Municipality/Organization: **Town of Needham**

EPA NPDES Permit Number: MAR041237

MADEP Transmittal Number: **W-041019**

Annual Report Number & Reporting Period: **No. 14: MAY 2017-MAY 2018**

NPDES PII Small MS4 General Permit Annual Report

Part I. General Information

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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: Richard P. Merson

Printed Name: Richard P. Merson

Title: Director, Public Works Department

Date: April 27, 2018

Part II. Self-Assessment

Town of Needham continued to implement its Stormwater Management Program. In addition, Town staff has recently undertaken a comprehensive evaluation of the Town's entire Stormwater Management Program, with assistance from outside consultants, to prepare the municipality for meeting the next General Permit requirements. This year we have included additional details in this Annual Report to document the extensive stormwater management activities the Town has undertaken to comply with our written Stormwater Management Plan developed in July 2003 and to both meet and exceed the requirements of EPA's 2003 NPDES General Permit for Stormwater Discharges from Small MS4s.

As required by Part II.D.1 of the 2003 General Permit, as part of developing this Annual Report, we evaluated compliance of the Town's Stormwater Management Program with the conditions of the 2003 General Permit. The Town has made substantial progress implementing BMPs defined in the written Stormwater Management Plan and in meeting permit requirements. The following discussion describes efforts that may not have been previously detailed in annual reporting but we think are critical to characterizing our robust local Program:

Public Education & Outreach / Public Involvement & Participation

- Needham has taken an innovative approach to these two MCMs that facilitate ongoing public engagement about stormwater topics. Not only do we complete the efforts described in this report, but we have required development and redevelopment projects in town to complete public education and public involvement efforts. To obtain local permits, project proponents have to elect to complete one of the applicable activities in MCMs #1 and #2, such as distributing fliers and/or brochures, preparing and broadcasting a cable news item or PSA, publishing a newspaper article, placing decals or stenciling storm drain inlets, or facilitating stream adoption/cleaning projects. Town staff directs messaging and locations for efforts. This novel approach results in frequent public stormwater education from multiple parties.
- Town staff have committed to an annual effort to mark catch basins with either a "Don't Dump Drains to River" stencil or decal. Each year, approximately 100 catch basins get stenciled, resulting in a consistent ongoing reminder to avoid putting pollutants in catch basins.

Illicit Discharge Detection and Elimination

- Needham has a complete map of the MS4. This map not only meets the 2003 permit by showing outfalls and receiving waterbodies, but has got above and beyond by including drainage system components including catch basins, drain manholes, pipes, and connectivity. These maps also provide useful details including invert/sump/rim elevations and pipe diameter and material. Maps facilitate quick understanding of the drainage system and allow Town staff to identify and remove problems quickly. Mapping is an ongoing effort for all communities and we work to update the map as budget and staff time allows.
- The Town has undertaken extensive illicit discharge detection and elimination efforts, even beginning before the 2003 permit was issued, that have resulted in reductions of pollution to local waterbodies. Before EPA's MS4 permit was released,

the Town was well ahead of others by beginning to find and remove illegal connections to the drain. Needham has completed an inventory of all outfalls, including photographs and documentation of conditions at the time of inspection. In addition, each year, the Town video inspects approximately 10% of their drainage system to identify potential illicit connections. In recent years, no connections have been identified, however, we think this approach is a thorough way to inspect for illicit discharges. In addition, we video inspect approximately 10% of the sewer system to assess condition and identify obstructions to flow. This effort allows us to find locations in need of rehabilitation or repair to reduce exfiltration (and infiltration). Town staff knowledgeable about illegal dumping and illicit discharges are in the field, overseeing construction (including projects with sewer and drain connections), and watch for illegal dumping to the drainage system.

- We have worked with Charles River Watershed Association to mitigate sources of bacteria found by watershed sampling.

Construction Site Runoff Control/Post Construction Stormwater Management

- Town staff thoroughly review proposed projects for compliance with the Massachusetts Stormwater Management Handbook as required by the Memorandum of Understanding between MassDEP/EPA and the Town. This MOU requires new development and redevelopment in the Charles River watershed (entire Town) to meet the Mass. Handbook. The Town enforces consistent standards beyond "Maximum Extent Practicable" for projects and require infiltration of 1" of the roof areas on projects.
- Town staff inspects construction sites throughout projects, from pre-construction to completion, to ensure both erosion and sediment controls are properly maintained during construction and post-construction stormwater runoff is managed properly in accordance with local code and permits.
- Town projects look for opportunities to install xeriscaping and promoting infiltration through installation of structural BMPs, such as the Newman School work recently completed an the planned efforts for replacement of the garden in Memorial Park.

Pollution Prevention and Good Housekeeping in Municipal Operations

- Needham has instituted practices that go well beyond the 2003 MS4 permit requirements to prevent pollution from municipal operations. We have employed a predictive catch basin cleaning program that results in annual cleanings from a substantial portion of our total catch basins. We gather information about the basins at the time of cleaning, including depth to sump, condition, and material built up. We also video inspect a substantial portion (almost 10%) of the drainage system annually to identify problems that cause impediment to stormwater flow and/or need repairs.

Also, as required by Part II.D.2 of the 2003 General Permit, the Town evaluated the appropriateness of selected BMPs in efforts towards achieving the defined measurable goals and has determined that previously selected BMPs and measurable goals continue to be appropriate. However, we determined that the annual report needs to clarify how the Town's program

meets the final Total Maximum Daily Loads for the Charles River (see Section 7 of this report).

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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
1-1	Classroom education on Storm Water	DPW Director	3 sets of educational materials, 3 grade levels, 2 teacher workshops	Touch the Trucks: 5/20/17 WTP tour: 5/1/17 11/3/17 Hillside School talk: 11/14/17 LWV talk Library: 4/2/17	New Permit
1-2	Flyer and Brochure Distribution and Web Site Link	DPW Director	Gather and make available one flyer and two fact sheets, provide web site link	A flyer aimed at what local business can do to help, and a "What you can do…" fact sheet was supplied at all suggested locations. (PSA Building, Town Hall, and Public Library).	New Permit
1-3	Using the Media	DPW Director	One local cable public service announcement, one yearly press release, and one annual storm water article	Needham Times April 2017 and 2018	New Permit
1-4	Hazardous Waste Management	DPW Director	Track amount of hazardous waste collected, continue to distribute educational materials	HHHW DAY: 10/14/17 PAINT DAY:4/15 , 5/20 ,6/17, 7/15, 8/19, 9/16 ,and 10/14 2017	New Permit

Revised					

1a. Additions

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
2-1	Adopt-a-Stream Programs	DPW Director	Adopt two streams and track quantity of trash removed	Adopted water bodies are cleaned on an annual basis by the DPW at street crossing.	New Permit
2-2	Stencil Storm Drains	DPW Director	Stencil 50 storm drains per year	Stencil at catch basins at Wingate Nursing Home Stencil at catch basins at Franklin St	New Permit
2-3	Community Hotline	DPW Director	Establish a hotline, track # of calls and problems / incidents remedied	Hotline is direct number to the Needham Water & Sewer Division, posted on the Town website 781-455-7550 between 8am-5pm. After 5pm, contact Needham Police at 781-455-7570	New Permit
2-4	Storm Water Committee	DPW Director	Establish committee and hold annual meetings	Last meeting held on 5/28/17	New Permit

2-5	Pet Waste By-Law	DPW Director	# of signs posted, # of educational materials, and # of dog licenses issued	Signs are posted at areas that are problematic with pet waste deposits. These signs will be replaced if they are destroyed or vandalized. Amendment 3.7.7 to existing Town bylaw stating for that pet waste on public areas and catch basins is prohibited and is finable. The Town also constructed a new dog park in August 2014. Residents are required to dispose of any dog waste in a designated dog waste dispenser.	New Permit
Revised					

2a. Additions

3. Illicit Discharge Detection and Elimination

BMP ID #	**BMP Description**	**Responsible Dept./Person Name**	**Measurable Goal(s)**	**Progress on Goal(s) – Permit Year 14** (Reliance on non-municipal partners indicated, if any)	**Planned Activities – Permit Year**
3-1	Outfall Testing Program	DPW Director	Follow-up testing for eight areas, perform study to verify need for TV inspections	Required initial outfall testing completed in Year 1. Continued outfall visual inspections annually.	New Permit

3-2	Illegal Dumping Education	DPW Director	# of education tools distributed, # of illegal dumps reported, # of penalties given to dumpers, # of meritorious acknowledgements to citizens	None	New Permit
3-3	Septic System Controls (Board of Health)	DPW Director	# of systems, # regularly maintained, # of educational flyers, # of trained people, # of failed systems	•322 Private septic systems remain in Town, 12 abandoned and connected to Town sewer - #109 Brookside Rd. - #1554 Central Ave. - #1254 South St. - #1689 Central Ave. - #1600 Central Ave. - #12 Brookside Rd. - #6 Charles River St. - #8 Charles River St. - #1516 Central Ave. - #3 Burrill Lane - #380 Grove St. - #267 Cartwright Rd.	New Permit
Revised					

3a. Additions

	Illicit Discharge Detection and Elimination.	Water and Sewer Division		Non discovered	

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
4-1	Policy and Procedure Review and Updates	Town Engineer	Revise existing policies and procedures, develop Storm Drain Connection Permit requirement	No action required	New Permit
4-2	Construction Reviews	Town Engineer	Develop requirement to inspect sites, # of inadequate sites/plans reported by inspectors, # of non-compliant permits	Continue monitoring of site plans at the planning board level In Year 5/17-4/18 • 17 sites have been submitted and reviewed by Engineering and Planning Board • All plans are adequate All permits are currently in compliance	New Permit
Revised					

4a. Additions

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year

5-1	Policy for Post Construction Runoff	Town Engineer	Develop town-wide policy for post-construction runoff control, a storm drain connection permit requirement, develop and implement standard construction details and policies	• Continued implementation of Board of Selectmen / NPDES Procedure, Standard Construction Specifications, Details and Policies • Memorandum Of Understanding (MOU) with EPA signed June 1996	New Permit
5-2	BMP Inspection and Maintenance	Town Engineer	Inspect all Town maintained BMPs annually, document # of problems identified and remedied and changes in effluent	Continued Inspection of BMPs - DPW water quality swale - Water Quality Tanks installed at Broad Meadow, Pollard School, Newman School and Elliot Schools - Detention Basins at RTS and Bridle Trail, Rosemary Pool (Servicing Library Parking lot, and High School also). -Infiltration Basin on Heath St. development.	New Permit
Revised					
Revised					

5a. Additions

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 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
6-1	Predictive Catch Basin Program	DPW Director	Develop, collect data, and refine program	Cleanings ongoing & data collected for each one	New Permit
6-2	Street Cleaning	DPW Director	Sweep all streets annually years 1&2, sweep twice years 3-5, sweep all parking lots annually,	Spring and Fall street sweeping programs are in place and active. All parking lots also swept twice per year. Collected debris is documented and recorded at the RTS. Spring sweeping between April 15 and May 15, Fall sweeping between October 15 and November 15. The Town also weekly sweeping of the Business District in Town from April 1st – November 30th.	New Permit
6-3	Pipe Inspections	DPW Director	Analyze 10% of drainage system/yr.	40,979 feet done	New Permit
6-4	Pipe Cleaning	DPW Director	Clean 4,750' of drain pipe per year, jet flush 19,000' of drain pipe/yr.	37,224 feet cleaned/flushed	New Permit
6-5	New Pipe and Structure Installations	DPW Director	Replace 10 catch basins and 475' of drain pipe/yr.	17 catch basins repaired/replaced 6 point repairs on drain pipe . Installation of 350-feet of relief Drain on Greendale, 3-new drainage structures added (Greendale phase II) -Installation of~130-feet new upgraded drain lines and repair of 1 catch basin and 2 drain manholes at Forest Street.	New Permit
6-6	Investigate Town Owned BMPs for Retrofit Opportunities	DPW Director	Inspect 3 structural BMPs annually, implement two retrofit projects by year five	Inspected March 2018	New Permit
6-7	Integrated Pest Management	DPW Director	Continue established program in the future	Continue established program with Norfolk Mosquito Control. As submitted in year 2 report.	New Permit

6a. Additions

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA)

As of the effective date of EPA's 2003 MS4 General Permit, there were no final TMDLs that applied to receiving waterbodies in the Town of Needham, and therefore no BMPs to meet TMDLs were identified in the Notice of Intent. See discussion below for additional detail on BMPs being employed to meet the Final TMDLs in the Charles River Watershed.

7b. WLA Assessment

Per Part I.D.3. of the General Permit, "if the MS4 is required to implement storm water waste load allocation provisions of the TMDL, the permittee must assess whether the WLA is being met through implementation of existing storm water control measures or if additional control measures are necessary. The permittee's assessment of whether the WLA is being met is expected to focus on the adequacy of the permittee's storm water controls (implementation and maintenance), not on the response of the receiving water." Needham's MS4 discharges into waterbodies within the Charles River watershed, which has a Final TMDL for Total Phosphorus and a Final TMDL for Pathogens (e.g. fecal coliform, E. coli, and enterococcus bacteria). Because these TMDLs are for pollutants likely to be found in storm water discharges from Needham's MS4, our Stormwater Management Program includes BMPs that address the waste load allocation (WLA).

Needham's Stormwater Management Program includes the following existing stormwater control measures, as reported in the above Annual Report, which addresses total phosphorus:

- Stencil Storm drains (BMP 2-2)
- Outfall Testing Program (BMP 3-1)
- Construction Reviews (BMP 4-2)
- BMP Inspection and Maintenance (BMP 5-2)
- Predictive Catch basin Program (BMP 6-1)
- Street cleaning (BMP 6-2)
- Pipe inspections (BMP 6-3)
- Pipe cleaning (BMP 6-4)

Part IV. Summary of Information Collected and Analyzed

Samples of the debris were analyzed and found that sediment concentrations did not exceed the Unlined Landfill Limits pursuant to MassDEP Policy # COMM-97-001 Reuse and Disposal of Contaminated Soil at Massachusetts Landfills. The Catch basin material was hauled to Crapo Hill Landfill in New Bedford, Massachusetts.

Part V. Program Outputs & Accomplishments (OPTIONAL)

Programmatic

Stormwater management position created/staffed	(y/n)	YES
Annual program budget/expenditures	($)	$79,655
	Salaries	$310,006

Education, Involvement, and Training

Estimated number of residents reached by education program(s)	(# or %)	50%
Stormwater management committee established	(y/n)	YES
Stream teams established or supported	(# or y/n)	N/A
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	YES
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	One
▪ community participation	#OF VEHICLES	170
▪ material collected	(tons or gal)	1824 gal
School curricula implemented	(y/n)	NO

Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination			X	
▪ Erosion & Sediment Control	X			
▪ Post-Development Stormwater Management	X			
Accompanying Regulation Status (indicate with "X")				
▪ 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	(#)	295
System-Wide mapping complete	(%)	100%
Mapping method(s)		
▪ Paper/Mylar	(%)	N/A
▪ CADD	(%)	100%
▪ GIS	(%)	100%
Outfalls inspected/screened	(# or %)	
Illicit discharges identified	(#)	0
Illicit connections removed	(#) (est. gpd)	0
% of population on sewer	(%)	94%
% of population on septic systems	(%)	6%

Construction

Number of construction starts (>1-acre)	(#)	22
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100%
Site inspections completed	(# or %)	100%
Tickets/Stop work orders issued	(# or %)	2
Fines collected	(# and $)	0
Complaints/concerns received from public	(#)	<10

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100%
Site inspections completed	(# or %)	100%
Estimated volume of stormwater recharged	(gpy)	UNKNOWN

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	45%
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	100%
Total number of structures cleaned	(#)	2,972
Storm drain cleaned	(LF or mi.)	7.5 mi
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	349.24 tons
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)		Landfill
Cost of screenings disposal	($)	$10,523.91

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	2/year
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	2/year
Qty. of sand/debris collected by sweeping	(lbs. or tons)	595.96 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill
Cost of sweepings disposal	($)	$11,919.30
Vacuum street sweepers purchased/leased	(#)	1
Vacuum street sweepers specified in contracts	(y/n)	NO

Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	NA
▪ Herbicides	(lbs. or %)	NA
▪ Pesticides	(lbs. or %)	NA

Anti-/De-Icing products and ratios	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	4,703 tons 27,880 gal 288 tons
Pre-wetting techniques utilized	(y/n)	No
Manual control spreaders used	(y/n)	No
Automatic or Zero-velocity spreaders used	(y/n)	No
Estimated net reduction in typical year salt application	(lbs. or %)	N/A
Salt pile(s) covered in storage shed(s)	(y/n)	Yes
Storage shed(s) in design or under construction	(y/n)	No