Municipality/Organization: **City of Nashua, NH**

EPA NPDES Permit Number: **NHR041021**

Annual Report Number & Reporting Period: **No. 14: 4/1/16 – 3/31/17**

NPDES Phase II Small MS4 General Permit 2017 Annual Report

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: S Dookran

Printed Name: Stephen Dookran, P.E.

Title: City Engineer

Date: May 25, 2017

Introduction

This is the fourteenth annual report to comply with the conditions of the 2003 Small MS4 General Permit. The City of Nashua (City) acknowledges the 2017 Small MS4 General Permit for New Hampshire was issued on January 18, 2017. The permit's effective date is July 1, 2018 and Notice of Intent (NOI) application forms are due 90 days later (October 2, 2018).

The City continues to experience a lack of funding dedicated to providing maintenance to culverts, wetlands, brooks, catch basins, and drain lines and capital improvements to the drainage system. While the City's Wastewater Department through its sewer user fee has primarily supported the efforts required for the MS4 Permit, these funds are intended only for sanitary and combined sewer system, not the storm drainage system. This funding deficiency is expected to grow since the 2017 Small MS4 General Permit puts further requirements relating to stormwater upon the City.

Knowing that legal authority was given to NH municipalities in 2008 to form stormwater utilities under RSA 149-I, the City applied for and received a grant from the NH Department of Environmental Services (NHDES), and, using additional City funds, completed a feasibility study for a stormwater utility in the City of Nashua. The feasibility study determined that a stormwater fee is a practical and advantageous option for Nashua because it would fairly distribute the cost of stormwater management amongst property owners, provide a stable source of funds dedicated to fulfilling mandated requirements for stormwater management, and allow for proactive maintenance of and necessary improvements to the drainage infrastructure. However, at this time, pursuing a stormwater fee will be delayed due to the difficult economic times affecting by the property owners and the lack of support from City citizens and elected officials to champion the cause.

Part I. Self-Assessment

CSO Program

The City of Nashua is under an EPA Consent Decree (Civil Action No. 05-376-PB), dated December 26, 2005 (based on the Long-Term Water Quality and Infrastructure Control Plan), to mitigate combined sewer overflows (CSOs). Currently, there are nine CSO outfalls that are a part of the city's sewer collection system, four that have the potential to discharge to the Nashua River and five that have a potential to discharge to the Merrimack River. CSOs have been identified as a probable source for the Escherichia coli impairment within reaches of the Nashua and Merrimack Rivers located nearest to the city. While a statewide TMDL has been approved for all waterways impaired with Escherichia coli, the City continues to complete requirements

related to the Consent Decree, and as discussed below, are ongoing and will reduce the amounts of CSOs, and thus Escherichia coli being discharged into the Nashua and Merrimack Rivers.

The CSO program was designed based on the philosophy that urban runoff, particularly in the urbanized areas dictated by the MS4 Permit, contains pollutants that are harmful to the waterways. The City moved from a complete separation program to a hold and treat philosophy. The inner city areas are mainly served by combined sewers. The stormwater runoff enters a sewer in the street that also conveys sanitary wastes. Up to a two year storm event, particularly the most polluted first flush, will be collected/stored and conveyed to combined sewage treatment facilities.

The 60 MGD Wet Weather Flow Treatment Facility (WWFTF), located at the Nashua Wastewater Treatment Facility (NWTF), to capture and treat combined sanitary and stormwater, continues to operate, reducing the occurrence of CSOs and the volume of combined flows that is discharged to the rivers. Through the CSO program, more urban stormwater runoff from approximately 30 percent of the city, which is part of the combined flow, is now conveyed to the WWFTF where it will be treated before being discharged to the Merrimack River.

The construction of a CSO storage tank located near Burke Street was completed in December 2013. This 40,000 gallon tank contains overflow up to a 2 year storm event and reduces the amount of combined sewage discharging to the Merrimack River.

Sewer separation work completed upstream of CSO 003 has eliminated the discharge of combined sewage at CSO 3 up to a 2 year storm event. A stormwater treatment train constructed in 2006 which included a Vortechnic swirl concentrator, a detention pond and a created wetland allows treated stormwater to be discharged to the Merrimack River.

Drop over structures constructed on the North Merrimack River Interceptor reduce discharges to the Merrimack River at CSO 005 by allowing combined sewage flow from a 2-year and higher storm event in sewer pipes on East Hollis and Crown Streets to flow directly into the larger interceptor that flows directly to the NWTF and the WWFTF where the combined flow is treated prior to being discharged into the Merrimack River.

Separation of the 60 acre combined sewered Harbor Avenue area resulted in reducing the volume of combined sewage flowing to the CSO 005 regulator on the Merrimack River. An additional benefit of this work is that localized flooding of combined sewage in the streets is eliminated.

The Screening and Disinfection Facility (SDF) at CSOs 005/006 has the capacity to hold one million gallons of combined flow, containing overflows up to a 2 year storm event, and reducing the amount of combined sewage discharging to the Merrimack River. In addition, this CSO facility screens and disinfects combined sewer overflows that are currently discharged untreated from CSO 005, located on the Merrimack River, and CSO 006, located on the Nashua River slightly upstream of its confluence with the Merrimack River. The new outfall for this facility is located on the Merrimack River.

The City documents the volume of combined sewer overflows discharging into the Nashua and Merrimack Rivers. An annual monitoring program provides information for the volume of discharge at each of the nine CSOs. Rainfall data is also recorded.

The Post Construction Monitoring Program for the CSO program requires monitoring the water quality of the Nashua and Merrimack Rivers. During this reporting period, a revised program was submitted to the EPA. Testing of the Nashua and Merrimack Rivers will begin when the program is approved by the EPA. Results will be included in this annual reporting document.

Public Education and Participation

The City continues to be a member of the Nashua Area Stormwater Coalition. The Manchester Area Stormwater Coalition is now meeting jointly with the Nashua coalition to discuss common issues. All communities within the coalitions are located within the Merrimack River watershed. During the past year the group met four times. The groups discussed successes and challenges in addressing their stormwater management programs and compliance with the Phase II regulations.

The Paulie the Pickerel "Let Only Rain Go down the Storm Drain" logo continues to be used for marketing the stormwater management program in the city. Magnets with the logo continue to be distributed during educational presentations. Door hangers containing information about stormwater dos and don'ts were distributed during presentations and are available in locations frequented by residents in public buildings. In total, approximately 8 presentations were made to the public consisting of 4 classrooms at Elm Street Middle School and people of all ages at the Public Works Day Celebration in May 2016. Also, the planning for a presentation for the Mayor's Citizen Academy classes for residents was initiated.

The Mine Falls Park Advisory Committee sponsored six Trail Days during the period. In addition to general park maintenance, trash and debris were removed from the waterways and banks of the Nashua River, Nashua Canal and Mill Pond. These events are well attended and include families, high school groups, business teams and the general public.

Updates of stormwater issues are reported at monthly meetings of the Board of Public Works. The Board of Public Works is a five member body of the elected officials that are responsible for the overall direction and performance of the Division of Public Works. This is a public meeting that is recorded and broadcasted repeatedly on the government access channel. The stormwater update discusses city-wide drainage issues, the progress made on addressing them, and any other items that are related to the management of stormwater.

The Nashua Conservation Commission (NCC) has taken an active role in disseminating information to the public via informational items included on the agendas. The NCC also welcomes and encourages public participation at the meetings. Information pertaining to a range of environmental concerns including stormwater management, invasive species, grant and funding opportunities, workshops, volunteer opportunities, shoreland protection, wetlands and vernal pools, master plans, best management practices, and active legislation is discussed.

The Nashua Telegraph continues to run articles on the water quality of area brooks, rivers and streams and the volunteer sampling program that is ongoing to determine the health of the waterways.

The waterways continue to have issues with invasive species. Herbicide treatment in the Mill pond and canal was completed in June 2016. A survey of aquatic invasive species was completed in August 2016 to re-map their presence and extent so the management plan can be revised.

In an effort to improve management of water resources and in response to findings by the Waterways Committee, the City created in 2015 a Waterways Manager position. The Waterways Manager works on environmental issues (water quality, invasive species management, waterfront brownfields remediation), flood risk mitigation (floodplain management, hazard mitigation planning, NFIP, CRS), manages or assists with the management of waterways infrastructure (hydropower facilities, dams, levee), facilitates and improves waterfront and waterways public access and recreation, and does public outreach related to waterways issues. The waterways manager also is working to ensure better coordination between the City and local, regional, state, and federal organizations and agencies on matters pertaining to waterways, waterfront, and floodplain management.

Illicit Discharge Detection and Elimination

The Geographic Information System (GIS) mapping program of the separated drainage system outfalls was updated to a new ESRI database. When discrepancies were found in the data, correction was made to the database.

Culverts continued to be cleaned and maintained. When a new culvert was identified, the GIS mapping system was updated with accurate culvert information based on the field verification. Where necessary, maintenance work orders were generated.

The City is using the Cartegraph Operations Management System to track all work completed on the drainage system.

Hazardous waste collection days, coordinated regionally by the Nashua Regional Planning Committee, occurred on April 23, May 7, June 24, August 6, August 27, October 1 and November 5, 2016. Approximately, 1,736 households from the area participated in these events.

The City's Waterways Manager is working with researchers from the University of New Hampshire to investigate the possible sources of the chloride impairment on Nashua River reach NHIMP700040402-02. Researchers will be sampling waterways and investigating tributaries in this reach.

Sampling is planned of waterways on the Draft 2014 303(d) located within the City. Funds were budgeted during this reporting period to hire engineering interns to complete this work. Contacts were made with the Nashua Watershed Association for assistance with the sampling program.

Construction Site and Post-Construction Runoff Control

The Nashua Land Use Code addresses land use planning issues through a variety of provisions related to stormwater management including the protection of wetlands, floodplain regulations, landscaping requirements, impervious surface requirements, open space requirements, and designs issues discussed during the development review process. The technical review process affords an interdisciplinary review of all applications submitted for Planning Board approval. Stormwater, drainage, and improved landscaping elements are included in discussions for every site and contribute to improving the stormwater directly or indirectly. The open space, impervious surface, parking and other zoning provisions are addressed as part of the process as well. The current land use code (with revisions incorporated dated September 1, 2012), is routinely discussed at staff meeting, noting areas where future amendments may be warranted.

Wetlands and wetland buffer areas are protected and proposals to impact these areas are carefully reviewed by the Nashua Conservation Commission who makes a formal recommendation to the Zoning Board of Adjustment. Wetland Buffer Markers continue to be required to be installed in the buffer areas of impacted wetlands by the Nashua Conservation Commission when proposed developments include wetland impacts. The purpose of the markers is to encourage residents not to dump debris in wetland areas.

The building permit process includes review of not only zoning and building issues, but proximity to local conservation lands and practical things to do or not do. For example, no construction materials shall be stored or left in the wetland buffer areas, best management practices to be followed during construction and site cleanup upon project completion.

Staff provides ongoing assistance to residents with flood insurance and floodplain management questions. This serves as an opportunity to educate the public about floodplain management and the relationship to stormwater management.

Staff routinely provided educational literature to the NCC and Planning Board on issues related to environmental protections such as stormwater management, erosion control and use of salt/sand in winter deicing applications.

Good Housekeeping

Good housekeeping measures included the continuous street sweeping program. Sweepers operate 16 hours a day on week days from April 1 to June 1 and 8 hours per day until December 1. Winter salt and sand use was monitored and controlled.

Video inspections of culverts and the storm drain system using a CCTV system and a hand operated pole camera were completed. This equipment assisted in detecting infrastructure issues.

The Parks Department continues its practice of Integrated Pest Management (IPM) principles and reduced the amount of pesticides that was applied. The annual 2017 Pesticide Usage Report was submitted to the NH Department of Agriculture. Fertilizer is phosphorous free except for

starter fertilizer on new seed. Staff attended the 2016 Vermont Greenspace Associate meeting and training sessions.

The Cartegraph Operations Management System (OMS) is used to track work orders. The OMS system allows entering and tracking of all work orders within the Division of Public Works, many of which are related to stormwater management.

Culverts continued to be cleaned and maintained. When a new culvert was identified, the GIS mapping system was updated with accurate culvert information based on the field verification. Where necessary, maintenance work orders were generated using the Cartegraph system.

Additional activities completed during the permit period are included in Part II of this report.

Impaired Waters

To address Part I.C.1 of the General Permit, Table A is included in Appendix A. Listed in Table A are the water bodies where Nashua is listed as the Primary Town on the NHDES 2014 Draft List of Threatened or Impaired Waters that require a TMDL (303(d) list). Included in the table is the Best Management Practice to address the cause of impairment if the source of impairment has been identified by the NHDES.

The NHDES Final Report for Statewide TMDL for Bacteria Impaired Waters has been approved by the EPA. Certain segments of the Nashua and Merrimack Rivers and portions of Salmon Brook have been identified as being impaired for Escherichia coli. The CSO Program is also addressing this impairment in the Nashua and Merrimack Rivers. In order to address Part I.D, the schedule for waterbodies in Nashua identified as bacteria impaired waters covered by the approved statewide TMDL is listed in Table B, located in Appendix B.

In addition, all marine surface waters in New Hampshire, therefore all surface waters in Nashua, are also included on this list due to statewide fish/shellfish consumption advisories issued because of mercury levels in fish/shellfish tissue.

Permit Compliance

The City of Nashua has completed the required self-assessment and is in compliance with permit conditions.

Part II. Summary of Minimum Control Measures

The summary of the activities completed in Permit Year 14 of the six Minimum Control Measures is listed in the attached table, Part II Summary of Minimum Control Measures. Planned activities for the next permitted year, April 2017 through March 2018, are also listed. Revisions to the Best Management Practices have been noted in the table.

Part III. Summary of Information Collected and Analyzed

Volunteers with the Nashua River Watershed Association continue to monitor several locations in Nashua. Results of the sampling completed are included in the New Hampshire Volunteer River Assessment Program 2016 Nashua River Watershed Water Quality Report and can be found in Appendix C. For the portion of the Nashua River that runs through Nashua, the majority of the results for E.coli were in the excellent range (≤ 88 cfu) with no results in the poor range (≥ 630 cfu).

Staff at the Nashua Wastewater Facility also takes samples of the Merrimack River throughout the year as a requirement of their NPDES permit.

Part IV. Implementation Schedule

The Stormwater Management Program Implementation Schedule for the Best Management Practices is outlined in the attached table. The schedule for the current year, Year 14, is shown in bold. The proposed schedule for Year 15 is also presented.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
1.00	**Public Education**				
1.01	Storm water education program for school children	Purchase Enviroscape Watershed/Nonpoint Source model	DPW (1) - Amy Gill	Presentations using the Enviroscape were completed the DPW celebration in May. Presentations were given to about 98 seventh graders and staff at Elm St Middle School. Completed presentation with Nashua River Watershed Association.	Continue presenting in the schools and at other events.
Revision		Number of presentations given using Enviroscape			
1.02	Insert flyer in local newspaper describing city wide storm water program	Number of inserts distributed annually	DPW - Amy Gill	Local newspaper continued to publish articles on river water quality, volunteer water sampling, and waterbodies in general.	Continue to seek newspaper coverage on stormwater and water quality issues.
1.03	Create web page on City web site	Web page online by 12/05	DPW - Stephen Dookran, Amy Gill	The City web site was revamp during this period. Finalized stormwater information for web site.	Review and update web page.
Revision		Web page online by 12/08			
1.04	Create Public Service Announcements	Run Announcement quarterly on cable TV channel access	DPW - Amy Gill	Power point slides being revised.	Continue playing educational PowerPoint presentations on local and government cable access channels.
Revision		Number of days presentation runs			
1.05	Create brochure and presentation to inform businesses and industrial users about illicit discharges	Distribute to businesses and industrial users once every two years	DPW - Phil Appert	Visits were made to SIU and deficiencies discussed with property owners. Discussion of stormwater BMPs included in visits.	Continue visiting SIUs.
1.06	Run three videos on Cable Access TV. "After the Storm" , "Stormwater is Never Away" and "A River Reborn"	Number of times videos are run.	DPW - Amy Gill	Public meetings where stormwater issues are discussed were replayed on local cable channel.	Continue to replay meetings.
1.07	Create board for display at functions where the public is gathered.	Number of times display is used.	DPW - Amy Gill	Board used as tool during public presentations.	Update board and continue to display board at various public events.
1.08	Install Wetland Buffer Markers to encourage no dumping of debris in a wetland area.	75 markers to be installed in 3 years.	DPW/CDD	Task complete. Wetland markers continued to be installed by developers as stipulations for approval by the Conservation Commission.	Installations of wetland markers will continue to be stipulated by the Conservation Commission as part of the approval process.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
1.09	Mail letters to owners/residents that abut wetland to explain importance of wetland and encourage no dumping in wetland area.	Number of letters mailed to abutters	DPW - Amy Gill, NCC(7)	Letters and Nashua Conservation brochures were sent to homeowners where a concern about adjacent wetlands were identified.	Send out information to abutters of wetlands as needed.
1.10	Design sign for brook/stream crossings	Percent design completed	DPW - Amy Gill, NCC	Draft of waterway information signs developed.	Discuss concept with Nashua Conservation Commission and install signs.
1.11	Present Stormwater Management Program at Public Meetings	Number of Presentations	DPW- Amy Gill	Stormwater Issues update given monthly and EPA CSO reports presented at Board of Public Works meeting which is carried and replayed on Government access channel.	Continue updates during monthly Board of Public Works meetings.
1.12	Purchase and distribute Magnets with "Paulie the Pickerel" logo at public functions	Number of magnets distributed	DPW - Amy Gill	Magnets continue to be distributed in city offices and at public demonstrations using the Enviroscape.	Continue to distribute magnets.
1.13	Develop informative flyer about stormwater pollution and include in wastewater bills and display at public places.	Number of flyers distributed	DPW- Noelle Osborne, Amy Gill	Inserts and doorhangers continue to be made available at public locations.	Continue to distribute information flyers/doorhangers.
1a.	**Addition**				
1.14	Develop Power point to run on Public Access television	Number of days presentation runs	DPW- Amy Gill	Power point slides updated.	Run informational slides on government cable channel.
2.00	**Public Participation**				
2.01	Attach Storm Drain Markers in or near Catch Basins discharging to open water body	40% installed by 11/04, 80% installed by11/05, 100% by 11/06	DPW - Amy Gill, Pennichuck Water Works, Inc.	Previously placed markers inspected to determine durability of marker. Some markers replaced.	Continue to have public involved in applying markers.
Revision		50% installed by 10/08			
2.02	Continue phone hotline service for stormwater related concerns	Establish a hotline. Record number of phone calls concerning drainage issues	DPW- NWTF(2)	Hotline for drainage issues continues. Record violations and report to NHDES(3) and USEPA(4) as needed. The Cartegraph OMS was used to track phone calls.	Continue hotline and Cartegraph OMS to track drainage issues.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
2.03	Meet with local communities, and the NHDOT(9). Meeting coordinated by the Nashua Regional Planning Commission (NRPC). Group called Nashua Stormwater Coalition.	Meet every two months for a total of 6 meetings per year	DPW - Amy Gill, NRPC (8), NHDES	Four meetings were held with the Nashua Stormwater Coalition to discuss ongoing stormwater issues and updated proposed MS4 permit.	Continue to meet with members of the surrounding communities to discuss stormwater issues.
2.04	Create door hanger with tips on preventing stormwater pollution	Number of door hangers distributed	DPW - Amy Gill	Door hangers were made available at public areas.	Continue to distribute door hangers to the public.
2.05	Provide email links for stormwater related concerns	Number of times email received	DPW	Frequent emails received to report stormwater issues.	Continue to monitor emails.
2.06	Request public input for ordinance revision to Stormwater Management and Wetlands sections	Number of meetings held	CDD (5)	Continued to obtain public comment on ordinances and wetland issues.	Continue to obtain public comment on ordinances and wetland issues.
3.00	**Illicit Discharge Detection and Elimination**				
3.01	Map outfalls and waters of the United States in Nashua city limits	Complete by 11/04. Count number of outfalls identified	DPW - Amy Gill	GIS maps were updated to the latest ESRI operating system. System wide updates were made to the wstewater and storm drainage systems.	Continue to update GIS maps based on field verification of outfalls and newly constructed outfalls.
3.02	Prepare an Illicit Discharge Detection and Elimination (IDDE) Plan	Complete final plan 10/04	DPW - Amy Gill	Continued to develop Draft IDDE.	Complete IDDE Plan.
Revision		Complete final plan 10/06			
3.03	Review illicit discharge ordinance	Amend ordinance as necessary by 12/ 07	DPW - Amy Gill	Ordinance reviewed. Language to amend ordinance discussed.	Begin process to make changes to ordinance if needed.
3.04	Continue dry weather field survey of outfalls.	Complete survey of outfalls. Locate other outfalls in water bodies not included in survey by 11/04	DPW - Noelle Osborne, Amy Gill	Continued to locate outfalls on smaller brooks and ponds. Identified undocumented outfalls recorded. Additional outfalls documented.	Field survey to be completed during summer. Update outfall list as outfalls are located or newly constructed.
3.05	Conduct sampling of dry weather discharges and attempt to trace source of illicit discharge	Sample and identify source of suspect outfalls	DPW - Amy Gill	Sampling of stream and brooks were completed.	Sampling of impaired waters are scheduled for the summer working with the Nashua River Watershed Association. .Sample suspect sources as needed.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
3.06	Remove illicit discharges as budgetary funding allows	Track number of illicit discharges detected and removed	DPW - Noelle Osborne, Jon Ibarra	Visual inspections of outfalls continue in trying to identify suspect discharges.	Continue testing and tracking suspect discharges.
3.07	Continue Regional Hazardous Waste Collection Day	Conduct 5 collection days per year	DPW - Sally Hyland, NRPC	Hazardous waste collection days occurred on 4/23, 5/7, 6/2, 8/6, 8/27, 10/1 and 11/5/2016. Approximately 1,736 households from the area participated in this regional event.	Schedule hazardous waste collection days.
3.08	Track Hazardous Spills	Number of Spills identified	DPW - Noelle Osborne	No spills were reported during this reporting period.	Report on spills as necessary.
3.09	Conduct watershed audit for input in NRPC report	Complete audit	DPW, CDD, NRPC	Audit completed.	
3.10	Sample outfalls in water body RIV700061201-05, identified on the Impaired waters list	Number of outfalls sampled	DPW - Noelle Osborne	Waterway continues to be visually inspected. No suspect sources noted.	Sampling of impaired waters are scheduled for the summer working with the Nashua River Watershed Association. .Sample suspect sources as needed.
4.00	**Construction Site Runoff Control**				
4.01	Review procedure for site plan review to consider if potential water quality impacts are included	Complete review by Dec. 31 2005	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012. Staff routinely discusses land use code at staff meetings, noting areas where future amendments may be warranted.	Continue review of implementation of new ordinances.
4.02	Review requirements for construction operators to control demolition waste, chemicals, sanitary waste and other waste at the construction site	Complete review by Dec. 31 2005	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012.	Continue review of implementation of new ordinances.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
4.03	Review existing city ordinances concerning stormwater management at construction sites	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012.	Continue review of implementation of new ordinances.
4.04	Develop standard drawings of runoff prevention BMPs to be used by site developers	Produce document containing at least 7alternative erosion protection measures by Dec. 2006	DPW - Amy Gill	Sample drawings gathered and compile into standards.	Index drawings and finalize drawings. Compile drawings electronically.
4.05	Review procedures for inspection of construction sites to see if BMPs are in place and functioning correctly	Complete review by Dec. 2006	CDD	CDD reviews construction sites of concern and as the availability of staffing allows.	Continue review of inspection procedures and continue to inspect sites.
4.06	Review procedures for enforcement of improper functioning sediment and erosion control measures	Complete review by Dec. 2006	CDD	Enforcement procedures continued to be reviewed and revised.	Continue review of inspection procedures.
5.00	**Post Construction Runoff Control**				
5.01	Review existing ordinance Sec. 16-145 which requires post development peak discharges be no greater than predevelopment discharges. Modify as necessary	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012.	Continue review of implementation of new ordinances.
5.02	Review ordinance Sec 16-145 for groundwater recharge required on new site plans	Make recommendations for improvements by June 2006. Proceed through internal process to change ordinance by Dec. 2007	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012. Staff continues to make recommendations on improving the quality of landscaping plans submitted.	Continue review of implementation of new ordinances.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
5.03	Implement Annual Operations and Maintenance requirement for BMPs on private properties	Implement by Dec. 2007	CDD- Madeleine Mineau	Land use ordinance revised and updated, effective September 2012.	Continue review of implementation of new ordinances.
5.04	Develop enforcement measures and assign internal staff to enforce requirements	Implement by Dec. 2007	CDD	Review of enforcement procedures ongoing.	Continue review of requirements.
5a.	**Addition**				
5.05	Install Low Impact Development items on Municipal Properties	Design and Construct on Riverside Street Property	DPW - Steve Dookran	Task complete. Additional rain gardens and green spaces continue to be designed at the appropriate locations.	Continue to design and install LID elements on municipally owned properties.
6.00	**Municipal Good Housekeeping**				
6.01	Hazardous waste training program for applicable employees	Employees attend annual hazardous spill training program beginning May 2005	DPW	DPW staff reviewed procedures for handling hazardous wastes.	Continue to train employees and review procedures.
6.02	Storm water discharge training program for applicable municipal employees on preventing non-storm water discharges	Employees attend annual storm water discharge training program beginning May 2005	DPW	EPA Stormwater Web Casts viewed by staff. Employees attended various conferences and seminars (APWA, NEWEA, NHPWA).	Continue to train employees.
6.03	Review program for handling fertilizer on city property	Complete review July 2005	DPW - Nicholas Caggiano	Task complete.	Continue implementation of fertilization policies.
6.04	Continue litter management program by street sweeping entire City at least once a year.	Review program annually and record number of lane miles swept	DPW - Jon Ibarra	Program began in April 2016. Entire City swept once, with commercial/arterial or other critical streets being swept up to 6 times per year, including sidewalks.	Continue street sweeping.
6.05	Review snow dumping procedure to allow snow storage in areas away from surface waters	Complete review July 2005	DPW - Jon Ibarra	Program reviewed. Snow stored in areas where the melted snow entered the combined sewer system for treatment at the NWTF. Area is swept during and after snow melt.	Review program annually.
6.06	Continue city wide program to clean catch basins	100% of all catch basins cleaned once every 3 years	DPW - Noelle Osborne	At least 630 catch basins were cleaned.	Continue catch basin cleaning program.

Part II. Summary of Minimum Control Measures

BMP ID#	Best Management Practice	Measurable Goal	Responsible Party	Progress on Goals Permit Year 14	Planned Activities Next Year
6.07	Continue SSO(6) correction and mitigation program for SSOs that discharge to water bodies	Record number of SSOs corrected.	DPW - Noelle Osborne	Two SSOs was reported that affected a water body.	Continue correction of SSOs.
6.08	Television inspection of storm drains as needed	Record number Inspect as needed	DPW - Noelle Osborne	The City continued to video inspect storm drains as needed.	Continue inspection as needed.
6.09	Calibrate salt and sand truck spreaders	Complete annually before November 1st	DPW - Jon Ibarra	Calibrated salt and sand trucks in November 2016.	Calibrate trucks in fall 2017.
6.10	Review pooper scooper ordinance	Review ordinance by July 2005	DPW- Amy Gill, Nick Caggiano	Ordinance reviewed and found adequate. "Mutt Mitt" dog convenience stations continue to be used by the public and are monitored and refilled.	Monitor the use of the dog convenience stations.
6.11	Disseminate information contained within city developed Alternative Storm Water Management Methods guide for Storm Water Control	Make available to developers as guide by July 2004	CDD/DPW	Low impact development ideas continued to be discussed with developers. Developers have proposed permeable pavement, infiltration systems, rain gardens and other LID components at various sites.	Continue discussion with developers about the advantages of LIDs.
Revision		Make available by July 2005			
6.12	Develop a ditch/swale cleaning program	Develop program by July 2005	DPW - Noelle Osborne	Swales continue to be inspected and cleaned as needed.	Clean swales as necessary.
6.13	Develop culvert maintenance program.	Develop and Implement program by 2007	DPW - Noelle Osborne	Culverts were cleaned and inspected as needed.	Continue to locate culverts and clean culverts as needed. Update GIS system as necessary.
7.00	**Impaired Waters**				
	The 2014 Draft List of Threatened or Waters that require a TMDL within the Limits of the City of Nashua, NH are listed in Appendix A. The NHDES Final Report for Statewide TMDL for Bacteria Impaired Waters has been approved by the EPA. Waterbodies in Nashua Identified as Bacteria Impaired Waters Covered by the Statewide TMDL are listed in Appendix B.				

(1) DPW - Division of Public Works, City of Nashua
(2) NWTF -Nashua Wastewater Treatment Facility, City of Nashua
(3) NHDES - New Hampshire Department of Environmental Services
(4) USEPA - United States Environmental Protection Agency
(5) CDD - Community Development Division, City of Nashua
(6) SSO - Sanitary Sewer Overflow
(7) NCC - Nashua Conservation Commission
(8) NRPC - Nashua Regional Planning Commission
(9) NHDOT - New Hampshire Department of Transportation

Part IV. SWMP Implementation Schedule

BMP ID #	PERMIT YEAR 11				PERMIT YEAR 12				PERMIT YEAR 13				**PERMIT YEAR 14**				PERMIT YEAR 15			
	Spring 13	Summer 13	Fall 13	Winter 13-14	Spring 14	Summer 14	Fall 14	Winter 14-15	Spring 15	Summer 15	Fall 15	Winter 15-16	Spring 16	Summer 16	Fall 16	Winter 16-17	Spring 17	Summer 17	Fall 17	Winter 17-18
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2.04																				
2.05																				
2.06																				

Part IV. SWMP Implementation Schedule

BMP ID #	PERMIT YEAR 11				PERMIT YEAR 12				PERMIT YEAR 13				**PERMIT YEAR 14**				PERMIT YEAR 15			
	Spring 13	Summer 13	Fall 13	Winter 13-14	Spring 14	Summer 14	Fall 14	Winter 14-15	Spring 15	Summer 15	Fall 15	Winter 15-16	Spring 16	Summer 16	Fall 16	Winter 16-17	Spring 17	Summer 17	Fall 17	Winter 17-18
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Part IV. SWMP Implementation Schedule

BMP ID #	PERMIT YEAR 11				PERMIT YEAR 12				PERMIT YEAR 13				**PERMIT YEAR 14**				PERMIT YEAR 15			
	Spring 13	Summer 13	Fall 13	Winter 13-14	Spring 14	Summer 14	Fall 14	Winter 14-15	Spring 15	Summer 15	Fall 15	Winter 15-16	Spring 16	Summer 16	Fall 16	Winter 16-17	Spring 17	Summer 17	Fall 17	Winter 17-18
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Appendix A

Table A. 2014 Draft List of Threatened and Impaired Waters that requires a TMDL, Primary Town, Nashua, NH

Table A. 2014 Draft List of Threatened or Impaired Waters that requires a TMDL(1)
Primary Town, City of Nashua, NH

Water Body NH AUID Number Size	Use Description	Impairment Name	TMDL Priority	Source Name	Best Management Practice
Nashua River Mine Falls Dam Pond NHIMP700040402-02 60 acres (upstream of Mine Falls Dam)	Aquatic Life	Chloride	Low	Commercial Districts (Shopping/Office) ; Highway/Road/Bridge Runoff (non-construction related); Municipal (Urbanized High Density Area)	Visual inspections of salt applications and snow storage at locations within watershed.
		Dissolved Oxygen Saturation	Low	Source Unknown	To be determined once probable source identified by NHDES.
		pH	Low	Atmospheric Deposition Acidity	No action
Nashua River -Nashua Canal Dike NHIMP700040402-03 42.00 acres	Aquatic Life	pH	Low	Atmospheric Deposition Acidity	To be determined once probable source identified by NHDES.
	Primary Contact Recreation	Chlorophyll-a	Low	Source Unknown	Vortechnic unit installed upstream of one outfall. Stormwater detention pond
Harris Pond/Pennichuck Brook, PWS NHLAK700061001-04-01 72.079 acres	Aquatic Life	Iron	Low	Source Unknown	To be determined once probable source identified by NHDES.
	Primary Contact Recreation	Cyanobacteria hepatotoxic microcystins	Low	Source Unknown	To be determined once probable source identified by NHDES.
Lyle Reed Brook NHRIV700040402-04 3.688 miles	Aquatic Life	Oxygen, Dissolved	Low	Source Unknown	To be determined once probable source identified by NHDES.
		pH	Low	Source Unknown	To be determined once probable source identified by NHDES.
Muddy Brook NHRIV700061001-06 4.805 miles	Aquatic Life	Oxygen, Dissolved	Low	Source Unknown	To be determined once probable source identified by NHDES.
		pH	Low	Source Unknown	To be determined once probable source identified by NHDES.

Table A. 2014 Draft List of Threatened or Impaired Waters that requires a TMDL(1)
Primary Town, City of Nashua, NH

Water Body NH AUID Number Size	Use Description	Impairment Name	TMDL Priority	Source Name	Best Management Practice
Unnamed Brook to Pennichuck Brook (Boire Fields) RIV700061001-09 0.986 miles	Aquatic Life	Oxygen, Dissolved	Low	Source Unknown	To be determined once probable source identified by NHDES.
		pH	Low	Source Unknown	To be determined once probable source identified by NHDES.
Unnamed Brook RIV700061001-12 0.286 miles	Aquatic Life	Iron	Low	Source Unknown	To be determined once probable source identified by NHDES.
		Oxygen, Dissolved	Low	Source Unknown	To be determined once probable source identified by NHDES.
Merrimack River NHRIV700061002-14 3.714 miles	Aquatic Life	pH	Low	Source Unknown	To be determined once probable source identified by NHDES.
	Primary Contact Recreation	Creosote	Low	Contaminated Groundwater	Substantial remediation planned to be implemented by property owner.
			Low	RCRA Hazardous Waste Site	To be determined once probable source identified by NHDES.
Merrimack River NHRIV700061206-24 5.151 miles	Aquatic Life	Aluminum	Low	Source Unknown	To be determined once probable source identified by NHDES.
		pH	Low	Source Unknown	To be determined once probable source identified by NHDES.
	Primary Contact Recreation	Chlorophyll-a	Low	Source Unknown	To be determined once probable source identified by NHDES.

(1) Source: New Hampshire Department of Environmental Services (NHDES), Water Division, Watershed Management Bureau, New Hampshire, 2014 Draft 303(d) Surface Water Quality List.
PWS - Pennichuck Water System,

Appendix B

Table B. Waterbodies in Nashua Identified as
Bacteria Impaired Waters Covered by the Statewide TMDL

Table B. Waterbodies in Nashua Identified as Bacteria Impaired Waters Covered by the Statewide TMDL (1)

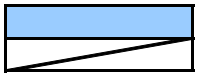
Watershed	Waterbody Name	Assessment Unit #	Primary Town	% Reduction to meet TMDL		Comments (1)
				Single Sample	Geometric Mean	
Merrimack River	MERRIMACK RIVER	NHRIV700061002-14	NASHUA	72%	25%	Data collected 2002-2006, single sample 2008
	MERRIMACK RIVER	NHRIV700061206-24	NASHUA	96%	35%	Data collected 2002-2007. Note: No exceedeance since 2003.
	SALMON BROOK - HASSELLS BROOK - OLD MAIDS BROOK - HALE BROOK	NHRIV700061201-05	NASHUA	92%	no data	No. data. Listing is based on known source of untreated sewage which is assumed to violate ambient bateria standards.
	SALMON BROOK	NHRIV700061201-07	NASHUA	96%	90%	Data collected 2003.
Nashua River	NASHUA RIVER - JACKSON PLANT DAM POND	NHIMP700040402-05	NASHUA	92%	no data	No monitoring Data --. Listing is based on known sources of untreated sewage (CSOs) which are assumed to violate ambient bateria standards.
	NASHUA RIVER	NHRIV700040402-08	NASHUA	94%	complies	Data from 2003, taken at footbridge at Lincoln Park
	NASHUA RIVER	NHRIV700040402-09	NASHUA	92%	no data	No monitoring Data --. Listing is based on known sources of untreated sewage (CSOs) which are assumed to violate ambient bateria standards.

(1) Source: Final Report New Hampshire Statewide TMDL for Bacteria Impaired Waters by New Hampshire Department of Environmental Services, September 2010

Appendix C

Table C. Nashua River Watershed Association
2015 Monitoring Results

2016 NASHUA RIVER WATERSHED VRAP DATA



Measurements not meeting New Hampshire surface water quality standards
Measurements not meeting NHDES quality assurance/quality control standards

[A] Specific conductance > 835 µS/cm indicate exceedance of chronic chloride standard of 230 mg/L

[B] Chronic water quality standard

[C] Calculated using 1/2 of the 0.05 mg/L detection limit of NO2 NO3 (0.025 mg/L)

06-NSH, Nashua River, Upstream of Route 111 Bridge, Hollis - VRAP Trend Station

Date	Time of Sample	DO (mg/L)	DO (% sat.)	pH	Specific Conductance (US/cm)	Water Temp. (°C)	Chloride (mg/L)	*E. coli* (CTS/100mL)	*E.coli* Geometric Mean
Standard	**NA**	**>5.0**	**>75% Daily Average**	**6.5-8.0**	**<835 US/cm[A]**	**NA**	**230[B]**	**<406**	**<126**
04/16/2016	08:00	9.8			247	9.0		17	
05/21/2016	07:35	7.8			275	16.5		32	
06/18/2016	08:00	5.7			343	20.0		20	
06/28/2016	00:00	6.8	82.0	6.81	367	23.5	90	40	30
07/27/2016	13:08	8.8	111.0	7.19	490	27.7	120	20	25
08/20/2016	08:15							40	32
08/30/2016	01:06	7.9	95.5	7.12	378	24.4	69	70	38
09/17/2016	08:15	8.6			460	18.0		25	41
10/15/2016	08:30	7.0			464	11.0		41	41

Date	Time of Sample	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Nitrite (NO2) + Nitrate(NO3) (mg/L)	Total Nitrogen (mg/L)[C]
Standard	**NA**	**Narrative**	**Narrative**	**Narrative**	**Narrative**
06/28/2016	00:00	0.023	0.50	0.72	1.22
07/27/2016	13:08	0.019	0.43	0.38	0.81
08/30/2016	01:06	0.020	0.40	0.28	0.68

04AK-NSH, Nashua River, 34 Techology Way, Nashua

Date	Time of Sample	DO (mg/L)	Specific Conductance (uS/cm)	Water Temp. (°C)	*E. coli* (CTS/100mL)	*E.coli* Geometric Mean
Standard	**NA**	**>5.0**	**<835 µS/cm[A]**	**NA**	**<406**	**<126**
04/16/2016	07:28	9.8	148	10.3	2	
05/21/2016	07:30	7.6	317	17.8	28	
06/18/2016	07:30	6.6	110	20.0	105	
07/16/2016	07:37	5.4	411	24.8	47	52
08/20/2016	07:30	5.3	507	25.0	194	99
09/17/2016	07:40	5.9	330	19.2	36	69
10/15/2016	07:45	4.0	355	11.3	44	67

04AA-NSH, Nashua River, 4 Water Street, Nashua

Date	Time of Sample	DO (mg/L)	Specific Conductance (uS/cm)	Water Temp. (°C)	*E. coli* (CTS/100mL)	*E.coli* Geometric Mean
Standard	**NA**	**>5.0**	**<835 µS/cm[A]**	**NA**	**<406**	**<126**
04/16/2016	08:05	6.7		9.0	9	
05/21/2016	08:15	7.6	361	18.0	28	
06/18/2016	07:00	7.0		20.0	38	
06/23/2016	15:52				160	55
07/16/2016	07:00	6.0		24.0	58	71
07/20/2016	14:52				9	44
08/20/2016	07:15	6.5	470	23.0	17	21
09/07/2016	14:36				210	32
09/17/2016	07:00	5.0		18.5	25	45
10/15/2016	07:00	5.6		12.0	26	51

04A-NSH, Nashua River, Boat Launch at Mine Falls Park, Nashua

Date	Time of Sample	DO (mg/L)	Specific Conductance (uS/cm)	Water Temp. (°C)	*E. coli* (CTS/100mL)	*E.coli* Geometric Mean
Standard	**NA**	**>5.0**	**<835 µS/cm[A]**	**NA**	**<406**	**<126**
04/16/2016	07:54	10.5	244	9.0	2	
05/21/2016	08:05	8.8			4	
06/18/2016	07:55	7.1	305	21.6	20	
07/16/2016	07:57	6.1	446	24.6	5	7
08/20/2016	07:55	5.1	503	25.5	9	
09/17/2016	08:05	4.2		20.0		
10/15/2016	08:25	4.6		11.5	7	

02A-NSH, Nashua River, Canal Street at B.A.E Parking Lot, Nashua

Date	Time of Sample	DO (mg/L)	Specific Conductance (uS/cm)	Water Temp. (°C)	*E. coli* (CTS/100mL)	*E.coli* Geometric Mean
Standard	**NA**	**>5.0**	**<835 µS/cm[A]**	**NA**	**<406**	**<126**
04/16/2016	07:25	9.5	236.0	11.3	39	
05/21/2016	07:02	7.5	321.0	17.3	28	
06/18/2016	08:00	6.3	247.0	13.0	80	
08/20/2016	07:40				121	
09/17/2016	06:30	10.0		17.0	276	
10/15/2016	06:30	9.0		10.0	517	258