Municipality/Organization: Lexington #1426

EPA NPDES Permit Number: MAR041042
MaDEP Transmittal Number: X274890

Annual Report Number
& Reporting Period: **No. 14 April 1, 2016 to March 31, 2017**

NPDES Phase II Small MS4 General Permit
Annual Report

Part I. General Information

Contact Person: John R Livsey, PE Title: Town Engineer

Telephone: 781-274-8305 Email: jlivsey@lexingtonma.gov

Mailing Address: Samuel Hadley Public Services Building, 201 Bedford Street, Lexington, MA 02420

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: John R Livsey

Title: Town Engineer
Date: 4-24-17

Part II. Self-Assessment

During this reporting period, the Town of Lexington continued to make clear and identifiable improvements to its stormwater management program.

Stream sampling efforts continued with the assistance of another team of eight engineering students from UMass Lowell. The students training continued as in previous years. They were trained in sampling techniques, data collection and safety. The data team continued improvements with data transfer and analysis. Because the students are trained before working in the field, they can also help educate interested abutting residents and explain the sampling system. The Town has also procured funding for two summer interns to provide water quality sampling and other stormwater related services for the summer of 2017.

The sampling teams collected at total of ninety one stream samples and are analyzing data from certified lab results. The data is added to the IDDE program data base. The student data team analyzed the results from the previous sample period and collaborated with Town personnel to determine where to send students out to sample. The Town also expanded the sampling program to include higher priority catchments in expectation of the new permit requirements.

IDDE efforts included sanitary sewer relining, with 10,509 linear feet of cured in place pipe (CIPP) lining in Lexington.

The Revere Street, Concord Ave., and Minuteman Bikeway Culvert Replacement Projects were completed. Replacing and upgrading the culverts in these projects will increase stream health, restore natural stream flow, increase hydraulic capacity which will benefit wildlife and flood protection and, protect against erosion and structural failure.

Also completed was the Paul Revere Drainage Improvements Project. This project included constructing new drainage structures along a section of road which previously had no subsurface drainage system. This project will increase water quality, and prevent against flooding and erosion.

The Town's drainage mapping gap analysis begun this past year. This analysis identified any missing drainage infrastructure information from the town's existing drainage map. These gaps were reviewed by town engineering staff, and used to focus record plan review efforts, field checks, and the use of online mapping tools to improve the Town's drainage map. The Town is continuing to update and analyze gaps in our drainage mapping.

Another task that will help complete the drainage gap analysis will be the Town's implementation of a new GIS program – PeopleGIS.

PeopleGIS allows the Town to view and interact with existing GIS mapping in the field through the use of GPS on tablets and smartphones. Transfer of data to the new GIS system is complete, and will continue to be updated across all fields. PeopleGIS will increase efficiency in both continuing to complete the mapping analysis, and scheduling and locating work orders for future drainage system maintenance and improvements.

A Pharmaceutical & Personal Care Products sampling program was also started to help better identify sources of potential illicit discharges. This program will be completed in conjunction with the typical outfall sampling program, which will help identify the most beneficial sampling locations based on lab results and subcatchment areas.

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 15
1A	Classroom Education	Engineering/ D. Pavlik & J. McCarron	Design and present elementary-school level session explaining stormwater system	"The Water Cycle" is part of the 3rd grade curriculum in the Lexington public elementary schools. This is a teachers' guide developed by Town Conservation and School staff.	Support use of the curriculum and keep it current. Partner with elementary school science coordinator to integrate water quality project into existing educational program. Continue education efforts by offering educational programs to students or other groups of young people.
1A CONT.	Classroom Education	Engineering/ J. Livsey, D. Pavlik and T. Malatesta	Design and present elementary-school level session explaining stormwater system	May 19, 2016 - Presented stormwater demonstration using Enviroscape® to elementary school students during DPW open house.	Present stormwater demonstration to elementary school students at open house. Continue stormwater education during DPW classroom tours of stormwater BMP's installed at LEED certified facility.
1B	Create and Maintain Stormwater Web Site	Engineering/ Dave Pavlik	Maintain and update stormwater web page.	Posted stormwater updates on engineering and stormwater web page during permit year. Received emails from stakeholders pertaining to stormwater.	Continue to maintain the engineering and stormwater web page during the year. Post permit updates on stormwater web page.

1C	Household hazardous and medical waste collection days	DPW/ R. Beaudoin Health Department/ Gerard Cody	Publish brochure with Recycling and Disposal Guidelines describing hazardous and medical household waste products. In addition host medical and hazardous waste drop days.	Completed 8 drop collection days at DPW Recycling Facility and Town Hall.	Continue program.

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 15
1D	Education Pamphlets	Engineering / D. Pavlik Conservation/ J. McCarron Engineering / J. Livsey	Offer pamphlets at DPW/Engineering kiosks. Distribute educational material regarding storm water features during DPW facility tour. Send informational storm water mailings to specific neighborhoods.	Pamphlets offered at kiosks in Town buildings: • EPA – "Protecting Water Quality from Urban Runoff" • Stormwater Matters "Stormwater where does it go?" Distributed EPA's handout "Thirstin's Water Cycle Adventure" during DPW facility tour and open house.	Place and maintain leaflets in public kiosks. Continue to offer handouts during DPW facility tours and at national public works week DPW open house.
1E	Make use of available media to disseminate information on stormwater	Engineering/ D. Pavlik Conservation/ J. McCarron	Place posters for public display in town buildings. Post video storm water information to LexMedia. Use social media and electronic news outlets.	Lexington Conservation Steward's E-Newsletter was disseminated to more than 250 Steward members in April 2016, May 2016, June 2016, July 2016, September 2016, October 2016, November 2016, December 2016, January 2017, February 2017, and March 2017. The E-Newsletter provides volunteer Stewards with information on local trainings and conservation events, upcoming projects, natural history, and other information pertaining to Lexington Conservation Land.	Continue to use all electronic media outlets such as E-Newsletter to inform public.

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 15
1F	Newsletter for watershed stewards programs	Conservation/ J. McCarron Engineering/ J. Livsey	Publish newsletter.	Jordan McCarron published four articles in the Lexington Minuteman newspaper pertaining to conservation and land and watershed stewardship: (1) an article on the restoration of Joyce Miller's Meadow in May 2016, (2) an article on the volunteer efforts of a Girl Scout troop focused on new plantings in August 2016, (3) an informational article on invasive species removal in September 2016, (4) and an article on the use of goats for controlling invasive species and fertilizing gardens.	Continue to publish articles to stimulate involvement and education.
1G	Stream Neighbor Notices	Engineering/D. Pavlik	Inform outfall abutters of water quality and outfall inventory program.	Interns communicated with abutters during outfall inventory and water quality sampling. A letter from the Engineering division is part of the volunteer package that is presented to abutters. This letter details the objective and purpose of the work.	Continue to communicate with stream abutters about water quality and outfall inventory efforts.

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 15
2A	Citizen volunteers notify Town staff of poor stream health and stream blockage issues. *Replaced Stream Cleanup Day*	Conservation/ J. McCarron Engineering/ J. Livsey Highway Dept./ M. Valenti	Maintain stream health and flow by maintaining streams regularly.	Watershed Stewards continually monitored various streams for trash and stream blockage and notify town employees as needed. Notification is by email or phone to Conservation or DPW staff. Currently working on stream blockage and trash clearing with Conservation staff as funded by Town Meeting as part of Highway Operations using hand tools. During this permit year sections of Vine Brook were cleared of several stream blockages of woody debris and trash.	Watershed Stewards continue to monitor various streams for trash and stream blockage and notify town employees as needed.
2B	Volunteer Water Quality Monitoring Program	Engineering/ D. Pavlik & J. Livsey Conservation/ J. McCarron	Maintain watershed volunteer program for program sustainability.	Engineering staff expanded the volunteer monitoring program using civil engineering students. The students are from the UMASS Lowell Francis College of Engineering. Three teams of 2-3 students engaged in field work which included outfall observations and taking grab samples for laboratory testing. The outfall observations were recorded on data sheets. The stormwater samples are tested at an EPA approved lab. 79 lab samples have been collected to date. The samples have been tested for Ecoli, surfactants and ammonia concentrations. A two member student data team was formed to process and manage field data.	Continue to support the water quality volunteer monitoring program into the next phase.

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 15
2C	Storm Drain Markers Installation done with public involvement.	Conservation/ J. McCarron Engineering/ D. Pavlik	Volunteers install storm drain markers at catch basins that drain to town streams.	80 Storm Drain markers were purchased for installation in Lexington for a volunteer project. This phase of the storm drain marker program will be completed as part of an Eagle Scout project.	Installation of the storm drain marker installation.
2D	Direct Mailings done with public involvement.	Conservation/ J. McCarron Engineering/ D. Pavlik	Use volunteers as part of direct mailings for public outreach.	No direct mailings were done this permit year.	Continue program.
2E	Stream Neighbor Notices	Conservation/ J. McCarron Engineering/ D. Pavlik	Inform outfall abutters of water quality and outfall inventory program.	UMASS Lowell interns communicate with abutters during outfall inventory and water quality sampling. A letter from the Engineering division is part of the volunteer package that is presented to abutters. This letter details the objective and purpose of the work.	Continue to communicate with stream abutters about water quality and outfall inventory efforts.

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 15
3A	Mapping of storm water outfalls and catchment areas. Mapping sanitary sewer under drain system.	Engineering	Maintain data base for GIS mapping of Town's entire drainage system including – pipes, inlets, outfalls, subcatchments, BMPS, and other structures.	Identified missing information in the Town's existing separate storm sewer system in coordination with an outside consultant. The missing information was reviewed by internal engineering staff and information gaps were filled where possible through record plan review and field work, and added to the Town's GIS drainage map. Revised sub-catchment map GIS mapping of the sanitary sewer system underdrain was also completed using record drawings and field investigation.	Continue to fill in gaps of the Town's GIS map through field work, survey, and hiring of outside consultants to identify missing outfalls, receiving waters, open channels, and other items identified in section 2.3.4.5 of the MS4 Permit. Continue revising sub-catchment and outfall map as needed and integrate into storm water quality program. Continue mapping sanitary sewer underdrain with more field investigation and as construction reveals new portions of underdrain

3B	DPW Employee Education	Engineering/ D. Pavlik J. Livsey	Education of Town staff on development of Illicit Discharge Detection and Elimination program. Obtained information education guidance manual.	November 1, 2016 – In-house training for DPW, Conservation, and Planning departments on new permit requirements. November 18, 2016 – Engineering Assistant attended CMWC stormwater training. January 23 & 24, 2017 – Town Engineer, Senior Civil, and Engineering Assistant attended NEWEA conference with sessions on stormwater. January 27 & February 3, 2017 – Engineering Assistant attended GI seminars in Taunton MA hosted by EPA and RTWN. Town staff received and reviewed EPA's NPDES emails during the permit year.	Utilize and distribute EPA's NPDES email and other communication. Continue to meet with local watershed associations and attend EPA trainings

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 15
3C	Stormwater Bylaw	Conservation/ K. Mullins Engineering/ J. Livsey	Implement stormwater bylaw.	Bylaw was previously passed by Town Meeting. Bylaw prohibits non-stormwater discharges and pollutants into the MS4 or watercourses in the town and it includes enforcement methods. A stormwater regulation was passed this permit year to strengthen the enforcement of the stormwater bylaw.	Implement new Lexington stormwater regulations.
3D	Illicit Discharge Recording System	Engineering/ D. Pavlik	Record known points of illicit discharge	Maintain data base of points of illicit discharge and corrective action. After elevated levels of Ecoli and ammonia were discovered at one of the outfalls, an investigation was started. The results of the investigation pointed to a broken sewer service located in Arlington that was leaking sanitary sewer into the drainage system. Working with Arlington the service was repaired and continued sampling of the outfall shows decreased levels of Ecoli.	Maintain the data of points of illicit discharge and corrective action.
3E	Locate and remediate potential sources of pollution	Engineering/ J Livsey	Direct the work of staff and engineering consultants to repair sanitary sewers.	Weston and Sampson Engineers has been working continuously since 2009 at a high level to clean, survey and repair sewers to stop exfiltration and prevent overflows of sewage into streams. Engineering division and contractors have sealed sections of sanitary sewer to remedy infiltration and exfiltration. Preliminary results of stream sampling show improvement in stream quality.	Continue work on program of comprehensive sanitary sewer repair and renewal.

3E	Locate and remediate potential sources of pollution	Engineering/ D. Pavlik	Locate and remove illicit connections to storm drains for approximately 10% of town.	Continue work on program of sanitary sewer repair and sump pump disconnection	Continue work on program of sanitary sewer repair and sump pump disconnection.
3E	Locate and remediate potential sources of pollution	Engineering/ D. Pavlik	Line aging sanitary sewers to prevent exfiltration of sewage into sewer underdrains that flow to streams.	July 2015 – The town lined 10,509 linear feet of eight and ten inch sanitary sewer throughout Lexington in various locations.	Continue to test outfalls in area of relining project.

3E CONT.	Locate and remediate potential sources of pollution	Engineering/ D. Pavlik and M. Sprague	Additional supplies for water quality testing equipment for IDDE sampling. Continued use of environmental services company to provide laboratory testing on as needed schedule. Expanded volunteer water quality monitoring program to use of environmental engineering students from UMASS Lowell. Updated the "how to guide" for watershed volunteers to use in field for sampling and outfall inventory. Purchased additional equipment for volunteer program.	April 2016 to March 2017 – Town Staff continued water quality sampling of known hot spot for illicit connections. Grab samples were taken from outfalls for laboratory testing of E. *Coli (MPN/100ml), surfactants(mg/l) and ammonia (mg/l)* concentrations. 79 samples were taken over a 10 month period. September 2016 to March 2017 - Expanded volunteer water quality sampling using engineering students from UMass Lowell. Sampling team members monitor specific outfalls weekly and share observations to locate sources of pollution and eliminate them. Two training and education sessions were given to a total of 12 students. Three teams of 2-3 students engaged in field work which included outfall observations, taking grab samples for laboratory testing, and sampling with YSI and colorimeter. The outfall observations were recorded on data sheets. The stormwater samples are tested at an EPA approved lab. 74 lab samples have been collected to date. The samples have been tested for Ecoli, surfactants and ammonia concentrations. An additional data team will handle data input and analysis for the IDDE program.	Manage volunteer and staff effort to expand stream and outfall sampling. Expand sample data base to focus investigations on sources of pollution. Remediate sources when found.
3E	Locate and remediate potential sources of pollution	Engineering/ J Livsey and Recreation/ K.Simmons	Improve stormwater system in vicinity of Old Res to reduce wet weather contamination.	Maintain the new BMP and monitor results.	Continue BMP maintenance program.

3F.	Illicit Discharge Detection and Elimination	Engineering/ J. Livsey, D. Pavlik	Completion of IDDE plan.	Work according to the IDDE plan for the year	Continue according to the IDDE plan for the year.

3G	Water quality monitoring Old Res *Moved from control measure 2c. Renamed and placed in appropriate control measure.*	Recreation Dept/ Karen Simmons	Sample and analyze drain outlets into Old Res Recreation Area.	In summer the Old Res is a public swimming pond. This water body is tested weekly in season for bacteria by the Recreation Department.	Continue sampling and reporting.
3H	Septic Systems Tracking Management *Moved from control measure 2D. Renamed and placed in appropriate control measure*	Health Dept/ K. Fox	Transfer data to electronic media, maintain and upgrade data	Maintained database and created GIS layer to record locations of active septic systems in Town.	Maintain the database.

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 15
4A	Runoff Control	Conservation/ K. Mullins Engineering/ J. Livsey	Implement stormwater bylaw	Bylaw was previously passed by Town Meeting. Bylaw prohibits non-stormwater discharges and pollutants into the MS4 or watercourses in the town and it includes enforcement methods. A stormwater regulation was passed this permit year to strengthen the enforcement of the stormwater bylaw.	Implement new stormwater regulation.
4A	Runoff Control	Engineering/ J Livsey	Implement stormwater bylaw	Consolidated DPW inspection administration in Engineering Division to insure that all sites are inspected. Procurement and implementation of an electronic building permitting system is underway. Shared electronic building and stormwater permits will facilitate site inspection and runoff control.	Manage inspection program to assure complete coverage.
4A	Runoff Control	DPW/M. Valenti	Issue notices for construction runoff remediation	Highway superintendent and staff have increased monitoring of construction sites and are issuing notices	Continue to monitor and issue notices.
4B	Inspection Staff Training	Building Department/ Engineering/ J Livsey	Train inspection staff to look for and respond to risky construction site practices	Held joint meetings with engineering, public works and building inspection staff to improve communication between departments with respect to construction site runoff. November 1, 2016 – Training on new permit requirements.	Continue to hold joint meetings to improve interdepartmental communication.
4B CONT.	Inspection Staff Training	Building Department/ Engineering/ J Livsey	Train inspection staff to look for and respond to risky construction site practices	Inspection staffs of community development and engineering division have been trained and look for construction site erosion. November 1, 2016 – Training on new	Update and deliver training to reflect complete stormwater bylaw and regulations.

				permit requirements.	
4C	Inspection and reporting	Engineering/ D. Pavlik Conservation/ K. Mullins	Design and distribute handout for permits	New stormwater regulation provides regulatory mechanism to enforce erosion control on private property development.	Continue to enforce new stormwater regulations.

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 15
5A	Inventory Construction Violations	Engineering/ J Livsey	Inspect all construction sites and record findings	Improved communication with Building Department. Inspected construction projects and shared information with Streets Superintendent and Building Commissioner.	Continue to share information on construction sites with other departments.
5B	Develop BMP's list	Engineering/ D. Pavlik	Develop list of BMP's that are appropriate for Lexington public and private projects	Town wide BMP inventory team, made up of DPW operations, Engineering Division, Planning and Conservation, continued work on data base and GIS layers. BMPs captured to date include water quality structures, infiltration basins, swales, forebays, etc. at the Town's DPW facility, reservoir, town fields, schools, and more.	Complete review of town record plans to digitize town owned BMPs in GIS and CAD. Continue development of BMP team. Identify missing town owned BMPs and take measures to complete listing, mapping, and improving O&M procedures
5C	Post Construction Runoff Control	DPW/M Valenti	Issue notices verbal and in writing for runoff remediation.	Highway superintendent and staff monitor construction sites for erosion control.	Continue to monitor construction sites.
5D	Runoff Operation and Maintenance Plan	Conservation/ K. Mullins Engineering/ D. Pavlik	Require in-house reviewers to screen permit applications for O&M plans	Staff screens permit applications for O&M plans.	Continue to require O&M Plans

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 15
6A	Employee training	Public Works/ D. Pavlik & D. Pinsonneault	Employee training for stormwater pollution prevention.	November 1, 2016 – Training to DPW superintendents on new permit requirements related to DPW operations.	Continue program
6A	Employee training	Public Works/ D. Pavlik & D. Pinsonneault	Employee training for stormwater pollution prevention.	American Public Works Snow and Ice seminar attending by Highway Superintendent. Topics of proper snow treatment material storage and sustainability for public works operations were presented. Baystate Roads Snow and Ice program training. Highway foreman attend one day seminar on proper material storage and environmental impacts of the proper use of salt and liquid anti-icers.	
6B	Municipal pollution prevention	Public Works/ D. Pinsonneault	Street sweeping and catch basin cleaning.	All town roads were swept at least twice during the year. The center business district is swept three times per week. All town-owned catch basins were cleaned once during the year with a clam shell truck. A Vactor ® truck was used in addition on catch basins that required heavy cleaning.	Continue program

6C	Municipal pollution prevention	Engineering/ John Livsey	Facility maintenance for pollution prevention	Completed an environmental compliance assessment of the public services building. Oil Spill Prevention Control and Countermeasure (SPCC) and Stormwater Pollution Prevention Plan (SWPPP) have been completed and implemented.	Continue to implement SPCC and SWPPP.
6D	Vehicle washing	Public Works/ D. Pinsonneault	Wash indoors to keep solids from stream	Continued DPW vehicle washing program. All vehicles are washed indoors in a facility that recycles wash water.	Continue program
6E	Used oil recycling	Public Works Operations/ D. Pinsonneault Public Works Solid Waste/ R.Beaudoin	Collect used oil at PW maintenance garage and make used oil recycling available at Town Recycling facility.	Contracted for maintenance garage recycling and offered household waste recycling townwide eight times per year.	Continue program
6F	Stream Cleaning	Public Works Operations/ M. Valenti	Remove debris from stream channel and banks.	Due to snow budget deficit, this measure was reprioritized. Some conservation projects removed woody debris in limited quantities from streams.	Continue program.

7. Best Management Practices for Meeting total Maximum Daily Load (TMDL) Waste Load Allocations (WLA)

7A	Pet Waste Pollution Prevention	Conservation/ J. McCarron Town Clerk/ N Rice	Inform the public on the impact of pet waste on the environment	Distributed leaflet to dog owners when owners purchased dog license. Leaflet seeks to inform owners of the effects of improper waste disposal.	Continue program
7A Cont.	Pet Waste Pollution Prevention	Conservation/ J. McCarron Town Clerk/ N Rice	Engage the public to participate in proper disposal of pet waste	Continued "Lexington Green Paw" program. Informs dog owners of proper waste disposal methods and issues a stylish Green Paw tag to dogs when owner commits to dispose of waste properly.	Continue program
7B	Locate and remediate potential sources of pollution	Engineering/ D. Pavlik	Line aging sanitary sewers to prevent exfiltration of sewage into sewer underdrains that flow to streams.	Completed lining project in 2016.	Continue stream sampling in area of lining contract.
7B	Stream Restoration	Engineering and Conservation/ J. Livsey and K.Mullins	Develop and Implement a Program of Waterway Maintenance and Restoration	Finished plantings around restored stream construction project.	No planned activity

Part IV. Summary of Information Collected and Analyzed

Student volunteer interns continued extensive monitoring and screening of the outfalls in Town. E.coli and elevated ammonia levels were present in some of the samples. This prompted an investigation that led to the identification of an illicit discharge from a house in Arlington with a cracked sewer service. Working with the Town of Arlington this illicit discharge was repaired and continued sampling has shown decreased levels of Ecoli. The town will begin using PPCP tests on outfalls with suspected illicit connections for the next sampling year. The first samples were taken on March 23, 2017 and results are expected within a few weeks after the reporting deadline. This year the town will continue to sample and screen results with the goal of locating and eliminating sources of contaminants in Lexington's streams.

Town staff sustained an emphasis on the quality of Mill Brook and its tributaries. Extensive relining of old sanitary sewers was completed during the previous permit year. Outfall sampling was done to measure the effect of relining. As a result of the relining work we believe that there was a significant improvement of the water quality sample results from the previous permit year at outfall 11-3, which is a nearby outfall to the lining work. An Ecoli concentration with a geometric mean of *72 mpn/100 ml* was obtained from seven samples in this permit year. In contrast to an Ecoli concentration of *204 mpn/100 ml* which was the result of the geometric mean for the same outfall in the previous permit year.

Significant effort was made in updating the town wide drainage mapping. A collaborative effort was made to review existing mapping information and to identify any gaps in the system. Town record plans were extensively reviewed and digitized to update any of the missing information that existed in hard copy form. The remaining areas were reviewed visually both online and in the field to identify if a drainage system indeed existed, and to what extent further exploration was necessary.

Part V. Program Outputs & Accomplishments (OPTIONAL)
(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2010 through March 31, 2011)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	No
Annual program budget/expenditures **	($)	$1,600,000
Total program expenditures since beginning of permit coverage	($)	
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	
Stormwater management committee established	(y/n)	No
Stream teams established or supported	(# or y/n)	Yes
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	NA
Shoreline cleaned since beginning of permit coverage	(mi.)	NA
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	8
▪ community participation **	(# or %)	
▪ material collected **	(tons or gal)	
School curricula implemented	(y/n)	Yes

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	Adopted
Regulatory Mechanism Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination					
▪ Erosion & Sediment Control					x
▪ Post-Development Stormwater Management					x
Accompanying Regulation Status (indicate with "**X**")					
▪ Illicit Discharge Detection & Elimination					
▪ Erosion & Sediment Control					x
▪ Post-Development Stormwater Management					x

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	100
Estimated or actual number of outfalls	(#)	254
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	95
Mapping method(s)		
▪ Paper/Mylar	(%)	
▪ CADD	(%)	
▪ GIS	(%)	100
Outfalls inspected/screened **	(# or %)	12
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	75
Illicit discharges identified **	(#)	
Illicit discharges identified (Since beginning of permit coverage)	(#)	3
Illicit connections removed **	(#); and (est. gpd)	
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	3
% of population on sewer	(%)	

% of population on septic systems	(%)	

Construction

	(Preferred Units)	Response
Number of construction starts (>1-acre) **	(#)	
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	
Site inspections completed **	(# or %)	
Tickets/Stop work orders issued **	(# or %)	
Fines collected **	(# and $)	
Complaints/concerns received from public **	(#)	

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	
Site inspections (for proper BMP installation & operation) completed **	(# or %)	
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	
Low-impact development (LID) practices permitted and encouraged	(y/n)	

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	
Qty of structures cleaned **	(#)	
Qty. of storm drain cleaned **	(%, LF or mi.)	
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	($)	
• Hourly or per basin contract rate **	($/hr or $ per basin)	
• Disposal cost**	($)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	
• Vacuum truck(s) owned/leased	(#)	
• Vacuum trucks specified in contracts	(y/n)	
• % Structures cleaned with clam shells **	(%)	
• % Structures cleaned with vactor **	(%)	

	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	($)	
• Hourly or lane mile contract rate **	($/hr. or ln mi.)	
• Disposal cost**	($)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	
• Vacuum street sweepers owned/leased	(#)	
• Vacuum street sweepers specified in contracts	(y/n)	
• % Roads swept with rotary brush sweepers **	%	
• % Roads swept with vacuum sweepers **	%	

Reduction (since beginning of permit coverage) in application on public land of:

("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	
▪ Herbicides	(lbs. or %)	
▪ Pesticides	(lbs. or %)	
Integrated Pest Management (IPM) Practices Implemented	(y/n)	

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % $CaCl_2$ % $MgCl_2$ % CMA % Kac % KCl % Sand	
Pre-wetting techniques utilized **	(y/n or %)	
Manual control spreaders used **	(y/n or %)	
Zero-velocity spreaders used **	(y/n or %)	
Estimated net reduction or increase in typical year salt/chemical application rate	(±lbs/ln mi. or %)	
Estimated net reduction or increase in typical year sand application rate **	(±lbs/ln mi. or %)	
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100
Storage shed(s) in design or under construction	(y/n or #)	
100% of salt/chemical pile(s) covered in storage shed(s) by May 2008	(y/n)	yes

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	
Treatment units induce infiltration within 500-feet of a wellhead protection area	# or y/n	