

Municipality/Organization: Town of Weston

EPA NPDES Permit Number: MAR041068

MaDEP Transmittal Number: W- 035252

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

NPDES PII Small MS4 General Permit Annual Report

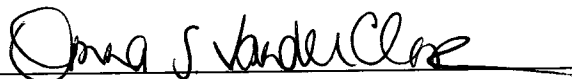
Part I. General Information

Contact Person: Stephen R. Fogg, P.E. **Title:** Town Engineer

Telephone #: 781-786-5115 **Email:** fogg.s@westonmass.org

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: Donna S. VanderClock

Title: Town Manager

Date: April 27, 2018

Part II. Self-Assessment

The Town of Weston has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions, except for the following provisions:

BMP 1-7, Progress continues to be made, but additional Outreach to Private Ways is still needed. The Town Engineer and Assistant Town Engineer has met with the Weston Roads Trust, which owns and manages several miles of private ways and their associated drainage systems. The plan is to suggest to the Roads Trust to utilize the Catch basin cleaning contractor that is cleaning the Town's catch basins to clean the catch basins in the Roads Trust roads.

BMP 2, Public Involvement and participation has increased from previous years, but additional public awareness and involvement would be preferred. Despite this, the passing of the Town of Weston Stormwater & Erosion Control By-law and Stormwater & Erosion Control Regulations has raised awareness levels in the building community, and for residents doing major home additions or other improvements that involve the creation of new impervious area.

Public and Private Ways

The Town of Weston maintains 87 miles of public roadways, including street sweeping, catch basin cleaning and drainage system upgrades including selected locations for Stormwater treatment as further detailed within this report. In addition, there are 20 miles of private roads including associated drainage systems which the Town does not maintain. As a result, one of the Best Management Practices being implemented is Outreach to Private Ways, to educate those who reside on these ways about the need for Stormwater management, and request their cooperation in conducting their own maintenance activities similar to what the DPW does. On newer private ways, there are conditions of approval issued by the Weston Planning Board that require regular inspection and maintenance of drainage systems. We are in the process of contacting these owners to remind them of this obligation and take further actions as needed if we do not obtain the desired compliance.

Planned activities for 2018-2019 are subject to change based on the new permit requirements.

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 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
1-1	Flyer to residents	WCC(Weston Conservation Commission), BOH, and SWPA(Stormwater Permitting Authority)	Distribute to 75% of residents	Placed Flyers, postcards, & information on display at Town Hall and DPW And Updated Town Web Pages- Stormwater sections.	Continue Additional flyers on Stormwater, Conservation & Wetlands, and Health Dept. Information
Revised	<i>Septic Info flyer to residents</i>	<i>BOH</i>	<i>On Town website</i>	<i>Completed</i>	<i>Continue distribution of new flyers to all residents</i>
1-2	Lesson Plan for Fifth Graders	WCC and SRF	Lesson plan taught	A lesson plan was not taught in 2017	Lesson Plan to continue for 4 th and 5 th graders.
1-3	Media Campaign	WCC and SRF	Media packet given to press	No additional articles in 2016.	Stormwater education article in local media spots.
<i>Revised</i>					
1-4	Flyer to Businesses	SRF & RES	Distribute to 50% of businesses	No letters sent in 2017	Additional updates, memos, flyers to be sent.
1-5	Video	WCC and SRF	Show video at public meeting	Power point presentation at Spring Workshop	Continue workshop annually
1-6	High School Students involvement in stormwater outreach	SRF	Submit reports to school and to Town Engineer	No Intern Students in 2017; prepared ideas and plans for continued stormwater outreach	Continue with student involvement in stormwater outreach with new students

1a. Additions

1-7	Outreach to Private Ways	DPW	Develop and send correspondence to road trusts and private way owners about stormwater issues	Continued updates of road conditions to Roads Trust	Follow up as necessary. Provide CB Cleaning contractor with private way contacts for CB cleaning on the private ways.
<i>Revised</i>		<i>DPW</i>	<i>Private roads monitored as part of and during construction of Stormwater Management Permits projects.</i>	<i>Continued 2-Way Communication with Roads Trust.</i>	<i>Continue to monitor roads and alert road trusts of conditions. Send letters to at least two private ways about their obligations to inspect and maintain the drainage systems</i>
1-8	Illicit Discharge Detection and Elimination By-Law	DPW, Stormwater Working Group	Hold public meeting to describe proposed bylaw and regulations	Completed in previous year	Revisit residential discharges to Town drainage systems.
1-9	Public Presentations	Conservation Agent	Make presentation to community groups about stormwater	Classes taught to Environmental. Science students at Weston High School.	Continue as opportunities arise; possible library presentation
<i>Revised</i>	<i>Public workshop</i>	<i>BOH, WCC, SWPA, Bldg. Dept., Fire Dept.</i>	<i>Information workshop & presentation to Town residents</i>	<i>SWPA met with Developers, Engineers, and Applicants regarding Stormwater Regulations for input and thoughts.</i>	<i>Additional meetings are being scheduled with the Engineers and contractors.</i>

1-10	Proposed by-law	Stormwater Working Group	Hold informational meetings and hearings on proposed stormwater and erosion control by-law	By-law adopted at 2011 Annual Town Meeting, May, 2011	Continued outreach and education around new by-law
<i>Revised</i>	<i>Amend/Update Regulations</i>		<i>Revise some language in Regulations</i>	<i>Discussion meetings held on revisions to Stormwater & Erosion Control Regulations.</i>	<i>Add Updates/revisions to Stormwater Regulations</i>
1-11	Stormwater talk to High School	WCC, SWPA	High School biology/environmental class learned about stormwater pollution.	Class visited DPW for tour, and presentation on Stormwater to Environmental class, September, 12/2017	Classes to visit at least annually.
1-12	Science Fair with science demonstrations	SWPA, WCC	Students to learn about stormwater runoff and pollution	Not attended in 2017-2018	Continue Science fair in 2018 for Grades 4 and 5
1-13	Information provided to Town residents	BOH	Educate public on maintenance of wastewater systems	Information booths set up at Spring Home owner workshop	Provide Stormwater Display at public places with high visibility;

2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
2-1	Traveling Display	WCC and SWPA	Continuously on display at Town buildings & events	Updated Stormwater Display setup at DPW with flyers, pamphlets, and postcards.	Use display as opportunity arises. Display at Town Hall and/or other common area in Town.
<i>Revised</i>			Continuous display at DPW, except when traveling		
2-2	Poster contest (5 th grade)	SUASCO WCC and SRF	Hold contest	Contest held in previous years.	None
<i>Revised</i>					
2-3	Summit Event	SUASCO WCC and SRF	Hold local stormwater summit meeting	None	None
<i>Revised</i>					
2-4	Photo contest (High School)	SUASCO WCC and SRF	Hold contest	None	None – being considered for next permit cycle
<i>Revised</i>					
2-5	Super—summit event	SUASCO WCC and SRF	Participate in regional “super-summit”		<i>Continue to use displays at all relevant Town events.</i>
<i>Revised</i>	<i>“Stormwater Matters Outreach and Participation Campaign”</i>	<i>SUASCO</i>	<i>Implement stormwater advertising campaign</i>		
				<i>Ad campaign displayed at informational meetings in spring, 2014-2016.</i>	

2a. Additions

2-6	Stream team survey of Seaverns Brook	SRF and stream team	Complete survey	None	Provide GIS mapping and complete survey
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<i>Revised</i>	<i>Stream team survey of Hobbs Brook</i>	<i>Weston Girl Scouts</i>	<i>Complete survey</i>	<i>Survey completed, April 2008</i>	
2-7	Catch basin stenciling program	SRF	Volunteer group(s) to install 180 storm drain markers in selected locations	completed in a previous year	Continue program to other areas of Town
2-8	Hazardous Waste Day	DPW	Provide safe location for residents to dispose of hazardous waste	Event held at DPW in April 2018; 250 cars participating. Prior years- 192 (2017); 161 (2016)	Continue annually
2-9	Dog waste education campaign	Con Com	Campaign to educate dog walkers on importance of collecting and disposal of dog waste.	campaign materials have been prepared.	implement campaign using signage and volunteers in key dog walking areas to change behavior around picking up after dogs

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
3-1	Stormwater System Mapping	DPW	Complete mapping of stormwater system over a 3 year period	Additions and corrections to Town GIS system as needed	continue with mapping on an annual basis
3-2	Dry weather screening of outfalls	DPW	Visual inspection/report of known outfalls, 33% each year	Done in previous year	Continue to inspect outfalls and document changes from last inspection
<i>Revised</i>		<i>DPW</i>	<i>Create database and tracking system for outfall inspections.</i>	<i>Completed</i>	
3-3	Illicit Discharge Elimination	DPW, Board of Health	Trace non-stormwater flows and eliminate within 1 year	None	Sample flowing outfalls using IDDE protocol
3-4	Water Quality Monitoring	Cambridge Water Supply	Obtain and review results of regular monitoring	Water quality data summary from CWS	Same as prior years; DPW to work closely with CWS(Cambridge Water Supply) on discharges that affect CWS waters
3-5	Amend Stormwater regulations	DPW	Amended regulations adopted at 2003 Annual town Meeting	Goal met	
<i>Revised</i>			<i>Amended regulations adopted at 2011 Annual Town Meeting</i>	<i>Goal met</i>	

Revise-2	<i>Amend/update Stormwater regulations</i>	SWPA	<i>Meetings/discussions to update stormwater regulations</i>	<i>Discussions ongoing Discussions on potential changes to Stormwater Regulations</i>	<i>Scheduling public meetings with Engineers and Builders regarding changes to Regulations.</i>
3-6	Septic System Monitoring Program	Board of Health	Develop, implement and enforce septic pumping	BOH not planning to institute mandatory pumping	
.			System in place to identify frequent pumping	Database created and in use; frequent pumping locations are investigated	
3-7	Dechlorination of New Water Mains	DPW - Water Div.	Use dechlorination tablets when flushing new mains	Newly installed water mains were dechlorinated before flushing.	As needed
3-8	Trench Dewatering Policy	DPW	Require siltation control on all trench dewatering projects	Siltation control specified and enforced on all capital projects; controls used on DPW projects	As needed

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
4-1	Erosion and Sediment Control Bylaw	Stormwater Working Group	Develop, implement and enforce bylaw	By-law adopted at Town Meeting, May 2011 Stormwater Management Permits reviewed and approved; construction projects monitored & inspected.	Continue full implementation of by-law and regulations
<i>Revised</i>	<i>Implementation of by-law and regulations</i>	<i>Stormwater Permitting Authority(SWPA)</i>	<i>Update and clarify some By-law language</i>	<i>; Amended By-Law, Approved at Town Meeting, May 2014</i>	<i>Update Stormwater and Erosion Control Regulations</i>
4-2	Planning Board review of projects	Planning Board	All projects reviewed for compliance with runoff control measures	All applicants are required to demonstrate that they are addressing stormwater runoff control during construction	Same as prior years
4-3	Conservation Commission review of projects	Conservation Commission	All projects reviewed for compliance with runoff control measures	All applicants are required to demonstrate that they are addressing stormwater runoff control during construction	Same as prior years
4-4	Street Opening permit process	DPW	Inspections conducted for compliance with Stormwater Regulations	DPW inspector assigned to this task	Inspections documented and reported in annual report – continue this program.

4-5	Building Permit process	See 4-1	See 4-1	Stormwater Permit must be approved before Building permit is issued.	

4a. Additions

4-6	Stormwater Management Permit review of projects	SWPA	Review all applications; conduct site inspections	Reviewed 85 Stormwater Management Permit Applications. No site work can start until erosion control installed and inspected.	Review as needed
4-7	Inspection of erosion control for Demolition permits	SWPA	Erosion controls inspected prior to demo of buildings	Erosion control to be installed adequately before Demolition Permit issued. Added the requirement to use minimum 12" straw wattles if wattles are to be used for erosion control	Continue to inspect erosion control for all demo projects.

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 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
5-1	Stormwater & Erosion Control By-law	DPW, SWPA	Same as control measure 4-1	Bylaw and regulations in place.	Monitor the progress of the new By-law.
Revised	<i>Implementation of by-law and regulations</i>	<i>Stormwater Permitting Authority(SWPA)</i>	<i>All projects meeting established thresholds of land disturbance required to obtain Stormwater Permit</i>	<i>Regulations and permit procedures in place November 2011; Site plan check list added to Application.</i>	<i>Same as prior years Plan to implement procedure to allow for applying on line for a Stormwater Management Permit on the Town web pages.</i>
5-2	DPW Runoff Control Policy	See 5-1		No new additional stormwater runoff to streets allowed.	Continue to monitor projects.

5-3	Compliance with stormwater O&M plans under Conservation Commission review	Conservation Commission	Ensure compliance with post-construction stormwater O&M Plans	Any project approved under the Conservation Commission's jurisdiction which increases impervious surfaces by 2,000 s.f. or more must demonstrate that there will be no increase in the rate or volume (offsite) of the 100 year storm. Applicants are required to submit a stormwater O&M plan and annual inspection checklist for the first year after construction	Conservation Commission will not issue a Cert. of Compliance until the Applicant has completed a post-construction stormwater structure(s) inspection and submitted a completed maintenance checklist

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 (2017-2018) (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 15 (2018-2019)
6-1	Street Sweeping	DPW	Sweep all public streets annually	All public streets swept at least once per year	Same as prior years
6-2	Catch Basin Cleaning	DPW	Clean all public catch basins annually	All public catch basins cleaned at least annually. Vacuumed Water quality units in town.	Same as prior years Vac. Water quality units annually. Contract now in place for CB Cleaning annually
6-3	Drainage Improvement Projects	DPW	Incorporate structural BMPs into each project	Completed roadway projects –Old Colony drainage; Southside project additional work; . Additional design & permitting of drainage with stormwater treatment for new roadway projects.	Construction of Newton St. and Merriam St. drainage projects. Design Monvale Rd. and Merriam St. new drainage Continue South side drainage project 5 year capital plan to continue
6-4	DPW Housekeeping	DPW	Conduct environmental audit, implement recommendations	Completed	none
<i>Revised</i>	<i>Environmental Management System</i>	<i>DPW</i>	<i>Develop and Implement Environmental Management System</i>	<i>Implementation of Stormwater Best Management Practices at new DPW facility opened February 2011</i>	<i>Update maintenance program. Continuing program</i>

6-5	Roadway De-icing Program	DPW	Install computerized spreader controls in previous year. Monitored salt usage	Continued to track usage to achieve optimal application rates. Application – Only salt used; no sand. See Section IV for more information.	Continue to seek optimal levels to achieve balance between public safety and environmental impact. Pre-wet as needed.
6-6	Waterway Maintenance	DPW	Clear waterways of debris, 3 year rotating basis	Notice of Intent filed with Conservation Commission for permit to do maintenance	Continuing project
<i>Revised</i>	<i>Ditch maintenance</i>	<i>East Middlesex Mosquito Control Project</i>	<i>Clear sediment from ditches</i>	<i>portions of 3 Mile Brook were cleaned</i>	<i>Identify and clean as time and budget allows</i>

6a. Additions

6-7	Employee Training Program	DPW	Provide all departments with training	Done for DPW staff as part of EMS program	
<i>Revised</i>	<i>Stormwater training</i>	<i>SRF & RES</i>	<i>Outside stormwater training</i>	<i>Completed; Soil Evaluation training and new MS4 workshops</i>	<i>Continue training as available.</i>
<i>Revised</i>	<i>Erosion Control training</i>	<i>DPW</i>	<i>Erosion control training by Filtrex</i>	<i>Erosion control training and demonstration by Filtrex-2018</i>	<i>Implement new techniques on projects being constructed by DPW Operations</i>
6-8	New DPW Facility	DPW	Maintenance of BMPs	Construction completed and building opened Feb. 2011	Implementation of Stormwater Best Management Practices at new DPW facility opened February 2011; Continue Maintenance Program of BMPs.
<i>Revised</i>	<i>DPW maintenance of drainage systems.</i>	<i>DPW</i>	<i>Maintenance of facility drainage</i>	<i>Cleaned all drainage structures</i>	<i>Continued annual maintenance; repairs as needed.</i>
6-9	Erosion repairs	DPW	Repair eroded slope at water tower-Cat Rock Hill	Completed-new soil added with slope reinforcement and grass planted	Monitor Town land for erosion issues and repair.

6-10	Septic System file organization and maintenance	Board of Health	Develop efficient monitoring system of Town septic systems	Digitize all septic as-built plans and Title 5 Inspection Reports	
6-11	New Town Police Station	SWPA & WCC	Maintenance of BMPs	Two rain gardens, infiltration systems, sed. Tanks. Cleaned catch basins; inspected systems and rain gardens	Monitor and maintain systems. Clean catch basins and water quality units; inspect water quality unit.

Part IV. Summary of Information Collected and Analyzed

A tracking system was put in place in 2004 for private development stormwater BMPs that are reviewed and approved by the Town Engineer. This system was updated to incorporate the new Stormwater Permit provisions under the Stormwater and Erosion Control By-Law and Regulations. To date, approximately 666 projects have been reviewed.

The Stormwater Engineer reviews Stormwater Management Permit Applications for compliance with the Town of Weston Stormwater & Erosion Control By-Law and Regulations. 66 Stormwater Permit Applications were submitted and reviewed in 2017.

A summary of the Snow and Ice program results for 2017/18 is included as Appendix A.

A spreadsheet of water quality sampling results by Cambridge Water Department is included as Appendix B.

Fogg, Steve

From: Cullen.Thomas
Sent: Tuesday, April 10, 2018 7:36 AM
To: Fogg, Steve; Sweeney, Richard
Cc: Sullivan, Rich; Calder, Ken
Subject: S&I Operations - 2017/2018 Winter - Budget and Salt Purchases and Overall Snow and Ice Program and its relationship to Stormwater
Attachments: SKM_454e18041007170.pdf

Steve and Richard,

For your use, I have attached herewith the Budget Summary sheet with some 2017/2018 Winter Snow and Ice statistics. Hopefully, no more snow this year!

Additionally, for your information, the snow and ice program for deicing purposes consisted of magnesium liquid which was strategically used (weather dependent) and road salt. Our road salt purchases this year was 3,453 tons with an overall cost to the community for deicing material \$190,554.68 (\$51.94/ton road salt). As indicated in the summary, we had 41 deicing events plus 3 spot sanding events for 84.75" of snow this past winter. As a comparison, in the winter of 2016/2017, we purchased 4,639 tons of road salt with an overall cost to the community for deicing material \$258,056.63 (\$55.40 / ton road salt), had 45 deicing events plus 4 spot sanding events for 61" of snow that winter.

My overall assessment is that we have used less deicing materials (overall, per deicing events, and per inch of fallen snow (sometimes this metric can be deceiving), and I don't believe there was an appreciable difference in level of service provided (my measure is the number of complaints that I received were about equal to previous years). Therefore, I am happy with the direction that the S&I Program is heading.

As is always the case with these types of operations, people are critical! We had a relatively young group of guys this season. Several things happened as a result of that: all sanding equipment was checked and calibrated by our mechanics and Highway Division Supervisor and sander vendors, class room training classes were held with videos and discussions were held prior to snow and ice season, and finally sanders were followed early in the season by Highway Division Supervisor and Deputy Director to fine tune drivers' use of equipment. Liquid spraying was incorporated in the snow and ice program for the first year since my arrival in Weston. I think all this work ultimately paid off in road salt reduction and ultimately expenses decrease.

I don't know how you can use these statistics for the stormwater permit, but if you need additional information please let me know.

THOMAS E. CULLEN, JR., P.E.
DIRECTOR OF OPERATIONS
DEPARTMENT OF PUBLIC WORKS
TOWN OF WESTON
190 BOSTON POST ROAD BY-PASS

TELEPHONE NO.: 781.786.5100
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Email: cullen.t@westonmass.org

TOWN OF WESTON DPW 2017-2018 SNOW BUDGET (FY 18)

	APPROPRIATED	SPENT	AVAILABLE	% LEFT
OVERTIME - SNOW	83,800.00	188,006.43	-104,206.43	-124%
CONTRACTED - SNOW	29,500.00	334,623.50	-305,123.50	-1034%
REPAIRS - SNOW	23,250.00	43,060.88	-19,810.88	-85%
SALT (Deicing Materials)	114,000.00	165,380.93 ⁽¹⁾	-51,380.93	-45%
STORM RELATED EXP.	2,350.00	14,199.93 ⁽²⁾	-11,849.93	-504%
				\$25,173.75
				\$13,800.00

TOTAL	252,900.00	TOTAL	745,271.67	TOTAL LEFT	-492,371.67	% LEFT	-195%
			38,973.75		-531,345.42		

REVISED: 4/10/18

SNOW TOTALS TO DATE - 84.75 Inches
8 Plow Events (plus 2 scraping events)

LAST YEAR SAME TIME- 61 Inches (last 4/1/17)

(1) Outstanding Road Salt Invoices = \$25,173.75

(2) Outstanding Equipment Repair Invoices = \$5,000; Materials (plow blades) = \$1800; Tree Removals (downed public trees on private property) = \$6000+/-; Chipper Rental = \$1,000 for 3 weeks

41 Deicing Events (plus 3 spot sanding events)

2 Town Center Pickups (1/5/18 (partial) & 1/7-8/18 (partial) & 3/16-17/2018)

TOWN OF WESTON FY 2018 SNOW TOTALS

DATE	AMOUNT IN INCHES	
Dec. 9-10, 2017 (Sat.-Sun.)	6	General Sanding (2) & General Plow
Dec. 12-13, 2017 (Tues.-Wed.)	0	General Sanding (1)- Black Icyng
Dec. 22-23, 2017 (Fri.-Sat.)	1.5	General Sanding (7)- incliding black ice
Dec. 23, 2017 (Sat.)	0	General Sanding (1)- Black Icyng
Dec. 24, 2017 (Sun.)	0	General Sanding (1)- Dusting/Black Ice
Dec. 25, 2017 (Mon.)	5	General Sanding (2), General Plowing
Dec. 30, 2017 (Sat.)	0.5	General Sanding (1)
Jan. 4-5, 2018 (Thurs.-Fri)	14	General Sanding (2), General Plowing, Partial Town Center Pickup
Jan. 5, 2018 (Fri)	0	Spot Sanding (drifting)
Jan. 6, 2018 (Sat.)	0	Spot Sanding (drifting)
Jan. 7-8, 2018 (Sun.-Mon.)	0	Partial Town Center Pickup
Jan. 13, 2018 (Sat.)	0	General Sanding (1), Black Ice
Jan. 17, 2018 (Wed.)	3	General Sanding (2), General Plowing
Jan. 23, 2018 (Tues.)	0	General Sanding (1), Black Ice
Jan. 24, 2018 (Wed.)	0	General Sanding (1), Black Ice
Jan. 30, 2018 (Tues.)	1.5	General Sanding (3), DPW scrape
Feb. 2, 2018 (Fri.)	0.5	General Sanding (1), DPW spot scrape
Feb. 6, 2018 (Tues.)	0.25	General (spot) Sanding (1)
Feb. 7-8, 2018 (Wed.- Thurs.)	2	General Sanding (4), General Plowing, Black Ice
Feb. 18-19, 2018 (Sat.-Sun.)	6	General Sanding (2)& General Plowing
Feb. 22, 2018 (Thurs.)	0.5	General Sanding (2)
March 2-3, 2018 (Friday-Sat.)	0.25	Norester; Trees; Light snow; Flooding
March 5, 2018 (Monday)	1.5	General Sanding (1)
March 7-8 (Wed.-Thurs.)	10	General Sanding (2); General Plowing
March 13-14, 2018 (Tues.-Wed.)	28.25	General Sanding (2); General Plowing
March 15, 2018 (Thurs.)	0	Spot Sanding (schools, etc.)
March 16-17, 2018 (Fri.-Sat.)	0	Town Center Pickup
March 21-22, 2018 (Wed.-Thurs)	1.5	General Sanding (1); Mobilized for General Plowing but no plow
April 2, 2018 (Monday)	1.5	No Mobilization
April 6, 2018 (Friday)	1	No Mobilization
TOTAL	84.75	INCHES

2017 Surface Water Quality Data, Cambridge Watershed, Weston
Preliminary data, subject to revision
Unless otherwise noted, results are in mg/L

Appendix B

Baseflow (no stormwater samples in Weston, 2016)

Field Duplicates are labeled as FDUP and were collected at the same time as the normal sample

Flagged data = TRUE and highlighted in red. Flagged data represent anomolous or possibly erroneous results. Missing sample results are also flagged.

SiteName	JSGSSiteNumbe	SampleName	DateOfVisit	ProbeReadingTime	WaterTemp(C)	HDO(mg/L)	HDO(%Sat)	SpC(uS/cm)	pH	irTemperature(	BP(mmHg)	Salinity(PSS)	TDS(mg/L)	GageHeight(ft)	Discharge(cfs)	mpleTyp	Station	Comments
HB@KG	01104440	HB@KG	2/23/2017	11:43:54 AM	5.05	13.26	104.9	1675	7.33	53	757.2	0.84	1072	1.2	4.11	1	1	visible suspend
HB@KG	01104440	HB@KG	3/21/2017	11:07:18 AM	4.63	13.12	102.6	1692	7.41	47	758	0.85	1083	1.11	3.143	1	1	Qms by both M
HB@KG	01104440	FDUP	3/21/2017	11:07:18 AM	4.63	13.12	102.6	1692	7.41	47	758	0.85	1083	1.11	3.143	1	1	Qms by both M
HB@KG	01104440	HB@KG	7/6/2017	11:11:18 AM	22.39	7.78	89.2	1139	7.2	74	765.7	0.56	729.1	1.02	2.287	1	1	Qm by JO, HOB
HB@KG	01104440	HB@KG	8/31/2017	11:28:29 AM	20.53	8.42	94.2	1092	7.35	70	757.4	0.54	699.3	2.06	26.3	1	1	Qm by JO
HB@KG	01104440	HB@KG	10/3/2017	11:52:43 AM	17.29	9.39	95.9	1078	7.52	59	777	0.53	690.2	1.94	22.59	1	1	Qm by MO
HB@KG	01104440	HB@KG	12/14/2017	11:45:10 AM	1.21	14.08	101.1	1059	7.73	25	751.2	0.51	678	0.94	1.85			no Qm, hobo
IndustBrook	01104433	IndustBrook	2/23/2017	10:03:57 AM	7.63	11.49	97.7	3534	6.91	53	757.2	1.86	2261	0.9	0.39	1	1	Qm by JO, see c
IndustBrook	01104433	IndustBrook	3/21/2017	10:22:20 AM	7.22	11.9	99.9	3067	7.19	47	758	1.6	1963	0.84	0.315	1	1	No TOC result
IndustBrook	01104433	IndustBrook	7/6/2017	10:06:58 AM	19.47	7.14	77.7	2556	6.88	74	765.7	1.32	1636	0.76	0.165	1	1	Qm by MOPrer
IndustBrook	01104433	IndustBrook	8/31/2017	10:21:17 AM	17.17	6.89	72.4	2835	7.15	70	757.4	1.48	1814	0.68	0.083	1	1	Qm by JO
IndustBrook	01104433	IndustBrook	10/3/2017	10:30:32 AM	13.07	6.49	60.9	2953	7.23	59	777	1.54	1889	0.68	0.04	1	1	Qm by JO. Na is
IndustBrook	01104433	IndustBrook	12/14/2017	10:09:01 AM	2.41	10.14	75.8	2951	7.49	25	751.2	1.51	1889	0.8	0.119			Qm by JO
MBS	01104453	MBS	1/31/2017	12:23:57 PM	1.85	12.94	93.4	885.2	6.99	25	760.5	0.42	566.5	96.92	5.3			Qm taken, drop
MBS	01104453	MBS	2/2/2017															replacement ba
MBS	01104453	MBS	3/23/2017	11:42:15 AM	1.97	13.56	96.7	915.1	7.12	29	772.4	0.44	585.6	96.84	4.49	1	1	after collecting
MBS	01104453	MBS	6/27/2017	12:01:08 PM	22.99	3.19	37.2	697.8	6.4	69	761.2	0.34	446.6	96.74	1.035	1	1	Debris build up
MBS	01104453	FDUP	8/15/2017	12:33:25 PM	22.37	0.18	2.1	822.9	6.4	78	759.7	0.4	526.6	96.53	0.1145	1	1	Qm by JO. NO3
MBS	01104453	MBS	8/15/2017	12:33:25 PM	22.37	0.18	2.1	822.9	6.4	78	759.7	0.4	526.6	96.53	0.1145	1	1	Qm by JO. NO3
MBS	01104453	MBS	9/27/2017	11:54:46 AM	20.07	0.58	6.4	892.1	6.52	82	759.7	0.44	570.9	96.68	0.1179	1	1	high Fe and Mr
MBS	01104453	MBS	11/2/2017	12:24:25 PM	11.93	2.79	25.6	752.4	6.83	60	769	0.37	481.5	96.92	3.927	1	1	
RT20	01104460	Rt20	1/17/2017	10:08:27 AM	1.64	13.42	95.4	723.8	7.38	37	766.7	0.34	463.2	5.22	21	1	1	Na and Ca resu
RT20	01104460	Rt20	3/6/2017	10:21:03 AM	0.93	14.5	100.1	777.4	7.48	28	774.7	0.37	497.5	5.27	23.4	1	1	ice around gage
RT20	01104460	Rt20	4/11/2017	10:34:31 AM	12.01	10.23	94.7	583.2	6.99	69	763.5	0.28	373.2	6.12	82.6	1	1	
RT20	01104460	Rt20	8/1/2017	10:24:21 AM	21.08	7.73	86.8	992.4	7.11	79	762	0.49	635.1	5.26	23.4	1	1	as of 10/13, list
RT20	01104460	Rt20	8/29/2017	10:42:48 AM	19.74	8.19	88.8	1066	7.11	65	768.9	0.53	682.7	5.36	28.2	1	1	
RT20	01104460	Rt20	10/19/2017	10:18:19 AM	14.09	9.44	91.2	1058	7.52	64	766.7	0.52	677.6	5.78	22.7	1	1	USGS says GH v
SB@Viles	01104370	SB@Viles	1/31/2017	11:42:45 AM	0.97	14.31	100.7	459.1	6.93	25	760.5	0.21	293.8	0.63	2			lab didn't proce
SB@Viles	01104370	SB@Viles	2/2/2017															replacement ba
SB@Viles	01104370	SB@Viles	3/23/2017	11:05:11 AM	1.28	14.62	102.1	481.3	7.04	26	772.4	0.22	308	1.22	20.4	1	1	Alkalinity flagge
SB@Viles	01104370	SB@Viles	6/27/2017	11:28:18 AM	17.43	8.19	85.4	483.5	6.88	69	761.2	0.23	309.4	0.84	8.21	1	1	Flagged Mn and
SB@Viles	01104370	SB@Viles	8/15/2017	12:06:11 PM	18.1	8.28	87.8	517.3	6.95	78	759.7	0.25	331.1	0.52	2.04	1	1	Al result says O
SB@Viles	01104370	SB@Viles	8/16/2017	10:36:39 AM	17.97	8.34	88.2	534.8	7.29	75	759	0.26	342.3	0.51	1.99			macroinvertebr
SB@Viles	01104370	SB@Viles	9/27/2017	11:29:15 AM	18.01	7.8	82.5	569.6	6.99	82	759.7	0.27	364.5	0.44	1.52	1	1	
SB@Viles	01104370	SB@Viles	11/2/2017	11:57:48 AM	11.45	9.91	89.9	399.7	6.93	60	769	0.19	255.8	0.94	9.88	1	1	
SummerSt	01104475	SummerSt	1/17/2017	10:28:57 AM	4.27	13.51	103	402.4	7.45	37	766.7	0.19	257.5	0.58	1.2	1	1	Na and Ca resu
SummerSt	01104475	SummerSt	3/6/2017	10:50:21 AM	3.96	14.56	109	418.8	7.63	28	774.7	0.19	268	0.58	1.25	1	1	
SummerSt	01104475	SummerSt	4/11/2017	10:54:08 AM	12.05	11.03	102	346.9	7.25	69	763.5	0.16	222	0.81	3.13	1	1	USGS GH=0.83
SummerSt	01104475	SummerSt	8/1/2017	10:43:29 AM	17.41	9.23	96.2	390.7	7.5	79	762	0.18	250	0.3	0.22	1	1	as of 10/13, list
SummerSt	01104475	SummerSt	8/29/2017	11:24:23 AM	14.49	10.03	97.4	452.5	7.63	65	768.9	0.21	289.6	0.24	0.11	1	1	
SummerSt	01104475	SummerSt	10/19/2017	10:48:16 AM	11.5	10.49	95.5	409	7.65	64	766.7	0.19	261.7	0.22	0.1	1	1	Field Blank sulf

ection	monia-Nitrogen	FlagNH3	ection	nitrateAsNitrogen	O3DetectionLimit	FlagNO3	2DetectionLimit	nitriteAsNitrogen	O2DetectionLimit	FlagNO2	DetectionLimit	TKN	FlagTKN	DetectionLimitS	TotalPhosphorus	PDetectionLimit	FlagTP	SampleNumber	DetectionLimitS
	0.11	FALSE		1.1		FALSE	<	0.01		FALSE		0.44	FALSE		0.024		FALSE	17022303-01	
	0.0745	FALSE		0.78		FALSE	<	0.005		FALSE		0.321	FALSE		0.0117		FALSE	17032105-01	
	0.111	FALSE		0.76		FALSE	<	0.005		FALSE		0.366	FALSE		0.0202		FALSE	17032105-05	
	0.141	FALSE		0.298	0.05	FALSE	<	0.01	0.01	FALSE		0.442	FALSE		0.0191	0.0106	TRUE	17070608-01	
	0.234	FALSE		0.0996	0.05	FALSE		0.0116	0.01	FALSE		0.568	FALSE		0.0202	0.0106	FALSE	17083105-01	
	0.171	FALSE		0.16	0.05	FALSE	<	0.01	0.01	FALSE		0.432	FALSE		0.0202		FALSE	17100303-01	
	0.184	FALSE		0.409		FALSE	<	0.005	0.005	FALSE		0.447	FALSE		0.0191	0.0106	FALSE	17121403-01	
	0.29	FALSE		1.2		FALSE		0.013	FALSE		0.58	FALSE		0.045	FALSE	17022303-04			
	0.226	FALSE		0.72		FALSE	<	0.005	FALSE		0.408	FALSE		0.0393	FALSE	17032105-04			
	0.324	FALSE		0.721	0.05	FALSE		0.0403	0.01	FALSE		0.695	FALSE		0.0319	0.0106	TRUE	17070608-04	
	0.312	FALSE		0.376	0.05	FALSE		0.0209	0.01	FALSE		0.611	FALSE		0.0223	0.0106	FALSE	17083105-04	
	0.323	FALSE		0.464	0.05	FALSE		0.0235	0.01	FALSE		1.3	FALSE		0.0499	0.0106	FALSE	17100303-04	
	0.412	FALSE		0.61	<	FALSE	<	0.005	0.005	FALSE		0.629	FALSE		0.0393	0.0106	FALSE	17121403-04	
<	0.05	FALSE		1.22		FALSE	<	0.005		FALSE		0.5	FALSE		0.017		FALSE	17013106-02	
		FALSE				FALSE				FALSE							FALSE	17020206-02	
	0.0767	FALSE		1.12		FALSE	<	0.01		FALSE		0.388	FALSE		0.017		FALSE	17032302-02	
	0.177	FALSE		0.039		FALSE	<	0.005		FALSE		0.848	FALSE		0.0478		FALSE	17062708-02	
		FALSE				FALSE				FALSE							FALSE		
	0.153	FALSE	<	0.005		0.005	TRUE	<	0.005	0.005	FALSE		0.756	FALSE		0.0361	0.0106	FALSE	17081503-02
	0.136	FALSE		0.117		FALSE	<	0.005	0.005	FALSE		0.59	FALSE		0.0319	0.0106	FALSE	17092703-02	
	0.189	FALSE		0.171		FALSE	<	0.005	0.005	FALSE		0.564	FALSE		0.0244	0.0106	FALSE	17110203-02	
	0.22	FALSE		1		FALSE	<	0.005		FALSE		0.43	FALSE	<	0.011		FALSE	17011703-03	
	0.118	FALSE		1.12		FALSE	<	0.005		FALSE		0.47	FALSE		0.0106		FALSE	17030602-03	
	0.148	FALSE		0.83		FALSE	<	0.005		FALSE		0.517	FALSE		0.0202		FALSE	17041104-03	
<	0.05	FALSE		1.56		FALSE	<	0.005	0.005	FALSE		0.462	FALSE		0.0191	0.0113	FALSE	17080103-03	
	0.182	FALSE		0.192	0.05	FALSE	<	0.01	0.01	FALSE		0.527	FALSE		0.0202	0.0106	FALSE	17082902-03	
	0.115	FALSE		0.2		FALSE	<	0.005		FALSE		0.384	FALSE		0.0127	0.0106	FALSE	17101903-03	
	0.14	FALSE		1		FALSE	<	0.005		FALSE		0.45	FALSE		0.016		FALSE	17013106-04	
		FALSE				FALSE				FALSE							FALSE	17020206-04	
	0.0744	FALSE		0.893		FALSE	<	0.01		FALSE		0.361	FALSE		0.0117		FALSE	17032302-04	
	0.113	FALSE		0.769		FALSE	<	0.005		FALSE		0.732	FALSE		0.0361		FALSE	17062708-04	
	0.102	FALSE		1.35		FALSE	<	0.005	0.005	FALSE		0.57	FALSE		0.0149	0.0106	FALSE	17081503-04	
		FALSE				FALSE				FALSE							FALSE		
	0.0848	FALSE		1.71		FALSE	<	0.005	0.005	FALSE		0.431	FALSE		0.017	0.0106	FALSE	17092703-04	
	0.139	FALSE		0.269		FALSE	<	0.005	0.005	FALSE		0.615	FALSE		0.0276	0.0106	FALSE	17110203-04	
	0.07	FALSE		2.4		FALSE	<	0.005		FALSE		0.24	FALSE	<	0.011		FALSE	17011703-04	
	0.0629	FALSE		2.3		FALSE	<	0.005		FALSE	<	0.2	FALSE	<	0.0106		FALSE	17030602-04	
	0.11	FALSE		1.97		FALSE	<	0.005		FALSE		0.457	FALSE		0.0128		FALSE	17041104-04	
<	0.05	FALSE		0.32	0.05	TRUE	<	0.005	0.005	FALSE		0.403	FALSE		0.0202	0.113	FALSE	17080103-04	
	0.0539	FALSE		3.04	0.05	FALSE	<	0.01	0.01	FALSE	<	0.2	FALSE		0.0404	0.0106	FALSE	17082902-04	
	0.0568	FALSE		2.77		FALSE	<	0.005		FALSE		0.25	FALSE		0.0128	0.0106	FALSE	17101903-04	

labPH	FlagPH	Sodium	FlagNa	Alkalinity (mg/L CaCO3)	FlagAlkalinity	ColiformDetected	Coliform (MPN/100mL)	FlagColiform	TotalOrganicCarbon (mg/L)	FlagTOC	Turbidity (NTU)	FlagTurbidity	UV254 (abs)	FlagUV254
6.92	FALSE	294	FALSE	28.5	FALSE		276	FALSE	1.4	FALSE	1.58	FALSE	0.238	FALSE
7.14	FALSE	280.625176	FALSE	14	TRUE		488.4	FALSE		TRUE	1.52	FALSE	0.101	FALSE
7.18	FALSE	258.416521	FALSE	35.5	FALSE		410.6	FALSE		TRUE	1.56	FALSE	0.086	FALSE
7.26	FALSE	184	FALSE	33	FALSE	<	1	FALSE	3.3	FALSE	1.47	FALSE	0.159	FALSE
7.09	FALSE	185	FALSE	30.5	FALSE	>	2419.6	FALSE	3.8	FALSE	1.68	FALSE	0.173	FALSE
7.1	FALSE	167	FALSE	29	FALSE		1730	FALSE	3.3	FALSE	1.28	FALSE	0.116	FALSE
7.13	FALSE	153	FALSE	35.5	FALSE		548	FALSE	2.6	FALSE	1.68	FALSE	0.116	FALSE
6.73	FALSE	655	FALSE	44	FALSE		2420	FALSE	1.3	FALSE	5.38	FALSE	0.248	FALSE
6.85	FALSE	532	FALSE	36.5	FALSE		2420	FALSE		TRUE	3.42	FALSE	0.105	FALSE
7.01	FALSE	397	FALSE	61	FALSE	<	1	FALSE	2.1	FALSE	2.37	FALSE	0.148	FALSE
7.13	FALSE	526	FALSE	90	FALSE	>	2419.6	FALSE	2.5	FALSE	1.55	FALSE	0.143	FALSE
7.12	FALSE	244	TRUE	88	FALSE	>	2419.6	FALSE	1.9	FALSE	3.38	FALSE	0.133	FALSE
6.87	FALSE	500	FALSE	55	FALSE	>	2419.6	FALSE	1.8	FALSE	2.92	FALSE	0.145	FALSE
6.92	FALSE	145	FALSE	17.5	FALSE			FALSE	5	FALSE	0.9	FALSE	0.285	FALSE
	FALSE		FALSE		FALSE		166	FALSE		FALSE		FALSE		FALSE
6.66	TRUE	143	FALSE	16	FALSE		276	FALSE		TRUE	0.4	FALSE	0.169	FALSE
6.66	FALSE	109	FALSE	27	FALSE		2420	FALSE		TRUE	1.56	FALSE	0.571	FALSE
	FALSE		FALSE		FALSE			TRUE		FALSE		FALSE		FALSE
6.35	FALSE	140	FALSE	40.5	FALSE	>	2419.6	FALSE	7.8	FALSE	2.25	FALSE	0.417	FALSE
6.6	FALSE	477	TRUE	57	FALSE	>	2419.6	FALSE	3.5	FALSE	2.15	FALSE	0.332	FALSE
6.77	FALSE	126	FALSE	37.5	FALSE	>	2419.6	FALSE	7.1	FALSE	0.87	FALSE	0.322	FALSE
6.87	FALSE	10	TRUE	24	FALSE		210	FALSE	4.3	FALSE	0.04	FALSE	0.94	FALSE
7.1	FALSE	101	FALSE	43.5	FALSE		290	FALSE	3.4	FALSE	0.88	FALSE	0.188	FALSE
7.31	FALSE	81	FALSE	19	FALSE		361	FALSE	5.2	FALSE	1.43	FALSE	0.244	FALSE
7.15	FALSE	267	FALSE	35.5	FALSE		1410	FALSE	1.4	FALSE	1.53	FALSE	0.169	FALSE
7.26	FALSE	183	FALSE	37	FALSE	>	2419.6	FALSE	3.6	FALSE	1.29	FALSE	0.163	FALSE
7.25	FALSE	179	FALSE	31	FALSE		1300	FALSE	3.2	FALSE	1.15	FALSE	0.116	FALSE
6.83	FALSE	55	FALSE	22	FALSE			FALSE	5.6	FALSE	0.52	FALSE	0.243	FALSE
	FALSE		FALSE		FALSE		238.2	FALSE		FALSE		FALSE		FALSE
6.94	FALSE	57	FALSE	14	TRUE		206	FALSE		TRUE	0.49	FALSE	0.194	FALSE
7.05	FALSE	61	FALSE	28	FALSE		2420	FALSE		TRUE	1.65	FALSE	0.468	FALSE
7.03	FALSE	61	FALSE	32	FALSE		2420	FALSE	4.4	FALSE	0.87	FALSE	0.194	FALSE
	FALSE		FALSE		FALSE			FALSE		FALSE		FALSE		FALSE
7	FALSE	77	FALSE	36	FALSE		1300	FALSE	2.9	FALSE	0.88	FALSE	0.122	FALSE
6.88	FALSE	43	FALSE	25	FALSE		2420	FALSE	10.8	FALSE	1.16	FALSE	0.44	FALSE
7.29	FALSE	4	TRUE	33	FALSE		214	FALSE	3.1	FALSE	0.41	FALSE	0.107	FALSE
7.46	FALSE	42	FALSE	30	FALSE		387	FALSE	2.6	FALSE	0.44	FALSE	0.087	FALSE