

*NPDES Phase II  
Five-Year Municipal  
Stormwater Management Plan*

Grafton, Massachusetts

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# NPDES Phase II Stormwater Management Plan

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## Introduction

The Town of Grafton, Massachusetts has contracted Vanasse Hangen Brustlin, Inc. (VHB) to assist in the preparation of a Stormwater Management Plan (SWMP) to achieve compliance with the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II regulations. These regulations are designed to reduce and eliminate potential stormwater pollutants from small Municipal Separate Storm Sewer Systems (MS4s). A municipal separate storm sewer is defined as a conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains.

Grafton is a growing suburban town six miles southeast of Worcester and 30 miles west of Boston, with a population of approximately 15,000. Grafton has diverse land uses ranging from farming, forest, residential to commercial. It is bordered by Upton and Westborough to the east and northeast, Shrewsbury to the north, Worcester to the northwest, Millbury to the west, Sutton to the southwest, and Northbridge to the south. See Figure 1 for a site location map. Grafton has been designated by the EPA as a regulated municipality due its portions of urbanized areas as defined by 2000 U.S. Census data. See Figure 2 for the urbanized area map.

Grafton covers about 23 square miles in southeastern Worcester County. Two major watersheds lie within town. The Blackstone River basin drains most of the town, with a small portion in the Northeast Corner draining to the Assabet River. The Town's major bodies of water are listed in Table 1.

**Table 1: Major Bodies of Water in Grafton**

<b>Name</b>	<b>Location</b>	<b>Basin</b>
Cider Mill Pond	Grafton	Blackstone
Fisherville Pond	Grafton	Blackstone
Flint Pond	Shrewsbury, Grafton, Worcester	Blackstone
Hayes Pond	Grafton	Blackstone
Hovey Pond	Grafton	Blackstone
Lake Ripple	Grafton	Blackstone
Pratts Pond	Grafton	Blackstone
Silver Lake	Grafton	Blackstone
Windle Pond	Grafton, Shrewsbury	Blackstone
Blackstone River	Grafton	Blackstone
Quinsigamond River	Grafton	Blackstone

Lake Ripple, the Blackstone River and Hayes Pond are listed as Category 5 impaired waters by the State, and will continue to be the focus of the Town's water resource restoration efforts. These ponds all suffer to some degree from the effects of urbanization. Further discussion of these three waterbodies is included in the "Discharges to Water Quality Impaired Waters" section later in this report.

Flint Pond, connected with Lake Quinsigamond in Worcester and Shrewsbury, currently has an approved Total Maximum Daily Load (TMDL) allocation. Flint Pond will be another focus of the Town's continued water resource restoration efforts. The TMDL study, along with measures to meet the loading criteria, is also discussed later in this report.

Stormwater from the Town's drainage systems is discharged to all waterbodies listed in Table 1. In addition to discharges from the municipal system, discharges from Massachusetts Highway Department Roads also enter the Town's receiving waters or drainage systems.

Grafton's sewage is disposed via septic systems for half of the Town and via piped sewer systems to a municipal wastewater treatment plant for the remainder.

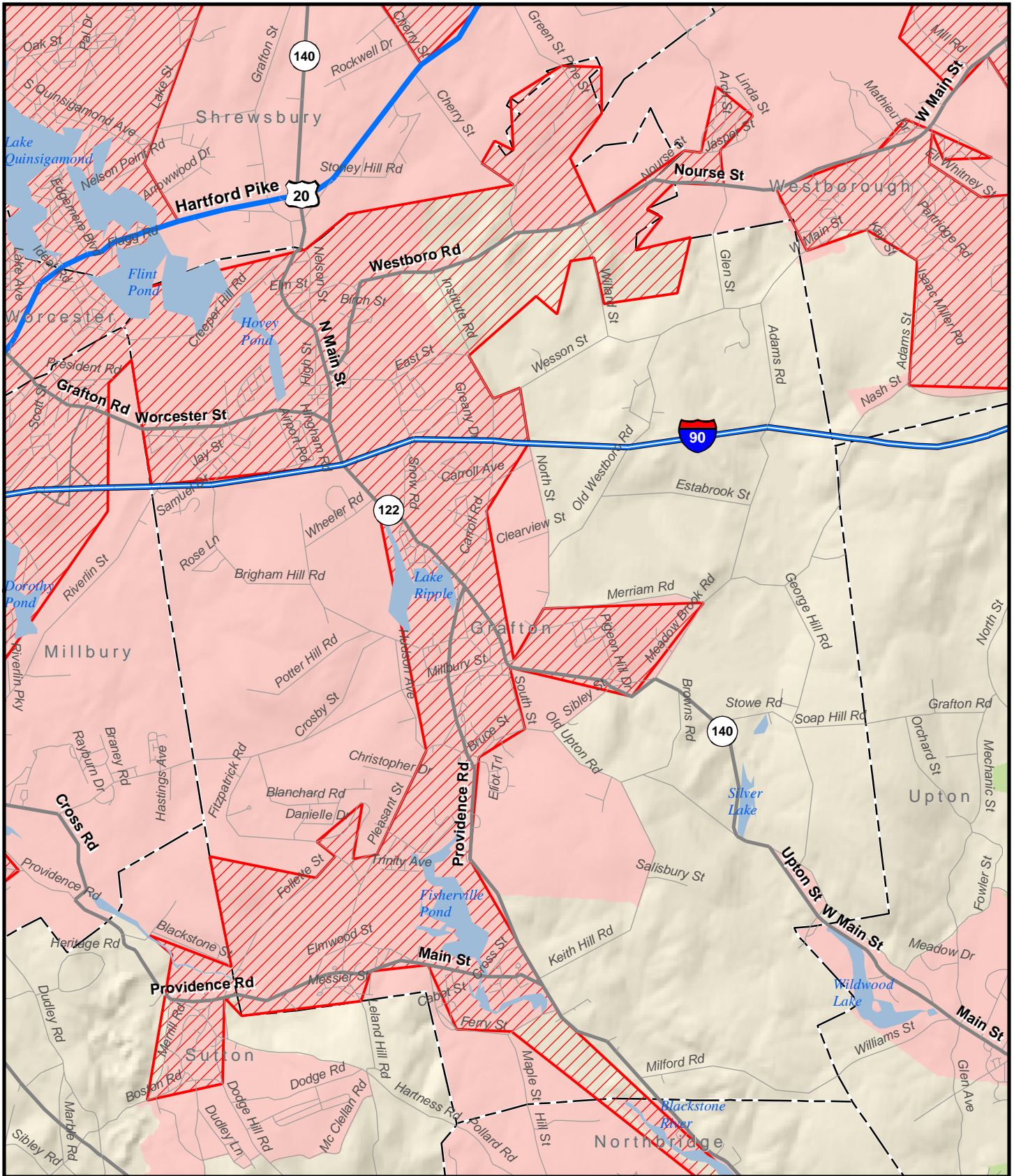
Grafton has two water districts that operate independently of each other – the Grafton Water District (GWD) and the South Grafton Water District (SGWD). The Town receives its drinking water mainly from wells within the Town.

Grafton is a growing suburb facing rapid rates of residential and commercial development. The stormwater management improvements outlined in the report will coincide with the goals of the Town as stated in the 2001 Comprehensive Plan. The Town is committed to preserving and enhancing Grafton's water resources, land resources, recreation and conservation areas.

**FIGURE 1: SITE LOCATION MAP**









# Urbanized Area

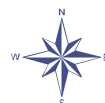
MA - Grafton

## Legend

-  1990 Urban Area  
Source: ESRI, U.S. Census 1990
-  2000 Urban Area \ Urban Cluster  
Source: U.S. Census 2000



Nov. 15, 2002





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## EPA NPDES Stormwater Phase II Regulations

In 1999, the EPA promulgated the NPDES Stormwater Phase II regulations (Final Rule 40 CFR Parts 122, 123, 124 December 8, 1999). Under these regulations, municipal separate storm sewer systems (MS4s) in urbanized areas, as determined by US census data, must develop a stormwater management program that will, to the “maximum extent practicable,” prevent harmful pollutants from entering receiving water bodies. These regulations require municipalities to prepare and implement Stormwater Management Programs that comply with six minimum control measures defined by the EPA. The six minimum control measures that each community must implement are:

1. Public Education and Outreach
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The NPDES Phase II regulations require a schedule for implementing each of these six minimum measures over the initial five-year term of the permit. The plan must also identify measurable goals for each BMP, in the form of a narrative or numeric standard. The program is to be described in a Stormwater Management Plan (SWMP) that the municipality can implement along with public support. According to the 1999 Rule, municipalities must submit their plan to the EPA by March 10, 2003.

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## Project Overview

The first step in the development of the SWMP was to educate the responsible parties in the municipality. VHB developed and provided to Grafton a NPDES Stormwater Phase II reference binder, which included a variety of training and resource materials such as: EPA Phase II Fact Sheets; March 2000 EPA Stormwater Phase II Compliance Assistance Guide; Printouts of slide presentations for each of the six minimum control measures presented during meetings; Stormwater BMP Menu information; List of valuable internet sites for reference material; and VHB-designed matrices for developing the framework for a 5-year compliance plan. Town of Grafton representatives met with VHB to discuss existing practices and determine what new practices would be required to achieve compliance. The resulting SWMP outline (included in Appendix A) is shown in a matrix detailing each measure, program and party responsible for implementation, and schedule. The Town’s existing programs are also included in this outline. Table 2 summarizes the major categories of programs Grafton will implement. Some of these programs will be further broken down into more specific Best Management Practices to be determined during the planning process of the five-year permit cycle.

**Table 2: Program Summary**

<b>Measure</b>	<b>Program</b>
1. Public Education	<ul style="list-style-type: none"><li>a) Stormwater Flyer for Community Residents</li><li>b) Stormwater Lesson Plan for Fifth Grade Students</li><li>c) Stormwater Flyer for Community Businesses</li><li>d) Stormwater Media Campaign</li><li>e) Stormwater Video</li><li>f) Grafton-Specific Stormwater Flyers</li><li>g) Business Education: Coordinate with Local Businesses and Landscapers</li><li>h) Agricultural Education: Flyer for Good Stormwater Practices in Agriculture</li><li>i) Education via the Media: Newspaper Articles</li><li>j) Education via the Internet: Stormwater Information on Town's Website</li></ul>
2. Public Involvement	<ul style="list-style-type: none"><li>a) Stormwater Traveling Display</li><li>b) Stormwater Poster Contest for Fifth Grade Students</li><li>c) Stormwater Photo Contest for High School Students</li><li>d) Stormwater Summit Special Event</li><li>e) Stormwater Super Summit and Evaluate/Assess Public Awareness of Stormwater</li><li>f) Annual Public Meeting/Hearing Regarding Plan Status and Reports to EPA</li><li>g) Watershed Group Involvement</li><li>h) Involve Grafton Children's Groups (such as 4H, Scouts)</li></ul>
3. Illicit Discharge Detection	<ul style="list-style-type: none"><li>a) Illicit Discharge Bylaw / Regulatory Mechanism</li><li>b) Storm Drain Map</li><li>c) Illicit Discharge Detection and Elimination Plan</li><li>d) Illicit Discharge Education for General Public &amp; Businesses</li><li>e) Illicit Discharge Education for Municipal Employees</li></ul>
4. Construction Site Runoff Controls	<ul style="list-style-type: none"><li>a) Construction Site Runoff Bylaw / Regulatory Mechanism</li><li>b) BMPs for Construction Site Erosion, Sediment, and Waste Controls</li><li>c) Construction Site Plan Review Procedures</li><li>d) Construction Site Inspection and Enforcement Procedures</li><li>e) Response to Public - "Stormwater Hotline"</li></ul>
5. Post-Construction Runoff Controls	<ul style="list-style-type: none"><li>a) Post-Construction Site Runoff Bylaw / Regulatory Mechanism</li><li>b) Choose Structural and Non-Structural BMPs</li><li>c) Long-Term BMP Operation and Maintenance Procedures</li><li>d) Structural BMP Implementation Procedures</li></ul>
6. Good Housekeeping	<ul style="list-style-type: none"><li>a) Employee Training to Prevent/Reduce Stormwater Pollution</li><li>b) Maintenance/Inspection of Storm Sewers and Structural/Non-Structural Controls</li><li>c) Pollutant Source Reduction/Elimination from Municipal Facilities &amp; Activities</li><li>d) Waste Disposal Procedures from Storm Drains &amp; Municipal Facilities/Activities</li></ul>

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## Measure 1: Public Education and Outreach

The intent of Measure 1 is to educate residents and businesses about stormwater pollution prevention. Municipalities must, at a minimum, implement a public education and outreach program to distribute educational materials to the community. The program will provide information concerning the impact of storm water discharges on water bodies. The program will also address steps and/or activities that the public can take to reduce the pollutants in storm water runoff.

The Town of Grafton has signed on with the SuAsCo Watershed Community Council to assist in compliance with the Public Education measure. Although Grafton is only partly within the watershed, the programs will be tailored for the entire Town. The Town will implement the following practices to meet the requirements of Measure 1:

### A) Stormwater Flyer for Community Residents

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The stormwater flyer will cover topics such as pesticide and herbicide use in lawns and gardens, water conservation practices, pet waste management, trash management, car washing, and proper disposal of household hazardous wastes including motor oil. The flyer will include a storm water awareness survey that citizens can tear-off and submit to the municipality for compilation.

**Measurable Goals:** Year 1: Flyer distributed to a minimum of 75% of residents; Compile and consider municipal and multi-watershed-wide "survey" results

### B) Stormwater Lesson Plan for Fifth Grade Students

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The lesson plan will be a self-explanatory, easy to teach, stand-alone lesson plan that can be readily fit into the curriculum, consisting of a few simple teaching exercises and worksheets. It will cover: what is a watershed, what is storm water, why storm water is a concern, what students can do to lessen their impacts on storm water, and a reminder of the poster contest.

**Measurable Goals:** Year 2: Develop and distribute lesson plan to implement at grade 5 level; Lesson plan is taught in one or more grade 5 classrooms in the community

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**C) Storm water Flyer for Community Businesses**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The storm water flyer will explain what storm water is and will frame storm water concerns from a watershed perspective. The flyer will discuss potential impacts by businesses on storm water quality and flow. The flyer will include a self-test for businesses to grade their own storm water “compliance”. Businesses that deem themselves “storm water aware and participatory”, will be given a decal sticker of the storm water logo to display.

**Measurable Goals:** *Year 3: Flyer distributed to a minimum of 50% of businesses in municipality; Number of Stormwater Logos displayed by businesses reported*

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**D) Stormwater Media Campaign**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The Storm Water Media Campaign will engage local news media (newspapers, radio stations, and cable stations) in raising public awareness about storm water. Media information packets and periodic press releases will be developed for use in the “campaign”. The media information packet will explain general storm water issues and impacts, the NPDES Storm Water Phase II program, and the municipality’s and the SuAsCo WCC’s role in storm water management.

**Measurable Goals:** *Year 4: Media Information Packet Delivered to the Local Media; 4 press releases generated and issued to local media and major media outlets*

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**E) Stormwater Video**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** A high-quality video about storm water will be shown to the general public at local meetings and through local cable stations. In a user-friendly and engaging manner, the video will explain what storm water is and will address how citizens can help improve storm water quality and flow.

**Measurable Goals:** *Year 5: Show stormwater video at a minimum of one public meeting; Air stormwater video at least once on local cable station*

**F) Grafton-Specific Stormwater Flyers**

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**Responsible Party:** Water Department  
**Status:** Expanded Program  
**Description:** Building upon existing available educational material, the Town will distribute flyers with information specific to stormwater and watershed management in Grafton. These flyers will address residents and businesses, and will target pollutants that are harming local waterbodies (such as nutrients). The topics may include fertilizer, proper lawn and garden care, car washing and pesticides.  
**Measurable Goals:** *Year 1,3: Distribute Grafton-Specific Brochure along with SuAsCo Brochures*

**G) Business Education: Coordinate with Local Businesses and Landscapers**

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**Responsible Party:** Public Works Department  
**Status:** New Program  
**Description:** The Town will coordinate with local businesses and landscape contractors to target fertilizer use and other gardening practices. The Town will work with landscapers to use lower nutrient fertilizer, and will work with businesses to carry these products.  
**Measurable Goals:** *Year 3-5: Coordinate education, and the use and selling of slow-release fertilizers*

**H) Agricultural Education: Flyer for Good Stormwater Practices in Agriculture**

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**Responsible Party:** Public Works Department  
**Status:** New Program  
**Description:** The Town will develop and distribute an educational flyer to on proper stormwater practices for agricultural operations.  
**Measurable Goals:** *Year 3: Distribute Flyers to Agricultural Owners/Properties*

**I) Education via the Media: Newspaper Articles**

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**Responsible Party:** Public Works Department  
**Status:** New Program  
**Description:** The Town will coordinate the writing of articles in the local paper, focusing on stormwater management issues.  
**Measurable Goals:** *Year 2-5: Write At Least One Article in the Newspaper per year*

**J) Education via the Internet: Stormwater Information on Town's Website**

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**Responsible Party:** Public Works Department  
**Status:** New Program  
**Description:** The Town will provide stormwater links and Grafton-specific stormwater information on the web.  
**Measurable Goals:** *Year 2-4: Provide Links by Year 2; Provide more Grafton-Specific Information by Year 4*

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## Measure 2: Public Participation and Involvement

Measure 2 is similar to Measure 1 and serves to both involve the public and to encourage them to participate in stormwater management activities. The Town will provide opportunity for the public to participate in the development, implementation and review of the stormwater management program.

The Town of Grafton has signed on with the SuAsCo Watershed Community Council to assist in compliance with the Public Participation measure. Although Grafton is only partly within the watershed, the programs will be tailored for the entire Town. Grafton will implement the following practices to achieve compliance with Measure 2:

### A) Stormwater Traveling Display

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The Storm Water Traveling Display will be conveniently placed on a table in a visible and central location frequented by the general public. Extra storm water flyers will be posted with the display along with a collection box for the citizen storm water survey. The display will present practical ideas for how citizens can manage housekeeping practices so as to have a positive impact on storm water. Such practices may include pesticide and herbicide use on lawns and gardens, water conservation, pet waste management, trash management, car washing, and proper disposal of household hazardous wastes including motor oil.

**Measurable Goals:** *Year 1-5: Stormwater display circulates around the community for a minimum of 3 months; Stormwater display is posted at a minimum of 3 different public locations in the community; Stormwater display is also used in future permit years for posting in public places or stormwater events*

### B) Stormwater Poster Contest for Fifth Grade Students

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The Storm Water Poster Contest will engage fifth grade students in understanding storm water and creatively depicting their knowledge through a poster medium. The general public will also be involved in the poster contest through parent interaction with the students, the creation of a panel of judges, and display of the posters in public locations.

**Measurable Goals:** *Year 2: Poster contest is held and entries are received, judged and displayed*



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**C) Stormwater Photo Contest for High School Students**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The Storm Water Photo Contest will engage high school students in understanding storm water, its effect on water quality, and good storm water management strategies. The photo contest will challenge high school students to creatively depict their knowledge through a photographic medium. The general public will also be involved in the photo contest through parent interaction with the students, the creation of a panel of judges, and display of the photographs in a public location.

**Measurable Goals:** *Year 3: Photo contest is held and entries are received, judged and displayed*

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**D) Stormwater Summit Special Event**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** A "Storm Water Summit" will be held as a special event for the general public (residents and community businesses). The Storm Water Summit will show case the municipality's storm water program and progress. The agenda will include guest speakers on topics such as the municipality's storm water program and good housekeeping practices that citizens and businesses can employ to reduce the pollutants in and volume of storm water. The summit may also be used as a forum to seek input on new or proposed bylaws that address pre- and post-construction site runoff. The summit will also provide citizens with an opportunity to raise concerns about storm water situations in their own neighborhoods. The poster contest and photo contest entries, as well as the traveling display, may be exhibited at the summit.

**Measurable Goals:** *Year 4: Hold local or multi-community Stormwater Summit; Advertise to encourage Stormwater Summit community attendance*

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**E) SuAsCo Stormwater Super Summit, Evaluate/Assess Public Awareness of Stormwater**

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**Responsible Party:** SuAsCo & Public Works Department

**Status:** New Program

**Description:** The SuAsCo “Watershed-Wide Super Summit” will be held as part of the River Visions 2007 Forum. It will include speakers from agencies, businesses, and municipalities, providing a unique opportunity for communities to share information and exchange experiences about their storm water programs. The Evaluation and Assessment will provide municipal citizens with a storm water “self-test” through which they can “grade” their own storm water knowledge. The purpose of the self-test will be to see how widely received the storm water program activities have been over the past four years and to gauge the public’s familiarity with storm water concepts.

**Measurable Goals:** *Year 5: Municipal participation in the Stormwater Super Summit; Stormwater Self Test distributed to a minimum of 75% of residents; Compile and consider municipal and multi-watershed-wide "self test" results*

**F) Hold Annual Public Meeting/Hearing Regarding Plan Status and Reports to EPA**

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**Responsible Party:** Public Works Department

**Status:** New Program

**Description:** The Town will hold a public hearing/meeting every year prior to submission of the annual report to EPA, to inform the public of the Town’s stormwater management programs and to allow input from all interested citizens, businesses, and government entities.

**Measurable Goals:** *Year 1-5: Hold Public Hearing by February of each year*

**G) Watershed Group Involvement**

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**Responsible Party:** Public Works Department & Local Groups

**Status:** Existing Program

**Description:** Watershed groups within Grafton and the region, such as the Blackstone River Watershed Association, the Blackstone Headwaters Team and the Grafton High school Environmental Science class, are very active and regularly coordinate events such as cleanups and monitoring.

**Measurable Goals:** *Year 1-5: Continue the ongoing activities of local watershed groups, such as cleanups and monitoring*

**H) Involve Grafton Children’s Groups (such as 4H, Scouts)**

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**Responsible Party:** Public Works Department

**Status:** New Program

**Description:** The Town will coordinate with local children’s groups to involve them with volunteer events, or to help the Town distribute or display stormwater educational materials.

**Measurable Goals:** *Year 2-5: Children's Groups at least once per year help distribute or display educational information*

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## Measure 3: Illicit Discharge Detection and Elimination

Measure 3 requires municipalities to develop, implement and enforce a program to detect and eliminate illicit discharges. An illicit discharge is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater. The municipality will address the following categories of non-storm water discharges or flows only if they are identified as significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. Discharges or flows from fire fighting activities are generally allowed and need only be addressed where they are identified as significant sources of pollutants. Grafton will implement the following practices to meet the requirements of Measure 3:

### A) Illicit Discharge Bylaw / Regulatory Mechanism

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**Responsible Party:** Public Works Department

**Status:** Expanded Program

**Description:** The Town will prohibit through a bylaw, or other regulatory mechanism, non-storm water discharges into the storm sewer system, including implementing appropriate enforcement procedures and actions.

**Measurable Goals:** *Year 1: Initial discussions; Review current local/state regulations; Review proposed samples.*  
*Year 2: Develop draft bylaw; Involve & educate public, municipal officials, developers, contractors.*  
*Year 3: Float new bylaw as Guidance; One year of comment period.*  
*Year 4: Public Hearing on Bylaw; Attempt to pass bylaw; Revise bylaw if it does not pass.*  
*Year 5: Final attempt to pass bylaw.*

### B) Storm Drain Map

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**Responsible Party:** Public Works Department

**Status:** Expanded Program

**Description:** The town will develop a storm drain system map, showing the location of outfalls and the names and location of waters that receive discharges from those outfalls.

**Measurable Goals:** *Year 1: Compile existing record plans and surveyed data*  
*Year 1-5: Find, GPS survey, and map outfalls and waterbodies in urbanized area(at least 20% each year)*

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**C) Illicit Discharge Detection and Elimination Plan**

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**Responsible Party:** Public Works Department  
**Status:** Expanded Program  
**Description:** The Town will develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to the municipal system. In addressing priority areas, the Town will consider older areas of the Town, areas of high public complaints, areas of high recreational value or high environmental value such as beaches and drinking water sources, and areas listed as impaired.

**New Programs to Consider:** Address detecting and eliminating septic system failures;

**Measurable Goals:** *Year 1: Determine Priority Areas and Discuss Plan*  
*Year 1-5: Visually Screen Outfalls During Dry Weather (at least 20% each year)*  
*Year 4-5: Trace the Source of the Illicit Discharge (50% by year 4, and 100% by 5)*  
*Year 4-5: Remove the Source of the Illicit Discharge (50% by year 4, and 100% by 5)*

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**D) Illicit Discharge Education for General Public & Businesses**

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**Responsible Party:** Public Works Department  
**Status:** Expanded Program  
**Description:** The Town will inform businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

**New Programs to Consider:** Homeowner education on septic system monitoring, repair, maintenance; Encourage "do not dump" catch basin castings for all new and redevelopment

**Measurable Goals:** *Year 1,3: Include illicit discharge education in the community, business, and Grafton-specific flyers*

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**E) Illicit Discharge Education for Municipal Employees**

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**Responsible Party:** Public Works Department  
**Status:** Expanded Program  
**Description:** The Town will inform public employees of hazards associated with illegal discharges and improper disposal of waste.

**Measurable Goals:** *Year 2-5: Include Illicit Discharge Education under Training under Measure 6*

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## Measure 4: Construction Site Runoff Control

Measure 4 requires that municipalities develop, implement, and enforce a program to reduce pollutants in any stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre. The municipality must also include disturbances less than one acre if part of a larger common plan. Grafton will implement the following practices to achieve compliance with Measure 4:

### A) Construction Site Runoff Bylaw / Regulatory Mechanism

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will develop and implement a bylaw or other regulatory mechanism to require erosion and sediment controls at construction sites, as well as sanctions to ensure compliance.

**Measurable Goals:** *Year 1: Initial discussions; Review current local/state regulations; Review proposed samples.*

*Year 2: Develop draft bylaw; Involve & educate public, municipal officials, developers, contractors.*

*Year 3: Float new bylaw as Guidance; One year of comment period.*

*Year 4: Public Hearing on Bylaw; Attempt to pass bylaw; Revise bylaw if it does not pass.*

*Year 5: Final attempt to pass bylaw.*

### B) BMPS for Construction Site Erosion, Sediment, and Waste Controls

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will develop and implement requirements for construction site operators to implement a sediment and erosion control program which includes BMPs that are appropriate for the conditions at the construction site, including efforts to minimize the area of land disturbance. The Town will also develop and implement requirements to control wastes, including but not limited to discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes.

**Measurable Goals:** *Year 1: Assess existing and brainstorm proposed*

*Year 2: Prepare draft, to include in draft bylaw*

*Year 3-5: Final, to include in bylaw. Revise as necessary.*

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**C) Construction Site Plan Review Procedures**

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**Responsible Party:** Public Works & Planning Departments  
**Status:** Expanded Program  
**Description:** The Town will develop and implement procedures for site plan review including procedures which incorporate consideration of potential water quality impacts. The site plan review will include procedures for preconstruction review.  
**New Programs to Consider:** Address disturbance amount, earth removal, triggers, and waivers for review process and requirements; Phased construction to limit amount of disturbance; Assess Long-term funding options for site plan reviews and inspections; Checklist for developers with requirements and recommendations;  
**Measurable Goals:** Year 1: Assess existing and brainstorm proposed  
Year 2: Prepare draft, to include in draft bylaw  
Year 3-5: Final, to include in bylaw. Revise as necessary.

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**D) Construction Site Inspection and Enforcement Procedures**

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**Responsible Party:** Public Works & Planning Departments  
**Status:** Expanded Program  
**Description:** The Town will develop and implement procedures for inspections and enforcement of control measures at construction sites.  
**Measurable Goals:** Year 1: Assess existing and brainstorm proposed  
Year 2: Prepare draft, to include in draft bylaw  
Year 3-5: Final, to include in bylaw. Revise as necessary.

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**E) Response to Public - "Stormwater Hotline"**

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**Responsible Party:** Public Works Department  
**Status:** New Program  
**Description:** The Town will develop and implement procedures for receipt and consideration of information submitted by the public. The Town will develop and implement a "Stormwater Hotline" for the public to call to report pollution such as erosion or illicit discharges, and to have questions answered regarding general stormwater management practices.  
**Measurable Goals:** Year 1: Assess and brainstorm procedures for "stormwater hotline"  
Year 2: Advertise and test hotline  
Year 3-5: Hotline fully implemented, with ongoing advertising

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## Measure 5: Post-Construction Runoff Control

Measure 5 requires that municipalities develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre and discharge into the municipal system. The program must include projects of less than one acre if the project is part of a larger common plan of development. Grafton will implement the following practices to achieve compliance with Measure 5:

### A) Post-Construction Site Runoff Bylaw / Regulatory Mechanism

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will develop and implement a bylaw or other regulatory mechanism to address post-construction runoff from new development and redevelopment.

**Measurable Goals:** *Year 1: Initial discussions; Review current local/state regulations; Review proposed samples.*  
*Year 2: Develop draft bylaw; Involve & educate public, municipal officials, developers, contractors.*  
*Year 3: Float new bylaw as Guidance; One year of comment period.*  
*Year 4: Public Hearing on Bylaw; Attempt to pass bylaw; Revise bylaw if it does not pass.*  
*Year 5: Initial discussions; Review current local/state regulations; Review proposed samples.*

### B) Choose Structural and Non-Structural BMPs

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will develop a list of recommended Best Management Practices (BMPs) that will include a combination of structural and/or non-structural practices appropriate for the community. The BMPs recommended will focus on minimizing water quality impacts and attempting to maintain pre-development runoff conditions. The BMP list will be responsive to changes, developments or improvements in control technologies, and will leave site-specific conditions as a large factor for determining which BMPs are implemented.

**New Programs to Consider:** Include public in selection process; Review and revise design standards for site and subdivision projects; Choose BMPs that relate to the Comprehensive Plan; Encourage "Do Not Dump" catch basin castings for all new and redevelopment;

**Measurable Goals:** Year 1: Assess existing, brainstorm proposed BMP recommendations  
Year 2: Prepare draft  
Year 3-5: Final, to be a working list of recommendations. Revise as necessary.

**C) Long-Term BMP Operation and Maintenance Procedures**

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will develop and implement procedures to ensure adequate long-term operation and maintenance of BMPs.

**Measurable Goals:** Year 1: Assess existing and brainstorm proposed  
Year 2: Prepare draft, to include in draft bylaw  
Year 3-5: Final, to include in bylaw. Revise as necessary.

**D) Structural BMP Implementation Procedures**

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**Responsible Party:** Public Works & Planning Departments

**Status:** Expanded Program

**Description:** The Town will ensure the appropriate implementation of structural BMPs by considering: Pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; Post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with design, construction or operation and maintenance.

**New Programs to Consider:** Address site and subdivision plan reviews; Address disturbance amount, earth removal, triggers, and waivers for review process and requirements; Assess Long-term funding options for site plan reviews and inspections; Checklist for developers with requirements and "encouraged" BMPs

**Measurable Goals:** Year 1: Assess existing and brainstorm proposed  
Year 2: Prepare draft, to include in draft bylaw  
Year 3-5: Final, to include in bylaw. Revise as necessary.



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## Measure 6: Pollution Prevention / Good Housekeeping for Municipal Operations

Measure 6 requires that municipalities develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Grafton will implement the following practices to achieve compliance with Measure 6:

### A) Employee Training to Prevent/Reduce Stormwater Pollution

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**Responsible Party:** Public Works Department  
**Status:** Expanded Program  
**Description:** The Town will develop and implement an employee training program to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.  
**New Programs to Consider:** Include illicit discharge training  
**Measurable Goals:** Year 1: Assess who, when, and what topics; Create schedule and checklist  
Year 2: Sample / test training  
Year 3-5: Fully implement training  
Year 4: Compile into Overall Municipal Operation and Maintenance Plan

### B) Maintenance/Inspection of Storm Drains and Structural / Non-Structural Controls

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**Responsible Party:** Public Works Department  
**Status:** Expanded Program  
**Description:** The Town will develop and implement maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from the separate storm sewers.  
**New Programs to Consider:** Prioritize maintenance and inspection programs based on local needs and sensitive areas; Maintenance schedules for detention basins, swales, and other structural BMPs besides catch basins; Coordinate with MassHighway regarding drainage from their systems.  
**Measurable Goals:** Year 1: Assess existing controls, maintenance activities, schedules, and long-term inspection procedures  
Year 2: Develop Draft New/Improved Activities, Schedules, and Procedures

*Year 3: Finalize Maintenance Activities and Schedules, and Long-Term Inspection Procedures*

*Year 4: Compile into Overall Municipal Operation and Maintenance Plan*

*Year 5: Fully Implement maintenance and inspection procedures*

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**C) Pollutant Source Reduction/Elimination from Municipal Facilities & Activities**

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**Responsible Party:** Public Works Department

**Status:** Expanded Program

**Description:** The Town will develop and implement controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by the Town, and waste transfer stations.

**New Programs to Consider:** Connect to sewer at DPW garage; Perform vehicle washing indoors; BMPs for fueling area at DPW yard; BMPs for sand pile at DPW yard; Prioritize programs based on local needs and sensitive areas; Encourage "Do Not Dump" catch basin castings for all new municipal catch basins or grates; Assess Flood Management Water Quality; Assess Pesticide and Fertilizer Operations; Address Measures to reduce snow and ice removal impacts;

**Measurable Goals:** *Year 1: Assess existing facilities, activities, & BMPs; Brainstorm improved/new BMPs*  
*Year 2: Develop Draft BMPs*  
*Year 3: Finalize BMPs*  
*Year 4: Compile into Overall Municipal Operation and Maintenance Plan*  
*Year 5: Fully Implement BMPs*

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**D) Waste Disposal Procedures from Storm Drains & Municipal Facilities/Activities**

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**Responsible Party:** Public Works Department

**Status:** Expanded Program

**Description:** The Town will develop and implement procedures for properly disposing of waste removed from the storm drains and areas listed above under part C (such as dredge spoil, accumulated sediments, floatables, and other debris)

**Measurable Goals:** *Year 1: Assess existing waste disposal procedures; Review MA guidelines; Brainstorm improved/new procedures.*  
*Year 2: Develop Draft Procedures*  
*Year 3: Finalize Procedures*  
*Year 4: Compile into Overall Municipal Operation and Maintenance Plan*  
*Year 5: Fully Implement waste disposal procedures*

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## Evaluation, Record Keeping, and Reporting

The following tasks apply to all aspects of the permit:

### **Evaluation and Assessment**

The Town will evaluate program compliance annually, the appropriateness of the identified best management practices, and progress towards achieving the identified measurable goals.

### **Record keeping**

The Town will keep records required by the NPDES permit for at least 3 years. The Town will submit records to the NPDES permitting authority only when specifically asked to do so. The records, including a description of the storm water management program, will be available to the public at reasonable times during regular business hours.

### **Annual Reporting**

The Town will submit annual reports to the NPDES permitting authority for the first permit term. For subsequent permit terms, the Town will submit reports in year two and four unless the NPDES permitting authority requires more frequent reports. The report will include:

- The status of compliance with permit conditions, an assessment of the appropriateness of the identified best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures
- Results of information collected and analyzed, including monitoring data, if any, during the reporting period
- A summary of the storm water activities to undertake during the next reporting cycle
- A change in any identified best management practices or measurable goals for any of the minimum control measures
- Notice that the Town is relying on another governmental entity to satisfy some of the permit obligations (if applicable).

## Discharges to Water Quality Impaired Waters

Four water bodies in Grafton have been identified as Category 5 impaired waters, or “Waters Requiring a TMDL”, as listed in the Massachusetts 2002 Integrated List of Waters, prepared by the Executive Office of Environmental Affairs. The locations are summarized in Table 3.

**Table 3: Water Quality Impaired Waters in Grafton**

<b>Name</b>	<b>Description</b>	<b>Pollutants of Concern</b>
Hayes Pond	Grafton	noxious aquatic plants, exotic species
Lake Ripple	Grafton	noxious aquatic plants, exotic species
Blackstone River	Fisherville Dam, Grafton to outlet Rice City Pond, Uxbridge	unknown toxicity, priority organics, metals, nutrients, organic enrichment/low DO, flow alteration, pathogens, taste/odor/color, suspended solids, turbidity
Blackstone River	Confluence of Middle River and Mill Brook (just downstream of American Steel Dam), Worcester to Fisherville Dam, Grafton	unknown toxicity, priority organics, metals, unionized ammonia, chlorine, nutrients, organic enrichment/low DO, flow alteration, pathogens, suspended solids, turbidity, objectionable deposits
West River	Outlet Silver Lake, Grafton to Upton WWTP, Upton	pH, organic enrichment/Low DO, pathogens

Lake Ripple is currently undergoing improvements funded partly through the State’s 319 grant program. Under this grant, stabilization and stormwater improvements are planned. Local volunteer groups are also actively monitoring outfalls at Lake Ripple and other waterbodies in Grafton within the Blackstone River watershed. The West River is located in a portion of Grafton that has recently been designated as an Area of Critical Environmental Concern (ACEC). The Miscoe, Warren and Whitehall watersheds were included as part of an expanded ACEC in 2000, thus providing greater environmental protection and more stringent environmental reviews within this area.

Grafton’s Stormwater Management Program will control the discharge of the pollutants of concern for all of the listed impaired waterbodies, and will ensure that the discharges will not cause or contribute to in-stream exceedance of water quality standards. This stormwater management plan will focus education and participation efforts at these locations. In addition, these areas will be considered priority in the illicit discharge and municipal pollution prevention programs.

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## Total Maximum Daily Load Allocations

Flint Pond, located in the Northwest corner of Grafton and connected with Lake Quinsigamond in Worcester and Shrewsbury, has an EPA-approved TMDL allocation titled “Total Maximum Daily Loads of Phosphorus for Lake Quinsigamond and Flint Pond”, approved 6/28/02. This report is available for download at [www.state.ma.us/dep/brp/wm/wmpubs.htm](http://www.state.ma.us/dep/brp/wm/wmpubs.htm). Flint Pond is immediately downstream of Lake Quinsigamond, and because of the close connections, the two lakes are managed as one system.

Flint Pond has recreational uses including fishing, boating, water-skiing and swimming, but these uses are impaired by the growth of nuisance aquatic plants. The impairments to both Flint Pond and Lake Quinsigamond are due to high phosphorus loadings.

The TMDL report proposes recommendations to control both particulate and dissolved phosphorus. Additional aquatic management in Flint Pond, such as harvesting within boating channels, is recommended.

The Town of Grafton has determined that the approved TMDL is for a pollutant that may be found in stormwater discharges from the municipality. Much of the Flint Pond watershed in Grafton consists of commercialized areas. Other parts of the watershed consist of residential areas and a municipal playing field. There are currently several known outfalls from the Town roadways draining to the pond, along with overland flow. The residences in this area all have septic systems.

Under this stormwater management program, the Town will incorporate the following BMPs to help meet the TMDL. First, the Town will focus its public education and participation efforts in this area, including education on septic system maintenance. Second, the Town will inspect all outfalls or potential sewer failures, and will eliminate any illicit discharges within the first two years of the permit term. Finally, the Town will assess the municipal operations in this area and prioritize the good housekeeping and pollution prevention practices.

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## Groundwater Recharge

The Town of Grafton will consider opportunities for groundwater recharge and infiltration in the implementation of the six minimum control measures wherever feasible. Grafton currently has some requirements for groundwater recharge under its existing regulations. Additional recharge and infiltration opportunities will be evaluated for each measure during the five-year permit cycle.

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## Drinking Water Sources

Grafton considers public drinking water sources and their protection areas a priority in implementation of the stormwater management program. During the field location and testing program of municipal outfalls, the Town will determine which outfalls discharge to drinking water sources or protection areas, and will assess the impacts of the discharges to the water supply. The Town will consider providing pretreatment and spill control capabilities to the extent feasible for these discharges. The Town will also consider how to avoid, to the extent feasible, any direct discharges to Class A waters and Zone 1 wellhead protection areas.

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## Interconnected Municipal Separate Storm Sewer Systems

The Town of Grafton will coordinate with the owners/operators of interconnected municipal separate storm sewer systems (MS4s). The Town will first identify interconnections within the system, and will attempt to work cooperatively with the interconnected MS4s in instances of discharges impacting Grafton's drainage systems. The Massachusetts Highway Department is a known contributor to the Town's drainage systems and receiving waters. Adjacent towns' systems will be identified and assessed during the five-year permit cycle.

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## Endangered Species

Coverage under this permit is available only if the stormwater discharges, allowable non-stormwater discharges, and discharge related activities are not likely to jeopardize the continued existence of any species that are listed as endangered or threatened (“listed”) under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA (“critical habitat”).

The most recent Endangered and Threatened Species County-Species List available from EPA at <http://cfpub.epa.gov/npdes/stormwater/endangersearch.cfm> was used to determine if the endangered or threatened species or critical habitat are in proximity to the Town of Grafton or the point where authorized discharges reach the receiving waters. Worcester County has three listed species, however, species within the Town boundaries and possible impacts of discharges to them will be determined once all outfalls have been located. Because the outfalls within the town have not yet been located, the eligibility requirement is listed as “pending”.

Once all outfalls have been located, and the Town consults with the U.S. Fish and Wildlife, if it is determined these outfalls have no impact on endangered species, a confirmation letter will be included in the annual report for this permit.

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## Historic Places

Discharges, or implementation of a stormwater management program, which adversely effects properties listed or eligible to be listed on the National Register of Historic Places, are not allowed under this NPDES permit. Discharges may be eligible for coverage under this permit if the permittee is in compliance with requirements of the National Historic Preservation Act and has coordinated any necessary activities to avoid or minimize impacts. These requirements must be coordinated with the State Historic Preservation Officer.

According to the listing on the National Register of Historic Places (<http://www.nr.nps.gov>), there are several historic properties listed or eligible for listing in Grafton, Massachusetts. Because the outfalls within the town have not yet been located, the eligibility requirement is listed as “pending”.

Once all outfall locations within the Town have been identified, a letter will be sent to the Massachusetts Historical Commission to verify that stormwater discharge related activities will not result in an adverse effect on any archeological resources or historic properties of National Significance. A copy of all confirmations will be included in the annual report for this permit.

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## Summary

The Town of Grafton, led by the Public Works Department, has prepared this stormwater management plan to further reduce and eliminate stormwater pollutants to its numerous water resource areas.

The Town will address the general public and businesses through watershed-based stormwater education and participation programs from the SuAsCo Watershed Community Council, as well as education and participation programs focused on locally impaired waters.

Through expanded programs and bylaws to reduce pollutants from illicit discharges, construction runoff, and post-construction runoff, the Town will strengthen its current procedures to inspect and enforce against potential stormwater contamination.

In addition to reaching out to public and private entities to reduce stormwater pollution, the Town will do its part by continuing to improve upon its own operations with increased employee training and expanded procedures to control any potential pollutants and waste from municipal facilities and activities.

These efforts over the next five years, in addition to the Town's existing efforts, will be in accordance with the goals of the 2001 Comprehensive Plan and will further protect and improve the quality of Grafton's water resources.