



Uxbridge– DIMS Study

Does it Make Sense? Stormwater Study

September 11, 2017



Introduction

- “Does it Make Sense” Stormwater Study
- Overview of Topics
 - Stormwater Overview
 - Regulatory Compliance
 - Current Stormwater Related Activities and Costs
 - Stormwater Utility Structure
 - Stormwater Utility Feasibility Discussion
 - Stakeholder Meeting
- Discussion

Stormwater Infrastructure

- Undeveloped watershed
 - ~ 50% of precipitation infiltrates ground soils
 - ~ 40% taken up by vegetation or evaporation
 - ~ 10% surface runoff
- As watershed is developed
 - Amount of impervious area increases
 - Increased surface runoff
- Town owned stormwater management system
 - Catch basins (1673)
 - Collection system (pipes)
 - Manholes (761)
 - Culverts (167)
 - Outfalls



Regulatory Compliance

- Stormwater discharges regulated by EPA under the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Permit Program.
- Town issued a General Permit for SW discharges for Small Municipal Separate Storm Sewer Systems (MS4) in May 2003
- 2016 MS4 effective date delayed until July 2018

MA MS4 General Permit

United States Environmental Protection Agency (EPA)
National Pollutant Discharge Elimination System (NPDES)

GENERAL PERMITS FOR STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
IN MASSACHUSETTS

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act (CWA), as amended (33 U.S.C. §1251 *et seq.*), and the Massachusetts Clean Waters Act, as amended (M.G.L. Chap.21 §§ 26-53), any operator of a small municipal separate storm sewer system whose system:

- Is located in the areas described in part 1.1;
- Is eligible for coverage under part 1.2 and part 1.9; and
- Submits a complete and accurate Notice of Intent in accordance with part 1.7 of this permit and EPA issues a written authorization

is authorized to discharge in accordance with the conditions and the requirements set forth herein.

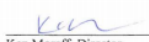
The following appendices are also included as part of these permits:

Appendix A – Definitions, Abbreviations, and Acronyms;
Appendix B – Standard permit conditions applicable to all authorized discharges;
Appendix C – Endangered Species Act Eligibility Guidance;
Appendix D – National Historic Preservation Act Eligibility Guidance;
Appendix E – Information required for the Notice of Intent (NOI);
Appendix F – Requirements for MA Small MS4s Subject to Approved TMDLs;
Appendix G – Impaired Waters Monitoring Parameter Requirements;
Appendix H – Requirements related to discharges to certain water quality limited waterbodies;

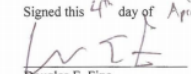
These permits become effective on **July 1, 2017**.

These permits and the authorization to discharge expire at midnight, **June 30, 2022**.

Signed this 4th day of April 2016

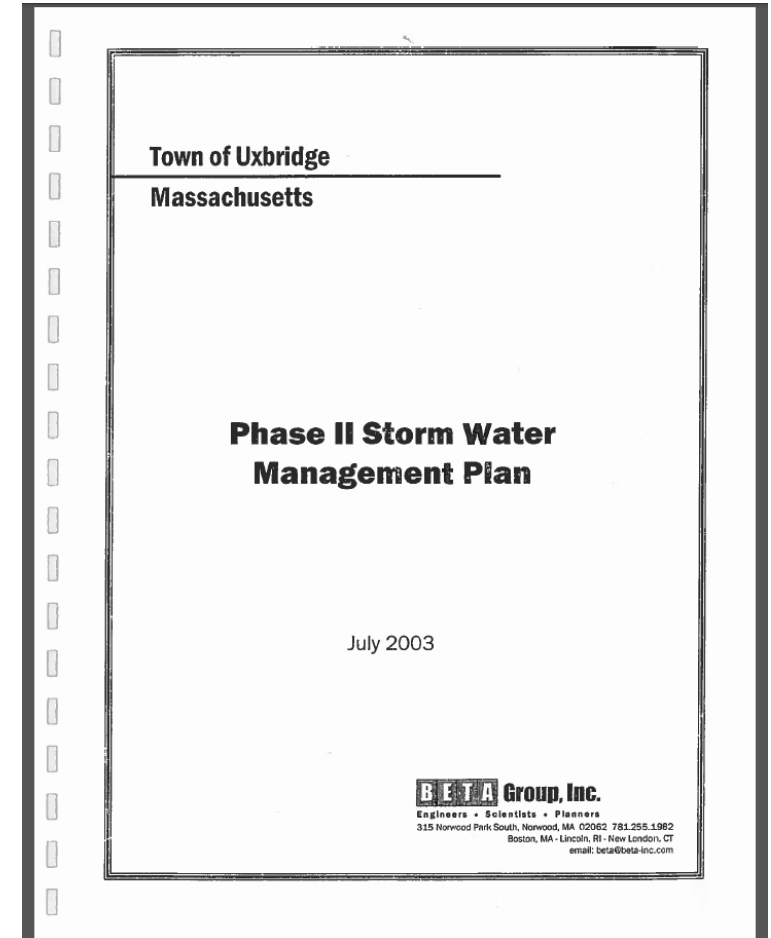

Ken Moraff, Director
Office of Ecosystem Protection
United States Environmental Protection Agency
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Signed this 4th day of April 2016


Douglas E. Fine
Assistant Commissioner for Water
Resources
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

MS4 Permit Requirements

- Town required to develop Stormwater Management Plan to outline how it will meet Permit requirements (2003)
- Town required to submit annual report outlining how they are meeting 6 Permit requirements
- Non-compliance with any permit requirements constitutes a violation of the Permit and Clean Water Act
 - Grounds for enforcement actions, injunctive relief and/or penalties



MS4 Permit Requirements

Permit Requirement	Example Best Management Practice (BMP)
Public Education and Outreach	Material from EPA, BRWA, and DEP distributed to public school.
Public Involvement and Participation	Earth Day stream cleanup and monitoring events
Illicit Discharge, Detection and Elimination	Following up on calls received from residents reporting illegal dumping activities
Construction Site SW Runoff Control	Conduct construction inspections
Post-Construction Site SW Runoff Control	Inspection of Town maintained structural BMPs biannually
Pollution Prevention and Good Housekeeping in Municipal Operations	Cleaning catch basins (1673) and sweeping streets (200 curb miles)

Current Stormwater Related Activities & Costs

- Current costs estimated using 2015 Master Stormwater Program Cost Spreadsheet
 - Developed by Central Massachusetts Regional Stormwater Coalition
- Current estimated annual cost - \$237,000
- Budget supported by General Fund
 - Reliability of funding varies from year to year
 - Multiple Town Expenses compete for General Fund funding (including schools and public safety)
- Costs anticipated to increase when new MS4 permit becomes effective
 - Future funding needs should be determined once permit challenges have been settled.

What is a Stormwater Utility?

- Similar to a water or wastewater utility (permitted services in Town)
- Funds collected are dedicated to addressing stormwater issues
- Rates based on use of the stormwater system
 - Use typically determined by impervious area (ie. sidewalks, driveways, pavement)
- Develop system that is:
 - Sufficient to cover costs
 - Stable / dependable from year-to-year
 - Legal and defensible
 - Easy to understand and implement
 - Fair to Uxbridge's residents

Stormwater Utility structure

- Stormwater user fees assessed based on a predetermined rate structure (developed by community)
- Most common approach is to develop a rate structure based on the amount of impervious area that a customer maintains
- Average quantity of impervious area for a single family residential property is calculated to define an equivalent residential unit (ERU)
- ERU used as a unit of measure for assessing fees

Massachusetts Communities with SW Utilities

- Northampton (2014)
- Reading (2006)
- Newton (2006)
- Fall River (2008)
- Westfield (2010)
- Chicopee (1998)
- Milton (2016)

Rate Modifiers

- Charges or credits applied to rates to account for special circumstances:
- Examples:
 - **Base fee** – added to bills to assist in covering fixed costs associated with utility operations, billing, etc.
 - **Senior/Disabled Discount** – may be provided to individuals determined to be disproportionately impacted by a new user fee, such as elderly or disabled individuals.
 - **Water Volume Reduction Credit** – granted to system users with onsite stormwater management controls that reduce the volume and/or velocity of stormwater leaving the parcel.
 - **Water Quality Improvement Credit** – granted to system users with on-site treatment controls that reduce the concentration and/or load of specific pollutants of concern in stormwater leaving the parcel.

Billing Approaches

- **Water/Sewer Billing** – separate stormwater bill would need to be developed for parcels with impervious area but no water or sewer service.
- **Property Tax Billing** – tax exempt properties would require stand-alone stormwater bill.
- **Standalone Stormwater Bill**

Rate Example

- Calculations based on MassDEP Impervious Area Statistics for Uxbridge
- Median impervious cover for all single family parcels calculated as approximately 8,300 square feet



Stormwater Utility Rate Example

- If Town decides to proceed with the formation of a stormwater utility:
 - Establish a Town specific rate methodology
 - Establish which land use types will be included in utility
 - Establish rate modifiers

	Example Program
Example Required Utility Revenue	\$390,000
ERU	8,300 square feet
Total ERU's in Utility	9,504
Estimated Monthly Stormwater Utility Fee (per ERU)	\$3.42
Estimated Annual Stormwater Utility Fee (per ERU)	\$41.04
Notes:	
1. Costs above are for example purposes only.	

Stakeholder Meeting

- Stakeholder meeting held on June 8, 2017
- Topics reviewed:
 - Concept of implementing a stormwater utility
 - Requirements for a successful program
 - Potential funding options
- Group indicated that the Town should consider exploring the feasibility of implementing a stormwater utility to fund the requirements of its existing and upcoming MS4 permit.

Next Steps

Initiate a Stormwater Utility Feasibility Study:

- Form a broader stakeholder group including:
 - Members of the Uxbridge Stormwater Committee
 - Residents
 - Businesses
 - Environmental Groups
- Implement public outreach component
- Develop stormwater utility framework (organization structure, rate policies and procedures)
- Develop methodology to establish rates based on a financial and funding analysis
- Develop billing policies and procedures



Prepare and adopt rules of the stormwater utility.



Implement stormwater utility.



Explore other options for funding MS4 permit requirements.

Questions



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Stormwater Utility Feasibility Discussion

- Discussion of whether the concept of a Stormwater Utility should be pursued further for the Town of Uxbridge
- Discussion of Disadvantages and Advantages

Disadvantages

- Potentially high administrative costs
- Potential negative perception

Advantages

- Dedicated, stable source of funding
- Reliable source of funding enables more credible long-term planning
- Equitable: increased system use results in an increased fee
- Provides economic incentive to reduce the amount / improve the quality of stormwater generated by a property
- Provide more control to avoid penalties and fines resulting from non-compliance

Stormwater Pollutants, Sources and Impacts

Pollutant	Sources	Impacts
Nutrients (nitrogen, phosphorus)	Fertilizer, wastewater effluent (septic systems), agricultural and pet waste and sediments (erosion and scour)	Cause algal blooms in lakes, bays and ponds; reduced dissolved oxygen levels
Sediments (sand, silt)	Soil erosion, road sand	Transport contaminants to receiving waters; reduce water clarity; impact aquatic habitat
Pathogens (virus, bacteria, etc)	Agricultural and pet waste, wastewater effluent (septic systems)	Degrades drinking water, fish and shellfish consumption, recreation
Toxics (heavy metals, polycyclic aromatic hydrocarbons, volatile organics)	Petroleum products, paints, solvents, herbicides, pesticides, and other household commercial and industrial products	Poisonous to living organisms, persistent in the environment
Chlorides (salts)	De-icing salts, water softeners	Impacts plants and animals in freshwater aquatic systems
Temperatures	Heated water from manufacturing process water or runoff from warm surfaces such as parking lots	Reduces dissolved oxygen, affects fish and other aquatic organisms

Total ERU's by Land Classification

Land Use Classification	Equivalent Residential Units (ERUs)
Single Family Residential	3,296
Other Residential	654
Non-Residential	5,554
Total	9,504