



RHODE ISLAND DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
Office of Water Resources

DEM USE ONLY

Date Received _____

RIPDES SMALL MS4 ANNUAL REPORT

GENERAL INFORMATION PAGE

RIPDES PERMIT #RIR040 016 _____

REPORTING PERIOD:

☒ YEAR 11
Jan 2014-Dec 2014

OPERATOR OF MS4

Name: CITY OF WOONSOCKET			
Mailing Address: 169 MAIN STREET			
City: WOONSOCKET	State: RI	Zip: 02895	Phone: (401) 767-9216
Contact Person: MIKE DEBROISSE	Title: SUPERINTENDENT - SOLID WASTE/ENGINEERING		
	Email: MDebrousse@woonsocketri.org		
Legal status (circle one): PRI - Private <u>PUB - Public</u> BPP - Public/Private STA - State FED - Federal			
Other (please specify):			

OWNER OF MS4 (if different from OPERATOR)

Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ()
Contact Person:	Title:		
	Email:		

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under the 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, I certify that 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.

Print Name Lisa Baldelli-Hunt

Print Title City Mayor

Signature *Lisa Baldelli-Hunt* Date 03-02-15



MINIMUM CONTROL MEASURE #1:

PUBLIC EDUCATION AND OUTREACH cont'd

PUBLIC EDUCATION AND OUTREACH (Part IV.B.1 General Permit)

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS:

Include information relevant to the implementation of each measurable goal, such as activities, topics addressed, audiences and pollutants targeted. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for choosing the education activity to address the pollutant of concern.

(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)

IV.B.1.b.1	Provide a General Summary of activities implemented to educate your community on how to reduce storm water pollution. For TMDL affected areas, with storm water associated pollutants of concern, indicate rationale for choosing the education activity. List materials used for public education and topics addressed. Summarize implementation status and discuss if the activity is appropriate and effective.
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The City relies on the Storm Water Education and Outreach Program in cooperation with URI to meet this measureable goal. The City continues to implement their storm water website (http://www.ci.woonsocket.ri.us/stwm_wtr.htm) to educate the community on how to reduce storm water pollution. In general, the website describes the general permit requirements, provides a complaint form, and offers recommendations for low impact development. The school department incorporates environmental education into school curriculum. In 2013, the Woonsocket High School received \$330 from the Blackstone River Watershed Council to purchase supplies to implement the "Fish in the Classroom" project. High School students raised and released approximately 70 salmon.

The Engineering Department is responsible for this measure. The City will continue to educate the community on how to reduce storm water in upcoming years as opportunities arise.

IV.B.1.b.2	Provide a general summary of how the public education program was used to educate the community on how to become involved in the municipal or statewide storm water program. Describe partnerships with governmental and non-governmental agencies used to involve your community.
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The City relies on the Storm Water Education and Outreach Program in cooperation with URI to meet this measureable goal. The City's website for storm water includes links to organizations that provide educational materials and public involvement opportunities. The City works with these groups to provide assistance with the events. As in past years, the City sponsored Earth Day cleanup events (described further under Minimum Control Measure #2). Also, in previous years the City developed a letter and brochure to distribute to businesses which describes proper maintenance of structural BMPs. This measure has been appropriate and effective. The City will continue to educate the community on how to become involved in the storm water program. The Engineering Department is responsible for this measure.

Trainings:

Attending name of staff and title: _____
 Attending name of staff and title: _____



MINIMUM CONTROL MEASURE #2: PUBLIC INVOLVEMENT/PARTICIPATION (Part IV.B.2 General Permit)

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS:

Include information relevant to the implementation of each measurable goal, such as types of activities and audiences/groups engaged. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for the activities chosen to address the pollutant of concern.

(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)

IV.B.2.b.2.ii Describe audiences targeted for the public involvement minimum measure, include a description of the groups engaged, and activities implemented and if a particular pollutant(s) was targeted. If addressing TMDL requirements indicate how the audience(s) and/or activity address the pollutant(s) of concern. Name of person(s) and/or parties responsible for implementation of activities identified. Assess the effectiveness of BMP and measurable goal.

The City has several groups that are active in promoting clean water, including the schools and the Blackstone River Coalition. Two Earth Day cleanup events were held in Year 11 at multiple locations within the City. Sponsored by the City and Waste Management of RI and open to the general public (see attached announcement and records), these successful events involved the collection of trash and debris along Main Street (2.2 tons collected by 170 participants). Residents were also encouraged to pick up litter along the street they live on. The City and Waste Management of RI provided volunteers with trash bags, gloves, and trash pickers for the event. As City staff passed out the litter pickers they stressed the importance of picking up litter. The Main Street event also included planting flower beds and hanging pots (558 flowers planted) as well as the planting of two Cherry Blossom trees. The beautification project was completed in partnership with the Blackstone Valley Tourism Council, Keep America Beautiful Great American Cleanup and Bud Light.

In 2014 a brother and sister team completed a combined Eagle Scout/Gold Leadership Award project by creating a Veterans' Park on Davison Ave – converting a 200ft x 100ft parking lot into a grassed area with benches and a brick walkway. The project improved water quality by removing a portion of the impervious cover in the area. There is a planned Eagle Scout project for 2015 to conduct a citywide litter clean up. The City will support this project by disposing of the collected debris.

In 2014, as in 2013 and 2012, the Blackstone River Coalition made up to \$20,000 of grant funding available to support projects that improve the management of stormwater on private and/or public property within the City of Woonsocket and ultimately lead to improvements in the water quality of the Blackstone River (see attached announcement).

In 2011, a committee was established call the Woonsocket Stormwater Committee. The City has received monies through a Supplemental Environmental Project (SEP) award, which are planned to be used for storm water.

Additional Measurable Goals and Activities

The City of Woonsocket Solid Waste Division is actively sponsoring a Rain Barrel Program to encourage the public (e.g., homeowners) to reuse roof runoff for gardening, lawn watering, and other similar purposes. Further information regarding this program can be found at: http://www.ci.woonsocket.ri.us/Rain_barrel_flyer.pdf

SECTION II. Public Notice Information (Parts IV.G.2.h and IV.G.2.i) *Note: attach copy of public notice

Date of Public Notice: February 23, 2015	How public was notified: <i>The Woonsocket Call</i> (newspaper)
Was public meeting held? YES <input type="radio"/> NO <input checked="" type="radio"/>	
Date:	Where:
Summary of public comments received: No comments have been received.	
Planned responses or changes to the program: Not Applicable.	



MINIMUM CONTROL MEASURE #3: ILLCIT DISCHARGE DETECTION AND ELIMINATION (Part IV.B.3 General Permit)

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS	
<p>Include information relevant to the implementation of each measurable goal, such as activities implemented (when reporting tracked and eliminated illicit discharges, please explain the rationale for targeting the illicit discharge) to comply with on-going requirements, and illicit discharge public education activities, audiences and pollutants targeted. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for the activities chosen to address the pollutant of concern.</p> <p>(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)</p>	
IV.B.3.b.1:	<p>Indicate if the outfall map was not completed, reasons why, proposed schedule for completion of requirement and person(s)/ Department responsible for completion. (The Department recommends electronic submission of updated EXCEL Tables if this information has been amended.)</p> <p>Date of Completion: 2009</p> <p>A complete outfall map was developed during the dry-weather survey conducted in Year 3. Outfalls were GPS located for incorporation into the GIS database by Fuss & O'Neill. A GIS shapefile of outfall locations was provided in electronic format in the CD included with the Year 5 Annual Report. The required outfall Excel tables were provided on the CD accompanying the Year 6 Annual Report.</p>
IV.B.3.b.2	<p>Indicate if your municipality chose to implement the tagging of outfalls activity under the IDDE minimum measure, activities and actions undertaken under the 2014 calendar year.</p> <p>Outfalls were GPS located and tagging is not necessary.</p>
IV.B.3.b.3	<p>Provide a summary of the implementation of recording of system additional elements (catch basins, manholes, and/or pipes). Indicate if the activity was implemented as a result of the tracing of illicit discharges, new MS4 construction projects, and inspection of catch basins required under the IDDE and Pollution Prevention and Good Housekeeping Minimum Measures, and/or as a result of TMDL related requirements and/or investigations. Assess effectiveness of the program minimizing water quality impacts.</p> <p>The entire storm water system has been comprehensively mapped and been incorporated into a GIS database. This effort was completed through a contract with Fuss & O'Neill. The City continually updates the storm water grids with any changes as they are encountered. This measure has been appropriate and effective in developing the City's mapping. The Engineering Department and hired consultant are responsible for this measure. No additional elements were recorded after the comprehensive mapping.</p>
IV.B.3.b.4	<p>Indicate if the IDDE ordinance was not developed, adopted, and submitted to RIDEM, explain reasons why, submit proposed schedule for completion and identify person(s) / Department and/or parties responsible for the completion of this requirement.</p> <p>Date of Adoption: March 21, 2005</p> <p>If the Ordinance was amended in 2014, please indicate why changes were necessary.</p> <p>The Woonsocket City Council formally adopted an "Illicit Discharge Detection and Elimination Ordinance" (Ordinance Chapter 7192) on March 21, 2005. A signed letter from the City's Solicitor attesting to this was provided to DEM in a letter dated February 19, 2007. No amendments to the Ordinance have been made to date.</p>
IV.B.3.b.5.ii, iii, iv, & v	<p>Provide a summary of the implementation of procedures for receipt and consideration of complaints, tracing the source of an illicit discharge, removing the source of the illicit discharge and program evaluation and assessment as a result of removing sources of illicit discharges. Identify person(s) / Department and/or parties responsible for the implementation of this requirement.</p> <p>These measurable goals were completed during the SWMPP development process prior to Year 1. Details regarding this are listed in the executive summary of the SWMPP. In addition to the information in the SWMPP, a complaint form is available to the public on the City's storm water website. Complaints received by the City are directed to the Engineering Department. The City Engineer is responsible for the complaints. The procedure for removal of illicit discharges involves requiring the responsible party to cease discharging and address the situation within seven to ten days (depending on the type of discharge). If the illicit discharges are not addressed by the responsible party, the City has the authority to perform repairs and charge the responsible party for the cost and fines that they may have incurred. No complaints for illicit discharges were noted in Year 11. The effectiveness of this measure is yet to be determined.</p>

ILLICIT DISCHARGE DETECTION AND ELIMINATION cont'd

IV.B.3.b.5.vi	Provide summary of implementation of catch basin and manhole inspections for illicit connections and non-storm water discharges. If the required measurable goal of inspecting all catch basins and manholes for this purpose was not accomplished, please indicate reasons why, the proposed schedule of completion and identify person(s) / Department and/or parties responsible for the implementation of this requirement. Evaluate effectiveness of the implementation of this requirement. The operator must keep records of all inspections and corrective actions required and completed.
Development of the procedure for this measurable goal was completed in the SWMPP development process. Catch basins are inspected and cleaned on a yearly basis in conjunction with street sweeping. Details regarding this are included in the executive summary of the SWMPP. City structures were inspected for illicit connections in Year 4, the findings of which were subsequently provided to DEM. The Storm Water Committee, Engineering Department, and hired consultant were responsible for procedure development and the Engineering Department is responsible for inspections and recordkeeping.	
IV.B.3.b.5.vii	If dry weather surveys including field screening for non-storm water flows and field tests of selected parameters and bacteria were not completed, indicate reasons why, proposed schedule for the completion of this measurable goal and person(s) / Department and/or parties for the completion of this requirement. Evaluate effectiveness of the implementation of this requirement. The results of the dry weather survey investigations must be submitted to RIDEM electronically, if not already submitted or if revised since 2009, in the RIDEM-provided EXCEL Tables and should include visual observations for all outfalls during both the high and low water table timeframes, as well as sample results for those outfalls with flow. The EXCEL Tables <u>must</u> include a report of <u>all outfalls</u> and indicate the presence or absence of dry weather discharges. Date of Completion: 2007
Two dry-weather surveys were completed by Year 4. The surveys were completed by the City's consultant, Fuss and O'Neill. A report was prepared that included the results of both dry weather surveys. Results of the two surveys were provided in electronic format (shapefile) and were provided on the CD included with the Year 5 annual report. This information was also included in the Excel tables provided on the CD accompanying the Year 6 Annual Report. This measure has been appropriate and effective. The Engineering Department and hired consultant were responsible for this measure.	
IV.B.3.b.7	Provide a description of efforts and actions taken as a result of for coordinating with other physically interconnected MS4s, including State and federal owned or operated MS4s, when illicit discharges were detected or reported. Identify person(s) / Department and/or parties responsible for the implementation of this requirement. Evaluate effectiveness of the implementation of this requirement.
As no illicit discharges or connections have been detected in the vicinity of interconnections, the City has not needed to coordinate with interconnected MS4s, but has coordination procedures in place. The City has working relationships with neighboring MS4s; therefore, the procedures are appropriate and expected to be effective; however, the effectiveness has yet to be determined. The Engineering Department is responsible for this measure.	
IV.B.3.b.8	Provide a description of efforts and actions taken for the referral to RIDEM of non-storm water discharges not authorized in accordance to Part I.B.3 of this permit or another appropriate RIPDES permit, which the operator has deemed appropriate to continue discharging to the MS4, for consideration of an appropriate permit. Identify person(s) / Department and/or parties responsible for the implementation of this requirement. Evaluate effectiveness of the implementation of this requirement.
Procedures for referral were developed during the SWMPP prior to Year 1, with the process being put in place during Year 3. During Year 10 there were no unauthorized non-storm-water discharges that were deemed appropriate for referral to RIDEM. Since no unauthorized non-storm-water discharges have been deemed appropriate for referral to RIDEM, the appropriateness and effectiveness of this measure is yet to be determined. The Engineering Department is responsible for completion of this goal.	
IV.B.3.b.9	Provide a description of efforts and actions taken to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, as well as allowable non-storm water discharges identified as significant contributors of pollutants. Include a description on how this activity was coordinated with the public education minimum measure and the pollution prevention/good housekeeping minimum measure programs. Identify person(s) / Department and/or parties responsible for the implementation of this requirement. Evaluate effectiveness of the implementation of this requirement.
The City intends to continue to subscribe to the Storm Water Education and Outreach Program for this training (see responses to Minimum Control Measure #1).	
Additional Measurable Goals and Activities	

ILLCIT DISCHARGE DETECTION AND ELIMINATION cont'd

SECTION II.A Other Reporting Requirements - Illicit Discharge Investigation and System Mapping (Part IV.G.2.m)

# of Illicit Discharges Identified in 2014: 0	# of Illicit Discharges Tracked in 2014: 0
# of Illicit Discharges Eliminated in 2014: 0	# of Complaints Received: 0
# of Complaints Investigated: 0	# of Violations Issued: 0
# of Violations Resolved: 0	# of Unresolved Violations Referred to RIDEM: 0
Total # of Illicit Discharges Identified to Date (since 2003): 0	Total # of Illicit Discharges remaining unresolved at the end of 2014: 0
Summary of Enforcement Actions:	
No enforcement actions were required in Year 11.	
Extent to which the MS4 system has been mapped: 100%	
Total # of Outfalls Identified and Mapped to date: 280	

SECTION II.B Interconnections (Parts IV.G.2.k and IV.G.2.l)

Interconnection:	Date Found:	Location:	Name of Connectee:	Originating Source:	Planned and Coordinated Efforts and Activities with Connectee:
		State Roads	RIDOT		As required
			Town of Cumberland		As required
			Town of N. Smithfield		As required
			Blackstone, MA		As required
			Bellingham, MA		As required



**MINIMUM CONTROL MEASURE #4:
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL
(Part IV.B.4 General Permit)**

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS:

Include information relevant to the implementation of each measurable goal, such as activities implemented to support the review, issuance and tracking of permits, inspections and receipt of complaints. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for the activities chosen to address the pollutant of concern.

(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)

IV.B.4.b.1 | Indicate if the Sediment and Erosion Control and Control of Other Wastes at Construction Sites ordinance was not developed, adopted, and submitted to RIDEM, explain reasons why, submit proposed schedule for completion and identify person(s) / Department and/or parties responsible for the completion of this requirement.

Date of Adoption: September 20, 1993

If the Ordinance was amended in 2014, please indicate why changes were necessary. Please also indicate if amendments have been made based on the 2010 *RI Stormwater Design and Installation Standards Manual*, and provide references to the amended portions of the local codes/ordinances.

The Woonsocket City Council formally adopted an "Erosion and Sediment Control Ordinance" (Ordinance Chapter 5803) on September 20, 1993. A signed letter from the City's Solicitor attesting to this ordinance's authority to carry out the applicable requirements of the RIPDES General Permit was provided to DEM in a letter dated December 1, 2010 and was provided with the Year 7 report.

IV.B.4.b.6 | Describe actions taken as a result of receipt and consideration of information submitted by the public.

The procedures for this measure were established during SWMPP development prior to Year 1. Public comments are received by the City Engineer, or another appropriate department at the City. No comments were received in Year 10. In previous years, this measure has been appropriate and effective in addressing public concerns about soil erosion and sedimentation control involving new development. The Engineering Department is responsible for this measure.

IV.B.4.b.8 | Describe activities and actions taken as a result of referring to the State non-compliant construction site operators. The operator may rely on the Department for assistance in enforcing the provisions of the RIPDES General Permit for Storm Water Discharges Associated with Construction Activity to the MS4 if the operator of the construction site fails to comply with the local and State requirements of the permit and the non-compliance results or has the potential to result in significant adverse environmental impacts.

The procedures for this measure were established during SWMPP development prior to Year 1. The Engineering Department can close down and retract issued permits for any construction site found to be non-complaint. The Engineering Department has a list of State personnel that can be contacted for assistance with any non-compliant construction site operators. The City did not need to refer any non-compliant construction site operators to RIDEM in Year 11. The Engineering Department is responsible for this goal.

Additional Measurable Goals and Activities

CONSTRUCTION SITE STORM WATER RUNOFF CONTROL cont'd

SECTION II. A - Plan and SWPPP Reviews during Year 11 (2014), Part IV.B.4.b.2: Issuance of permits and/or implementation of policies and procedures for all construction projects resulting in land disturbance of greater than 1 acre.

Part IV.B.4.b.4: Review 100% of plans and SWPPPs for construction projects resulting in land disturbance of 1-5 acres must be conducted by adequately trained personnel and incorporate consideration of potential water quality impacts.

of Construction Reviews completed: 8

Summary of Reviews and Findings, include an evaluation of the effectiveness of the program. Identify person(s) /Department and/or parties responsible for the implementation of this requirement.

The Engineering Department is responsible for this measure.

SECTION II.B - Erosion and Sediment Control Inspections during Year 11 (2014), Parts IV.G.2.n and IV.B.4.b.7: Inspection of 100% of all construction projects within the regulated area that discharge or have the potential to discharge to the MS4 (the program must include two inspections of all construction sites, first inspection to be conducted during construction for compliance of the Erosion and Sediment controls at the site, the second to be conducted after the final stabilization of the site).

of Site Inspections: 5

of Complaints Received: 0

of Violations Issued: 0

of Unresolved Violations Referred to RIDEM: 0

Summary of Enforcement Actions, include an evaluation of the effectiveness of the program. Identify person(s) /Department and/or parties responsible for the implementation of this requirement.

No enforcement actions were taken in Year 11. It is appropriate and effective to conduct erosion and sediment control inspections. The City's Engineering Department is responsible for implementation of this requirement.



**MINIMUM CONTROL MEASURE #5:
POST CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND
REVELOPMENT
(Part IV.B.5 General Permit)**

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS:

Include information relevant to the implementation of each measurable goal, such as activities implemented to support the review, issuance and tracking of permits, inspections and receipt of complaints, etc. Please indicate if any projects have incorporated the use of Low Impact Development techniques. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for the activities chosen to address the pollutant of concern.

(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)

IV.B.5.b.5	Describe activities and actions taken to coordinate with existing State programs requiring post-construction storm water management.
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The City requires that applicants receive state approvals before applications will be accepted and approved. Notwithstanding, the City does not plan to solely rely on state approvals and will continue to review plans for storm water management. As indicated on the City's Stormwater Management website (http://www.ci.woonsocket.ri.us/stm_wtr.htm), any development or redevelopment in the City of Woonsocket will now require the development and submittal of a Stormwater Management Plan (the requirements of which are consistent with the 2010 Rhode Island Stormwater Design and Installation Standards Manual). It is appropriate to determine how plan review will account for state program review. Reviewing plans and referring applicants to the state when required has been effective. The Engineering Department is responsible for referring applicants for state reviews when applicable.

IV.B.5.b.6	Describe actions taken for the referral to RIDEM of new discharges of storm water associated with industrial activity as defined in RIPDES Rule 31(b)(15) (the operator must implement procedures to identify new activities that require permitting, notify RIDEM, and refer facilities with new storm water discharges associated with industrial activity to ensure that facilities will obtain the proper permits).
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The procedures for this measure were established during SWMPP development prior to Year 1. The City Engineer requires new applicants to obtain state permits prior to approving new industrial discharges. Details regarding this are included in the executive summary of the SWMPP. It is appropriate and effective to refer new industrial discharges to the state. No new industrial discharges were reported in Year 11 and the effectiveness is yet to be determined. The Storm Water Committee, DPW, and City Council are responsible for this goal.

IV.B.5.b.9	Indicate if the Post-Construction Runoff from New Development and Redevelopment Ordinance was not developed, adopted, and submitted to RIDEM, explain reasons why, submit proposed schedule for completion and identify person(s) / Department and/or parties responsible for the completion of this requirement. Date of Adoption: March 21, 2005 If the Ordinance was amended in 2014, please indicate why changes were necessary. Please also indicate if amendments have been made based on the 2010 RI Stormwater Design and Installation Standards Manual, and provide references to the amended portions of the local codes/ordinances.
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The Woonsocket City Council formally adopted a "Post Construction – Storm Water Control Ordinance" (Ordinance Chapter 7193) on March 21, 2005. A signed letter from the City's Solicitor attesting to this ordinance's authority to carry out the applicable requirements of the RIPDES General Permit was provided to DEM in a letter dated December 1, 2010 and was provided with the Year 7 report.

IV.B.5.b.12	Describe activities and actions taken to identify existing storm water structural BMPs discharging to the MS4 with a goal of ensuring long term O&M of the BMPs.
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Existing BMPs have been identified, and new BMPs are added to the inventory as the City issues occupancy certificates. One BMP was added to the City's BMP inventory in Year 11 (updated list attached). This measure has been appropriate and effective. The Engineering Department is responsible for this measure.

Additional Measurable Goals and Activities

POST CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT
cont'd

SECTION II.A. - Plan and SWPPP Reviews during Year 11 (2014), Part IV.B.5.b.4: Review 100% of post-construction BMPs for the control of storm water runoff from new development and redevelopment projects that result in discharges to the MS4 which incorporates consideration of potential water quality impacts (the program requires reviewing 100% of plans for development projects greater than 1 acre, not reviewed by other State programs).

of Post-Construction Reviews completed: 8
<p>Summary of Reviews and Finding, include an evaluation of the effectiveness of the program. Identify person(s) /Department and/or parties responsible for the implementation of this requirement.</p> <p>The City is committed to review 100% of post-construction BMPs for the control of storm water runoff from new development and redevelopment projects. The City takes the opportunity during all plan reviews to recommend and encourage the applicant to utilize green infrastructure BMP's for their project such as: rain gardens, grassed swales, permeable paving. The Engineering Department is responsible for implementation of this requirement</p>

SECTION II.B. - Post Construction Inspections during Year 11 (2014), Parts IV.G.2.o and IV.B.5.b.10 - Proper Installation of Structural BMPs: Inspection of BMPs, to ensure these are constructed in accordance with the approved plans (the program must include inspection of 100% of all development greater than one acre within the regulated areas that result in discharges to the MS4 regardless of whom performs the review).

# of Site Inspections: 8	# of Complaints Received: 0
# of Violations Issued: 0	# of Unresolved Violations Referred to RIDEM: 0
<p>Summary of Enforcement Actions:</p> <p>No enforcement actions were required in Year 11.</p>	

SECTION II.C. - Post Construction Inspections during Year 11 (2014), Parts IV.G.2.p and IV.B.5.b.11 - Proper Operation and Maintenance of Structural BMPs: Describe activities and actions taken to track required Operations and Maintenance (O&M) actions for site inspections and enforcement of the O&M of structural BMPs. Tracking of required O&M actions for site inspections and enforcement of the O&M of structural BMPs.

# of Site Inspections: 31	# of Complaints Received: 0
# of Violations Issued: 0	# of Unresolved Violations Referred to RIDEM: 0
<p>Summary of Activities and Enforcement Actions. Evaluate the effectiveness of the Program in minimizing water quality impacts. Identify person(s) /Department and/or parties responsible for the implementation of this requirement.</p> <p>After the completion of a Post Construction inspection, a letter is sent by the City to the owner of record concerning suggested maintenance along with educational material. It is effective to conduct post-construction inspections for proper operation and maintenance of structural BMPs. The Engineering Department is responsible for this measure.</p>	



**MINIMUM CONTROL MEASURE #6:
POLLUTION PREVENTION AND GOOD HOUSEKEEPING IN MUNICIPAL OPERATIONS
(Part IV.B.6 General Permit)**

SECTION I. OVERALL EVALUATION:

GENERAL SUMMARY, STATUS, APPROPRIATENESS AND EFFECTIVENESS OF MEASURABLE GOALS:

Include information relevant to the implementation of each measurable goal, such as activities and practices used to address on-going requirements, and personnel responsible. Discuss activities to be carried out during the next reporting cycle. If addressing TMDL requirements, please indicate rationale for the activities chosen to address the pollutant of concern.

(Note: Identify parties responsible for achieving the measurable goals and reference any reliance on another entity for achieving measurable goals.)

IV.B.6.b.1.i	Describe activities and actions taken to identify structural BMPs owned or operated by the small MS4 operator (the program must include identification and listing of the specific location and a description of all structural BMPs in the SWMPP and update the information in the Annual Report). Evaluate appropriateness and effectiveness of this requirement.
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The DPW has identified existing structural BMPs and adds new structural BMPs when the City takes ownership. One new BMP was transferred to or installed by the City in Year 11. A list of structural BMPs within the City limits and their respective owners is provided as an attachment to this Annual Report. This measure is appropriate and effective. The Engineering Department is responsible for the completion and implementation of this goal.

IV.B.6.b.1.ii	Describe activities and actions taken for inspections, cleaning and repair of detention/retention basins, storm sewers and catch basins with appropriate scheduling given intensity and type of use in the catchment area. Evaluate appropriateness and effectiveness of this requirement.
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The City aims to inspect and maintain BMPs annually or more frequently if determined to be necessary. The City inspected all of the BMPs in the attached list in Year 11. Both BMPs which are owned by the City and others are inspected by the City. After the inspection, the City then sends a letter to the BMP owner of record which identifies any necessary corrective actions along with educational material. The City plans to continue BMP inspections in the upcoming year. Inspection and maintenance of the City's BMPs is appropriate and effective. The Engineering Department is responsible for inspections and maintenance.

IV.B.6.b.1.iii	Describe activities and actions taken to support the requirement of yearly inspection and cleaning of all catch basins (a lesser frequency of inspection based on at least two consecutive years of operational data indicating the system does not require annual cleaning might be acceptable). Evaluate appropriateness and effectiveness of this requirement.
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Total # of CBs within regulated area (including SRPW and TMDL areas): 2,852

Total # of CBs inspected in 2014: ~1,711

Total # of CBs cleaned in 2014: ~1,711

The City has developed an annual catch basin cleaning program. A summary of the program was attached to the Year 3 annual report. The program consists of cleaning the catch basins using a grid system to track the catch basins that have been cleaned. Certain portions of the City, specifically the low-lying areas of the developed portions of the City, are cleaned more regularly. A map showing catch basins inspected and cleaned is attached with this annual report. Due to turnover within the Public Works Department and a staff shortage in the Engineering Department (currently reduced to two staff members and without clerical/administrative support), employees were not able to inspect and clean all catch basins in Year 11 (approximately 60% of the City area was inspected – see Map). A combined 1,654 tons of material was collected through the street sweeping and catch basin cleaning activities in Year 11. The Engineering Department is responsible for the completion of this goal.

IV.B.6.b.1.iv	Describe activities and actions taken to minimize erosion of road shoulders and roadside ditches by requiring stabilization of those areas. Evaluate appropriateness and effectiveness of this requirement.
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POLLUTION PREVENTION AND GOOD HOUSEKEEPING IN MUNICIPAL OPERATIONS cont'd

This measurable goal was completed in the SWMPP development process. In the City, most of the roadways are curbed and have sidewalks. Any roadway with a shoulder or ditch in need of repair is immediately addressed. It is usually a property owner or municipal employee that notifies the Engineering Department of a problem. Inspections during road work by municipal employees are an appropriate way of observing any erosion of road side shoulders and ditches. Erosive conditions that are found are treated with loam and seed. No repairs to road shoulders and roadside ditches were made in Year 11. Erosive conditions will be corrected when discovered, which is effective in preventing further erosion. The DPW is responsible for the completion of this goal.

IV.B.6.b.1.v	Describe activities and actions taken to identify and report known discharges causing scouring at outfall pipes or outfalls with excessive sedimentation, for the Department to determine on a case-by-case basis if the scouring or sedimentation is a significant and continuous source of sediments. Evaluate appropriateness and effectiveness of this requirement.
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No evidence of scouring or excessive sedimentation was determined in Year 11. The system mapping previously described included an initial inspection of outfalls to create a priority list for future years. The DPW is responsible for the completion of this goal.

IV.B.6.b.1.vi	Indicate if all streets and roads within the urbanized area were swept annually and if not indicate reason(s). Evaluate appropriateness and effectiveness of this requirement.
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Total roadway miles within regulated area (including SRPW and TMDL areas): 100.11

Total roadway miles that were swept in 2014: ~120

The City committed to the measurable goal of sweeping all municipal streets in the submitted SWMPP. Presently, 100% of City streets are cleaned at least once a year based on the City's grid system. Street sweeping is typically conducted at the same time catch basin cleaning and inspections occur. In Year 11, street sweeping occurred from April until September (see attached press release). All streets in the City were swept at least once, with the downtown area swept more frequently. A combined 1,654 tons of material was collected through the street sweeping and catch basin cleaning activities in Year 11. All waste material is disposed of by the Rhode Island Resource Recovery Corporation. The DPW is responsible for the completion of this goal.

IV.B.6.b.1.vii	Describe activities and actions taken for controls to reduce floatables and other pollutants from the MS4. Evaluate appropriateness and effectiveness of this requirement.
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The City currently requires that all new and redevelopment projects include installation of catch basin hoods. The City evaluates the need for retrofits as funds become available and targets priority areas. Catch basin inlet grates are cleaned when catch basins are inspected or when municipal employees report a need for cleaning. The annual catch basin cleaning program and street sweeping program includes removal of floatables. Floatables are also collected by Woonsocket's Routine Litter Patrol setup by the Highway Department during daily litter pickup activities. Trash cans are provided at frequented pedestrian areas including Main Street and the RIPTA bus stops. The DPW is responsible for the completion of this goal.

IV.B.6.b.1.viii	Describe the method for disposal of waste removed from MS4s and waste from other municipal operations, including accumulated sediments, floatables and other debris and methods for record-keeping and tracking of this information.
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The City continues to dispose of waste in accordance with applicable state requirements. Additionally, the City runs a citywide recycling program. Information on citywide recycling is available on the City's website.

IV.B.6.b.4 and IV.B.6.b.5	Describe and indicate activities and corrective actions for the evaluation of compliance. This evaluation must include visual quarterly monitoring; routine visual inspections of designated equipment, processes, and material handling areas for evidence of, or the potential for, pollutants entering the drainage system or point source discharges to a waters of the State; and inspection of the entire facility at least once a year for evidence of pollution, evaluation of BMPs that have been implemented, and inspection of equipment. A Compliance Evaluation report summarizing the scope of the inspection, personnel making the inspection, major observations related to the implementation of the Stormwater Management Plan (formerly known as a Stormwater Pollution Prevention Plan), and any actions taken to amend the Plan must be kept for record-keeping purposes.
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The general permit requires that municipally owned facilities with storm water discharges associated with industrial activity, implement a site specific Stormwater Management Plan (formerly known as a storm water pollution prevention plan). There is one municipally owned industrial facility with a site specific Stormwater Management Plan in Woonsocket, which is the Highway Garage. Regular inspections of this facility are performed by members of the Highway Department. This is an appropriate and effective measure for ensuring that municipally owned industrial facilities are not polluting the City's storm water system. The DPW is responsible for this measurable goal. No significant corrective actions were recorded in Year 11, although minor preventative maintenance was performed.

POLLUTION PREVENTION AND GOOD HOUSEKEEPING IN MUNICIPAL OPERATIONS cont'd

IV.B.6.b.6	Describe all employee training programs used to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance for the past calendar year, including staff municipal participation in the URI NEMO storm water public education and outreach program and all in-house training conducted by municipality or other parties. Evaluate appropriateness and effectiveness of this requirement.
<p>The City plans to rely on the Storm Water Education and Outreach program for training needs in future years. The current program was evaluated as part of the SWMPP development process. Details regarding this are included in Section 9.0 of the SWMPP and the Response to Comments. Additionally, the City is a member of the Rhode Island Public Works Association, which offers free training to DPW employees on various issues. The City plans to utilize this Association for training in future years as opportunities arise. It is appropriate and effective to train municipal employees. The DPW is responsible for this goal.</p>	
IV.B.6.b.7	Describe actions taken to ensure that new flow management projects undertaken by the operator are assessed for potential water quality impacts and existing projects are assessed for incorporation of additional water quality protection devices or practices. Evaluate appropriateness and effectiveness of this requirement.
<p>The City will evaluate and formalize the current procedures and develop new procedures as necessary to assess flow management projects for potential water quality impacts. Currently, flow management is addressed during the site plan review process as part of the drainage review for proposed projects. It is appropriate and effective to assess flow management projects during planning stages of municipal projects. The DPW is responsible for the completion of this goal.</p>	
<p>Additional Measurable Goals and Activities The City is currently performing multi-million dollar upgrades at our Regional Wastewater Plant to further reduce pollutant concentrations from the effluent.</p> <p>The City is also in the process of building a new Water treatment Plant.</p> <p>The City is also exploring the feasibility of issuing a RFP for the maintenance of our storm water system including catch basin cleaning, camera investigations, and discovery of any cross connections.</p>	

SECTION II.A - Structural BMPs (Part IV.B.6.b.1.i)

BMP ID:	Location:	Name of BMP Owner/Operator:	Description of BMP:
See attached list			

SECTION II.B - Discharges Causing Scouring or Excessive Sedimentation (Part IV.B.6.b.1.v)

Outfall ID:	Location:	Description of Problem:	Description of Remediation Taken, include dates:	Receiving Water Body Name/Description:
None identified				

SECTION II.C - Note any planned municipal construction projects/opportunities to incorporate water quality BMPs, low impact development, or activities to promote infiltration and recharge (Part IV.G.2.j).

<p>The City anticipates that its upcoming road paving/reconstruction projects will incorporate BMPs to the best extent practicable, including storm water infiltration practices.</p>

SECTION II.D - Please include a summary of results of any other information that has been collected and analyzed. This includes any type of data (Part IV.G.2.e).

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TOTAL MAXIMUM DAILY LOAD (TMDL) or other Water Quality Determination REQUIREMENTS

SECTION I. If you have been notified that discharges from your MS4 require non-structural or structural stormwater controls based on an approved TMDL or other water quality determination, please provide an assessment of the progress towards meeting the requirements for the control of storm water identified in the approved TMDL (Part IV.G.2.d). Please indicate rationale for the activities chosen to address the pollutant of concern.

The Blackstone River (identification numbers RI0001003R-01A), Cherry Brook (identification number RI0001003R-02), Mill River (identification number RI0001003R-03), and Peters River (identification number RI0001003R-04) are the waterbodies in the City with an approved TMDL. The TMDL encompassing all of the aforementioned waterbodies went into effect on April 22, 2013. The TMDL for the Woonsocket section of the Blackstone River is for pathogens, cadmium, and lead. The TMDL for Cherry Brook and Peters Pond is for pathogens and copper. The TMDL for Mill River is for pathogens only. A TMDL IP has been drafted and is attached to this Annual Report.



SPECIAL RESOURCE PROTECTION WATERS (SRPWs)

SECTION I. In accordance with Rule 31(a)(5)(i)G of the *Regulations for the Rhode Island Pollutant Discharge Elimination System* (RIPDES Regs), on or after March 10, 2008, any discharge from a small municipal separate storm sewer system to any Special Resource Protection Waters (SRPWs) or impaired water bodies within its jurisdiction must obtain permits if a waiver has not been granted in accordance to Rule 31(g)(5)(iii). A list of SRPWs can be found in Appendix D of the *RIDEM Water Quality Regulations* at this link:

<http://www.dem.ri.gov/pubs/regs/regs/water/h20q09a.pdf>

The 2008 303(d) Impaired Waters list can be found in Appendix G of the *2008 Integrated Water Quality Monitoring and Assessment Report* at this link: <http://www.dem.ri.gov/programs/benviron/water/quality/pdf/iwqmon08.pdf>

If you have discharges from your MS4 (regardless of its location) to any of the listed SRPWs or impaired waters (including impaired waters when a TMDL has not been approved), please provide an assessment of the progress towards expanding the MS4 Phase II Storm Water Program to include the discharges to the aforementioned waters and adapting the Six Minimum Control Measures to include the control of storm water in these areas. Please indicate a rationale for the activities chosen to protect these waters. Please note that all of the measurable goals and BMPs required by the 2003 MS4 General Permit may not be applicable to these discharges.

As depicted on the map provided in Appendix J of the DEM Regulations for the Rhode Island Pollutant Discharge Elimination System, the entire limits of the City of Woonsocket are designated as an Urbanized Area.

There are no Special Resource Protection Waters (SRPWs) located within the City of Woonsocket to which the City's MS4s discharge (Appendix D, RIDEM Water Quality Regulations). The Woonsocket Reservoir #1 and #3 waterbodies are included in the SRPW list; however, these are indicated as being located in North Smithfield.



Date: Saturday April 19th

Check in: 8am to 10am

Woonsocket Recycle Facility

943 River St

Clean up: 8:30am to 11:30am

Connect with neighbors and the outdoors by joining or leading a cleanup crew bagging trash from streets, woods, parks and streams. You gather your friends, and we provide gloves, trash pickers and bags! For more details and to register go to:

[http://www.ci.woonsocket.ri.us/docs/Earth Day greenup](http://www.ci.woonsocket.ri.us/docs/Earth_Day_greenup)

This event is open for volunteering.

For more information, contact Michael Debroisse at <mailto:mdebroyse@woonsocketri.org> or (401) 767-9216.

KEEP AMERICA BEAUTIFUL'S GREAT AMERICAN CLEANUP EVENT RESULTS WORKSHEET

Organization Name:	City of Woonsocket
Event Location:	City wide by many groups
Event Date:	4/19/14 & 5/3/14
Contact Name:	Michael Deboisre

EVENTS/VOLUNTEERS/COMMUNITIES:

- # of volunteers: 6
- # of volunteer hours: 32
- # of participants: 170
- # of community service or court ordered workers: 0
- # of government employees (pd/in-kind): 4
- # of communities involved in activities: 1
- # of community groups who participated: 2

- Pounds of aluminum collected for recycling: 0
- Pounds of steel collected for recycling: 0
- Pounds of glass collected for recycling: 0
- Pounds of paper collected for recycling: 0
- Pounds of corrugated cardboard collected: 0
- Pounds of electronics recycled: 0
- Pounds of wireless phones/related items collected: 0

CLEAN-UP:

- Number of bags collected at event: —
- Pounds of litter, debris & bulky waste collected:
(One 30 gallon bag of litter = est. 20 lbs.) 1.2 Tons
- Additional lbs of litter and debris collected
(1 ton = 2,000 lbs) 0

- Pounds of HHW collected: 0
- Pounds of other recyclables collected: 0
- # of tires collected for recycling: (1 tire=24 lbs.) 0
- Pounds of batteries collected for recycling: 0

- Total lbs collected: 1.2 Tons
- Miles of streets, roads, highways cleaned & beautified: 1.3
- Litter Free Events: 1
- Miles RR tracks cleaned during event: 0.23
- Acres of parks/public lands/open spaces cleaned and beautified: 8.2
- Miles of hiking/biking/nature trails cleaned and beautified: 0
- # of playgrounds/community recreation areas built, cleaned, restored, constructed: 0
- Miles of rivers, lakes, shorelines cleaned: 0
- # of underwater cleanups conducted: 0
- # of acres of wetlands cleaned & improved: 0
- # of illegal dump sites cleaned: 0

BEAUTIFICATION:

- # of garden, landscape, xeriscape and green space areas created or improved: 6
- # of edible community gardens planted/replanted: 0
- # of trees planted: 2
- # of seedlings planted: 0
- # of shrubs planted: 0
- # of flowers & bulbs planted:
(Includes bulbs planted in fall of 2010 for spring of 2011) 558
- # of homes painted, renovated, built: 0
- # of community/commercial buildings painted, renovated, built: 0
- # of graffiti sites removed/abated: 0
- # of junk cars removed: 0

WASTE REDUCTION AND RECYCLING:

- Pounds of clothing collected for reuse:
(One 30 gallon bag of clothes= est. 30 lbs.) 0
- Pounds of plastic bottles (PET) collected for recycling: 0
- Pounds of other plastics collected: 0

EDUCATION:

- # of education workshops/community outreach presentations held: 0
- # of general awareness events held:
(e.g. litter free events, booths @ events, fairs, festivals, etc...) 1

What was the most unusual item found during your activities? a deconstructed deck

PRESS RELEASE

For Immediate Release

Contact: Peter Coffin

508 753.6087

peter.coffin@zaptheblackstone.org

Grant Funding Available for Water Quality Projects in Woonsocket

The Woonsocket Thundermist Task Force is pleased to announce the availability of funding to support projects that will improve the management of stormwater on private and/or public property within the City of Woonsocket and ultimately lead to improvements in the water quality of the Blackstone River.

This is the third year that up to \$20,000 has been made available to support local projects in and around Woonsocket that will lead to a cleaner river. Thanks to a settlement with the State of Rhode Island, it is expected that another \$16,000 will be made available each year for the next 17 years. Potential projects include community education, planting rain gardens or buffer vegetation, erosion control or any creative ideas leading to improvements in water quality by improving the management of stormwater. Funded projects are expected to be completed within a year, although if indicated may be part of a multi-year project. Projects do not require a cash match, but competitive proposals will demonstrate community commitment by building partnerships and leveraging other funding or in-kind support.

The application process is as simple as writing a letter describing the project with a detailed budget identifying who will be doing what and explaining what water quality improvements will be achieved. Letters of interest must be received by May 31, 2014 and funding of successful projects will be available this summer.

Please address all letters to: Blackstone River Coalition
P.O. Box 70477
Worcester, MA 01607

If you have any questions, please call Peter Coffin @ 508 753.6087.

The Blackstone River Coalition is a group of non-profit organizations from Rhode Island and Massachusetts working throughout the watershed to improve water quality through a variety of programs. Our office is located at Massachusetts Audubon Society's Broadmeadow Brook Sanctuary in Worcester. Our Rhode Island partners include: Blackstone River Watershed Council/ Friends of the Blackstone, Save the Bay, Audubon Society of R.I., Trout Unlimited, and Conservation Law Foundation. Check out our website www.zaptheblackstone.org

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The Blackstone River Coalition

The Blackstone River
Coalition is a partnership
of numerous organizations,
businesses, municipalities,
agencies and individuals
working to restore the
Blackstone River and to
improve the health of the
Blackstone River watershed.



www.zaptheblackstone.org

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Canada, 7c, 1999
Canada, 7c, 1999
Canada, 7c, 1999
Canada, 7c, 1999

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1/512c, 1/1024c, 1/2048c,
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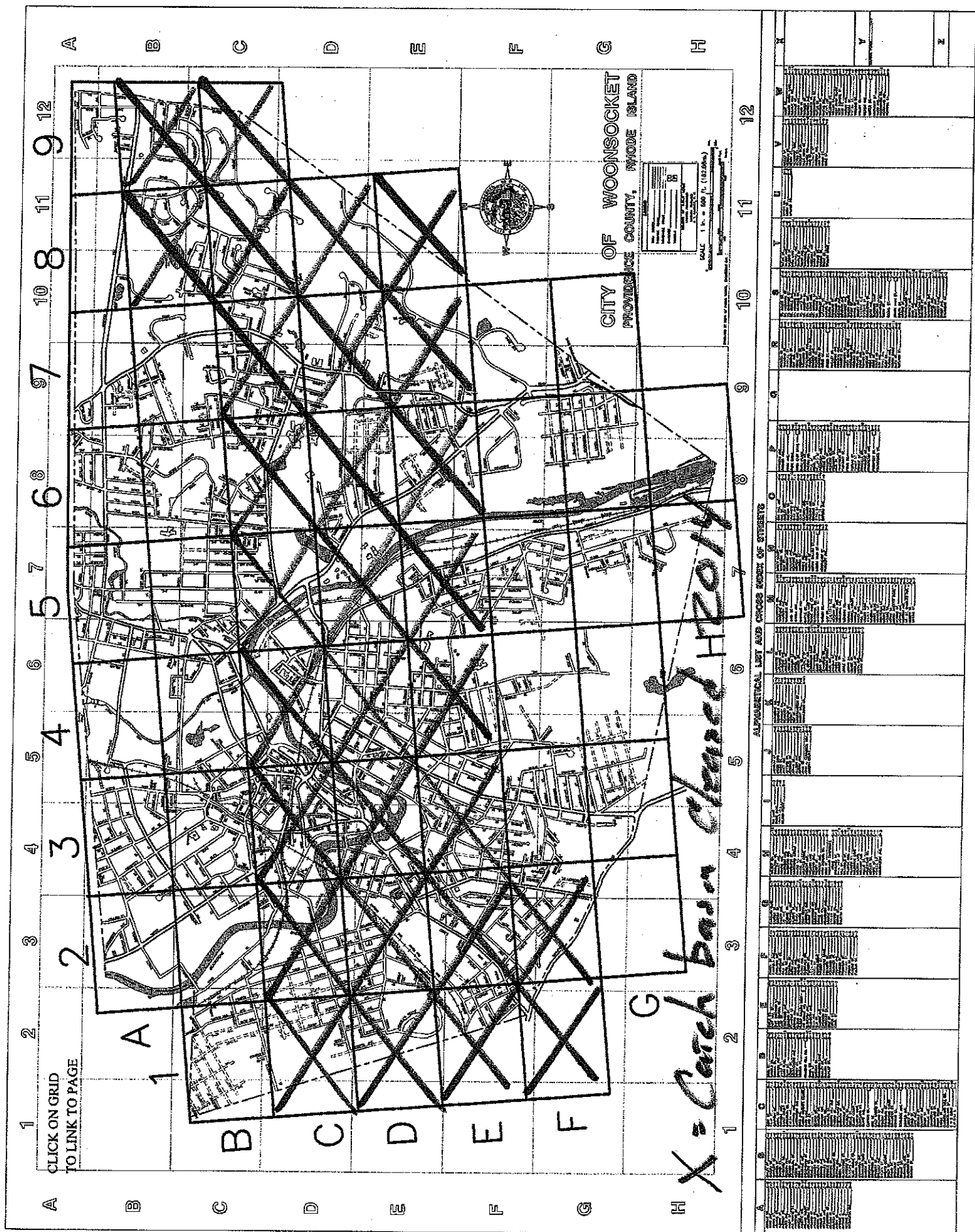


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PRESS RELEASE
CITY OF WOONSOCKET
PUBLIC WORKS DEPARTMENT

April 1, 2014

Street Sweeping Schedule

The following is the City's anticipated street sweeping schedule.

April 7 to May 2, the Bernon District
May 5 to June 13, the East Woonsocket District
June 16 to July 11, the North End District
July 14 to August 8, the Fairmount District
August 11 to August 29, the Globe District

****Weather permitting on all dates****

LOCATION	OWNER	MAP	LOT	
PARK EAST DR / CVS DRIVE	CITY OF WOONSOCKET	F7	56-15	Detention Pond
WALMART (woonsocket) (2 one in front one in back) 1919 Diamond Hill Rd	WALMART STORES 702 SOUTHWEST 8TH STREET BENTONVILLE AR 72716	B7	52-6	Grassed Detention Basins
LOWES (Woonsocket) 2010 Diamond Hill Rd	SFFGA Rhode Island LLC PO Box 1000 Dept 2ETA Mooresville NC, 28115	B7	52-20	Grassed Detention Basin
BROOKHAVEN POND (2)	STERLING SERVICES 589 CONCORD ST HOLLISTON, MA 01746	C8	58-31	Grassed Detention Basin
TARA LANE/ LEDGEWOOD DR.	CITY OF WOONSOCKET	C7	58-37	Grassed Detention Basin
EAST WOONSOCKET	CITY OF WOONSOCKET	B7	57-88	Detention Pond
HOLLEY SPRINGS (POND) (Naturally occurring)	H S Realty Corporation PO BOX 3107 ATTLEBORO, MA 02703	D7	55-1	Detention Pond
HOLLEY SPRINGS (BASIN)	PAM DISALVO 304 HOLLY LANE WOONSOCKET, RI 02895	D7	55-203	Grassed Detention Basin
OREGON AVE	CITY OF WOONSOCKET	D7	59-2	Grassed Detention Basin
DIAMOND HILL RD (Darling Pond)	CITY OF WOONSOCKET	B7	53-5	Detention Pond
ROBINSON STREET POTHIER SCHOOL	CITY OF WOONSOCKET	C5	36-136	Grassed Detention Basin
PARK DRIVE & HARTFORD AVE	OAKLAND GROVE ASSOCIATES 560 CUMBERLAND HILL RD WOONSOCKET, RI 02895	E6	41-29	Grassed Detention Basin
1026 PARK EAST DRIVE	CVS Pharmacy Inc One CVS Dr. WOONSOCKET, RI 02895	D7	59-13	Grassed Detention Basin
300 PARK EAST DRIVE	TECHNIC, INC 300 PARK EAST DRIVE WOONSOCKET, RI 02895	E6	50-51	Grassed Detention Basin
500 PARK EAST DRIVE	CARPENTER POWDER PRODUCTS 500 PARK EAST DRIVE WOONSOCKET RI 02895-6148	E7	50-211	Grassed Detention Basin
1 CVS DRIVE	CVS 1 CVS DRIVE WOONSOCKET, RI 02895	F7	51-2	Grassed Detention Basin
811 PARK EAST DRIVE	RETAIL GRAPHICS 811 PARK EAST DRIVE WOONSOCKET, RI 02895	E7	56-6	Grassed Detention Basin
475 PARK EAST DRIVE	CVS 1 CVS DRIVE WOONSOCKET, RI 02895	E7	56-23	Grassed Detention Basin
117 CENTURY	JM & KM REALTY LLC 1775 SNAKE HILL ROAD CHEPACHET, RI 02814	E7	59-21	Grassed Detention Basin
GAUTHIER DRIVE (2)	CITY OF WOONSOCKET	G5	33-54	Grassed Detention Basin

tele: 769-2900

<u>LOCATION</u>	<u>OWNER</u>	<u>MAP</u>	<u>LOT</u>	
222 GOLDSTEIN DRIVE	IMPREGLO INC 220 FAIRBURN INDUSTRIAL PARKWAY FAIRBURN, GA 30213 (also services 100 Goldstein Dr stormwater)	E7	50-233	Grassed Detention Basin
88 CENTURY DRIVE	CITY OF WOONSOCKET (by easement) ACW REALTY LLC (property owner) 88 CENTURY DRIVE WOONSOCKET, RI 02895	E7	55-20	Grassed Detention Basin
88 CENTURY DRIVE	ACW INC. 88 CENTURY DRIVE WOONSOCKET RI 02895	E7	56-20	Grassed Detention Basin
841 PARK EAST DRIVE	T.E.A.M. 841 PARK EAST DRIVE WOONSOCKET, RI 02895	E7	56-101	Grassed Detention Basin
77 FULTON STREET	H & R CONSTRUCTION 1204 WASHINGTON STREET STOUGHTON, MA 02072	A5	35-36	Grassed Detention Basin
100 GOLDSTEIN DRIVE	PARKINSON TECHNOLOGIES 100 GOLDSTEIN DRIVE WOONSOCKET, RI 02895	E6 & E7	50-5	Grassed Detention Basin
1044 MENDON ROAD	WYNDEMERE WOODS LLC 63 KENDRICK STREET NEEDHAM, MA 02494	D7	55-167	Grassed Detention Basin
115 FRONT STREET Behind 175 Front St	MCU COMMERCIAL SERVICES LLC 50 MAIN STREET MILLBURY, MA 01527	D3	15-16	Detention Basin

<u>LOCATION (AMOUNT)</u>	<u>OWNER</u>	<u>MAP</u>	<u>LOT</u>	<u>PLAN REF.</u>
1054 Cass Av	CVS CORPORATION 1 CVS DRIVE WOONSOCKET, RI 02895	C6	48-81	in scanned plans, completed projects
326 Mendon Rd (2)	MENDON 8 LLC 31 JAMES P MURPHY HWY WEST WARICK, RI 02893	B6	46-193	PB23 P19
96 Burnside Av	FAMILY RESOURCES COMMUNITY ACTION 245 MAIN STREET WOONSOCKET, RI 02895	C5	36-87	in scanned plans, completed projects
719 Front St (5)	HERITAGE PLACE LLC MALONEY PROPERTIES INC. 719 FRONT ST SUITE 109 WOONSOCKET, RI 02895	E3	10-313	100-1666 sheet S4
Logee St @ Tennis Courts	MT ST CHARLES ACADEMY 800 LOGEE ST WOONSOCKET, RI 02895	E4	24-304	67-2079 sheet C7
70 Founders Dr	70 FOUNDERS DR LLC 70 FOUNDERS DR WOONSOCKET, RI 02895	F6	43-54	67-2061 sheet C6
46 Hope St	NEIGHBORHOOD BUSINESS & JOB OPPORTUNITIES, LP 141 OLO ST WOONSOCKET, RI 02895	D3	9-114	76-1685 sheet S3, S5a
120 Northeast St	WNDC 719 FRONT ST WOONSOCKET, RI 02895	D3	9-226	in scanned plans, completed projects
1275 Park East Dr	FAITH REALTY II LLC 3100 DIAMOND HILL ROAD CUMBERLAND, RI 02864	D8	59-16	67-1907 sheet C5, C7
98 Rivulet St	MT VERNON TEMPLE ASSOCIATES LP 5 CATHEDRAL SQUARE PROVIDENCE, RI 02903	B3	19-232	39-1908
28 Hamlet Av	ST JAMES EPISCOPAL CHURCH 28 HAMLET AVE WOONSOCKET, RI 02895	D4	15-168	22-1712
114 Gaulin Av	ST ANN'S APARTMENTS L P 895 MENDON ROAD CUMBERLAND, RI 02864	C4	36-55	67-1922
25 Villa Nova St	SILVER RICHARD TRUSTEE 728 RIDGE ROAD STE 23 LANTANA, FL 33462		27-101	67-1972

**Storm Water Management Program Plan
Amendment No. 1 and Implementation
Plan for the
Blackstone River Watershed
Pathogen and Trace Metals Impairments
Total Maximum Daily Loads**

City of Woonsocket
Rhode Island

February 2015



FUSS & O'NEILL

317 Iron Horse Way
Suite 204
Providence, RI 02908



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1 Introduction

On December 8, 1999, the U.S. Environmental Protection Agency (USEPA) promulgated Phase II of its National Pollution Discharge Elimination System (NPDES) storm water regulations. Phase I of the USEPA storm water program established regulations for storm water discharges from municipal separate storm sewer systems (MS4s) in municipalities with populations of 100,000 or greater, construction activities disturbing five or more acres of land, and ten categories of industrial facilities.

The Phase II Final Rule expands the Phase I program by requiring smaller communities with MS4s in urbanized areas to implement programs and practices to control polluted storm water runoff through the use of NPDES permits. Urbanized areas are based on the 2000 census. The Rhode Island Department of Environmental Management (DEM) has been delegated the authority to implement the EPA's NPDES program, which includes Phase II storm water requirements in the February 5, 2003 amended version of the RIPDES Regulations.

The City of Woonsocket (City) developed its Phase II storm water management plan in March 2004, entitled *Phase II Storm Water Management Program Plan and Implementation Plan for the City of Woonsocket* (Fuss & O'Neill, 2004) (hereinafter SWMPP). The documentation contained in this plan constitutes the first amendment to the City's SWMPP and is intended to address the *Blackstone River Watershed Pathogen and Trace Metals Impairments Total Maximum Daily Loads* (Blackstone River Watershed TMDL) issued by DEM in February 2013.

1.1 General Requirements for MS4 Operators under Storm Water Phase II

As part of the permitting process, regulated municipalities are required to prepare and submit storm water management program plans that address compliance with six minimum control measures. These six minimum measures include:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Good Housekeeping/Pollution Prevention

MS4 operators are also required to meet provisions of approved total maximum daily load (TMDL) studies within 180 days of notification by DEM in areas where a TMDL indicates significant contribution by storm water.

In 2004, the City developed a program plan to address the six minimum measures throughout the Town as a whole. This document, *Storm Water Management Program Plan and Implementation Plan Amendment No. 1 for the Blackstone River Watershed Pathogen and Trace Metals Impairments Total Maximum Daily Loads*

(hereinafter Amendment No. 1), is the first amendment to the original SWMPP and addresses the requirements of the Blackstone River Watershed TMDL.

1.2 Requirements for Impaired Waters with Finalized TMDLs

Under Storm Water Phase II Rule IV.D, DEM may designate an MS4 operator as regulated and require “nonstructural or structural controls based on an approved TMDL or other water quality determination that identifies provision for discharges that contribute to a violation of water quality standards or are significant contributors of pollutants to waters of the State.” Rule IV.D.8 indicates that an MS4 operator designated under Rule IV.D must submit a SWMPP which addresses the six minimum measures and provisions of approved TMDLs within 180 days of notification. The purpose of this plan amendment is to satisfy that requirement.

1.3 Structure of Amendment No. 1

The remainder of this plan provides detail for the purposes of addressing the Blackstone River Watershed TMDL. Other aspects of Woonsocket’s Storm Water Management Program should be considered to remain as described in the 2004 SWMPP and other program plan documents, including RIPDES MS4 annual reports.

The remainder of this plan includes the following general sections:

- *Review of the TMDLs (Section 2.0)* – This section provides a discussion on the Blackstone River Watershed TMDL and efforts that led to its development, covering impairments to the waterbodies as discussed in the TMDLs, likely sources of impairment identified by TMDL staff during the course of TMDLs development, and TMDLs recommendations for improving water quality in these areas.
- *Structural BMPs proposed to address the TMDLs (Section 3.0)* – This section discusses a process for planning and designing storm water best management practices (BMPs).
- *Revisions to the six minimum measures (Section 4.0)* – This section discusses revisions proposed to Woonsocket’s existing SWMPP.
- *Measurable goals for implementation (Section 5.0)* – This section discusses the general timeline and process for implementation of the measures to improve storm water management in the Blackstone River.
- *Program evaluation (Section 6.0)* – This section describes anticipated annual reporting in accordance with the TMDL.



2 Review of the Blackstone River Watershed TMDL

2.1 Waterbody Description

This section of the amendment provides waterbody descriptions and has been adapted from the *Total Maximum Daily Load Analysis for Blackstone River Watershed Pathogen and Trace Metals Impairments* (DEM, 2013).

2.1.1 Blackstone River

The Blackstone River Watershed (see *Figure 1*), which is located in south-central Massachusetts and northern Rhode Island, has a length of about 48 miles and an average width of 12 miles. The total drainage of the watershed is 454 square miles, with 335 square miles in Massachusetts and 140 square miles in Rhode Island. The river flows south from Worcester, MA to the Main Street Dam in Pawtucket, RI. At this point, it becomes the headwater for the Seekonk River, which is a tidal estuary that flows for approximately seven miles before combining with the Providence River. The Blackstone River is the second largest source of freshwater to Narragansett Bay.

The Massachusetts portion of the watershed encompasses Worcester County and small sections of Middlesex, Norfolk, and Bristol Counties. It encompasses a total of thirty cities and towns including Worcester and Attleboro. In Rhode Island, the watershed encompasses a portion of the following cities and towns: Burrillville, Glocester, North Smithfield, Smithfield, Woonsocket, Cumberland, Lincoln, Central Falls, and Pawtucket.

Primary tributaries to the Blackstone River in Rhode Island are the Branch River, Mill River, Peters River, and Abbot Run Brook. The Mill River has a drainage area of approximately 35 square miles, located primarily in Massachusetts. The drainage area is characterized by open land and low-density residential development, with limited areas of high-density urban development. The headwater of the Mill River is North Pond, located in Hopkinton, MA. The Peters River has a smaller drainage area of 13 square miles which is less than half of the Mill River. Its headwaters are located in Bellingham, Massachusetts. The river flows for approximately 3.5 miles to the State line and continues for an additional 0.94 miles where it combines with the Blackstone River. Abbott Run Brook has a drainage area of 29 square miles, with approximately 30% of its watershed located in Massachusetts, and its headwaters at Arnold Mills Reservoir. The Branch River has a drainage area of 93 square miles with approximately 95% of its watershed within the State of Rhode Island.

The Rhode Island section of the Blackstone River is separated into two reaches. The Upper reach is characterized by medium to medium-high density residential areas with high density urban development in the City of Woonsocket. The lower reach is characterized by high-density urban development in the City of Pawtucket.

The river has had a significant historical role in the industrialization of the northeast and an equally significant role in the environmental health of the Seekonk River and Narragansett Bay. The river is a major source of suspended solids, nitrogen, metals, and organics to these waters, resulting in impacts to fishing, shell fishing, tourism, and recreation. Resuspension and movement of contaminated sediments, headwaters defined by drainage from Worcester and its wastewater treatment facility, multiple other wastewater treatment facility discharges, stormwater contributions from CSO facilities and urban centers, and fluctuations in water levels due to hydropower operations, create a river system with problems characteristic of many others in the United States.

2.1.2 Mill River

As mentioned previously, the Mill River has a drainage area of approximately 88.35 square miles with most of the area in Massachusetts. The drainage area is characterized by open land and low-density residential development with limited areas of high-density urban development. North Pond in Hopkinton, MA is the headwater for the river. The river flows into Harris Pond at the Massachusetts-Rhode Island state line, and serves as a water supply for the City of Woonsocket. After Harris Pond, the river flows for approximately 3,200 feet before being conveyed underground to the Blackstone River. This underground passage is 1,150 feet long through two 10-foot wide by 12-foot high concrete conduits that were built in 1963 by the Army Corps of Engineers as part of a city-wide flood control project. Tributaries to the Mill River are Hop Brook, Quick River, Spring Brook, and Muddy Brook, all of which are located in Massachusetts.

2.1.3 Peters River

The headwaters for the Peters River are located in Bellingham, MA, with a total drainage area of 13 square miles. The river flows south for approximately 3.5 miles to the state line and continues for another mile through Rhode Island before it joins with the Blackstone River in Woonsocket. The drainage area is characterized by medium to medium-high residential development with high-density urban development in Woonsocket. Peters River flows for approximately 5,000 feet before being conveyed underground through a 10-foot by 10-foot concrete conduit at Elm Street. The river travels another 1,180 feet before its confluence with the Blackstone River. As with the Mill, the Corps of Engineers built this conduit in 1963 for flood control. The tributaries to the River are Bungay Brook, Arnold Brook, and unnamed streams that originate in Franklin State Forest.

2.1.4 Cherry Brook

The headwaters for Cherry Brook are Cedar Swamp Brook, a large wetland area located in North Smithfield, RI, at a low point between Woonsocket Hill and Whortleberry Hill Roads. The drainage area is approximately 33 square miles. The main stem of the brook is approximately 3.8 miles long and flows in a northwest direction until it crosses under Route 146A, where it bends to the southeast and eventually joins the Blackstone River adjacent to the Providence and Worcester (P&W) railroad easement at Olo Street. The area is characterized by rural and low-density residential development at the headwater, with medium-density residential and urban development as it travels through Woonsocket, RI. Tributaries to the brook are several unnamed first order streams that join Cherry Brook at various points along its mainstem.



305(b) of the CWA, states are required to survey their water quality for attainment of the fishable/swimmable goals of the CWA, and to report the water quality assessments biennially (every two years). The attainment of CWA goals is based on whether waters support their designated uses (defined as the most sensitive; and therefore, governing water uses that the class is intended to protect). For the purposes of water quality assessments, seven designated uses are evaluated fish and wildlife habitat (aquatic life use), drinking water supply, shellfish consumption, shellfish controlled relay and depuration, fish consumption, primary contact recreation and secondary contact recreation. In the assessments, use-support status is determined by comparing available water quality information to the water quality standards established in the *Rhode Island Water Quality Regulations*. The methodology for this assessment process is outlined in RI's Consolidated Assessment and Listing Methodology (CALM), June 2009.¹ Available water quality information may come from a variety of sources, including but not limited to, studies conducted by DEM, the federal government, and municipal studies.

Impaired waters are defined as those that do not meet *Rhode Island Water Quality Regulations*, and DEM develops TMDLs for each of these waters. The purpose of a TMDL is to identify the capacity of a surface water to assimilate pollutants without limiting designated uses (e.g., fishable, swimmable) or violating the *Rhode Island Water Quality Regulations*.

Until fairly recently, TMDLs commonly focused on large point sources of pollution such as wastewater treatment facilities. These sources are relatively easy to track and abate as they tend to be centrally located and managed. Other TMDLs (and most TMDLs that will be developed in the foreseeable future) focus on storm water outfalls and diffuse nonpoint sources of pollution. These sources are numerous, decentralized, and less easily located; may have uncertain ownership, and were unregulated prior to Phase II.

The surface waters within Woonsocket identified on the State's 303(d) list for 2012 are presented in *Table 1*, which also includes pollutants causing impairment, TMDL development priority, and the target year for TMDL development for these waters.

¹ <http://www.dem.ri.gov/programs/benviron/water/quality/pdf/finlcalm.pdf>

Table 1
Impaired and Delisted Waters – City of Woonsocket

Waterbody Name (Identification #)	Cause	Calendar Year Target for TMDL ^a	Control Action ^b
Blackstone River (RI0001003R-01A)	Benthic-Macroinvertebrate Bioassessments	2018	Determine need for TMDL post wastewater treatment facility upgrades
	Cadmium	2012	Not Developed
	Eurasian Water Milfoil, Myriophyllum spicatum	--	No TMDL required. Impairment is not a pollutant.
	Lead	2012	Not Developed
	Non-Native Aquatic Plants	--	No TMDL required. Impairment is not a pollutant
	Oxygen, dissolved	2018	Determine need for TMDL post wastewater treatment facility upgrades.
	Phosphorus (Total)	2018	Determine need for TMDL post wastewater treatment facility upgrades.
	Mercury in Fish Tissue	2022	Not Developed
	PCB in Fish Tissue	2022	Not Developed
	Enterococcus	2012	Not Developed
	Fecal Coliform	2012	Not Developed
Blackstone River (RI0001003R-01B)	Benthic-Macroinvertebrate Bioassessments	2018	Determine need for TMDL post wastewater treatment facility upgrades.
	Cadmium	2012	Not Developed
	Lead	2012	Not Developed
	Oxygen, dissolved	2018	Determine need for TMDL post wastewater treatment facility upgrades.

Waterbody Name (Identification #)	Cause	Calendar Year Target for TMDL ^a	Control Action ^b
	Phosphorus (Total)	2018	Determine need for TMDL post wastewater treatment facility upgrades.
	Mercury in Fish Tissue	2022	Not Developed
	PCB in Fish Tissue	2022	Not Developed
	Enterococcus	2022	Compliance with Consent Agreement for CSO abatement expected to negate need for TMDL
	Fecal Coliform	2022	Compliance with Consent Agreement for CSO abatement expected to negate need for TMDL
Cherry Brook & Tributaries (RI0001003R-02)	Copper	2012	Not Developed
	Enterococcus	2012	Not Developed
	Fecal Coliform	2012	Not Developed
Mill River (RI001003R-03)	Enterococcus	2012	Not Developed
	Fecal Coliform	2012	Not Developed
Peters River (RI0001003R-04)	Copper	2012	Not Developed
	Enterococcus	2012	Not Developed
	Fecal Coliform	2012	Not Developed

Notes:

- The target year as stated in the Final 2012 303(d) list.
- Control Action does not currently include TMDL, other actions are to be taken before re-evaluating the impairment.

In accordance with Table 5.1 of the Blackstone River Watershed TMDL, the Blackstone River segment (RI001003R-01A) (including sampling stations W-21, W-22, W-17, W-02, W-03, W-04, P-04 and W-25) must achieve a 88 percent (with a 10 percent margin of safety) reduction in fecal coliform and a 28 percent (with a 10 percent margin of safety) reduction in enterococci to meet the TMDL. Other segments of the river and its tributaries must meet even higher percent reductions (see *Table 2*.)

Table 2
Required Percent Reductions for Bacteria to Meet TMDL

Section	Sampling Stations	% Reduction for Fecal Coliform	% Reduction for Enterococci
Blackstone River at Massachusetts- Rhode Island State Line	W-01	93	32
Blackstone River	W-21, W-22, W-17, W-02, W-03, W-04, P-04, W-25	88	28
Mill River at Massachusetts	W-11	--	--
Mill River	W-12, W-13	97	94
Peters River at Massachusetts-Rhode Island State Line	W-14	98	95
Peters River	W-15, W-16	98	98
Cherry Brook	W-31	98	91

Note: Values include a 10% margin of safety

Table 6.4 of the Blackstone River Watershed TMDL states that the Blackstone River segment (RI001003R-01A) must achieve a 0.57-37.1 lb/day load reduction for lead and a 0.06-13.1 lb/day load reduction for cadmium to meet the chronic TMDL criteria (no data is available for copper load reduction requirements.) Table 3 provides a summary of the required load reductions for each segment of the river for each constituent.

Table 3
Required Percent Reductions for Trace Metals to Meet TMDL

Parameter	Blackstone River at Massachusetts-Rhode Island State Line	Blackstone River (RI0001003R-01A)	Blackstone River (RI0001003R-01B)	Peters River at Massachusetts-Rhode Island State Line	Peters River	Cherry Brook
Copper (lbs/day)	NA	NA	NA	0.08	0.16	0.03
Lead (lbs/day)	1.12 - 30.1	0.57 - 37.1	0.97 - 14.6	NA	NA	NA
Cadmium (lbs/day)	0.01 - 19.3	0.06 - 13.1	0.04 - 10.0	NA	NA	NA

Notes: NA is used to indicate that either there was not an impairment requiring a TMDL for this waterbody, or sampling was not conducted for this constituent)



2.3 Sources of Impairment Described in the TMDLs

The TMDLs discusses water quality monitoring and analysis, which led to the development of the Blackstone River Watershed TMDL. The TMDL indicates the most prevalent source of fecal coliform bacteria to the waterbody is stormwater runoff. Other possible sources include RIPDES permitted discharges (illegal and “legal” dry weather discharges from stormwater outfalls, dry and wet weather CSO discharges, failing septic systems, animal waste and sediment resuspension. Actual and potential sources to the entire Blackstone River are summarized in *Table 4* (adapted from the *Total Maximum Daily Load Analysis for Blackstone River Watershed Pathogen and Trace Metals Impairments* (DEM, 2013)) and are discussed below.

Table 4
Actual and Potential Sources of Pollution to the Blackstone River

Source	Location / Explanation
Stormwater Runoff	<u>Throughout watershed particularly in more urban areas.</u> Runoff from parking lots, streets, roofs, and runoff contaminated with pet, feral, animal wastes, and heavy metals (Cu, Pb, and Cd)
Urban Runoff from Dry Weather	<u>Watershed-wide.</u> Overland flows from various land use practices enter storm drains, which including lawn irrigation runoff, car washing, sidewalk washing and commercial pavement washing. These urban flows can contain bacteria and metals.
RIPDES sanitary and industrial wastewater discharges	<u>There is one major RIPDES permittee, Woonsocket WWTF, and two minor RIPDES permittees, Okonite Company and OSRAM Sylvia discharging effluent containing the TMDL's pollutants of concern into the Blackstone River. Watershed-wide there are several MSGP holders that discharge stormwater from areas where metal contamination may be present.</u>
Wet and Dry Weather CSO Discharges	<u>CSOs discharge into the lower Blackstone River reach between Whipple Bridge and Slater Mill Dam.</u> CSOs carry sanitary waste and stormwater runoff. Their discharges contain floating debris, pathogens, stormwater runoff and raw sewage. Dry-weather CSO discharges can occur when the conduits are blocked with debris, garbage, and structure failures.
Animal Waste	<u>Watershed-wide.</u> Pet waste left on pavement, thrown into catch basins or left on lawns can be washed into storm drains by rain or melting snow. Farm animals also may contribute to elevated bacteria levels due to contaminated runoff and/or unrestricted access of farm animals to wetlands and surface waters. Feral animals attracted by garbage and other litter can congregate, resulting in their waste being transported through runoff into the river.
Illegal Waste	<u>Watershed-wide.</u> Illegal sources include illicit connections of sanitary wastewater to storm drains, as was discovered in the area of Broad and Blackstone Streets in Cumberland.
Septic System Failures	<u>Watershed-wide.</u> Failing or improperly designed or installed on-site septic tanks and/or drain fields that allow discharge of partially treated or untreated effluent.



Source	Location / Explanation
Sediment Resuspension/ Sloughing	<u>Watershed-wide.</u> Metals such as Cd, Cu, and Pb have an affinity for sediments. Previous studies have identified impoundments in the Massachusetts portion of the Blackstone River where sediments have become entrenched behind dams. Flow fluctuations due to precipitation, runoff, and hydropower operations may increase bank scouring, sloughing, and re-suspension of bottom sediment. This re-suspended contaminated material moves into the water column and can be transported and redeposited several miles downstream.
Waste Sources	<u>Watershed-Wide.</u> Waste sources include waste cleanup such as superfund sites, federal facilities, brownfields, underground storage tank system releases and waste lagoons.
Massachusetts Source	<u>From Massachusetts segments of river.</u> The Blackstone River Watershed TMDL data showed significant pollutant loads coming across the state line for both bacteria and metals. Historically, NPDES permitted facilities in MA were issued permits with winter bacteria limits that were documented to cause exceedances in the RI portion of the river, where no seasonal bacteria criteria are applied. More recent NPDES permits have resolved this issue. CSO discharges in Worcester may also contribute to elevated pollutant concentrations in the RI portion of the Blackstone.
Branch River	<u>Branch River.</u> Results of the Blackstone River Watershed TMDL field study show that the Branch River is a consistent and significant source of lead to the Blackstone during dry weather. Wet-weather contributions of lead from the Branch River are relatively low and not a concern.

The Blackstone River Watershed TMDL also provides a description of potential sources. *Section 2.3.1 – Section 2.3.10* (below) summarize this description. Discussion of this information and selection of appropriate BMPs are discussed in *Section 3.0* of this plan. Note that some of the potential sources identified do not apply to the City of Woonsocket. This plan discusses each potential source to the Blackstone River, inclusive of those outside the City of Woonsocket, but only provides the TMDL recommendations for the sources identified as potential issues for the City of Woonsocket.

2.3.1 Storm Water

The Blackstone River Watershed TMDL discusses storm water as a potential source.

Pages 43 – 46 of the Blackstone Watershed TMDL:

Stormwater runoff is a significant source of pollution to the Blackstone River and its tributaries, particularly in the more urbanized areas of Woonsocket, Lincoln, and Cumberland. The majority of stormwater in the watershed's other two urban centers, Pawtucket and Central Falls is discharged into Combined Sewer Overflows and is discussed separately below. Throughout the non-CSO portion of the watershed, storm drainage systems collect, concentrate and route polluted runoff from streets and highways directly to the river. Stormwater from privately owned property, such as parking lots, and commercial and industrial areas may be discharged into these municipal or state owned drainage systems or may be conveyed directly to the Blackstone River via overland flow, stormwater pipes, or other conveyances...

Urban/suburban land uses dramatically change watershed hydrology by affecting the quantity and quality of runoff. Urban development results in increases in stormwater runoff peaks and volumes and increased frequency of runoff from smaller storms. With increasing impervious



cover within a watershed, the greater quantities of stormwater runoff wreak havoc with the physical structure and stability of streams and the habitat for aquatic life, and less base flow is available to aquatic life in streams during low flow periods. Typically, water quality also deteriorates with increasing imperviousness...

2.3.2 RIPDES Sources

Page 46 of the Blackstone River Watershed TMDL states:

The Woonsocket WWTF, RIPDES permit number RI0100111, discharges municipal wastewater to the upper reach of the Blackstone River (Segment 1A). There are a number of other industrial facilities that discharge into the Blackstone River that are operating under RIPDES permits. Of these, three (Okonite Company, OSRAM Sylvania Products, and Woonsocket Water Treatment Facility) are considered minor dischargers, and only OSRAM Sylvania Products, located on the lower reach (Segment 1B) historically discharged lead, a pollutant of concern relative to this TMDL. This facility discharges both contact and non-contact cooling water which is defined as water that is used to reduce temperature and which does not come into direct contact with any raw materials or intermediate, final or waste product (other than heat).

2.3.3 Combined Sewer Overflow (CSO)

Pages 50-51 of the Blackstone River Watershed TMDL state:

A combined sewer system is a wastewater collection system owned by a municipality (as defined by Section 502(4) of the Clean Water Act) that conveys domestic, commercial, and industrial wastewater and stormwater runoff through a single pipe system to a publicly owned treatment works (POTW). A CSO is defined as a discharge from a point prior to the POTW treatment plant. CSOs generally occur in response to wet weather events. During wet weather periods, the hydraulic capacity of the combined system may become overloaded, causing overflows to receiving waters at the discharge points.

Thirteen CSOs discharge into the Blackstone River between Whipple Bridge (W-04) and Slater Mill Dam (W-05). The operation and maintenance of these CSOs is the responsibility of the Narragansett Bay Commission (NBC), a POTW which is responsible for the combined sanitary and storm sewers, sanitary sewers, and the wastewater treatment plants at Fields Point in Providence and Bucklin Point in East Providence. CSO discharges include a mix of domestic, commercial, and industrial wastewater and stormwater runoff. As such, CSO discharges contain human, commercial, and industrial wastes as well as pollutants washed from streets, parking lots, and other surfaces.

Pages 111-113 of the Blackstone River Watershed TMDL state:

The combined sewer overflows into Narragansett Bay are a violation of the Federal Clean Water Act. In July of 1994, DEM approved a comprehensive Combined Sewer Overflow Control Facilities Program prepared by the Narragansett Bay Commission. The Program proposed the construction of six underground storage facilities and three deep rock tunnel segments at a cost of \$467 million (1992 dollars). The underground storage tanks and tunnels would contain the sewage overflows during rain events so that the stored flows could be returned to the system for treatment after the storm. Subsequently, NBC reevaluated their CSO abatement plan and prepared an amended CSO Control Facilities Program that was approved by DEM in July of 1999. The amended Program replaced the underground storage facilities with a combination of CSO interceptors and sewer separation projects, and refined the sizing of the deep rock tunnels, with a total cost of \$390 million (1998 dollars)... The entire CSO abatement project is being undertaken in three phases over the course of approximately 20 years.

There are currently 15 active combined sewer overflows discharging to the Blackstone River between River Street and Slater Mill Dam. Of these 15, twelve are monitored for flows (six in Central Falls and 6 in Pawtucket). At these sites, flow meters monitor either volume of overflow or activity of the overflow. The flow monitoring results are used to determine if and when an overflow to the Blackstone occurs, monitor surcharging in the interceptor, and to develop a history of the flow data to better identify problem situations and improve efficiency.

The NBC Interceptor Maintenance Report on the CSO for the first half of 2012 indicated that there were no dry weather discharges observed at any of the Central Falls or Pawtucket CSOs that discharge to the Blackstone mainstem. Additionally, NBC maintains two sampling locations on the Blackstone mainstem, one at the Mendon Road/ Lonsdale Avenue bridge crossing of the Blackstone and one adjacent to the Slater Mill Museum Site.

As noted above, none of the CSOs that enter the Blackstone are from the City of Woonsocket.

2.3.4 Domestic Animal and Vermin Waste

Pages 51-52 of the Blackstone River Watershed TMDL states:

Pet waste left to decay on streets, sidewalks, or on grass near the street may be washed into storm sewers by rain or melting snow. Dogs in particular are likely a major source of fecal coliform bacteria in urban runoff, given their population density and daily defecation rate. DNA fingerprinting techniques have clearly shown pet waste to be a major contributor of bacteria in urban and suburban watersheds. A study by Lim and Oliveri (1982) found that dog feces were the single greatest source contributing fecal coliform and fecal strep bacteria in highly urban Baltimore catchments. RIDEM staff observed significant amounts of pet waste in areas frequented by people walking their dogs in municipal parks and around apartment and condominium complexes that are located adjacent to the mainstem of the Blackstone River and its tributaries.



Livestock and dairy operations are another potential source of bacteria in the watershed. Further investigation narrowed the area of concern primarily to the headwaters of Cherry Brook in the vicinity of Pound Hill Road (Stations CB04, CB05, and CB06). Pathogen sampling conducted in August 2009 by RIDEM staff documented that rising levels of fecal coliform also occur at the furthest downstream sampling location at Olo Street (W-31) as compared to upstream concentrations (CB01 and CB02) indicate that sources in the lower reach in Woonsocket are contributing to elevated bacteria levels.

During the field portion of the [Blackstone River Watershed TMDL] study, runoff from a small family farm located at the intersection of Carrington Street and Lonsdale Avenue in Lincoln was observed to be flowing off the far side of the farm field into a catch basin at the corner of Lonsdale Avenue and Cook Street, near the Whipple Bridge.

2.3.5 Illicit Sources

Page 52 of the Blackstone River Watershed TMDL states:

One of the pollution hot spots identified in the [Blackstone River Watershed TMDL] Field Study was a channel that discharges into the Blackstone River adjacent to the Ann & Hope Warehouse parking lot (located at the intersection of Ann and Hope Way and Broad Street) and drains a fairly extensive mixed urban area of Cumberland. RIDEM Office of Compliance and Inspection staff sampled up gradient of the outfall identified in the report as W-35 (OF-317), pulling manhole covers to sample these locations in order to isolate the source of the bacterial pollution to the river. The Office of Compliance and Inspection also dye tested the sewage lines of many of the homes and discovered five residences and a church that were directly connected to the stormwater lines rather than to the sewer lines. Two of the residences were multi-family homes such that a total of 13 sources were found to be discharging sewage directly to the Blackstone River via the storm drain. Since the surveys were completed, all locations have been properly connected to the sewers and the fecal coliform levels have been reduced to 9 MPN/100ml from a high of greater than 16,000 MPN/100ml that was reported during a dry weather survey taken during the [Blackstone River Watershed TMDL] field work.

[There are many] outfalls that flow directly into the Blackstone Watershed that are potential sources of pathogens. Observed elevations of bacteria in the lower reach of Cherry Brook during dry weather suggest possible illicit discharges. The high bacteria levels observed during the dry weather surveys on Mill River also suggest illicit discharges. [Table 5 below] lists those outfalls that were sampled during the [Blackstone River Watershed TMDL] study and which were observed to be flowing during dry weather [or were identified as priority outfalls in the City of Woonsocket.]

Table 5 below summarizes the results of the Blackstone River Watershed TMDL outfall sampling as well as the illicit discharge detection and elimination studies completed by Fuss & O'Neill. The sampling results used for analysis in the Blackstone River Watershed TMDL came from a study conducted by RIDEM and the Louis Berger Group, Inc. for which samples were taken in the fall of 2005. The study is entitled *Water Quality—Blackstone River Final Report 2: Field Investigations*. Table 5 also presents data from

the Woonsocket illicit discharge detection and elimination (IDDE) program for which samples were taken in 2006 and 2007. The IDDE report was produced by Fuss & O'Neill and is entitled *Illicit Discharge Detection & Elimination Plan: Dry Weather Sampling*. Because no discrete geolocations are provided for the outfalls in the Blackstone River Watershed TMDL exact comparisons to the outfalls in the IDDE program could not be made. The outfalls were compared via maps that are available of each set of outfalls. If it was unclear which outfalls were compared due to areas with many outfalls in close proximity, all the potential outfalls that could be the same outfall were listed. Some outfalls in the Blackstone River Watershed TMDL were not in the IDDE program and vice versa. The comparison was the best possible given the available data.

Table 5
Outfall Bacteria Sampling Results

Blackstone TMDL Outfall ID	Potential DOT Ownership?¹	Dry Flow (cfs)	Highest Observed Fecal Coliform concentration in 2005 (MPN/100mL)²	IDDE Program Outfall ID	Highest Observed Dry Weather Bacteria concentration in 2006-2007 (MPN/100mL)
201	Yes	0.14	110	Not Detected	-
214	No	0.14	0	Not Detected	-
219	Yes	0.75	300	610-611	No Flow
231	No	2	16,000	543	1,800
242	Yes	0.2	3,000	444	1,600
243	Yes	-	1,700 (wet weather)	447	1,600
247	Yes	-	>16,000 (wet weather)	485-491	No Flow
258	No	-	>16,000 (wet weather)	383	No Flow
263	Yes	0.15	>16,000	554	No Flow
266	Yes	0.5	220	370	130
703	Yes	-	Not Sampled	615	0
704	No	-	2,400	395	No Flow
802	Yes	1.5	NA	404-409	No Flow
804	Yes	-	Not Sampled	Not Detected	-
815	No	0.1	NA	Not Detected	-

Notes:

- 1) The Blackstone River Watershed TMDL identifies outfalls that may be DOT owned based on the road closest to the outfall. All outfalls that are not owned by DOT are owned by the City of Woonsocket
- 2) MPN is the "Most Probable Number" and is a statistically derived number that represents the actual number of colonies in a sample.

2.3.6 Failing Septic Systems

Pages 54-55 of the Blackstone River Watershed TMDL states:

Although the City of Woonsocket is sewered, as is Pawtucket and Central Falls, portions of Lincoln and Cumberland, a significant portion of the watershed is more rural and dependent upon on-site septic systems. Proper maintenance and upkeep of septic systems are critical to both public health and ecological health. A failing system can release untreated or inadequately treated wastewater containing pathogens into the groundwater, and directly or indirectly to surface waters. Storm drains may serve as conduits for inadequately treated wastewater to be discharged into surface waters, in both dry weather via cracked storm drains intercepting the contaminated plumes or in wet weather through the mixing of “surfaced” wastewater and stormwater runoff. Through these pathways, even failing septic systems located away from the direct vicinity of the river may impair water quality. Since 2005, a total of 47 septic system infractions in the watershed of the Blackstone River were identified by RIDEM. It should be noted that DEM does not have evidence that these were directly contributing to observed bacteria elevations, though they represent a significant potential source.

Figure 2 below shows septic system-related infractions in the Blackstone Watershed between 2005 and 2009 including Notices of Violation (NOVs) and permit applications. It should be noted that permit applications are not associated with failing OWTS and are not potential sources. The vast majority of the NOVs shown in Figure 2 are associated with septic system failures. NOVs may also include illegal tie-ins to storm drain systems, illegal direct discharges and System Suitability Determination Infractions (issued when owners make significant upgrades to residences without submitting an application to the Office of Water Resources to determine if existing system is adequate to service additional demands.)

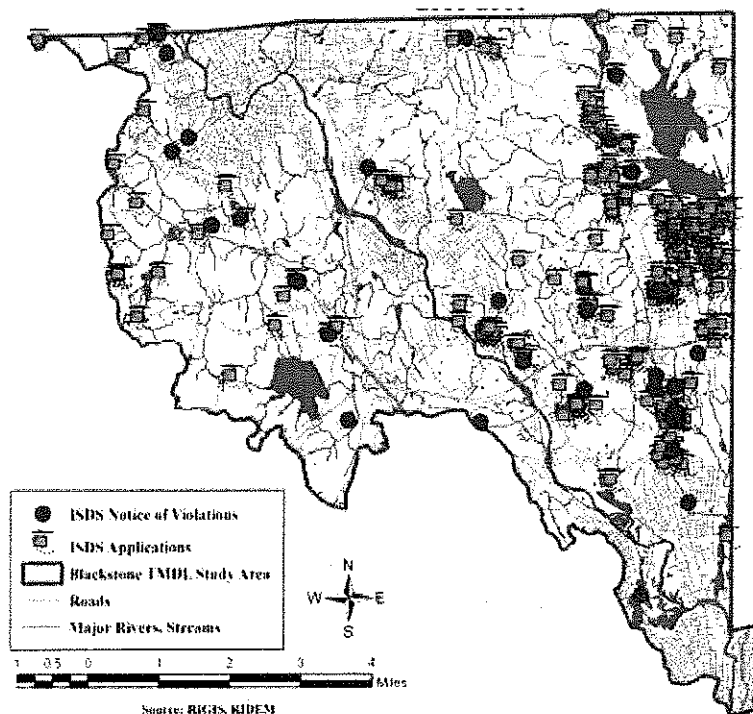


Figure 2—ISDS[i.e., OWTS] Applications and Notice of Violations (NOVs) in Blackstone River Watershed TMDL Study Area 2005-2009 (Reprinted from *Blackstone Watershed TMDL*)



It should be noted that this plan is intended to address the MS4 and not wastewater.

2.3.7 Sediment Resuspension and Embankment Sloughing

Page 56 of the Blackstone River Watershed TMDL states:

In previous studies, sediment resuspension and sloughing of river embankments have been observed in the impoundments along the Massachusetts portion of the Blackstone River. Toxic sediments tend to build on the upstream side of impoundments and these can be transported downstream during periods of high flows. Fisherville Pond and Rice City Pond in Massachusetts are two of the more notable impoundments along the Blackstone due to the large areas of exposed sediments that are present. In the study conducted on these impoundments for the Army Corps of Engineers (Wright, et al, 2004), re-suspension and sloughing was a significant source sediments in the downstream river reaches. It was also noted in the BRI (Wright, et al, 2001) that Rice City Pond was a significant source of re-suspended sediments during wet weather events. This impoundment is approximately 8.2 miles upstream of W-01. Other impoundments between Fisherville and the MA/RI border that may be potential sinks for toxic sediments include Farnumville, Riverdale, and the Blackstone Gorge.

The Blackstone River Watershed TMDL does not identify embankment sloughing as a source from Woonsocket riverbank areas.

2.3.8 Waste Sources

Page 56 of the Blackstone River Watershed TMDL states:

There are numerous waste cleanup sites located within the Blackstone River watershed. Waste cleanup sites include Superfund sites, federal facilities, brownfields, underground storage tank system releases, treatment, storage and disposal facility accidental releases, and oil spills. EPA New England's Office of Site Remediation and Restoration (OSRR) administers the region's waste site cleanup and reuse programs and provides a web site to locate hazardous waste sites in New England...

In the portion of the Blackstone River watershed addressed in this TMDL, there are approximately 166 Leaking Underground Storage Tanks (LUST), 128 Waste Management Sites, with 17 of these on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) which indicates further investigation may be necessary to determine if these sites should be included on the National Priorities List as a superfund site. Additionally, there are 6 waste lagoons in the watershed, one of which is inactive, three are closed, and two still active at the Riverview Quarry in Cumberland and Wrights Dairy Farm in North Smithfield.

It should be noted that although LUSTs are present in the watershed, they are likely not sources of metals or pathogens.



2.3.9 Massachusetts

Pages 57-59 of the Blackstone River Watershed TMDL states:

As part of the [Blackstone River Watershed TMDL] study, field investigations included collection of samples under both dry and wet weather conditions at stations located just north of the state line on each of the Blackstone, Mill and Peters Rivers to evaluate contributions of pollutants from the Massachusetts portion of the respective watersheds. As documented in the [Blackstone River Watershed TMDL] report with the exception of fecal coliform, more than 50% of the dry weather annual loads of individual constituents observed at Station W-02 at Manville Dam were contributed by Massachusetts' sources. For fecal coliform, 41% of the annual dry weather fecal coliform load measured at Station W-02 was contributed by Massachusetts' sources (without consideration for bacterial decay). Water quality at Station W-01 in Millville, MA exceeded 200 MPN/100 coliform criteria for seven of the eighteen surveys. Prior to 2008, MA treatment facilities did not have a fecal coliform limit from November 1 to March 30. [Blackstone River Watershed TMDL] data showed a geomean of 1056 MPN/100ml for this period of dry weather sampling. A revised NPDES permit issued for Upper Blackstone Water Pollution Abatement District by the USEPA effective on October 1, 2008 limits the maximum daily value at 1,429 MPN/100ml. Massachusetts sources as measured at Station W-01 accounted for 129% of the average wet weather percent load measured at Station W-02 at Manville Dam (not accounting for bacterial decay). By comparison, the Branch, Mill and Peters Rivers' contribution averaged 14%, 11% and 13% respectively over the three storms. For dissolved lead, 67% of the annual dry weather load measured at Station W-02 was contributed by Massachusetts' sources as measured at Station W-01. For wet weather, approximately 97% of the total average wet weather lead load to the reach was accounted for at Station W-02, with Massachusetts sources accounting for 84% of the average wet weather percent load observed at Station W-02.

On the Peters River, unlike the Mill River, sources above the State line are important and do represent a significant portion of the fecal coliform load in the lower stations (W-15 and W-16)... Dissolved copper and lead samples collected as part of the [Blackstone River Watershed TMDL] field surveys showed that significant sources of these elements are located in the Massachusetts portion of the watersheds for the Mill and Peters Rivers.

This source affects the waters of the Blackstone River in the City of Woonsocket, but is not caused by sources entering the river from the City of Woonsocket.

2.3.10 Branch River

Page 60 of the Blackstone River Watershed TMDL states:

The Branch River is a significant contributor of fecal coliform to the Blackstone in the RI portion of the river between the state line and Manville Dam (W-02). The Branch River exceeded the State's 200 MPN/100ml limit for three of the four times that it was sampled during the dry weather surveys. A mass balance for surveys 7, 9, and 11 where all stations were



sampled showed that an average of 301% of the fecal load at Station W-02 was accounted for. Of this 109% was contributed by the Branch, followed by 108% at W-01, and the Mill in third at 71% of the load... The Branch River was the largest [Rhode Island] contributor at 28% of the dissolved lead load at Manville Dam (W-02) during the dry weather surveys...

RIDEM will further evaluate the sources of lead and pathogens to the Branch River, and needed reductions to meet both Branch River and Blackstone River water quality standards as part of the Branch River TMDL investigation [are] scheduled to be completed by 2020.

2.4 Waterbody-Specific TMDL Recommendations

This section of the plan summarizes the DEM recommendations presented in the Blackstone River Watershed TMDL. Each of the sections in *Section 2.3* are addressed individually, although some were determined to not need action based on the findings described in *Section 2.3*. Outfalls discussed in this section can be found on the map in *Appendix A*.

2.4.1 Storm Water

Pages 92-93 of the Blackstone River Watershed TMDL states:

The watershed of the Blackstone River contains a mix of high density and rural areas. When possible, efforts by municipalities, land trusts and others to preserve open space should continue. As land is developed, it is critical that significant natural features be protected to maintain the area's unique characteristics and to prevent further degradation of water quality – as can be achieved through use of conservation development and LID techniques.

Redevelopment projects represent opportunities to reduce the water quality impacts from the watershed's urban uses by reducing impervious cover and/or attenuating runoff on-site. As described below, municipal ordinances must be reviewed and revised to make sure that future development projects do not add to water quality problems and that redevelopment projects reduce contributions to the water quality problems in the Blackstone River Watershed.

Pages 103-105 of the Blackstone River Watershed TMDL states specifically for the City of Woonsocket:

Woonsocket must... assess and prioritize drainage systems listed in [Table 6] for the design and construction of BMPs that reduce the pollutants of concern and stormwater volumes to the *maximum extent feasible*...

Table 6
Priority Outfalls

BTMDL Data Report ID	Outfall Size (inches)	Dry Flow (cfs)	Wet Flow Estimated (cfs)	Highest Observed Fecal Coliform (MPN/100ml)	Highest Observed Dissolved Copper (µg/L)	Highest Observed Dissolved Lead (µg/L)	Drains 2 or more Impervious Acres	Presumed Ownership*
Woonsocket								
Blackstone River								
201	48	0.14	5.0	110	1.8	0.19	√	Woonsocket/ DOT
205	60	-	0.20	270	5.3	5.7		Woonsocket/ DOT
213	36							Woonsocket
214	48	0.14					√	Woonsocket
215	36							Woonsocket
218	30						√	Woonsocket
219	72	0.75		300	4.2	0.23	√	Woonsocket/ DOT
222	36							Woonsocket
225	42							Woonsocket
231	48	2.0	5.0	16,000	3.1	1.5	√	Woonsocket
233	30						√	Woonsocket
234	36 x 36							Woonsocket
235	15		0.10	2,200	8.5	2.0		Woonsocket
242	30	0.08	0.20	3,000	12.0	3.7		Woonsocket/ DOT
243	48		0.40	1,700	17.0	8.1	√	Woonsocket/ DOT
244	18		0.2	130	5.4	3.4		Woonsocket
245	36 x 48						√	Woonsocket/ DOT
247	72		3.5	>16,000	8.9	4.6	√	Woonsocket/ DOT
251	24							Woonsocket
252	24							Woonsocket
255	27						√	Woonsocket
258	60		0.25	>16,000	12.0	3.3	√	Woonsocket
260	24							Woonsocket/ DOT
263	36	0.15	2.5	>16,000	7.1	3.5	√	Woonsocket/ DOT
266	48	0.50	6.0	220	4.8	0.7	√	Woonsocket/ DOT
Mill River								
703	24							Woonsocket/ DOT
704	36		0.5	2,400	5.7	7.2	√	Woonsocket
Peters River								
802	24	1.5	5		2.5	1.1	√	Woonsocket/ DOT
804	72						√	Woonsocket/ DOT
806	18-24							Woonsocket
815	24	0.10			1.7		√	Woonsocket

(Reprinted from Blackstone River Watershed TMDL)

[Table 6] lists thirty-one priority outfalls located in Woonsocket of which, the City of Woonsocket is the presumed owner of eighteen, and either RIDOT or Woonsocket the presumed owner of thirteen. As a preliminary step, Woonsocket must work with RIDOT to confirm ownership, to identify interconnections among the drainage systems to the priority outfalls, and to prioritize those with high pathogen levels and/or trace metals in their discharges based upon available information. Woonsocket should begin this assessment process by reviewing available information for priority outfalls listed in [Table 6], as well as any other monitoring data collected by the City or others.

The outfalls [listed] below are a subset of the priority outfalls listed in [Table 6] [and were selected due to their high pollutant concentrations and the amount of impervious surface in

their catchments]...These should be considered a starting point for further investigations by Woonsocket. (List adapted from Blackstone River Watershed TMDL)

- **Outfall 219**- located at the mouth of Cherry Brook as it enters the Blackstone River
- **Outfall 231**- had dry weather flow and high pathogen and lead concentrations
- **Outfall 242**- had dry weather flow and high pathogen and dissolved metals concentrations
- **Outfall 243**- had a wet weather fecal coliform concentration of 1,700 MPN/100mL and high lead concentrations
- **Outfall 247**- had a wet weather pathogen concentration of 16,000 MPN/100mL and high lead concentrations
- **Outfall 258**- area draining to outfall has experienced significant redevelopment and had high pathogen and trace metals concentrations
- **Outfall 263**- had dry weather flow and is located across from the Woonsocket WWTF and had high pathogen and trace metal concentrations
- **Outfall 704**- had high wet weather pathogen and lead concentrations
- **Outfall 703**- not originally sampled but was identified as a possible source due to an auto parts yard in the outfall's catchment
- **Outfall 802**- catchment contains impervious surfaces and samples contained trace metals
- **Outfall 804**- is partially submerged and was determined to potentially have a low dry weather flow
- **Outfall 815**- had a dry weather flow and high dissolved metals concentrations; white foam was observed, suggesting the potential presence of domestic wastewater containing detergents

The IDDE Program completed sampling of many of the same outfalls as identified in the list above. The results from this study are presented in *Table 5*. *Table 7* below describes the recommended action for each of the outfalls listed above. Those outfalls for which it is recommended that further action be taken are highlighted in orange.

Table 7
Recommendations for Priority Outfalls

Blackstone TMDL Outfall ID	IDDE Program Outfall ID	Recommendation
219	610-611	This outfall had no flow during the IDDE sampling and a very low bacteria concentration during the TMDL sampling. Because the IDDE sampling was completed most recently, it is recommended that this outfall be removed from the priority outfall list.
231	543	This outfall should be kept on the priority outfall list. Dry weather flows with high bacteria concentrations were noted during each sampling program.
242	444	This outfall should be kept on the priority outfall list. Dry weather flows with high bacteria concentrations were noted during each sampling program.

Blackstone TMDL Outfall ID	IDDE Program Outfall ID	Recommendation
243	447	This outfall should be kept on the priority outfall list. Dry weather flows with high bacteria concentrations were noted during the IDDE program. However, wet weather flows with high bacteria concentrations alone from the TMDL study would not warrant identification as a priority outfall.
247	485-491	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. It is recommended that this outfall be removed from the priority outfall list.
258	383	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. There was a wet weather sample with a high bacteria concentration. It is recommended that the watershed draining to this outfall is investigated.
263	554	This outfall had no flow during the IDDE sampling which was completed more recently than the TMDL sampling. It is recommended that this outfall be removed from the priority outfall list.
703	615	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. Location near an auto parts yard does not warrant identification as a priority outfall if sampling proves the outfall is not a source of bacteria during dry weather. It is recommended that this outfall be removed from the priority outfall list.
704	395	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. There was a wet weather sample with a high bacteria concentration. It is recommended that the watershed draining to this outfall is investigated.
802	404-409	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. There was no bacteria detected during wet weather sampling during the TMDL study. It is recommended that the watershed draining to this outfall is investigated.
804	Not Detected	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. Partial submersion does not warrant identification as a priority outfall. It is recommended that the watershed draining to this outfall is investigated.
815	Not Detected	This outfall had no flow during the IDDE sampling and no flow during dry weather for the TMDL sampling. There was no bacteria detected during wet weather sampling during the TMDL study. It is recommended that the watershed draining to this outfall is investigated.

For the outfalls that remain on the priority list (outfalls #231, 242, 243, 258, and 704) the following next steps should be taken as described in *The City of Woonsocket Storm Water Management Plan*:

1. Delineate the drainage area of each outfall with a dry-weather flow component to determine the extent of potential sources. This could be done by two methods.



- Utilize TV inspection to identify sources of the dry-weather flows. This inspection could identify the extent of the system where there is a dry-weather flow component and identify connections to the storm sewer that are contributing dry-weather flow.
 - Inspect the drainage system, structure by structure, to determine the extent of the system where there is a dry-weather flow component. At this time, the system and its connections where a dry-weather flow component was observed, should be mapped, or sketched a minimum. This should be the first task completed as it will limit the extent of the investigation.
2. Inventory the drainage area of each outfall of concern to evaluate the locations of potential pollutant sources. This will consist of reviewing the City's GIS database, land use and street maps to identify potential pollutant sources in the drainage area. In addition, water quality data from the outfall of concern should be reviewed to determine what the potential sources may be.
 3. Conduct additional "targeted" wet or dry-weather sampling at selected locations down-gradient of suspected pollutant sources to "bracket" sources of pollutants in the system. Based on experience with past projects, this effort will be able to specifically identify portions of the storm sewer system where illicit discharges enter the system.
 4. Conduct detailed field inventory. Field inventories should be performed on foot and via windshield surveys, beginning at the point discharge, and following the bracketed drainage system up-gradient. The purpose of the field inventories is to further define what the potential source(s) may be.

Conduct Dye testing to pinpoint a specific discharge. This would require access into buildings and inserting dye at all potential illicit discharges which will require the field staff to be thorough. Permission would be required to enter businesses.
 5. Eliminate the illicit discharge once found.
 6. Confirm elimination of illicit discharges by collecting appropriate confirmation samples. This could either be done at the outfall or just downstream of the eliminated discharge.

2.4.2 RIPDES Sources

Regarding "RIPDES sources," Section 5.8.1.1 of the Blackstone River Watershed TMDL states:

The allocations for the Woonsocket WWTF are the same in dry or wet weather and, consistent with EPA policy, are set to meet the bacteria standards at the point of discharge. Since Rhode Island adopted recreational enterococci criteria in 2009, the Woonsocket WWTF RIPDES permit (which expires in October 2013) will be revised consistent with this wasteload allocation when it is reissued. The Class B/B1 enterococci criterion is a geometric mean concentration of 54 colonies per 100 mL... While the re-issued permit will not include limits for fecal coliform, the plant will be required to continue its monitoring of fecal coliform.

2.4.3 Combined Sewer Overflow (CSO)

As noted in *Section 2.3.3* none of the known CSOs mentioned in the Blackstone River Watershed TMDL are discharging from the City of Woonsocket, therefore no action is required.

2.4.4 Domestic Animal and Vermin Waste

Page 114 of the Blackstone River Watershed TMDL states:

Municipalities' education and outreach programs should highlight the importance of picking up after pets and not feeding birds. Pet wastes should be disposed of away from any waterway or stormwater system that discharges to the study area. The cities and towns in the Blackstone Watershed should work with volunteers to map locations where pet waste is a significant and a chronic problem. This work should be incorporated into the municipalities' Phase II plans and should result in an evaluation of strategies to reduce the impact of pet waste on water quality. This may include installing signage, providing pet waste receptacles or pet waste digester systems in high-use areas, enacting ordinances requiring clean-up of pet waste, and focusing educational and outreach programs in problem areas.

Towns and residents can take several measures to minimize bird-related impacts. They can allow tall, coarse vegetation to grow in areas along the shores of the Blackstone River that are frequented by waterfowl. Waterfowl, especially grazers like geese, prefer easy access to the water. Maintaining an uncut vegetated buffer along the shore will make the habitat less desirable to geese and encourage migration. With few exceptions, Part XIV, Section 14.13 of Rhode Island's Hunting Regulations prohibits feeding wild waterfowl at any time in the state of Rhode Island (2009a). Educational programs should emphasize that feeding waterfowl, such as ducks, geese, and swans, contributes to water quality impairments in the Blackstone Watershed and can harm human health and the environment.

2.4.5 Illicit Sources

As mentioned in *Section 2.3.5* a few stormwater discharges were the only noted illicit source in the City of Woonsocket. Recommendations for monitoring these discharges can be found in *Section 2.4.1*.

2.4.6 Failing Septic Systems

As noted in *Section 2.3.6* the City of Woonsocket is sewerred; although, there were a few ISDS applications and ISDS notice of violations between 2005 and 2009 in the City of Woonsocket.

Page 98 of the Blackstone River Watershed TMDL states: "An educational campaign targeted to residential land uses should include activities that residents can take to minimize water quality and water

quantity impacts. Measures that can reduce bacteria contamination include proper septic system maintenance...”

2.4.7 Sediment Resuspension and Embankment Sloughing

As noted in *Section 2.3.7* sediment resuspension and embankment sloughing is not a source of concern after the river crosses through the City of Woonsocket.

2.4.8 Waste Sources

As stated in *Section 2.3.8* there are many cleanup sites in all portions of the Blackstone River. Continuing cleanup efforts to address waste management should be made to reduce the potential of contaminating the Blackstone River. Voluntary river cleanups should be organized to promote community recognition of the issue and healthy waste disposal practices. Additionally enforcing the existing dumping prohibitions will likely reduce potential contamination due to waste sources.

2.4.9 Massachusetts

This potential source is not a source that can be managed by the City of Woonsocket.

2.4.10 Branch River

As stated in *Section 2.3.10* the Branch River is a known source of lead and pathogens to the Blackstone River. RIDEM is evaluating the sources and needs for reducing these loads. The TMDL is scheduled to be completed by 2020. It is suggested that the area downstream of the Branch River is paid less attention until more is known about the sources contributing from the Branch River. Sources on the Branch River can be paid more attention immediately.

2.5 Identifying Pollution Sources to Waters with Finalized TMDLs

The Blackstone River Watershed TMDL points to stormwater as the most likely source of fecal coliform and dissolved metals to the waterbody within the City of Woonsocket. It is noted, however, that the general level of investigations conducted to this point do not support determination of relative level of contribution from municipal, State (RIDOT) and private sources; or even whether sources have been definitively identified. Prior to the planning and implementation of BMPs and expenditure of significant money and effort, it is recommended that the current understanding of the sources contributing to Woonsocket reaches of the Blackstone River be further refined. *Table 8*, below, provides a breakdown of available methods to determine the nature and extent of pollution contribution by suspected source.

Table 8
Suspected Sources and
Methods to Determine Level of Contribution

Source	Method ^a
Stormwater	<ul style="list-style-type: none"> • Wet-weather sampling • Modeling calibrated with limited sampling
Wastewater	<ul style="list-style-type: none"> • IDDE (e.g., dry-weather surveys) • Presence of signature pollutants (e.g., bacteria, surfactants, ammonia, DNA) • OWTS permit/violation locations • Groundwater studies (to identify areas where exfiltrating wastewater from leaky sewer pipes may be contaminating storm drains)
Domestic Animal and Vermin Waste	<ul style="list-style-type: none"> • Direct observation • Limited DNA sampling for presence of nonhuman sources • Presence of signature pollutants (e.g., fecal coliform, ammonia, and surfactants) to differentiate human/nonhuman sources

Notes:

^a The methods in this column are general methods, some of which have already been used to narrow down sources in the subject areas.

Storm Water

To better ascertain the nature and extent of storm water impacts on water quality within the Blackstone River, the City of Woonsocket anticipates continuing monitoring the outfalls listed as potential outfalls of concern in *Section 2.4.1* of this document. It is envisioned that such an approach will refine the City's strategy regarding storm water sources of contamination, allowing for more targeted selection and siting of BMPs.

Wastewater

It has been determined that in the City of Woonsocket, wastewater is not a source of concern due to the permitting requirements of the Woonsocket WWTF and presence of a municipal sewer system. No further source identification is proposed under this plan.

Domestic Animal and Vermin Waste

Although waste from waterfowl and domestic pets is a very tangible source of pollution to the Blackstone River, no specific reaches, ponds or riverfront areas within the City of Woonsocket are cited in the TMDL as locations where animal waste is deemed to be a concern. The Town will continue in to comply with the six minimum measures (i.e., education/outreach and signage) to encourage proper pet waste management and discourage the feeding of waterfowl (see *Section 4* below).

3 Selection of Structural BMPs to Address the TMDL

3.1 Identify Remaining Discharges

As previously noted, the City of Woonsocket has completed the outfall mapping requirement as part of the RIPDES Phase II Program for Small MS4s. The City expects that all municipally owned storm water outfalls have been identified; however, it is possible that unidentified discharges exist. As needed the City will work to identify, survey, and document any previously unidentified outfalls discharging to the Blackstone River (including source and ownership).

3.2 Process for Defining Catchments

The City has already mapped its outfalls and catch basins. A copy of the City of Woonsocket outfall map that was developed for the Dry Weather Sampling program in 2006 is in *Appendix A*. If needed, the City will define the drainage areas of outfalls of concern using available topographical information (including USGS maps). The Blackstone Rivers will be the focus of the SWMPP for future implementation of BMPs.

3.3 Process for Identifying Interconnections

The City of Woonsocket has geolocated its catch basins and mapped its stormwater outfalls. The City cleans and inspects its catch basins annually. To date, no interconnections have been identified; however, if future investigatory work (e.g., catch basin inspections) reveals previously unidentified interconnections, the City will add such connections to its drainage system data.

3.4 Identify Potential Structural BMPs

This section of the plan discusses a process for tailoring types and locations of structural BMPs. Although the IDDE program was completed, it is recommended that more sampling occur at those outfalls identified as priority outfalls in *Section 2.4.1* occur before implementation of structural BMPs. This is to allow for more targeted and successful BMP implementation.

- Pollutants of concern.
 - The pollutant of concern in the Woonsocket reach of the Blackstone River has been identified in the Blackstone River Watershed TMDL as bacteria and dissolved metals.
- Locations
 - BMP locations should be identified pursuant to the results of any future modeling and water quality data as appropriate. It is suspected that BMPs will be sited in the catchments draining to the priority outfalls.
- BMPs
 - Structural BMPs that target bacteria include:

- Gravel wet vegetated treatment systems
- Infiltration practices (infiltration trenches, sub-surface chambers and dry wells)
- Permeable pavement
- Filtration practices (sand filters, organic filters, and bioretention basins)
- Structural BMPs that target dissolved metals include:
 - Infiltration practices (infiltration trenches, sub-surface chambers and dry wells)
 - Permeable pavement
 - Filtration practices (sand filters, organic filters, and bioretention basins)
 - Open channel systems (dry swales and wet swales)

4 Revisions to the Six Minimum Measures in North Providence's SWMPP

4.1 Public Education and Outreach

Certain actions by the general public may have a direct and adverse effect on water quality (e.g., illicit dumping, illicit discharging, improper management of pet feces, etc.). This SWMPP revision includes implementation of several general measures to address the pollutants of concern for the Blackstone River.

The City's 2004 SWMPP provides detailed information on the public education and outreach measures that the City will implement. As recommended in the TMDL, the City will focus its efforts on proper septic system maintenance, proper pet waste management, discouragement of feeding waterfowl and waste management. The City will continue to work with the University of Rhode Island Cooperative Extension, Nonpoint Education for Municipal Officials (NEMO) as well as neighborhood associations and other local groups to incorporate public education and outreach materials into the City's storm water program. To help address illegal dumping, these efforts will include continuing to sponsor and assist with Earth Day Cleanups (distributing flyers, providing trash removal, etc.) The City will also continue to disseminate fact sheets to inform residents of recycling, electronic waste disposal, and best management practices for storm water runoff quality (pet waste clean-up, use of fertilizers, car washing, low-impact development), employing NEMO-developed materials as appropriate.

4.2 Public Involvement/Participation

Studies show that stewardship messages alter behavior most effectively when delivered by peers. Public participation (i.e., volunteerism) will encourage behavior that will lead to better water quality in the City's waterbodies. Individuals who help to deliver these messages tend to internalize them, which also results in behavior change.

The City intends to maintain public involvement through the Engineering, Planning, and Public Works Departments. Through coordination with local civic groups and the Mayor's office the town will continue to maintain public participation on stormwater management activities related to public participation, education and outreach.

Several examples of public participation activities are listed in the City's 2004 SWMPP. DEM, RIDOT, and URI are developing watershed protection programs through the Storm Water Outreach Program. Implementation of these programs will be tailored for use by the City.

4.3 Illicit Discharge Detection and Elimination

As previously noted, the City has recently completed the required dry-weather IDDE surveys and has reported the results to the RIPDES permitting program. Through dry-weather surveys, each outfall is inspected, and if flowing, sampled for the presence of bacteria, ammonia, and surfactants. Of the 285 outfalls located, 42 were found to be discharging and only 40 had sufficient flow for collection of a sample. These outfalls are not necessarily illicit but were identified as potentially illicit.

The City included seven next steps to investigate the potential illicit discharges found. These are listed below.

- 1) Delineate the drainage area of each outfall with a dry-weather flow component
- 2) Inventory the drainage area of each outfall of concern to evaluate the locations of potential pollutant sources
- 3) Conduct additional targeted wet and dry-weather sampling at selected locations downstream of outfalls of concern
- 4) Conduct detailed field inventories to further define the potential sources.
- 5) Conduct site investigations at each suspected source.
- 6) Eliminate the illicit discharge once found.
- 7) Confirm elimination of illicit discharges by collecting appropriate samples.

4.4 Construction and Post Construction Control

The City has completed the required elements pursuant to the Construction Site Storm Water Runoff Control measure, and the 2004 SWMPP describes the Town's implementation strategy.

The following section has been adapted from the Blackstone River Watershed TMDL pages 100-101.

New land development and redevelopment projects in the City will employ stormwater controls to prevent any net increase in bacteria and trace metals pollution to the waterbodies in the Blackstone River. Waterbodies of specific importance within the watershed include the Blackstone River mainstem (RI0001003R-01A) for pathogens, cadmium and lead; the Blackstone River mainstem (RI0001003R-01B) for pathogens, cadmium and lead; the Cherry Brook (RI0001003R-02) for pathogens and copper; the Mill River (RI0001003R-03) for pathogens and Peters River (RI0001003R-04) for pathogens and copper.

Woonsocket will consider expanding existing ordinances to include projects that disturb less than one acre (as the existing ordinance only requires establishing post construction stormwater controls for sites disturbing one or more acres.)



4.5 Pollution Prevention/Good Housekeeping

The City of Woonsocket has completed the elements required pursuant to the pollution prevention/good housekeeping minimum measure. This includes annual catch basin inspection and cleaning. Any required repairs or modifications to storm water collection and conveyance systems identified through these inspections are undertaken by the City DPW, which will continue to perform such corrective measures as required. Inspections of facilities owned and operated by the City are conducted on a regular basis; to date these inspections have been appropriate and effective in preventing pollution from potential sources from entering the municipal drainage systems.

5 Measureable Goals for Implementation

The City will complete the measures identified in *Section 4.3* as part of their IDDE program in order to determine the locations of potential sources within the watershed. Further testing should also be done at those outfalls identified in *Section 2.4.1*. After additional sampling efforts have been completed, structural BMPs that treat the known pollutants at each source should be designed and constructed. Suggested BMPs are listed in *Section 3.4*.

The City also intends to introduce a post-construction storm water management ordinance. The post-construction storm water management ordinance includes a land-disturbance threshold of 1,000 square feet and addresses both low-impact development and redevelopment projects. Adoption of the ordinance is contingent upon acceptance by City Council.

It is expected that the City can apply for a 319 Nonpoint Source Pollution Abatement grant application to DEM to address the feasibility of conducting low-impact development retrofits in the Blackstone River.

6 Program Evaluation

6.1 Revisions to the Storm Water Management Program

Regulated municipalities must annually evaluate the compliance of its storm water management program with the conditions of the general permit. The evaluation must consider the appropriateness of the selected BMPs in efforts towards achieving the defined measurable goals. The Town will report on its efforts to achieve measurable goals discussed in *Section 5.0* of this SWMPP revision as part of its annual report.



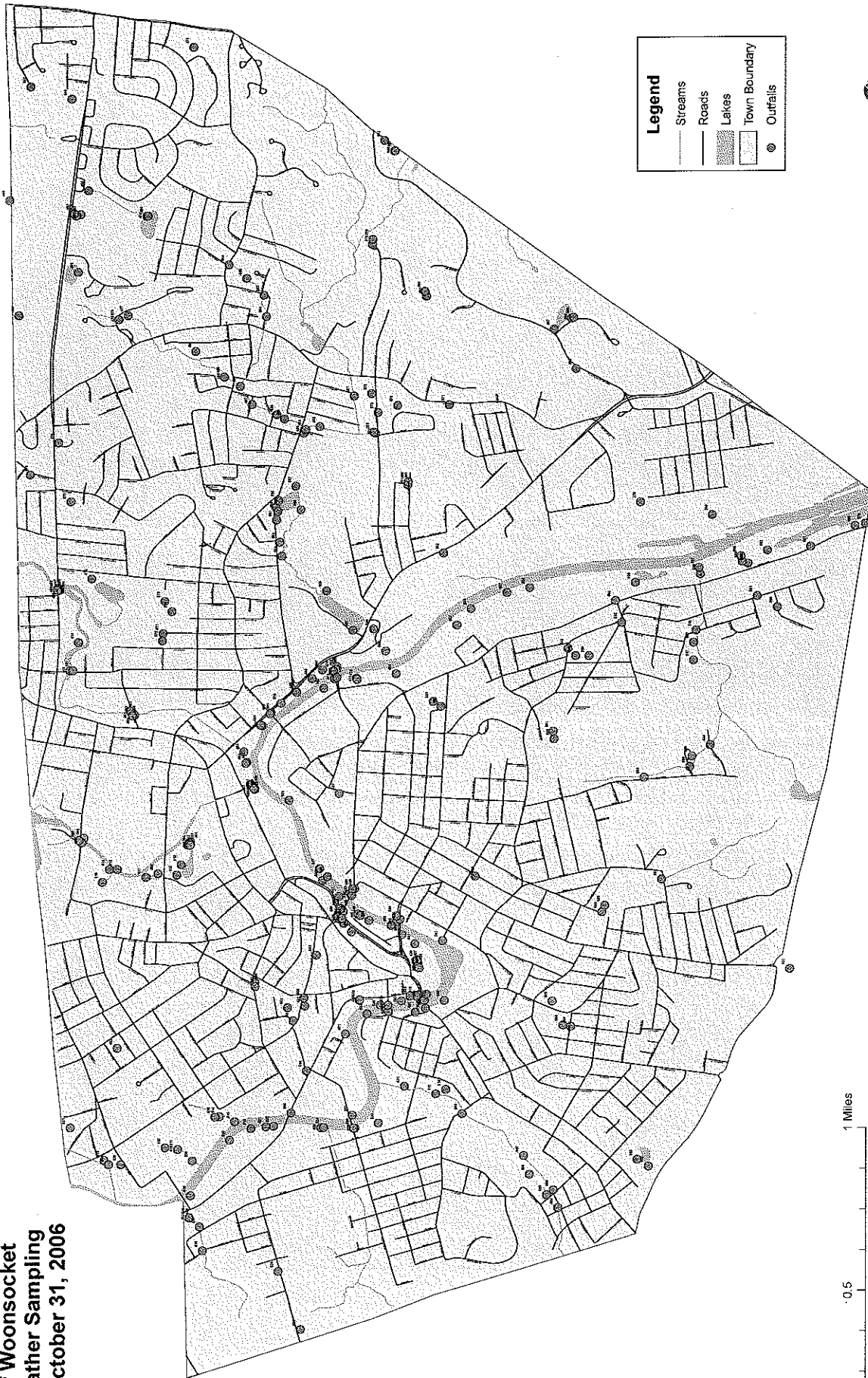
6.2 Ongoing Projects

Currently, the City of Woonsocket is working on developing project plans to dredge accumulated sediment from a recreational pond. The sediment is understood to have been deposited into the pond via storm drains that deposit directly into the pond. Part of the project plan is to determine where the water carrying the sediment is coming from. Additional goals of this project include upgrading the amenities of the park surrounding the waterbody.

Appendix A

Outfall Map

City of Woonsocket
Dry Weather Sampling
July 1-October 31, 2006



0 0.5 1 Miles

