans. These capital improvements will improve water quality and restore urban drainage and stream function as well as provide ecological, economic, and public health benefits.

Funding Alternatives. The Town currently uses tax funding for stormwater management needs. This report presents two other funding alternatives; the Massachusetts Municipal Water Infrastructure Investment Fund (MWIIF) and a Stormwater Enterprise Fund. The table below presents a [Stormwater Funding Alternatives Comparison](#).

	Financial Sufficiency	Advantages	Disadvantages
Property Taxes	<ul style="list-style-type: none"> ■ Limited by Prop 2 ½ ■ FY18 Split Rate: Residential \$14.30 per \$1,000 Commercial / Industrial / Personal Property \$27.69 per \$1,000 	<ul style="list-style-type: none"> ■ Flexible funding ■ Existing mechanism ■ Simple to explain and administer 	<ul style="list-style-type: none"> ■ Does not provide fairest allocation of stormwater costs ■ Customers can’t mitigate stormwater costs
Municipal Water Infrastructure Investment Fund	<ul style="list-style-type: none"> ■ \$2.5 Million could be generated with a 1.5% surcharge with current tax rate and tax base (\$213 average single-family tax increase) 	<ul style="list-style-type: none"> ■ Town has used similar mechanism in CPA ■ Simple to explain and administer ■ Surcharge may be tax deductible 	<ul style="list-style-type: none"> ■ Does not provide fairest allocation of stormwater costs ■ Limited use of funds for “maintenance, improvements and investments to stormwater infrastructure assets” ■ Customers can’t mitigate stormwater costs
Stormwater Utility	<ul style="list-style-type: none"> ■ Rates can be set at a level that partially or fully funds program 	<ul style="list-style-type: none"> ■ Flexible funding ■ Fair: based on cost of service and demand ■ Customers can mitigate fees 	<ul style="list-style-type: none"> ■ More administratively intensive ■ Requires more effort to explain

¹ Woodard & Curran, Inc. *Town of Lexington Stream Management Plan for the Charles River Watershed*. April 2011.



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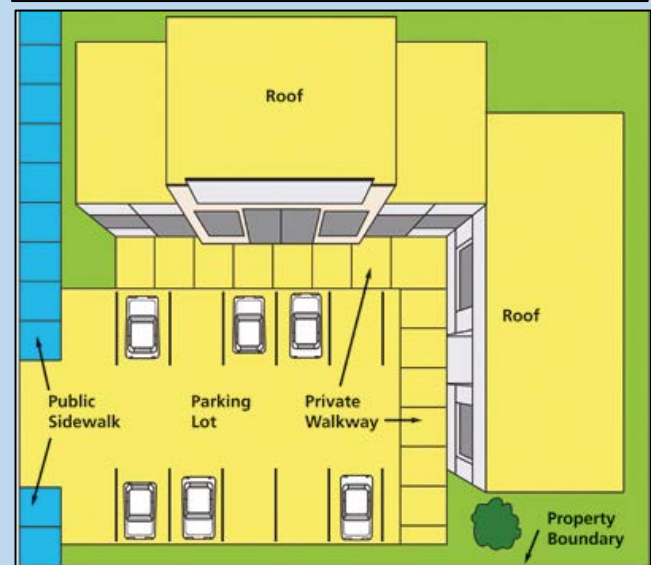
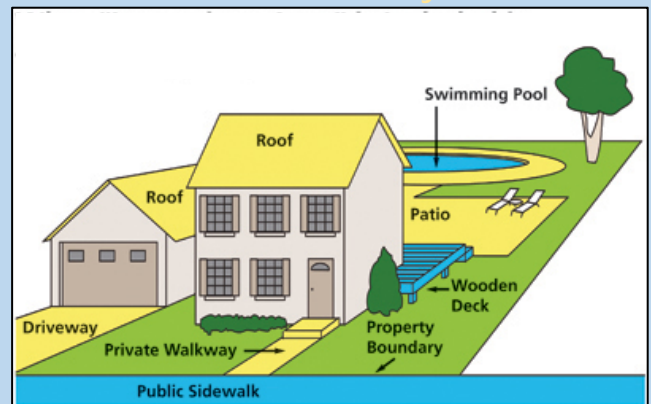
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The **Massachusetts Municipal Water Infrastructure Investment Fund** is a relatively new funding alternative created by August 2014 updates to Massachusetts General Law Chapter 259, titled "An Act Improving Drinking Water and Wastewater Infrastructure." Communities are now allowed to adopt this law and then impose a surcharge of not more than 3% of the tax levy against real property. This is similar to the Community Preservation Act (CPA) of 2000, which the Town adopted at the March 2006 Annual Town Election, but without matching State funding. Amounts generated by the surcharge are not subject to the levy limitations of Proposition 2½. The money collected must be deposited in a separate account called a Municipal Water Infrastructure Investment Fund, and expenditures must be used exclusively for maintenance, improvements, and investments to municipal drinking water, wastewater and stormwater infrastructure assets. Based on the Fiscal Year 2018 property taxes levied, a 1.5% real estate tax surcharge would be more than adequate to generate future stormwater program revenue. However, this Fund can only pay for planned capital expenditures, not the operational budget needed to administer the stormwater program day-to-day such as Town staff salaries, training programs, public outreach, and other Small MS4 Program compliance activities and reporting. Additionally, this Fund does not address the Town's concerns about an equitable revenue stream; this fund does not provide the fairest allocation of costs or a credit system.

A **Stormwater Enterprise Fund** is another option to generate long-term revenue to address stormwater-related operation and maintenance needs, fund capital projects, leverage additional funds (grants), and address regulatory requirements. A stormwater fee could generate sufficient revenue to support a stormwater program with the appropriate level of service. However, a stormwater fee may be costlier to administer than property taxes, especially in the beginning. In an Enterprise Fund, property owners will be billed based on the amount of pavement and rooftop (and other impervious surfaces) on their property. The amount of impervious surface acts as a surrogate measure of the amount of runoff generated from a property and is the most common way to bill for this volume. However, measure of impervious cover will likely need to be refined as the utility moves forward. The fee calculation and fee structure, including credits, will need to be thoroughly vetted

Equivalent Residential Unit (ERU) Analysis

An ERU is commonly used with a Graduated Fee to simplify system accounting and represents the median amount of impervious cover in a typical residential parcel. Using this value as a common denominator, an ERU equivalent is calculated for non-residential parcels by dividing the impervious area of each parcel by the residential value. This is a common method of establishing a stormwater fee structure as it is easily understood by most ratepayers. For example, if a non-residential property has five times more impervious cover than the typical single family residential property, they would have five times the ERU and would pay five times the fee charged a typical single family residential property. The illustrations below compare residential and non-residential impervious cover related to a stormwater fee in yellow.



Images: Montgomery County, MD WQPC Rates and Calculation.
<https://www.montgomerycountymd.gov/water/wqpc/rates.html>



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through an iterative process and testing of multiple scenarios. Some considerations in determining the rate structure include:

- **Fee Structure Options.** There are a variety of fee structures in use for the stormwater utilities established in Massachusetts, and there are nearly endless ways to customize Lexington's fee structure with the goal of assessing a fair fee related to cost drivers. Early input from stakeholders indicates that it will be important to use a **Proportional Fee** to the maximum extent practical. This is considered the most equitable because the impervious area for each property is measured and a rate per impervious area is applied. An alternative to consider integrating into the fee structure is a **Graduated Fee**, where properties of similar characteristics and imperviousness are assigned to categories that are all charged the same fee. Fees can be further refined based on **Intensity of Development**, which can be used as a weighting factor in addition to impervious area. Each rate structure has trade-offs for perceived equity of the fee as well as administrative needs associated with fee calculations, billing, and ongoing data management.
- **Stormwater Credits.** A credit system is a legally-required component of a fee rate structure because it offers property owners an opportunity to lower their Stormwater Enterprise Fund fees if they make site improvements that reduce stormwater impacts from their property. Some utilities choose to give other types of discounts, such as a reduced rate for elderly or low-income residents or credits for protected land (such as agricultural land, forest land, or open space).

Conclusions & Next Steps. This report is a first step by the Town to consider a Stormwater Enterprise Fund to fund the evolving stormwater program, to operate and maintain the Town's drainage infrastructure to meet the needs of residents and property owners, and to protect public health and the environment. However, gaining public support and completing the necessary financial and rate analysis for a utility can be time consuming and take numerous years. We recommend Lexington continues to implement a robust education and outreach campaign that includes elevating the general public's understanding of Lexington's stormwater program. We also recommend Lexington continues to seek input from local stakeholders and decisionmakers throughout the process of evaluating and adopting a funding mechanism. Education and outreach will be critically important throughout the process of developing and adopting a stormwater fee and it will need to continue after billing begins.

To continue moving forward with the Stormwater Enterprise Fund, the Town will need to complete the following steps:

- Establish, Define, and Organize the Structure of the Stormwater Enterprise Fund.
- Perform a Detailed Financial and Funding Analysis.
- Develop a Credit System.
- Develop and Analyze a Rate Structure.
- Establish a Billing and Database Management System.
- Adopt a Stormwater Enterprise Fund Bylaw.
- Implement the Stormwater Enterprise Fund.

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