

**TOWN OF BLACKSBURG STORMWATER MANAGEMENT
PROGRAM**

VPDES PERMIT NO. VAR 040019

(Effective July 1, 2013)

**Municipal Separate Storm Sewer System
(MS4)**

YEAR 3 ANNUAL REPORT



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Contact: Kafi Howard, Town Engineer

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Table of Contents

INTRODUCTION	1
COMPLIANCE WITH OBJECTIVES OF GENERAL PERMIT	1
TMDL SPECIAL CONDITION REQUIREMENTS	3
A. Maintain an Updated Program Plan that includes a TMDL Action Plan	3
B. Maintain a List of Legal Authorities and Agreements Applicable to Reducing the WLA	4
C. Maintain a List of Additional Methods Beyond MCMs 1-6 Applicable to Reduce WLA	4
D. Enhance the PEOP and Employee Training to Address Reducing WLA	4
E. Assess all Significant Sources of Pollutants from Municipal Facilities	5
F. Develop a Method to Assess TMDL Action Plans for Effectiveness in Reducing WLAs	5
MCM 1: PUBLIC EDUCATION & OUTREACH ON STORMWATER IMPACTS	7
A. Public Education and Outreach Plan (PEOP) Development and Implementation	7
B. Storm Drain Marking Program Implementation	8
C. Demonstration Projects Enhancement	9
D. Household Waste, Business Waste, Universal and Hazardous Waste Education and Minimization	10
E. Grease Program Enforcement	10
F. Illicit Discharge Education	11
G. Town Stormwater Page Maintenance	11
MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION	13
A. Conduct Stakeholder Meetings for Watershed Management and Stormwater Quality Improvement	14
B. TMDL Implementation Planning and Participation	14
C. Participate and Support Stream Clean-up Efforts	15
D. Posting of Program Plan and Annual Reports Online for General Public	15
E. Outreach Event Participation	15
MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION	17
A. Develop and Update a Storm Drain System Map	18
B. Develop Procedures for Identifying Areas with High Potential for Illicit Discharge	18
C. Enforce an Ordinance Prohibiting Illegal Dumping and Illicit Discharges	18
D. Enforce an Ordinance Prohibiting Diverted Stream Flows and Encouraging Buffering Around Creeks	19
E. Establish an Illicit Discharge Plan to Eliminate Discharges through Outreach	19
F. Estimate Volume of Stormwater discharged and Quantity of WLA Pollutant	19
G. Develop Written Procedures to Detect, Identify, and Address Illegal Stormwater Discharges	20
H. Notify in Writing all Downstream MS4 of any Known Physical Interconnections	20
MCM 4: CONSTRUCTION SITE RUNOFF CONTROL	21
A. Erosion and Sediment Control Ordinance, Certification and Land Disturbing Activities	22
B. Respond To Erosion and Sediment Control Complaints	22
C. Require Construction Site Operators to Control Waste	22
D. Require Acknowledgement when a VSMP Permit is Needed for a Plan under Review	23
E. E&S Inspection Protocol	23
F. Pollution Prevention Plan Enforcement Protocol	24
MCM 5: POST CONSTRUCTION STORMWATER MANAGEMENT	25
A. Enforce a storm water ordinance designed to control runoff impacts	25
B. Implement a Long Term Stormwater Maintenance Program	26
C. Tracking of all Known Stormwater Management Facilities	26
D. Develop Stormwater Facilities Protocol	26
MCM 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING	28
A. Maintenance Actions for Pollutant Reduction in Roads, Parking Lots, and Storage Yards	29
B. Controls for Reducing the Discharge of Pollutants in Publicly Maintained Areas	29
C. Reduce the Amount of Solid Waste from Municipal Facilities	30
D. Reduce the Use and Discharge Potential of Hazardous Chemicals	30

E. Develop and Implement an O&M and Training Program to Prevent or Reduce the Pollutant Runoff from Municipal Operations	30
F. Turf and Landscape Nutrient Management Plans	31
G. Regional Solid Waste Authority Hazardous Waste Collection	31

Introduction

Regulatory compliance related to storm water management and the Municipal Separate Storm Sewer System (MS4) program is part of a town wide program. This document serves as the annual report for the reporting period of **July 1, 2015** through **June 30, 2016** for the **Town of Blacksburg** (TOB), General Permit No. **VAR040019** (effective July 1, 2013 – June 30, 2018). In this past permit year there have been no significant modifications to any department's roles and responsibilities as described in the TOB Program Plan (latest revision, September 2013). Minor revisions to BMPs are described in the body of the annual report based upon evaluations made upon the end of the reporting period. Additionally, a few new items were added to the BMP reporting requirements. These are highlighted with a  symbol.

Compliance with Objectives of General Permit

Permit Condition: II.E.3.a

- 1) Name and permit number
- 2) Annual report year
- 3) Modifications to any operator's departments roles and responsibilities
- 4) Number of new MS4 outfalls and associated acreage by HUC added during the permit year.
- 5) Signed Certification

The name, permit number and annual report year are located on the coversheet of the Town of Blacksburg MS4 Annual Report. There have been no modifications to operator's department's roles and responsibilities. There were four new MS4 outfalls added during this permit year. The details (acreage and HUC) for the new outfalls are discussed in the section MCM 3A – Develop and Update a Storm Sewer System Map.

The signed certification is included on the final page of this annual report.

Permit Condition: II.E.3.b

The status of compliance with state permit conditions, an assessment of the appropriateness of the identified best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures are discussed below and in the following sections.

In review of this stormwater program, the Town finds itself in compliance with the objectives of the General Permit. The Town review finds the identified best management practices (BMPs) successful in achieving the measurable goals for each of the minimum control measures (MCMs) as outlined in the Program Plan. The BMPs are found to be appropriate for addressing the discharges to impaired waterways and for meeting the objectives of the permit. The documentation to support this review is more specifically identified in the "Minimum Control Measure" section of this report for each BMP as:

- Measurable Goals Identified and Achieved,
- Appropriateness of BMP for Addressing Impaired Discharges,
- Progress Towards Meeting Objectives of the Permit,
- Consistency with Public Outreach and Education Plan, and
- Proposed Changes to the BMP or Measurable Goals

Permit Condition: II.E.3.c

Results of information collected and analyzed including monitoring data, if any, during the reporting period.

No monitoring is required as part of the implementation and evaluation of the TMDL action plan. Field screening monitoring results is included in this annual report in Appendix 3.A, Outfall Reconnaissance Collected Data.

Permit Condition: II.E.3.d

A summary of the stormwater activities the Town plans to undertake during the next reporting cycle.

Under each BMP the “Next Reporting Period Activities Planned” section discusses all plans for the next reporting period.

Permit Condition: II.E.3.e

A change in any identified best management practices or measurable goals for any of the minimum control measures including steps to be taken to address any deficiencies.

No changes have been planned for the best management practices or measurable goals.

Permit Condition: II.E.3.f

Notice that the operator is relying on another government entity to satisfy some of the state permit obligations (if applicable).

The Town of Blacksburg is not relying on any other government entity to satisfy any permit obligations.

Permit Condition: II.E.3.g

Documentation of the approval status of any programs pursuant to Section IIC (if appropriate), or document the progress towards achieving full approval of these programs.

This does not apply to the Town of Blacksburg.

Permit Condition: II.E.3.h

Information required for any applicable TMDL special condition contained in Section I.

*The Town of Blacksburg has included all applicable TMDL special condition requirements in the TMDL Special Condition Requirements section of the annual report. **During this reporting period, the TMDL Action Plan was updated to reflect the special conditions for TMDLs approved between July 2008 and June 2013. The Roanoke River PCB TMDL was approved during this time period.** The revised TMDL Action Plan is included in Appendix SC-2.*



TMDL Special Condition Requirements

TMDLs for both the Stroubles Creek and Upper Roanoke River watersheds were approved prior to the July 9, 2008 effective date of the General Permit. Therefore, special condition requirements (Section 1 B) apply to the Town during the current permit cycle. The TMDL for PCBs in the Roanoke River was approved in April 2010 and for the first time has been included in Blacksburg’s TMDL Special Condition Requirements in this annual report. The TOB currently has the following WLAs associated with a TMDL:

- 211 tons/year sediment to Stroubles Creek (aggregate WLA)
- 102 tons/year sediment to Upper Roanoke River watershed
- 3.15E+09 cfu/year bacteria (E coli) to Wilson Creek/ Upper Roanoke River watershed
- **7.8 mg/yr of polychlorinated biphenyl to the Roanoke River watershed** 

List of TMDL Special Condition BMP’s:

- A. Maintain an Updated Program Plan that includes a TMDL Action Plan.
- B. Maintain a List of Legal Authorities, Permits, and Agreements Applicable to Reducing the WLA.
- C. Maintain a List of Additional Management Practices & Methods Beyond MCMs 1-6 Applicable to Reduce WLA.
- D. Enhance the PEOP and Employee Training to Address Reducing WLA.
- E. Assess all Significant Sources of Pollutants from Municipal Facilities.
- F. Develop a Method to Assess TMDL Action Plans for Effectiveness in Reducing WLAs

A. Maintain an Updated Program Plan that includes a TMDL Action Plan

The Town of Blacksburg will maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants associated to the MS4 in approved TMDLs. The TMDL Action Plans may be implemented in multiple phases over more than one permit cycle using the adaptive iterative approach provided adequate progress to reduce the pollutant discharge in a manner consistent with the assumptions and requirements of the specific TMDL WLA is demonstrated in accordance with the General Permit.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Development of TMDL Action Plan	2014	2015	2016	2017	2018	2015 - 2016
Evaluate TMDL Action Plan			2016	2017	2018	2016
Progress Toward Meeting Objectives of Permit						
TMDL Action Plan was completed in the 2015 permit year as outlined in General Permit Table 1: Schedule of MS4 Plan Updates Required in this Permit and has been updated for the PCB TMDL in this reporting year. This revised document is included with the submittal of this current Annual Report.						
PEOP Consistency						
Currently there is no education or outreach component to this BMP.						
Proposed Changes to BMP or Measurable Goals						
No changes proposed. The Action Plan has been completed and updated with PCB requirements.						
Next Reporting Period Activities Planned (YEAR 4)						
The town plans to continue to include information regarding local TMDLs in the Public Outreach and Education Plan.						

B. Maintain a List of Legal Authorities and Agreements Applicable to Reducing the WLA

The Town of Blacksburg will maintain a list of its legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the pollutant identified in each applicable waste load allocation.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Development of List of Legal Authorities	2014	2015	2016	2017	2018	2014 - 2016
Evaluate List of Legal Authorities		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
The current list is located in the Program Plan document. The Town has evaluated these legal authorities and finds them effective in meeting the objectives of this permit.						
PEOP Consistency						
Currently there is no education or outreach component to this BMP.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
The town plans to review legal authorities and continue to evaluate for effectiveness.						

C. Maintain a List of Additional Methods beyond MCMs 1-6 Applicable to Reduce WLA

The Town of Blacksburg will maintain a list of additional management practices, control techniques and system design and engineering methods, beyond those included in the Minimum Control Measures 1-6 that are being implemented as part of the Program Plan, but are still applicable in reducing the pollutant identified in each waste load allocation

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Develop a List of Supplemental Methods beyond BMPs	2014	2015	2016	2017	2018	2014 - 2016
Evaluate List of Supplemental Methods		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
Currently all methods used to reducing the WLA are included in the MCM measures and TMDL Action Plan. Beyond those included in the Action Plan, no additional methods were included this reporting year.						
PEOP Consistency						
Currently there is no education or outreach component to this BMP.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
The town plans to continue to review methods beyond those in MCMs and Action Plan. If additional opportunities for management practices, techniques or design & engineering methods are incorporated, they will be included.						

D. Enhance the PEOP and Employee Training to Address Reducing WLA

The Town of Blacksburg will enhance its public education and outreach and employee training programs to also promote methods to eliminate and reduce discharges of the pollutants identified in the WLA.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Enhance PEOP to Address WLA	2014	2015	2016	2017	2018	2014 - 2016
Enhance Employee Training to Address WLA		2015	2016	2017	2018	2015 - 2016

Progress Toward Meeting Objectives of Permit
Currently the Public Education and Outreach Program has identified two of the three pollutants of concern for local TMDLs (sediment and bacterial) as priority water quality issues that are addressed in the PEOP. The third pollutant of concern (PCBs) has been incorporated into employee training protocols to increase awareness of this issue and educate staff on WLA reduction and elimination methods. This is detailed in BMP 6.E.
PEOP Consistency
<ul style="list-style-type: none"> High Priority Issue: Bacteria and Sediment Targeted Group(s): not applicable (Employee Impacts Only)
Proposed Changes to BMP or Measurable Goals
None proposed.
Next Reporting Period Activities Planned (YEAR 4)
The Town plans to continue to incorporate these WLA strategies in employee training and SOPs and evaluate their effectiveness.

E. Assess all Significant Sources of Pollutants from Municipal Facilities

The Town of Blacksburg will assess all significant sources of pollutant(s) from facilities of concern owned or operated by the Town of Blacksburg that are not covered under a separate VPDES permit. A significant discharge is a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL. The Town will identify all municipal facilities that may be a significant source of the identified pollutant.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Identify Facilities of Concern	2014	2015	2016	2017	2018	2014 - 2016
Assess Facilities Potential Sources of Pollutants	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
Currently the Town has completed the list of facilities of concern which are those municipal facilities that are located in watersheds with TMDL WLAs and are not covered under a separate permit. Inspections of these facilities have been performed for evidence of pollutants of concern (sediment and bacteria). The Town Public Works site has been identified as having the potential to discharge pollutants. A site-specific Stormwater Pollution Prevent Plan is underway for the Public Works site and it will address all potential pollution sources. A complete list of all evaluated Town facilities is included in Appendix SC-1 .						
PEOP Consistency						
Currently there is no education or outreach component to this BMP.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
The Public Works site SWPPP should be completed in Year 4 of the permit. Once this is complete, the recommendations will be incorporated into the staff training at that site.						

F. Develop a Method to Assess TMDL Action Plans for Effectiveness in Reducing WLAs

The Town of Blacksburg will develop and implement a method to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs. The evaluation shall use any newly available information, representative and adequate water monitoring results, or modeling tools to estimate pollutant reductions for the pollutants of concern from implementation of the MS4 Program Plan. The methodology used for assessment shall be described in the TMDL Action Plan.

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved
Develop Evaluation Method	2015	2016	2017	2018	2015 - 2016
Implement Evaluation Method		2016	2017	2018	2016
Progress Toward Meeting Objectives of Permit					
The method to assess the TMDL Action plan is identified in the TMDL Action Plan. The Town plans to use the Watershed Treatment Model to estimate pollutant reductions to assess water quality improvements in the Action Plan.					
PEOP Consistency					
Currently there is no education or outreach component to this BMP.					
Proposed Changes to BMP or Measurable Goals					
None proposed.					
Next Reporting Period Activities Planned (YEAR 4)					
The town plans to continue to assess TMDL Action Plans for effectiveness in reducing WLAs.					

MCM 1: Public Education & Outreach on Stormwater Impacts

Continue to implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. Measures described below are intended to meet public outreach and measurable goals as described 9VAC25-890-40, Section II B (1) and Section I B (2) C.

List of Minimum Control Measure #1 BMP's:

- A. Public Education and Outreach Plan (PEOP) Development.
- B. Storm Drain Marking Program Implementation.
- C. Demonstration Projects Enhancement.
- D. Household Waste, Business Waste, Universal and Hazardous Waste Education and Minimization.
- E. Grease Program Enforcement.
- F. Illicit Discharge Education.
- G. Town Stormwater Page Maintenance.

Appropriateness of the Minimum Control Measure One BMPs:

These BMPs increase awareness of the Town's local water quality issues by engaging the public in a variety of formats, introducing them to local impairments and ways in which they may be able to have some positive effect on the discharge to the Town's impaired waters. In the chart below, it illustrates how each of our BMPs addresses the specific impairments of our local waters.

2010 305(b)/303(d) Water Quality Assessment Report - Impairments				
MINIMUM CONTROL MEASURE ONE BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temperature</i>	<i>PCBs</i>
BMP 1.A (Public Education and Outreach Plan Development)	✓	✓	✓	✓
BMP 1.B (Storm Drain Marking Program)	✓	✓		
BMP 1.C (Demonstration Projects Enhancement)	✓	✓	✓	
BMP 1.D (Household, Business and Hazardous Waste)		✓		✓
BMP 1.E (Grease Program Enforcement)		✓		
BMP 1.F (Illicit Discharge Education)	✓	✓	✓	✓
BMP 1.G (Town Stormwater Page Maintenance)	✓	✓	✓	✓

A. Public Education and Outreach Plan (PEOP) Development and Implementation

The Town will develop a public education and outreach plan (PEOP) to coordinate all outreach efforts into one campaign.

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved
Identify three high-priority Issues	2014				2014 - 2016
Identify population size of the Target Audience	2014				2014 - 2016
Develop a Relevant Message	2014				2014 - 2016
Conduct Activities to Reach 20% of Target Audience	2015	2016	2017	2018	2015 - 2016
Evaluate Plan for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 - 2016

Evaluate Audience Selection and High Priority Issues	2015	2016	2017	2018	2015 - 2016
Provide Participation Opportunities	2015			2018	-
Progress Toward Meeting Objectives of Permit					
The Town has continued to conduct activities and evaluate the program in this permit year. Below is a summary of the cumulative impact from all activities conducted as part of the Public Education and Outreach Plan during this reporting period. Details on the breakdown of all activities conducted and persons targeted is located in Appendix 1.A (Summary of PEOB Implementation) .					
PEOB Consistency					
<ul style="list-style-type: none"> • High Priority Issue(s): Oil & Grease, Bacteria and Sediment • Targeted Group(s) and Total number in group: <ul style="list-style-type: none"> - Commercial Restaurant Employees (CRE) – 300 TOTAL - Young Residents (YR) – 17,474 TOTAL - Homeowners & Families (H&F) – 13,162 TOTAL • # People Reached: CRE:300 (100%), YR: 42,795 (100%), H&F: 29,640 (100%) 					
Proposed Changes to BMP or Measurable Goals					
No significant changes are proposed. Additional outreach opportunities will be performed to keep the program implementation flexible and varying. The Town’s goal is to keep citizens interested in listening to the message so that they are open and receptive to future messages.					
Next Reporting Period Activities Planned (YEAR 4)					
The town plans to continue to implement the Public Education and Outreach Plan and effectively reach a minimum of 20% of each target audience will the activities detailed in it. The planned activities include: <ul style="list-style-type: none"> • Continue to expand the storm drain marking by marking more student areas and monitoring repairs to existing markings. (Estimated target audience 4,000 young residents, 23% of target) • Continue to send out electronic flyers several times a year to address illicit discharges and pollution prevention to residents. (Estimated target audience, 6,000 homeowners and families, 45% of target) • Target different outreach media such as bus advertisements and local print media. (target audience not yet known) 					

B. Storm Drain Marking Program Implementation

The town plans to mark all storm drains within town limits with information regarding the storm drain system. A combination of painted storm drain stencils and the placement of permanent storm drain curb markers will be utilized for this program. Painted storm drain stencils will be used in areas where high traffic could dislodge a permanent curb marker. A permanent high visibility curb marker will be used in more pedestrian areas.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Create and Update Storm Drain Marking Inventory	2014	2015	2016	2017	2018	2014 - 2016
Mark Storm Drains with Faded Markings	2014	2015	2016	2017	2018	2014 & 2015
Mark Storm Drains with Permanent Marker	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town completed the marking of 240 high visibility metal markers on the highly pedestrian streets of downtown, Main Street and Prices Fork Road. A GIS map is being used to inventory marked locations and plan for future marking areas. A Downtown Market Analysis and Marketing Plan for Blacksburg was performed in 2007 and estimated that the downtown area receives 75,000 visits per year based upon surveys of downtown businesses. This number is what is used to estimate the impact to the target groups. Additionally, the survey breaks down the visits by type (i.e. 54% students, 34% residents and 12% visitors from out of town).						
PEOB Consistency						
<ul style="list-style-type: none"> • High Priority Issue(s): Oil & Grease, Bacteria and Sediment 						

<ul style="list-style-type: none"> • Targeted Group(s): Commercial Restaurant Employees, Young Residents, and Homeowners & Families • # People Reached: Young Residents (40,000), Commercial Restaurant Employees (300), and Homeowners and Families (25,500).
Proposed Changes to BMP or Measurable Goals
No changes are proposed for the BMP. The Town is continuing to look for ways to increase the locations of marking to those in other commercial areas in town.
Next Reporting Period Activities Planned (YEAR 4)
The town will continue to expand the installation of high visibility metal mark in highly visible areas, primarily in shopping centers and apartment complexes where foot traffic is heavy. The storm drain markers target all three high priority issues: oil & grease, bacteria and sediment. The Town goal is to continue to reach a minimum of 3500 students, which is 20% of the target audience through these efforts.

C. Demonstration Projects Enhancement

The town will continue utilizing Demonstration Projects on Town property as examples and educational resources for citizens:

- Wong Park Bioretention and Urban Forestry Area
- Recreation Building Bioretention (research partnership with Virginia Tech)
- Aquatic Center Bioretention (Bioretention retrofit)
- Blacksburg Motor Company (Bioretention, porous concrete, rain gardens, and rain barrels)
- South End Fire Station LID practices
- Farmer’s Market (Redevelopment, reduction of impervious cover, Urban beautification)
- College Avenue Promenade (Urban streetscape Bioretention)

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Conduct tour(s) of Stormwater Demonstration Projects	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Construct New Demonstration Projects					2018	-
Progress Toward Meeting Objectives of Permit						
Two tours were performed during this reporting period. Once for the Intro to Civil Engineering Class of 25 students, and the second for tour was performed for the Virginia Association of Zoning Officials which consisted of 15 visitors. None of the visitors were residents of Blacksburg, so no outreach credit was counted.						
PEOP Consistency						
<ul style="list-style-type: none"> • High Priority Issue: Bacteria and Sediment • Targeted Group(s): Young Residents (YR), and Homeowners & Families (H&F) • # People Reached: Young Residents (25), Homeowners & Families (0) 						
Proposed Changes to BMP or Measurable Goals						
None proposed. The evaluation shows that this is an effective method of reaching our target audience.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to provide tours of demonstration projects and utilize them as educational resources. These tours are provided upon request and not initiated by the Town. The demonstration projects target two of the three high priority issues: bacteria and sediment. For this BMP, young residents and homeowners and families are the target audience because they have the ability to reduce sediment and bacteria inputs to the MS4 by installing BMP similar to the demonstration projects.						

D. Household Waste, Business Waste, Universal and Hazardous Waste Education and Minimization

The Town's Office of Waste Minimization and Recycling employs two full time positions dedicated to addressing municipal solid waste, universal waste, and hazardous waste issues. Staff also addresses employee awareness and community education regarding these topics.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Conduct Household Hazardous Waste Days	2014	2015	2016	2017	2018	2014 - 2016
Record HHHW date, attendance & weight of collection.	2014	2015	2016	2017	2018	2014 - 2016
Town Sponsored Electronics Recycling	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Household Hazardous Waste Days are now being scheduled once a month. The events are described in Appendix 1-C, Household Hazardous Waste Days Summary and Evaluation. One of the events this year was snowed out, but eleven events were held which reached 324 households.						
PEOP Consistency						
<ul style="list-style-type: none"> • High Priority Issue: Sediment & Bacteria • Targeted Group(s): Homeowners & Families (H&F) • # People Reached: H&F (292) 						
Proposed Changes to BMP or Measurable Goals						
None proposed. The evaluation shows that this is an effective method of reaching our target audience.						
Next Reporting Period Activities Planned (YEAR 4)						
The town will continue to sponsor monthly Household Hazardous Waste Collection days. Additional advertisement for the HHHW days will be incorporated into the PEOP. The Household hazardous waste days target two of the three high priority issues: sediment and bacteria. The homeowners and family target group was chosen for this BMP because they have the most likelihood of utilizing a household hazardous waste event. It is estimated that a total of 500 households will be served, which is 19% of the target audience. Household hazardous waste events are scheduled for the third Saturday of each month, for a total of 12 events.						

E. Grease Program Enforcement

The Town "grease program" has established education, inspection, and enforcement guidelines. The Town has identified gas station and food service businesses that use or generate grease and/or oils. The businesses are targeted for education and outreach concerning BMPs that address the storage, disposal, and spills annually. The Town also sends an annual reminder to all historic violators. The Town maintains a database of violations that is utilized in the geographical informational systems to track trends in the system.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Send Educational Brochures to Restaurants	2014	2016		2018		2014
Send Educational Brochures to Fuel Centers	2015	2016	2017			2016
Send a reminder to businesses historic violations	2014	2016	2017	2018		2014, 2016
Maintain database of oil & grease violators	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
During this reporting year, a copy of the Stormwater Best Management Practices for Fuel Centers was sent out to all fuel centers and auto repair shops in Blacksburg, a total of 22. A copy of the brochure is located in Appendix 1E – Educational Brochures for Fueling Centers in Blacksburg 2015/16. The illicit discharge brochures target the high priority issue of oil and grease. For this BMP, fuel distributors are the target audience due to the high risk of spill and contamination						

PEOP Consistency
<ul style="list-style-type: none"> • High Priority Issue: Oil & Grease • Targeted Group: Commercial Restaurant Employees (CRE 0) • # People Reached: CRE (0)
Proposed Changes to BMP or Measurable Goals
None proposed. The evaluation shows that this is an effective method of reaching our target audience.
Next Reporting Period Activities Planned (YEAR 4)
The illicit discharge brochures target the high priority issue of oil and grease. For this next reporting period, the Town plans on sending literature to fuel centers, restaurants and historic violators which will reach a target group of 375 which would be 100% of the commercial restaurant employee target group.

F. Illicit Discharge Education

The Town continues to research and update the BMPs, alternative options, and proper disposal techniques for non-stormwater discharges.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Send Illicit Discharge Educational Information to Businesses and Residents	2014	2015	2016	2017	2018	2014 - 2016
Send out Non-stormwater discharger survey	2015					2015
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town mailed out 1250 of the Stormwater Management Best Management Practices for Residential Neighborhoods flyer to young residences within the Town. Apartment complexes known to primarily serve this population sector were chosen for distribution. A copy of the flyer is included in Appendix 1-F, Illicit Discharge Education Summary and Evaluation.						
PEOP Consistency						
<ul style="list-style-type: none"> • High Priority Issue: Oil & Grease, Bacteria and Sediment • Targeted Group(s): Commercial Restaurant Employees, Homeowners and Families, Young Residents • # People Reached: CRE (0), H&F (0), YR (1250) 						
Proposed Changes to BMP or Measurable Goals						
None proposed. The evaluation shows that this is an effective method of reaching our target audience.						
Next Reporting Period Activities Planned (YEAR 4)						
In the next reporting period, the goal is to reach out to Businesses as a target audience. The town has a database of all permitted businesses of about 1200. This coming year the audience will not be one of the target groups. Other BMPs in this section shall sufficiently meeting the required outreach for those audiences.						

G. Town Stormwater Page Maintenance

Stormwater related information is available on the Town's website for the general public.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Update Stormwater webpage	2014	2015	2016	2017	2018	2014 - 2016
Review Stormwater webpage for Appropriate Content	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town Stormwater page was updated to include information regarding the new Stormwater Utility ordinance, the Stormwater VSMP Program ordinance, and associated documents such as: the construction general permit, registration statement, termination form, fee table, single family SWPPP, and link to the BMP Clearinghouse. All listed updates were made prior to July 1, 2014. No additional updates were made this reporting period.						
PEOP Consistency						
<ul style="list-style-type: none"> • High Priority Issue: Oil & Grease, Bacteria and Sediment (ALL) 						

- Targeted Group(s): **Commercial Restaurant Employees, Young Residents, and Homeowners & Families**
- # People Reached: **Unknown – data on website usage is unknown at this time.**

Proposed Changes to BMP or Measurable Goals

The Town is continuing to look into ways to better quantify the website usage to better quantify the impact this BMP is having on the target audiences. The website provider has changed and statistics may be available for Year 4 reporting period.

Next Reporting Period Activities Planned (YEAR 4)

Continue to update website with pertinent and local information. Statistics should be available for this following reporting period, so estimates for target audiences may be submitted.

MCM 2: Public Involvement and Participation

The Town must, at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program. The goal is to increase public notice, involvement and participation in the Town’s stormwater program by doing the following:

- a. Promote the availability of the Towns MS4 Program Plan and any modifications for public review and comment and by providing access to the MS4 Program Plan upon request of interested parties,
- b. Provide access to or copies of the annual report upon request, and
- c. Participate through promotion, sponsorship, or other involvement in local activities aimed at increasing public participation to reduce stormwater pollutant loads and improve water quality.

Measures described below are intended to meet these goals as described 9VAC25-890-40, Section II B (2).

List of Minimum Control Measure #2 BMP’s:

- A. Conduct Stakeholder Meetings for Watershed Management and Stormwater Quality Improvement.
- B. TMDL Implementation Planning and Participation.
- C. Participate and Support Stream Clean-up Efforts.
- D. Posting of Program Plan and Annual Reports Online for General Public.
- E. Outreach Event Participation.

Appropriateness of the BMPs:

These BMPs in conjunction succeed in increasing public involvement and participation in the Town’s stormwater program. Participation and citizen support for stormwater measures increases citizen advocacy and provides for more successful stormwater program. Below shows how each of our program plan BMPs addresses the specific impairments of our local waters.

2010 305(b)/303(d) Water Quality Assessment Report - Impairments				
MINIMUM CONTROL MEASURE TWO BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temperature</i>	<i>PCBs</i>
BMP 2.A (Stakeholder Meetings)	✓	✓	✓	
BMP 2.B (TMDL Implementation Planning and Participation)	✓	✓	✓	✓
BMP 2.C (Participate and support stream clean-up efforts)	✓	✓	✓	✓
BMP 2.D (Web Posting of Program Plan and Annual Reports)	✓	✓		
BMP 2.E (Outreach Event Participation)	✓	✓	✓	

A. Conduct Stakeholder Meetings for Watershed Management and Stormwater Quality Improvement

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Staff attends community meetings and public hearings for new projects with stormwater concerns.	2014	2015	2016	2017	2018	2014 - 2016
Document Citizen Comments	2014	2015	2016	2017	2018	2014 - 2016
Update Stormwater Goals in Comprehensive Plan			2016		2018	-
Meet w/ Local Stormwater Interest Groups and HOAs		2015	2016	2017	2018	2015 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town had 7 community meetings and 2 public hearings in which stormwater issues were discussed. A total of 225 citizens attended these meetings. There were 5 stormwater stakeholders interest groups met this reporting year. No updates were made to the comprehensive plan regarding The meetings are described in Appendix 2-A, Stormwater Stakeholders Meetings.						
PEOP Consistency						
<ul style="list-style-type: none"> High Priority Issue: Sediment & Bacteria Targeted Group(s): Homeowners & Families # People Reached: H&F (384) 						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned						
None proposed. The community meetings and public hearings are dependent on proposed development and the resulting community concerns. These are not initiated by the Town. The Town will also attend as many conferences and other stormwater related events as possible. The evaluation suggests having stormwater meetings that address a larger audience so more impacts can be seen.						

B. TMDL Implementation Planning and Participation

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Attend Stroubles Creek TMDL IP Meetings	2014	2015	2016	2017	2018	2014 - 2016
Attend Roanoke River TMDL IP Meetings	2014	2015	2016	2017	2018	2014 - 2016
Attend New River PCB TMDL Imp. Meetings			2016			2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
Town staff attended 9 meetings concerning the planning or implementation of TMDLs for the Stroubles Creek and Roanoke River watersheds as well as the initiation of the New River PCB TMDL. The meetings conducted in this reporting period focused on general information regarding the new TMDL for PCBs, grant management for the construction of new high profile stormwater features for the sediment and bacterial TMDLs. The meetings are described in Appendix 2-B, TMDL Implementation Planning Activities.						
PEOP Consistency						
<ul style="list-style-type: none"> High Priority Issue: Oil & Grease, Bacteria and Sediment Targeted Group(s): Commercial Restaurant Employees, Young Residents, and Homeowners & Families # Target People Reached: H&F(137) 						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Four additional meetings concerning the Stroubles Creek and Roanoke River TMDL planning and participation are expected to occur during the next reporting period.						

C. Participate and Support Stream Clean-up Efforts

The Town will participate and assist local groups for stream clean-up efforts, including assistance with funding, trash collection, mapping and documentation for determining stream stretches, drainage ways, channels and other areas in need of clean-up and record keeping of these activities.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Participate Local Stream Clean-up Efforts	2014	2015	2016	2017	2018	2014, 2015
Assist in Local Stream Clean-up Efforts		2015	2016	2017	2018	2015
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015
Progress Toward Meeting Objectives of Permit						
The Town did not participate in any stream clean-ups this reporting period.						
PEOP Consistency						
<ul style="list-style-type: none"> High Priority Issue: Bacteria, Sediment Targeted Group(s): Young Residents, Homeowners and Families # People Reached: YR (0), H&R(0) 						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Assist in stream clean-ups (dates to be determined) and reach our target audience "Young Residents". The Town plans to begin the planning efforts for annual stream clean-ups with local youth groups and student greek associations. Our goal for next reporting period is to reach 100 young residents in this practice.						

D. Posting of Program Plan and Annual Reports Online for General Public

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Post Program Plan or Updates on Website	2014	2015	2016	2017	2018	2014 - 2016
Post Annual Report on Website by November 1	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town posted Year 2 Annual report on the www.blacksburg.gov/stormwater webpage on January 7, 2016. The activity is described and evaluated in Appendix 2-D, Posting of Program Plan and Annual Report Summary and Evaluation.						
PEOP Consistency						
<ul style="list-style-type: none"> High Priority Issue: Oil & Grease, Bacteria and Sediment (ALL) Targeted Group(s): Commercial Restaurant Employees, Young Residents, and Homeowners & Families # People Reached: Unknown – data on website usage is unknown at this time. 						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Post the Year 3 annual report and TMDL Action Plan on the Blacksburg Stormwater webpage by October 31, 2016.						

E. Outreach Event Participation

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Sponsor or Participate in at least 4 Outreach Events	2014	2015	2016	2017	2018	2014, 2015
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
Town staff participated in "Steppin' Out", the Sustainability Fair and a general membership meeting of the New River Valley Homebuilders Association. These events occurred on 8/7/15, 9/16/15, and 2/23/16 and Town staff had direct engagement with approximately 230 people. This reporting year only three outreach events were achieved. The Big						

Event was snowed out due to sub-zero temperatures.

PEOP Consistency

- High Priority Issue: **Sediment, Oil and Grease, Bacteria**
- Targeted Group(s): **Commercial Restaurant Employees, Young Residents, and Homeowners & Families**
- # People Reached: **YR (25), H&F (205)**

Proposed Changes to BMP or Measurable Goals

None proposed.

Next Reporting Period Activities Planned (YEAR 4)

Participate in the following events: Steppin' Out, The Big Event and Community Association meetings. The Town has scheduled a primary school event with the Izaak Walton League of Montgomery County. If this is successful, it may become one of the Town's annual events. The target audience continues to be Young Residents and Homeowners and Families and our target goal is to reach **700** people.

MCM 3: Illicit Discharge Detection and Elimination

Develop a comprehensive map of the storm drain system, establish and carry out procedures to identify and remove illicit discharges, establish legal authority for enforcement actions, and encourage public education and involvement in eliminating illicit discharges. Measures described below are intended to meet public outreach and measurable goals as described 9VAC25-890-40, Section II B (3).

List of Minimum Control Measure #3 BMP's:

- A. Develop a Storm Drain System Map
- B. Develop Procedures for Identifying Areas with High Potential for Introducing Illicit Discharges to the Storm System
- C. Enforce an Ordinance Prohibiting Illegal Dumping and Non-storm Water Discharges
- D. Enforce an Ordinance Prohibiting Diverted Stream Flows in Environmentally Sensitive Areas and Encouraging Buffering Around Creeks
- E. Establish a Plan to Identify and Remove Illicit Discharges by Utilizing Public Involvement, Education, and Enforcement of Illicit Discharge Ordinance.
- F. Estimate Volume of Stormwater Discharged and Quantity of WLA Pollutant.
- G. Develop Written Procedures to Detect, Identify, and Address Discharges Including Illegal Dumping
- H. Notify, in Writing, any Downstream Regulated MS4 to which the Small Regulated MS4 is Physically Interconnected of the Small Regulated MS4's Connection to that System.

Appropriateness of the BMPs:

These BMPs in conjunction succeed in establish legal authority for enforcement actions, and encourage public education and involvement in eliminating illicit discharges. Enforcement and awareness are critical to identify and eliminate illicit discharged to the storm drain network. Below shows how each of our BMPs addresses the specific impairments of our local waters.

2010 305(b)/303(d) Water Quality Assessment Report - Impairments				
MINIMUM CONTROL MEASURE THREE BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temp.</i>	<i>PCBs</i>
BMP 3.A (Develop a Storm Drain System Map)	✓	✓	✓	✓
BMP 3.B (Procedures for Identifying Illicit Discharge Potential)	✓	✓	✓	✓
BMP 3.C (Enforce Non-Stormwater Discharge Ordinance)	✓	✓	✓	✓
BMP 3.D (Enforce Ordinance Preventing Diverted Streams/Overlays)	✓	✓	✓	
BMP 3.E (Plan to Identify and Remove Illicit Discharges)	✓	✓	✓	✓
BMP 3.F (Estimate Volume discharged and quantity of WLA pollutant)	✓	✓		✓
BMP 3.G (Develop written procedures to detect, identify, and address stormwater discharges including illegal dumping)	✓	✓	✓	✓
BMP 3.H (Notification of Downstream Regulated MS4)	✓	✓		✓

A. Develop and Update a Storm Drain System Map

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Storm Sewer Inventory Mapping Update	2014	2015	2016	2017	2018	2014 - 2016
Report number of new structures and channels mapped	2014	2015	2016	2017	2018	2014 - 2016
Report number of new outfalls, acreage and HUC	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
In the past year the Town has mapped 0 new structures and 0 new channels. Most of the new construction is still underway and should be complete during the fourth permit year. The Town has mapped 4 new outfalls and has added the associated HUCs and drainage area to the database. The details regarding the update to the storm sewer system is discussed in Appendix 3.A Storm Drain System Map Summary and Evaluation.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to update and correct the storm drain system map.						

B. Develop Procedures for Identifying Areas with High Potential for Illicit Discharge

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Develop Illicit Discharge Potential Assessment	2014	2015	2016	2017	2018	2014 - 2016
Develop Outfall Reconnaissance Inventory	2015	2016	2017	2018		2015 - 2016
Perform screening for 20% of Outfalls	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town has completed its Discharge Potential assessment and Outfall Reconnaissance Inventory as part of the Comprehensive Illicit Discharge Detection and Elimination Program (revised June 17, 2014) which outlines all details of the program. The Town has also screened 59 outfalls in reporting year 3, which is 24% of the total number of outfalls within the Town. Details regarding the outfalls screened and the evaluation of the illicit discharge program is discussed in Appendix 3.B Illicit Discharge Protocol and Procedures Summary and Evaluation.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to perform screening for 20% of outfalls and evaluate BMP for effectiveness.						

C. Enforce an Ordinance Prohibiting Illegal Dumping and Illicit Discharges

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Enforce Illicit Discharge Ordinance	2014	2015	2016	2017	2018	2014 - 2016
Track all known illicit discharges and illegal dumping	2015	2016	2017	2018		2015 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town has adopted the Illicit Discharges ordinance (sec. 18-624) of the new stormwater ordinance on June 10, 2014. This ordinance is an update to the previous Illicit Discharges section 18-622 of the stormwater ordinance. The Town recorded 20 illicit discharge or dumping complaints last reporting year, all of which were determined to be true illicit discharges. These incidents were tracked and eliminated according to the program procedures. The discharges are described in Appendix 3C, Illicit Discharges and Enforcement 2016 Summary and Evaluation.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to enforce, eliminate, and track illicit discharges.						

D. Enforce an Ordinance Prohibiting Diverted Stream Flows and Encouraging Buffering Around Creeks

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Enforce Creek Valley Overlay and Floodplain Districts	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town continues to enforce the Creek Valley and Floodplain overlay districts. The Town reviewed no subdivision/site plans where the Creek/Valley Overlay was enforced and no site plans/subdivisions where the Floodplain Overlay was enforced. The details are described in Appendix 3D, Creek Valley and Floodplain Overlay Activities Summary and Evaluation.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to enforce the Creek Valley and Floodplain overlay districts.						

E. Establish an Illicit Discharge Plan to Eliminate Discharges through Outreach

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Develop a Public Involvement Plan for Illicit Discharges	2014					2014
Outline Public Involvement & Education for Ill. Discharges	2014					2014
Outline the enforcement methodology	2014					2014
Document the methods used in outfall screening	2014					2014
Identify the outfall reconnaissance frequency	2014					2014
Detail actions required if a suspected discharge is found	2014					2014
Identify source identification, enforcement methods and reporting requirements.	2014					2014
Attend citizen event & distribute Information	2015	2016	2017	2018		2015 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town has completed the Comprehensive Illicit Discharge Detection and Elimination Program (revised June 17, 2014) which outlines all details of the program. This year's activities include sending out flyers to 1250 residences and O&M training for municipal staff. Details are described in Appendix 3-E, Elimination of Discharges through Outreach Summary and Evaluation.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Continue to attend citizen events, distribute information and evaluate BMP.						

F. Estimate Volume of Stormwater discharged and Quantity of WLA Pollutant

The TOB currently has the following WLAs associated with a TMDL:

- 211 tons/year sediment to Stroubles Creek
- 102 tons/year sediment to Upper Roanoke River watershed
- 3.15E+09 cfu/year bacteria (E coli) to Wilson Creek
- **7.8 mg/yr of polychlorinated biphenyl to the Roanoke River watershed**



Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Estimate Volume of Water Discharged from each watershed	2014	2015	2016	2017	2018	2014 - 2016
Estimate Amounts of WLA pollutants	2014	2015	2016	2017	2018	2014 - 2016

Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit					
The Town has estimated the volume and quantity of pollutants in prior years using the LTHIA Basic Spreadsheet. With the creation of the TMDL action plan, the Watershed Treatment Model has been utilized to estimate the volumes of stormwater and quantities of WLA pollutants. These results are discussed in detail in Appendix 3-F, Estimation of Volume and WLA for Town watersheds.					
Proposed Changes to BMP or Measurable Goals					
The only change proposed is to utilize the Watershed Treatment Model to continue to estimate the volume and quantities of pollutants of concern to be consistent with the Blacksburg TMDL Action Plan.					
Next Reporting Period Activities Planned (YEAR 4)					
Continue to estimate volume of water discharges, estimate pollutants and evaluate BMP.					

G. Develop Written Procedures to Detect, Identify, and Address Illegal Stormwater Discharges

Measurable Goals Identified and Achieved:	Years Planned	Years Achieved			
Identify and document written dry weather screening methodologies.	2014	2014			
Develop a prioritized schedule of field screening.	2014	2014			
Describe how discharge rate and visual observations will be described.	2014	2014			
Identify a timeframe for follow-up.	2014	2014			
Establish a database for tracking.	2014	2014			
Expand outreach methods for public reporting.	2014	2014			
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit					
The Town has completed the Comprehensive Illicit Discharge Detection and Elimination Program (revised June 17, 2014) which outlines all details of the program. An evaluation of this program is contained in Appendix 3-G, Evaluation of Procedures to Detect, Identify, and Address Illegal Stormwater Discharges.					
Proposed Changes to BMP or Measurable Goals					
None proposed.					
Next Reporting Period Activities Planned (YEAR 4)					
Continue to evaluate procedures for effectiveness.					

H. Notify in Writing all Downstream MS4 of any Known Physical Interconnections

Measurable Goals Identified and Achieved:	Years Planned	Years Achieved				
Notify All Downstream MS4s of Interconnections	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 - 2016	
Progress Toward Meeting Objectives of Permit						
The Town notified Virginia Tech and VDOT in writing on 10/15/2013 and notified Montgomery County in writing on 4/13/2015 of all known physical interconnections. An evaluation of this program is contained in Appendix 3-H, Notify in Writing all Downstream MS4 of any Known Physical Interconnections Summary and Evaluation. There have been no new connections; therefore no new letters have been sent.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
Notify all downstream MS4s of any new known physical interconnections and update them on PCBs.						

MCM 4: Construction Site Runoff Control

Develop, implement, and enforce a program to reduce pollutants in storm water runoff to the MS4 from construction activities that is compliant with the Virginia Erosion and Sediment Control program administered by the Department of Environmental Quality. Additionally, reduction of stormwater discharges from construction activity disturbing less than 5000 feet must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb 5000 square feet or more. Measures described below are intended to meet public outreach and measurable goals as described 9VAC25-890-40, Section II B (4).

The operator shall track regulated land-disturbance activities and submit the following information annually in accordance to Section II (E) (3) of 4VAC50-60

1. Total number of regulated land disturbing activities
2. Total disturbed acreage

List of Minimum Control Measure #4 BMP's:

- A. Erosion and Sediment Control Ordinance, Certification and Land Disturbing Activities.
- B. Respond To Erosion and Sediment Control Complaints.
- C. Require construction site operators to control waste.
- D. Require acknowledgement from agent (design engineer) or owner when a VSMP permit is needed for a plan under review.
- E. E&S Inspection Protocol (July 2014)
- F. Pollution Prevention Plan Enforcement Protocol (July 2015)

Appropriateness of the BMPs:

These BMPs provide the Town with an E&S program that can successfully reduce pollutants in storm water runoff to the MS4 from construction. Sediment from construction sites can act as a vehicle for bacteria and sediment transport into the regulated MS4. The chart below shows how each BMP successfully targets the impairments of the Town's local streams.

2010 305(b)/303(d) Water Quality Assessment Report - Impairments				
MINIMUM CONTROL MEASURE ONE BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temperature</i>	<i>PCBs</i>
BMP 4.A (Erosion and Sediment Control Ordinance)	✓	✓		
BMP 4.B (Respond To Erosion and Sediment Control Complaints)	✓	✓		
BMP 4.C (Require Construction Site Operators to Control Waste)		✓		✓
BMP 4.D (Measures to Assure Owners Acquire VSMP Permit)	✓	✓	✓	
BMP 4.E (E&S Inspection Protocol)	✓	✓		
BMP 4.F (Pollution Prevention Plan Enforcement Protocol) JULY 2015	✓	✓	✓	✓

A. Erosion and Sediment Control Ordinance, Certification and Land Disturbing Activities

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Erosion and Sediment Control Ordinance Review for State Compliance	2015					2015
Document number of E&S Inspections	2014	2015	2016	2017	2018	2015 – 2016
Document number and type of enforcement actions	2014	2015	2016	2017	2018	2015 – 2016
Document number of exceptions granted	2015	2016	2017	2018		2016
Certify that all staff has appropriate certification(s)	2014	2015	2016	2017	2018	2015 – 2016
Track the number of land disturbances	2014	2015	2016	2017	2018	2015 – 2016
Track the total area of disturbed land	2014	2015	2016	2017	2018	2015 – 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 – 2016
Progress Toward Meeting Objectives of Permit						
<ul style="list-style-type: none"> The Erosion and Sediment Control Ordinance has been reviewed for compliance with the most current state Erosion and Sediment Control (FY2014) ordinance and updates to this ordinance are in progress. It is anticipated that completion of the ordinance update will occur during Year5 of the permit. A total of 1235 erosion and sediment control inspections were conducted last reporting term, 161 verbal warnings, 4 letters of violation and 2 stop work orders. A total of zero exceptions were granted during the fiscal year. The Town employs 16 staff members that require Erosion and Sediment control certificates. Currently all employees have kept current on their certifications. Three staff members are in the process of achieving certificates because they are new hires. In this reporting year, the Town approved 57 single family residences and 24 site plans and subdivisions. A total of 94 acres were disturbed. 						
Proposed Changes to BMP or Measurable Goals						
No changes are proposed to this BMP.						
Next Reporting Period Activities Planned (YEAR 4)						
During the Reporting year 4, all three new staff will achieve their required certifications.						

A. Respond To Erosion and Sediment Control Complaints

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Respond to E&S control complaints	2014	2015	2016	2017	2018	2014 – 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 – 2016
Progress Toward Meeting Objectives of Permit						
The Town received 5 erosion and sediment control complaints in the past reporting period. All complaints were responded to within 24 business hours of reporting. All concerns were resolved in a timely manner.						
Proposed Changes to BMP or Measurable Goals						
It is recommended that the Town advertise the ESC reporting options to allow for more citizens to have access.						
Next Reporting Period Activities Planned (YEAR 4)						
During the Reporting year 4, the Town plans to advertise ESC reporting options to allow greater access for citizens.						

B. Require Construction Site Operators to Control Waste

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Respond to Trash and Debris complaints	2014	2015	2016	2017	2018	2014 – 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 – 2016
Progress Toward Meeting Objectives of Permit						

All trash and debris control complaints were responded to within 24 hours of reporting. Since all debris was cleared immediately, no trash and debris reports were issued.

Proposed Changes to BMP or Measurable Goals

None proposed.

Next Reporting Period Activities Planned (YEAR 4)

During the Reporting year 4, the Town plans to continue to address debris control on construction sites.

C. Require a VSMP Permit or VSMP Authority Land Disturbance Permit for all Plans

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved
Provide a VSMP comment in site plan review letter to all disturbances >1acre (ELIMINATED)	2014				2014
Verify VSMP permit coverage at pre-con meeting (ELIMINATED)	2014				2014
Track all disturbances covered under a VSMP permit	2015	2016	2017	2018	2015 - 2016
Track all disturbances covered under a VSMP Authority permit	2015	2016	2017	2018	2015 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2016	2017	2018	2016
Progress Toward Meeting Objectives of Permit					
All land disturbances over 1 acre is required to obtain a VSMP permit. These site provided confirmation of coverage prior to receiving a land disturbance permit. A total of 24 site plans were reviewed and only 1 of those required a VSMP permit or was associated with an active VSMP permit. A list of all new VSMP permitted sites is located in Appendix 4-D, VSMP Disturbances and VSMP Authority Permits.					
Proposed Changes to BMP or Measurable Goals					
This BMP has been evaluated and found to be effective. The Town should continue the program of requiring VSMP coverage for all necessary sites prior to plan approval and VSMP Authority land disturbance permit.					
Next Reporting Period Activities Planned (YEAR 4)					
During the Reporting year 4, the Town plans to continue to track projects that require a VSMP permit.					

D. E&S Inspection Protocol

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved
Document schedule for E&S inspections	2014				2014
Adopt a public mechanism for the promotion and receipt of complaints.	2014				2014
Outline procedures for use of legal authority to require compliance with the approved plan.	2014				2014
Document that inspections are performed by certified inspectors	2014	2015	2016	2017 2018	2014 – 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017 2018	2015 – 2016
Progress Toward Meeting Objectives of Permit					
The Town has completed its E&S Inspection Protocol. This plan has been implemented and the frequency for inspections is in compliance with general permit. The plan also outlines our enforcement and plan revision procedures. In addition, the Town has adopted multiple public mechanisms for receipt of complaints regarding regulated land disturbing activities, one is called "At your Request" and another is called "Speakup Blacksburg!" Both strategies are opportunities for citizens to voice complaints regarding any issue within the Town. Details and evaluation of this ESC Inspection Protocol are located in Appendix 4-E, ESC Inspection Protocol Summary and Evaluation.					
Proposed Changes to BMP or Measurable Goals					
None proposed.					
Next Reporting Period Activities Planned (YEAR 4)					

During the Reporting year 4, the Town plans to continue to follow the ESC protocol in its inspection and enforcement process.

E. Pollution Prevention Plan Enforcement Protocol

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved	
Implement a Pollution Prevention Plan Enforcement Protocol	2015				2015	
Perform SWPPP Inspections in compliance with the Pollution Prevention Plan Protocol	2015	2016	2017	2018	2015 – 2016	
Document number of SWPPP Inspections performed	2015	2016	2017	2018	2015 – 2016	
Evaluate BMP for Appropriateness and Effectiveness	2016			2017	2018	2016
Progress Toward Meeting Objectives of Permit						
The Pollution Prevention Plan Enforcement Protocol was completed in this reporting period. This protocol requires the implementation of controls to prevent non-stormwater discharges to the MS4 such as wastewater, concrete washout, fuels and oils or other illicit discharges. As part of this protocol, the Town has created several guidance documents regarding spill prevention kits and concrete washout areas that are required to be included in every SWPPP document. Inspections and results from the program are documented in Appendix 4-F, Pollution Prevention Plan Enforcement Protocol.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						
Next Reporting Period Activities Planned (YEAR 4)						
During the Reporting year 4, the Town plans to continue to follow the Pollution Prevention Plan Enforcement Protocol.						

MCM 5: Post Construction Stormwater Management

Develop, implement and enforce a program to reduce the volume and improve the quality of storm water runoff from development with a land disturbance of greater than or equal to 5000 square feet. Additionally, reduction of storm water discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb 5000 square feet or more. Measures described below are intended to meet public outreach and measurable goals as described 9VAC25-890-40, Section II B (5).

List of Minimum Control Measure #5 BMP's:

- A. Enforce a storm water ordinance designed to control runoff impacts
- B. Implement a long term stormwater maintenance program.
- C. Tracking of all known stormwater management facilities.
- D. Stormwater Facilities Protocol

Appropriateness of the BMPs:

These BMPs permanently reduce the volume and improve the quality of storm water runoff from development by enforcing permanent stormwater control facilities for all land disturbances of 5000 square feet and greater. The installation and appropriate maintenance of these facilities will trap sediment and pollutants and prevent sediment and bacteria from being transported through the system. Below shows how each of our program plan BMPs addresses the specific impairments of our local waters.

2010 305(b)/303(d) Water Quality Assessment Report – Impairments				
MINIMUM CONTROL MEASURE ONE BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temperature</i>	<i>PCBs</i>
BMP 5.A (Enforce a Stormwater Ordinance)	✓	✓	✓	
BMP 5.B (Implement a SW Maintenance Program)	✓	✓		✓
BMP 5.C (Tracking of SW Management Facilities)	✓	✓		
BMP 5.D (Stormwater Facilities Protocol)	✓	✓		

A. Enforce a storm water ordinance designed to control runoff impacts

Measurable Goals Identified and Achieved:	Years Planned				Years Achieved
Adopt a Stormwater Ordinance compliant with State Regulations	2014				2014
Review of ordinance for continued compliance with State regulations	2015	2016	2017	2018	2015 – 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 – 2016
Progress Toward Meeting Objectives of Permit					
A revised Stormwater Ordinance was adopted on June 10th, 2014. This ordinance has been reviewed for continued compliance and was found to be in compliance with all parts of 9VAC25-870 of the State stormwater regulations. In the ordinance, the threshold for stormwater was continued at 5000 square feet instead of adopting the state threshold of 1 acre. An evaluation of the stormwater ordinance is located in Appendix 5-A, Review and Evaluation of Stormwater Ordinance.					
Proposed Changes to BMP or Measurable Goals					
None proposed.					
Next Reporting Period Activities Planned (YEAR 4)					

During the Reporting year 4, the Town plans to continue to comply with the Stormwater Ordinance and State regulations.

B. Implement a Long Term Stormwater Maintenance Program

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Require a Stormwater covenant prior to plan approval.	2014	2015	2016	2017	2018	2014 - 2016
Inspect private facilities once every five years.	2014	2015	2016	2017	2018	2014 - 2016
Inspect Town facilities every year.	2014	2015	2016	2017	2018	2014 - 2016
Maintain a database of SWM facilities with most recent inspection date.	2014	2015	2016	2017	2018	2014 - 2016
Store inspection and maintenance forms for Town facilities.	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
All new construction stormwater management facilities (79) that have come online in the past reporting year have had recorded stormwater covenants associated with them. They have all been entered into the GIS database and were inspected prior to certificates of occupancy. All fifty-one (51) Town owned facilities were inspected this reporting year and two hundred and nine (209) private facilities were inspected.						
Proposed Changes to BMP or Measurable Goals						
In the beginning of this reporting period, the Town hired a stormwater inspector. After training was complete, the inspector was able to inspect 209 facilities, which is 48% of the privately owned stormwater facilities this past reporting year. The inspector is working with apartments, commercial developments and homeowners association to bring these facilities into compliance.						
Next Reporting Period Activities Planned (YEAR 4)						
During the Reporting year 4, the Town plans to continue inspect private facilities once every five years and municipal facilities every year.						

C. Tracking of all Known Stormwater Management Facilities

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Collect GPS coordinate for all stormwater infrastructure	2014	2015	2016	2017	2018	2014 - 2016
Add new SWM facilities to infrastructure database	2014	2015	2016	2017	2018	2014 - 2016
Update database with stormwater facility type, latitude and longitude, acres treated, date online, HUC code, impaired stream, public/private, date of last inspection.	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
Through efforts to utilize field collection to map the infrastructure and model the storm drainage network throughout the town, 10 existing ponds were discovered and 69 new construction facilities were added to the database. The database has a total of 456 stormwater facilities.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						

D. Develop Stormwater Facilities Protocol

Measurable Goals Identified and Achieved:	Years Planned	Years Achieved
Adopt written policies and procedures to ensure SWM facilities are designed and constructed properly.	2014	2014
Adopt inspection procedures for conducting all public and private facilities.	2014	2014
Identify roles and responsibilities of each Town departments in the management of the facilities.	2014	2014

Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit					
The Stormwater Facilities protocol has been completed. It includes the policies of plan review, construction and post-construction documentation and inspection procedures for all public and private facilities. The maintenance of all Town stormwater facilities are the responsibility of Public Works and no formal agreement is needed. The summary and evaluation of this BMP is located in Appendix 5-D, Stormwater Facilities Protocol Evaluation.					
Proposed Changes to BMP or Measurable Goals					
None proposed.					
Next Reporting Period Activities Planned (YEAR 4)					
During the Reporting year 4, the Town plans to continue to follow the stormwater facilities protocol.					

MCM 6: Pollution prevention/Good housekeeping

Develop and implement an operation and maintenance program to prevent or reduce pollutant runoff from municipal operations in to the storm sewer system. Measures described below are intended to meet public outreach and measurable goals as described 9VAC25-890-40, Section II B (6).

List of Minimum Control Measure #6 BMP's:

- A. Maintenance procedure and scheduling for pollutant reduction in roads, parking lots, and storage yards.
- B. Controls for reducing the discharge of pollutants from publicly maintained areas.
- C. Reduce the amount of solid waste from government facilities by encouraging employees to recycle and by implementing source reduction methods.
- D. Reduce the use of hazardous chemicals where practicable and ensure that all chemicals are stored, handled, used, and disposed of properly.
- E. Develop and implement an operation and maintenance program to prevent or reduce the pollutant runoff from municipal operations and train employees on proper procedures to accomplish pollution prevention objectives.
- F. Turf and Landscape Nutrient Management Plans
- G. Regional Solid Waste Authority Hazardous Waste Collection Event

Appropriateness of the BMPs:

These BMPs serve to reduce the pollutants discharged from municipal areas. Municipalities often have the potential of discharge in their facilities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and MS4 maintenance. This BMP minimizes the likelihood of discharge through education and good housekeeping programs. Below shows how each of our program plan BMPs addresses the specific impairments of our local waters.

2010 305(b)/303(d) Water Quality Assessment Report - Impairments				
MINIMUM CONTROL MEASURE SIX BMPs	<i>Sediment</i>	<i>Bacteria</i>	<i>Temp.</i>	<i>PCBs</i>
BMP 6.A (Pollution Reduction in Road, Parking and Storage)	✓	✓		
BMP 6.B (Reducing Pollutants from Publicly Maintained Areas)	✓	✓		
BMP 6.C (Reduction of Solid Waste from Municipal Facilities)	✓	✓		✓
BMP 6.D (Reduction of Hazardous Chemicals)		✓		✓
BMP 6.E (Developing and Implementing an O&M Program)	✓	✓		✓
BMP 6.F (Turf and Landscape Nutrient Management Plans)		✓	✓	
BMP 6.G (Regional Solid Waste Authority Hazardous Waste Collection)		✓		✓

A. Maintenance Actions for Pollutant Reduction in Roads, Parking Lots, and Storage Yards

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Perform leaf and Christmas tree pickup	2014	2015	2016	2017	2018	2014 - 2016
Perform twice yearly brush and bulk item pickup	2014	2015	2016	2017	2018	2014 - 2016
Daily removal of trash and litter in the Downtown areas	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
In this past reporting year, the Town collected 5.73 tons of Christmas trees, 463.9 tons of brush and bulk items, 212.9 tons of street sweeper collection and continued the daily removal of trash and litter in the Downtown areas. This BMP significantly reduces pollution in our roads, parking lots and storage yards. Additionally, by offering the bulk and brush collection service, this reduces the instances of illegal dumping by collecting these items.						
Proposed Changes to BMP or Measurable Goals						
No changes are intended for this BMP.						
Next Reporting Period Activities Planned (YEAR 4)						
During the Reporting year 4, the Town plans to continue these services as they provide a significant benefit to pollution prevention.						

B. Controls for Reducing the Discharge of Pollutants in Publicly Maintained Areas

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Perform Sanitary Sewer Line Maintenance to reduce clogging	2014	2015	2016	2017	2018	2014 - 2016
Perform Sanitary Sewer Line Upgrades to maintain capacity	2014	2015	2016	2017	2018	2014 - 2016
Continue Managing the Town-Wide recycling Program	2014	2015	2016	2017	2018	2014 - 2016
Maintain Spill Prevention Programs for the Facilities at risk	2015	2016	2017	2018		2016
Maintain Stormwater Pollution Prevention Plans for the Facilities in need		2016	2017	2018		2016
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
<ul style="list-style-type: none"> The Town performs annual sanitary sewer line cleaning to reduce the amount of root intrusion into the sewer lines and has a proactive sewer lining program to allow older sewer lines to maintain capacity as growth occurs. This allows the sewer line to function without clogging which reduces the instances of overflow into the waterways. In addition, the sanitary sewer is continually studied for areas in need of upgrades to maintain capacity with growth in population. The Northside Pump station expansion project was just completed which will allow capacity for future growth in this residential sector. The Town also manages a Town-wide recycling program for all residential homes and expanded this program to be single-stream for all residential customers. A Spill Prevention Plan has been prepared for the fueling center at Public Works. This has been the only facility identified as in need of one. A Stormwater Pollution Plan is being drafted for 						
Proposed Changes to BMP or Measurable Goals						
In year 3, Town facilities that require spill prevention plans and stormwater pollution prevention plans will be completed. The Town will also enact single stream recycling to all refuse customers.						

C. Reduce the Amount of Solid Waste from Municipal Facilities

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Continue municipal building recycling of co-mingled containers, mixed paper, toner cartridges, electronics, and rechargeable/alkaline batteries.	2014	2015	2016	2017	2018	2014 - 2016
Continue the recycling of oil, antifreeze, tires, and metal at the Public Works and Transit garage.	2014	2015	2016	2017	2018	2014 - 2016
Continue recycling used fluorescent lamps from all facilities.	2014	2015	2016	2017	2018	2014 - 2016
Continue the recycling of electronic equipment and computers through the Purchasing Division and Technology Department.	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town has continued these programs to reduce the amount of waste from government facilities with recycling and implementing source reduction methods.						
Proposed Changes to BMP or Measurable Goals						
The departments that recycle do not currently track the amount being recycled to identify trends or improvements. In future years, the Town would like to begin tracking the amounts of each type of recycled material to identify if programs are being utilized and if they are necessary.						

D. Reduce the Use and Discharge Potential of Hazardous Chemicals

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Provide training for all Registered Technicians or Certified Applicators through the State	2014	2015	2016	2017	2018	2014 - 2016
Update the Towns MSDS Management Program	2014	2015	2016	2017	2018	2014 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
All registered technicians and certified applicators have been trained this reporting year, see Appendix 6-D for Details, Evaluation and Recommendations for this BMP.						
Proposed Changes to BMP or Measurable Goals						
The Universal Waste Policy will be incorporated into this BMP next year.						

E. Develop and Implement an O&M and Training Program to Prevent or Reduce the Pollutant Runoff from Municipal Operations

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Develop a Pollution Prevention Program for Municipal Operations	2014	2015	2016	2017	2018	2014 - 2016
Implement the Pollution Prevention Program		2015	2016	2017	2018	2015 - 2016
Evaluate BMP for Appropriateness and Effectiveness		2015	2016	2017	2018	2015 - 2016
Progress Toward Meeting Objectives of Permit						
Outlines for training programs have been developed for the Town Police Department, Fire and Rescue, Public Works Grounds and Fueling and Vehicle Maintenance staff. The following training programs have been completed this reporting period: ESC/SWM training for Engineering staff, Spill Response for Emergency Services staff and Fertilizer, Pesticide and Landscape Materials for Applicators. The training on the written O&M procedures will begin in Year 4 of the permit cycle. See Appendix 6-E for Details, Evaluation and Recommendations for this BMP.						
Proposed Changes to BMP or Measurable Goals						
None proposed.						

F. Turf and Landscape Nutrient Management Plans

The operator shall implement turf and landscape nutrient management plans that have been developed by a certified turf and landscape nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia on all lands owned or operated by the MS4 operator where nutrients are applied to a contiguous area greater than one acre.

Measurable Goals Identified and Achieved:	Years Planned					Years Achieved
Identify all Applicable Lands where Nutrients are Applied – Latitude and Longitude	2014	2015	2016	2017	2018	2014 - 2016
Implement Turf Management Plans to 15% of Lands	2015	2016	2017	2018		Not completed.
Implement Turf Management Plans to 40% of Lands		2016	2017	2018		-
Implement Turf Management Plans to 75% of Lands			2017	2018		-
Evaluate BMP for Appropriateness and Effectiveness	2015	2016	2017	2018		2015 - 2016
Progress Toward Meeting Objectives of Permit						
The Town has completed its identification of lands requiring Turf and Landscape Nutrient Management Plans. A total of six sites meet this description. See Appendix 6-F for Details, Evaluation and Recommendations for this BMP.						
Proposed Changes to BMP or Measurable Goals						
None proposed. Nutrient plans will be completed in Year 4.						

G. Regional Solid Waste Authority Hazardous Waste Collection

The Town’s Office of Waste Minimization and Recycling employs two full time positions dedicated to addressing municipal solid waste, universal waste, and hazardous waste issues. Staff also addresses employee awareness and community education regarding these topics.

This BMP has been re-numbered as BMP 1-E.

**CERTIFICATION STATEMENT AND SIGNATORY REQUIREMENTS
FOR MS4 PERMIT APPLICATIONS AND REPORTS**

As required by 9VAC25-870-370 B, all reports required by state permits, and other information requested by the board shall, be signed by a responsible official or by a duly authorized representative of that person. A responsible official is:

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for state permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
3. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above;
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
3. The written authorization is submitted to the department.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Marc Verniel, Town Manager

9/23/16

Date

VAR 040019

Permit Number

Town of Blacksburg

MS4 Name

Appendix: Special TMDL Conditions

Appendix SC-1 (List of Facilities and Pollutants of Concern)

Assess all Significant Sources of Pollutants from Municipal Facilities				
#	Site	Pollutant(s) of Concern	TMDL Watershed	Site Condition
1	Red Maple Water Tank	Sediment	Stroubles Creek	Stabilized.
2	Neil Street Water Tank	Sediment	Stroubles Creek	Stabilized.
3	Maple Ridge Pump Station	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
4	Blacksburg Rescue Squad	Sediment	Stroubles Creek	Stabilized.
5	Community Center Complex	Sediment	Stroubles Creek	Stabilized.
6	Dundas Heights Open Space	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions
7	Windsor Hills Pump Station	Sediment	Stroubles Creek	Stabilized.
8	Cork Drive Open Space	Sediment	Stroubles Creek	Forested.
9	McBryde Village Park	Sediment	Stroubles Creek	Forested.
10	Dundas Heights Park Land	Sediment	Stroubles Creek	Forested.
11	Owens Street Park	Sediment	Stroubles Creek	Stabilized.
12	Kabrich Open Space	Sediment	Stroubles Creek	Stabilized.
13	Clay St Water Tank	Sediment	Stroubles Creek	Stabilized.
14	Wong Park	Sediment	Stroubles Creek	Stabilized.
15	Oddfellows Hall	Sediment	Stroubles Creek	Stabilized.
16	African American Cemetery	Sediment	Stroubles Creek	Stabilized.
17	Cooks Clean Center	Sediment	Stroubles Creek	Stabilized.
18	Progress Street Parking Lot	Sediment	Stroubles Creek	Stabilized.
19	Dickerson Estates Park	Sediment	Stroubles Creek	Forested.
20	Progress Street Fire Station	Sediment	Stroubles Creek	Stabilized.
21	Knob Hill Open Space	Sediment	Stroubles Creek	Stabilized.
22	Price House	Sediment	Stroubles Creek	Stabilized.
23	Church Street Parking Lot	Sediment	Stroubles Creek	Stabilized.
24	Clay Street Spring Park	Sediment	Stroubles Creek	Stabilized & Forested.
25	The Armory Building	Sediment	Stroubles Creek	Stabilized.
26	Farmers Market	Sediment	Stroubles Creek	Stabilized.
27	Black House and Thomas Conner	Sediment	Stroubles Creek	Stabilized.
28	Municipal Building	Sediment	Stroubles Creek	Stabilized.
29	Blacksburg Motor Company	Sediment	Stroubles Creek	Stabilized.
30	Municipal Golf Course	Sediment	Stroubles Creek	Stabilized.
31	Huckleberry Trail	Sediment	Stroubles Creek	Stabilized.
32	Oak Manor Well House	Sediment	Stroubles Creek	Stabilized.
33	Highland Park Pump Station	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
34	Graves Open Space	Sediment	Stroubles Creek	Stabilized.
35	Crestview Water Tank and Park	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
36	Sheffield Open Space	Sediment	Stroubles Creek	Stabilized.
37	Hardie Hills Open Space	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
38	Kipps Ball Fields	Sediment	Stroubles Creek	Stabilized
39	Landsdowne Open Space	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
40	Downtown Police Station	Sediment	Stroubles Creek	Stabilized
41	Nellies Cave Park	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
42	Dehart Open Space	Sediment	Stroubles Creek	Stabilized.
43	Gardenspring Open space	Sediment	Stroubles Creek	Stabilized.
44	Hubbard Street Fire Station	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
45	Tall Oaks Pump Station	Sediment	Stroubles Creek	Stabilized.
46	Cedar Run Open Space	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
47	CRC PH II Pump Station	Sediment	Stroubles Creek	Stabilized.
48	Cedar Hill Park	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
49	Cedar Run Pump Station	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
50	Public Works Complex	Sediment and Bacteria	Roanoke River	Site SWPPP in progress.
51	Cedar Run Springs and Open Space	Sediment	Stroubles Creek	Stabilized.
52	Cedar Run Open Space	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
53	CRC PH I Pump Station	Sediment	Stroubles Creek	Stabilized.
54	Blacksburg Transit	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
55	South Point Park	Sediment	Stroubles Creek	Under Construction. Covered under VAR10G509.
56	Hospital Pump Station	Sediment	Stroubles Creek	Stabilized.
57	Industrial Park Pump Station	Sediment and Bacteria	Roanoke River	Stabilized. No bacterial contributions.
58	Westview Cemetery	Sediment	Stroubles Creek	Stabilized.
59	Progress Street Parking Lot – Ext.	Sediment	Stroubles Creek	Stabilized.
60	Cooks Clean Center Building	Sediment	Stroubles Creek	Stabilized

Total Maximum Daily Load (TMDL) Action Plan for the Town of Blacksburg, Virginia



This guidance document provides Town staff and citizens with background information and procedures for the development of goals and actions in the efforts to reduce the pollutant loads in local streams. The development of the TMDL Action Plan will be developed as required in the Special Condition of the 2013-2018 General Permit for Discharges of Stormwater from Small (Phase II) MS4s.

Updated: June 9, 2015 & June 30, 2016

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Table of Contents

1.0	Introduction.....	1
1.1	Definitions	1
1.2	Background of the TMDL Action Plan	2
1.3	Permit Requirements	3
1.4	Applicable WLAs.....	3
1.5	Aggregate WLAs	3
1.6	Forthcoming WLAs for Existing TMDLs	4
1.7	Existing Permittees with Expanded Area	4
1.8	New permittees.....	4
1.9	Action Plan Content	4
2.0	Introduction to the TMDL Watersheds of the Town of Blacksburg.....	5
3.0	Summary of Local TMDLs	7
3.1	Stroubles Creek Sediment TMDL.....	7
3.2	Roanoke River Bacterial and Sediment TMDLs	8
3.3	Roanoke River PCB TMDL (after 7/1/2008).....	8
4.0	Sediment TMDL Wasteload Allocations	9
5.0	Bacteria TMDL Wasteload Allocations	9
6.0	PCBs in Fish Tissue TMDL Wasteload Allocations.....	9
7.0	Pollutants of Concern (POCs) from Facilities Owned or Operated by the MS4.....	10
8.0	Action Plan Development Process.....	13
8.1	Required Reductions	13
8.2	Benchmark Time Period Establishment	15
8.3	Calculating Reductions for the Permit Cycle	15
9.0	Implementation Actions	15
9.1	Control Measures and Management Practices	16
9.2	Legal Authorities, Permits, Contracts and Interjurisdictional Agreements.....	18
9.3	Steps Needed to Meet Water Quality Standards.....	19
9.4	Associated Costs.....	19
10.0	Measurable Goals and Milestones for Attaining Water Quality Standards	22
10.1	Implementation Schedule for Stroubles Creek Sediment POC	22
10.2	Implementation Schedule for Roanoke River Sediment POC	23
10.3	Implementation Schedule for Wilson Creek Bacteria POC	24
11.0	Assessment Methods for Determining Effectiveness.....	24
12.0	Potential Funding Sources	25

1.0 Introduction

1.1 Definitions

Best Management Practices (“BMPs”) – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface waters and groundwater systems.

Existing Sources – Pervious and impervious urban land uses served by the MS4 as of June 30, 2009.

Impervious Cover – A surface composed of material that significantly impedes or prevents natural infiltration of water into soil.

Municipal Separate Storm Sewer System (“MS4”) - A conveyance or system of conveyances otherwise known as a municipal separate storm sewer system, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains:

- 1 Owned or operated by a federal state, city, town, county, district, association, or other public body, created by or pursuant to state law, having jurisdiction or delegated authority for erosion and sediment control and stormwater management, or a designated and approved management agency under § 208 of the CWA that discharges to surface waters;
- 2 Designed or used for collecting or conveying stormwater;
- 3 That is not a combined sewer; and,
- 4 That is not part of a publicly owned treatment works.

New Sources – Pervious and impervious urban land uses served by the MS4 developed or redeveloped on or after July 1, 2014.

Pollutant(s) of Concern (“POC”) – The pollutant(s) impairing a water body for which one or more TMDL(s) has been developed.

Prior Developed Lands (“Redevelopment”) – Land that has been previously utilized for residential, commercial, industrial, institutional, recreation, transportation, or utility facilities or structures, and that will have the impervious areas associated with those uses altered during a land-disturbing activity.

Pollutants of Concern (“POC”) – The pollutant(s) impairing a water body for which one or more TMDL(s) has been developed such as total suspended solids (“TSS”), bacteria, or Polychlorinated Biphenyls (“PCBs”).

Regulated Land – Regulated land refers to the conveyances and drainage area served by the permittee’s MS4. For Phase II MS4s regulated land is the conveyances and drainage area that falls within a Census Designated Urbanized Area.

TMDL Implementation Plan – A document guided by an approved TMDL(s) that at a minimum provides details of the corrective actions to address the load allocation of one or more TMDLs. The plan includes measureable goals needed to achieve pollutant(s) source load reductions; outlines a schedule to attain

water quality standards along with costs, benefits, and environmental impacts to reduce pollutant(s) and remediate impaired waterbodies.

Total Maximum Daily Load (“TMDL”) – The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, natural background loading and a margin of safety.

Wasteload Allocation (“WLA”) - The portion of a receiving waters' pollutant loading capacity that is allocated to existing or future point sources of pollution, such as an MS4.

Unregulated Land – Unregulated land means those acres that are not owned or operated by the MS4 permittee AND are located outside the permittee’s regulated land.

For terms not defined above, please refer to the 9VAC25-890-1, 9VAC25-870-10, or 9VAC25-31-10 of the Virginia Administrative Code.

1.2 Background of the TMDL Action Plan

Since 1998 DEQ has developed Total Maximum Daily Loads (“TMDL”), with public input, to restore and maintain the water quality of impaired waterbodies. Section 303(d) of the Clean Water Act requires that wasteload allocations be implemented through the National Pollutant Discharge Elimination System (NPDES) permit program. As point sources, MS4s are assigned individual or aggregate WLAs in TMDLs for receiving streams or watersheds to which the MS4 discharges. Municipalities may also be assigned an LA for those areas outside of the regulated MS4 Service Area that are sources of the POC. TMDLs may quantify both LA and WLA loads from the Census designated urbanized area. Permittees are not required to incorporate approaches for addressing those LAs into their Action Plans. Load allocations are often addressed through TMDL Implementation Plans (IPs) which characterize the suite of corrective actions needed to reduce nonpoint source pollutant loads. This guidance document only addresses the requirements to address WLAs to meet the special conditions for approved total maximum daily loads (TMDL) other than the Chesapeake Bay TMDL (“Special Condition for Local TMDLs”).

The Special Condition for Local TMDLs in the 2013 General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (VAR04) (“GP”) and the eleven Phase I Individual MS4 permits, as they are reissued, require permittees to develop Action Plans that address all POC(s) for which the permittee has been assigned a WLA under an approved TMDL. The Local TMDL Action Plans should identify BMPs and other management strategies that the permittee will implement to meet the TMDL WLA and achieve compliance with the Special Condition. Local TMDL Action Plans can be implemented in multiple stages over multiple permit cycles using an adaptive iterative approach provided the permittee demonstrates adequate progress toward achieving reductions necessary to meet the WLA(s). Implementation of the TMDL Action Plans is tracked via the permittee’s Annual Reports. The goal of the Town of Blacksburg TMDL Action Plan is to restore water quality within local streams and associated tributaries, to achieve full supporting status for the impaired segments, and to de-list the impaired segments from the Virginia 303(d) List of Impaired Waters for bacteria and aquatic life impairments. Additionally, the purpose of this TDML Action Plan is to comply with Section I B Special conditions of the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems.

The action plan has been developed to be a planning tool to identify the path to reduce the pollutants of concern for all watersheds within the Town of Blacksburg urbanized areas. This action plan will provide methods and guidance for the Town staff to meet the reductions consistent with the TMDL studies performed on our waters.

1.3 Permit Requirements

With the exception of newly designated permittees, the Phase II Small MS4 GP requires that:

1. Action Plans for local TMDLs approved before July 1, 2008 must be completed by July 1, 2015 and submitted with the Annual Report due October 1, 2015.
2. Action Plans for local TMDLs approved between July 1, 2008 and June 30, 2013 must be completed by July 1, 2016 and submitted with the annual report due October 1, 2016.

Newly designated MS4 permittees should have included a schedule for developing local TMDL Action Plans as part of the MS4 Program Plan and registration statement submitted to obtain initial coverage under the 2013 GP and should follow that approved schedule. Likewise, Phase I permittees must follow the schedule in their individual permit. In accordance with Section I.B.7 of the GP, permittees must include an estimated date by which they will achieve the assigned WLAs as part of the reapplication package.

The Phase II Small MS4 local TMDL Action Plans and updates become effective and enforceable 90 days after the date received by the Department unless specifically denied in writing. DEQ may request additional information in the review process, as needed. In the Action Plan permittees are responsible for establishing schedules and milestones to meet the assigned WLA(s). The approved Action Plan schedule will supersede any implied or explicit completion date or schedule provided in the local TMDL or Implementation Plan. Permittees are strongly encouraged to work closely with the DEQ regional TMDL and MS4 staff throughout the development of the Action Plan(s).

1.4 Applicable WLAs

Prior to Action Plan development, permittees will need to determine the local TMDLs in which the MS4 has been assigned a WLA. Detailed information regarding the portion of each watershed that drains to an MS4 system may not be available during local TMDL development and WLA assignment, so a conservative, land-use based approach is often used. It is important to note that the actual areas within a local TMDL watershed that are subject to a MS4 WLA are those areas that are specifically regulated under the MS4 permit. TMDL studies do not attempt or intend to define the MS4 regulatory area. Rather, the areas used to develop loadings associated with the MS4 permits in local TMDLs (e.g. impervious developed or Census designated urbanized areas) are only surrogates for establishing WLAs and estimating a reasonable pollutant loading that is expected to be contributed by these permitted sources.

1.5 Aggregate WLAs

In some circumstances multiple permittees may be assigned one WLA, or an aggregate WLA within a TMDL, for their discharges to the impaired waterbody. Aggregate WLAs are intended to address a watershed wide pollutant without discrete MS4 boundaries. Aggregated WLAs may occur in a TMDL

when permittees are closely interconnected, the TMDL study does not have sufficient information or detail to disaggregate the WLA, or the scale of the TMDL is too great to delineate individual WLAs. This is the case for one of the TMDL studies completed in the Blacksburg regulated area, Stroubles Creek. Efforts are made to delineate an individual WLA for the Town of Blacksburg and are discussed further in Section 3.0, Summary of Local TMDLs.

1.6 Forthcoming WLAs for Existing TMDLs

Newly designated Phase II and existing Phase II MS4 permittees with expanded urbanized areas as the result of the 2010 Census may drain to impaired waters for which a local TMDL has been developed. These permittees may not currently have a WLA assigned to them under these TMDLs. For the Town of Blacksburg, the 2010 Census had no impact on the watersheds to which the urbanized area drains.

1.7 Existing Permittees with Expanded Area

Existing permittees who were previously assigned a WLA and whose urbanized area expanded as a result of the 2010 Census are required to meet the WLA(s) assigned prior to the identification of an expanded urbanized area. As WLAs are revised and/or finalized by DEQ to incorporate the expanded urbanized area, permittees will be required to address those POC reductions in future permit cycles. The Town did not have any significant change to its regulated urbanized area resulting from the 2010 Census.

1.8 New permittees

New permittees that discharge to impaired waterbodies with one or more approved local TMDL(s) may not have been assigned WLA(s) yet. The Department recommends permittees begin planning for future WLAs by considering land use based reductions as discussed above. The Town is not a newly permitted MS4, therefore all WLAs have already been assigned.

1.9 Action Plan Content

The proposed strategies and the end date by which permittees will demonstrate compliance with their assigned WLA(s) will be determined by the permittee; however, the Action Plan should also include justification for these choices. Permittees should address the following in their Action Plan(s):

1. The name(s) of the Final TMDL reports, (*Section 2.0: Introduction to the TMDL Watersheds of Blacksburg*).
2. The pollutant(s) causing the impairment(s), (*Section 3.0: Summary of Local TMDLs*).
3. The WLA(s) assigned to the MS4 as aggregate or individual WLAs, (*Section 3.0: Summary of Local TMDLs*).
4. Significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL (*Section 7.0: Pollutants of Concern (POCs) from Facilities Owned or Operated by the MS4*).
5. Existing or new management practices, control techniques, and system design and engineering methods, that have been or will be implemented as part of the MS4

- Program Plan that are applicable to reducing the pollutant identified in the WLA, (*Section 9.0: Implementation Actions*).
6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements applicable to reducing the POCs identified in each respective TMDL, (*Section 9.2: Legal Authorities, Permits, Contracts and Interjurisdictional Agreements*).
 7. Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned, (*Section 9.0: Implementation Actions*).
 8. A schedule of interim milestones and implementation of the items in 5, 6, and 7; (*Section 10.0: Measurable Goals and Milestones for Attaining Water Quality Standards*)
 9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs, (*Section 11.0: Assessment Methods for Determining Effectiveness*), and
 10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDLs; (*Section 10.0: Measurable Goals and Milestones for Attaining Water Quality Standards*).

2.0 Introduction to the TMDL Watersheds of the Town of Blacksburg

Stroubles Creek

*TMDL: Benthic TMDL for Stroubles Creek in Montgomery County, Virginia
Prepared by: The Department of Biological Systems Engineering, Virginia Tech
October 9, 2003 and Revised October 16, 2003
POC: Sediment*

Stroubles Creek is a tributary of the New River, which drains to the Ohio River and the Gulf of Mexico. The Stroubles Creek watershed is approximately 25% Residential, 25% University, 25% Agricultural and 10% Commercial. The commercial area is a small area but it is very concentrated. Stroubles Creek is piped underneath the downtown corridor of Blacksburg and is impacted by many of the commercial businesses that it flows beneath.

Stroubles Creek watershed has an area of 5,415 acres within the limits of the Town of Blacksburg. Slate Branch is a tributary of Stroubles Creek. Stroubles Creek was originally listed as impaired in 1996 with a benthic impairment. A TMDL was completed in 2003 and a TMDL Implementation Plan was authored in 2006. The Stroubles Creek TMDL assigned an **aggregate** WLA for Stroubles Creek of **210.8 tons/year** of sediment for the MS4 permitted entities of VDOT, Virginia Tech and the Town of Blacksburg.

In 2006 Stroubles Creek was also listed as impaired for *Escherichia coli*, but this impairment is scheduled for a TMDL study in 2014 and will not be addressed in this action plan.

North Fork Roanoke River

*TMDL: Benthic TMDL Development for the Roanoke River, Virginia
Prepared By: The Louis Berger Group*

March 2006
POC: Sediment

The North Fork of the Roanoke River is a Tributary of the Upper Roanoke River watershed. These waters drain to the Atlantic Ocean through the Albemarle Sound in North Carolina. Several minor tributaries of the North Fork drain the eastern side of Blacksburg. Some of the tributaries are un-named; others have names such as Indian Run. The North Fork watershed is 60% residential, 35% agriculture and undeveloped land and less than 10% is a mixture of commercial, and municipal.

The North Fork has an area of 573 acres within the Town limits, the smallest watershed in Town. The North Fork was originally listed as impaired in 1996 for benthics and in 1998 for bacteria. TMDLs for both impairments were completed in 2006. The Roanoke River was originally listed as impaired for PCB's in fish tissue in 1996 near the cities of Salem and Roanoke. A TMDL study including the Town of Blacksburg was completed in 2009.

The total 2006 TMDL wasteload allocation for the Town of Blacksburg for sediment was **82.8** tons per year. The bacterial TMDL study combined Wilson Creek and the North Fork tributaries and the associated wasteload allocation is described below.

Roanoke River Watershed

***TMDL:** Total Maximum Daily Loads Polychlorinated Biphenyl (PCB) Impairment for the Roanoke River Watershed, Virginia*

Prepared By: Tetra Tech, Inc. 10306 Eaton Place, Suite 340, Fairfax VA 22030

December 2009

POC: Polychlorinated Biphenyl (PCB)

The Roanoke River watershed drains into a largely rural area in the coastal plains of Virginia. The river flows from the eastern edge of the Appalachian Mountains in southern Virginia southeast across the Piedmont to the Albemarle Sound in northeastern North Carolina. In the TMDL Report, the TMDL study area includes two sections of the Virginia portion of the watershed -- the upper and lower Roanoke River. Both sections of the Roanoke River watershed are predominantly forested with 64 and 63 percent of the land area for the upper and lower classified as such. The mainstem lengths of the upper and lower sections of the river are approximately 29 and 96 miles, respectively, and run through several Virginia counties, including: Montgomery, Roanoke, Bedford, Franklin, Campbell, Pittsylvania, Charlotte, and Halifax.

Wilson Creek

***TMDL:** Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia and*

Prepared By: George Mason University and the Louis Berger Group

February 2006

POC: Bacteria

Wilson Creek is a tributary of the North Fork of the Roanoke River. This watershed begins in Blacksburg, Virginia and drains through southern Virginia as the Staunton River and then to northeastern North

Carolina to the Albemarle Sound. The Albemarle Sound is a large estuary that drains to the Atlantic Ocean. The Wilson Creek Watershed is 30% residential, 25% commercial, 25% undeveloped and the remaining portion is a mixture of agriculture, industrial and municipal uses.

Wilson Creek watershed has an area of 1,509 acres within the limits of the Town of Blacksburg. Cedar Run is a tributary of Wilson Creek. Wilson Creek was originally listed as impaired in 1998 for exceeding levels of fecal coliform and *Escherichia coli*. A TMDL was completed for Wilson Creek and the Upper Roanoke River in 2006.

The total wasteload allocation for the Town of Blacksburg in 2006 was 3.15E+09 colony forming units per year for both the Wilson Creek and North Fork Roanoke River watersheds.

3.0 Summary of Local TMDLs

3.1 Stroubles Creek Sediment TMDL

Biological monitoring of Stroubles Creek over a period of 5 years has indicated that the water body did not support the “general standard” of water quality in Virginia. Along with a number of standards for specific pollutants, Virginia also has a general standard, which states that a water body must be free of pollutants or environmental stresses that substantially alter the aquatic biological community.

Impairment, at the time, was defined by two or more ratings (over the assessment period) of “moderate” or “severe” based on the Environmental Protection Agency’s (EPA’s) Rapid Bio-assessment Protocol (RBP) II. Bio-monitoring has been conducted on Stroubles Creek since 1994. Originally listed in 1996 with a benthic impairment, Stroubles Creek was also included on the 1998 and 2002 303(d) TMDL priority lists in Virginia. During the most recent assessment period (2002), Stroubles Creek’s benthic community was monitored 9 times; each assessment received a “moderately impaired” rating. The overall rating for each of these assessment periods has consistently been “moderately impaired”, leading to Stroubles Creek’s placement on Virginia’s 303(d) list of impaired water bodies with a benthic impairment. As such, it does not fully support the Clean Water Act’s *aquatic life* use. The impairment extends from the Duck Pond outlet downstream to its confluence with Walls Branch, for a total of 4.98 stream miles.

A TMDL study was conducted on Stroubles Creek from April 2002 through October 2003 and approved by EPA in January 2004. The TMDL specified the maximum sediment load that Stroubles Creek can handle in a manner that is protective of the habitat for benthic macro-invertebrates, in particular, and aquatic life, in general, so that it is in compliance with Virginia water quality standards.

The Stroubles Creek TMDL assigned an aggregate WLA for Stroubles Creek of 210.8 tons/year for the MS4 permitted entities of VDOT, Virginia Tech and the Town of Blacksburg. This document identifies this aggregate WLA and utilizes the Watershed Treatment Model to separate the WLA that should be applied to the Blacksburg MS4 area. An analysis was performed in this action plan to identify the Town of Blacksburg portion of the allocation as **187.85** tons/year. This is discussed in detail in the Required Reductions section.

3.2 Roanoke River Bacterial and Sediment TMDLs

Monitoring performed by the Commonwealth of Virginia identified water bodies within the Roanoke River watershed that did not meet the *Escherichia coli* (*E. coli*) standards and therefore did not protect the **recreation beneficial** use. In addition, monitoring also identified portions of the main stem of the Roanoke River not attaining the **aquatic life** use based on impaired benthic macro-invertebrate communities. The bacteria impaired segments were first listed as impaired on one of Virginia's 303(d) Total Maximum Daily Load (TMDL) Priority List and Reports starting in 1996. The benthic impaired segments were first listed as impaired on Virginia's 1996 303(d) Total Maximum Daily Load Priority List and Report. TMDLs were developed and approved for these impaired segments in 2004 and 2006. These TMDLs developed bacteria and sediment reductions necessary to meet the *E. coli* and aquatic life water quality standards. The goal of the Roanoke River TMDL Implementation Plan (IP) is to restore water quality within the Roanoke River and associated tributaries, to achieve full supporting status for the impaired segments, and to de-list the impaired segments from the Virginia 303(d) List of Impaired Waters for bacteria and aquatic life impairments.

3.3 Roanoke River PCB TMDL (after 7/1/2008)

Virginia's 2008 section 303(d) list classifies several waterbodies in the Roanoke River basin as impaired for Polychlorinated Biphenyls (PCB) from elevated PCB concentrations found in fish tissue and sediment samples. The Virginia Department of Environmental Quality (VADEQ) first collected monitoring data on PCB contamination in the basin in 1971. Regular fish tissue and sediment sampling for PCBs began in 1993, and a rotating basin monitoring schedule is ongoing as part of the Statewide Fish Tissue and Sediment monitoring program. The Virginia Department of Health (VDH) has issued fish consumption advisories for several sections of the Roanoke River and tributaries since 1998 on the basis of the fish tissue data collected by VADEQ.

PCBs are a group of synthetic chemicals that consist of 209 individual compounds (known as congeners). Physically, they are either oily liquids or solids and are colorless to light yellow in color with no known smell or taste. PCBs made in the United States were marketed under the trade name "Aroclor" and most are identified by a four-digit numbering code in which the first two digits indicate that the parent molecule is a biphenyl. PCBs possess excellent dielectric and flame-resistant properties derived from the stable molecular structure. These same properties cause PCBs to accumulate in the fatty tissue of biota and bio-accumulate in the food chain (<http://www.epa.gov/ttn/atw/hlthef/polychlo.html>).

Although it is now illegal to manufacture, distribute, or use PCBs, before 1974 they were used in numerous products including, capacitors, transformers, plasticizers, surface coatings, inks, adhesives, pesticide extenders, paints, carbonless duplicating paper, etc. After 1974, PCB use was restricted to producing capacitors and transformers, and in 1979 the manufacture and use of PCBs was completely banned. Historically, PCBs had been introduced into the environment through discharges from point sources and through spills and releases. Although point source contributions are now controlled, facilities could be unknowingly discharging PCB loads as a result of historical contamination. Sites with PCB-contaminated soils can also act as precipitation-driven nonpoint sources. In addition, the widespread use of PCBs before their ban coupled with their stable molecular structure has caused a generalized distribution of the pollutant in air, soil, and water at background concentrations. Once in a

waterbody, PCBs become associated with sediment particles. PCBs are very resistant to breakdown and thus remain in river and lake sediments for many years.

The objective of the Roanoke River PCB TMDL study is to identify the sources of Polychlorinated Biphenyl (PCB) contamination in the watershed and determine the reductions in pollutant loadings necessary to achieve the applicable water quality standards. The impairment listings for stream and reservoir segments in the study area are based on the historical fish tissue and sediment monitoring data record. This TMDL study was designed to address select PCB impairments included on Virginia's 1998 303(d) list. More recent monitoring studies have resulted in the listing of additional PCB-impaired stream and reservoir segments in the watershed, including updates on Virginia's 2008 303(d) list (Table ES-1) and a forthcoming violation listing (2010) of the *public water supply* use.

This TMDL was published in April 9, 2010 and has been included in the TMDL Action Plan this year.

4.0 Sediment TMDL Wasteload Allocations

Below are the watersheds which have a sediment TMDL waste load allocation. The watershed name, area, waste load allocation to the MS4 and total reduction required is listed in the table below. These values are referenced from the original TMDL studies. A more detailed drainage basin analysis will be evaluated as part of this Action Plan and the total acreage will change.

Stream Name	Acreage (ac)	WLA (tons/yr)
Stroubles Creek (NE59)	5,415	210.88*
Wilson Creek and Roanoke River (RU07, RU06)	1,360	82.8

*This number is the waste load allocation allocated to MS4s numbers VAR040019, VAR040049, and VAR040016. This number is revised later in the document to reflect the specific estimated allocation for the Town of Blacksburg only.

5.0 Bacteria TMDL Wasteload Allocations

Below are the watersheds which have a bacteria TMDL waste load allocation. The area, percent impervious, waste load allocation and total reduction required is listed in the table below. A more detailed drainage basin analysis will be evaluated as part of this Action Plan and the total acreage will change.

Stream Name	Acreage	WLA (cfu/yr)
Wilson Creek and Roanoke River (RU07, RU06)	1,360	3.15 E+09

6.0 PCBs in Fish Tissue TMDL Wasteload Allocations

Below are the watersheds which have a bacteria TMDL waste load allocation. The area, percent impervious, waste load allocation and total reduction required is listed in the table below.

Stream Name	Acreage	WLA (mg/yr) tPCBs
Wilson Creek and Roanoke River (RU07, RU06)	1,360	7.8

**This WLA is not included in this TMDL Action Plan as it was approved after 2010.*

7.0 Pollutants of Concern (POCs) from Facilities Owned or Operated by the MS4

The Town of Blacksburg has analyzed all Town Owned or Operated facilities within our regulated urbanized area. Below are the facilities that are contained within this area. Currently no facility has been found to contain significant sources of POCs from these facilities. Investigation of the facilities will be an ongoing process and if any facilities are identified as discharging a POC this will be included in this section of the TMDL Action Plan.

#	Site	Pollutant(s) of Concern	Site Condition
1	Red Maple Water Tank	Sediment	Stabilized
2	Neil Street Water Tank	Sediment	Stabilized
3	Maple Ridge Pump Station	Sediment and Bacteria	Stabilized. No bacterial contributions.
4	Blacksburg Rescue Squad	Sediment	Under Construction. Covered under VAR10G421.
5	Community Center Complex	Sediment	Stabilized
6	Dundas Heights Open Space	Sediment and Bacteria	Stabilized. No bacterial contributions.
7	Windsor Hills Pump Station	Sediment	Stabilized
8	Cork Drive Open Space	Sediment	Forested
9	McBryde Village Park	Sediment	Forested
10	Dundas Heights Park Land	Sediment	Forested
11	Owens Street Park	Sediment	Stabilized
12	Kabrich Open Space	Sediment	Stabilized
13	Clay St Water Tank	Sediment	Stabilized
14	Wong Park	Sediment	Stabilized
15	Oddfellows Hall	Sediment	Stabilized
16	African American Cemetery	Sediment	Stabilized
17	Cooks Clean Center	Sediment	Stabilized
18	Progress Street Parking Lot	Sediment	Stabilized
19	Dickerson Estates Park	Sediment	Forested
20	DOWNTOWN FIRE & RESCUE	Sediment	Stabilized
21	Knob Hill Open Space	Sediment	Stabilized
22	Price House	Sediment	Stabilized
23	Church Street Parking Lot	Sediment	Stabilized
24	Clay Street Spring Park	Sediment	Stabilized & Forested
25	The Armory Building	Sediment	Stabilized
26	Farmers Market	Sediment	Stabilized
27	Black House and Thomas Conner	Sediment	Stabilized
28	Municipal Building	Sediment	Stabilized
29	Blacksburg Motor Company	Sediment	Stabilized
30	Municipal Golf Course	Sediment	Stabilized
31	Huckleberry Trail	Sediment	Stabilized
32	Oak Manor Well House	Sediment	Stabilized
33	Highland Park Pump Station	Sediment and Bacteria	Stabilized. No bacterial contributions.

	Site	Pollutant(s) of Concern	Site Condition
34	Graves Open Space	Sediment	Stabilized
35	Crestview Water Tank and Park	Sediment and Bacteria	Stabilized. No bacterial contributions.
36	Sheffield Open Space	Sediment	Stabilized
37	Hardie Hills Open Space	Sediment and Bacteria	Stabilized. No bacterial contributions.
38	Kipps Ball Fields	Sediment	Stabilized
39	Landsdowne Open Space	Sediment and Bacteria	Stabilized. No bacterial contributions.
40	Downtown Police Station	Sediment	Stabilized
41	Nellies Cave Park	Sediment and Bacteria	Stabilized. No bacterial contributions.
42	Dehart Open Space	Sediment	Stabilized
43	Gardenspring Open space	Sediment	Stabilized
44	Hubbard Street Fire Station	Sediment and Bacteria	Stabilized. No bacterial contributions.
45	Tall Oaks Pump Station	Sediment	Stabilized
46	Cedar Run Open Space	Sediment and Bacteria	Stabilized. No bacterial contributions.
47	CRC PH II Pump Station	Sediment	Stabilized
48	Cedar Hill Park	Sediment and Bacteria	Stabilized. No bacterial contributions.
49	Cedar Run Pump Station	Sediment and Bacteria	Stabilized. No bacterial contributions.
50	Public Works Complex	Sediment and Bacteria	Stabilized. No bacterial contributions.
51	Cedar Run Springs and Open Space	Sediment	Stabilized
52	Cedar Run Open Space	Sediment and Bacteria	Stabilized. No bacterial contributions.
53	CRC PH I Pump Station	Sediment	Stabilized
54	Blacksburg Transit	Sediment and Bacteria	Stabilized. No bacterial contributions.
55	South Point Park	Sediment	Stabilized
56	Hospital Pump Station	Sediment	Stabilized
57	Industrial Park Pump Station	Sediment and Bacteria	Stabilized. No bacterial contributions.
58	Westview Cemetery	Sediment	Stabilized
59	Progress Street Parking Lot Ext	Sediment	Stabilized
60	Cooks Clean Center Building	Sediment	Stabilized

8.0 Action Plan Development Process

8.1 Required Reductions

To most accurately represent the TMDL required reductions, a multi-phased analysis was completed. This process is the first iteration of this estimate for the required reductions. Should additional or more correct information present itself, the Town will re-work these estimates in an iterative manner to achieve better information.

Below the process of analysis of data is described to identify how the required reductions were identified. *This process was performed for the sediment and bacteria TMDLs only; the PCB load is referenced directly from the waste load allocation provided to the Town of Blacksburg in the TMDL document. At this time, the Town does not have land use correlations with the PCB load; all load associations are to **existing and legacy** sources.*



Estimation of Current Pollutant Loads

1. Identify the “Urbanized Area” within the Town of Blacksburg jurisdictional limits. Not all of the Town is contained inside the regulated urbanized area. Using the ArcGIS program, the areas within the Town that are not within an urbanized area were removed from the analysis dataset. See this map in Appendix A-1, Town of Blacksburg Urbanized Area.
2. Exclude urbanized areas in watersheds where no TMDL study has been completed. The Town has one watershed, Toms Creek, which does not have an approved TMDL study. This watershed area has been removed from the dataset to be analysed. See map in Appendix A-2, Urbanized Areas within TMDL watersheds.
3. Remove areas within the Town that are covered under another MS4 permit. There are a few areas within the Town contained within the Virginia Tech MS4 permit (VAR040049) and VDOTs MS4 permit (VAR040016). The areas within Virginia Tech’s permit were easily removed from the dataset as they correspond to the land owned by Virginia Tech. The areas within the VDOT limited access rights of way were also removed from the dataset to represent the area regulated by the VDOT permit. See this map in Appendix A-3, Town of Blacksburg Other MS4 Areas.
4. Evaluate the land use within the regulatory MS4 areas. The 2013 land use has been evaluated only within the areas that are shown to be in the watersheds with TMDL allocations and that are not covered by other MS4 jurisdictions. This dataset will be used to evaluate the loadings associated with the Town’s MS4 areas for each watershed and each pollutant of concern. See this map in Appendix A-4, 2013 Land Use for the Town of Blacksburg MS4 Regulated Area.
5. Evaluate the hydrologic soil group for each soil type in the regulated areas. Each soil type has a hydrologics soil group (HSG) value A, B, C or D. All values within the regulated area are identified. This is broken down by watershed to facilitate input into the Watershed Treatment Model.
6. Input land use and soils data into the Watershed Treatment Model (2013) for analysis. The Watershed Treatment Model accepts data such as land use, soil percentage (by watershed), asphalt/concrete, buildings, and gravel). The following land use categories were grouped into the forest/open space category (light brush/dirt/mulch, light forest/tree canopy, brush/bush,

and dense forest). The lawn category was reclassified as managed turf. See this map in Appendix A-5, Conversion of Land Use Designations to Land Cover Categories.

7. Review the Roanoke River estimated sediment loads from the WTM and compare with TMDL loads. The watershed treatment model resulted in the following estimated loads in the Town's TMDL watersheds. The Roanoke River TMDL for sediment did not estimate an initial sediment load for the Blacksburg MS4 area, only a reduction requirement. This exercise will use the Watershed Treatment Model loading estimate as the existing load and the WLA as the future goal. This will identify the estimated reduction required under today's conditions. For sediment, a conversion of pounds per year (lb/yr) to tons per year (tons/yr) was required to make this comparison.

Sediment Load	WTM (tons/yr)	WLA (tons/yr)	Reduction Required
Wilson Creek and Roanoke River (RU07, RU06)	191.7	82.8	57%

8. Review the Stroubles Creek estimated sediment loads from the WTM and compare with TMDL loads. The Stroubles Creek TMDL for sediment did not calculate the waste load allocation (WLA) for the Blacksburg MS4 area, only a composite allocation for the three MS4 permits in existence at the time. This exercise applied the reduction percentage that was necessary to meet the composite WLA to the estimated current day loading for the Blacksburg area.

Sediment Load	WTM (tons/yr)	WLA (tons/yr)	Reduction Required
Stroubles Creek (NE59)	375.7	187.85	50%

9. Review the estimated bacterial loads from the WTM and compare with TMDL loads. The bacteria estimate units used in the TMDL is measuring E.coli. while the WTM model uses fecal coliforms. Converting between the two have multiple challenges, we used the WTM number for our planning purposed and the percent reduction outlined in the TMDL to estimate the WLA of bacteria in fecal coliforms.

Stream Name	WTM (billions/yr) (fecal coliform)	WLA (cfu/yr) (E.coli)	Reduction Required
Wilson Creek and Roanoke River (RU07, RU06)	438047.3	3.15 E+09	99.5%

10. BMP Implementation Planning. The next step in the Action Plan process is to identify the benchmark time period to make the required reductions and plan the necessary improvement to complete the efforts in that time period.

8.2 Benchmark Time Period Establishment

In this initial phase of the Blacksburg TMDL Action Plan, the time period established to attain water quality goal in 4 permit cycles. This will provide for an appropriate planning period, and three additional cycles to begin an iterative implementation of the water quality improvement. This will allow sufficient time for the Town of Blacksburg to evaluate the plan, implement water quality improvements and evaluate their effectiveness.

Permit Cycle	Years	Goals and Objectives	Percent Reduction
#1	(2013 – 2018)	Planning and Scoping	0%
#2	(2018 – 2023)	Implementation of BMPs	25%
#3	(2023 – 2018)	Evaluation and Implementation	50%
#4	(2028 – 2033)	Final Evaluation and Implementation	100%

8.3 Calculating Reductions for the Permit Cycle

The planning and scoping for the TMDL Action plan has begun and will continue for this permit cycle. This will include a more detailed analysis of the improvements in water quality that are being achieved by the existing stormwater facilities. In this document an estimate of the water quality improvements from existing facilities has been performed for initial planning purposes, but better information regarding the specific facilities and the upstream drainage areas will be provided.

Due to the age of the TMDL study performed on the Stroubles Creek Watershed (2003), all existing stormwater quality BMPs are considered to be installed after the assessment of the watershed was done. Neither the State nor the Town of Blacksburg enforced the installation of water quality BMPs until 2004 and 2008 respectively, therefore these facilities did not exist during the time of the TMDL study on Stroubles Creek. Additionally, there are no known water quality facilities that were installed prior to the TMDL report year.

Due to the age of the TMDL study performed on the Roanoke River Watershed (2006), all existing stormwater quality BMPs are considered to be installed after the assessment of the watershed was done. Neither the State nor the Town of Blacksburg enforced the installation of water quality BMPs until 2004 and 2008 respectively, and there are no known water quality facilities that were installed prior to the 2006 in the Roanoke River watershed. If there are BMPs that are discovered to have been installed prior to 2006 in this watershed, they will be identified and evaluated to how best to assess their effectiveness.

The Reductions for the BMPs installed after the TMDL establishment will be calculated utilizing the Table 7-1 which estimates the efficiencies for each BMP. This table may be updated if more information becomes available.

9.0 Implementation Actions

Due to the complexity of the land uses in the Stroubles Creek and Roanoke River watersheds, implementation action necessary to reduce the sediment and bacterial loads have been identified through a review of the land use and source data and other pollutant delivery mechanisms. An analysis

of those actions and control measures that are appropriate for the geography, topography and demographics of this region was also incorporated into the selection of the actions selected. Described in the sections below are the:

- Selection and quantification of appropriate implementation actions to reduce sediment and bacteria loading.
- Steps needed toward meeting water quality standards.
- Associated costs and benefits associated with the implementation of the BMPs.

9.1 Public Education & Outreach Practices and Employee Training Practices

The proposed public education and outreach practices are intended to control sediment and bacteria to address the TMDL POCs in the Stroubles Creek and Roanoke River watersheds. Upon annual evaluation and review, additional programs may be added or revised to further address sediment and bacteria in the TMDL areas.

The Town of Blacksburg will enhance its public education and outreach and employee training programs to also promote methods to eliminate and reduce discharges of the pollutants identified in the WLA. Examples of these public education and outreach practices include:

- Storm drain marking programs.
- Town demonstration projects enhancement and tours.
- Grease program education and enforcement.
- Illicit discharge education.
- Town stormwater webpage enhancement.

Examples of the employee training practices include:

- Erosion and Sediment Control training for all appropriate staff.
- Spill response for emergency services staff.
- Fertilizer, pesticide and landscape materials training for all applicator staff.
- Enhancing written operation and maintenance procedures for town facility operations.
- Biennial training of O&M procedures.

9.2 Control Measures and Management Practices

The proposed control measures and management practices intended to control sediment and bacteria were identified through multiple sources. Appropriate control measures are those that will reduce pollutants while functioning in this mountainous geographical region and efforts that are consistent with the particular demographic of the Blacksburg area. Quantifiable control measures proposed are listed in table 7-1 along with the sediment and bacteria efficiencies associated with each measure.

Table 7-1: Best Management Practices for Treatment of Sediment and Bacteria in the Town of Blacksburg			
Source Category	Action Description	Sediment	Bacteria
Pet Waste	Pet Waste Education Campaign	n/a	25
	Pet Waste Station	n/a	-
Sanitary Sewer	No Overflow Campaign	n/a	tbd

	Review of the I/I Program	n/a	tbd
Stormwater	Permeable Pavement	90	n/a
	Infiltration Trench	75	90
	Bioretention	70	90
	Vegetated Swale	65	0
	Constructed Wetland	50	80
	Manufactured BMP	80	80
	Wet Pond	50	70
	Detention Pond	50	30
	Extended Detention	tbd	30
	Riparian Buffer (forested)	70	57
	Riparian Buffer (grassed)	50	50
	Rooftop Disconnection	tbd	n/a
	Soil Amendments	tbd	n/a
	Wet Swale	tbd	70
Stream and Watercourse	Stream Restoration	310 lbs/ft/year	n/a
	Stream Bank Protection	50	n/a
Roadway & Urban Landscape	Street Sweeping	Variable	n/a
	Impervious Land Use Conversion	Variable	n/a

The BMP pollutant reduction efficiency values reported in Table 5-1 are averages and are subject to revision based on actual conditions present at the sites where each BMP is implemented. This is a planning level document and more accurate reduction efficiencies would be dependent on site conditions, BMP design and implementation. Additional information pertaining to stormwater BMPs can be found on the Virginia Stormwater BMP Clearinghouse and the Virginia Stormwater Management Handbook websites.

Table 7-2: Best Management Practices for Treatment of Polychlorinated Biphenyls in Blacksburg		
Source Category	Action Description	PCBs
Stormwater	Continue to address illicit discharges in conformance with the Illicit Discharge Ordinance.	tbd
	Identify areas near legacy sources where erosion and sediment control can minimize input of PCBs into stormwater runoff.	tbd
	Support a Household Hazardous Waste disposal to minimize the illicit dumping of old paints and sealants.	tbd
	Support electronics collections to prevent the illicit dumping of household electronics.	tbd
Construction	Incorporate hydraulic fluid containment on construction sites into current SWPPP inspections.	tbd
Legacy Source Identification	Review old aerial photography and interview citizens to gather institutional knowledge of unpermitted landfills.	tbd
	Coordinate with AEP and Virginia Tech Electric to Identify and Track the replacement of transformers that have high PCB concentrations.	tbd
	Identify areas where improper disposal of hydraulic fluids or other old equipment with PCBs have occurred and coordinate cleanup efforts.	tbd
	Identify areas associated with historic railyard use that could be sources for legacy PCBs.	tbd

	Identify any areas where old plastics, sealants or paints could be a source for PCB contribution.	tbd
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Some BMPs identified during the IP development process could not be quantified for various reasons. A continual effort to streamline these efficiencies and update the table with any new information will be performed on an annual basis.

9.3 Legal Authorities, Permits, Contracts and Interjurisdictional Agreements

Ordinances

Currently the existing Erosion and Sediment Control ordinance (*Town Code: Article II, Section 10-200*) addresses the discharge of sediment during construction while the Stormwater Management Ordinance (*Town Code: Division 8, Section 5-800*) addresses the discharge of sediment during the post development phase of new construction. In addition, the Illicit Discharge Ordinance (*Town Code: Section 18-624*) prohibits the discharge any materials or item other than stormwater to the storm sewer system.

The Erosion and Sediment Control ordinance is consistent with State regulations and applies erosion control measures for all land disturbances. A erosion control plan is required for any project that disturbs 10,000 square feet or more.

The Stormwater Management ordinance is consistent with State regulation and applies permanent water quantity and quality measures for all new development that disturbs 5,000 square feet or more, with the exception of linear projects and single family residences.

The Illicit discharge ordinance prohibits the following:

1. To cause or allow any illicit discharges, including but not limited to the discharge of sewage, industrial wastes or other wastes, into the storm sewer system, or any component thereof, or onto driveways, sidewalks, parking lots, or any other areas draining to the storm sewer system.
2. Connect, or allow to be connected, any sanitary sewer to the storm sewer system, including any unauthorized sanitary sewer connection to the storm sewer system as of the date of the adoption of this article.
3. Discharge any materials or item other than stormwater to the storm sewer system by spill, dumping, or disposal of any type without a valid federal and/or state permit or unless otherwise authorized by law.
4. Throw, place, or deposit or cause to be thrown, placed, or deposited in the storm sewer system anything that impedes or interferes with the free flow of stormwater therein.

A review of all ordinances will be continues as a part of this process to identify if there are any changes to state code or recommended language that can aid in the reduction of the pollutants of concern.

Permits

Currently no other permits (except the MS4 Permit #VAR040019 and any active VAR10 permits) are held by the Town. Should any new permits be initiated that would be applicable to reducing the pollutants listed in the WLAs, this document will be updated.

Orders

Currently the Town of Blacksburg is not a party to any orders at this time.

Contracts or Interjurisdictional Agreements

Currently the Town has not entered into any contracts or interjurisdictional agreements that would be applicable to reducing the pollutants of concern identified in the TMDLs.

9.4 Steps Needed to Meet Water Quality Standards

The process of improving the water quality with the above-mentioned actions will time, effort and significant outreach to the community. The steps that are anticipated at this time to meet water quality standards are outlined below.

1. Approval of the TMDL Action Plan by DEQ.
2. Implementation of Outreach Programs and structural BMPs in accordance with the milestones set forth in the Action Plan.
3. Assessment of the effectiveness of the implemented BMPs and programs using metrics to determine compliance with the TMDL.
4. If a method is determined to be insufficient to meet the goals set forth, then a modification request will be made to update the Action Plan with a measure is intended to be more effective in meeting water quality standards.

9.5 Associated Costs

The costs for the control measures listed below are derived from many sources. Table 8-1 shows the cost of each BMP per acres treated, as well as the source of the cost estimate. These costs are primarily for construction and installation and they do not address the long term maintenance costs for these systems. Long term maintenance costs are something that the Town will continue to research so we may plan appropriately for not only the installation, but for the effective maintenance of these facilities. If new information is discovered that is determined to be more accurate that what is presented below, the table will be revised accordingly.

No costs have been estimated for the PCB reduction best management practices. Current literature review did not result in any known costs for PCB BMPs.

Table 7-3(a): Estimated Costs for BMPs Reducing Sediment and Bacteria within the Town of Blacksburg

BMP Type	BMP	Cost	Reference
Pet Waste	Pet Waste Education Campaign	\$ 5,000	1
	Pet Waste Station	\$ 4,070	2
Sanitary Sewer	No Overflow Campaign	\$ 5,000	1
	Review of the I/I Program	Unknown	TBD

Stormwater	Permeable Pavement	\$ 240,000	3
	Infiltration Trench	\$ 6,000	4
	Bioretention	\$ 10,000	5
	Vegetated Swale	\$ 18,150	6
	Constructed Wetland	\$ 2,900	6
	Manufactured BMP	\$ 20,000	7
	Wet Pond	\$ 8,350	6
	Detention Pond	\$ 3,800	6
	Extended Detention	Unknown	TBD
	Riparian Buffer (forested)	\$ 3,500	8
	Riparian Buffer (grassed)	\$360	5
	Rooftop Disconnection	Unknown	TBD
	Soil Amendments	Unknown	TBD
	Wet Swale	Unknown	TBD
Stream and Watercourse	Stream Restoration	\$ 300 per linear ft	Local Projects
	Stream Bank Protection	\$150 per linear ft	TBD
Roadway & Urban Landscape	Street Sweeping	\$ 520 per curb ml	9
	Impervious Land Use Conversion	Unknown	TBD

Table 7-3(b): Estimated Costs for BMPs Reducing PCB Inputs within the Town of Blacksburg

Source Category	Action Description	Cost
Stormwater	Continue to address illicit discharges in conformance with the Illicit Discharge Ordinance.	none
	Identify areas near legacy sources where erosion and sediment control can minimize input of PCBs into stormwater runoff.	none
	Support a Household Hazardous Waste disposal to minimize the illicit dumping of old paints and sealants.	none
	Support electronics collections to prevent the illicit dumping of household electronics.	none
Construction	Incorporate hydraulic fluid containment on construction sites into current SWPPP inspections.	none
Legacy Source Identification	Review old aerial photography and interview citizens to gather institutional knowledge of unpermitted landfills.	unknown
	Coordinate with AEP and Virginia Tech Electric to Identify and Track the replacement of transformers that have high PCB concentrations.	none
	Identify areas where improper disposal of hydraulic fluids or other old equipment with PCBs have occurred and coordinate cleanup efforts.	unknown
	Identify areas associated with historic railyard use that could be sources for legacy PCBs.	unknown
	Identify any areas where old plastics, sealants or paints could be a source for PCB contribution.	unknown

Cost Estimation References

1. VADEQ. 2013. Three Creek, Mill Swamp, and Darden Mill Run Watersheds TMDL Implementation Plan
2. Technical Report.
3. James River Association. 2013. Linking Local TMDLs to the Chesapeake Bay TMDL in the James River Basin. Prepared by The Center for Watershed Protection. Available at:
<http://www.jamesriverassociation.org/what-we-do/LinkingLocalTMDLstotheBayTMDL.pdf>
4. King, D., and P. Hagan. 2011. Costs of Stormwater Management Practices in Maryland Counties. Prepared for Maryland Department of the Environment. Available at:
http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Documents/King_Hagan_Stormwater%20Cost%20Report%20to%20MDE_Final%20Draft_12Oct2011.pdf
5. VADEQ. 2011. Bacterial Implementation Plan Development for the James River and Tributaries – City of Richmond Technical Report.
6. VADCR. 2006. Water Quality Implementation Plan for Blacks Run and Cooks Creek (Fecal Coliform and Aquatic Life TMDLs).
7. Schueler, T., D. Hirschmann, M. Novotney, and J. Zielinski. 2007. Urban Stormwater Retrofit Practices Version 1.0. Urban Watershed Restoration Manual No. 3, Center for Watershed Protection. Prepared for U.S. Environmental Protection Agency.
8. VADCR. 2013. Spout Run Water Quality Improvement Plan.
9. Rivanna River Basin Commission. 2012. Moores Creek Bacteria Implementation Plan 2012 Update.
10. Schilling, J.G. 2005. Street Sweeping – Report No. 1, State of the Practice. Prepared for Ramsey-Washington Metro Watershed District (<http://www.rwmwd.org>). North St. Paul, Minnesota. June 2005.

10.0 Measurable Goals and Milestones for Attaining Water Quality Standards

The ultimate goal of this implementation plan is to bring Stroubles Creek and the Roanoke River into compliance with water quality standards, which will result in its removal from the 303(d) list of impaired waters. Progress towards this goal will be measured by improvement in the Stream Condition Index based on biological monitoring, but milestones along the way will include both water quality measurements and the implementation of best management practices.

The major goal to bring Stroubles Creek and the Roanoke River into compliance is broken down into the following sub-goals and objectives. These address the watershed issues outlined in the previous sections of this report:

10.1 Implementation Schedule for Stroubles Creek Sediment POC

TMDL Action Plan Implementation Schedule for Stroubles Creek (Sediment)			
	<i>Existing Load</i>	<i>Reduction</i>	<i>Final Load</i>
<i>Permit Cycle #1</i>	375.7 tons/yr		
Outreach Campaign		TBD	375.7 (0%)
<i>Permit Cycle #2</i>			
Street Sweeping Practices		90 tons/yr	285.7 (25%)
<i>Permit Cycle #3</i>			
Permeable Pavement		90%	
Infiltration Trench		75%	
Bioretention		70%	
Vegetated Swale		65%	
Constructed Wetland		50%	
Manufactured BMP		80%	
Wet Pond		50%	
Detention Pond		50%	
Extended Detention		TBD	
Riparian Buffer (forested)		70%	
Riparian Buffer (grassed)		50%	
Stream Restoration		310 lbs/ft/year	
Stream Bank Protection		50	
			235.7 (50%)
<i>Permit Cycle #4</i>			
Permeable Pavement		90%	
Infiltration Trench		75%	
Bioretention		70%	
Vegetated Swale		65%	
Constructed Wetland		50%	
Manufactured BMP		80%	
Wet Pond		50%	
Detention Pond		50%	
Extended Detention		TBD	
Riparian Buffer (forested)		70%	
Riparian Buffer (grassed)		50%	
Stream Restoration		310 lbs/ft/year	
Stream Bank Protection		50	
			185.7 (100%)

10.2 Implementation Schedule for Roanoke River Sediment POC

TMDL Action Plan Implementation Schedule for Roanoke River & Wilson Creek (Sediment)			
	<i>Existing Load</i>	<i>Reduction</i>	<i>Final Load (ton/yr)</i>
<i>Permit Cycle #1</i>	191.7 tons/yr		
Outreach Campaign		TBD	
			191.7 (0%)
<i>Permit Cycle #2</i>			
Street Sweeping Practices		90 tons/yr	163.7 (25%)
<i>Permit Cycle #3</i>			
Permeable Pavement		90%	
Infiltration Trench		75%	
Bioretention		70%	
Vegetated Swale		65%	
Constructed Wetland		50%	
Manufactured BMP		80%	
Wet Pond		50%	
Detention Pond		50%	
Extended Detention		TBD	
Riparian Buffer (forested)		70%	
Riparian Buffer (grassed)		50%	
Stream Restoration		310 lbs/ft/year	
Stream Bank Protection		50	
			135.7 (25%)
<i>Permit Cycle #4</i>			
Permeable Pavement		90%	
Infiltration Trench		75%	
Bioretention		70%	
Vegetated Swale		65%	
Constructed Wetland		50%	
Manufactured BMP		80%	
Wet Pond		50%	
Detention Pond		50%	
Extended Detention		TBD	
Riparian Buffer (forested)		70%	
Riparian Buffer (grassed)		50%	
Stream Restoration		310 lbs/ft/year	
Stream Bank Protection		50	
			79.7 (100%)

10.3 Implementation Schedule for Wilson Creek Bacteria POC

TMDL Action Plan Implementation Schedule for Wilson Creek (Bacteria)			
	<i>Existing Load</i>	<i>Reduction</i>	<i>Final Load (cfu)</i>
<i>Permit Cycle #1</i>	5.36E+12		
Pet Waste Outreach Campaign		25%	
			4.02E+12 (25%)
<i>Permit Cycle #2</i>			
No Overflow Campaign		TBD	
Review of the I/I Program		TBD	
			2.68E+12 (50%)
<i>Permit Cycle #3</i>			
Infiltration Trench		90%	
Bioretention		90%	
Constructed Wetland		80%	
Manufactured BMP		80%	
Wet Pond		70%	
Detention Pond		30%	
Extended Detention		30%	
Riparian Buffer (forested)		57%	
Riparian Buffer (grassed)		50%	
			1.34E+12 (75%)
<i>Permit Cycle #4</i>			
Infiltration Trench		90%	
Bioretention		90%	
Constructed Wetland		80%	
Manufactured BMP		80%	
Wet Pond		70%	
Detention Pond		30%	
Extended Detention		30%	
Riparian Buffer (forested)		57%	
Riparian Buffer (grassed)		50%	
Riparian Buffer (forested)		70%	
Riparian Buffer (grassed)		50%	
			0 (100%)

11.0 Assessment Methods for Determining Effectiveness

The TMDL Action Plan has been developed using the Watershed Treatment Model to estimate the pollutant input into the system and the effectiveness of the proposed BMPs. Since both structural and non-structural BMPs are used in this Action Plan, demonstration of adequate progress will be achieved through reporting of BMP implementation and its input into the Watershed Treatment Model.

Additional resources for assessment may be incorporated into this Action Plan if it is determined to provide a more accurate reflection of the system. Examples of other resources for assessment are: Chesapeake Bay TMDL Action Plan and other Nutrient and Sediment TMDLs, the Environmental and Water Resource Institute's 2014 Pathogens in Urban Stormwater Report, or other recommendations and studies that have been used to identify treatment approaches and assessment actions.

12.0 Potential Funding Sources

The stormwater BMPs listed in this document can be incorporated into the design of both public and private properties. Many BMPs vary in size and complexity and can be utilized on sites both small and large.

Potential funding sources available for the implementation of the proposed control measures and practices were identified during development of this Action plan. Funding options vary in applicability to specific watershed conditions, including pollutant sources and land uses, as well as the potential project sponsor(s). A brief description of the programs and their requirements include, but are not limited to, those described below.

Federal Clean Water Act Section 319 Incremental Funds – Through Section 319 of the Federal Clean Water Act, Virginia is awarded grant funds to implement TMDLs. Stakeholder organizations can apply, on a competitive basis through a Request for Proposals process administered by VADEQ, for 319 grants to implement BMPs and educational components included in a TMDL IP.

United States Fish and Wildlife Service (USFWS) – The Fish and Wildlife Service administers a variety of natural resource assistance grants to governmental, public and private organizations, groups and individuals. Natural resource assistance grants are available to state agencies, local governments, conservation organizations, and private individuals.

Virginia Agricultural Best Management Practices Tax Credit Program – For all taxable years, any individual or corporation engaged in agricultural production for market, who has in place a soil conservation plan approved by the local SWCD, is allowed a credit against the tax imposed by Section 58.1-320 of an amount equaling 25% of the first \$70,000 expended for agricultural best management practices by the individual. Any practice approved by the local SWCD Board must be completed within the taxable year in which the credit is claimed. The credit is only allowed for expenditures made by the taxpayer from funds of his/her own sources. The amount of the credit cannot exceed \$17,500 or the total amount of the tax imposed by this program (whichever is less) in the year the project was completed. If the amount of the credit exceeds the taxpayer's liability for such taxable year, the excess may be carried over for credit against income taxes in the next five taxable years until the total amount of the tax credit has been taken. It is also approved for use in supplementing the cost of repairs to streamside fencing. Details concerning eligible BMPs and other program details are available at: http://www.dcr.virginia.gov/soil_and_water/costshar.shtml#tools and <http://dswcapps.dcr.virginia.gov/htdocs/agbmpman/csmanual.pdf>.

Virginia Clean Water Revolving Loan Fund – EPA awards grants to states to capitalize their Clean Water State Revolving Funds (CWSRFs). The states, through the CWSRF, make loans for high-priority water quality activities. As loan recipients make payments back into the fund, money is available for new loans to be issued to other recipients. Eligible projects include point source, nonpoint source and estuary protection projects. Point source projects typically include building wastewater treatment facilities, combined sewer overflow and sanitary sewer overflow correction, urban stormwater control, and water quality aspects of landfill projects. Nonpoint source projects include agricultural, silvicultural, rural, and some urban runoff control; on-site wastewater disposal systems (septic tanks); land conservation and

riparian buffers; leaking underground storage tank remediation, etc. Additional information is available at: http://water.epa.gov/grants_funding/cwsrf/cwsrf_index.cfm.

Urban and Community Forestry Assistance Program (U&CF) – Funds for U&CF Program are provided by the USDA Forest Service and are administered by the Virginia Department of Forestry. The U&CF Program is designed to encourage projects that promote tree planting, the care of trees, the protection and enhancement of urban and community forest ecosystems, and education on tree issues in cities, towns and communities across the nation. Grants may be awarded to state agencies, local and regional units of government, approved non-profit organizations, neighborhood associations, civic groups, public educational institutions (college level) or community tree volunteer groups for proposals which meet some, or all, of the specific program objectives. Non-governmental organizations must be designated a 501-c-3 non-profit organization or submit their application through such an organization or a government entity. The typical proposal is in the \$5,000 to \$10,000 range.

Virginia Stormwater Local Assistance Fund (SLAF) – SLAF funds stormwater projects including: (1) new stormwater best management practices, (2) stormwater BMP retrofits, (3) stream restoration, (4) low impact development projects, (5) buffer restorations, (6) pond retrofits, and (7) wetlands restoration. Eligible recipients are local governments, meaning any county, city, town, municipal corporation, authority, district, commission, or political subdivision created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth. The fund is administered by VADEQ.

Virginia Water Quality Improvement Fund – This is a permanent, non-reverting fund established by the Commonwealth of Virginia in order to assist local stakeholders in reducing point and nonpoint nutrient loads to surface waters. Eligible recipients include local governments, SWCDs, and individuals. Grants for point sources and nonpoint sources are administered through VADEQ. Most WQIF grants provide matching funds on a 50/50 cost-share basis. Additional information is available at:

<http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/WaterQualityImprovementFund.aspx>.

Appendix 1: Public Education and Outreach



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

OUTREACH ACTIVITY SUMMARY: Implementation of the Public Education and Outreach Plan 2016

The Town has developed a public education and outreach plan (PEOP) to coordinate all outreach efforts into one campaign. This plan has identified three high-priority issues that affect the Town of Blacksburg. Below are the results of the PEOP efforts for the reporting year 2016.

Homeowners & Families – 29,640/13,162 **(100%)**

Young Residents – 42,795/17,474 **(100%)**

Restaurant Employees – 300/300 **(100%)**

Activities with Outreach Components	Target Issue	Target Group	# Impacted
SC.D (Enhance the PEOP and Employee Training to Address Reducing WLAs)		Employees	-
Lawn and Garden Flyer (4/14/16)	Sediment	Homeowners & Families	3631
SC.E (Assess all Significant Sources of Pollutants from Municipal Facilities)	Bacteria & Sediment	Employees	-
BMP 1.A (Public Education and Outreach Plan) –			-
Municipal Engineering Class (1/25/16)	Sediment	Young Residents	45
Homebuilders Meeting (2/23/16)	Sediment	Homeowners & Families	32
Residential Illicit Discharge Flyer	Bacteria and Sediment	Young Residents	1250
Urban Affairs and Planning Class (3/30/16)	Bacteria and Sediment	Young Residents	20
Blacksburg Alert Mass Email (5/22/15)	Bacteria and Sediment	Homeowners & Families	-
BMP 1.B (Storm Drain Marking Program)	Oil and Grease, Bacteria & Sediment	Restaurant Employees Young Residents Homeowners & Families	300 40,000 25,500
BMP 1.C (Demonstration Projects Enh)	Bacteria & Sediment	Young Residents	25
BMP 1.D (HHHW)	Sediment	Homeowners & Families	292
BMP 1.E (Grease Program Enforcement)	Oil and Grease	Restaurant Employees	-
BMP 1.F (Illicit Discharge Education)	Oil and Grease Bacteria and Sediment	Restaurant Employees Homeowners & Families Young Residents	- - 1250
BMP 1.G (Town Stormwater Page Maintenance)	Oil and Grease, Bacteria & Sediment	Restaurant Employees Young Residents Homeowners & Families	- - -
BMP 2.A (Stakeholder Meetings)	Sediment	Homeowners & Families	23
BMP 2.B (TMDL Implementation Planning and Participation)	Oil and Grease, Bacteria & Sediment	Restaurant Employees Young Residents Homeowners & Families	- - 137
BMP 2.C (Participate and support stream clean-up efforts)	Oil and Grease, Bacteria & Sediment	Young Residents Homeowners & Families	- -
BMP 2.D (Posting of Program Plan and Annual Reports online)	Oil and Grease, Bacteria & Sediment	Restaurant Employees Young Residents Homeowners & Families	- - -
BMP 2.E (Outreach Event Participation)	Oil and Grease, Bacteria & Sediment	Restaurant Employees Young Residents Homeowners & Families	- 205 25

TMDL POC: Oil & Grease, Bacteria and Sediment

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The Public Education and Outreach Plan is an effective way to target specific goals to the target groups that have the most impact in the pollutants of concern.
- The current program effectively reached out to the Restaurant community and the Homeowners and Families, getting 100% of those target audiences.
- The current program has a variety of options and even though not all of the individual events were completed, the Town was successful in meeting target audiences. This type of program provides flexibility to the municipality and variation in the types of outreach that is offered each year. The goal is to keep citizens interested in listening to the message so that they are open and receptive to future messages.

Recommendation:

The Town should continue to provide a coordinated effort to provide a variety of stormwater outreach efforts that target different message groups and issues.



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

OUTREACH ACTIVITY SUMMARY: Student Storm Drain Marking 2016

The Big Event on April 9, 2016 gathers students to perform various outreach and educational activities. The Town recruited several groups of students to mark storm drains in areas designated as high traffic student areas. These areas may be apartment complexes, student recreational areas or public areas frequented by the student populace. These locations are entirely within the Town of Blacksburg and are not located on campus.

About this Event

This event was cancelled due to sub-zero temperatures. The storm drain marking mastic would not function at these temperatures and student safety was a concern.

Students Impacted: 0

Watershed: Stroubles Creek

TMDL POC: Sediment

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.



- The storm drain markings are a clear reminder that the inlets go directly to the stream and provide a disincentive to allow non-stormwater discharges.
- The walking areas in the student communities are heavy trafficked due to high volumes of students taking mass transit (bus service) to the university.
- Students who are engaged in water quality will advocate to friends and family.

Recommendation:

- A better understanding of the number of impacted students needs to be gained. A review of studies on similar impacts should be performed so that a better understanding of the estimated impact is attained.
- More student gathering areas should be marked to increase the percentage of the target group that is impacted by this BMP.
- Alternate days should be scheduled in case the Big Event is cancelled due to weather conditions.

Appendix 1.B (2): Town Forces Storm Drain Marking and Evaluation



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

OUTREACH ACTIVITY SUMMARY: Town Forces Storm Drain Marking 2016

Town staff also installed 250 storm drain markers in the public right of way in association with any storm drain structure inspection and maintenance. Below is a map of the areas targeted this year with the permanent storm drain markers.



About this Event

The locations marked by Town forces were highly trafficked areas along Patrick Henry Drive, Givens Lane, Prices Fork and the Downtown 16-Squares areas.

People Impacted: unknown, 250 markers were installed.

Watershed: Stroubles Creek and Roanoke River

TMDL POC: Sediment and Bacteria



Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The storm drain markings are a clear reminder that the inlets go directly to the stream and provide a disincentive to allow non-stormwater discharges.
- The public roads in this university community are heavy trafficked due to high volumes of citizens and students taking mass transit around town.
- A better way to estimate impact must be identified.

Recommendation:

- Continue to utilize markers as they are noticeable and durable. Choose a marker that will have a low replacement rate (less than 10% annually) once applied.
- Provide estimate for citizen impact. Currently there is no known correlation between markers provided and number of citizens impacted.



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

OUTREACH ACTIVITY SUMMARY: Tour of the Blacksburg Motor Company 2016

The Town Stormwater Engineer performed two tours of the Blacksburg Motor Company Site in this reporting period. One for a class of 25 on September 22, 2015 and another for a group of 10 from the Virginia Association for Zoning Officials on December 10, 2015. The Blacksburg Motor Company building was restored using Leadership in Energy and Environmental Design (LEED) principals, and the project team considered sustainability in every design and construction decision. As a result, the town has achieved a Platinum LEED certification (26kb pdf), the highest level achievable.

The building serves as the home to the Town of Blacksburg Planning and Building, and Engineering and GIS departments. In addition, the site and structure illustrate green building and low impact development techniques throughout.

Features of the LEED renovation include a geothermal heat pump, where the constant temperature of the earth reduces heating and cooling energy use; carpet made of 77% recycled material including reclaimed carpet; refurbished original tin ceilings; motion sensor lighting; and environmental site design including rain gardens, porous concrete, and native landscaping.



About this Event

This facility is used as an educational resource to show the community the benefits of environmental site design, historic preservation and stormwater management. These tours are provided upon request and are not initiated by the Town.

Students Impacted: 25

Watershed: Stroubles Creek

TMDL POC: Sediment

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The educational value of an applied use of environmental site design in a historic and aesthetic context is valuable to illustrate these concepts to the community and young student body.

Recommendation:

Continue to provide tours upon request.



Town of Blacksburg Engineering and GIS
Department

400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

OUTREACH ACTIVITY SUMMARY: Household Hazard Waste Events 2015

The Town of Blacksburg collaborates with Montgomery County and the Town of Christiansburg to provide a permanent Household Hazardous Waste facility that will accept residential waste on a monthly basis, on the 3rd Saturday of the month.

Acceptable Items at Monthly Collection Events

The following items are accepted at monthly collection events, with limitations of 75 pounds of solids and 5 gallons of liquids:

Cleaning Products	Insecticides
Bleach	Pesticides
Degreasers	Weed killers
Drain cleaners	Wood preservatives / fungicides
Oven cleaners	Aerosol cans
Pool chemicals	Gas / oil mixtures
Toilet cleaners	Home-heating oil
Tub / tile / shower cleaners	Kerosene
Wood and metal cleaners / polishes	Lighter fluid
Aerosol cans	Nail polish removers
Workshop / Painting Supplies	Propane tanks/cylinders (1 to 20 lbs)
Adhesives and glue	Air-conditioning refrigerants
Fixatives and other solvents	Antifreeze
Furniture strippers	Automotive batteries
Oil or enamel-based paint	Carburetor and fuel injector cleaners
Latex paint	Fuel additives
Paint strippers and removers	Gasoline / diesel fuel
Paint thinners and turpentine	Motor oil
Photographic chemicals	Starting fluids
Stains and finishes	Transmission and brake fluid
Indoor Pesticides	Light bulbs - Fluorescent and incandescent
Ant poisons	Metallic mercury
Cockroach poisons	Pool / spa chemicals
Flea repellants	Mercury-containing thermostats
Household insecticides	Mercury thermometers
Moth repellants	
Mouse and rat poisons	
Batteries	
Alkaline / Zinc Carbon Batteries	
Rechargeable Lithium Ion (Li-ion) batteries	
Rechargeable Nickel Cadmium (Ni-Cd) batteries	
Rechargeable Nickel Metal Hydride (Ni-MH) batteries	
Rechargeable, small-sealed lead acid batteries	
Lead acid automobile batteries	
Driveway Sealer	
Fertilizer	
Herbicides	

The following materials are not accepted at Montgomery Regional Solid Waste Authority residential HHW events:

Asbestos material – Contact us for disposal assistance
Biologically active or infectious material
Explosive material (including ammunition)
LPG/propane gas tanks larger than 20 lbs
Other large commercial compressed gas cylinders (ie oxygen, nitrogen, CO2)
Radioactive material
Prescription drug medications

About this Event

This facility is used as a resource to provide a safe and environmentally responsible way to dispose of common household hazardous wastes. Twelve events are held per year, once a month. This year, the December event was snowed out, so these totals are from eleven events. A total of 2795 gallons of fluids and 49 boxes of material were collected.

Family Target Group Impacted: 292* This is an estimate based on the the assumption that two residents were in each cars served and the percentage of total County residents that live in the Town of Blacksburg (45%).

Watershed: Stroubles Creek and Roanoke River

TMDL POC: Sediment and Bacteria

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The safe and environmentally responsible disposal of common household hazardous materials will reduce the occurrence of unlawful disposal of materials.
- The numbers of Towns person utilizing this service is low as compared to the total household population (2%). Increasing the usage of this service would improve illicit discharges and unlawful disposal of materials in landfills.

Recommendation:

- Continue to provide monthly household waste days.
- Incorporate advertisement of the household waste days into the Public Education and Outreach Campaign.

Appendix 1.E – Grease Program Enforcement Summary and Evaluation



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060
 (540) 961-1124

OUTREACH ACTIVITY SUMMARY: Grease Program Education 2016

The Town has identified gas station and food service businesses that use or generate grease and/or oils. The businesses are targeted for education and outreach concerning BMPs that address the storage, disposal, and spills annually. The Town also sends an annual reminder to all historic violators. The Town maintains a database of violations that is utilized in the geographical informational systems to track trends in the system.

About this Event

During this reporting year, a copy of the Stormwater Best Management Practices for Fuel Centers was sent out to the 22 fuel centers and auto repair shops in Blacksburg.

People Impacted: 22 establishments

Watershed: Stroubles Creek and Roanoke River

TMDL POC: Sediment and Bacteria

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- Fueling centers and auto repair shops regularly handle oil and grease. These facilities have a high risk for spillage and accidental discharges.
- This activity helps in the education of the employees of these facilities so that the numbers and impacts of oil and fuel spills are reduced.

Recommendation:

- Continue to provide education and enforcement for grease, oil and fuel.

Stormwater Runoff: Stormwater runoff occurs when rainwater flows over the surface of the ground until it finds its way to the streams through the storm drain system. Along the way, stormwater can accumulate pollutants that eventually hard the ocean.

Why do we have storm drains?
 The storm drain system helps to prevent flooding and erosion so roads and private property and businesses are safe when rainstorms occur.

Polluted Runoff: Why does it matter?
 Polluted runoff is the greatest threat to the health of Virginia's surface waters.

Protect Our Stormwater: Best Management Practices for Stormwater Pollution Prevention

Guide for Retail Gas Stations & Auto Maintenance Facilities

Town of Blacksburg
 400 S Main St.
 Blacksburg, VA 24060
 (540) 961-1124

Town of Blacksburg
 Be the Solution to the Creek Pollution

Town of Blacksburg
 Engineering and GIS Department (540) 961-1124

Town of Blacksburg
 Be the Solution to the Creek Pollution

www.blacksburg.gov/stormwater

How do gas stations and auto maintenance facilities cause stormwater pollution?

Auto maintenance and repair activities use petroleum products and hazardous substances in fueling and vehicle servicing. Fuel dispensing areas, trash bins, air/water supply areas, repair shops, and car washes can accumulate automotive fluids, grease, trash, and other harmful water pollutants. When it rains, stormwater runoff washes these contaminants into the storm drain system, which discharges untreated flows directly into our local waterways—the same stream where we fish, swim and play.

Any commercial, industrial, or construction business found discharging waste or wastewater into the storm drain system may be subject to fines up to \$32,000 per day.

Illegal Discharge: Any non-permitted disposal into the storm drain system for which a person does not have a permit.

What are Best Management Practices?

Best Management Practices also known as BMPs, are structures or procedures that prevent or reduce the amount of potential pollutants from reaching our local waters.

Simple Ways to Prevent Pollution:

- Designate an area away from storm drain inlets for replacing motor oil, coolant, and other fluids. Do not pour liquid wastes into floor drains, sinks or outdoor drains, sinks, or outdoor drains or sewer connections.
- Keep dumpster lids closed to prevent rainwater from entering them.
- Place used oil receptacles under cover to avoid exposure to rain and provide secondary containment to capture any leaks.
- Obtain a spill kit and dispose of used absorption materials properly.
- Create a Spill Response Team and train employees regularly.
- Dry sweep or use absorbent materials when cleaning spills; do not spray or hose down spills into the storm drain.
- Clearly label and securely store hazardous materials: cover products and stockpiled materials from the rain or store indoors.
- Minimize the use solvents, or use water-based solvents and phosphate-free detergents.
- Use secondary containment when storing batteries and hazardous liquids; keep liquid wastes segregated.
- Contain vehicle wash water onsite and



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060

Outreach Activity Summary and Evaluation: Illicit Discharge Education

This reporting period, the Town mailed out 1250 of the Stormwater Best Management Practices for Residential Neighborhoods flyer to young residences within the Town. Apartment complexes known to primarily serve this population sector were chosen for distribution.

People Impacted: 1250

Young Residents (1250)

Watershed(s): Stroubles Creek, Roanoke River, Toms Creek

TMDL POC: Sediment and Bacteria

Evaluation:

The Illicit Discharge for Residential Neighborhoods education is found to be an effective method of educating the young residents about illicit discharges.

Recommendations:

- It is recommended that the Town continue to send out a variety of information regarding illicit discharges to target audiences.

Home Auto Repair Best Management Practices

If you do your own auto or home equipment repairs use these proper practices for any oil, grease or fuel that may spill.

- Never wash this waste with water. Water will only channel the waste into the storm drain system and ultimately into the stream.
- Use cat litter to absorb any spills.
- Use a broom or a shop vac for excess litter debris cleanup.
- Save the debris in a safe container and discard on a Hazardous Waste Cleanup event.
- Be sure to recycle your used motor oil.

For Household Hazardous Waste drop off dates and times, please contact the Montgomery County Solid Waste Authority at (540) 381-2820 ext. 300.

MORE QUESTIONS?

Contact:
 The Town of Blacksburg
 Engineering and GIS Department
 400 S Main St.
 Blacksburg, VA 24062

Phone:
 (540) 961-1126

Email:
 stormwater@blacksburg.gov

Web:
www.blacksburg.gov/stormwater

Grease Discharges:
 James M. Higgins
 Water Resources Inspector
 (540) 961-1887
 jhiggins@blacksburg.gov

Suspected Illegal Dumping:
 David Darnell
 Code Inspector
 (540) 558-0716
 ddarnell@blacksburg.gov

Emergencies:
 Fire & Rescue Department
 Call 911

Blacksburg TOWN OF
a special place

Storm Water Best Management Practices for Residential Neighborhoods

TIPS FOR PREVENTING POLLUTION

What are Best Management Practices?

Best Management practices are the best way to prevent pollution when you are cleaning, doing yard work, or other outdoor activities you may do around the house.

Some Examples Are:

- Car Washing
- Handling Pet Waste
- Repair Work

Just to name a few.

Storm Drains flow directly to local waterways without treatment. To help protect our streams and rivers we have included a list of best management practices to limit pollution (grease, oils, chemicals, trash, food, etc.) from entering the storm drain system.

REMEMBER, PLEASE DO NOT DUMP INTO THE STORM DRAINS!

Pet Waste Best Management Practice Suggestions

- Be sure to pick up after your pet. Pet waste contains bacteria which can pollute waterways.
- Use a pooper scooper to clean your yard regularly.
- Be sure to dispose of pet waste bags with your household trash (don't flush in the toilet).
- When walking your dog check to make sure you have plenty of pet waste bags on hand.
- Don't allow your dog the opportunity to urinate or defecate in the creeks or streams.
- Take advantage of pet waste disposal stations at local parks and trails.
- Be a good example and educate your neighbors with these best management practices.

Automobile Washing Best Management Practices

- When washing your automobile try to avoid letting the wash water drain to the storm system.
- Wash vehicle on a flat grassy surface so the wash water infiltrates into the ground. Be sure to move your vehicle off the grass when you are finished.
- If you use a soapy bucket dispose of suds in a utility sink or any other sink connected to the sanitary sewer system.
- Create a berm or other type of containment system to allow wash water to evaporate.

Wash water, even without suds, can have a negative impact on the downstream water quality. The oils, grease, and fuels that wash off our vehicles will impair our waterways.

Appendix 1-G: Stormwater Webpage Summary and Evaluation



Town of Blacksburg Engineering and GIS
Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Outreach Activity Summary and Evaluation: Stormwater Webpage 2016

Stormwater related information is available on the Town's website for the general public at www.blacksburg.gov/stormwater. This webpage gives general information about stormwater, the MS4 program, the Town's stormwater utility and information regarding the Town's administration of the state VSMP permit.

There is a section regarding the MS4 permit which provides links to the Program Plan and all annual reports of this permit cycle. There is also a contact for questions and requests for copies of the Program Plan.

There is also a detailed section regarding the TMDLs for the watersheds within the Town's jurisdiction; there are four. At each title of the TMDL, a link has been provided to download the body of the TMDL document should a citizen want more information regarding the condition of the Town's streams.

Additionally, there are links to the Town's Erosion and Sediment Control webpage, the NFIP and floodplain development and information on the Town's wastewater system.

About this BMP

This webpage is used as an educational resource to show the community the challenges and benefits of stormwater management. It provides an email and phone number of the Town's Stormwater Engineer for questions or comments and provides information regarding the Town's MS4 program and policies.

People Impacted: Unknown

Watershed(s): Stroubles Creek, Roanoke River and Toms Creek

TMDL POC: Sediment and Bacteria

Evaluation:

The website has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- The website content is appropriate and consistent with the Town's water quality goals.
- The effectiveness cannot be evaluated at this time due to a lack of statistical information on the usage of the site.
- It is recommended that statistics be gathered regarding the website usage, at best on a page by page basis. Additionally, providing some correlation to the total usage and the target audiences will aid in the future evaluation of the effectiveness of this BMP.



Appendix 2: Public Involvement and Participation

Appendix 2-A: Stormwater Stakeholder Meetings Summary and Evaluation



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060

Public Participation Summary: Stormwater Stakeholder Meetings 2016

One of the many ways to increase public notice, involvement and participation in the Town’s stormwater program is to conduct Stakeholder Meetings for Watershed Management and Stormwater Quality Improvement. These meetings can be any interaction with citizens and other stakeholders that have the desire to understand and improve the stormwater conditions of the Town of Blacksburg.

Within the Town, many citizens are well aware of stormwater concerns as related to new development. Below is a list of community meetings for new development projects and other community meetings where stormwater issues and concerns were discussed. These comments were recorded by Town staff and are considered when the review of new development plans and the Town’s comprehensive stormwater planning is completed.

Community Meetings	8/24/2015	MS4 Designation Meeting	6
	5/11/2016	MS4 Coordination Meeting - Think Tank Challenge	6
	5/31/2016	MS4 Coordination Meeting - Quarterly Mtg	9
	3/1/2016	MS4 Coordination Meeting - Quarterly Mtg	2
	-	HOA Meetings - None	0
Total:			23

Additionally, other meetings with neighborhood groups or other stormwater professionals that allow input to be provided to Town officials are also listed below. All of these avenues of contact allow input and education to improve the stormwater program run by the Town of Blacksburg.

About this BMP

These meetings succeed in increasing public involvement and participation in the Town’s stormwater program. Participation and citizen support for stormwater measures increases citizen advocacy and provides for more successful stormwater program.

People Impacted: 23

Watershed(s): Stroubles Creek, Roanoke River and Toms Creek

TMDL POC: Sediment and Bacteria

Evaluation:

The stakeholder meetings have been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- The meeting topics are appropriate and consistent with the Town’s water quality goals.
- One on one contact increases the effectiveness since two-way interaction guarantees an active and not passive audience.
- The main challenge for these stakeholder meetings is the small amount of people that are impacted by these one-on-one opportunities.

Recommendations:

- It is recommended that the Town organize larger events that allow additional opportunities for interaction.

Appendix 2-B: TMDL Implementation Activities Summary and Evaluation



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060

Public Participation Summary: TMDL Implementation Activities

One of the many ways to increase public notice, involvement and participation in the Town’s local TMDLs and their Implementation plans is to attend Stakeholder Meetings so all pertinent information can be communicated to the community. These meetings are often initiated by the Department of Environmental Quality, and they provide many opportunities for interaction with citizens and other stakeholders that have the desire to improve the stormwater conditions of the Town of Blacksburg and meet the requirements of the TMDLs.

TMDL Implementation Planning and Participation (Events)		
<i>Date</i>	<i>Event</i>	<i>#</i>
5/17/16	Stroubles Creek Implementation Plan Quarterly Meeting	6
2/9/16	Stroubles Creek Implementation Plan Quarterly Meeting	6
12/8/15	Stroubles Creek Implementation Plan Quarterly Meeting	8
8/24/15	Stroubles Creek Implementation Plan Quarterly Meeting	10
8/5/15	Stroubles Creek Implementation Plan - Outreach Meeting	5
5/26/16	New River PCB TMDL Technical Advisory Committee	22
4/5/16	New River PCB TMDL – Community Informational Meeting	55
12/3/15	NF and SF Roanoke River Clean-up Plan: Working Group Meeting	10
7/29/15	NF and SF Roanoke River – Government Working Group Meeting	15
Total # of attendees		137

About this BMP

These meetings succeed in increasing public involvement and participation in the Town’s TMDL Implementation plans. Participation and citizen support for stormwater measures increases citizen advocacy and provides for more successful TMDL program.

People Impacted: 137

Watershed(s): Stroubles Creek, Roanoke River and Toms Creek, New River Basin

TMDL POC: Sediment, Bacteria & PCBs

Evaluation:

The TMDL meetings have been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- The meeting topics are appropriate and consistent with the Town’s water quality goals.
- One on one contact increases the effectiveness since two-way interaction guarantees an active and not passive audience.
- The main challenge for these stakeholder meetings is the small amount of people that are impacted by these one-on-one opportunities.

Recommendations:

- It is recommended that the Town provide its own TMDL meetings to support those initiated by DEQ. This may impact a greater number of target audience.

Appendix 2-C: Stream Clean-up Activities Summary and Evaluation

(There were no stream cleanup activities this reporting period.)

Appendix 2-D: Posting of the Towns Program Plan and Annual Report Summary and Evaluation



Town of Blacksburg Engineering and GIS
Department

400 South Main Street
Blacksburg, VA 24060

Public Participation Summary: Posting of the Program Plan and Annual Report 2016

About this BMP

One of the many ways to increase public notice, involvement and participation in the Town's local TMDLs and their Implementation plans is to post the MS4 Program Plan and Annual Reports on the stormwater webpage. This provides opportunity for citizens to review these materials and ask questions regarding the stormwater program. The goal is to post the most recent information by October 31 of each reporting year.

- The Program Plan for this permit cycle was posted on October 4, 2013.
- Year One Annual Report was posted on January 7, 2016.

People Impacted: unknown

Watershed(s): Stroubles Creek, Roanoke River and Toms Creek

TMDL POC: Sediment and Bacteria

Evaluation and Recommendation:

The posting of the Program Plan and Annual Report have been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- This is a requirement of the MS4 permit regulations and therefore it is appropriate and consistent with the Town's water quality goals.
- The effectiveness cannot be evaluated at this time due to a lack of statistical information on the usage of the site.
- It is recommended that statistics be gathered regarding the website usage, at best on a page by page basis. Additionally, providing some correlation to the total usage and the target audiences will aid in the future evaluation of the effectiveness of this BMP.
- Post MS4 Annual Report and TMDL Action Plan on website by Oct. 31, 2016.



Appendix 2-E: Outreach Event Participation Summary and Evaluation



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060

Public Participation Summary: 2016 Outreach Event Participation

About this BMP

The town will continue public outreach efforts by sponsoring or participating in at least four annual events. If additional events need to be added, these will be included in revisions to the Program Plan. Below are the events participated in this reporting period.

- "Steppin' Out" event (August 7th and 8th, 2015): A watershed informational booth is set up to engage the public on local water quality issues.
- Sustainability Fair Market Day Information Table (September 16, 2015): This event provides informational literature to educate citizens on a wide variety of issues including impacts of household wastes on storm water quality.
- The Big Event engages student volunteers from the local university to provide service efforts throughout Blacksburg. This reporting year the event was canceled due to extreme cold temperatures.



People Impacted: 230

Event	Target Audience	Number
Steppin' Out	Students	205
Sustainability	Homeowners	25
The Big Event	Students	0

Watershed(s): Stroubles Creek

TMDL POC: Sediment and Bacteria, Oil and Grease

Evaluation:

The Outreach Event Participation BMP has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- The participation in these events is appropriate and consistent with the Town's water quality goals.
- Participatory activities such as these raise awareness and result in behavioral change.
- The main challenge for these events is the small amount of people that are impacted by these one-on-one opportunities.

Recommendation:

- It is recommended that the Town collaborate with other localities to enhance outreach events and expand participation across the region.

Appendix 3: Illicit Discharge Detection and Elimination

Appendix 3-A: Storm Drain System Map Summary and Evaluation



**Town of Blacksburg Engineering and GIS
Department**
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Illicit Discharge and Detection Activity: Storm Drain System Map 2016

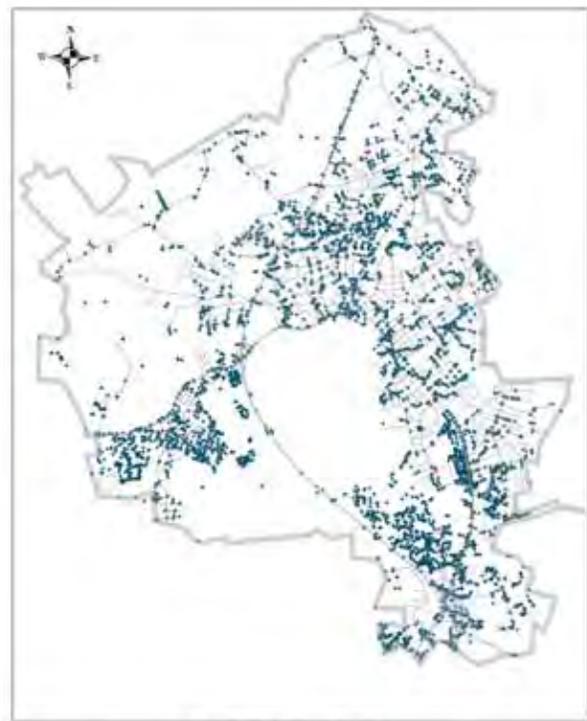
The Town has been working with the Virginia Tech Civil Engineering Department to inventory and update the storm sewer system within the Town, including stormwater management facilities.

About this Activity

During this reporting period, a total of 6,934 structures are recorded in our storm sewer drain GIS map. There have been no additional structures since last reporting year as many of the ongoing construction is not complete+. A total of 6921 channels are also included in the map this reporting year. The Town also mapped **4** new outfalls associated with new construction.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria & PCBs



Town of Blacksburg
Storm Drains Mapped as of the 2015-16 Reporting Period

Mapped Outfalls:

Outfall ID	MS4	Comment	lat	lon	Acreage	HUC	Watershed
183	Y	new; pipe size 24	-80.4523	37.2279	10.39	NE60	Toms Creek
184	Y	new; pipe size 24	-80.4458	37.2278	8.71	NE60	Toms Creek
185	Y	new; pipe size 30	-80.4490	37.2267	11.03	NE60	Toms Creek
186	Y	new; pipe size 18	-80.4168	37.2446	1.65	NE59	Stroubles Creek

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The informative value of a complete map of the storm sewer system is valuable in the discovery of illicit discharges, the understanding of the storm drain system and in the planning for future BMPs for TMDL Action Plan implementation.

Recommendation:

- Continue to GPS and update new storm water infrastructure and incorporate this information into the overall storm structure database.

Appendix 3-B: Illicit Discharge Protocol and Procedures



Town of Blacksburg Engineering and GIS Department

400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Illicit Discharge and Detection Activity: Illicit Discharge Protocol and Procedures 2016

During the previous permit cycle, the Town contracted Virginia Tech to perform an Illicit Discharge Potential (IDP) assessment and Outfall Reconnaissance Protocol using procedures from the departments recommended publication entitled "Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments," completed on April, 2008. With the identification of outfalls from the IDP, the ORI established data collection and water quality sampling protocol, along with a database for record keeping.

About this Activity

The Town has previously completed an Illicit Discharge which standardized the illicit discharge protocol and establishes a guideline for scheduling, identifying and eliminating illicit discharges. All illicit discharge scheduling, identification, elimination and enforcement has been in conformance with this protocol. Last reporting year, the Town screened 59 outfalls, which is 24% of the total number of outfalls.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- Providing for standard procedures for the scheduling, identification and elimination of illicit discharges provides a training protocol for staff and private businesses.
- A standard procedure for identification of common illicit discharges allows for a quicker turnaround between discovery and elimination and a standardized enforcement method provides a framework for better and more consistent enforcement of the illicit discharge program.

Recommendation:

- Continue to follow the Illicit Discharge Protocol in all inspections, identifications and eliminations of illicit discharge.
- Continue to provide information for identification of more types of illicit discharge as staff will need to be trained in additional types of illicit discharge.

2016 Results from Outfall Screening

Time	F	Material	OF_Shape	Type	Dim	LU_in_Area	Sub	Flow?	Flow_Vol	Flow_Descr	Illicit	Comments_1	RF_L_24hrs	RF_L_48hrs
1150	68				0				0			Upstream inlet is dry.	0.01	0.14
1147	68				0				0			Upstream inlet is dry.	0.01	0.14
1030	68	RCP	Circle	EndWall	18	Commercial	Yes	No	0		Yes	Shiny floating substance. Bacterial film.	0	0.01
1036	68	RCP	Circle	EndWall	18	Commercial	No	No	0				0	0.01
1043	68	RCP	Circle	Bridge	48	Commercial	Yes	Yes	0	Perennial	No		0	0.01
1547	75	CMP	Circle	Headwall	54	MF Res	No	No	0			Twin 54" pipes	0.01	0.14
1618	75	CMP	Circle	Bare Pipe	36	SF Res	No	No	0			In cow pasture. Not accessed directly.	0	0
1555	75	PVC	Circle	Bare Pipe	12	MF Res	No	Yes	0	drip	NA.	Yard Inlet upstream appears dry	0	0
1601	75	CMP	Circle	Metal Wingwalls	54	MF Res	No	No	0				0	0
1457	75	HDPE	Circle	Bare Pipe	36	Undeveloped	No	Yes	0	Perennial	No	Twin 36" Pipe Culvert outfall	0.01	0.14
1506	75	RCP	Circle	Bare Pipe	18	SF Res	No	No	0				0.01	0.14
912	68	RCP	Circle	Bare Pipe	30	MF Res	No	No	0			Stroubles Creek flows beneath the pipe	0	0.01
830	68	HDPE	Circle	Bare Pipe	18	MF Res	No	No	0				0	0.01
1405	75	HDPE	Circle	Bare Pipe	18	SF Res	No	No	0				0.01	0.14
1423	75	HDPE	Circle	Bare Pipe	48	SF Res	No	No	0			Pipe Culvert outfall	0.01	0.14
1225	75	CMP	Circle	Bare Pipe	18	MF Res	No	No	0				0.01	0.14
1320	75	RCP	Circle	Concrete Wingwalls	30	MF Res	No	No	0			Two outfall pipes (12" and 30")	0.01	0.14
1330	75	HDPE	Circle	Outfall	18	SF Res	No	No	0				0.01	0.14
1205	75	PVC	Circle	Bare Pipe	12	SF Res	No	No	0			Outfall from detention basin	0.01	0.14
1305	75	CMP	Circle	Bare Pipe	30	SF Res	No	No	0				0.01	0.14
1157	75	CMP	Circle	EndWall	18	SF Res	No	No	0				0.01	0.14
1123	75	HDPE	Circle	Outfall	36	SF Res	No	No	0				0	0.01
1105	75	HDPE	Circle	Bare Pipe	36	SF Res	No	No	0				0	0.01
1015	75	HDPE	Circle	Bare Pipe	48	SF Res	No	No	0			Two outfalls	0	0.01
1015	75	HDPE	Circle	Bare Pipe	24	SF Res	No	No	0				0	0.01
1045	75	HDPE	Circle	Outfall	36	SF Res	No	No	0				0	0.01
1045	68	RCP	Circle	EndWall	60	Commercial	No	Yes	0	Perennial	No		0	0.01
955	68	Riprap	Channel	Channel	0	Commercial	No	No	0			Concrete weir with riprap	0.01	0.14
935	68	RCP	Circle	Bare Pipe	24	Mixed	No	No	0			Heavily sedimented	0	0.01
1137	68	RCP	Circle	EndWall	48	Commercial	No	Yes	0	Perennial	No	Heavy scouring present underneath structure.	0.01	0.14
1035	68	RCP	Circle	Concrete Wingwalls	36	Commercial	No	No	0			Twin outfalls	0	0.01
1025	68	RCP	Circle	Bare Pipe	24	Commercial	No	No	0			Pipe damaged. See second attached photo	0	0.01
1048	68	HDPE	Circle	Bare Pipe	24	Commercial	No	No	0				0.01	0.14
940	68	RCP	Circle	Bare Pipe	36	Mixed	No	No	0				0	0.01
945	68	CMP	Circle	EndWall	48	Mixed	No	No	0			Twin pipes 48" and 42"	0	0.01
1050	68	RCP	Circle	Concrete Rectangular Walls	18	Commercial	No	No	0				0.01	0.14
1052	68	CMP	Circle	Concrete Rectangular Walls	18	Commercial	No	No	0				0.01	0.14
1035	75	HDPE	Circle	Bare Pipe	36	SF Res	No	No	0				0.01	0.14
1115	75	PVC	Circle	Bare Pipe	12	SF Res	No	No	0				0.01	0.14
1120	75	HDPE	Circle	Bare Pipe	24	SF Res	No	No	0				0	0.01
1145	75	CMP	Circle	EndWall	18	SF Res	No	No	0				0.01	0.14
1151	75	CMP	Circle	EndWall	18	SF Res	No	No	0			Severe downstream erosion.	0.01	0.14
1212	75	PVC	Circle	Concrete Rectangular Walls	12	SF Res	No	No	0				0.01	0.14
1216	75	CMP	Circle	Bare Pipe	18	SF Res	No	No	0				0.01	0.14
1408	75	RCP	Circle	Outfall	30	SF Res	No	Yes	0	Perennial	No	Culvert outflow from underneath Village Way S	0.01	0.14
1412	75	HDPE	Circle	Metal Wingwalls	42	SF Res	No	No	0			Adjacent stream	0.01	0.14
1426	75	HDPE	Circle	Bare Pipe	48	SF Res	No	No	0			Pipe Culvert outfall	0.01	0.14
1450	75	RCP	Circle	Bare Pipe	18	SF Res	No	No	0				0.01	0.14
1542	75	RCP	Circle	EndWall	24	MF Res	No	No	0			Heavily sedimented	0.01	0.14
1603	75	RCP	Circle	Bare Pipe	30	MF Res	No	No	0				0	0
855	68	HDPE	Circle	Bare Pipe	4	MF Res	No	No	0				0	0.01
900	68	HDPE	Circle	Bare Pipe	4	MF Res	No	No	0				0	0.01
907	68	PVC	Circle	Bare Pipe	4	MF Res	Yes	No	0		No	Two PVC pipes from building downspouts	0	0.01
915	68	PVC	Circle	Bare Pipe	6	MF Res	No	No	0				0	0.01
950	68	RCP	Circle	Bare Pipe	18	Mixed	No	No	0				0	0.01
1000	68	HDPE	Circle	Bare Pipe	18	Commercial	No	No	0				0.01	0.14
1001	68	PVC	Circle	Bare Pipe	8	Commercial	No	No	0				0	0.01
1003	68	HDPE	Circle	Riprap Wingwalls	24	Commercial	No	No	0				0	0.01
1054	68	HDPE	Circle	Bare Pipe	6	Commercial	No	No	0				0.01	0.14

Appendix 3-C: Illicit Discharges and Enforcement Summary and Evaluation



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060
 (540) 961-1124

Illicit Discharge and Detection Activity: Illicit Discharges and Enforcement 2015 Summary and Evaluation

The Town has established an ordinance to prohibit illicit discharges that was adopted by Town Council in spring of 2008 and again in 2014 as part of a Comprehensive Stormwater Ordinance. The Town will track and enforce all known instances of illegal dumping and illicit discharges in a GIS database. The GIS database will be used to detect trends and identify repeat offenders.

About this Activity

Last reporting period, the Town had 13 confirmed illicit discharges. The standardization of the illicit discharge protocol has established a guideline for scheduling, identifying and eliminating illicit discharges. All actions have been in conformance with this protocol. Below is a list of the discharges and the response and enforcement generated for each discharge.

Type	Infraction Type	Date	Contact List	Response	Enforcement	Response2	Action	Status
SSO (blockage)	Minor - no impact to MS4	4/7/2016	Public Works, VDH	Site visit, confirm source, clean-up	None.	Blacksburg Estates	Clean-up	Eliminated - 7/6/2016
SSO (blockage)	Major - surface waters	3/16/2016	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Windsor Hills	Clean-up	Eliminated - 3/22/2016
SSO (blockage)	Major - surface waters	3/8/2016	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Warm Hearth, Inc	Clean-up	Eliminated - 3/15/2016
SSO (blockage)	Major - surface waters	2/27/2016	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	South Main Street - Sanitary Sewer Manhole	Clean-up	Eliminated - 3/3/2016
SSO (blockage)	Minor - no impact to MS4	2/8/2016	Public Works, VDH	Site visit, confirm source, clean-up	None.	Reynolds Street - Sanitary Sewer Manhole	Clean-up	Eliminated - 2/9/2016
Sediment	Moderate - impacted MS4	12/5/2015	Engineering, DEQ	Site visit, contact contractor, clean-up	Verbal, Stop Work Order	The Retreat	Clean-up;	Eliminated - 12/14/2015
Unpermitted Release	Minor - no impact to MS4	11/14/2015	Engineering, Emergency Svcs, DEQ	Site visit; contacted owner for clean-up	None.	Mercury Spill	Clean-up	Eliminated - 11/18/2015
Petroleum Spill	Major - surface waters	10/20/2015	Engineering, Emergency Svcs, DEQ	Site visit, clean-up	Unknown.	Town of Blacksburg Public Works	Clean-up. BMPs	Eliminated - 10/21/2015
SSO (wet weather)	Major - surface waters	9/29/2015	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Draper Rd - Sanitary Sewer	Clean-up	Eliminated - 10/5/2015
SSO (wet weather)	Major - surface waters	9/30/2015	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Patrick Henry - Sanitary Sewer	Clean-up	Eliminated - 10/5/2015
SSO (wet weather)	Major - surface waters	9/29/2015	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Hospital Pump Station	Clean-up	Eliminated - 10/5/2015
SSO (blockage)	Minor - no impact to MS4	9/29/2015	Public Works, VDH	Site visit, confirm source, clean-up	None.	Sanitary Sewer Manhole	Clean-up	Eliminated - 10/2/2015
Unpermitted	None.	9/1/2015	Engineering,	Site visit, no clean-up necessary,	None.	Chlorinated Water Dumping	No action;	Closed. Not a true

Release			Emergency Svcs, DEQ	chlorine dissipated.		into Storm Drain	not a true discharge.	discharge.
SSO (blockage)	Major - surface waters	7/29/2015	Engineering, DEQ, VDH	Site visit, confirm source, clean-up	None.	Sanitary Sewer Manhole - Scott Alan Circle	Clean-up	Eliminated - 7/30/2015

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- Providing for standard procedures for the tracking, enforcing and planning for elimination can create the structure of an effective illicit discharge program.
- The data is collected in a GIS database to aid in the spatial analysis of the causes of some of the illicit discharges.

Recommendation:

- Continue to track illicit discharges in a GIS database and record the response, enforcement and status of the discharges.

Appendix 3-D: Enforce an Ordinance Prohibiting Diverted Stream Flows and Encouraging Buffering Around Creeks Summary and Evaluation



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Public Participation Summary: Creek Valley and Floodplain Overlay Activities Summary and Evaluation

The Town of Blacksburg has adopted by Ordinance two zoning overlay districts (“Creek Valley Overlay District”, “Floodplain Overlay District”) and has adopted amendments to the Subdivision Ordinance that protects floodplain areas, streams, and adjacent lands. (Ordinance Numbers 1184, 1215, 1225, 1308, 1310, and 1339.) The Overlay Districts prohibit development in areas detailed in Ordinances.

About this BMP

The Creek Valley Overlay limits the development in the following areas:

- Tom's Creek and the Tom's Creek 100-year floodplain,
- Stroubles Creek and the Stroubles Creek floodplain west of West Campus Drive,
- Slate Branch and the Slate Branch floodplain west of U.S. 460 Bypass,
- All areas of twenty-five (25) percent or greater slopes adjacent to the floodplain, or if no floodplain is present, twenty-five (25) percent or greater slopes that begin within fifty (50) feet of the creek channel; and
- All wetlands contiguous to lands in Toms Creek and Stroubles Creek;

The Floodplain ordinance restricts development in the following areas:

- Areas identified as floodplain, floodway or flood fringe on FEMA flood rate maps.
- Areas identified as a floodplain, floodway or flood fringe through study, when 100 acres or more of drainage is upstream of the point of analysis.



Watershed(s): Stroubles Creek and Toms Creek

TMDL POC: (none)

Evaluation and Recommendation:

The enforcement of the Creek Valley Overlay and the Floodplain Overlay areas have been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community. The findings are below:

- Limiting development on these sensitive areas prevents development from further reducing riparian areas, and maintains these existing areas in a more natural state.
- Quantifying prevention is much more difficult and will require some additional methods to document the effectiveness.
- Some research will be needed to find alternatives for documenting the effectiveness of this BMP.



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Illicit Discharge Elimination Activity: Elimination of Discharges through Outreach

The Town of Blacksburg will utilize the Town website, Town newsletter, mailings to businesses, brochures, and Public Outreach events to publicize the Illicit Discharge Program. This plan will incorporate a comprehensive outreach element, covered in BMP 1-F. The plan will outline how Town employees will receive guidance on detecting illicit discharges and related enforcement actions covered in BMP 6-M. The plan will also detail how illicit discharges will continue to be tracked by the Town Geographical Information System to help detect trends and identify repeat offenders provided in BMP 3-D.

Activities:

BMP 1-A: Student Residential Flyer (1250)

BMP 1-F: Grease Program Flyer (22)

BMP 2-E: Illicit Discharge Poster at Outreach Events (1 event)

BMP 6-E: O&M and Training Program to Prevent or Reduce the Pollutant Runoff from Municipal Operations

Watershed(s): Stroubles Creek, Roanoke River, Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

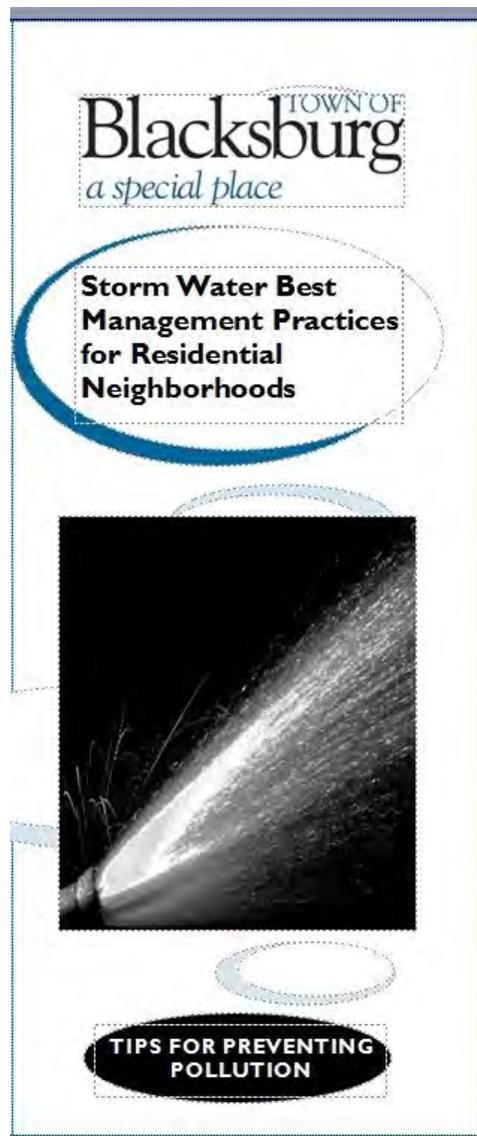
Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Providing a diverse education and outreach program for Illicit Discharge is critical for increasing public awareness, reporting and behavior change.
- The impact group should be expanded to engage a larger portion of the Town's population.
- Better reporting methods should be considered as a way to streamline the information distribution.

Recommendations:

- It is recommended that the Town continue to expand on the Illicit Discharge Education outreach program.



Appendix 3-F: Estimate Volume of Stormwater discharged and Quantity of WLA Pollutant



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060

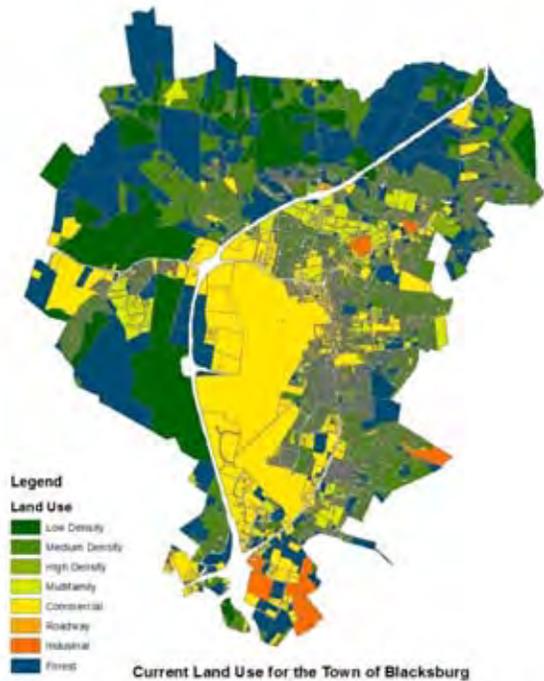
Illicit Discharge Elimination Activity: Elimination of Discharges through Outreach

The VSMP permit requires the Town to estimate the volume discharged and the amount of WLA pollutant, in units consistent with the associated TMDL, for watersheds assigned a WLA. The TOB currently has the following WLAs associated with a TMDL:

- 211 tons/year sediment to Stroubles Creek
- 102 tons/year sediment to Upper Roanoke River watershed
- 3.15E+09 cfu/year bacteria (E coli) to Wilson Creek

Watershed(s): Stroubles Creek, Roanoke River, Wilson Creek (within Roanoke River watershed)

TMDL POC: Sediment, Bacteria, Oil & Grease



Results of Watershed Treatment Model Analysis:

TMDL Watershed	Volume Stormwater	Sediment (tons/yr)	Bacteria (cfu/yr)	PCBs (mg/yr)
Stroubles Creek	3,967 ac/ft	375.66	n/a	-
Upper Roanoke River	1,956 ac/ft	191.37	n/a	7.8
Wilson Creek	316.8 ac/ft	n/a	5.39E+12	-

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Estimating the volume discharged and the amount of WLA pollutant for TMDL watersheds is a requirement of this permit and therefore consistent with the Town’s water quality goals and assumptions.
- This process allows Town officials to understand better the association between land use and water quality concerns.

Recommendations:

- It is recommended that the Town continue to estimate the volume of stormwater discharged and pollutants of concern for TMDL watersheds.



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Illicit Discharge Elimination Activity: Evaluation of Procedures to Detect, Identify, and Address Illegal Stormwater Discharges

The development of this document required the Town to identify and document written dry weather screening methodologies. These methodologies include:

A prioritized schedule of field screening activities determined by age of system, land use and other factors was developed.

- The minimum amount of field screenings to be completed each year was outlined.
- The methodologies to collect information such as last rain, conveyance type, estimated discharge rate and visual observations were also described.
- A time frame for follow-up investigation was defined.
- The method to determine source and eliminate such source was provided.
- These procedures incorporated the current methods to use a database of tracking discharges.
- The existing outreach methods for publicizing and facilitation of public reporting of illicit discharges were to be expanded.

The Illicit Discharge Procedures were completed in the year one reporting period and was included with the Year 1 annual report submission. Below is the evaluation of this BMP for appropriateness and effectiveness.

Watershed(s): Stroubles Creek, Roanoke River, Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Standardization of procedures for detection, identification, and elimination of illicit discharges is consistent with the Town’s water quality goals.
- The first draft of the procedures addresses most of the Town’s goals for the procedures.
- The outreach methods for publicizing and facilitation of public reporting of illicit discharges have not been expanded. Currently the only method is a phone number and website for submitting questions or concerns town-wide. It is recommended that a stormwater or illicit discharge specific method should be incorporated into the Town’s reporting options.
- Additional reporting methods should be considered as a way to streamline the information distribution.



Recommendations:

- It is recommended that the Town continue to expand on the outreach methods for the Procedures for the Detection, Identification and Elimination of Illicit Discharges.

Appendix 3-H: Notify in Writing all Downstream MS4 of any Known Physical Interconnections



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Illicit Discharge Elimination Activity: Notify in Writing all Downstream MS4 of any Known Physical Interconnections

The MS4 general permit requires the Town to notify in writing all downstream MS4 entities of any known physical storm sewer interconnections. This notification will aid in the illicit discharge detection, analysis and elimination through better understanding of the storm drainage network outside of the boundaries of each MS4 jurisdiction.

The Town sent letters to both VDOT and Virginia Tech in 2013 notifying them of all physical storm sewer interconnections. This past reporting period, the Town notified Montgomery County of all physical interconnections, as it has just reached the designation of MS4. Below is a map that was included in the letter, showing all parcels owned by Montgomery County that are within the Town of Blacksburg. ***Since no new connections have been established in this past reporting period, no new letters have been sent.***

Watershed(s): Stroubles Creek and Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

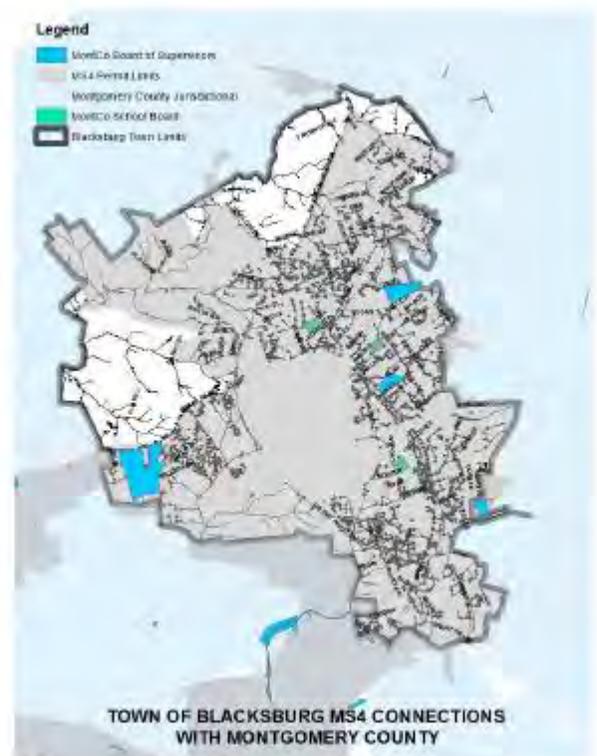
Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Notification of physical interconnected MS4s is consistent with the Town's water quality goals and it enhances the understanding of the storm drain network outside of jurisdictional boundaries.

Recommendations:

- It is recommended that the Town continue to notify neighboring MS4 of physical interconnections when new connections are constructed.



Appendix 4: Construction Site Runoff Control



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060

Construction Site Runoff Control Activity: Erosion and Sediment Control Ordinance, Certification and Land Disturbing Activities 2016

The Town of Blacksburg relies on its erosion and sediment control program as regulated under the Virginia Erosion and Sediment Control Law (ESCL) and attendant regulations. The Town has more restrictive controls than the ESCL to protect water quality by requiring land disturbers of more than 5,000 square feet to comply with the Town of Blacksburg Erosion and Sediment Control Program. The E&S Program has procedures for plan review, inspection, enforcement, and penalties. A certified Land Disturber is required prior to approval of any E&S plan and public plan reviewers will be certified E&S reviewers.

- The Erosion and Sediment Control Ordinance has been reviewed for compliance with the most current state Erosion and Sediment Control (FY2014) ordinance and it was found to be fully compliant. No changes are planned for the Erosion and Sediment Control Ordinance.
- A total of 1235 erosion and sediment control inspections were conducted last reporting term, 161 verbal warnings, 4 Letters of Violation and 2 stop work orders.
- The Town employs 14 staff members that maintain Erosion and Sediment control certificates. Currently all employees are current on their certifications. One employee is a new hire and is in the process of gaining the necessary certifications for her position. The Town is restructuring the inspections program and changes to duties for some of the positions are forthcoming.
- In this reporting year, the Town approved 57 single family residences and 24 site plans and subdivisions. A total of 94 acres were disturbed.

ESC Certified Staff

Name	Required Certification	Certificate Number	Expiration Date
Cathy Cook	ESC Inspector	1883	30-Nov-18
Randy Formica	ESC Program Administrator	217	31-May-19
	ESC Inspector	ESIN0271	27-Nov-18
James Higgins	ESC Inspector	5228	31-May-19
Lori Lester	ESC Plan Reviewer	8005	30-Nov-16
Sam Sapienza	ESC Inspector	5847	30-Nov-18
Doug Shaver	ESC/SWM Dual Inspector	#DIN0282	4-Dec-17
Jamie Viers	ESC Inspector	<i>In progress</i>	<i>In progress</i>
Will Yager	ESC Inspector	5887	30-Nov-18
Kafi Howard	ESC Plan Reviewer	8035	31-May-19
	SWM Combined Administrator	#SWCA0103	5-Sept-17
Mic Mullins	SWM Inspector	<i>In progress</i>	<i>In progress</i>
Victoria Hoyland	ESC Plan Reviewer	<i>In progress</i>	<i>In progress</i>
John Boyer	Responsible Land Disturber	RLD#41300	4-Feb-17
Brian Long	Responsible Land Disturber	RLD#41304	4-Feb-17
Glen Price	Responsible Land Disturber	RLD#41308	4-Feb-17
Chris Scaggs	Responsible Land Disturber	RLD#41309	4-Feb-17
Jerry Songer	Responsible Land Disturber	RLD#41307	4-Feb-17

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Maintaining an Erosion and Sediment Control ordinance that is consistent with state law protects the Town from the misapplication of outdated code.
- Tracking the certifications that staff is required to maintain aids in the continuing education of our municipal staff who are tasked with enforcing all disturbances in Town.

Recommendations:

- It is recommended that the Town continue to review its Erosion and Sediment control ordinance, if changes are made on the state level.



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Construction Site Runoff Control Activity: Respond To Erosion and Sediment Control Complaints

The Town employs a full time Construction Manager and a Site Improvement Construction Inspector. The Construction Manager is the point of contact for E&S complaints and problems. The Erosion and Sediment Control Ordinance has been reviewed for compliance with the most current state Erosion and Sediment Control (FY2014) ordinance and it was found to be fully compliant. No changes are planned for the Erosion and Sediment Control Ordinance.

Statistics:

- A total of 5 erosion and sediment control complaints were reported in the last reporting period.
- All complaints were responded to within 24 hours of reporting.
- All concerns were resolved in a timely manner.

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Tracking the erosion and sediment control complaints allows the Town to document patterns that could be addressed system wide, such as contractor behavior, geographical challenges and administrative weaknesses.
- Tracking the response to ESC complaints provides a tool to evaluate the administration of the ESC program and the Town's effectiveness in addressing known problems.
- The low number of complaints received by the Town indicates that a more aggressive outreach may be needed to empower more citizens to report. Documentation suggests that a few select citizens call repeatedly instead of calls coming from a diverse range of the population.



Recommendations:

- It is recommended that the Town advertise the erosion and sediment control reporting option to allow for more citizens to have knowledge and access to this avenue of contact.

Appendix 4-D: Require Acknowledgement when a VSMP Permit is Needed for a Plan under Review



Town of Blacksburg Engineering and GIS Department

400 South Main Street

Blacksburg, VA 24060

Construction Site Runoff Control Activity: Require a VSMP Permit for all Plans

The Town has developed a new protocol as a VSMP Authority. No land disturbances will be authorized without proof of VSMP coverage or coverage under a VSMP Authority land disturbance permit. Measurable goals tracking site plan review comments and pre-construction meeting have been eliminated and replaced with tracking of VSMP covered permits and VSMP Authority land disturbance permits. All land disturbances, except single family development requires a VSMP Authority land disturbance permit and all disturbances that exceed 1.0 acre of disturbance must attain a VSMP permit.

Statistics:

- A total of 43 site plans were reviewed by the Town this last permitting period.
- A total of 1 required VSMP permits or were associated with existing permits.
- All plans where a VSMP permit was required, one was obtained prior to land disturbance issuance.

VSMP PLAN NAME	ADDRESS	RECEIVED	VSMP PERMIT
FIELDSTONE	401 Givens Lane	12/11/15	Y

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- The need for a VSMP permit is now a requirement prior to issuance of land disturbance permit is a requirement of the Stormwater Ordinance and our VSMP authority status.
- The Town has been successful in implementing this program for 100% of sites where conditions require a VSMP permit.
- This BMP has a high rate of success and should be continued to maintain VSMP coverage for all necessary sites.

Recommendations:

- It is recommended that the Town continue the program of requiring VSMP coverage prior to plan approval and land disturbance permit issuance.

Appendix 4-E: ESC Protocol and Implementation



Town of Blacksburg Engineering and GIS Department

400 South Main Street

Blacksburg, VA 24060

Construction Site Runoff Control Activity: ESC Protocol and Implementation

The Town has completed its E&S Inspection Protocol. This plan has been implemented and the frequency for inspections is in compliance with general permit. The plan also outlines our enforcement and plan revision procedures. In addition, the Town has adopted multiple public mechanisms for receipt of complaints regarding regulated land disturbing activities, one is called “At your Request” and another is called “Speakup Blacksburg!” Both strategies are opportunities for citizens to voice complaints regarding any issue within the Town. Details and evaluation of this ESC Inspection Protocol are located in Appendix 4-E, ESC Inspection Protocol Summary and Evaluation.

Statistics:

- A total of 1235 Erosion and Sediment control inspections were performed by the town this last permitting period.
- All inspectors are certified or provisional ESC inspectors.
- All enforcement was administered by the Town’s Erosion and Sediment Control Administrator, who is certified as a Program Administrator.
- A total of 161 verbal warnings, 4 letters of violation, and 2 stop work orders were enforced last reporting year.



Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- Standardization of erosion and sediment control inspections provides for consistent and more effective results in the construction community.
- Enforcement will be legally defensible with standard operating procedures.
- This BMP is effective in keeping all inspectors adequately certified and providing a consistent method of inspection.

Recommendations:

- It is recommended that the Town continue the program of the ESC protocol and make any necessary changes in the future.



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Construction Site Runoff Control Activity: Pollution Prevention Plan Enforcement Protocol

The Pollution Prevention Plan Enforcement Protocol was completed in this reporting period. This protocol requires the implementation of controls to prevent non-stormwater discharges to the MS4 such as wastewater, concrete washout, fuels and oils or other illicit discharges.

Inspections and results from the program are documented below:

Statistics:

- A total of 4 SWPPP inspections were performed by the town this last permitting period.
- Two of the town's inspectors are SWM inspectors with valid DEQ certifications.
- All SWPPP inspections were performed by certified inspectors.



Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- All SWPPP inspections are performed by a Stormwater Inspector or Stormwater Combined Administrator, with up to date certifications.
- Standardization of SWPPP inspections provides for consistent and more effective results in the construction community.
- Enforcement will be legally defensible with standard operating procedures.
- This BMP is effective in keeping all inspectors adequately certified and providing a consistent method of inspection.

Recommendations:

- It is recommended that the Town continue the program of the SWPPP protocol and make any necessary changes in the future.

Appendix 5: Post Construction Stormwater Management



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Post-Construction Stormwater Management: Stormwater Ordinance

The Town of Blacksburg relies on its Stormwater Management Program as regulated under the Virginia Stormwater Management Regulations and attendant regulations. The Storm Water Management Program has procedures for plan review, inspection, enforcement, and penalties. The Town has a full time Stormwater Engineer position that is responsible for administering the Storm Water Management Ordinance and Program.

Statistics:

- The stormwater ordinance was adopted by Town Council on June 10, 2014 to be in place by July 1, 2014.
- The stormwater ordinance was reviewed this permit period and it is still in compliance with State Stormwater Management regulations.

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- A fully compliant stormwater ordinance allows for the effective understanding and enforcement of current stormwater regulations.
- Enforcement will be legally defensible.

Recommendations:

- It is recommended that the Town continue to review the Stormwater Management Ordinance and address any changes made on the State level.





Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Post-Construction Stormwater Management: Implement a Long Term Stormwater Maintenance Program

The Town has implemented a storm water maintenance program that requires proper long term operation and maintenance of storm water management facilities and the conduction of inspections and enforcement measures consistent with Virginia Stormwater Management Act and attendant regulations. The Stormwater Management ordinance requires a Maintenance Covenant on stormwater management facilities for all new development. This is enforced at the plan review stage, and approval of the plan is not granted until a receipt is provided from the Montgomery County Courthouse. The covenant is signed by the Owner of the facility and reviewed by the Town Attorney and Town Stormwater Engineer prior to recordation.



The Covenant also provides access to the Town for inspection of these new stormwater facilities (those approved post-ordinance). As part of the Stormwater Program described in the Ordinance, the Town will inspect these facilities at least once during a permit cycle. Maintenance forms from these inspections will be maintained in a database. This database will be linked to a GIS database of stormwater facilities.

If maintenance is found to be needed, a request to perform maintenance will be sent to the Owner. Upon failure of Owner response, the Town reserves the right to maintain the facility at the Owner's expense. It is noted that training for stormwater facility inspections and maintenance will be obtained during the first year of the permit cycle.

Statistics:

All newly constructed stormwater management facilities (79) that have come online in the past reporting year have had recorded stormwater covenants associated with them. They have all been entered into the GIS database and were inspected prior to certificates of occupancy. All (51) Town owned facilities were inspected this reporting year and twenty-nine (209) private facilities were inspected.

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- An effective long-term maintenance program supports the longevity of the stormwater facilities.
- The inspection frequency for new facilities is effective, since every facility must be inspected prior to certificate of occupancy.
- The inspection totals for existing private stormwater facilities exceeds our goals to inspect each private facility at least once every 5 years.

Appendix 5-C: Tracking of all Known Stormwater Facilities



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Post-Construction Stormwater Management: Tracking of all Known Stormwater Facilities

The Town is currently working with, and under contract with the Virginia Tech Civil Engineering Department as described above under BMP 3-A. This work includes efforts to compile data for stormwater modeling throughout the Town. As part of these efforts, GPS location of storm infrastructure is collected in the field. This field collection will include collection of data, and the mapped location of all found, and known stormwater facilities. New facilities will be added as constructed for all years of the permit cycle.

Statistics:

Through efforts to utilize field collection to map the infrastructure and model the storm drainage network throughout the town, 27 existing ponds were discovered and 39 new construction facilities were added to the database. The database has a total of 402 stormwater facilities.

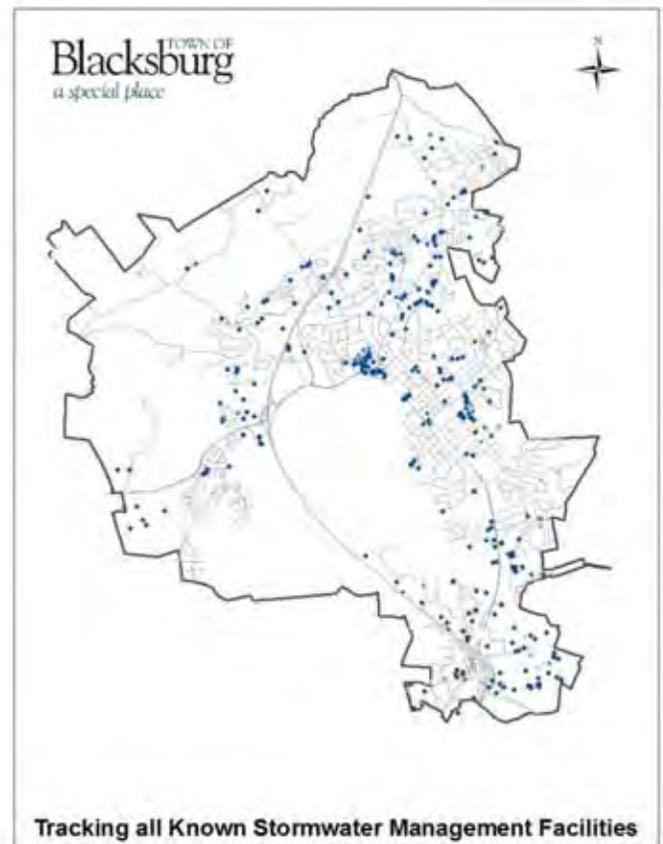
Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

These activities have been evaluated for appropriateness and effectiveness, below are the results:

- An effective program of tracking the stormwater facilities in a GIS database improves the ability for the MS4 to inspect for maintenance.
- It is recommended that the Town continue to track these facilities and add new stormwater management measures to the database when necessary.





Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060

Post-Construction Stormwater Management: Stormwater Facilities Protocol

The Town of Blacksburg has developed a stormwater facilities protocol that includes written policies and procedures utilized to ensure that facilities are designed and constructed in accordance with Section IIB 5b. Also included are inspection procedures and policies for conducting all stormwater facility inspections, public and private. The roles and responsibilities of each of the Town departments, divisions or subdivisions have been defined. In addition, the stormwater management database has been enhanced to include a) stormwater facility type, b) Location (lat or long), c) acres treated, d) date brought online, e) 6th order HUC code, f) impaired stream discharge, g) public or private, and h) date of last inspection. This Protocol was completed in the Year 1 reporting period of this permit and was submitted to DEQ with the Year 1 Annual Report.

Statistics:

In this past reporting year (51) Town owned facilities were inspected and twenty-nine (209) private facilities were inspected. All inspection completed were in conformance with the Stormwater Facilities Protocol.

Watershed(s): Stroubles Creek, Roanoke River & Toms Creek

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

- Providing for standard procedures for the scheduling, inspection and enforcement of stormwater facility maintenance provides a training protocol for staff and guidance for private businesses.
- A standard procedure for scheduling facility inspections allows for appropriate planning to meet all inspection requirements of this permit.
- Creating standardized enforcement methods provides a framework for better and more consistent enforcement of the maintenance of these facilities.



Recommendation:

- Continue to follow the Stormwater Facilities Inspection Protocol in all planning, inspection, and enforcement of maintenance.
- Continue to evaluate program to see if improvements are needed in future years.

Appendix 6: Pollution Prevention and Good Housekeeping for Municipal Operations



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Pollution prevention/Good housekeeping Activity: Maintenance Actions for Pollutant Reduction in Roads, Parking Lots, and Storage Yards

The Town of Blacksburg has had an Environmental Management System in place since 2002 as part of its comprehensive Environmental Management Program. The program is designated an Exemplary Environmental Enterprise (E3) with the VDEQ as part of the Virginia Environmental Excellence Program. Pollutant reduction programs include seasonal Leaf and Christmas tree pickup, twice yearly brush pickup, twice yearly pick-up of discarded larger items, and street sweeping. Town employees also pick up loose trash, leaves, and tree limbs as properties are maintained. Litter is removed from the Downtown area on a daily basis.

About this Activity

In this past reporting year, the Town collected 5.73 tons of Christmas trees, 463.9 tons of brush and bulk items, 212.9 tons of street sweeper collection and continued the daily removal of trash and litter in the Downtown areas. This BMP significantly reduces pollution in our roads, parking lots and storage yards. Additionally, by offering the bulk and brush collection service, this reduces the instances of illegal dumping by collecting these items free of charge.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- Providing the curb-side leaf and Christmas tree pickup free-of-charge reduces the amount of organic waste that is dumped into storm drainage system. The leaves and trees are then ground up and taken to a local composting site. This organic material is then redistributed at no charge to citizens who are in need of compost material.
- The twice yearly brush and bulk pickup collects both organic material and non-organic material from the curbside. These sponsored events reduce the amount of bulk organic items and non-organic material from being illegally dumped in areas where they could have a multitude of negative impacts to the surroundings.
- The daily removal of trash from the highly pedestrian areas such as downtown allows for the routine removal of trash and debris such as cigarette butts, food and drink containers, and other trash items that do not make it to a receptacle. This not only improves the aesthetics of the areas which are most impacted by negligent pedestrians, but it reduces the amount of floatables that could enter the storm drain system.



Recommendation:

- Continue to provide the activities associated with the Environmental Management System such as Leaf and Christmas tree pickup, twice yearly Brush and Bulk item Pickup, and daily removal of trash and litter in the highly pedestrian areas such as Downtown.



Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Pollution prevention/Good housekeeping Activity: Controls for Reducing the Discharge of Pollutants in Publicly Maintained Areas

The Town will continue to evaluate all town operations for ways to reduce pollution through the Environmental Management Program. Pollution prevention activities will include evaluating public facilities for problems to correct, continue upgrades to sanitary sewer lines and manholes to reduce sanitary sewer overflows, recycling, employee training, spill prevention program, watershed management and incorporating LID practices on publicly owned properties.

About this Activity

The Town performs annual sanitary sewer line cleaning to reduce the amount of root intrusion into the sewer lines. This allows the sewer line to function without clogging. In addition, the sanitary sewer is continually studied for areas in need of upgrades to maintain capacity with growth in population. The Town also manages a Town-wide recycling program for all residential homes.

The following activities were completed in Year 3:

- Perform Sanitary Sewer Line Maintenance to reduce clogging
- Perform Sanitary Sewer Line Upgrades to maintain capacity
- Continue Managing the Town-Wide recycling Program

In year 3, the Public Works Complex was identified as being in need of a Stormwater Pollution Prevention Plan and in need of evaluation for a Spill Prevention Plan. This will be completed in Year 4 of this reporting period.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease



Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- Performing sanitary sewer line maintenance on an annual basis is effective in reducing sanitary sewer overflows due to clogging. In the past reporting year, the town only had 6 sewer overflows due to clogging. In the past these events were often caused by root intrusion into the lines, now most of the clogging overflows are caused by improper disposal of paper products such as flushable wipes and paper towels.
- Performing sanitary sewer line upgrades to maintain capacity is effective in reducing sanitary sewer overflows due to the impacts of growth. The town continues to evaluate the sewer system and the goal is to have no capacity overflows during dry weather conditions and no capacity overflows during wet weather events of a 10 year frequency or less. In the last reporting period the town had 2 overflows due to wet weather capacity issues, these were due to a 19 year event storm.
- The Town continues to manage its town wide recycling program. This is offered to every residential home within the Town and also serves 66 apartment complexes. This past year, the Town implemented single stream recycling to enable more material to be recycled by Town citizens. This program has been a success.

Recommendation:

- Continue to provide the Pollution prevention activities include evaluating public facilities for problems to correct, continue upgrades to sanitary sewer lines and manholes to reduce sanitary sewer overflows, recycling, employee

training, spill prevention program, watershed management and incorporating LID practices on publicly owned properties.

Appendix 6-C: Reduce the Amount of Solid Waste from Municipal Facilities



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Pollution prevention/Good housekeeping Activity: Reduce the Amount of Solid Waste from Municipal Facilities

Town facilities contain a centralized recycling area. Employees recycle, co-mingled containers, mixed paper, toner cartridges, electronics, and rechargeable/alkaline batteries. Educational materials are displayed at each recycling site. Recycling Assistants from each department help the Waste Reduction and Recycling staff to promote the program. The Public Works and Transit garages recycle oil, antifreeze, tires, and metal. The Town also recycles used fluorescent lamps and metal from discarded items. In addition, the Purchasing Division and Technology Department work closely to ensure that all electronic equipment is properly recycled.

About this Activity

The following activities were completed in Year 3:

- Continued municipal building recycling of co-mingled containers, mixed paper, toner cartridges, electronics, and rechargeable/alkaline batteries.
- Continued the recycling of oil, antifreeze, tires, and metal at the Public Works and Transit garage.
- Continued recycling used fluorescent lamps from all facilities.
- Continued the recycling of electronic equipment and computers through the Purchasing Division and Technology Department.



Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The municipal buildings create large amounts of trash in the form of reports, plans, and applications while utilizing large amounts of document printing materials such as toner as well as daily use of small electronics and batteries. Many of these actions cannot be eliminated, so efforts to target Town buildings for recycling is critical in reducing the potential waste these activities can generate. This provides a viable alternative to the wastebasket and minimizes the volume of materials sent to the landfill.
- The public works facility and Blacksburg Transit garage utilizes large amounts of oil, antifreeze, tires and metal in the maintenance of the town's infrastructure and municipal fleet. The recycling of all these materials will reduce the potential for these items to end up in the landfill.
- All municipal buildings utilize fluorescent lamps. All spent fluorescent lamps from municipal buildings are recycled.
- The Technology Department has a recycling program for all computers through the Purchasing Division. Computers that have expended their useful life are first re-purposed in areas with lower demands such as interns or part time staff, then they are put on a surplus auction for reuse in the community.

Recommendation:

- Continue to recycle at current levels and evaluate additional resources to minimize the impacts from municipal waste.
- Track the amounts of each type of recycled material to identify if programs are being utilized and if they need expansion.



Town of Blacksburg Engineering and GIS Department
 400 South Main Street
 Blacksburg, VA 24060
 (540) 961-1124

Pollution prevention/Good housekeeping Activity: Reduce the Use and Discharge Potential of Hazardous Chemicals

The Town Horticulturist will provide annual update training for all employees licensed as Registered Technicians or Certified Applicators through the State of Virginia. The Safety & Emergency Manager is responsible for developing and updating the MSDS Management Program. The Operations Coordinator in the Office of Waste Reduction and Recycling will finalize a Universal Waste Policy and provide employee training on the subject.

About this Activity

The following activities were completed in Year 3:

- Update the Towns MSDS Program
- Provide training for all Registered Technicians or Certified Applicators through the State

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The Towns MSDS program is currently being evaluated for updates. This evaluation will be complete and recommendations provided in Year 4 of this permit cycle.
- All registered technicians and certified applicators have been trained and their certifications are up to date. Below is a list of all certified staff:

Registered Technician:	
Justin R. Begley	133733
Douglas W. Huff	120293
James "Jimmy" Bishop	88250
Gary L. Dowdy	131034
Elizabeth Carson	55258
Jenifer Lynn Lucas	66884
Anthony "Todd" Duncan	87985
James "Jimmy" Bishop	88250
David K. McCoy	87984
Timothy A. Turman	100313
Michael S. Agud	87986
Randy St. Clair	88249
Gary L. Dowdy	131034
Robert G. Thompson	66987

Recommendation:

- Continue to review MSDS program and maintain training and certifications for technicians and applicators.

Appendix 6-E(a): O&M and Training Program



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Pollution prevention/Good housekeeping Activity: Develop and Implement an O&M and Training Program to Prevent or Reduce the Pollutant Runoff from Municipal Operations

Outlines for training programs have been developed for the Town Police Department, Fire and Rescue, Public Works Grounds and Fueling and Vehicle Maintenance staff. The following training programs have been completed this reporting period: ESC/SWM training for Engineering staff, Spill Response for Emergency Services staff and Fertilizer, Pesticide and Landscape Materials for Applicators. See Appendix 6-E for Details, Evaluation and Recommendations for this BMP.

About this Activity

The following activities were completed in Year 3:

- Engineering Staff received training to maintain ESC and SWM certifications.
- Emergency Services staff received training on spill response.
- Landscaping staff received training to maintain applicator certifications.
- Written Operation and Maintenance procedures have been completed. Trainings for written O&M procedures will occur in Year 3-5 of the permit cycle.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The training for certifications has a high rate of compliance for staff working in areas which may have significant impact to local water quality. It is important to keep staff appropriately trained so that any new information and recommendations for standards of use can quickly be incorporated in to common practice.
- The written O&M procedures, which documents these standards of use and practice will allow staff to standardize the implementation of these actions.



Recommendation:

- Continue to evaluate this BMP once the written O&M training is complete. Feedback from those training sessions may provide useful information to keep these procedures as effective as possible.

Appendix 6-E(b): O&M and Training Schedule

Schedule of Training		
Date	Applicable Staff	Certifications (as necessary)
2014-2015		
ESC/SWM Training for Staff	Engineering Staff - Engineer – Stormwater Engineer – Wastewater Engineer – Construction Engineer – Urban Development Inspector - Utility and ESC Inspector – Water Resources	(SWM Combined Administrator) (ESC Combined Administrator) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector)
Spill Response for Emergency Services	Emergency Services Staff - Fire - no employees (volunteer only) Rescue – no employees (volunteer only) Police Captains (2) Alfa, Bravo, Charlie, Delta Shift(s) – (16) Investigations (8) Community Services (7)	(none)
Fertilizers, Pesticides and Landscaping Material Waste	Horticulturist (1) Horticulture Crew (3)	Certified Fertilizer Applicator (CFA) Training
2015-2016		
Illicit Discharge Prevention	Parks Staff – Director & Assistant Director of Parks and Recreation (2) Golf Course Supervisor and staff (4) Outdoor Programs Supervisor (1) Athletic Supervisor (1) Community Programs/Special Events Supervisor (1)	(none)
Parks and Recreational Facilities Discharge Prevention		
2016-2017		
Illicit Discharge Prevention	Public Works Staff – Sustainability Manager (1) Water & Wastewater Crews (10) Field Operations Crews (24) Fleet Operations Staff (3) Blacksburg Transit Management (8)	(none)
Wastewater Prevention		
Spill Response for Emergency Services Wastewater Prevention		
Municipal Wash Water		
Utility, Construction & Maintenance		
Bulk Storage Area Discharge Prevention		
Municipal Automobiles & Equipment Discharge Prevention		

Appendix 6-E(b): O&M and Training Schedule

Date	Applicable Staff	Certifications (as necessary)
2017-2018		
Fertilizers, Pesticides and Landscaping Material Waste	Horticulturist (1) Horticulture Crew (3) Cemetery/Special Events Crew (3)	Certified Fertilizer Applicator (CFA) Training
Illicit Discharge Prevention		(none)
Parks and Recreational Facilities Discharge Prevention	Parks Staff – Director & Assistant Director of Parks and Recreation (2) Golf Course Supervisor and staff (4) Outdoor Programs Supervisor (1) Athletic Supervisor (1) Community Programs/Special Events Supervisor (1)	(none)
Wastewater Prevention	Water & Wastewater Crews (10)	
ESC/SWM Training for Staff	Engineering Staff - Engineer – Stormwater Engineer – Wastewater Engineer – Construction Engineer – Urban Development Inspector - Utility and ESC Inspector – Water Resources	(SWM Combined Administrator) (ESC Combined Administrator) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector) (SWM/ESC Stormwater Inspector)



Town of Blacksburg Engineering and GIS Department
400 South Main Street
Blacksburg, VA 24060
(540) 961-1124

Pollution prevention/Good housekeeping Activity: Turf and Landscape Nutrient Management Plans

The Town shall implement turf and landscape nutrient management plans that have been developed by a certified turf and landscape nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia on all lands owned or operated by the MS4 operator where nutrients are applied to a contiguous area greater than one acre.

About this Activity

The following activities were completed in Year 1:

- The Town has completed its identification of lands requiring Turf and Landscape Nutrient Management Plans.
- A total of six sites meet this description.

The following activities were completed in Year 2:

- The town included in the Capital Improvement Program budget monies to begin contracting the Nutrient Management Plans for the selected sites.
- This CIP project has been funded and will commence in Year 3.

Watershed: Stroubles Creek, Toms Creek & Roanoke River

TMDL POC: Sediment, Bacteria, Oil & Grease

Evaluation:

This program has been evaluated for appropriateness and effectiveness in reaching the water quality goals of the community.

- The completion of the Nutrient Management Plans will provide an educational resource and guideline for the application and treatment of the Town's large managed land. This will prevent the overuse of nutrients which can protect those nutrients from burdening our local waters.



Recommendation:

- Continue to proceed with contracting the Nutrient Management Plans.