



TOWN OF BROOKLINE  
Massachusetts  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING & TRANSPORTATION DIVISION

A. Thomas DeMaio  
Commissioner  
Peter M. Ditto, PE  
Director

**FAX COVER SHEET**

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FROM: JAY HENSEN

DATE: 4/28/06

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MESSAGE: ATTACHED IS BROOKLINE'S ANNUAL

REPORT #3 - PLEASE CALL IF YOU HAVE

ANY QUESTIONS

JAY



TOWN of BROOKLINE  
*Massachusetts*

*Richard Kelliher*  
Town Administrator

April 26, 2006

Ann Herrick (CIP)  
U.S. Environmental Protection Agency  
One Congress Street  
Boston, MA 02114

Re: NPDES PII Small MS4 General Permit Annual Report No.3, Town of Brookline, MA.  
EPA NPDES Permit Number: MARNEC813

Ms. Herrick:

The Town of Brookline is pleased to submit its third annual report to the U.S. Environmental Protection Agency as part of the NPDES Phase II General Permit requirements for Small Municipal Separate Storm Sewer Systems. Please review the attached annual report summarizing stormwater management activities for the third permit year.

If you have any questions please feel free to call.

Respectfully,

Richard Kelliher  
Town Administrator

Attachment: NPDES PII Small MS4 General Permit Annual Report No.3  
Comprehensive IDDE Plan

cc. A. Thomas DeMaio, Commissioner of Public Works  
Peter M. Ditto, P.E., Director of Engineering/Transportation  
Bill Walsh-Rogalski, EPA  
Todd Borci, EPA  
David Gray, EPA

**Municipality/Organization:** Town of Brookline, MA

**EPA NPDES Permit Number:** MARNEC813

**MaDEP Transmittal Number:** W-035336

**Annual Report Number  
& Reporting Period:** No. 3: March 05-March 06

## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

**Contact Person:** Peter M. Ditto, P.E. **Title:** Director of Engineering and Transportation

**Telephone #:** (617) 730-2138 **Email:** Peter\_Ditto@town.brookline.ma.us

#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Signature:** 

**Printed Name:** Richard Kelliher

**Title:** Town Administrator

**Date:** 4/27/06

## Part II.

### II A. Self-Assessment

The Town of Brookline has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions, except Minimum Control Measure (MCM) #3 Illicit Discharge Detection and Elimination (IDDE). The Town has found bacterial contamination in some of its drains. The Town modified its IDDE program to address these issues and has had great success this past year. Summary data on the IDDE program is presented in Parts IV and V of this report.

In general, the overall goal for the Town's stormwater program is to improve the quality of water discharged from storm drains. This is essentially the main measureable goal for all the MCMs. The Town tracks improvements with water quality testing.

Based on comments from the EPA, the Town has made some changes to the measureable goals listed in Part III. Changes are in the revision section and are printed in bold type.

### Part III. Summary of Minimum Control Measures

#### 1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
1A	Informational Brochures	DPW/Engineering	Distribute brochures	Brochures placed at libraries and DPW facilities	Continue to distribute brochures
Revised			<b>Count the number of brochures handed out</b>		
1B	Town Stormwater Website	DPW/Engineering, IT Dept, and Con Comm	Develop Website	Maintained Website.	Update Website as needed.
Revised			<b>Start a counter on the website to track the number of viewers</b>		
1C	"Infoline"	DPW/Engineering	Set up "Infoline"	Maintained "Infoline"	Continue to handle calls
Revised			<b>Personnel have been assigned to handle these calls</b>		
1D	Stormwater email account	DPW/Engineering	Website has an email account so residents may ask questions	Maintained Stormwater email account.	Maintain email account
Revised			<b>Log the number of emails.</b>		

<b>1E</b>	Posters/Videos in Schools	DPW/Engineering and School Dept.	Education material for schools and libraries	Posters placed in schools and Public Libraries in Town. Town has added "Reing in the Storm ~ One Building at a Time" video to the Public Library.	Update posters and videos as needed.
Revised			<b>Track the number of times the video is checked out.</b>		

### 1a. Additions

<b>1D</b>					
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## 2. Public Involvement and Participation

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Permit Year 4</b>
<b>2A</b>	Local Advertisements	DPW/Engineering	Annual Public Service Announcements	handouts placed at public locations (Town Hall and Public Library)	Continue to Distribute handouts
Revised			<b>Count the number of handouts distributed.</b>		
<b>2B</b>	Local Clean-ups	DPW, Con Comm, and local groups	Conduct Annual clean-ups around water resource areas.	DPW, Con Comm, and Local groups conducted annual clean-ups around Muddy River, Halls Pond, and other water resource areas.	Continue annual clean-ups.
Revised			<b>Track the amount of materials cleaned-up (ex. Bags of trash).</b>		
<b>2C</b>	Community "Hotline"	DPW/Engineering	Create "Hotline"	"Hotline" maintained by DPW/Engineering.	Continue to Maintain "Hotline"
Revised			<b>Personnel have been assigned to handle these calls</b>		
<b>2D</b>	Storm Drain Stenciling Program	DPW/Parks and Con Comm	Maintain Storm Drain Stenciling Program	Conducted annual stenciling	Continue stenciling program
Revised			<b>Track number of basins stenciled.</b>		

### 2a. Additions

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### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
3A Revised	Storm Drain System Map	DPW/Engineering and GIS dept.	Maps have been created	Updated maps	Continue to update GIS maps as needed based on changes and drain system.
3B Revised	Illicit Discharge Detection and Elimination (IDDE) Program	DPW/Engineering and Water and Sewer Division	Town has had an aggressive IDDE program for years  Monitor improvements in water quality	Continued to maintain an aggressive IDDE Program. Located and removed 11 Illicit discharges.	Continue to maintain an aggressive IDDE Program.
3C Revised	IDDE Ordinance	DPW/Engineering	Create By-law	Maintained and enforced Storm Water By-law	Continue to maintain and enforce Storm Water By-law.
3D Revised	IDDE "Hotline"	DPW/Engineering	Create "Hotline"  Personnel have been assigned to handle these calls	"Hotline" maintained by DPW/Engineering.	Continue to Maintain "Hotline" and email account
3E Revised	Revise Sewer and Drain Use Regulations	DPW/Engineering	Revise and Adopt new regulations	DPW/Engineering in the process of revising Sewer and Drain Use Regulations.	Regulate Sewer and Drain use and work with contractors and public to eliminate non-storm water discharges
Revised					

#### 3a. Additions

3F	Comprehensive IDDE Plan	DPW/Engineering	Monitor improvements in water quality	Implement Plan	Continue to implement plan
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#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
4A	Site Runoff Control (Erosion and Sediment Control ESC By-law)	DPW/Engineering	Create ESC By-law	Maintained and enforced ESC component of Storm Water By-law.	Continue to maintain and enforce Storm Water By-law.
Revised					
4B	ESC Plan Review	DPW/Engineering	Conduct Plan review after adoption of Storm Water By-law	DPW/Engineering reviewed and approved ESC plans for construction projects	Continue ESC plan review.
Revised			Track number of plans reviewed.		
4C	Construction Inspection	DPW/Engineering	Conduct Inspections	DPW/Engineering inspected ESC at construction sites	Continue Construction Site Inspections.
Revised			Track number of inspections.		
4D	"Hotline" for non-compliant construction sites	DPW/Engineering	Create "Hotline"	"Hotline" maintained by DPW/Engineering.	Continue to Maintain "Hotline"
Revised			Personnel have been assigned to handle these calls		
Revised					

#### 4a. Additions

4E	Creation of contractors BMP handbook for construction activities	DPW/Engineering	Create handbook	Drafted Handbook	Issue Handbook 2006.
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**5. Post-Construction Stormwater Management in New Development and Redevelopment**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Permit Year 4</b>
5A Revised	Post Construction Control By-law	DPW/Engineering	Create By-law	Implemented Post Construction Controls as part of Storm Water By-law	Continue to maintain and enforce Storm Water By-law.
5B Revised	Plan Review	DPW/Engineering and Building Dept.	Conduct Plan Review  Track number of plans reviewed.	Coordinated with Building and Planning Department to ensure plan review on all projects.	Continue Plan Review Process
5C Revised	O&M of Runoff Control Structures/Practices	DPW/Engineering	Incorporate into all plans of Storm Water Management Structures and Practices  Track number of sites with O&M practices.	Worked with developers, contractors, engineers, and architects to include O&M into all plans.	Continue to ensure O&M of Storm Water Structures and Practices.
5D Revised	Inspection of Runoff Control Structures/Practices	DPW/Engineering	Conduct Inspections  Track number of inspections.	Conducted inspections	Continue inspections.
Revised					
Revised					

**5a. Additions**

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## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
6A Revised	DPW Employee Training	DPW/Engineering	Conduct Annual Training <b>Track education with a questionnaire.</b>	Met with various Division Personnel (Highway/Sanitation, Water/Sewer, and Parks) to discuss Storm Water issues related to municipal operations.	Continue DPW personnel training and education.
6B Revised	Municipal Maintenance Activities	DPW/Engineering	Conduct Annual Inspection and review operation practices <b>Log inspections and monitor progress on O&amp;M practices</b>	Conducted inspections at DPW facilities	Continue inspections
6C Revised	Household Hazardous Waste Collection Program	DPW	Conduct HHP day <b>Track Waste Recovered, recycled, and disposed.</b>	Collected household hazardous Products in the Spring.	Continue to maintain waste collection program

### 6a. Additions

6D	Street Sweeping Program	DPW/Highway	Track tons of sweepings collected.	Conducted Street Sweeping. Documented material collected, transported and disposed (See Part V O&M Section).	Continue Street Sweeping Program
6E	Catch Basin Cleaning Program	DPW/Water and Sewer/Engineering	Track tons cleanings collected.	Cleaned catch basins (See Part V O&M Section).	Continue Catch Basin Cleaning Program.

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

**Not Applicable**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 3 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 4
Revised					
Revised					
Revised					
Revised					

**7a. Additions**


**7b. WLA Assessment**

## **Part IV. Summary of Information Collected and Analyzed**

The following is a summary of information collected and analyzed for Permit Year 3:

### **Drainage System**

- Continued to work aggressively on the Comprehensive IDDE plan. In 2005 the Town removed 11 cross-connections and approximately 3,674 GPD of wastewater flows from the drainage system.
- Working with Boston Water and Sewer Commission to address pollution issues at inter-municipal connections.
- Issued a drainage improvement contract to install swales and leaching basins along roadsides at 4 locations to help retain and infiltrate stormwater into the ground. Town will monitor these sites to measure their performance.
- Regulated approximately 20 sites from plan development through construction. Each site implemented erosion control practices during construction and onsite retention/detention of stormwater for post-construction.

### **Pollution Sources**

- Bacterial Contamination is the primary source of pollution in the drainage system. The Town has been following an aggressive Illicit Discharge Detection and Elimination (IDDE) Plan to locate and remove these wastewater flows.
- Wash water (laundry connections) is also a source of pollution. These laundry connections are typically tied into a drain line in the basement. This type of connection does not have sanitary hook-up it is only wash water. These laundry connections are more difficult to locate, but do appear to be a significant source of pollution.
- Small construction sites, illicit connections, and illegal discharges appear to be the main sources of pollution to the Town's drainage system. Inspections have helped to reduce the amount of sediment washing off construction sites.

### **Muddy River Flood Control, Water Quality, and Habitat Enhancement Project**

- The Muddy River Project, managed jointly by the Town of Brookline and City of Boston Parks Department, involves improving flood storage, developing and implementing storm water management controls to improve water quality, and enhancing habitat areas along the riverway and associated water bodies. In the past year, The City and the Town have signed a design agreement with the Army Corps of Engineers and the design process has begun. Much of the field survey work and test pit activity has been completed and the Corps is preparing to move into the detailed design of the first portion of the project. This initial portion of the project will include design of the new culverts and headwalls as well as the daylighted sections of the Muddy River. The design of this portion of the project is expected to continue until July of 2007.

**Funding**

- Available Budget for Capital Improvement Projects (CIP) = approx. \$1,000,000 for Drainage Improvements.
- Operations, Maintenance, and Management (See Part V)

**Part V. Program Outputs & Accomplishments (OPTIONAL)****Programmatic**

Storm water management position created/staffed – Town created and staffed Environmental Engineer and Civil Engineer	(y/n)	Y
Estimated Annual program budget/expenditures	(\$)	
Catch Basin Cleaning/Drain Maintenance (Personnel, equipment, and maintenance)		\$155,000.00
Street Sweeping (Personnel, equipment, and maintenance)		\$385,000.00
DPW/Engineering (Program Management-Personnel and equipment)		\$120,000.00
Annual Cleaning of 2-Oil/Sediment/Water Separators – does not include installation (approx. \$120K/unit)		\$5,000.00
Household Hazardous Waste Collection, Transport, and Disposal		\$25,000.00
<b>Total Storm Water Management Program Expenditures (Note: Does not include CIP)</b>		<b>\$690,000.00</b>

**Education, Involvement, and Training**

Estimated number of residents reached by education program(s)	(# or %)	10,000
Stormwater management committee established	(y/n)	N
Stream teams established or supported (6 different "Friends Groups" associated with waters resource areas in and around Brookline)	(# or y/n)	6
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	Y
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	1
▪ community participation	(%)	481
▪ material collected (type of waste collected: Pesticides, Bug sprays, Cathode Ray Tubes (CRTs or TVs), Rodent poisons, Paint thinner, Urethanes, Oil or enamel based paints, Weed killers, Concentrated fertilizers, Cleaning solvents, Caustic cleaners, Photo chemicals, Antifreeze, Kerosene, Diesel oil, Aerosol cans, Waste motor oil, Auto and household batteries, Fluorescent bulbs, Tires, and Propane tanks)	(tons or gal)	1,950 gallons liquid waste
Tires	234	
Propane Tanks	117	
Automobile Batteries	44	
Fluorescent Bulbs (2/4/8 ft)	3160 ft	
Batteries (mercury, lithium ion, lead acid, alkaline)	325lbs	
School curricula implemented (Note: videos placed in schools and public libraries)	(y/n)	See Note

**Legal/Regulatory**

	In Place Prior to Phase II	Under Review	Drafted	Adopted
<b>Regulatory Mechanism Status (indicate with "X")</b>				
▪ Illicit Discharge Detection & Elimination				X
▪ Erosion & Sediment Control				X
▪ Post-Development Stormwater Management				X
<b>Accompanying Regulation Status (indicate with "X")</b>				
▪ Illicit Discharge Detection & Elimination				X
▪ Erosion & Sediment Control				X
▪ Post-Development Stormwater Management				X

**Mapping and Illicit Discharges**

Outfall mapping complete	(%)	100
Estimated or actual number of outfalls	(#)	10
System-Wide mapping complete	(%)	100
<b>Mapping method(s)</b>		
▪ Paper/Mylar (Drainage System Range Plans)	(%)	95
▪ CADD (as-builts from new projects)	(%)	5-10
▪ GIS (Drain and sewer mains and service connections)	(%)	98
Outfalls inspected/screened (Visual Inspections of each outfall during dry and wet weather conditions – estimated observations per outfall = 10)	(# or %)	10
Illicit/Illegal discharges identified (approximately 45 under investigation as part of Town's IDDE plan)	(#)	45
Illicit/Illegal connections/discharges removed = # Cross-connections removed	(#) (est. gpd)	11 3,674 GPD
% of population on sewer	(%)	99.9
Number of houses with septic systems	(#)	29

**Construction**

Estimated Number of construction starts (>1-acre)	(#)	3
Estimated percentage of construction starts adequately regulated for erosion and sediment control (Sites regulated by new Town by-law)	(%)	95
site inspections (multiple visits per site)	(# or %)	20 sites
Tickets/Stop work orders issued	(# or %)	0
Fines collected	(# and \$)	0
Estimated Complaints/concerns received from public	(#)	20

### Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control (Note: Sites currently under construction)	(%)	95
Site inspections completed (20 Sites, 2-3 inspections per site = est. 50)	(# or %)	50
Estimated volume of stormwater recharged (Note: No info available)	(gpy)	

### Operations and Maintenance

Average frequency of catch basin inspection and/or cleaning (non-commercial/non-arterial streets)	(times/yr)	1/yr
Average frequency of catch basin inspection and/or cleaning (commercial/arterial or other critical streets)	(times/yr)	2/yr
Total number of structures cleaned (Approximate)	(#)	879
Storm drain cleaned (Note: Drain lines are cleaned as needed)	(LF or mi.)	See Note
Qty. of screenings/debris removed from storm sewer infrastructure Catch Basin Cleanings	(lbs. or tons)	1,400 tons
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		Landfill
Est. Cost of catch basin cleanings disposal	(\$)	\$43,500

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	Once a week
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	Every Night
Qty. of sand/debris collected by sweeping (Note: Approximately 10,323 lane miles swept)	(lbs. or tons)	2,470 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill
Cost of sweepings disposal	(\$)	\$58,050
Vacuum street sweepers purchased/leased (Own and operate)	(#)	4
Vacuum street sweepers specified in contracts	(y/n)	N

Reduction in application on public land of: ("N/A" = not used; "100%" = elimination)		
▪ Fertilizers (Note: Park Division uses approx. 9000 lbs/yr on athletic fields)	(lbs. or %)	0 (See Note)
▪ Herbicides	(lbs. or %)	N/A
▪ Pesticides	(lbs. or %)	N/A
Anti-/De-Icing products and ratios (Note: An estimated 3,275 tons of salt (NaCl) and 1,072 tons of sand mix were applied during the winter season. Fourteen trucks conduct the de-icing operations. All trucks are automated to dispense 200 pounds of sand/salt mixture per lane mile. Sand to salt ratio 7:1)	% NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % CMA % Kac % KCl % Sand	See Note
Pre-wetting techniques utilized	(y/n)	N

Manual control spreaders used	(y/n)	Y
Automatic or Zero-velocity spreaders used	(y/n)	Y
Estimated net reduction in typical year salt application	(lbs. or %)	0
Salt pile(s) covered in storage shed(s)	(y/n)	Y
Storage shed(s) in design or under construction (Note: New DPW materials storage yard to be constructed Summer 2006 will include covered material storage bins and storm water management facilities ex. Oil/sediment separators and detention basins.)	(y/n)	See Note

#### Part VI. Discussion of activities for the next reporting cycle

The following is a discussion of activities planned for the next reporting cycle:

- Continue to maintain an aggressive IDDE program.
- Continue funding Storm Water Program management, maintenance, operations, and CIP.
- Approve new Sewer and Drain Regulations.
- Work on educating the general public of storm water issues
- Install Storm Water BMPs on Town Properties (continue to issue contracts for drainage improvement projects)
- Town is in the process of capping two landfill sites and redeveloping an existing transfer station that will improve storm water management in those areas. Projects started Fall of 2005 and are scheduled for completion Summer 2007.