

# COUNTY of ROANOKE VIRGINIA

## Municipal Separate Storm Sewer System Annual Report

Permit Year 1 (July 1, 2023 – June 30, 2024)

Submitted:  
October 1, 2024



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### In Cooperation with

Town of Vinton  
Roanoke County Public Schools  
Roanoke Valley Resource Authority  
Western Virginia Water Authority  
Roanoke Valley Television Station

## Certification Statement and Requirements

As required by the MS4 Permit VAR040022, Part III K. Signatory Requirements: Registration statements and reports shall be signed as follows:

**1. Registration statement.** All registration statements shall be signed as follows:

- a. For a corporation: by a responsible corporate officer. For the purpose of this chapter, 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 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;
- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this chapter, a principal executive officer of a public agency includes: (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

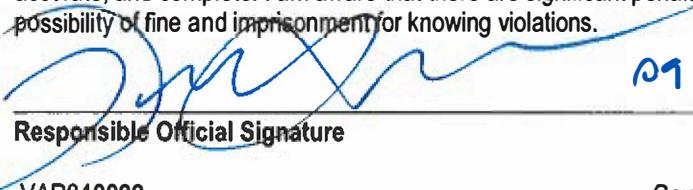
**2. Reports and other information.** All reports required by state permits, including annual reports, and other information requested by the department shall be signed by a person described in Part IV K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- a. The authorization is made in writing by a person described in Part IV K 1;
- b. 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 operator. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
- c. The signed and dated written authorization is submitted to the department.

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### CERTIFICATION

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



Responsible Official Signature

09-24-2024

Date

VAR040022  
MS4 Permit Number

County of Roanoke  
MS4 Name

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## Executive Summary

According to the United States Environmental Protection Agency (US EPA), polluted stormwater runoff is a leading cause of impairment to nearly 40 percent of surveyed U.S. water bodies that do not meet water quality standards. Whether by overland flow or via stormwater systems, such as underground pipes, ditches, or open channels, polluted stormwater runoff is discharged into local receiving waters. Such untreated water pollution can result in the destruction of fish, wildlife, and aquatic life habitats; it can also cause a loss of aesthetic value and can threaten public health due to its potential to contaminate food, drinking water supplies, and recreational waterways.

The County of Roanoke is committed to continuing in the development, implementation, and enforcement of a Municipal Separate Storm Sewer System (MS4) Program, pursuant to the requirements of the MS4 Permit VAR040022, as issued by the Virginia Department of Environmental Quality. The effective date of this permit is November 1, 2023, with an expiration date of October 31, 2028. The program is designed to reduce the discharge of pollutants from the County's regulated MS4 area to the maximum extent practicable (MEP) and to satisfy the appropriate water quality requirements of the State Water Control Law and its attendant regulations.

The County's MS4 program addresses the MS4 Permit's six Minimum Control Measures (MCMs) and the Total Maximum Daily Load (TMDL) requirements, as follows:

- MCM-1:** Public Education and Outreach
- MCM-2:** Public Involvement and Participation
- MCM-3:** Illicit Discharge Detection and Elimination (IDDE)
- MCM-4:** Construction Site Stormwater Runoff and Erosion and Sediment Control
- MCM-5:** Post-Construction Stormwater Management for New Development and Development on Prior-Developed Lands
- MCM-6:** Pollution Prevention and Good Housekeeping for Facilities Owned or Operated by the Permittee Within the MS4 Service Area
- TMDL:** TMDL Special Conditions

When addressing these six MCMs, Roanoke County emphasizes the importance of lowering sediment, bacteria, and PCB discharges to the storm sewer system in accordance with the approved TMDLs (and corresponding TMDL Action Plans) within the County.

The County partnered with the Western Virginia Water Authority (WVWA) to meet some of its permit requirements under MCM-1: Public Education and Outreach, MCM-2: Public Involvement and Participation, and its TMDL Action Plans for sediment and bacteria. The Best Management Practices (BMPs) for which WVWA is responsible, or partially responsible, include the following:

- BMP 1-4: Stormwater Education Program for Schoolchildren
- BMP 2-4: Household Hazardous Waste Collection Events
- BMP S-3: Enhanced Public Education & Outreach
- BMP B-4: Public Education: Reducing Food Sources Accessible to Wildlife
- BMP B-7: Enhanced Public Outreach

To deliver a consistent message across the entire Roanoke Valley region, the County participates on the Roanoke Valley-Alleghany Regional Commission's Stormwater Advisory Committee. This group is comprised of neighboring MS4s, and interested parties such as the WVAWA, Upper Roanoke River Roundtable, the Virginia DEQ, and others.

The Minimum Control Measures and associated BMPs used by the County to satisfy the MS4 Permit requirements are described in detail in the County's MS4 Program Plan, dated May 2024. This Annual Report provides the required documentation regarding those MCMs and BMPs for the **reporting period of July 1, 2023 - June 30, 2024**. Both documents are posted on the County's website at: <https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>.

## Section I. Minimum Control Measures

Pursuant to the requirements of the MS4 Permit VAR040022, specifically 9VAC25-890-40, Part I (Discharge Authorization and Special Conditions), Roanoke County will develop, implement, and enforce an MS4 program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) in accordance with the permit, to protect water quality, and to satisfy the appropriate water quality requirements of the State Water Control Law and its attendant regulations. The permittee shall utilize the legal authority provided by the laws and regulations of the Commonwealth of Virginia to control discharges to and from the MS4.

The County's MS4 Program will include the following Minimum Control Measures (MCMs), as described in Part I.E. of the MS4 Permit:

- MCM-1: Public Education and Outreach
- MCM-2: Public Involvement and Participation
- MCM-3: Illicit Discharge Detection and Elimination (IDDE)
- MCM-4: Construction Site Stormwater Runoff and Erosion and Sediment Control
- MCM-5: Post-Construction Stormwater Management for New Development and Development on Prior-Developed Lands
- MCM-6: Pollution Prevention and Good Housekeeping for Facilities Owned or Operated by the Permittee Within the MS4 Service Area
- TMDL: TMDL Special Conditions

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*NOTE: As per Part I.B. of the MS4 General Permit, implementation of the above-listed MCMS and the Chesapeake Bay and Local TMDL requirements in Part II (as applicable) consistent with the provisions of an iterative MS4 program required pursuant to the MS4 General Permit constitutes compliance with the standard of reducing pollutants to the “maximum extent practicable,” provides adequate progress in meeting water quality standards, and satisfies the appropriate water quality requirements of the State Water Control Law and its attendant regulations. Due to this iterative nature of the MS4 Program, over the course of the permit term Roanoke County may find it necessary to change or replace one or more of the “anticipated” Best Management Practices (BMPs) used to satisfy the MCMs; such changes/replacements will be made when the County finds the BMP(s) to be ineffective.*

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This report will provide an evaluation of the MS4 Program Plan implementation, including a review of each MCM to determine the MS4 program's effectiveness and whether or not changes to the MS4 Program Plan are necessary.



## MCM-1: Public Education and Outreach

This minimum control measure is intended to implement a public education and outreach program that is designed to:

1. Increase the public's knowledge of how to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns.
2. Increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications.
3. Implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.

The County has developed the following Best Management Practices (BMPs) to meet these program goals:

### **BMP 1-1: Stormwater Educational Resources**

The County has created and will maintain a comprehensive listing of existing stormwater-related agencies and organizations along with pertinent educational programs and resources, which shall be made available to the public by way of the County's stormwater website.

### **BMP 1-2: Roanoke County Stormwater Newsletter**

Roanoke County will create and distribute a Stormwater Newsletter, which shall be annually distributed to all Roanoke County single-family residences.

### **BMP 1-3: Stream Monitoring and Education (retired)**

Roanoke County will provide stream monitoring and informational stream seminars for Roanoke County students and residents.

### **BMP 1-4: Stormwater Education Program for Schoolchildren (Revised)**

Roanoke County will develop and implement a stormwater education program for its schoolchildren. Different programs will target appropriate grade levels.

### **BMP 1-5: Stormwater Public Awareness Program**

Roanoke County has developed and will implement a Stormwater Public Awareness Program that includes the distribution of stormwater merchandise, public service announcements, and other high visibility educational media. The program includes:

1. A list of the high-priority stormwater issues that Roanoke County will communicate to the public as part of its Public Education and Outreach Program.

2. The rationale for selection of each high-priority stormwater issue and an explanation of how each education or outreach strategy is intended to have a positive impact on stormwater discharges.

**BMP 1-6: Roanoke County Stormwater Webpage (retired, see BMP 2-3)**

Roanoke County maintains its Stormwater webpage to inform the public on the various ways to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and addressing other local water pollution concerns.

**BMP 1-7: Targeted Education Program**

Roanoke County conducts targeted education to communicate its high-priority stormwater messages. This BMP coordinates with BMP 1-5 and includes:

1. Identification of the public audience to receive each high-priority stormwater message; should the County identify staff and students as the target audience for education and outreach strategies, staff shall not be the majority of the target audience.
2. The strategies from Table 1 of Part I.E.1.d. of the MS4 Permit that the County will use to communicate each high-priority stormwater message; and
3. The anticipated time periods the messages will be communicated or made available to the public.

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the strategies to ensure consistency with local TMDLs are also provided, and they are broken down by impairment type: Escherichia coli (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

## **BMP 1-1: Stormwater Educational Resources**

### **Goal:**

The goal of this BMP is to create and maintain a comprehensive listing of stormwater-related materials on the County's website that includes agencies and organizations, educational programs, and resources such as current publications, websites, videos, maps, and training opportunities that directly address stormwater issues such as stormwater management, stormwater quality, floodplain management, stormwater pollution prevention, conservation practices, and riparian habitat protection. The County will make the public aware of these resources by way of its stormwater webpage:

<https://www.roanokecountyva.gov/332/Stormwater-Resources>.

### **Responsible Party:**

Roanoke County's Department of Development Services.

### **Schedule:**

Roanoke County maintains and annually updates its stormwater resources database, which provides contact information and website links to aid the public in accessing the various stormwater educational resources. The updated tables are on the County's stormwater webpage, as specified above, and they are in the appendix of this Annual Report, in the folder titled **BMP 1-1**.

### **Measurable Goals:**

Success for this BMP will be measured by tracking website usage and the number of requests received by the County for this or similar data.

Permit Year	Viewing Statistics
(1) 2023 - 2024	173 Visits; 123 Page Views

### **TMDL Consistency:**

The County's stormwater website includes a page regarding "Non-point Source Pollution (NPS)." This page illustrates how agriculture and straight pipes can contribute to the overall stormwater pollution problem (EC) and provides a list of NPS pollutants, including fertilizer and pesticides from lawns or farms; organic wastes from manure and sewage; pathogens such as bacteria and viruses; salt from irrigation and acid-mine drainage; sediment from erosion of unprotected lands; and toxins such as airborne chemicals, oils, and metals. (EC, PCBs, SED)

In addition, the website contains a "PCBs Fact Sheet" and highlights Illicit Discharge Detection and Elimination (IDDE) through various public service messages from the County's IDDE Public Outreach video kit. The associated messages directly tie to the TMDLs (EC, SED, PCBs). The PCBs Fact Sheet can be accessed here:

<https://www.roanokecountyva.gov/DocumentCenter/View/9349/PCB-Facts-May-2017?bidId=>

### **Evaluation and Modification:**

In accordance with the MS4 Program Plan, the number of website visits to this database within the permit year illustrates whether the website is an effective format to distribute the information concerning stormwater educational resources. With site visits and page views as shown above, the County believes this BMP is successful. No modifications are planned for this BMP.

roanokecountyva.gov/332/Stormwater-Resources

Apps CAFE default Cityworks FASTER Service Cen... Virginia DEQ - The... 2019 General VPDE... Roanoke County, V... Google Maps Global HR ESC\_Handbook IT Support | Virginia... Black Diamond Liqu... Reading list

 ROANOKE COUNTY VA

ENGAGE! DEPARTMENTS RESIDENTS GOVERNMENT VISITORS BUSINESS

County Stormwater Projects

Non-Point Source (NPS) Pollution

Roanoke County Watersheds

Stormwater Contractor Appreciation

Stormwater Documents & Ordinances

Stormwater MS4 Permit

Stormwater Management Public Education

Stormwater Network Structures

Stormwater Resources

Stream Impairments & Total Maximum Daily Loads

Volunteer Opportunities

Development Services

Home > Departments > Development Services > Stormwater Management > Stormwater Resources

## Stormwater Resources

**Additional Information**

For additional information on water quality educational programs from a variety of resources, review the resources listed within the linked documents.

- [Audio /Visual Resources](#)
- [Environmental Education Program Resources](#)
- [Governmental Agency Efforts Resources](#)
- [Printed Material Stormwater Resources](#)

**Contact Us**

If you have questions, comments, or want to report a stormwater or NPS pollution problem, please [email Stormwater Management](#) or call 540-772-2096.

Type here to search

3:12 PM 8/9/2021

## BMP 1-2: Roanoke County Stormwater Newsletter

### Goal:

The goal of this BMP is to create and distribute an annual Stormwater Newsletter, which shall be mailed to every single-family residence in Roanoke County. The purpose of this newsletter shall be to (1) increase the public's knowledge on ways to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns; and (2) increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications. The target public audience for this publication will be County homeowners.

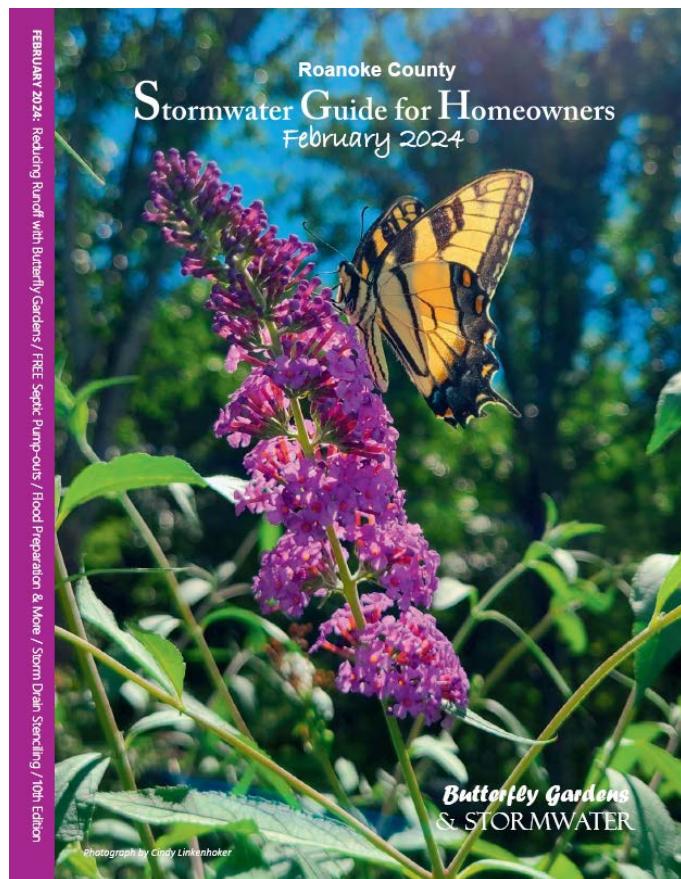
The newsletter, while primarily aimed at County homeowners, will also address regional issues that affect the entire Roanoke River watershed. Topics may include litter prevention, stormwater pollution prevention, stormwater quality education, residential best management practices, updates on local impaired water bodies, and TMDLs. It will also include subjects that are specific to Roanoke County's Stormwater Management Program. The stormwater newsletter's focus will be coordinated with the high-priority water quality issues identified in **BMP 1-5**.

### Schedule:

Roanoke County provides its annual newsletter to all single-family residences in the County and distributes copies to the public libraries and schools. The newsletter is posted on the stormwater website at <https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>.

### Measurable Goals:

Success for this BMP is measured by documenting the number of County residences to which the newsletter was mailed.



[Stormwater Newsletter February 2024](#)

Permit Year	Distribution Statistics*
(1) 2023 - 2024	34,883 residences

\*Note: The mailing list is provided in the appendix in the folder titled **BMP 1-2**.

**TMDL Consistency:**

This informative newsletter helps to address sediment, bacteria, and PCBs.

**Evaluation and Modification:**

This newsletter exclusively focuses on stormwater issues for homeowners. It has been very well received by County residents, making it an effective BMP for delivering stormwater-related information and education to County residents. No modifications are planned for this BMP.

## **BMP 1-3: Stream Monitoring and Education**

**(This BMP has been retired; some monitoring will be done as part of BMP 1-4)**

### **Goal:**

In cooperation with the Clean Valley Council (CVC), Roanoke County provides stream monitoring and informational stream seminars for Roanoke County students and residents. The goal of this BMP is to educate students and residents about field procedures for biological stream monitoring, in addition to motivating citizens to monitor waterways in their neighborhood and to enhance grassroots cooperation to promote the importance of stream monitoring within the County. These seminars and monitoring sessions provide some field exposure to aquatic habitats, update citizens on local, state, and federal water quality regulations, and keep citizens updated on local stream health.

### **Responsible Party:**

Roanoke County's Department of Development Services, through the Clean Valley Council.



### **Schedule:**

On behalf of Roanoke County, the Clean Valley Council educates Roanoke County students and citizens by holding stream education seminars and monitoring sessions. Special emphasis is placed on monitoring stream segments with a TMDL designation. The County has created a database to track the names of monitored streams and the number and type of participating groups. The database will be submitted to DEQ in the annual report.

### **Measurable Goals:**

Success for this BMP will be measured by tracking the number of citizens/students involved in stream monitoring activities conducted by the CVC on behalf of Roanoke County. In addition, Roanoke County will track the number of stream schools given by the CVC, the number of participating students, and their respective grade level(s).

### **TMDL Consistency:**

This activity allows students and residents to understand the many factors that can affect the life in a stream. The effects of PCBs-laden sediment, pet waste, stream bank erosion, and agricultural runoff are discussed during the monitoring sessions as being likely contributors to degraded water quality in local receiving streams. (EC, PCBs, SED)

### **Evaluation and Modification:**

Stream schools are hands-on events, and no literature is distributed. The County decided to retire this BMP, and it will develop a new BMP that addresses the importance of stream monitoring for the next permit year.

## **BMP 1-4: Stormwater Education Program for Schoolchildren (REVISED)**

### **Goal:**

Roanoke County revamped **BMP 1-4** to reflect its new partnership with the Western Virginia Water Authority (WVWA). Per an executed Partnership Service Agreement (PSA), the WVWA will deliver a stormwater education program for Roanoke County's schoolchildren. (The PSA is in the folder titled **BMP 1-4** in the Appendix of this report.)

The WVWA educators will implement various programs and/or presentations to address stormwater pollution prevention and related water quality issues. The program materials will target appropriate grade levels and will be correlated with the applicable Standards of Learning (SOLs). In addition, the messages for the various grade levels will correlate with the County's high-priority water quality issues, as identified in **BMP 1-5**. In the high school curriculum, the WVWA educators address climate change as it relates to the State Standards, and they talk about water supply management in changing climate environments (droughts, floods, etc.). Further, the WVWA outreach programs focus on reaching all customers, so their educators do not use specific efforts to reach certain demographic (ethnic) groups.

### **Responsible Party:**

Roanoke County's Department of Development Services, through the Western Virginia Water Authority (WVWA).

### **Schedule:**

Throughout the academic calendar year, the WVWA will provide stormwater educational programs and/or presentations to K - 12th graders and/or their teachers in public or private schools within the County.

The County will document how many schoolchildren have been educated on stormwater quality by tracking the number of pertinent programs provided by the WVWA and the number of students reached.

### **Measurable Goals:**

Success for this BMP will be measured by tracking the number of programs that the WVWA provided and the number of schoolchildren that were reached. The goal will be to reach a minimum of 1,000 students and teachers in the County.

- To view the programs offered by the WVWA, see the "Outreach Education Guide" in the folder titled **BMP 1-4** in the Appendix of this report. A summary of WVWA's presentations for 2023-2024 is also provided in that same folder.

Permit Year*	Programs Given (Roanoke County)	# Student Participants	# Adult Participants*
(1) 2023 -2024	26	1648	40

**TMDL Consistency:**

Several of the educational programs that are presented to Roanoke County schoolchildren target sources of bacteria and sediment, such as "Watershed Model" "Incredible Journey, we all live downstream" and "Watersheds & Water Quality." (EC, SED)

**Evaluation and Modification:**

The County finds this revised BMP to be an effective method to address stormwater and related water quality issues in the school system. Partnering with the WVWA is sensible, as the WVWA has an existing presence in the public and private schools across the County. While WVWA's focus is on drinking water quality, only minor adjustments were needed to expand the training to include stormwater pollution prevention and related water quality issues.

No additional modifications are needed.

## BMP 1-5: Stormwater Public Awareness Program

### **Goal:**

Roanoke County's Stormwater Public Awareness Program targets three high-priority stormwater issues that contribute to the degradation of stormwater runoff and the receiving waters into which it drains: excess bacteria, excess sediments, and excess nutrients.

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**Rationale for Selection** - Roanoke County selected sediment and bacteria as high-priority stormwater issues because the County has been assigned a Total Maximum Daily Load (TMDL) by DEQ for these impairments, meaning the County has been put on a "pollution diet" to limit these two pollutants from entering its waterways. The County also selected nutrients (phosphorus and nitrogen, in particular) because they have such negative impacts on receiving waters when in large quantities. Excess nutrients wash off lawns, other managed turf areas, and farm fields and are carried in stormwater runoff to the area's receiving waters (streams, creeks, and the Roanoke River). Once in the waterways, they cause algal overgrowth, which in turn decreases the oxygen that aquatic life needs to survive. This often results in fish kills, fish illnesses, and the tainting of human food. Groundwater supplies may also be affected by nutrient pollution.

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The County's Public Awareness Program focuses on the following: (1) how to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns; (2) increasing the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications, and (3) implementing a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.

The County has developed relevant messages for this BMP and uses a variety of means and methods, including partnering with the Western Virginia Water Authority (WVWA) and RVTV3, to communicate with the public via the distribution of printed materials (brochures, fact sheets, and newsletters), radio and TV advertisements, use of websites and social media, storm drain stenciling, speaking engagements, stormwater-related merchandise giveaways, and more.

In addition, as outlined in BMP 1-7, the County targets certain public audiences with specific educational materials and messages, which encourage them to reduce stormwater pollution in their day-to-day activities.

### **Responsible Party:**

Department of Development Services, with assistance from the WVWA and RVTV.

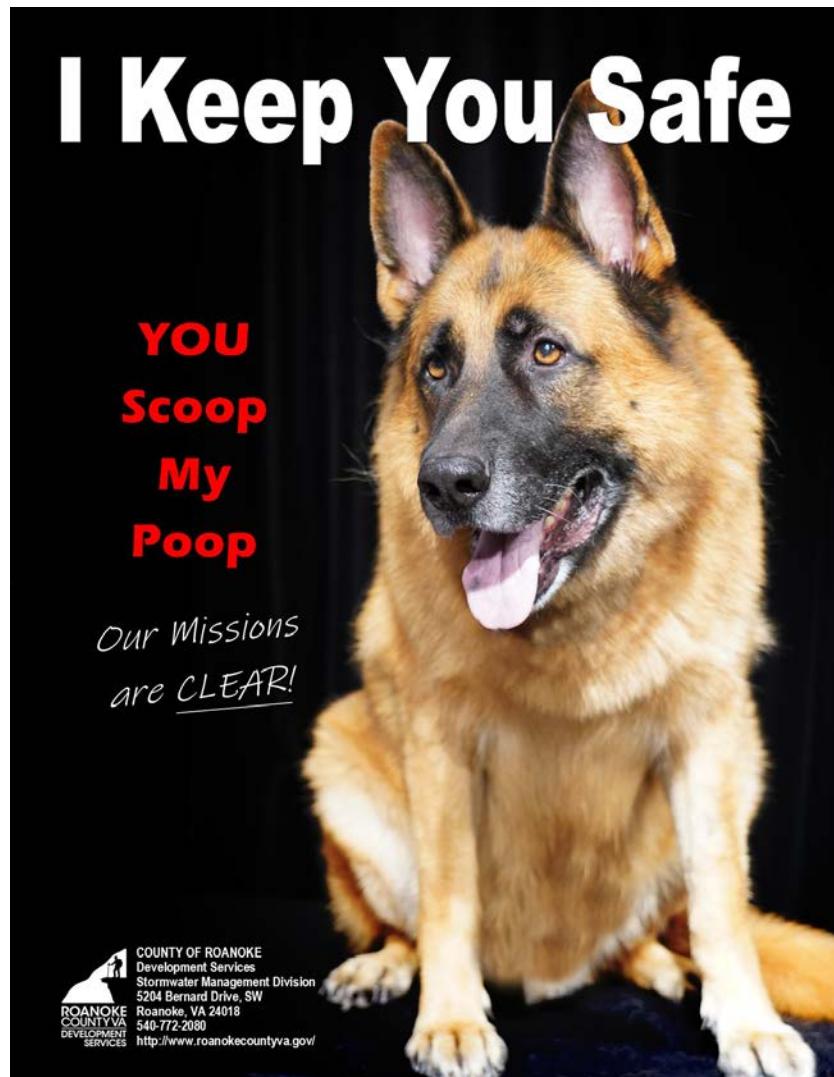
### **Schedule:**

The County's Public Awareness Program incorporates the development and distribution of printed materials, billboard and mass transit advertisements, signage at certain locations, radio and television advertisements, newspaper articles, and use of websites and social media. The County will annually track the number and types of materials that are distributed and posted on websites/social media and the size of the audience that is exposed to such materials, as appropriate.

### **Measurable Goals:**

The County will document the type of public awareness method that was utilized, including the size of the audience reached, and any impact indicators that show what effect the method had on behavior.

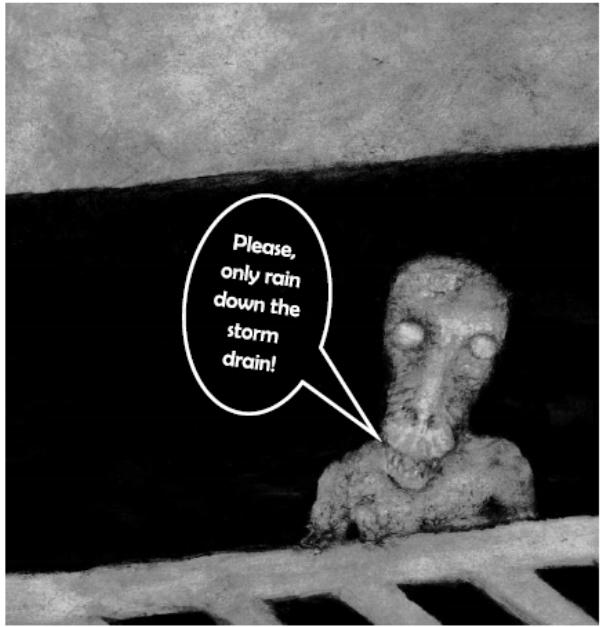
- The County's Planning Department distributes a monthly e-newsletter entitled Community Developments. Pertinent stormwater messages are included from time to time, and the e-newsletter reaches **1,616** individuals. The archived newsletters are available on the County's website, click here: <https://www.roanokecountyva.gov/Archive.aspx?AMID=39&Type=&ADID=>
- The County's Department of Development Services created a pet waste poster last permit year, entitled "I Keep You Safe - You Scoop My Poop," which focuses on "scooping the poop" as a strategy to reduce bacteria that may enter receiving waters. The poster is on the County's website, and it was mailed to a variety of targeted (pet-related) businesses, as identified in **BMP 1-7: Targeted Education Program**.



[I Keep You Safe Poster](#)

- The County's Department of Development Services created a poster last permit year to encourage reporting of illicit discharges. This poster is used to raise awareness that stormwater is untreated and carries pollutants it picks up in its travels to the nearest waterway. This poster was used last year in the *Stormwater Newsletter April 2023*. (See page 12.) It is also posted on the County's website and used as a handout.  
<https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>

## Report Illicit Discharges



Report Illicit Discharges at  
[www.roanokecountyva.gov/ReportID](http://www.roanokecountyva.gov/ReportID) or call the  
 Stormwater Program Manager at 540-772-2036.

*Only Rain Down the Drain*

### Report Illicit Discharges

- The County uses various Public Service Announcements (PSAs) to share information with the public as part of its stormwater public awareness/education program. The PSAs encourage folks to “do the right things,” such as not littering, bagging or mulching leaves and grass clippings, bagging pet waste, washing cars on the grass, and refraining from pouring anything into the storm drain. The overarching goal for these PSAs is to address the three high priority water quality issues affecting stormwater runoff: bacteria, nutrients, and sediments. To view these PSAs, click on the following link:  
<https://www.roanokecountyva.gov/1598/Stormwater-Public-Education-Videos>

The County created a PSA to highlight its Septic Pump-out Program (see **BMP B-5: Public Education: Septic System Repair & Maintenance**). The PSA can be accessed here: <https://www.roanokecountyva.gov/2963/Septic-Pump-Out-Program>

- The County purchased a set of video programs designed for educating the public on Illicit Discharge Detection and Elimination (IDDE) to the storm drainage system; such discharges include the selected three high-priority water quality issues: excess bacteria, sediment, and nutrients. The kit includes five videos of varying run times, which are designed to be used in specific medium/media or to reach a specific audience. Along with the aforementioned PSAs, the videos are posted on the County's website at <https://www.roanokecountyva.gov/1598/Stormwater-Public-Education-Videos>

The County tracks the size of the audiences that access the PSAs and videos. The data for this reporting year is provided below:

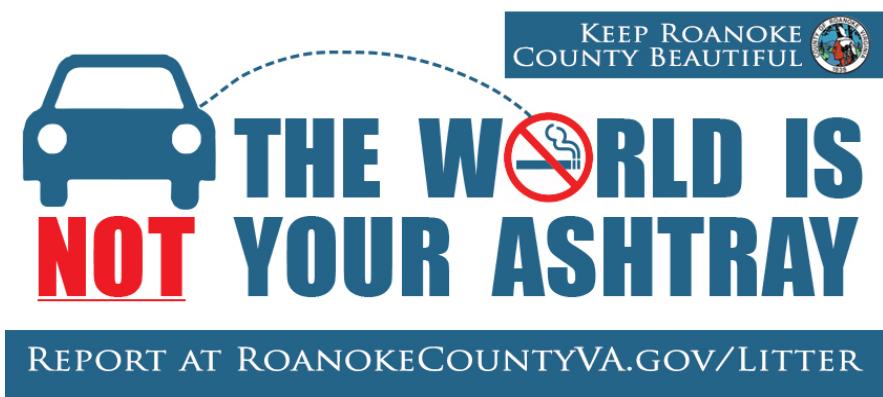
PSAs (30 sec.)	Views
Granny Says	16
Leaf Solution	9
Lawn Care	7
Rain Barrel	7
Scoop the Poop	12
Cooking Oil/Grease (CVC)	3
Car Wash (CVC)	11

Public Videos	Views
SWM - Illicit Discharge Detection and Elimination - 15 Minutes	54
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 10 minutes	4
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 2 minutes	5
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 30 seconds	8
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 5 minutes	9
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 60 seconds	6

Employee Training Videos	Views
Stormwater Pollution Prevention for Construction Sites	24
Stormwater Pollution Prevention for MS4s	34
Stormwater Pollution Prevention for MS4s - Landscaping & Grounds Maintenance	1

- The County continues to run its anti-littering ad campaign: *The World is Not Your Ashtray*. Permanent signs with the message have been placed at several prominent intersections, and the County's website provides an opportunity for citizens to report litter thrown out of vehicles. If the vehicle listed in the online complaint form can be confirmed, Roanoke County Police Department sends a notice to the vehicle's owner that the offense was witnessed and requests their compliance with Roanoke County's litter ordinance in the future. Only verified complaints are processed. For access to the form, click here: <https://www.roanokecountyva.gov/FormCenter/Police-6/Report-Littering-44>

- In this permit year, Roanoke County processed **24** verified littering complaints.



- Roanoke Valley Television (RVTV) runs the County's stormwater-related PSAs <https://www.roanokecountyva.gov/1598/Stormwater-Public-Education-Videos> throughout the year. While it does not receive subscriber counts, RVTV estimates that it reaches at least 40,000 households via Cox, Comcast, and Shentel, and has additional reach on social media and YouTube. The following PSAs ran throughout the reporting period:
  - Generic PSA: 4 per week - 16 per month - 192 per year
  - Poop Fairy: 3 per week - 12 per month - 144 per year
  - Rain Barrel: 4 per week - 16 per month - 192 per year
  - Granny Says: 2 per week - 8 per month - 96 per year

#### **TMDL Consistency:**

The various activities used for this BMP are intended to bring stormwater quality issues to the public's attention. Related activities for this BMP focus on bacteria and sediment, because the County has TMDLs for these pollutants. (EC & SED)

#### **Evaluation and Modification:**

The number and types of activities, and the number and types of materials that are distributed and posted on websites/social media and the size of the audience that is exposed to such materials indicates that the Stormwater Public Awareness Program is effective.

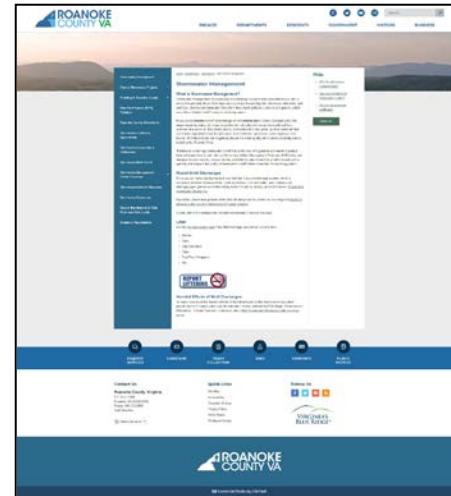
The County will continue to use this BMP to increase the public's knowledge about how to prevent pollutants from getting into stormwater runoff and to inform the public about the hazards and legal implications of illegal discharges and improper disposal of wastes. No modifications are planned for this BMP.

## BMP 1-6: Roanoke County Stormwater Webpage (retired, See BMP 2-3)

### Goal:

Roanoke County will maintain and monitor its Stormwater webpage, which enables the public to obtain information concerning the County's Stormwater Management Program, ordinances, design guidelines, general information, contact information, stormwater pollution prevention information, educational materials, and links to other organizations and sites. The website also helps to inform the citizens about on-going community-based projects, including storm drain stenciling, Save Our Streams and other similar stream monitoring programs, regional clean-ups, and other local water quality educational programs and events. The messages for the website will be coordinated with the high-priority water quality issues identified in **BMP 1-5**. The stormwater website address is

<https://www.roanokecountyva.gov/stormwater>.



In addition, the stormwater website will contain the appropriate videos from the County's IDDE Public Outreach kit (discussed in **BMP 1-5**) to inform the public about the hazards and legal ramifications of illicit discharges. The webpage includes recent versions of the County's stormwater-related public education materials, such as newsletters, fact sheets, posters, brochures, etc.

### Responsible Party:

The Department of Development Services, with assistance from the County's Web Content Manager.

### Schedule:

Roanoke County will maintain its stormwater website and document the web-page usage, including the annual number of visits to each page.

### Measurable Goals:

Web-page statistics including the most- and least- popular material will be analyzed for effectiveness of the website.

### TMDL Consistency:

The County's stormwater webpage contains a broad range of public education materials, which address many topics, including ways to minimize sediment, bacteria, and PCBs in stormwater runoff. (EC, SED, PCBs).

### Evaluation and Modification:

Roanoke County finds this BMP to be an effective way to provide the public with information about its Stormwater Management Program and to offer a means by which the public can provide input about the program, report illicit discharges and spills, and submit complaints about land-disturbing activities. No modifications are planned for this BMP.

## **BMP 1-7: Targeted Education Program**

### **Goal:**

The goal of this BMP is to implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts. This program will focus on three high-priority stormwater issues that contribute to the degradation of local waters: excess bacteria, excess sediment, and excess nutrients.

The intention of the program is to (1) communicate to the target audience the high-priority stormwater issues identified above, including how to reduce stormwater pollution, and (2) increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications.

The County selected the specific target audiences based on the likelihood that each of them could generate excess bacteria, sediment, and/or nutrients from their day-to-day activities. The educational materials and messages mailed to each of the target audiences will be specific to their type of operation (such as car wash operations or kennel cleaning) to ensure the program is effective.

In accordance with Table 1 of Part 1.E.1. of the MS4 permit, the County selected various strategies to deliver specific materials and messages to the selected target audiences. These are outlined on the next several pages in **Table 1-7A**.

### **Responsible Party:**

Department of Development Services.

### **Schedule:**

Roanoke County has developed a list of targeted public audiences to receive specific messages on an annual basis about ways to reduce stormwater pollution in their day-to-day activities. The County will track the size of audiences exposed to the various targeted messages and will evaluate any responses it receives from the selected public audiences.

### **Measurable Goals:**

The County will track the size of audiences exposed to the various targeted messages and will evaluate any responses it receives from the selected public audiences.

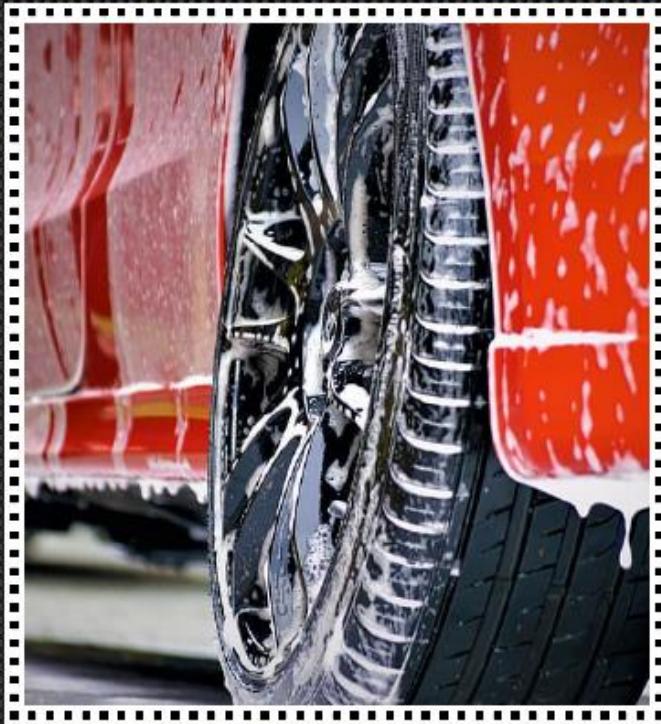
- The tables provided on the following pages summarize the activities conducted for this permit year:
  - Table 1-7A. Stormwater Education Program for Specific Audiences
  - Table 1-7B. Print Materials to Address Specific TMDLs
  - Table 1-7C. Program Materials and Target Audiences for BMP 1-7
  - Table 1-7D. Summary of Targeted Mailings and % Reach

# CAR WASHING TIPS

## ONLY RAIN DOWN THE STORM DRAIN

**Keep the Roanoke River and its streams clean and pollution free with these easy tips:**

- Use high-pressure, low-flow nozzles with an automatic shut-off valve.
- Collect all trash and debris to keep it from getting into storm drain inlets.
- Recycle rinse water, and collect and discharge all wash water into the sanitary sewer system, NOT the storm drainage system.
- Do not discharge any car wash water to storm drains, ditches, streets, or streams, as it is polluted with sediment, oil, and heavy metals.



**~ BE STORMWATER SMART: KEEP THE SOAP OUT OF THE DRAINAGE SYSTEM ~**

County of Roanoke • Department of Development Services • Stormwater Management • 5204 Bernard Drive • Roanoke, VA 24018  
Call (540) 772-2036 or Visit: <https://www.roanokecountyyva.gov/Stormwater>

[Car Washing Tips](#)

**Table 1-7A. Stormwater Education Program for Specific Audiences**

High-Priority Water Quality Issue	Target Audiences	Means to Determine Audience Size	Estimated Audience Size	Overall Messages	Means to Deliver Messages	Rationale
#1 SEDIMENT	Car Washing/Detail Facilities; Car Dealers; Auto Body Shops (includes Tire Shops, Auto Parts Stores, etc.)	Business Licenses/Yellow Pages	285	<ul style="list-style-type: none"> <li>• All wash water to sanitary sewer.</li> <li>• Potential damage caused to streams by wash water.</li> </ul>	<ul style="list-style-type: none"> <li>• Mailer, annually</li> <li>• PSAs on local cable station</li> </ul>	Commercial car wash facilities can contribute significant sediment if wash water is discharged into the County's MS4. Vehicle washing and detailing can contribute significant sediment if wash water is discharged into the County's MS4, which drains, untreated, to local streams.
	Homeowners	Tax Records	34,883	<ul style="list-style-type: none"> <li>• Potential damage caused to streams by wash water.</li> <li>• Direct wash water to grass area for filtration and infiltration.</li> <li>• Never allow wash water to flow into street or storm drains.</li> </ul>	<ul style="list-style-type: none"> <li>• County Publication sent annually to homeowners</li> <li>• PSAs on local cable station</li> <li>• Handouts at local environmental events, 4 per year minimum</li> </ul>	Residential car washing is specifically allowed, but it still may contribute significant sediment if wash water is not properly handled.
	Contractors Involved in Land-Disturbing Activities	Development Services Permit Records and Yellow Pages	841	<ul style="list-style-type: none"> <li>• Damage caused to streams by sediments.</li> <li>• Healthy fish populations require clear stream bottoms.</li> <li>• Silt fence is not enough.</li> <li>• Limit disturbed areas.</li> <li>• Stabilize as quickly as possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Brochure given to land-disturbance permittee when permit is issued</li> <li>• Brochure given with enforcement actions</li> <li>• Newsletter mailed on an annual basis</li> </ul>	Erosion and sediment control is required by regulations; however, more effective implementation may occur with additional education.

High-Priority Water Quality Issue	Target Audiences	Means to Determine Audience Size	Audience Size	Overall Messages	Means to Deliver Messages	Rationale
#2 BACTERIA	Restaurants	Business Licenses/ Yellow Pages	484	<ul style="list-style-type: none"> <li>Excessive bacteria hinder stream usage and contributes to algae overgrowth, which hurts aquatic life.</li> <li>All wastewater to sanitary sewers.</li> <li>Keep exterior trash receptacles and dumpsters covered and do not wash out into storm drain.</li> <li>Clean kitchen hoods and floor mats; properly dispose of the wastewater.</li> </ul>	<ul style="list-style-type: none"> <li>Mailer, annually</li> <li>PSAs on local cable station</li> </ul>	Uncovered dumpsters containing garbage and greasy floor mats that are rinsed out onto the pavement can contribute bacteria to the MS4, which discharges directly to local streams.
	Pet / Kennel Owners (dogs/cats)	Pet Licenses	Dog: 7463 Cat: 256	<ul style="list-style-type: none"> <li>Excessive bacteria hinder stream usage.</li> <li>Dog waste ends up in streams.</li> <li>Pick up after your pet and properly dispose of waste.</li> </ul>	<ul style="list-style-type: none"> <li>County publication sent annually to homeowners &amp; kennels</li> <li>PSAs on local cable station</li> </ul>	Dog waste is a major source of bacteria in local streams.
		Kennel licenses	186			
	Veterinarian Offices	Business Licenses/ Yellow Pages	28	<ul style="list-style-type: none"> <li>Excessive bacteria hinder stream usage.</li> <li>Dog waste ends up in streams.</li> <li>Pick up after pets and properly dispose of waste.</li> </ul>	<ul style="list-style-type: none"> <li>Brochures sent to veterinarian offices, annually</li> <li>PSAs on local cable station</li> </ul>	Dog waste is a major source of bacteria in local streams.
	Pet Stores/Pet Boarding/ Grooming/ Stables	Business Licenses/ Yellow Pages	34	<ul style="list-style-type: none"> <li>Excessive bacteria hinder stream usage.</li> <li>Dog waste ends up in streams.</li> <li>Pick up after pets and properly dispose of waste.</li> </ul>	<ul style="list-style-type: none"> <li>Brochures sent to pet stores, annually</li> <li>PSAs on local cable station</li> </ul>	Dog waste is a major source of bacteria in local streams.
	County Police and Firemen; Animal Control Officer	County Records	2	<ul style="list-style-type: none"> <li>Excessive bacteria hinder stream usage.</li> <li>Dog waste ends up in streams.</li> <li>Pick up after pets and properly dispose of waste.</li> </ul>	<ul style="list-style-type: none"> <li>In-house training</li> </ul>	Dog waste is a major source of bacteria in local streams; these County employees own or handle dogs as part of their work.
	Homeowners	Tax Records	34,883	<ul style="list-style-type: none"> <li>Do not feed wildlife</li> <li>Do not feed pets outdoors</li> </ul>	<ul style="list-style-type: none"> <li>Mailer, annually</li> </ul>	By encouraging wildlife to come close to homes, their feces have a higher chance of entering the MS4.
	Septic System Owners	Tax Records; WVWA	~14,169 septic systems	<ul style="list-style-type: none"> <li>Keep septic system maintained; provide periodic pump out.</li> <li>Repair failing septic systems.</li> </ul>	<ul style="list-style-type: none"> <li>Mailer, annually</li> </ul>	Malfunctioning or poorly maintained onsite sewage disposal systems may result in discharges of bacteria from human waste.

High-Priority Water Quality Issue	Target Audiences	Means to Determine Audience Size	Audience Size	Overall Messages	Means to Deliver Messages	Rationale
#3 NUTRIENTS	Homeowners	Tax Records/GIS	34,883	<ul style="list-style-type: none"> <li>Excess nutrients damage streams.</li> <li>Do not over-fertilize. Use soil tests.</li> <li>Keep fertilizer from pavements.</li> <li>Do not over-water lawns.</li> </ul>	<ul style="list-style-type: none"> <li>County Publication sent annually to Homeowners</li> <li>PSAs on local cable station</li> </ul>	Excessive nutrients are carried from lawns and other managed turf areas to the County's MS4 and then to local streams; this leads to algal overgrowth in the streams, which adversely impacts fish and other marine life.
	Nurseries/ Greenhouses	Business Licenses/ Yellow Pages	13	<ul style="list-style-type: none"> <li>Excess nutrients damage streams.</li> <li>Do not over-fertilize. Use soil tests.</li> <li>Keep fertilizer from pavements.</li> </ul>	<ul style="list-style-type: none"> <li>Mailer, annually</li> <li>PSAs on local cable station</li> </ul>	
	Lawn Care Services	Business Licenses/ Yellow Pages	237	<ul style="list-style-type: none"> <li>Excess nutrients damage streams.</li> <li>Do not over-fertilize. Use soil tests.</li> <li>Keep fertilizer from pavements.</li> <li>Encourage use of organic products.</li> </ul>	<ul style="list-style-type: none"> <li>Mailer, annually</li> <li>PSAs on local cable station</li> </ul>	

**Table 1-7B. Print Materials to Address Specific TMDLs\***

Type	Publication Name	TMDLs Addressed
Poster	“The HEART of Roanoke County is The “RIVAH””	Bacteria, Sediment, PCBs (plus litter, trash & more)
	“Report Illicit Discharges”	Bacteria, Sediment, PCBs, and more
	“Construction Site Waste Management Starts With You”	Construction Trash, Debris, PCBs, and more
	“I Keep You Safe, You Scoop My Poop: Our Missions are Clear”	Bacteria
	“I Carry Your Stuff. You Scoop My Poop. Deal?”	Bacteria
	“Cute? You Betcha.’ But Did You Know? I Have to Poop Outside, My Peeps Have To Scoop It Up.”	Bacteria
	“No, I am NOT the Poop Fairy”	Bacteria
	“Who Left the Dogs’ Poop?”	Bacteria
	“Pups Poop, People Scoop. Do it.”	Bacteria
	“Clean Stormwater Starts Where You Are”	Bacteria, Sediment, PCBs, and more
	“Clean Stormwater: Starts Right Here Under the Trees”	Bacteria, Sediment, PCBs, and more
	“Clean Stormwater: Starts Right Here on Your Project”	Bacteria, Sediment, PCBs, and more
	“Stormwater - Do Your Part: Keep it Clear”	Bacteria, Sediment, PCBs, and more
	“Sediment Pollution = No Fish. The Choice is Clear”	Bacteria, Sediment, PCBs, and more
	“Granny Says. . .”	Bacteria, Sediment, PCBs, and more
	“Clean Stormwater Makes for Happy Kids”	Bacteria, Sediment, PCBs, and more
	“Clean Stormwater: Wildlife Depend On It”	Bacteria, Sediment, PCBs, and more
	“Clean Stormwater: Happy Kids, Healthy Fish”	Bacteria, Sediment, PCBs, and more
Postcard	“Only Rain Down the Storm Drain” (For restaurants)	Bacteria, Kitchen grease, Oil
Newsletter	“Only Rain May Go Down the Storm Drain” (For car washes)	Sediment (plus Detergent, Oil, Heavy Metals, etc.)
	“A Stormwater Guide for Homeowners” (February 2024)	Bacteria, Sediment, PCBs, and more
	“A Stormwater Guide for Homeowners” (previous issues)	Bacteria, Sediment, PCBs, and more
	“It’s Just Dirt, A Newsletter for Contractors” (May 2024)	Sediment, PCBs (plus Minimum ESC Stds. & more)
Brochure	“It’s Just Dirt, A Newsletter for Contractors” (previous issues)	Sediment, PCBs (plus Minimum ESC Stds. & more)
	“It’s Just Dirt - What More Do I Need to Know?”	Sediment
	“Stormwater Best Management Practices for Proper Pet Waste Disposal”	Bacteria
	“Stormwater Best Management Practices for Restaurants”	Bacteria
Fact Sheet	“Reduce, Reuse, Recycle and Properly Dispose of Hazardous Household Wastes	Bacteria, Sediment, PCBs, and more
	“Illicit Discharge Facts”	Bacteria, Sediment, PCBs, and more
	“Facts for Plumbers”	Bacteria, Sediment, PCBs, and more
	“Facts for Landscapers”	Sediment
	“Fall Foliage Facts”	Bacteria, Sediment, and more
	“Fact Sheet for Mosquito Control”	None (published as a Public Service message)
	“Tips for Homeowners - Stormwater Best Practices”	Bacteria, Sediment
	“Erosion & Sediment Control – Agricultural Exemptions”	Sediment (plus ESC requirements)
	Fact Sheet for PCBs	PCBs
	Car Washing Tips	Sediment (plus Heavy Metals, Grease, Oil, etc.)
	Pool Fact Sheet**	None**

New in 2023-2024

\*Print materials are available online at <https://www.roanokecountyyva.gov/1648/Stormwater-Public-Education-Documents>

\*\*The Pool Fact Sheet is mailed to all pool-related businesses and pool owners in the County (1,879 total). And while it does not address a specific TMDL, this document is believed to be of value in helping to keep chemicals, such as chlorine and algaecide, out of the area’s receiving waters.

**Table 1-7C. Program Materials and Target Audiences for BMP 1-7**

Target Audience*	Product Type	Delivery Method	# of Recipients	Nature of Message
Restaurants	Letter and Brochure	Mailed	484	Stormwater Management BMPS for Restaurants; MS4 permit requirements.
	Postcard	Mailed	484	Only rain down the storm drain; no solid or liquid waste; do not rinse out dumpsters.
Car Washes, Auto Repair Shops, New & Used Car Dealers, Auto Detailers, etc.	Car Washing Fact Sheet and Letter	Mailed	261	Wash water carries sediment, oil, and heavy metals to receiving waters.
Pet Professionals: Vets, Groomers, Stables, Pet Daycare, Kennels, and Boarding, etc.	Letter, Brochure, and Poster	Mailed	64	Pet waste pollutes receiving streams; owners/handlers are encouraged to pick up after their pets.
Landscaping Professionals	Letter and Fact Sheet	Mailed	250	Grass/shrub clippings, leaves, sediment, fertilizers, etc. cause pollution to receiving waters; use BMPs to minimize lawn debris, reuse stormwater, install erosion controls, and employ alternative lawn care practices.
Violators (or potential violators) of Illicit Discharge Ordinance	Letter, Fact Sheet(s), and Ordinance	Mailed at time of violation	26	It is illegal to discharge anything into the MS4 system except for the allowable non-stormwater discharges listed in the permit.
Plumbers	Fact Sheet	Provided in Lobby	unknown	It is illegal to discharge anything into the MS4 system except for the allowable non-stormwater discharges listed in the permit.
Contractors involved in Land-disturbing activities	Brochure	Distributed with ESC Permits	161	“It’s Just Dirt” brochure and newsletter describe the harm to receiving waters from excess sediment from construction sites, explains permit requirements, & provides techniques to “keep the dirt on the project.”
	Newsletter	Mailed	841	
Residents	Brochure	Provided in Lobby	unknown	Reduce, reuse, recycle and properly dispose of hazardous household wastes.
Homeowners	Newsletter	Mailed	34,883	MS4 Permit requirements; high-priority water quality issues; minimizing PCBs, reducing stormwater pollution at home, do not feed wildlife, pick up pet waste, prevent illicit discharges, maintain septic system, create stream buffers.

\*For a list of specific addresses that received the above-listed materials, see the folder titled BMP 1-7 in the Appendix.

The County used its new and previously developed brochures, fact sheets, and posters to target certain audiences. The items were distributed, in most cases, directly to the targeted audiences and the percentages of the targeted audiences reached are shown in **Table 1-7D**.

**Table 1-7D. Summary of Targeted Mailings and % Reach**

Annual Period	Type of Educational Material	Target Group	# Sent / Total # in Target Group	% of Target Audience Reached
2023-2024 (YEAR 1)	Restaurant Letter, Brochure, and Postcard	Restaurants**	484 / 484	100%
	Car Washing Fact Sheet and Letter	Businesses with Car Washing	261 / 261	100%
	It's Just Dirt Newsletter	Land-disturbing Contractors	841 / 841	100%
	It's Just Dirt Brochure	Land-disturbing Contractors	161* / 841	~19.6%
	Stormwater Newsletter	Homeowners	34,883 / 34,883	100%
	Landscaping Fact Sheet	Professional Landscapers, Nurseries, Greenhouses	250 / 250	100%
	Pet Waste Poster, Letter, and Brochure	Veterinarians, Groomers, Stables, Pet Daycare, Pet Boarding, Animal Control, etc.	62 / 62	100%
	"Tips for Homeowners - Stormwater Best Practices"	Residential lots using individual stormwater control measures without maintenance agreements	10 / 10	100%

\* Not all contractors obtain a land-disturbing permit in any given year, and some contractors obtain multiple permits. In addition, the target group includes contractors, developers, trade associations, and more. Some of these groups do not ever obtain land-disturbing permits.

\*\*Mailing inadvertently included restaurants in nearby localities (1-Daleville VA, 1-Hardy VA, 31-Vinton VA).

The County's annual "It's Just Dirt" newsletter, which was mailed (and emailed) to all land-disturbing contractors, land developers, and consulting firms in the region, including the Roanoke Regional Home Builders Association, provided helpful information on the following topics:

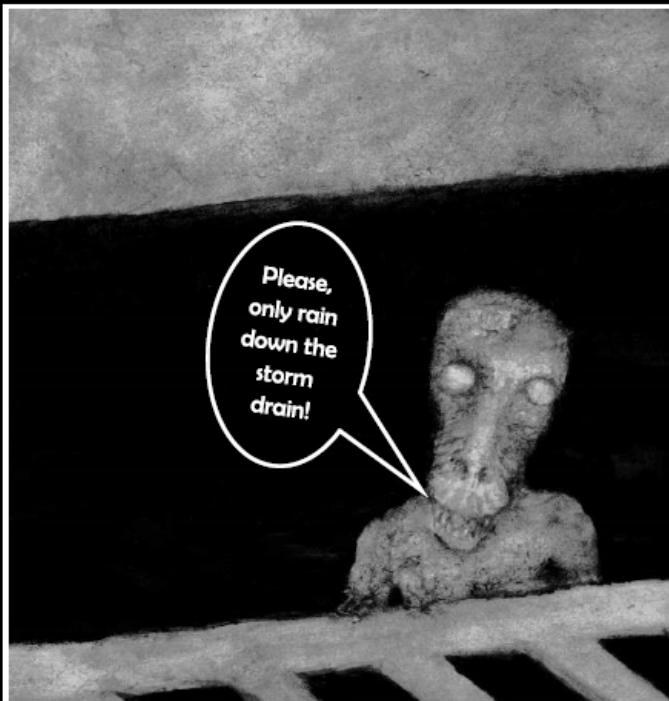
- How preventing erosion protects downstream waterways
- Implementing pollution prevention and good housekeeping "Best Management Practices (BMPs) on construction sites to prevent or minimize stormwater pollution
- Common mistakes that cost time and money
- Highlights on the "pathway to a successful project"
- How and why to manage concrete washout
- Using reusable mats (portable "mud stoppers") in lieu of stone construction entrances

As mentioned in **BMP 1-2**, Roanoke County's *Stormwater Guide for Homeowners* newsletter aims to (1) increase the public's knowledge on ways to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns; and (2)

increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications. The target public audience for this publication will be County homeowners. Both newsletters are available on the Stormwater webpage at <https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>.

The County's newest Illicit Discharge poster is designed to encourage residents to report illicit discharges. It was included in the *Stormwater Newsletter April 2023* on page 12 and is posted here: <https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>.

## Report Illicit Discharges



Report Illicit Discharges at  
[www.roanokecountyva.gov/ReportID](http://www.roanokecountyva.gov/ReportID) or call the  
Stormwater Program Manager at 540-772-2036.

**B**ecause stormwater runoff is untreated, any pollutants that it picks up along its travels are transported and then discharged into the nearest receiving waterway. Pollutants include a wide variety of materials, such as cigarette butts, leaves/grass clippings, trash, oil/grease, PCBs, sediment, and more.

If you see someone placing anything into the storm drainage system, which includes storm drainage inlets, curb and gutter systems, roadside ditches, and underground drainage pipes, please report the activity to the County by clicking the link or calling the number below. If possible, take a picture of the illicit discharge activity when it is occurring and send it to the County's Stormwater Program Manager in the Department of Development Services, Stormwater Division, 5204 Bernard Drive (2nd Floor), Roanoke, VA 24018 or email it to [stormwater@roanokecountyva.gov](mailto:stormwater@roanokecountyva.gov). County staff will investigate the incident and attempt to resolve it.

Also, to learn more about the harmful effects of illicit discharges on the area's receiving waters, please see the County's various public education videos, as posted on its Stormwater web-page. Click the following link: <https://www.roanokecountyva.gov/1598/Stormwater-Public-Education-Videos>

*Only Rain Down the Drain*

[Report Illicit Discharges](#)

**TMDL Consistency:**

The County's program is robust with a variety of materials for targeting individuals or groups most likely to have significant stormwater impacts. For example, the Contractor newsletter is primarily focused on educating contractors about how to minimize sediment that leaves their construction sites to keep it out of the river and other local waterways. The Car Washing Tips (fact sheet) targets local businesses that may have uncontrolled discharges from vehicle washing operations, which could increase sediment discharges into local receiving waters. Therefore, these documents address the TMDL for sediment (SED). Similarly, the Restaurant postcard addresses rinsing of kitchen equipment and accessories, which may contribute bacteria to receiving waters. The Pet Waste posters focus on bagging pet waste and placing it in the trash; these documents help address the County's TMDL for bacteria (EC). The Stormwater newsletter for residents, the It's Just Dirt newsletter for contractors, and the "PCBs Fact Sheet" help address the County's TMDL for PCBs. Other outreach materials previously developed by the County also address the TMDLs, as shown in **Table 1-7B**.

**Evaluation and Modification:**

The County finds this BMP to be effective in raising the awareness of specific public (target) audiences regarding how their day-to-day activities may affect stormwater quality. No modifications are planned for this BMP.



## **MCM-2: Public Involvement and Participation**

This minimum control measure (MCM) is intended to provide a means for:

1. The public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns.
2. The public to provide comments on the permittee's MS4 program plan.
3. The County to respond to public comments received on the MS4 program plan.
4. The County to maintain documentation of public comments received on the MS4 program and associated MS4 program plan and the permittee's response.

The County has developed the following Best Management Practices (BMPs) to engage all citizens, thereby reaching all economic and ethnic groups, to meet these program goals:

### **BMP 2-1: Storm Drain Stenciling Program**

The County will implement a storm drain inlet stenciling program, which is designed to engage citizens and educate the public about the consequences of dumping waste into the storm drainage system.

### **BMP 2-2: Stormwater Public Events**

The County will participate in and/or conduct at least four (4) public events per year (in two different categories, as listed in Table 2 in the MS4 Permit) to provide an opportunity for public involvement to improve water quality and support local restoration and clean-up projects.

### **BMP 2-3: MS4 Program and Stormwater Pollution Prevention Website**

Roanoke County has updated and will continue to maintain the webpage dedicated to the MS4 program and stormwater pollution prevention.

### **BMP 2-4: Household Hazardous Waste Collection Events**

Roanoke County will participate in Household Hazardous Waste Collection events to help citizens dispose of household materials that could be hazardous to dispose of in landfills.

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the strategies to ensure consistency with local TMDLs are also provided, and they are broken down by impairment type: Escherichia coli (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

## BMP 2-1: Storm Drain Stenciling Program

### Goal:

The goal of this BMP is to implement a storm drain inlet stenciling program. This effort will be coordinated with interested parties from local schools, neighborhoods, businesses, and other groups to stencil messages on storm drain inlets to educate people about the consequences of dumping waste into the storm drainage system.

**Responsible Party:** Roanoke County's Department of Development Services.

### Schedule:

Through its public education and outreach efforts, the County will solicit volunteers to stencil a minimum of 50 storm drain inlets per year with messages designed to raise public awareness about stormwater pollution.

### Measurable Goals:

The County will document the actual number and location of inlets that were stenciled, the number of participants, and the groups that participated. Using these numbers as indicators, the County will evaluate the effectiveness of this BMP and adjust as necessary to increase attendance.

For event dates, locations, number of participants, and names of participating groups, see the folder titled **BMP 2-1** in the Appendix.



Permit Year	# of Storm Drain Inlets Stenciled	# of Participants
(1) 2023 - 2024	238	115

### TMDL Consistency:

The storm drain stenciling program is an outreach method to inform and remind citizens that what enters storm drainage structures goes directly to local creeks and streams via underground piping. Roanoke County believes that when citizens understand that stormwater receives no treatment before being discharged to area waterways, unlike sanitary waste which goes to a wastewater treatment plant before discharge, they will be more likely to refrain from allowing their pet waste, yard clippings, and other non-stormwater debris/waste to enter the storm drain system through roadside drainage inlets. (EC)

### Evaluation and Modification:

The County finds this BMP to be effective in educating the public about the consequences of dumping waste into the storm drainage system, and it seems to be a popular activity with the residents. There are no modifications planned at this time.



[Storm Drain Stenciling Program](#)

## BMP 2-2: Stormwater Public Events

### Goal:

The goal of this BMP is to engage citizens in various public events to raise awareness about ways to improve water quality and to support local restoration and clean-up projects. To that end, Roanoke County participates in and/or conducts at least 4 public events per year (in two different categories, as listed in Table 2 in the MS4 Permit (Part I.E.2) to bring attention to current stormwater pollution issues. These categories include (1) Public Involvement Opportunities; (2) Monitoring; (3) Restoration; (4) Educational Events; (5) Disposal or Collection Events; and (6) Pollution Prevention.



### Responsible Party:

The County's Department of Development Services (DS), in conjunction with the Western Virginia Water Authority (WVWA), Roanoke Valley Resource Authority (RVRA), and the County's Department of Parks Recreation and Tourism (PRT).

### Schedule:

The County annually partakes in and/or conducts at least four of the following events listed in **Table 2-2** (in at least two of the various MS4 permit categories) to engage the public and raise awareness about stormwater pollution issues.

**Table 2-2. Available Stormwater Public Events**

Public Event	Responsible Party	Category (per MS4 Permit)	Metric
Clean Valley Day (stream and watershed clean-up)	County (DS, PRT)	Restoration; Public Involvement	Weight of trash collected; number of participants
County Parks Volunteer Clean-Up Events	County (PRT)	Restoration; Disposal or Collection	Number of events conducted; number of volunteers/participants
Earth Day Roanoke	County (DS/PRT)	Educational	Number of participants
Household Hazardous Waste Collection Events (See <b>BMP 2-4</b> )	RVRA	Disposal or Collection	Weight of waste collected; number of participants
Storm Drain Stenciling Program (See <b>BMP 2-1</b> )	County (DS)	Pollution Prevention	Number and location of storm drains stenciled; number of participants
Implementation of Pet Waste Stations in Parks and Along Greenways (See <b>BMP B-1</b> in Roanoke County's Bacteria TMDL Action Plan)	County (PRT)	Pollution Prevention	Number and location of pet waste stations installed/maintained
Stormwater Education Program for Roanoke County's Schoolchildren (meets applicable SOLs; See <b>BMP 1-4</b> )	WVWA	Educational; Monitoring	Number of programs provided; number of children taught

### **Measurable Goals:**

The County will document the details of these events in accordance with the metrics that are specified above. Success for this BMP will be measured by the completion of at least four of the listed events and fulfillment of their corresponding metrics. The County will also evaluate the effectiveness of the various public events to determine if they are beneficial to water quality.

Permit Year	Public Event(s)	# of Participants
(1) 2023 - 2024	11 Park Cleanups	245
	1 Tree Planting Event	Unknown
	Household Hazardous Waste Collection	(See BMP 2-4)
	Storm Drain Stenciling Program	(See BMP 2-1)
	Installation & Maintenance of Pet Waste Stations	(See BMP B-1 in Roanoke County's Bacteria TMDL Action Plan)
	Stormwater Education Program for Roanoke County's Schoolchildren	(See BMP 1-4)
	2023 Preparation	1500

- For FY 2024, Roanoke County's Department of Parks, Recreation, and Tourism had **245** volunteers working a total of **525.5** hours (**52** workdays) in **11** different parks along various waterways.
- Roanoke County's Department of Planning, with support from the Department of PRT and Roanoke County Schools, submitted a grant application to and received funding from the Virginia Trees for Clean Water Grant Program for the "Roanoke County Arbor Day 2024 Celebration and Community Tree Planting." With these funds, the County planted **five (5)** trees (Little Leaf Linden) for shade and aesthetics along the walking trail at Merriman Sports Complex on April 25, 2024.
- Staff from Roanoke County's Department of Development Services participated in the regional 2023 Preparation hosted by a fellow MS4 permittee: the City of Roanoke. The event was held on September 16, 2023. The event allowed local vendors and localities to showcase their organization and to educate the public on flood and emergency preparedness and recovery. One of its major themes was to encourage residents to be ready for potential disasters, including floods, hurricanes, pandemics, and more. County staff used the 3D Enviroscape model to describe and demonstrate the connection between clogged and/or polluted storm drainage systems and the effect they would have on floodwaters.

### **TMDL Consistency:**

Because they are key regional water quality issues, pet waste and soil erosion are common issues discussed at the various events in which the County or the WVWA participated, (EC & SED). Tree plantings support the value of stream buffers for protecting water quality through the

pollution-filtering capabilities of trees (EC & SED) and for their value in providing wildlife habitat. While not directly TMDL-related, some of these events address stormwater pollution and the need for removal of trash, debris, and litter from the drainage system.

**Evaluation and Modification:**

Based upon the attendance at these public events, Roanoke County finds this BMP to be an effective method for citizens to inquire about issues and have hands-on involvement in projects that help to improve water quality. Also, such events provide the County with an opportunity to receive public input and to disseminate pertinent stormwater-related information.

The County has taken a more robust approach to stormwater-related public events (such as its direct oversight of the storm drain stenciling program) and its recent partnership with the Western Virginia Water Authority. These changes have been reflected in the County's MS4 Program Plan.



*The County's Stormwater Inspector, Michelle Donohoe, participated in Roanoke City's Preparation, held on September 16, 2023 at the Berglund Center. She used the 3-D Enviroscape model to demonstrate how clogged storm drainage systems may exacerbate street and house flooding during heavy rain events.*

## BMP 2-3: MS4 Program and Stormwater Pollution Prevention Website

### Goal:

Roanoke County will maintain and monitor its Stormwater website, which provides information to the public concerning the County's Municipal Separate Storm Sewer System (MS4) Program, pertinent ordinances, design guidelines, general information, contact information, stormwater pollution prevention information, educational materials (newsletters, fact sheets, posters, and more), and links to other organizations and sites. The messages will be coordinated with the high-priority stormwater issues identified in **BMP 1-5**.

As part of the Stormwater website, the County will maintain a webpage dedicated to the MS4 Program, which will contain MS4 permit information, including the effective MS4 permit and coverage letter, the most current MS4 Program Plan, the Annual Report for each permit year covered by the current permit, and a mechanism for the public to report

(i) potential illicit discharges, improper disposal, or spills to the MS4, (ii) complaints regarding land disturbing activities, or (iii) other potential stormwater pollution concerns. This site will also include the methods for how the public can provide input on Roanoke County's MS4 program.

For citizens who wish to submit a stormwater-related concern or provide input on the MS4 Program Plan, the following links are available on the County's Stormwater website:

- [Report Stormwater Pollution Concerns](#)
- [Report Construction Site/Land Disturbing Complaints](#)
- [Submit comments on the County's MS4 Program Plan](#)

### Responsible Party:

The Department of Development Services, with support from Roanoke County's webmaster.

**Schedule:**

Roanoke County will maintain a Stormwater website and MS4 webpage (see links, below) and document their usage, including the annual number of visits to each page. The Stormwater website will contain the appropriate videos from the County's IDDE Public Outreach kit (discussed in **BMP 1-5**) to inform the public about the hazards and legal ramifications of illicit discharges. It will also include recent versions of the County's stormwater-related public education materials, such as newsletters, fact sheets, posters, brochures, and more.

- Stormwater  
<https://www.roanokecountyva.gov/stormwater>
- MS4 Program  
<https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>

The County will monitor the most- and least-visited pages on the Stormwater website to determine if changes are needed to help expand the audience.

**Measurable Goals:**

Success for this BMP will be measured by the successful posting of the MS4 permit, the corresponding permit coverage letter, the MS4 Program Plan, and the MS4 Annual Report (the latter of which will be posted within 30 days following its submittal to DEQ), posting of the annual education materials (newsletters, fact sheets, posters), and the provision of a mechanism for the public to report stormwater pollution complaints and provide input on Roanoke County's MS4 program. As previously noted, the County provides several reporting options for the public through the following links, all three of which are on the Stormwater website and the MS4 Program webpage:

- [Report Stormwater Pollution Concerns](#)
- [Report Construction Site/Land Disturbing Complaints](#)
- [Submit comments on the County's MS4 Program Plan](#)

In addition, the County will analyze the webpage statistics including the most- and least- popular material to evaluate the website's effectiveness. See below for this reporting year:

Permit Year	Webpage Views	Most Popular (MP) and Least Popular Page (LP)
(1) 2023 - 2024	6,027	MP: Stormwater Management LP: FAQs: How Can We Improve Stormwater Quality? and Stormwater Management Volunteers

As shown on the next page, there were a total of **6,027** visits to and **4,111** users of the Stormwater website between July 1, 2023 and June 30, 2024.

<b>Roanoke County Stormwater Management Webpage Statistics</b> <a href="http://www.roanokecountyva.gov/stormwater">www.roanokecountyva.gov/stormwater</a>		
<b>Period: July 1, 2023 - June 30, 2024</b>		
<b>Page Title</b>	<b>Views</b>	<b>Users</b>
Stormwater Management   Roanoke County, VA - Official Website	1588	844
Non-Point Source (NPS) Pollution   Roanoke County, VA - Official Website	663	581
Stormwater Documents & Ordinances   Roanoke County, VA - Official Website	545	296
Roanoke County Watersheds   Roanoke County, VA - Official Website	503	381
Volunteer Opportunities   Roanoke County, VA - Official Website	490	378
Stormwater MS4 Permit   Roanoke County, VA - Official Website	309	159
Stormwater Public Education Documents   Roanoke County, VA - Official Website	288	177
Stormwater Management Public Education   Roanoke County, VA - Official Website	217	132
Stormwater Resources   Roanoke County, VA - Official Website	173	123
News Flash: Appalachian Power Earns Its Second Stormwater Clean Award	141	115
Stormwater Contractor Appreciation   Roanoke County, VA - Official Website	138	96
County Stormwater Projects   Roanoke County, VA - Official Website	130	102
Stream Impairments & Total Maximum Daily Loads   Roanoke County, VA - Official Website	130	103
Stormwater Public Education Videos   Roanoke County, VA - Official Website	104	95
Glade Creek Water Quality Improvement Project   Roanoke County, VA - Official Website	74	62
Forms Center: Illicit Stormwater Discharge Reporting Form	73	62
Restoration of Murray Run at Ogden Road   Roanoke County, VA - Official Website	67	60
News Flash: Frame to Finish Construction Earns Stormwater Clean Award	59	51
Staff Directory: Stormwater Management	59	46
Background on Stormwater Public Education   Roanoke County, VA - Official Website	54	48
The Orchards and Other Drainage System Improvements   Roanoke County, VA - Official Website	50	48
Photo Gallery: Stormwater Network Components	46	42
Blog: Glade Creek Natural Stream Restoration at Vinyard Par	36	31
Staff Directory: Stormwater Operations	35	27
FAQs Stormwater Management	34	33
Reporting Illicit Stormwater Discharge   Roanoke County, VA - Official Website	6	5
Staff Directory: Stormwater Shop	4	4
Blog: Top 10 Ways to Reduce Stormwater Pollution at Home	3	2
FAQs: What is Stormwater Management?	3	3
Quick Links: Stormwater Management	3	3
FAQs: How Can We Improve Stormwater Quality?	1	1
Stormwater Management Volunteers   Roanoke County, VA - Official Website	1	1
<b>TOTAL</b>	<b>6,027</b>	<b>4,111</b>

Viewing statistics for the Stormwater Management (SWM) homepage show a steady increase, which indicates that the County's Public Outreach efforts are working.

2017 - 2018: 666 views

2020 - 2021: 1056 views

2023 – 2024: 1588 views

2018 - 2019: 780 views

2021 - 2022: 1351 views

2019 - 2020: 1032 views

2022 - 2023: 1321 views

A summary of the views of the stormwater-related Videos and Public Service Announcements (PSAs) is shown below.

**Views for Videos and PSAs (July 1, 2023 - June 30, 2024)**

Video Title	Views	Watch Time (Hours)
SWM - Illicit Discharge Detection and Elimination	54	4.8009
SWM - Stormwater Pollution Prevention for MS4s	34	7.4863
SWM - Stormwater Pollution Prevention for Construction Sites	24	2.2781
SWM - Granny Says PSA 30	16	0.1407
SWM - Scoop the Poop PSA 30	12	0.0663
SWM - Car Wash PSA 30 <sup>1</sup>	11	0.0796
SWM - Leaf Solution PSA 30	9	0.0578
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 5 minutes	9	0.161
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 30 seconds	8	0.0454
SWM - Lawn Care PSA 30	7	0.0553
SWM - Rain Barrel PSA 30	7	0.0353
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 60 seconds	6	0.0295
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 2 minutes	5	0.0635
SWM - Illicit Discharge, Detection and Elimination, A Grate Concern - 10 minutes	4	0.0398
SWM - Oil and Grease PSA 30 <sup>1</sup>	3	0.0207
SWM - Roanoke County Stormwater PSA May 2014	2	0.018
SWM - Descarga, detección y eliminación ilícitas, una preocupación import 60 segundos	1	0.0034

<sup>1</sup>The Clean Valley Council (CVC) produced this PSA some years ago on behalf of Roanoke County, Roanoke City, and Town of Vinton

**TMDL Consistency:**

Access to the MS4 Program documents and stormwater management information gives Roanoke County citizens a means to familiarize themselves with the issues concerning the County's streams and rivers, the associated impairments, and any approved TMDLs. In addition, the program documents detail the County's efforts to address these issues.

This BMP helps to inform citizens on ways to get involved with current water quality issues and to make them aware of available outreach programs, both with the goal of helping citizens minimize any impacts that they may have on local water quality. (EC, SED, & PCBs)

**Evaluation and Modification:**

Roanoke County believes that posting the MS4 program-related documents on its Stormwater website is an effective way to allow interested citizens to become more familiar with the County's stormwater program and to provide them with a means to make comments and become involved. No further modifications are planned for this BMP.

Pursuant to the MS4 permit, the County will provide the following:

- A summary of any public comments on the MS4 Program received and how the County responded.
  - The County did not receive any public comments on the MS4 Program in the reporting year.
- A summary of stormwater pollution complaints received under the procedures established in Part I.E.2.a.(1), excluding natural flooding complaints, and how the County responded.
  - In this Permit Year, the County received **18 drainage-related** complaints through its "Report a Concern" web form. These complaints were addressed by appropriate stormwater operations staff or forwarded to the proper agency for resolution (i.e., VDOT, WVA, VDH, etc.) Historically, the resolution to such complaints has not been tracked, but the County hopes to use Cityworks for this purpose in future permit years. The County also responded to **49 illicit discharge** complaints, **6** of which came through the online Illicit Discharge Form on the Stormwater website. See the folders titled **BMP 2-3** and **BMP 3-3** in the Appendix of this Report.
- The webpage address to the County's MS4 program and stormwater website, to include (1) mechanisms for the public to report (i) potential illicit discharges, improper disposal, or spills to the MS4, (ii) complaints regarding land disturbing activities, or (iii) other potential stormwater pollution concerns; and (2) methods for how the public can provide input on the permittee's MS4 program.

Stormwater

<https://www.roanokecountyva.gov/stormwater>

MS4 Program

<https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>

Report a Concern or Provide Input

[Report Stormwater Pollution Concerns](#)

[Report Construction Site/Land Disturbing Complaints](#)

[Submit comments on the County's MS4 Program Plan](#)

- Page statistics. (See page 42.)
- Intended changes. To consolidate similar data and avoid duplicity, the County retired **BMP 1-6: Roanoke County Stormwater Webpage** and incorporated pertinent data from it into **BMP 2-3**.

## BMP 2-4: Household Hazardous Waste Collection Events

The goal of this BMP is to provide citizens with an opportunity to participate in Household Hazardous Waste Collection events, including Rx Take-Back events, to help them dispose of household materials and unused medications that could be hazardous if disposed of in landfills.

### **Responsible Party:**

The Department of Development Services, through the Roanoke Valley Resource Authority (RVRA) and the Western Virginia Water Authority (WVWA).

### **Schedule:**

Roanoke County will participate in at least one Household Hazardous Waste (HHW) Collection event each year through the RVRA and one Rx Take-Back event through the WVWA. For each event, the County will document the number of attendees (if available) and the total weight of the collected waste.

### **Measurable Goals:**

Success for this BMP will be measured by the continued participation in Household Hazardous Waste Collection Events and the Rx Take-Back events.

- Regional statistics and weight totals for the HHW Events for this permit year can be found in the Appendix in the folder titled **BMP 2-4**.

Permit Year	HHW Events	Attendance	
		County	Total
(1) 2023 - 2024	12	367	958

- In addition to the HHW Events, the Western Virginia Water Authority (WVWA) held two Rx Take-Back events in the Roanoke Valley region during this permit year, one on October 28, 2023 and one on April 27, 2024. The collection totals for Roanoke County were as follows:

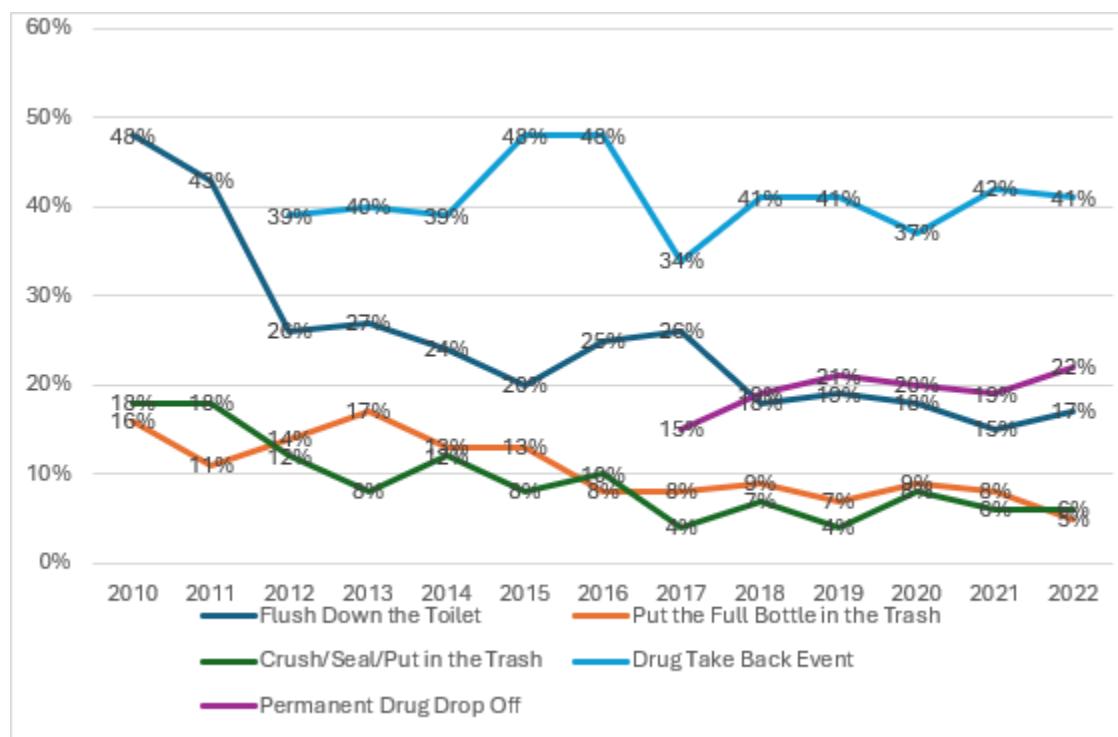
**October 28, 2023:**  
Roanoke County 143.9 lbs.

**April 27, 2024:**  
Roanoke County: 663.7 lbs.

- The WVWA collected additional medication at the permanent take-back boxes located at the Towers CVS, Walgreens on Hershberger Road, and Carilion pharmacies, but the WVWA has no mechanism for determining the collection totals for any of the permanent take-back boxes.
- The WVWA created a regional website, [TakeThemBack.org](http://TakeThemBack.org) with an interactive map that shows all permanent drug take-back boxes located in the Roanoke Valley.

- The WVA administered a \$136,700 Virginia Environmental Endowment grant that started in July 2021 and ended on July 1, 2024. Through this grant, the WVA purchased and distributed medication disposal bags, disposal information magnets, and one permanent lock box at FairWay Pharmacy. The WVA created and launched quarterly media campaigns about proper medication disposal and conducted pre-grant testing on pharmaceuticals/personal care products in wastewater.
- The WVA received their 2022 SurveyUSA phone poll results, and out of 500 adults 18 and over in the counties/cities of Botetourt, Craig, Roanoke City, Roanoke County, and Salem City, when it comes to the question, *“How would you most likely dispose of unwanted prescription drugs in your home?”* These are the results:

How would you most likely dispose of unwanted Rx drugs in your home?													
METHOD	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Flush Down the Toilet	48%	43%	26%	27%	24%	20%	25%	26%	18%	19%	18%	15%	17%
Put the Full Bottle in the Trash	16%	11%	14%	17%	13%	13%	8%	8%	9%	7%	9%	8%	5%
Crush/Seal/Put in the Trash	18%	18%	12%	8%	12%	8%	10%	4%	7%	4%	8%	6%	6%
Drug Take Back Event			39%	40%	39%	48%	48%	34%	41%	41%	37%	42%	41%
Permanent Drug Drop Off								15%	19%	21%	20%	19%	22%



**TMDL Consistency:**

Currently, there is no known direct benefit that this BMP will have on any of the TMDL waste load allocations. However, it will likely benefit stream water quality by keeping these products out of local receiving waters.

**Evaluation and Modification:**

The County changed this BMP's name from "Household Hazardous Waste Event" to "Household Hazardous Waste Collection Events" to formally acknowledge the Rx Take-Back events held by the WVWA.

Household Hazardous Waste events and Rx Take-Back events are popular with citizens. Roanoke County understands that these events help keep hazardous wastes and medications from being improperly disposed and they help keep these products out of local waterways. No additional modifications are currently planned for this BMP.



## **MCM-3: Illicit Discharge Detection and Elimination (IDDE)**

The goal of this minimum control measure is to develop, implement, and enforce a program to detect and eliminate illicit discharges to the storm sewer system. The BMPs that have been established to complete this measure are listed below:

### **BMP 3-1: Municipal Separate Storm Sewer System (MS4) Map**

Through its GIS database, the County maintains an updated map of its Municipal Separate Storm Sewer System (MS4) within the regulated MS4 service area. The map is available to the public upon request.

### **BMP 3-2: Illicit Discharge Ordinance**

Roanoke County's Illicit Discharge Ordinance has been adopted and will be maintained to provide authority to address illicit discharges. It includes language prohibiting non-stormwater discharges into the storm drainage [MS4] system.

### **BMP 3-3: Illicit Discharge Detection and Elimination (IDDE) Program**

Roanoke County maintains written procedures and implements a program to detect, identify, and address non-stormwater discharges and illegal dumping into its MS4.

### **BMP 3-4: Dry Weather Screening**

Roanoke County implements a program to annually inspect at least 50 storm drain outfalls within its MS4 area in search of unauthorized discharges.

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the report includes strategies to ensure consistency with local TMDLs, which are broken down by impairment type: Escherichia coli (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

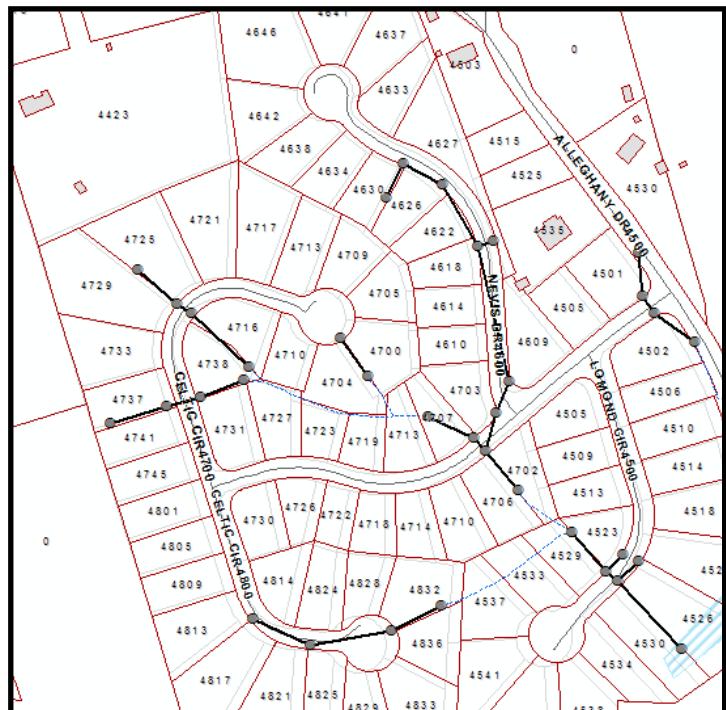
## **BMP 3-1: Municipal Separate Storm Sewer System (MS4) Map**

## Goal:

The goal of this program is to develop and maintain an accurate MS4 map (with corresponding information table), which shows the storm sewer system that is owned or operated by the County within the regulated MS4 service area.

The MS4 map shall include the location of MS4 outfalls that discharge to surface waters, a unique identifier for each mapped item required in Part I.E.3. of the MS4 Permit, the name and location of receiving waters to which the MS4 outfall or point of discharge discharges, the MS4 regulated service area, and all stormwater management facilities owned or operated by Roanoke County.

Pursuant to the MS4 Permit, the information table associated with the MS4 map may be maintained as a shapefile attribute table and shall include the following information for each outfall or point of discharge for those cases in which Roanoke County elects to map the know



- a. A unique identifier as specified on the MS4 map.
- b. The latitude and longitude of the outfall or point of discharge.
- c. The estimated regulated acreage draining to the outfall or point of discharge.
- d. The name of the receiving water.
- e. The 6th Order Hydrologic Unit Code of the receiving water.
- f. An indication as to whether the receiving water is listed as impaired in the Virginia 2022 305(b)/303(d) Water Quality Assessment Integrated Report.
- g. The name of any EPA approved TMDLs for which the permittee is assigned a wasteload allocation.

The MS4 Map and Outfall Information Table required by Part I.E.3.a. of the MS4 permit are included in the Appendix in the folder titled **BMP 3-1**.

## **Responsible Party:**

The Department of Development Services, with assistance from the Department of Information Technology.

**Schedule:**

No later than October 1 of each year, Roanoke County will update the MS4 map and outfall information table to include any new outfalls constructed or TMDLs approved or during the immediately preceding reporting period.

**Measurable Goals:**

Success for this BMP will be measured by demonstrating that the County has updated its MS4 map and outfall information table to include any new outfalls constructed or TMDLs approved or both during the immediately preceding reporting period.

- The County confirms that the MS4 map and information table were updated to reflect any changes to the MS4 occurring on or before June 30, 2023.
  - The letters and the MS4 map can be accessed in the appendix of this report in the folder titled **BMP 3-1**. In addition, the letters and the map are in **BMP 3-1** of the County's MS4 Program Plan, which is posted on the website at:  
<https://www.roanokecountyva.gov/DocumentCenter/Index/1538>
- The County provided written notification to the regulated MS4s to which its MS4 system is physically interconnected. The most recent letters are in the Appendix in the folder titled BMP 3-1.

**TMDL Consistency:**

An updated and accurate storm drainage map identifying the municipal separate storm sewers and their components aids Roanoke County in the discovery of illicit connections and the locations where sediment and other pollutants may be entering the regulated MS4. (SED, EC, and PCBs)

**Evaluation and Modification:**

Roanoke County believes that the process of mapping the storm [sewer] drainage system is an appropriate method to aid in the enforcement, detection, and elimination of illicit discharges to the system. No modifications are planned for this BMP.

## BMP 3-2: Illicit Discharge Ordinance

### Goal:

The goal of this BMP is to adopt an ordinance that prohibits unauthorized non-stormwater discharges into the County's Municipal Separate Storm Sewer System (MS4) and provides the County with an enforcement mechanism.

### Responsible Party:

The Department of Development Services, in cooperation with the County Attorney.

### Schedule and Evaluation:

Roanoke County adopted an Illicit Discharge Ordinance on April 22, 2014, and it is compliant with Virginia's stormwater regulations. Enforcement measures and penalties are included in the Illicit Discharge Ordinance. The County will update the ordinance, as necessary, to maintain the effectiveness of the program.



### Measurable Goals:

Success of this BMP will be measured by the continued implementation of the County's Illicit Discharge Ordinance and its compliance with the MS4 Permit.

- The County's Illicit Discharge Ordinance is available on the stormwater website at:  
<https://roanokecountyva.gov/DocumentCenter/View/5469/Illicit-Discharge-Ordinance-Eff-July-1?bidId=>

### TMDL Consistency:

An Illicit Discharge Ordinance aids in the enforcement of illicit discharges to the MS4 system, as it provides a legal mechanism for the County to prohibit illicit connections and illicit discharges to the system. (EC, SED, & PCBs)

### Evaluation and Modification:

Roanoke County finds that the Illicit Discharge Ordinance is an effective tool for use in dissuading its citizens from illegally discharging into the MS4. No modifications are planned for this BMP.

## **BMP 3-3: Illicit Discharge Detection and Elimination (IDDE) Program**

### **Goal:**

The goal of this BMP is to detect, identify, and eliminate non-stormwater discharges and illegal dumping into the County's MS4. As part of this effort, the County will maintain, implement, and enforce illicit discharge detection and elimination (IDDE) written procedures designed to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping, to the MS4 to effectively eliminate the unauthorized discharge. Written procedures shall include:

- 1) A description of the legal authorities, policies, standard operating procedures, or other legal mechanisms available to the permittee to eliminate identified sources of ongoing illicit discharges, including procedures for using legal enforcement authorities.
- 2) A timeframe upon which to investigate to identify and locate the source of any observed unauthorized non-stormwater discharge. Priority of investigations shall be given to discharges of sanitary sewage and those believed to be a risk to human health and public safety. Discharges authorized under a separate VPDES or state permit require no further action under the MS4 permit.
- 3) Methodologies to determine the source of all illicit discharges. If the County is unable to identify the source of an illicit discharge within six months of beginning the investigation, then the permittee shall document that the source remains unidentified. If the observed discharge is intermittent, the permittee shall document that attempts to observe the discharge flowing were unsuccessful.
- 4) Methodologies for conducting a follow-up investigation for illicit discharges that are continuous or that Roanoke County expects to occur more frequently than a one-time discharge to verify that the discharge has been eliminated except as provided for in Part I.E.3.c.(4) of the MS4 Permit.
- 5) A mechanism to track all illicit discharge investigations to document the following:
  - a. The dates that the illicit discharge was initially observed, reported, or both.
  - b. The results of the investigation, including the source, if identified.
  - c. Any follow-up to the investigation.
  - d. Resolution of the investigation.
  - e. The date that the investigation was closed.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

County maintains written procedures to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping, to its MS4. The County will update these procedures, as necessary, to maintain the effectiveness of the program. The procedures are provided in the Appendix in the folder titled **BMP 3-3**.

**Measurable Goals:**

Roanoke County will maintain and implement written procedures to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping, to its MS4. The County will update these procedures, as necessary, to maintain the effectiveness of the program. Success for this BMP will be measured by compliance with the County's written procedures and documentation of the IDDE complaints received/investigated and closed. The documentation includes the following information:

- A list of illicit discharges to the MS4 including spills reaching the MS4 with information as follows:
  - The source of illicit discharge.
  - The dates that the discharge was observed, reported, or both.
  - Whether the discharge was discovered by Roanoke County during dry weather screening, reported by the public, or other method (describe).
  - How the investigation was resolved.
  - A description of any follow-up activities.
  - The date the investigation was closed.

A summary of the investigations, including the required information above, is provided in the Appendix under the folder titled **BMP 3-3**.

Permit Year	# of Illicit Discharge Complaints Received / Investigated	# of Closed Investigations
(1) 2023 - 2024	49	47*

*\*Two illicit discharge cases remain open and are currently under investigation.*

**TMDL Consistency:**

Identifying and eliminating illicit discharges to the MS4 system helps to minimize the entry of pollutants into local receiving waters. (EC, SED, & PCBs)

**Evaluation and Modification:**

This BMP was strengthened by adding a water testing protocol, which allows staff to conduct field sampling/testing of stormwater to determine if more rigorous laboratory analysis is needed. The County believes that this BMP provides a valuable strategy to detect, identify, and eliminate non-stormwater discharges and illegal dumping into the County's Municipal Separate Storm Sewer System (MS4). No further modifications are planned.

## **BMP 3-4: Dry Weather Screening**

### **Goal:**

The goal of this BMP is to inspect storm drain outfalls to detect illicit discharges during dry weather (i.e., when the storm drainage system would normally be dry) so that actions may be taken to eliminate them.

The County maintains dry weather field screening protocols to detect, identify, and eliminate illicit discharges to the MS4. The protocol includes:

- a) A prioritized schedule of field screening activities and rationale for prioritization determined by Roanoke County based on such criteria as age of the infrastructure, land use, historical illegal discharges, dumping, or cross connections.
- b) A schedule to screen a minimum of 50 outfalls annually such that no more than 50% are screened in the previous 12-month period. The 50% criteria is not applicable if all outfalls have been screened in the previous three years.
- c) A checklist or mechanism to track the following information for dry weather screening events:
  - o The unique identifier for the outfall or observation point.
  - o Time since the last precipitation event.
  - o The estimated quantity of the last precipitation event.
  - o Site descriptions (e.g., conveyance type and dominant watershed land uses).
  - o Observed indicators of possible illicit discharge events, such as floatables, deposits, stains, and vegetative conditions (e.g., dying or dead vegetation, excessive vegetative growth)
  - o Whether or not a discharge was observed.
  - o If a discharge was observed, the estimated discharge rate and visual characteristics of the discharge (e.g., odor, color, clarity) and the physical condition of the outfall.
  - o For observation points, the location, downstream outfall unique identifier, and risk factors or rationale for establishing the observation point.

**NOTE:** The MS4 Permit allows for the adoption of a risk-based approach to dry weather screening identifying observation points based upon illicit discharge risks upstream of an outfall. Should the County opt to implement such a program in the future, observation points may include points of interconnection, manholes, points of discharge, conveyances, or inlets suspected to have a high likelihood of receiving illicit discharges.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County implements an annual outfall inspection program to detect and locate the source of dry weather illicit discharges that enter its MS4. The County will conduct additional outfall inspections, as necessary, to maintain the effectiveness of the program. To enhance the existing program, the County added a water testing protocol to its procedures last year (2022 -

2023) for sites where flow is observed. The enhanced procedures are included in the Appendix in the folder titled **BMP 3-3**.

**Measurable Goals:**

Success for this BMP will be measured by field screening a minimum of 50 outfalls per year and documenting the results of these inspections, as specified above.

- For this permit year, Roanoke County selected 60 outfalls for inspection, using the following criteria, in descending order:

- In the MS4 area
- Drains to an impaired waterway
- Within 1/10th of a mile from the nearest receiving water

The results of these inspections are shown below, and a detailed summary of the inspections is in the Appendix in the folder titled **BMP 3-4**:

Permit Year	# Outfalls Inspected	# of Illicit Discharges Found
(1) 2023 -2024	60	0*

*\*One potential illicit discharge case remains open and is currently under investigation.*

**TMDL Consistency:**

Dry Weather Screening of outfalls aids in the location, identification, and elimination of illicit discharges to the MS4. This method provides staff with the methodology needed to screen, target, test, and monitor the storm drain system to discover existing illegal discharges and illegal connections to the MS4. (EC, SED, & PCBs)

**Evaluation and Modification:**

Roanoke County believes that Dry Weather Screening is a critical component in the detection and elimination of illicit discharges and illicit connections to its storm sewer system. Roanoke County will continue inspecting outfalls. As noted above, a new testing protocol was implemented last permit year as an enhancement to the existing program.



## **MCM-4: Construction Site Stormwater Runoff and Erosion and Sediment Control**

The goal of this minimum control measure is to reduce pollutants that may enter the MS4 via stormwater runoff from construction activities. To accomplish this, the County implements the Virginia Erosion and Stormwater Management Program (VESMP). The BMPs that will be used to satisfy this MCM are listed below:

### **BMP 4-1: Legal Authorities**

Roanoke County utilizes its legal authority, such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements, to ensure compliance with the MS4 Permit for erosion and sediment control and construction site stormwater runoff control.

### **BMP 4-2: Plan Review**

The County conducts plan reviews for proposed construction projects to ensure compliance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements, ensuring proper erosion and sediment controls and stormwater management devices, including their maintenance provisions, are shown on the plan.

### **BMP 4-3: Site Inspections**

The County maintains and implements written inspection procedures to ensure compliance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements and to ensure that onsite erosion and sediment controls are properly implemented and maintained. The County also requires implementation of appropriate controls to prevent non-stormwater discharges to the MS4, such as wastewater, concrete washout, fuels and oils, and other illicit discharges.

### **BMP 4-4: Compliance and Enforcement**

The County maintains and implements written procedures for VESMP compliance and enforcement regarding construction site stormwater runoff requirements.

### **BMP 4-5: Employee and Contractor Certifications**

Roanoke County ensures that employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators obtain the appropriate certifications as required under the Virginia Erosion and Stormwater Management Program (VESMP).

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the strategies to ensure consistency with local TMDLs are also provided, and they are broken down by impairment type: Escherichia coli (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

## BMP 4-1: Legal Authorities

### Goal:

The goal of this BMP is for the County to describe and utilize its legal authorities, such as ordinances, permits, orders, specific contract language, policies, and interjurisdictional agreements, to ensure compliance with Part I.E.4.a. of the MS4 Permit for erosion and sediment control and construction site stormwater runoff control.

The County uses the following legal authorities:

- **Erosion and Stormwater Management (ESM) Ordinance** - will be adopted on August 1, 2024, and integrates the County of Roanoke's stormwater management (SWM) requirements with its erosion and sediment control (ESC) requirements to establish a consolidated program consistent with the Virginia Erosion and Stormwater Management Program (VESMP). The purpose of this ordinance is to ensure the general health, safety, and welfare of its citizens to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater and soil erosion, including protection from land disturbing activities causing unreasonable degradation of properties, water quality, stream channels, steep slopes, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.
  - The ordinance requires ESC controls for all regulated land disturbances of 2,500 square feet or more and an engineered ESC Plan for any land disturbance greater than 10,000 square feet. The ESC Plan must provide for the implementation of appropriate erosion and sediment controls, to include their proper placement, design, and maintenance requirements. The ordinance includes site inspection and compliance/enforcement procedures for erosion and sediment control.
  - The ordinance requires a SWM plan or an Agreement-in-lieu-of a Stormwater Management Plan for all regulated construction activities that disturb 1 acre or greater. The ordinance includes site inspection and compliance/enforcement procedures for active construction and post-construction stormwater management facilities.
- **Erosion and Sediment Control (ESC) Permit** - authorizes commencement of land disturbing activities for which an approved ESC Plan or Agreement-in-lieu-of an ESC Plan have been approved by the County.
- **Agreement-in-lieu-of an Erosion and Sediment Control Plan** - requires compliance with the minimum control measures, as listed in the Virginia Erosion and Sediment Control Regulations (9VAC25-840), for projects that disturb less than 10,000 square feet.
- **Virginia Stormwater Management Program (VSMP) Permit** - issued by the County for projects that will cause one acre or more of land disturbance, and for which there is a County-approved stormwater management plan.

- **Agreement-in-lieu-of a Stormwater Management Plan** - requires compliance with certain stormwater management control strategies and is only applicable for the construction of single-family homes.
- **VSMP Approval (Permit Coverage) Letter issued by Virginia DEQ** - provides Roanoke County with coverage under the MS4 Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems MS4 Permit Number VAR040022.
- **Letter from DEQ Approving Alternative Inspection Program (ESC)** - authorizes Roanoke County to conduct an alternative inspection program for ESC.
- **Stormwater Management Design Manual** - provides design guidelines for regulated land-disturbing projects to ensure compliance with VESMP requirements.

**Responsible Party:**

- The Department of Development Services implements the County's VESMP, which includes conducting plan reviews, site inspections, compliance/enforcement activities, and project permitting.
- The County Attorney's office provides support to the Development Services during compliance/enforcement actions, as necessary.

**Schedule:**

Roanoke County implements an ESM ordinance to comply with Virginia's Erosion and Stormwater Management (VESM) Regulation (9VAC25-875). The County will update its ordinance and supporting documents, as needed, to remain consistent with the state program. The ordinance may be accessed here:

[Erosion and Stormwater Management Program Ordinance](#)

**Measurable Goals:**

Success for this BMP will be measured by the annual evaluation of the ESM ordinance, coordinating updates to the supporting documents, and the continued compliance of the ordinance with the VESMP.

- The aforementioned documents are in the MS4 Program Plan and can be accessed on the County's website at <https://www.roanokecountyva.gov/DocumentCenter/Index/2166>

**TMDL Consistency:**

The Erosion and Stormwater Management (ESM) Ordinance targets the reduction of sediment and other pollutants in stormwater runoff from construction sites. It requires the installation of onsite control measures to ensure compliance under local law. (SED)

**Evaluation and Modification:**

Roanoke County believes that the ESM ordinance is a critical component to aid in reducing sediment and other pollutants carried by stormwater runoff from construction activities into the MS4. No modifications are planned for this BMP.

## BMP 4-2: Plan Review

### Goal:

The goal of this BMP is to conduct plan reviews for proposed construction projects to ensure their compliance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements, ensuring proper erosion and sediment controls and stormwater management devices, including their maintenance provisions, are shown on the plan.

### Responsible Party:

The Department of Development Services.

### Schedule:

Roanoke County reviews construction plans to ensure their compliance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements. The County will update its land development procedures and other supporting documents, as needed, to remain consistent with the state program.

### Measurable Goals:

Success for this BMP will be measured by the County's annual evaluation of the land development procedures and other supporting documents and its documentation of the number of plans approved within the reporting period.

- Roanoke County finds its land development procedures and other supporting documents to be effective. No changes are currently proposed.
- For a summary of the plans that have been reviewed for Permit Year 1 (2023-2024), see the next page.



*Roanoke County staff reviewed 66 plans in Permit Year 5 (2022 – 2023).*

AGREEMENT IN LIEU OF AN EROSION & SEDIMENT CONTROL PLAN	
Owner Name:	Phone Number:
Email Address*:	
Project Name/Address:	
Tax Parcel ID #:	Est. Land Disturbance Amount (sq. ft.):
Responsible Land Disturber (RLD) Information (Applicable if disturbance is ≥ 5,000 square feet)	
Name:	Phone Number:
Address:	Email Address:
RLD Certification Number:	RLD Certification Expiration Date:
Would the General Contractor like to receive Erosion & Sediment Control Inspection reports? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please provide name and email here: _____	
In lieu of submission of an Erosion and Sediment Control Plan for land-disturbing activities associated with the construction of a single family residential structure, or for land-disturbing activities for other types of development that disturb less than 10,000 square feet, I agree to comply with reasonable requirements determined necessary by the County of Roanoke. Such requirements shall be based on the conservation standards contained in the County of Roanoke's Erosion and Sediment Control Ordinance, and shall represent the minimum practices necessary to provide adequate control of erosion and sedimentation on or resulting from this project.	
At a minimum, sediment shall be contained on the site by adequate perimeter controls, and all disturbed areas shall be stabilized within seven (7) calendar days of final grading with permanent vegetation or a protective ground cover suitable for the time of year.	
I further understand that failure to comply with such requirements within three (3) working days following notice by the County of Roanoke may result in a citation for violation of the County of Roanoke's Erosion and Sediment Control Ordinance. The County of Roanoke may also require that an engineered site plan be submitted to correct the violations.	
Owner Signature: _____	Date: _____
Approved By: _____	Date: _____

\*If owner does not have an email address please provide mailing address.

Rev 02-02-2021

*Roanoke County staff issued 126 Agreements-in-lieu of a plan in Permit Year 1 (2023 – 2024).*

Permit Year	# of ESC Plan Reviews	# of VSMP Plan Reviews	# of Agreement-in-lieu-of ESC Plans	# of Agreement-in-lieu-of SWM Plans
(1) 2023 - 2024	<b>23 SFR</b> 0 TOV; 23 RoCo  <b>12 Commercial</b> 3 TOV; 9 RoCo	<b>2 SFR</b> 0 TOV; 2 RoCo  <b>21 Commercial</b> 2 TOV; 19 RoCo	<b>88 SFR</b> 3 TOV; 85 RoCo  <b>38 Commercial</b> 5 TOV; 33 RoCo	<b>24 SFR</b> 0 TOV; 24 RoCo

TOV = Town of Vinton RoCo = Roanoke County

**TMDL Consistency:**

Conducting plan reviews for ESC and VSMP compliance helps to ensure that active construction projects minimize sediment and other pollutants in their stormwater runoff. Both ordinances require the installation of onsite control measures to control pollutants. (SED)

**Evaluation and Modification:**

Roanoke County believes that ESC and VSMP plan reviews are critical components to aid in reducing sediment and other pollutants carried by stormwater runoff from construction activities into its MS4. No modifications are planned for this BMP.

## **BMP 4-3: Site Inspections**

### **Goal:**

The goal of this BMP is to maintain and implement written inspection procedures to ensure compliance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements and to ensure that onsite erosion and sediment controls are properly implemented and maintained.

Further, Roanoke County will require implementation of appropriate controls to prevent non-stormwater discharges to the MS4, such as wastewater, concrete washout, fuels and oils, and other illicit discharges identified during land disturbing activity inspections. Non-stormwater discharges through the MS4, other than those identified in 9VAC25-890-20 D, are NOT authorized by the MS4 Permit.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County maintains and implements site inspection procedures to comply with the VESMP. The County will update these procedures and supporting documents, as necessary, to remain consistent with the program, as they relate to construction site stormwater runoff. In addition, the County conducts inspections pursuant to its Alternate Inspection Schedule, as approved by DEQ.

### **Measurable Goals:**

Success for this BMP will be measured by the annual evaluation of the written VESMP site inspection procedures and the number of inspections conducted.

Permit Year	Total # of ESC Inspections	Total # of VSMP Inspections
(1) 2023 – 2024	<b>1547 SFR</b> 46 TOV; 1501 RoCo  <b>834 Commercial</b> 25 TOV; 809 RoCo	<b>109 SFR</b> 2 TOV; 107 RoCo,  <b>107 Commercial</b> 3 TOV; 104 RoCo

TOV = Town of Vinton RoCo = Roanoke County

### **TMDL Consistency:**

Conducting ESC and VSMP site inspections of construction activities helps to ensure that the required controls, as shown on the approved plan, are implemented and properly maintained in the field; such controls help reduce sediment in stormwater runoff from construction sites. (SED)

### **Evaluation and Modification:**

Roanoke County believes that conducting ESC and VSMP site inspections against written procedures and the approved plan helps to reduce sediment and pollutants in stormwater runoff during land-disturbing activities. No modifications are planned for this BMP.

## BMP 4-4: Compliance and Enforcement

### Goal:

The goal of this BMP is to maintain and implement written procedures for requiring compliance on active construction sites through corrective action or enforcement action in accordance with the Virginia Erosion and Stormwater Management Program (VESMP) requirements.

### Responsible Party:

- The Department of Development Services holds the overall responsibility to implement the
- County's Erosion and Stormwater Management (ESM) program to assure compliance with the VESMP, which includes conducting plan reviews, site inspections, compliance/enforcement activities, and project permitting.
- The County Attorney's office provides support to the Department of Development Services during compliance/enforcement actions, as necessary.

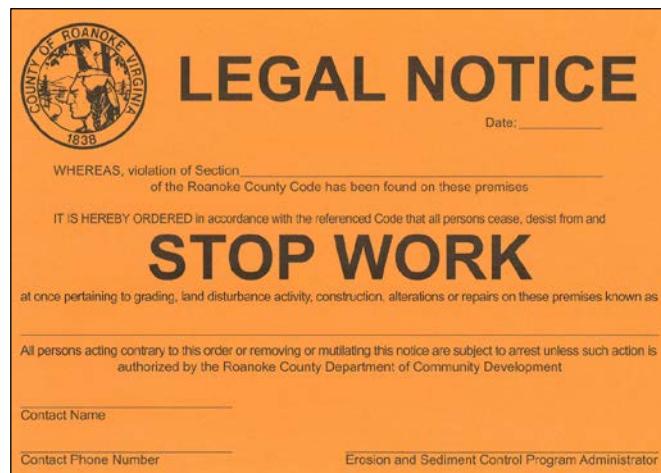
### Schedule:

Roanoke County implements compliance and enforcement procedures to assure compliance with the VESMP on active construction sites. The County will revise its written compliance/enforcement procedures, as needed.

### Measurable Goals:

Success for this BMP will be measured by the annual evaluation of the VESMP compliance/enforcement procedures and documentation of the total number and type of compliance/enforcement actions implemented.

- Roanoke County finds its written VESMP compliance and enforcement procedures and other supporting documents to be effective. With the recent consolidation of the erosion and sediment control programs, no further changes are currently proposed.
- A summary of the enforcement actions taken for this reporting period, including the number and type of enforcement actions, is shown below; supporting data is included in the Appendix in the folder titled **BMP 4-4**.



Year	# of ENFORCEMENT ACTIONS			
	Notice to Comply (NTC)	Stop Work Order (SWO)	Notice of Permit Requirement (NOP)	Civil Penalty (Summons)
(1) 2023 - 2024	26 24 RoCo, 2 TOV	23 23 RoCo, 0 TOV	2 2 RoCo, 0 TOV	1 1 RoCo, 0 TOV

TOV = Town of Vinton RoCo = Roanoke County

**TMDL Consistency:**

Conducting ESC and VSMP compliance and enforcement activities helps to ensure that active construction projects minimize sediment and other pollutants in their stormwater runoff. (SED)

**Evaluation and Modification:**

Roanoke County believes that ESC and VSMP compliance and enforcement activities are critical components to aid in reducing sediment and other pollutants carried by stormwater runoff from construction activities into its MS4. No modifications are planned for this BMP.

## **BMP 4-5: Employee and Contractor Certifications (Revised)**

### **Goal:**

The goal of this BMP is to ensure that employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators shall obtain the appropriate certifications as required under the Virginia Erosion and Stormwater Management Program (VESMP).

In addition, employees who oversee the performance of regulated land disturbance activities conducted by the County will have the qualifications to properly implement erosion and sediment control measures and will be DEQ-certified as Responsible Land Disturbers in accordance with the VESMP.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County requires employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators to obtain the appropriate certifications as required under the VESMP. Employees who oversee the performance of regulated land disturbance activities conducted by the County will be DEQ-certified as Responsible Land Disturbers.

EMPLOYEE	CERTIFICATION	CERTIFICATION #	EXPIRATION DATE
Jeff Altice	RLD	39411	4-28-25

### **Measurable Goals:**

Success for this BMP will be measured by maintenance of the Responsible Land Disturber certification for the applicable employees and by maintenance of pertinent certifications for employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators. For other staff certifications, see the folder in the Appendix titled **BMP 4-5**.

### **TMDL Consistency:**

Requiring employees who oversee the performance of regulated land disturbance activities to have proper qualifications to implement erosion and sediment control measures helps to minimize the amount of sediment that leaves the construction site and thereby minimizes the potential of sedimentation in receiving waters. (SED)

### **Evaluation and Modification:**

Roanoke County will continue to require specific personnel to hold the proper RLD and other applicable certifications. No modifications are planned for this BMP.



## **MCM-5: Post-Construction Stormwater Management for New Development and Development on Prior-Developed Lands**

The goal of this minimum control measure is to address post-construction stormwater runoff that enters the County's MS4 by implementing a post-construction stormwater runoff management program, which includes maintenance and inspection requirements, to comply with the Virginia Erosion and Stormwater Management Program (VESMP). The BMPs that will be used to satisfy this minimum control measure are listed below:

### **BMP 5-1: Stormwater Management Legal Authorities**

Roanoke County utilizes certain legal authorities to comply with Virginia's Erosion and Stormwater Management Program (VESMP) Regulations.

### **BMP 5-2: Inspections for Post-Construction Stormwater Management Facilities**

Roanoke County maintains and implements written inspection and maintenance procedures for post-construction stormwater management facilities (SWMFs) that discharge to the MS4 (both public and private) to ensure their adequate long-term operation and maintenance pursuant to the VESMP requirements.

### **BMP 5-3: Stormwater Management Facility Tracking**

Roanoke County maintains and implements an electronic database or spreadsheet of all known County-owned and privately-owned stormwater management facilities that discharge into the MS4.

### **BMP 5-4: Strategies to Encourage Long-Term Maintenance of Stormwater Control Measures on Single Family Residential Lots**

Roanoke County implements strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual single family residential lot. These strategies are used in lieu of recorded maintenance agreements and post-construction inspections by the County.

### **BMP 5-5: Storm Sewer System Maintenance**

Roanoke County implements a program to maintain and repair its storm sewer system within its MS4 program area. Such maintenance helps to keep the system working as designed, which minimizes the risk of surcharging and overflows; it also helps to minimize street flooding associated with clogged inlet structures and conveyances.

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the strategies to ensure consistency with local TMDLs are also provided, and they are broken down by impairment type: *Escherichia coli* (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

## **BMP 5-1: Stormwater Management Legal Authorities**

### **Goal:**

The goal of this BMP is to maintain and use certain legal authorities to comply with the Virginia Erosion and Stormwater Management Program (VESMP), as it relates to post-construction stormwater management facilities. The County uses the following legal authorities:

- **Erosion and Stormwater Management (ESM) Ordinance** - will be adopted on August 1, 2024, and integrates the County of Roanoke's stormwater management (SWM) requirements with its erosion and sediment control (ESC) requirements to establish a consolidated program consistent with the Virginia Erosion and Stormwater Management Program (VESMP). The purpose of this ordinance is to ensure the general health, safety, and welfare of its citizens to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater and soil erosion, including protection from land disturbing activities causing unreasonable degradation of properties, water quality, stream channels, steep slopes, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.
  - The ordinance requires ESC controls for all regulated land disturbances of 2,500 square feet or more and an engineered ESC Plan for any land disturbance greater than 10,000 square feet. The ESC Plan must provide for the implementation of appropriate erosion and sediment controls, to include their proper placement, design, and maintenance requirements. The ordinance includes site inspection and compliance/enforcement procedures for erosion and sediment control.
  - The ordinance requires a SWM plan or an Agreement-in-lieu-of a Stormwater Management Plan for all regulated construction activities that disturb 1 acre or greater. The ordinance includes site inspection and compliance/enforcement procedures for active construction and post-construction stormwater management facilities.

### **Responsible Party:**

- The Department of Development Services has the overall responsibility to implement the County's ESM Ordinance.
- The County Attorney's office provides support to the Department of Development Services during compliance/enforcement actions, as necessary.

### **Schedule:**

Roanoke County implements an ESM Ordinance to comply with the Virginia Erosion and Stormwater Management Program (VESMP). The County will update this ordinance and the supporting documents, as necessary, to remain consistent with the VESMP.

### **Measurable Goals:**

Success for this BMP will be measured by an annual evaluation of the ESM Ordinance.

- Roanoke County will retire its Stormwater Management and Erosion and Sediment Control Ordinances and replace them with the new consolidated Erosion and Stormwater Management Ordinance, which will become effective on August 1, 2024.

This change was necessary to align with the recently adopted Virginia Erosion and Stormwater Management Regulation (9VAC25-875), which became effective July 1, 2024.

- The County's new ESM ordinance is posted on its website at:  
[Erosion and Stormwater Management Program Ordinance](#)

**TMDL Consistency:**

The County's Erosion and Stormwater Management Ordinance requires the property owner to provide for the maintenance and repair of their stormwater structures and stormwater management facilities. This helps to ensure that such structures and facilities operate properly, which in turn helps to minimize sediment and bacteria in stormwater runoff from such facilities. (SED & EC)

**Evaluation and Modification:**

The County's Erosion and Stormwater Management Ordinance is an effective means to achieve compliance. The ordinance provides the necessary enforcement options to ensure that property owners provide for the maintenance and repair of their stormwater structures and stormwater management facilities. Modifications are not currently planned for this BMP.

## **BMP 5-2: Inspections for Post-Construction Stormwater Management Facilities**

### **Goal:**

The goal of this BMP is to develop and implement written inspection and maintenance procedures for both County-owned and privately-owned post-construction stormwater management (SWM) facilities to provide for their long-term operation and maintenance pursuant to the Virginia Erosion and Stormwater Management Program (VESMP) requirements.

Inspections will be conducted as follows:

- County-owned SWM facilities will be annually inspected.
  - When it is determined that maintenance is required during inspections of County-owned facilities, Roanoke County (or the Roanoke County Public Schools, as appropriate) will conduct the maintenance in accordance with its written procedures.
- The County will inspect privately-owned SWM facilities that discharge into the MS4 once every 5 years. In addition, the County will:
  - Assure adequate long-term operation and maintenance by the owner of the stormwater management facility by requiring the owner to develop and record a maintenance agreement, including an inspection schedule to the extent allowable under state or local law or other legal mechanism.
  - Utilize its legal authority for enforcement of the maintenance responsibilities if maintenance is neglected by the owner.
  - Implement a progressive compliance and enforcement strategy, which is included in this MS4 Program Plan.
    - The County may utilize the inspection reports provided by the owner of a stormwater management facility as part of its inspection and enforcement program.

### **Responsible Party:**

The Department of Development Services, with assistance from the County Attorney's office during compliance/enforcement actions, as needed.

- Note that Roanoke County Public Schools (RCPS) rely on the County's Department of Development Services to conduct inspections of school-owned SWMFs; however, RCPS conducts any required maintenance for school-owned SWMFs.

### **Schedule:**

Roanoke County maintains and implements written inspection and maintenance procedures to ensure adequate long-term operation and maintenance of post-construction stormwater management facilities. The County will update these procedures and supporting documents, as necessary, to remain consistent with the VESMP.

### **Measurable Goals:**

Success for this BMP will be measured by the annual evaluation of the written post-construction inspection procedures and completion of the required post-construction inspections.

- Roanoke County finds its post-construction stormwater management facility inspection/maintenance and compliance/enforcement procedures to be effective at this time. No changes are currently proposed.

In addition, as required by the MS4 Permit, the report contains the following information:

- The number of privately-owned SWMF inspections conducted. (See **Table 5-2**.)
  - The number of enforcement actions initiated by Roanoke County to ensure long-term maintenance of privately-owned SWMFs including the type of enforcement action. (See **Table 5-2**.)
- Total number of inspections conducted on SWMFs owned by Roanoke County and RCPS. (See **Table 5-2**.)
  - A description of the significant maintenance, repair, or retrofit activities performed on the SWMFs owned or operated by Roanoke County and RCPS to enable them to continue to function as designed. (This does not include routine activities such as grass mowing or trash collection.)
    - During this permit year, Roanoke County inspected all its public SWMFs and conducted routine maintenance, where needed. See folder titled **BMP 5-2** in the Appendix for inspection results for each public facility.
    - Some significant maintenance, repair, or retrofit activities were performed in the permit year, as follows:
      - Development Services removed 120 cubic yards of sediment from the Hidden Valley High School forebay.
      - Economic Development hired a contractor to repair a catastrophic inlet pipe failure leading to one of the lower detention ponds located at its Center for Research & Technology (CRT). The pipe failure resulted in bank erosion and sediment build-up in the bottom of the pond, which went into and eventually above the outlet of the outflow structure. The contractor repaired and replaced approximately 60' of inlet pipe on a downslope leading to the pond. The contractor also removed all eroded sediment from the pond, structures, and outflow, and he seeded/stabilized the disturbed areas.
      - General Services hired a firm to rehabilitate the bioretention facility and complete a confined space inspection of the underground detention system at the Fleet Services Center. They also replaced the Contech filtration system at the old "Comm" Shop. See the folder titled **BMP 5-2** in the Appendix for the project job reports.

**Table 5-2. SWMF Inspection Summary.**

Permit Year	Private SWMFs			Public BMPs (Owned by County or RCPS)	
	Total #	# Inspected	# of Enforcement Actions	Total #	# Inspected
(1) 2023 - 2024	<b>705</b> 663 RoCo, 42 TOV	<b>320</b> 291 RoCo, 29 TOV	0	<b>87</b> 34 RoCo; 49 RCPS; 4 TOV	<b>87</b> 34 RoCo; 49 RCPS; 4 TOV

TOV = Town of Vinton RoCo = Roanoke County RCPS = Roanoke County Public Schools

- During this permit year, Roanoke County inspected all SWMFs owned/operated by Roanoke County Public Schools (RCPS). RCPS conducted routine maintenance and repairs, where needed. See folder titled **BMP 5-2** in the Appendix for inspection results for each RCPS facility.
- During this permit year, Roanoke County inspected all SWMFs owned/operated by Town of Vinton (TOV). TOV conducted routine maintenance, where needed. Contact the TOV to access its maintenance/repair records.

**TMDL Consistency:**

This BMP ensures that all permanent stormwater management facilities (SWMFs) are adequately maintained and properly functioning, which is critical for flood protection and erosion prevention. (SED)

**Evaluation and Modification:**

Roanoke County believes that inspecting permanent stormwater management facilities is a critical component in reducing pollutants in and reducing volume and velocity of stormwater runoff from developed sites. No modifications are planned for this BMP.

## **BMP 5-3: Stormwater Management Facility Tracking**

### **Goal:**

The goal of this BMP is to maintain an electronic database or spreadsheet of all known County-owned and privately-owned stormwater management facilities that discharge into the MS4. This spreadsheet is available online at the following webpage:

<https://www.roanokecountyva.gov/stormwater>

The County's database will include the following information, as applicable:

- The SWMF type
- The SWMF location (latitude and longitude)
- The 6th Order Hydrologic Unit Code in which the SWMF is located
- The acres treated by the SWMF, including total acres, impervious acres, and pervious acres
- The date the SWMF was brought online (MM/YYYY). If the date brought online is not known, the County will use June 30, 2005
- Indication as to whether the SWMF is owned by the County or privately-owned
  - If the stormwater management facility is privately-owned, whether or not a maintenance agreement exists
- Indication as to whether the SWMF is part of Roanoke County's local TMDL action plans
- The date of Roanoke County's most recent inspection of the SWMF

### **Responsible Party:**

The Department of Development Services, with the assistance of the Department of Information Technology.

### **Schedule:**

- The electronic database or spreadsheet of all known County-owned and privately-owned SWMFs that discharge into the MS4 will be updated no later than 30 days after (1) a new SWMF is brought online, (2) a new BMP is implemented to meet a TMDL load reduction, or (3) after discovery of an existing SWMF.
- Roanoke County will use the Virginia Construction Stormwater MS4 General Permit database for those land disturbing activities for which it was required to obtain coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities in accordance with Part III.B.1. of the MS4 permit or a statement that the County did not complete any projects requiring coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities.

- No later than October 1 of each year, Roanoke County will electronically report all other SWMFs and BMPs implemented between July 1 and June 30 of each year using the DEQ BMP Warehouse and associated reporting template.

**Measurable Goals:**

Success for this BMP will be measured by updating of the electronic database or spreadsheet and by submittal of the SWMF information to DEQ through the Virginia Construction Stormwater MS4 General Permit database and the DEQ BMP Warehouse, as described above.

- Roanoke County confirms that it submitted SWMF information through the Virginia Construction Stormwater MS4 General Permit database for those land disturbing activities for which the County was required to obtain coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities in accordance with Part III B 1 of the MS4 permit (9VAC25-880).
- - Roanoke County enters new SWMF information in the DEQ Construction General Permit tracking system when the Notice of Termination for the associated project is entered to initiate project closeout.

PROJECT	VSMP Permit
Roanoke County CTE	VAR10T548 issued 2/15/24; reissued 7/1/24
Explore Park Road Realignment	Part of Master Explore Park VSMP - VAR10L212 issued 7/6/18; reissued 7/1/24
William Byrd Renovations and Additions	VAR10R162 issued 5/19/22; reissued 7/1/24
Wolf Creek Stream Restoration - Phase 2	VAR10R827, issued 4/6/2023; and reissued 7/1/2024
West Roanoke River Greenway, Phase 1	VAR10S851, issued 8/10/2023; reissued 7/1/2024
East Roanoke River Greenway - Connector	VAR10S845, issued 8/10/2023; reissued 7/1/2024
East Roanoke River Greenway - Extension	VAR10R083, issued 5/3/2022; Notice of Termination received 12/5/2023
East Roanoke River Greenway, Phase 1	VAR10R083, issued 5/3/2022; Notice of Termination received 12/5/2023
Stream Restoration of a Tributary of Mud Lick Creek along Canter Drive	Registration Statement submitted 8/27/2024 (submitted after reporting period for this report)

- Roanoke County confirms that it electronically reports SWMFs using the DEQ BMP Warehouse in accordance with Part III.B.1. and 2. of the MS4 Permit.
- Roanoke County confirms that it electronically reports SWMFs inspected using the DEQ BMP Warehouse in accordance with Part III.B.5. of the MS4 Permit.

### New Stormwater Facilities Brought Online

HUC	#	Acres Treated
030101010301 (RU09)	2	32.80
030101010402 (RU12)	2	5.28
030101010404 (RU14)	1	2.68
<b>TOTAL</b>	<b>5</b>	<b>40.76</b>

#### **TMDL Consistency:**

Tracking permanent SWMFs helps to ensure that all permanent stormwater management facilities are inspected, adequately maintained, and properly functioning, which is critical for flood protection and erosion prevention. (SED)

#### **Evaluation and Modification:**

Roanoke County believes that tracking permanent SWMFs helps to ensure that these facilities are routinely inspected, adequately maintained, and properly functioning, which is critical for flood protection and erosion prevention. No modifications are planned for this BMP.

## **BMP 5-4: Strategies to Encourage Long-Term Maintenance of Stormwater Control Measures on Single Family Residential Lots**

### **Goal:**

The goal of this BMP is to implement strategies to promote the long-term maintenance of stormwater control measures that are intended to treat stormwater runoff solely from the individual single family residential (SFR) lot. These strategies will be used to replace recorded maintenance agreements and post-construction inspections by the County.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County implements various strategies to promote the long-term maintenance of stormwater control measures to treat runoff from SFR structures. The County will update these strategies, as necessary, to remain consistent with the VESMP program.

### **Measurable Goals:**

Success for this BMP will be measured by tracking the number of new residential lots covered by the strategies, proper implementation of the strategies, and evaluating the effectiveness of the strategies in promoting the long-term maintenance of stormwater control measures.

- See folder titled **BMP 5-4** in the Appendix for a list of the **10 new SFRs** covered by the strategies, which include:
  - Directing stormwater runoff from rooftops as non-erosive sheet flow to well-vegetated areas on the property to the maximum extent practicable
  - Directing stormwater runoff from impervious surfaces (e.g., driveways, parking areas, sidewalks) as non-erosive sheet flow to well-vegetated areas on the property to the maximum extent practicable, and
  - Directing stormwater runoff from lawns as non-erosive sheet flow to undisturbed naturally vegetated areas on the property to the maximum extent practicable.
- The County's Fact Sheet entitled "Tips for Homeowners: Stormwater Best Practices" provides strategies and maintenance tips for residential stormwater practices. The County has used the information from the Fact Sheet in several issues of the annual newsletter entitled Stormwater Guide for Homeowners. A direct link to the Fact Sheet is provided here: <https://www.roanokecountyva.gov/DocumentCenter/View/7072/SW-Tips-for-Homeowners-?bidId=>

The newsletters are posted here: <https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>

### **TMDL Consistency:**

By implementing strategies to promote the long-term maintenance of stormwater control measures that are designed to treat stormwater runoff solely from the individual residential lot, this BMP helps to assure that such sites are not contributing large volumes of sediment to receiving waters. (SED)

## Evaluation and Modification:

Roanoke County believes this is an effective BMP to address the maintenance of relatively simple stormwater management practices used on individual single-family residences (SFRs). No modifications are currently planned for this BMP.

# Tips for Homeowners Stormwater Best Practices

### Introduction

The County of Roanoke has a Municipal Separate Storm Sewer System (MS4) program to protect and improve water quality in its receiving waters, which includes the Roanoke River and all of its tributaries. Currently, many of these waters are impaired due to excess levels of sediment, bacteria, and PCBs.

Many pollutants from lawns, such as leaf and grass clippings, sediment from bare lawn areas, and nutrients from fertilizers end up in the storm drain system where they are carried - UNTREATED - to the nearest receiving waters.

Also, new paved surfaces like rooftops, driveways, and sidewalks associated with the construction of new homes and businesses cause an increase in the volume and velocity of stormwater runoff, because rainwater cannot percolate through such hard surfaces. The result: more flooding and erosion damage on neighboring properties and in local creeks, streams, and rivers.

As part of the County's efforts to protect and improve its local waters, like the Roanoke River, business owners and residents alike are being asked to take a proactive part in protecting water quality and to become part of the bigger effort to clean up these waterways.

By following just a few Best Management Practices (BMPs) on your residential lot, you can make a difference in the quality of stormwater runoff and the receiving waters into which it drains and still have a beautiful new home, complete with a lush, green lawn.

### Minimize Stormwater Runoff

To help slow down and decrease the volume of runoff from your property, consider implementing one or more of the following:

- Minimize paved areas.
- Mulch all flower beds.
- Build a rain garden planted with ornamentals.
- Keep lawn areas thick and healthy.
- Convert concentrated runoff from downspouts to sheet flow by directing it to well-vegetated areas, not pavement.
- Where feasible, grade lots to drain toward undisturbed, naturally vegetated areas, like woods or meadows.

### Maintain and Enhance Natural Waterways

- Avoid clearing, grading, and fertilizing directly adjacent to waterways.
- Avoid dumping grass clippings and leaves into waterways, storm drains, curb and gutter systems, ditches, and detention ponds.
- Plant native vegetation along drainage-ways to prevent erosion.

### Reuse / Re-direct Rainwater

- Install rain barrels attached to roof downspouts to capture rain for later use to water lawns, gardens, trees, shrubs, and other plants.
- Reusing rainwater decreases the amount of stormwater, nutrients, sediment, and other pollutants that eventually flow to local creeks, streams, and rivers.
- Direct runoff from rooftops, concrete, asphalt, and other impervious areas to lawn areas, instead of into storm drains, to minimize runoff and enhance groundwater recharge.



**RAIN BARREL**  
Photo source: <http://www.epa.gov>

### Utilize Proper Erosion and Sediment (E&S) Controls for Residential Land-Disturbing Projects

- Sediment from erosion clouds waterways, preventing the growth of aquatic grasses; this adversely affects all other life in such waters.
- Mudlick Creek, Mason Creek, and the Roanoke River are all currently impaired due to sediment. Without use of proper E&S controls for land-disturbing projects, other local waterways may become similarly impaired from excessive sediment.
- Although your landscaping project may not require an Erosion and Sediment Control plan or a land disturbance permit, it is still important to utilize E&S measures to prevent erosion.
- Employ these BMPs to prevent erosion and to protect receiving waters: (1) install silt fence around bare areas, (2) cover dirt or mulch stockpiles when not being used, and (3) install straw mulch or matting over newly seeded areas.

### Implement Alternative Lawn Maintenance Practices

- Install grass alternatives like ground cover, plants, shrubs, trees, and perennials to decrease runoff and pollutants, like fertilizer and herbicide, especially in areas with highly erodible soils and steep slopes.
- Utilize slow release fertilizer or till in some compost on lawns.
- Test the soil every year to ensure that the correct amounts of soil amendments are being used.
- Use a Nutrient Management Plan, which is tailor-made for each lawn and details how much fertilizer to use and when to use it.

For questions or more information, contact:  
Roanoke County Stormwater Program Manager  
540.772.2036  
[clinkenhoker@roanokecountyva.gov](mailto:clinkenhoker@roanokecountyva.gov)

## BMP 5-5 Storm Sewer System Maintenance

### Goal:

The goal of this BMP is to actively maintain and repair the County's storm sewer (i.e., drainage) system in its MS4 program area. Such maintenance helps to keep the system working as designed, which minimizes the risk of surcharging and overflows; it also helps to minimize street flooding associated with clogged inlet structures and conveyances. In addition, the County's maintenance crews have the potential to discover illicit connections and observe where pollutants may be entering the regulated storm sewer system.

### Responsible Party:

The Department of Development Services, Division of Stormwater Operations.

### Schedule:

Roanoke County implements and is committed to continuing its storm sewer (drainage) system maintenance program. The number of large stormwater maintenance/repair projects will be documented. In addition, the number of emergency projects and small-scale maintenance/repair projects completed each year will be tracked.

### Measurable Goals:

Success for this BMP will be measured by the continuation of this program, and the increase in total value of improvement that has been completed to maintain the storm sewer system.

- The Stormwater Operations Division of the Department of Development Services employs two stormwater construction / maintenance crews with a total of 8 employees. These crews perform a large variety of duties including installation of pipes and structures, repair of damaged structures, emergency response to flooding problems, and other County storm drain system maintenance. In this permit year, the following were completed:

Permit Year	Total Projects					Annual Period Improvement Value
	Large/ Other	Small	Emergency/ High Priority	Inter-Departmental	Routine/ Repetitive	
(1) 2023 - 2024	9	9	10	8	20	\$1,288,200

Implementation of these projects resulted in the following:

- Pipe installed = **612 feet**
- Properties improved = **75**
- Channel improvements = **1,334** feet (open/rip rap channel)
- Total restoration area = **58,164** square feet
- Total amount of sediment removed = **120 cubic yards**
- Completed Projects = **55** (see above)

A total of **4,844 labor** hours were committed towards maintenance and improvements to the municipal storm sewer system.

**TMDL Consistency:**

Implementation of this program ensures the County's regulated storm sewer system is regularly maintained and properly functioning, and it also includes improvements to eroding stream banks and channels. This program directly remediates existing areas of erosion and stabilizes the system, removing the input of sediment to the local streams and channels. (SED) This program also increases the potential for discovering illicit connections to the storm drain system. (EC)

**Evaluation and Modification:**

Roanoke County will continue to maintain the County's storm sewer system to keep the system properly functioning. Such work also provides an opportunity for the County to discover potential illicit connections its MS4. No modifications are planned for this BMP.



*County drainage crew improving an existing storm drainage system.*



## **MCM-6: Pollution Prevention and Good Housekeeping for Facilities Owned or Operated by the Permittee Within the MS4 Service Area**

The goal of this minimum control measure is to implement a Pollution Prevention and Good Housekeeping Program for County-owned facilities within the MS4 Permit area. The following BMPs will be used to satisfy this minimum control measure:

### **BMP 6-1: Spill Prevention, Control, and Countermeasure Plans**

Roanoke County has developed and will maintain Spill Prevention, Control, and Countermeasures (SPCC) plans for some of its municipal facilities. These plans will be updated, and new plans will be prepared, as needed.

### **BMP 6-2: Standard Operating Procedures (SOPs) for Pollution Prevention and Good Housekeeping**

Roanoke County will develop, maintain, and implement written standard operating procedures (SOPs) for Pollution Prevention and Good Housekeeping to cover daily operations and maintenance activities at County-owned facilities that have a potential of discharging pollutants directly or with stormwater runoff into the MS4. The SOPs will be used in the County's training activities.

### **BMP 6-3: Employee Training**

Roanoke County implements Pollution Prevention and Good Housekeeping training on a biannual basis for applicable County employees to support the requirements of the MS4 Permit.

### **BMP 6-4: Stormwater Pollution Prevention Plans for Municipal Facilities**

Roanoke County will identify all high-priority facilities that have a high potential to discharge pollutants in stormwater. Stormwater Pollution Prevention Plans (SWPPPs) will be prepared, implemented, and maintained. SWPPPs will be used in training activities.

### **BMP 6-5: Nutrient Management Plans**

Roanoke County will ensure that excessive nutrients are not being applied to County-owned lands by maintaining and implementing 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 County where nutrients are applied to a contiguous area greater than one acre.

### **BMP 6-6: Pesticide Applicator Certification**

All employees and contractors hired by the County who apply pesticides and herbicides shall be trained and certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia).

This report provides a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the overall MS4 Program goals. In addition, the strategies to ensure consistency with local TMDLs are also provided, and they are broken down by impairment type: Escherichia coli (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).

## BMP 6-1: Spill Prevention, Control, and Countermeasure Plans

### Goal:

The goal of this BMP is to develop, maintain, and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans for appropriate municipal facilities, as required by Federal Oil Spills Prevention and Preparedness Regulations (40 CFR Part 112), to help municipal facilities prevent a discharge of oil into navigable waters or adjoining shorelines.

### Responsible Party:

The Department of Development Services is responsible to develop and update SPCC plans. Applicable departments are responsible for compliance with SPCC plans.

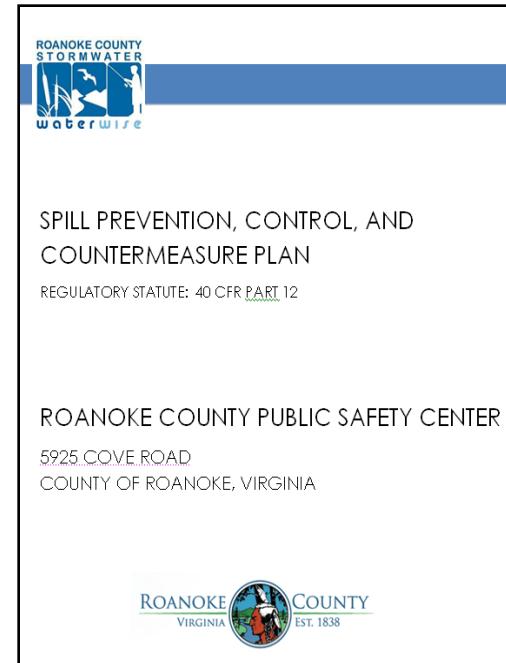
### Schedule:

Roanoke County updates its SPCC plans, as necessary, and creates new plans for County facilities, as needed. Training is provided for those employees who are involved with any County SPCC plan.

### Measurable Goals:

Success for this BMP is measured by (1) the updating of existing SPCC plans in accordance with Federal Oil Spills Prevention and Preparedness Regulations (40 CFR Part 1120), which require plans to be reviewed and updated every 5 years, or when a change has occurred; and (2) the creation of new SPCC plans for applicable County facilities. For this permit year:

- The County facilities that currently have a SPCC plan are listed below. These SPCC plans were revised in August/September 2021 to meet Federal regulations, which require SPCC plans to be updated every 5 years. These plans were previously revised in 2016. The completed SPCC plans may be viewed on the website in the County's MS4 Program Plan, which may be accessed here:  
<https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>
  - Cave Spring Fire Station
  - Clearbrook Fire Station
  - Fort Lewis Fire Station
  - Hollins Fire Station
  - Fleet Service Center
  - Public Safety Center
- There were no changes in operations in this reporting period that necessitated revisions to the SPCC plans, nor were there any additional facilities identified that need a SPCC Plan.



**TMDL Consistency:**

This BMP minimizes the potential for oil spills to enter the MS4. Having updated SPCC Plans aids in the education of County employees who work in areas where there is some risk of oil spills. This BMP does not directly address any of the County's TMDL requirements.

**Evaluation and Modification:**

SPCC plans are required for facilities per 40 CFR Part 112. The County finds this to be an effective BMP to assure the proper storage of oil. No modifications are planned for this BMP.

## BMP 6-2: Standard Operating Procedures (SOPs) for Pollution Prevention and Good Housekeeping

### Goal:

Roanoke County will develop, maintain, and implement written standard operating procedures (SOPs) for Pollution Prevention and Good Housekeeping to help prevent pollutant discharge from daily operations and maintenance activities at County-owned facilities that have a potential of discharging pollutants directly or with stormwater runoff into the MS4. The SOPs will be used in the County's employee training program, and will be designed to meet the following objectives:

- 1) Prevent illicit discharges.
- 2) Ensure County staff or contractors properly dispose of waste materials, including landscape wastes and prevent waste materials from entering the MS4.
- 3) Prevent the discharge of wastewater or wash water not authorized in accordance with 9VAC25-890-20 D.3.u. into the MS4 without authorization under a separate VPDES permit.
  - a. The County shall assure that Contractors employed by the County and engaging in activities described in this BMP follow established good housekeeping procedures and use appropriate control measures to minimize the discharge of pollutants to the MS4. This may be accomplished through use of contract language, training, written procedures, or other measures within its legal authority
- 4) Minimize the pollutants in stormwater runoff.

### Responsible Party:

The Department of Development Services develops, evaluates, and amends the written SOPs for Pollution Prevention and Good Housekeeping and provides support to applicable departments, the latter of which are responsible to comply with the SOPs that are pertinent to their activities.

COUNTY OF ROANOKE  
VIRGINIA



Standard Operating Procedures (SOPs)

### Pollution Prevention and Good Housekeeping

August 2024

To access these SOPs, click here: [MS4 Program Plan BMP 6-2](#)

**Schedule:**

The SOPs for Pollution Prevention and Good Housekeeping will be annually evaluated and revised, as needed.

**Measurable Goals:**

Success for this BMP will be measured by the annual evaluating and updating of the written SOPs, as needed, and by their use in the County's employee training program.

Pursuant to the MS4 Permit requirements, the County revised its SOPs in 2024, as follows:

- To better align with their purpose, the County changed the name of the SOPs from "Water Quality Related SOPs" to "SOPs for Pollution Prevention and Good Housekeeping." These SOPs are in the County's MS4 Program Plan in BMP 6-2 and may be accessed by clicking: [MS4 Program Plan BMP 6-2](#).
- The County updated its SOPs for Pollution Prevention and Good Housekeeping in 2024 to assure the following topics are covered, as required by the MS4 Permit:
  - 1) Road, street, sidewalk, and parking lot maintenance and cleaning.
  - 2) Renovation and significant exterior maintenance activities (e.g., painting, roof resealing, and HVAC coil cleaning)
  - 3) Discharging water pumped from construction and maintenance activities not covered by another permit covering such activities.
  - 4) Temporary storage of landscaping materials.
  - 5) Maintenance of County owned or operated vehicles and equipment to prevent them from leaking.
  - 6) Application of materials, including pesticides and herbicides shall not exceed manufacturer's recommendations.
  - 7) Application of fertilizer shall not exceed maximum application rates established by applicable nutrient management plans. For areas not covered under nutrient management plans where fertilizer is applied, application rates shall not exceed manufacturer's recommendations.

**TMDL Consistency:**

This BMP ensures that all Standard Operating Procedures for Pollution Prevention and Good Housekeeping are in place and used for training. This is an effective BMP to prevent possible pollutants from the County's daily operations from entering the MS4. (SED)

**Evaluation and Modification:**

Roanoke County finds this BMP to be effective and has no plans to modify it.

## **BMP 6-3: Employee Training**

### **Goal:**

The goal of this BMP is to provide County employees with necessary Pollution Prevention and Good Housekeeping training to support the requirements of the MS4 Permit. The County's written training plan provides for the following training:

- 1) Applicable field personnel shall receive training in the prevention, recognition, and elimination of illicit discharges no less often than once per 24 months.
- 2) Employees performing road, street, sidewalk, and parking lot maintenance shall receive training in good housekeeping procedures (pursuant to Part I.E.6.b.(1) no less often than once per 24 months.
- 3) Employees working in and around facility maintenance, public works, or recreational facilities shall receive training in applicable Part I E 6 a and b good housekeeping procedures required no less often than once per 24 months.
- 4) Employees working in and around high-priority facilities with a stormwater pollution prevention plan (SWPPP) shall receive training in applicable site specific SWPPP procedures no less often than once per 24 months.
- 5) Employees whose duties include emergency spill control and response shall be trained in spill control and response. Emergency responders, such as firefighters and law-enforcement officers, trained on the handling of spill control and response as part of a larger emergency response training shall satisfy this training requirement and be documented in the training plan.
- 6) Employees and contractors hired by the permittee who apply pesticides and herbicides shall be trained and certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Certification by the Virginia Department of Agriculture and Consumer Services (VDACS) Pesticide and Herbicide Applicator program shall constitute compliance with this requirement. Contracts for the application of pesticide and herbicides executed after the effective date of the MS4 Permit, which is November 1, 2023, shall require contractor certification.

### **Responsible Party:**

The Department of Development Services provides the appropriate departments with access to the training materials; each department is responsible to make certain that their employees take and comply with the pertinent training.

### **Schedule:**

Employee training for Pollution Prevention and Good Housekeeping will be conducted on a biennial basis. The County will review the training program on a biennial basis and update it, as needed. This training was provided last year (2022-2023) and documented in last year's Annual Report.

**Measurable Goals:**

Employee training for Pollution Prevention and Good Housekeeping will be conducted on a biennial basis. The County will review the training program on a biennial basis and update it, as needed. In addition, Roanoke County will maintain documentation for a minimum of three years after each training event.

Employees in eleven departments will receive training in one or more of the topics listed below, depending on job class, on a biennial basis.

*Recognition and Reporting Illicit Discharges*

Applicable field personnel receive training in the recognition and reporting of illicit discharges. This training video takes approximately 30 minutes.

*Good Housekeeping and Pollution Prevention Practices*

Employees that perform road, street, and parking lot maintenance, or are employed in and around maintenance and public works facilities and at recreational facilities receive training in good housekeeping and pollution prevention practices. This training video takes approximately 1 hour.

**NOTE:** All employees who are required to take *Good Housekeeping and Pollution Prevention Practices* training are required to read and follow the County's SOPs for Pollution Prevention and Good Housekeeping. The County designed these procedures to help eliminate or minimize pollutant discharges in stormwater.

*Contractor Oversight for Environmental Compliance*

Supervisors who oversee Contractors that perform work for the County or employees involved in developing contracts for Contractors take this training. The training explains that all Contractors must have their own written good housekeeping and pollution prevention program, or they must comply with the County's written SOPs for Pollution Prevention and Good Housekeeping. County employees who oversee Contractors working for the County must ensure compliance by Contractors. This training video takes approximately 30 minutes.

*Hazardous Materials (HAZ-MAT) Training*

The County of Roanoke currently maintains basic hazardous materials training for its employees in Fire and Rescue. All career (paid) staff are certified to HAZ-MAT Operations. For this permit year, there are 186 uniformed, career employees. The number of volunteers is always in flux, but the County estimates that there are also 101 volunteers that currently have HAZ-MAT Operations training. HAZ-MAT certification does not expire from the Virginia Department of Fire Programs; however, all career personnel receive annual internal training on this topic as part of their career development training.

*Stormwater Pollution Prevention Plan (SWPPP) Training*

Employees who work at a County municipal facility that has a SWPPP are required to take SWPPP training to assure that they know (1) where the SWPPP document is kept, (2) what it is for, and (3) which pollution prevention practices are to be used in and around the facility. This training presentation (PowerPoint) takes approximately 30 minutes to view.

In addition to the above training, all staff who review, approve, and inspect the implementation of stormwater management plans obtain DEQ certification, as described in **BMP 4-5: Employee and Contractor Certifications (Revised)**.

- Employee training was not conducted in this reporting period. This biennial training was conducted last permit year (2022-2023) and reported in the corresponding Annual Report.

**TMDL Consistency:**

Training applicable employees in Pollution Prevention and Good Housekeeping and Illicit Discharge Detection and Elimination (IDDE) helps minimize the discharge of pollutants in stormwater. Ensuring Fire and Rescue employees maintain basic hazardous waste training helps prevent any mishandling of hazardous materials in ways that could be detrimental to the environment. This is an effective BMP to prevent possible pollutants from entering the MS4. (SED/EC)

**Evaluation and Modification:**

Roanoke County believes it is effective to train employees in the above-mentioned topics. No modifications are planned for this BMP.

## **BMP 6-4: Stormwater Pollution Prevention Plans for Municipal Facilities**

### **Goal:**

The goal of this BMP is to identify high-priority facilities in Roanoke County that have a high potential of discharging pollutants and to prepare, maintain, and implement a site-specific stormwater pollution prevention plan (SWPPP) for each identified facility.

As defined in 9VAC25-890-1, "high-priority facilities" means facilities owned or operated by the permittee with drainage to any permitted MS4 that actively engage in one or more of the following activities: (i) composting; (ii) equipment storage, cleaning, and maintenance; (iii) long-term bulk materials storage; (iv) pesticide, herbicide, and fertilizer storage; (v) recycling; (vi) anti-icing and deicing agent storage, handling, and transfer; (vii) solid waste handling and transfer, and (viii) permittee owned or operated vehicle washing, maintenance, and salvage.

Roanoke County shall maintain and implement a site specific SWPPP for each high-priority facility as defined above that does not have or require separate VPDES permit coverage, and for which any of the following materials or activities occur and are expected to have exposure to stormwater resulting from rain, snow, snowmelt, or runoff:

- 1) Areas where residuals from using, storing, or cleaning machinery or equipment remain and are exposed to stormwater.
- 2) Materials or residuals on the ground or in stormwater inlets from spills or leaks.
- 3) Material handling equipment.
- 4) Materials or products that would be expected to be mobilized in stormwater runoff during loading or unloading or transporting activities (e.g., rock, salt, fill dirt).
- 5) Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants).
- 6) Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated, or leaking storage drums, barrels, tanks, and similar containers.
- 7) Waste material except waste in covered, nonleaking containers (e.g., dumpsters).
- 8) Application or disposal of process wastewater (unless otherwise permitted).
- 9) Particulate matter or visible deposits of residuals from roof stacks, vents, or both not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater runoff.

Roanoke County's SWPPP Implementation Schedule is provided in **BMP 6-4** of the County's 2024 MS4 Program. (See Figure 4.) This schedule lists the high-priority facilities that have a high potential to discharge pollutants and indicates when the various SWPPPs were prepared. SWPPPs are available in the Appendix of the County's 2024 MS4 Program Plan in the supporting documents folder titled **BMP 6-4**, which may be accessed [here](#):

<https://roanokecountyva.gov/DocumentCenter/Index/2166> and a hard copy of each SWPPP is kept at the high-priority facility for which it was written. Pursuant to the MS4 Permit requirements, SWPPPs contain the following information:

- 1) A site description that includes a site map identifying all outfalls, direction of stormwater flows, existing source controls, and receiving waterways.
- 2) A description and checklist of the potential pollutants and pollutant sources.
- 3) A description of all potential non-stormwater discharges.
- 4) A description of all structural control measures, such as stormwater management facilities and other pollutant source controls, applicable to SWPPP implementation (e.g., permeable pavement or oil-water separators that discharge to sanitary sewer are not applicable to the SWPPP), such as oil-water separators, and inlet protection designed to address potential pollutants and pollutant sources at risk of being discharged to the MS4.
- 5) A maintenance schedule for all stormwater management facilities and other pollutant source controls applicable to SWPPP implementation described in Part I.E.6.h(4) of the MS4 Permit.
- 6) Site specific written procedures designed to reduce and prevent pollutant discharge that incorporate by reference applicable good housekeeping procedures required under Part I.E.6a. and b of the MS4 Permit.
- 7) A description of the applicable employee training as required in Part I.E.6.d(4) of the MS4 Permit.
- 8) An inspection frequency of no less often than once per year and maintenance requirements for site specific source controls. The date of each inspection and associated findings and follow-up shall be logged in each SWPPP.
- 9) A log of each unauthorized discharge, release, or spill incident reported in accordance with Part IV.G of the MS4 Permit including the following information:
  - a. Date of incident.
  - b. Material discharged, released, or spilled.
  - c. Estimated quantity discharged, released, or spilled.
- 10) A log of modifications to the SWPPP made as the result of any unauthorized discharge, release, or spill in accordance Part I.E.6.j. of the MS4 Permit or changes in facility activities and operation requiring SWPPP modification.
- 11) The point of contact for SWPPP implementation.

**Responsible Party:**

The Department of Development Services evaluates the high-priority facilities and prepares and updates the necessary SWPPPs. The applicable departments implement the SWPPPs for the

facilities for which they manage, conduct the requisite training and facility inspections, and handle incident reporting in the event of an unauthorized discharge, release, or spill.

**Schedule:**

Roanoke County has identified its municipal high-priority facilities and determined which of them have a high potential to discharge pollutants in stormwater. All necessary SWPPPs have been completed, and they will be maintained for as long as each facility has a high potential to discharge pollutants.

- In accordance with the MS4 Permit, no later than June 30 of each year, Roanoke County will annually review any high-priority facility it owns or operates for which a SWPPP has not been developed to determine if the facility meets any of the conditions described in Part I.E.6.g. of the MS4 Permit. If the facility is determined to need a SWPPP, Roanoke County will develop a SWPPP meeting the requirements of Part I.E.6.h. of the MS4 Permit no later than December 31 of that same year. Roanoke County will maintain a list of all high-priority facilities owned or operated by the permittee not required to maintain a SWPPP in accordance with Part I.E.6.g.
- Roanoke County will review the contents of any site specific SWPPP no later than 30 days after any unauthorized discharge, release, or spill reported in accordance with Part IV.G. of the MS4 Permit to determine if additional measures are necessary to prevent future unauthorized discharges, releases, or spills. If necessary, the County will update the SWPPP no later than 90 days after the unauthorized discharge.
- Roanoke County shall keep the SWPPP at the high-priority facility and utilize it as part of employee SWPPP training required in Part I.E.6.d(4) of the MS4 Permit. The SWPPP and associated documents may be maintained as a hard copy or electronically as long as the documents are available to employees at the applicable site.
- If activities change at a facility such that it no longer meets the definition of a high-priority facility, Roanoke County may remove the facility from the list of high-priority facilities with a high potential to discharge pollutants.
- If activities change at a facility such that it no longer meets the criteria requiring SWPPP coverage as described in Part I.E.6.g. of the MS4 Permit, Roanoke County may remove the facility from the list of high-priority facilities that require SWPPP coverage.

**Measurable Goals:**

Success for this BMP will be measured by the County's implementation/maintenance of the required SWPPPs, storage of the SWPPPs at the high-priority facility for which they were written, and use of the SWPPPs as part of the staff training conducted at each facility.

In addition, Roanoke County will review the contents of any site-specific SWPPP no later than 30 days after any unauthorized discharge, release, or spill reported in accordance with Part III.G. of the MS4 Permit to determine if additional measures are necessary to prevent future unauthorized discharges, releases, or spills. If necessary, the County will update the SWPPP no later than 90 days after the unauthorized discharge.

- In this Permit Year 1:

- Roanoke County confirms that it reviewed high-priority facilities owned or operated by the County to determine if SWPPP coverage is needed during the reporting period. No additional SWPPPs are currently needed.
- No new SWPPPs were created during the reporting period.
- No high-priority facilities were delisted during the permit year (reference Part I.E.6.l. or m. of the MS4 Permit).
- One SWPPPs was updated:
  - Roanoke County Public School Bus Lots (includes Cave Spring Middle School Bus Lot, Glenvar Bus Lot, Northside Bus Lot, and Vinton Bus Lot)
- The County's SWPPPs are available in the Appendix of the County's 2024 MS4 Program Plan in the supporting documents folder titled **BMP 6-4**, which may be accessed here: <https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>
- SWPPP inspection reports are included in the Appendix of this Report in the folder titled **BMP 6-4**. The following inspections were completed, as marked by an 'X'.

Facility Name	Quarterly Inspections*				Annual** Assessment (due June 30, 2024)
	Qtr. 1 (due Sept. 30, 2023)	Qtr. 2 (due Dec. 31, 2023)	Qtr. 3 (due Mar 31, 2024)	Qtr. 4 (due June 30, 2024)	
Fleet Service Center	X	X	X	X	X
Public Service Center (@ Kessler Mill)	X	X	X	X	X
#1 North County Fire & Rescue	X	X	X	X	X
#3 Cave Spring Fire & Rescue	X	X	X	X	X
#5 Hollins Fire & Rescue	X	X	X	X	X
#6 Mount Pleasant Fire & Rescue			X	X	X
#9 Fort Lewis Fire & Rescue	X	X	X	X	X
Regional Fire & EMS Training Center	X	X	X	X	X
RCPS Bus Lots	X	X	X	X	X
RCPS Burton Center for Arts & Technology	X	X	X	X	X
RCPS Municipal Yards	X	X	X	X	X

#### **TMDL Consistency:**

This BMP ensures that all high-priority facilities that have a high potential to discharge pollutants in stormwater have a SWPPP in place with employees trained to understand, implement, and maintain it. The SWPPP identifies Best Management Practices to be employed at each facility to prevent the discharge of pollutants into the MS4. (SED/EC)

#### **Evaluation and Modification:**

Roanoke County will continue to implement and update the completed SWPPPs and will prepare new SWPPPs, as necessary. No modifications are planned for this BMP.

## **BMP 6-5: Nutrient Management Plans**

### **Goal:**

The goal of this BMP is to ensure that excessive nutrients are not being applied to County-owned lands. To achieve this, Roanoke County will maintain and 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 County where nutrients are applied to a contiguous area greater than one acre. If nutrients are being applied to achieve final stabilization of a land disturbance project, application amounts will follow the manufacturer's recommendations.

### **Responsible Party:**

The Department of Development Services will track progress. The Department of Parks, Recreation, and Tourism (PRT) is responsible for the preparation, implementation, and maintenance of Nutrient Management Plans on County-owned lands. Roanoke County Public Schools (RCPS) is responsible for the preparation, implementation, and maintenance of Nutrient Management Plans on RCPS-owned lands.

### **Schedule:**

Nutrient Management Plans (NMPs) are in place for all County-owned lands where nutrients are applied to a contiguous area of 1 acre or more located in the expanded 2020 census urban areas with population of at least 50,000 and within the County's MS4 service area. The County will continue to implement these plans and update them, as needed.

### **Measurable Goals:**

Success for this BMP will be measured by the implementation of the Nutrient Management Plans for the applicable lands.

- Parts 1 and 2 of the NMP for County-owned lands were updated and DCR-approved in November 2022. There were no changes in acreages. Part 3 of this NMP was updated and submitted to DCR in late August 2024 and subsequently approved. All three parts of this NMP are in the Appendix of this report and in the 2024 MS4 Program Plan in the supporting documents folder titled **BMP 6-5**. Hard copies are kept onsite in the administrative offices of PRT, located at the County's Public Service Center.
- The Nutrient Management Plan for Roanoke County Public Schools (RCPS) was updated on August 15, 2022. There were no changes in acreages. In addition, RCPS used Nutrient Credits to address VAR10G252 for the Glenvar Middle School Field Repair. This NMP is in the Appendix of this Report and in the 2024 MS4 Program Plan in the supporting documents folder titled **BMP 6-5**. A hardcopy is maintained in the office of the RCPS Associate Director of Facilities & Operations at Central Administration.

### **TMDL Consistency:**

This BMP ensures that excessive nutrients are not being applied for all County-owned lands where nutrients are applied to a contiguous area of 1 acre or more. While there is no known benefit towards satisfying the TMDL requirements for *E. coli* or sediment, there is a water quality benefit associated with proper application of nutrients. The minimization of land-applied nutrients helps the County address one of its high priority water quality issues, that of preventing excess nutrients from entering receiving waters via stormwater runoff.

**Evaluation and Modification:**

Roanoke County finds this BMP to be effective and will continue to implement the NMPs.

## **BMP 6-6: Pesticide Applicator Certification**

### **Goal:**

The goal of this BMP is to ensure that all employees and contractors hired by the County who apply pesticides and herbicides are trained and certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Certification by the Virginia Department of Agriculture and Consumer Services (VDACS) Pesticide and Herbicide Applicator program shall constitute compliance with this requirement. Contracts for the application of pesticide and herbicides executed after the effective date of the MS4 Permit, which is November 1, 2023, shall require contractor certification.

### **Responsible Party:**

The Department of Development Services shall track compliance. The Departments of Parks, Recreation and Tourism and General Services are responsible to ensure that their employees or contractors who apply pesticides on County-owned lands have current pesticide/herbicide applicator certifications.

### **Schedule:**

Roanoke County annually reviews the pesticide/herbicide applicator certifications held by its employees and hired contractors.

### **Measurable Goals:**

Success for this BMP will be measured by maintenance of current certification by the applicable employees and any hired contractors. See the summary table, below, for those County employees that hold the requisite certifications:

EMPLOYEE	CERTIFICATION TYPE	CERTIFICATION #	EXPIRATION DATE
Eric C. Vest	Commercial Pesticide Applicator	72792-G	6/30/2025
Jerad Ray	Commercial Pesticide Applicator	127518-G	6/30/2025
Eric C. Vest	Certified Fertilizer Applicator	CFA-13407-57329	6/4/2025

### **TMDL Consistency:**

While there is no known benefit towards satisfying the TMDL requirements for *E. coli* or sediment, there is a water quality benefit associated with proper application of pesticides so as to avoid excess products entering the receiving waters via stormwater runoff.

### **Evaluation and Modification:**

Roanoke County will continue to require the applicable personnel to hold the proper pesticide and fertilizer applicator certifications. No modifications are planned for this BMP.

## Section II. Total Maximum Daily Load Action Plans

### A. Introduction

Roanoke County has developed Total Maximum Load (TMDL) Action Plans to reduce loadings for three pollutants of concern (sediment, bacteria, and PCBs), because the County discharges (or may discharge) these pollutants to impaired waters for which a TMDL has been approved by the U.S. Environmental Protection Agency (EPA) and in which an individual or aggregate waste load has been allocated to Roanoke County. The plans are summarized below:

#### **TMDL Action Plan for Bacteria (*E. coli*)**

The *Total Maximum Daily Load (TMDL) Action Plan for Bacteria Reduction (*E. coli*) in the Roanoke River, Ore Branch, Tinker Creek, Glade Creek, Carvin Creek, and Lick Run* was completed in July 2015 and submitted to DEQ with the corresponding MS4 Annual Report. The latest version of this plan, dated April 2020, is on the County's website at:

[TMDL Action Plan for Bacteria \(\*E. coli\*\)](#)

#### **TMDL Action Plan for Sediment**

The *Total Maximum Daily Load (TMDL) Action Plan for Benthic Reduction (Sediment) in the Roanoke River* was completed in July 2015 and submitted to DEQ with the corresponding MS4 Annual Report. The latest version of this plan, dated September 2022, is on the County's website at:

[TMDL Action Plan for Sediment](#)

#### **TMDL Action Plan for Polychlorinated Biphenyls (PCBs) Reduction**

The *Total Maximum Daily Load Action Plan for PCBs in the Roanoke River, Mason Creek, Peters Creek, Tinker Creek, Wolf Creek, and an Unnamed Tributary to the Roanoke River* was completed in June 2016 and submitted to DEQ with the corresponding MS4 Annual Report. The latest version of this plan, dated April 2020, is on the County's website at:

[TMDL Action Plan for PCBs](#)

Pursuant to the MS4 permit requirements, a summary of the BMPs conducted by the County to implement each of its local TMDL Action Plans follows next in this report, along with a detailed description of the goals of each BMP, the status of the County's compliance with each BMP, and an evaluation of the BMP and any proposed modifications needed to better achieve the TMDL goals. Each BMP describes how it is consistent with the local TMDL and identifies which impairment type it addresses: *Escherichia coli* (*E. coli*) bacteria (EC), sediment (SED), or Polychlorinated biphenyls (PCBs).



## B. BMPs to Address Bacteria (*E. coli*)

The latest version of the TMDL Action Plan for Bacteria Reduction (*E. coli*), dated April 2020, is posted on the County's website at:

[TMDL Action Plan for Bacteria \(\*E. coli\*\)](#)

This plan was developed to reduce bacteria in the Roanoke River, Ore Branch, Tinker Creek, Glade Creek, Carvin Creek, and Lick Run. The BMPs that will be used to address bacteria are listed below, and fall into three categories: (1) domestic pets, (2) wildlife, and (3) illicit connections or illicit discharges to the MS4.

BMP #	BMP Name	Implementation Date
DOMESTIC PETS		
B-1	Dog Waste Stations and Signage <ul style="list-style-type: none"><li>• Develop a written plan of where to install</li><li>• Install at least 3 dog waste stations per year until plan is achieved</li></ul>	July 2020 Ongoing
B-2*	Protect Stream Buffers: Ordinance <ul style="list-style-type: none"><li>• Finalize ordinance language</li><li>• Present to Board of Supervisors for consideration</li><li>• Implement ordinance (if approved)</li></ul>	Fall 2020 Winter 2020 Winter 2021
B-3*	Protect Stream Buffers: No-Mow Policy for County-owned Lands	Spring 2021
WILDLIFE		
B-4	Public Education: Reducing Food Sources Accessible to Wildlife	July 2020
ILLICIT CONNECTIONS OR ILLICIT DISCHARGES TO THE MS4		
B-5	Public Education: Septic System Repair & Maintenance	Ongoing
B-6	Business Outreach: Eliminating Illicit Discharges	Ongoing
B-7*	Enhanced Public Outreach for Bacteria ( <i>E. coli</i> )	Ongoing
B-8*	Enhanced Employee Training for Bacteria ( <i>E. coli</i> )	Ongoing

\* Also effective in reducing sediment discharge to the Roanoke River.

## BMP B-1: Dog Waste Stations and Signage

### Goal:

The goal of this BMP is to increase the number of maintained dog waste stations and associated signage in public parks and greenways to reduce discharge of *E. coli* from dog waste into receiving waters.

### Responsible Party:

The Department of Development Services will be responsible for plan development and the Department of Parks, Recreation, and Tourism (PRT) will install and maintain the dog waste stations and accompanying signage.

### Schedule:

By July 1, 2020, Roanoke County developed a written plan that described where dog waste stations should be installed on County property. A minimum of 3 dog waste stations will be annually installed until the conditions of the written plan are met.



### Measurable Goals:

The County will continue to maintain its dog waste stations and associated signage, as the planned stations have been achieved. The written plan was updated in FY23, and all stations have been installed per the plan.

- For the locations of existing "Mutt Mitt" dog waste stations, see the online map at <https://www.roanokecountyva.gov/2594/GIS-Mapping-Support>. In addition, the written plan, map, and inventory are in the Appendix in the folder titled **B-1**.

### TMDL Consistency:

Actions that decrease discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

**Evaluation and Modification:** Roanoke County will continue to install and maintain dog waste stations, as outlined above. Other than the reevaluation efforts described above, no other modifications are planned for this BMP.

## **BMP B-2: Protect Stream Buffers: Ordinance**

### **Goal:**

The goal of this BMP is to maintain and implement the County's stream buffer requirements. Stream buffers can be effective in dissuading stream access and in filtering stormwater runoff that sheet flows through them, which helps to remove sediment, bacteria, and other pollutants.

### **Responsible Party:**

The Department of Development Services is responsible to develop and implement the Stream Buffer Ordinance.

### **Schedule:**

This activity began in permit year 2016 - 2017. The stream buffer requirements were incorporated into the County's now-retired Erosion & Sediment Control (ESC) Ordinance (effective date July 27, 2021) and carried over into its new Erosion and Stormwater Management (ESM) Ordinance, effective date August 1, 2024. Pursuant to the requirements, a 25-ft. wide stream buffer along perennial streams must be established in which no land grading may occur.

The ESM Ordinance with stream buffer requirements may be accessed here:

[Erosion and Stormwater Management Program Ordinance](#)

### **Measurable Goals:**

Success for this BMP has been achieved, as the ordinance has been adopted. The County's Department of Development Services will continue to implement this ordinance and the associated stream buffer requirements.

### **TMDL Consistency:**

Actions that reduce discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

### **Evaluation and Modification:**

Roanoke County finds this BMP to be effective and has no plans for modifications.

## BMP B-3: Protect Stream Buffers: No-Mow Policy for County-owned Lands

### Goal:

The goal of this BMP is to evaluate the possibility of a “no-mow policy for County-owned lands” along streams, as a means to minimize stream bank erosion and dissuade access to streams by dogs.



### Responsible Party:

The Department of Development Services is responsible to develop the no-mow policy for County-owned lands with assistance from the County’s Department of Parks, Recreation, and Tourism.

### Schedule:

A no-mow policy for County-owned lands is being implemented by the County’s Department of Parks, Recreation, and Tourism. This policy attempts to balance the competing goals of providing adequate access to streams for the public, providing adequate views of the streams, excluding dogs, protecting stream banks, and providing vegetative filters.

- Implementation of this policy began in spring 2021. The policy and accompanying map are in the Appendix of this report in the folder titled **B-3**.

### Measurable Goals:

Success for this BMP has been achieved, as a “no-mow policy for County-owned lands” has been adopted. The County, through its Department of Parks, Recreation, and Tourism, will implement this no-mow policy.

### TMDL Consistency:

Actions that reduce discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

### Evaluation and Modification:

Roanoke County finds this BMP to be effective and will continue to implement the no-mow policy for County-owned lands

## BMP B-4: Public Education: Reducing Food Sources Accessible to Wildlife

### Goal:

The goal of this BMP is to incorporate messages into the existing public education program to encourage citizens to reduce food sources accessible to wildlife. This messaging is to help assure that wild animals do not become dependent on people for food, to minimize the potential for spreading disease between people and animals, to minimize property damage, and to minimize the discharge of bacteria-carrying animal waste that may find its way into the nearest storm drainage system.

### Responsible Party:

The Department of Development Services with assistance from the WVWA.

### Schedule:

By July 2020, Roanoke County expanded its public education program to encourage citizens to reduce food sources accessible to wildlife.

Typical messages in this program have and will include:

- Keep trash cans covered and protected from animals
- Do not feed pets outdoors
- Secure bird feeders from squirrels, bears, and other animals
- Do NOT feed wild animals, including Canadian geese

### Measurable Goals:

Success for this BMP will be measured by the incorporation of messages into the existing public education program to encourage citizens to reduce food sources accessible to wildlife.

See page 5 of the [\*Stormwater Newsletter April 2023\*](#) for a pertinent article entitled *A Foxy Choice: To Feed or Not to Feed*: See page 11 of the [\*Stormwater Newsletter February 2024\*](#) for a “Leave No Trace” article that encourages citizens to respect and NOT feed wildlife.

### TMDL Consistency:

Actions that reduce discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

### Evaluation and Modification:

Roanoke County finds this BMP to be effective and will continue these messages.



## BMP B-5: Public Education: Septic System Repair & Maintenance

### Goal:

The goal of this BMP is to incorporate messages into the existing public education program to encourage citizens to properly maintain their septic systems, because malfunctioning or poorly maintained onsite sewage disposal systems may result in discharges of bacteria from human waste.

### Responsible Party:

The Department of Development Services.

### Schedule:

By July 2020, Roanoke County expanded its public education program to encourage citizens to periodically pump out their septic systems and to keep them properly operating.

### Measurable Goals:

Success for this BMP will be measured by the incorporation of messages into the existing public education program to encourage citizens to properly maintain and periodically pump out their septic systems.

In 2022, Roanoke County partnered with the Roanoke Valley Alleghany-Regional Commission (RVARC) and received grant funding through the Virginia Environmental Endowment's Community Conservation Program (CCP). The awarded funds are being used to implement a *"Septic System Education and Pump-out Program"* for residents in Roanoke County over a three (3) year period. The grant documents are in the Appendix of this Report in the folder titled **BMP B-5**. The program is currently underway with 72 out of 96 proposed pump-outs completed.

For more information, see page 4 of this year's Stormwater Newsletter [Stormwater-Newsletter-February-2024](#) or visit the County's [Septic Pump-out](#) webpage.



*The County promotes routine maintenance of septic systems through its public education and outreach efforts.*

### TMDL Consistency:

Actions that reduce discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

### Evaluation and Modification:

Roanoke County currently incorporates messages in its public education program about the need to periodically pump out septic systems and to keep systems properly operating. Roanoke County will continue these messages.

## **BMP B-6: Business Outreach: Eliminating Illicit Discharges**

### **Goal:**

The goal of this BMP is to visit targeted businesses that have an elevated potential to discharge bacteria in the conduct of their day-to-day activities and to take corrective actions where illicit discharges are observed.

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County annually conducts site inspections of targeted businesses that have an elevated potential to discharge bacteria, such as veterinary clinics, kennels, pet stores, restaurants, vehicle maintenance shops, and car washing facilities.

### **Measurable Goals:**

Roanoke County will annually conduct site inspections of 15 selected facilities; County staff will meet with business owners or managers to discuss ways to minimize illicit discharges in the day-to-day operations at each facility. If an actual or potential illicit discharge is identified, the County's inspection staff will work with the business owner to eliminate or reduce the risk.

- For the list of business inspections conducted for this permit year, view the folder labeled **BMP B-6** in the appendix.

### **TMDL Consistency:**

Actions that reduce discharges of *E. coli* are consistent with the TMDL for bacteria. (EC)

### **Evaluation and Modification:**

Roanoke County finds this to be an effective means to identify potential or actual illicit discharges. No changes are planned for this BMP at this time.



*An illicit discharge of oil into the storm drainage system.*

## BMP B-7: Enhanced Public Outreach for Bacteria (*E. coli*)

### Goal:

The goal of this BMP is to enhance the BMPs used under MCM 1 and MCM 2, where applicable, to ensure that they address bacteria as a high priority water quality issue. This will help to raise awareness of the water quality issues involving *E. coli* (bacteria) in target audiences and the general public.

### Responsible Party:

Department of Development Services, with assistance from WVA, RVT, and the County's webmaster.

### Schedule:

Roanoke County has developed a list of public (target) audiences to receive specific messages on an annual basis about ways to reduce *E. coli* (bacteria) pollution in their day-to-day activities.

### Measurable Goals:

Success for this BMP will be measured by the incorporation of information concerning *E. coli* (bacteria) into the MS4 Program public education and outreach efforts in accordance with **Figure 7** in the TMDL Action Plan for *E. coli*. Also, see **BMP 1-7** in this report for a detailed assessment of compliance with goals and complete versions of Tables 1-7a through 1-7d. Note that Table 1-7a shows how the County addresses *E. coli* for certain target audiences and the general public.

In this Permit Year, a new "[Heart of the Rivah](#)" poster encourages citizens to keep the Roanoke River clean by engaging in certain activities, including bagging pet waste.

### TMDL Consistency:

The enhanced Public Education and Outreach goals were specifically tailored to address water quality issues related to *E. coli*. (EC)

### Evaluation and Modification:

Use of messages tailored to address *E. coli* (bacteria) that are focused on the proper target audiences is an effective means to raise awareness, improve individual's actions, and increase support for water quality programs. Roanoke County believes that its current activities in this area are robust, and no modifications are planned for this BMP.

## Stormwater Best Management Practices for Proper Pet Waste Disposal



### A Guide for Roanoke County Pet Owners

[Pet Waste Brochure](#)

## **BMP B-8: Enhanced Employee Training for Bacteria (*E. coli*)**

### **Goal:**

The goal of this BMP is to enhance **BMP 6-3** to ensure that it addresses *E. coli* (bacteria) as a high priority water quality issue. This will help to raise awareness of those County employees that are required to take such training.

### **Responsible Party:**

The Department of Development Services provides the appropriate departments with access to the training materials; each department is responsible ensure their employees take and comply with the pertinent training.

### **Schedule:**

Employee training is conducted on a biennial basis. The County will review the training program on a biennial basis and update it, as needed.

### **Measurable Goals:**

Compliance with **BMP 6-3** training goals in the following topics with evidence that *E. coli* (bacteria) has been incorporated into the training material as a high priority water quality issue.

- Recognition and Reporting of Illicit Discharges
- Good Housekeeping and Pollution Prevention Practices
- Contractor Oversight for Environmental Compliance
- Hazardous Materials (HAZ-MAT) Training

This training is performed every two years, pursuant to the MS4 permit requirements, and it was conducted last year (2022 -2023, Permit Year 5 of the previous permit).

### **TMDL Consistency:**

The Enhanced Employee Training was specifically tailored to address ways to reduce *E. coli* (bacteria) in stormwater runoff.

### **Evaluation and Modification:**

This training is important to give County employees the understanding that *E. coli* (bacteria) is a high priority water quality issue and that measures shall be implemented, where practical, to reduce its discharge into stormwater. No modifications are planned for this BMP.



## C. BMPs to Address Sediment

The latest version of the TMDL Action Plan for Sediment, dated September 2022, is posted on the County's website at:

[TMDL Action Plan for Sediment](#)

This plan was developed to reduce sediment in the Roanoke River. The BMPs that will be used to address bacteria are listed below:

BMP #	BMP Name/Task	Estimated Implementation Dates
S-1	Lower Threshold for Compliance: Erosion & Sediment Control Program	Ongoing
S-2	Roanoke County MS4 BMP Capital Improvement Program	Ongoing
S-3	Enhanced Public Outreach for Sediment	Ongoing
S-4	Enhanced Employee Training for Sediment	Ongoing
S-5	Contractor Appreciation Program	Ongoing

## **BMP S-1: Lower Threshold for Compliance: Erosion & Sediment Control Program**

### **Goal:**

The goal of this BMP is to reduce the offsite discharge of silt and sediment from construction sites, particularly from smaller sites that disturb less than 10,000 square feet, which is the state's threshold for compliance under the Virginia Erosion & Stormwater Management Program (VESMP). As discussed in the County's TMDL Action Plan for Sediment Reduction, it was previously estimated that this lower threshold kept approximately 1,680 tons/year of sediment out of the area waterways. However, as noted in the September 2022 version of the Action Plan, the County revised this estimate using the Chesapeake Bay Program guidance to estimate the sediment removal attributed to the enhanced and rigorous ESC Program (*Recommendations of the Expert Panel to Define Removal Rates for Erosion and Sediment Control Practices (2014)*).



Erosion and sediment control devices are not 100% effective; however, per the Chesapeake Bay Program, a properly-designed and installed set of controls should retain at least 85% of sediment on the construction site. Roanoke County permits and inspects approximately 129 land disturbing activities per year that each disturb less than 10,000 square feet. Cumulatively, these activities disturb approximately 18 acres per year.

Therefore, Roanoke County's lower threshold for compliance keeps about **184 tons/year** of sediment out of local waterways (12 tons/acre/year \* 85% \* 18 acre = 184 tons/year).

### **Responsible Party:**

The Department of Development Services.

### **Schedule:**

Roanoke County has been implementing a lower threshold of compliance (2,500 square feet) under its Erosion and Sediment Control Program for many years due to its steep terrain, highly erodible soils, and sediment-impaired waterways.

### **Measurable Goals:**

Success for this BMP will be measured by the continued implementation of the County's Erosion and Sediment Control Program using a lower threshold of compliance (2,500 sq. ft.)

### **TMDL Consistency:**

Actions or activities that reduce discharges of sediment to receiving waters are consistent with the TMDL for sediment. (SED)

### **Evaluation and Modification:**

Roanoke County will continue to implement its Erosion and Sediment Control Program using a lower threshold of compliance (2,500 sq. ft.). No changes are planned for this BMP.

## BMP S-2: Roanoke County MS4 BMP Capital Improvement Program

### Goal:

The goal of this BMP is to employ capital resources in the most cost-effective means to reduce sediment loads in the Roanoke River.

### Responsible Party:

The Department of Development Services.

### Schedule:

This program is ongoing. In 2015, the County's consultant recommended that the most cost-effective BMP to reduce sediment discharged from the County's MS4 would be *natural stream restoration where excessive stream bank erosion was occurring*. The consultant's recommendation was supported by the reported experiences of other localities.

### Measurable Goals:

Since Roanoke County believes that natural stream restoration is the most cost-effective means to lower sediment loads in the Roanoke River, the County has been addressing the reduction of sediment loads through the construction of stream restoration projects. Roanoke County's program to construct structural BMPs, such as stream restoration, is supported by its 10-Year Capital Improvement Program (CIP). Currently, the County's CIP indicates planned funding for one capital BMP project about every three years. This program also assumes that 50% of the cost will be provided through the Virginia Stormwater Local Assistance Fund (SLAF).

Thus, success for this BMP will be measured by the continued funding and implementation of one capital BMP project about every three years. The County currently has two projects that will be advertised for construction bids in the fall of 2024 with construction commencement anticipated for the winter of 2024 and spring of 2025:

- Wolf Creek, Phase 2 - This project extends along Wolf Creek between Spring Grove Drive and Tulip Lane for approximately 1,600 feet.
- Stream Restoration of a Tributary to Mud Lick Creek along Canter Drive - This project will restore a small creek from its confluence with Mud Lick Creek upstream for approximately 1,250 feet.

### TMDL Consistency:

Structural BMPs that reduce discharges of sediment to receiving waters are consistent with the TMDL for sediment. (SED)



Existing eroding vertical banks in Wolf Creek will be corrected in Phase 2 of this stream restoration project.

**Evaluation and Modification:**

Roanoke County will continue to implement its MS4 BMP Capital Improvement Program. No modifications are planned for this BMP.

Thus, success for this BMP will be measured by the continued funding and implementation of one capital BMP project about every three years.

## BMP S-3: Enhanced Public Outreach for Sediment

### Goal:

The goal of this BMP is to enhance the BMPs used under MCM 1 and MCM 2, where applicable, to ensure that they address sediment as a high priority water quality issue. This will help to raise awareness of the water quality issues involving sediment in target audiences and the general public.

### Responsible Party:

Department of Development Services, with assistance from WVVA, RVT, and the County's webmaster.

### Schedule:

Roanoke County has developed a list of public (target) audiences to receive specific messages on an annual basis about ways to reduce sediment pollution in their day-to-day activities.

### Measurable Goals:

Success for this BMP will be measured by the incorporation of information concerning sediment into the County's public education and outreach efforts.

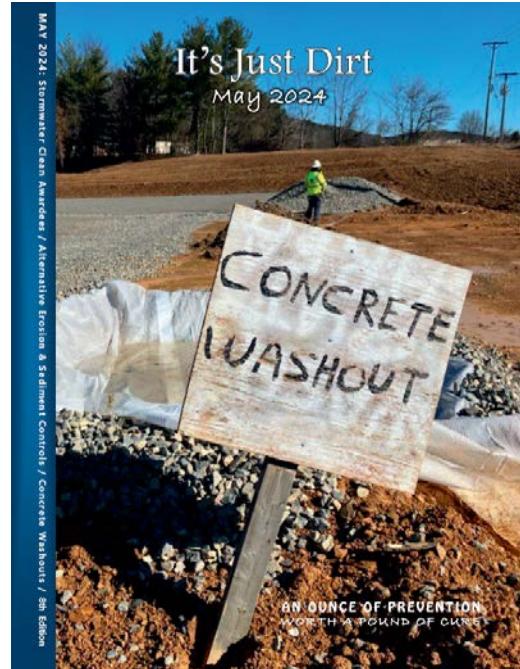
For example, an annual newsletter entitled [It's Just Dirt](#) is directed at land disturbing contractors and developers across the region; it was mailed to 841 firms this permit year. Its primary purpose is to educate contractors about ways to reduce sediment pollution from their active land-disturbing projects. In addition, a message regarding sediment reduction was included on page 7 in the County's Stormwater Newsletter "A Stormwater Guide for Homeowners," dated April 2023. The newsletter is posted on the stormwater website. Please click the following link to access it: [Stormwater-Newsletter-April-2023](#).

In addition, the County created a new Construction General Permit Fact Sheet to make contractors aware of DEQ's new turbidity monitoring requirements for construction dewatering discharges into sediment-impaired waters (i.e., Mason Creek, Mudlick Creek, Roanoke River, or within the Chesapeake Bay Watershed). The County ESC/SWM inspector includes this Fact Sheet as an attachment to every ESC/SWM inspection report for each active construction project, and both documents are mailed or emailed to the site operator. This effort began late in the permit year; and approximately 200 Fact Sheets were distributed. See the folder titled **BMP S-3** in the appendix of this report to view the Fact Sheet. It is also posted online: [Construction General Permit Fact Sheet 2024](#).

See **BMP 1-7** in this report for a detailed assessment of compliance with goals. Note that **Table 1-7a** shows how the County addresses sediment for certain target audiences and the general public.

### TMDL Consistency

The enhanced Public Education and Outreach goals were specifically tailored to address water quality issues related to sediment. (SED)



[Contractor Newsletter - It's Just Dirt 2024](#)

**Evaluation and Modification:**

Use of messages tailored to address sediment that are focused on the proper target audiences is an effective means to raise awareness, improve individual's actions, and increase support for water quality programs. Roanoke County believes that its current activities in this area are robust, and no modifications are planned for this BMP.

## **BMP S-4: Enhanced Employee Training for Sediment**

### **Goal:**

The goal of this BMP is to enhance **BMP 6-3** to ensure that it addresses sediment as a high priority water quality issue. This will help to raise awareness of those County employees that are required to take such training.

### **Responsible Party:**

The Department of Development Services provides the appropriate departments with access to the training materials; each department is responsible to ensure their employees take and comply with the pertinent training.

### **Schedule:**

Employee training is conducted on a biennial basis. The County will review the training program on a biennial basis and update it, as needed.

### **Measurable Goals:**

Compliance with **BMP 6-3** training goals in the following topics with evidence that sediment has been incorporated into the training material as a high priority water quality issue.

- Recognition and Reporting of Illicit Discharges
- Good Housekeeping and Pollution Prevention Practices
- Contractor Oversight for Environmental Compliance
- Hazardous Materials (HAZ-MAT) Training

This training is performed every two years, pursuant to the MS4 permit requirements, and it was last conducted in Permit Year 5 of the previous permit, 2022-2023.

### **TMDL Consistency:**

The Enhanced Employee Training was specifically tailored to address ways to reduce sediment in stormwater runoff. (SED)

### **Evaluation and Modification:**

This training is important to give County employees the understanding that sediment is a high priority water quality issue and that measures shall be implemented, where practical, to reduce its discharge into stormwater. No modifications are planned for this BMP.

## BMP S-5: Contractor Appreciation Program

### Goal:

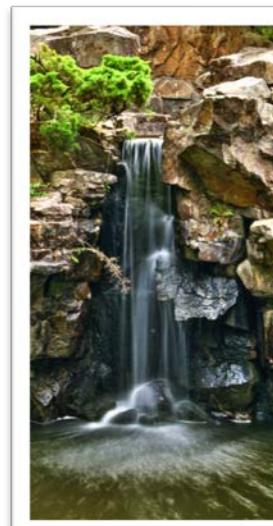
To reduce discharge of sediment from construction sites.

### Responsible Party:

Department of Development Services, with assistance from the Public Information Officer.

### Schedule:

Roanoke County has implemented the Contractor Appreciation Program to recognize those contractors that are proactive in implementing erosion and sediment controls and employing stormwater management measures to "keep their dirt on their project."



### STORMWATER CLEAN AWARD

Proudly Presented By:

ROANOKE COUNTY

DEPARTMENT OF DEVELOPMENT SERVICES

FOR

- Proper on-site soil containment
- Proper use of erosion & sediment controls
- Maintenance of erosion & sediment controls
- Employing early soil stabilization
- Keepin' dirt off the streets & out of the creeks
- Makin' the fish happy

~ DOING RIGHT for the Roanoke RIVER ~



### Measurable Goals:

Success for this BMP will be measured by the continued implementation of the Contractor Appreciation Program. In this permit year, two firms earned the Stormwater Clean Award for their exceptional projects: Appalachian Power's Regional Distribution Center at 1810 Loch Haven Drive in Salem, VA and Frame to Finish Construction LLC's project at 5266 West River Road, also in Salem, VA. For specific details about these projects and the program, click here: <https://www.roanokecountyva.gov/1780/Stormwater-Contractor-Appreciation>



Appalachian Power earned a second Stormwater Clean Award, this one for superb compliance efforts at 1810 Loch Haven Drive.



Frame to Finish Construction, LLC won the Stormwater Clean Award for impressive environmental work at 5266 West River Road.

**TMDL Consistency:**

Actions that result in lowering the discharge of sediment from construction sites are consistent with the TMDL. (SED)

**Evaluation and Modification:**

The County believes that this program is very effective in raising awareness among contractors to 'do the right thing' by keeping their dirt on their projects and out of the local receiving waters. It gives staff an opportunity to work with the Contractors in a positive way and provides the recipient contractors with positive and free publicity for their projects. No modifications are planned for this BMP.



## D. BMPs to Address Polychlorinated Biphenyls (PCBs)

The latest version of the TMDL Action Plan for Polychlorinated Biphenyls (PCBs) Reduction, dated September 2020, is posted on the County's website at [TMDL Action Plan for PCBs](#).

This plan was developed to reduce PCBs in the Roanoke River, Mason Creek, Peters Creek, Tinker Creek, Wolf Creek, and an Unnamed Tributary to the Roanoke River. The BMPs that will be used to address PCBs are listed below.

BMP #	BMP Name/Task	Estimated Implementation Dates
P-1	Enhanced Public Education and Outreach for PCBs	Ongoing
P-2	Enhanced Employee Training for PCBs	Ongoing
P-3	Use of Existing Ordinances and Programs	Ongoing

## BMP P-1: Enhanced Public Education and Outreach for PCBs

### Goal:

The goal of this BMP is to enhance several of the County's existing BMPs to ensure that they include messages about PCBs and ways to reduce them from entering the MS4.

Specifically, the following existing BMPs will be used to address PCBs:

### BMP 1-2: Roanoke County Stormwater Newsletter

Roanoke County promotes general public awareness of PCBs and their potential sources. For example, Roanoke County's newsletter for contractors, entitled [It's Just Dirt](#) focuses on minimizing sediment from construction sites. The [May 2023](#) issue of this newsletter had an article about erosion and sediment pollution (see page 2). A specific message regarding PCBs was included on page 7 in the County's Stormwater Newsletter "A Stormwater Guide for Homeowners," dated April 2023. Click here:

[Stormwater-Newsletter-April-2023](#).

As described in the County's 2024 MS4 Program Plan, <https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>, the rationale for reducing sediment loss from property (residential lots, construction sites, etc.) is a strategy to reduce PCBs, because the latter attach to sediment and may be washed away to local receiving waters in stormwater runoff.

### BMP 1-5: Stormwater Public Awareness Program

Roanoke County promotes public awareness specifically to the development community regarding PCBs and their potential sources by providing developers with a copy of the PCBs Awareness Fact Sheet when they apply for demolition permits. The Fact Sheet is also posted on the County's website. Click here: [PCBs Fact Sheet](#).

In this permit year, the County issued demolition permits with the aforementioned Fact Sheet, as follows:

Permit Year	# of Demolition Permits Issued
(1) 2023 - 2024	19 Residential 5 Commercial

**Polychlorinated Biphenyls (PCBs)**

**FACTS**

**What about PCBs?**

PCBs are a group of man-made compounds that were widely used in the past, mainly in electrical equipment, because of their non-flammability and chemical stability. PCBs have no taste or smell and range in consistency from oil-like to a waxy solid. Their manufacturing was banned in the U.S. in 1979 because of growing health and environmental concerns.

**PCBs and the Environment**

PCBs easily exist in the soil and water from previous releases. PCBs do not break down well in the environment due to their chemical stability. They often attach to sediment that is washed into local waterways, accumulating in living organisms, such as fish. In fact, the Roanoke River (within the Roanoke Valley area) is under a health advisory issued by the Virginia Department of Health; this advisory cautions to eat no more than two meals per month from many fish species caught in the Roanoke River.

**Products that may contain PCBs**

Although no longer commercially produced, PCBs may be present in products and materials made before the 1979 ban, including the following:

- Transistors and capacitors
- Electrical equipment (voltage regulators, switches, re-closers, bushings, etc.)
- Oil used in motors and hydraulic systems
- Oil-filled devices or appliances containing capacitors having PCBs
- Fluorescent light ballasts
- Thermal insulation material including fiberglass, felt, foam, and cork
- Adhesives and tapes
- Oil-based paint
- Caulk
- Plastic
- Floor finish

**Preventing the Release of PCBs**

Caution must be taken to prevent PCBs from being released through:

- Spills and leaks from containers and other equipment
- Improper disposal and storage
- Illegal or improper dumping of wastes containing PCBs
- Burning wastes containing PCBs

It is important to minimize the amount of PCBs in the environment by:

- Properly removing fluorescent light ballasts containing PCBs
- Proper disposal of dust, paint, and other building materials with PCBs during planned renovations and repairs
- Taking precautions during renovations so that building materials with PCBs do not come into contact with skin or clothing
- Using properly trained and licensed contractors to remove, clean-up, and dispose of materials containing PCBs
- Consulting with regulatory officials when questions arise regarding PCBs

**More Information on PCBs**

To learn more about PCBs:

- Virginia Department of Environmental Quality <http://www.deq.state.va.us>
- U. S. Environmental Protection Agency <https://www.epa.gov/pcbs>
- Virginia Department of Health <http://www.vdh.virginia.gov>

County of Roanoke - Community Development - Stormwater Management - 5204 Bernard Drive - Roanoke, VA 24018  
(540) 772-2990


### PCBs Fact Sheet

**BMP 2-3: MS4 Program and Stormwater Pollution Prevention Website**

Roanoke County has posted its PCBs Awareness Fact Sheet and PCBs

PowerPoint Presentation on the stormwater webpage here:

<https://www.roanokecountyva.gov/1648/Stormwater-Public-Education-Documents>

**Responsible Party:**

Department of Development Services, with assistance from RVT, the County's webmaster, and specific departments (for employee training).

**Schedule:**

Roanoke County has identified public (target) audiences to receive specific messages on an annual basis about ways to reduce PCBs in their day-to-day activities.

**Measurable Goals:**

Success for this BMP will be measured by the incorporation of information concerning PCBs into the MS4 Program public education and outreach efforts. See **BMP 1-7** in this report for a detailed assessment of compliance with goals. In addition, **Table 1-7B** shows the various County publications that address PCBs for certain target audiences and the general public.

**TMDL Consistency:**

The enhanced Public Education and Outreach goals were specifically tailored to address water quality issues related to PCBs.

**Evaluation and Modification:**

Use of messages tailored to address PCBs that are focused on the proper target audiences is an effective means to raise awareness, improve individual's actions, and increase support for water quality programs. Roanoke County believes that its current activities in this area are robust, and no modifications are planned for this BMP.

## **BMP P-2: Enhanced Employee Training for PCBs**

### **Goal:**

The goal of this BMP is to enhance two existing training-related BMPs to ensure that they address PCBs as a high priority water quality issue. This will help raise awareness of those County employees that are required to take such training. The following BMPs will be enhanced:

### **BMP 6-2: Standard Operating Procedures (SOPs) for Pollution Prevention and Good Housekeeping**

Roanoke County incorporates the PCBs Awareness Fact Sheet and PCBs PowerPoint Presentation into its written SOPs for Pollution Prevention and Good Housekeeping. These procedures address daily operations and maintenance activities that have a potential of discharging pollutants directly or with stormwater runoff into the MS4. The SOPs will be used in employee training activities.

### **BMP 6-3: Employee Training**

Roanoke County implements biennial training for applicable employees regarding PCBs. Specifically, employees are required to review the PCBs Awareness Fact Sheet and PCBs PowerPoint Presentation, which are incorporated in the written Water Quality-Related Standard Operating Procedures (SOPs). This training was conducted in this permit year.

### **Responsible Party:**

The Department of Development Services provides the appropriate departments with access to the training materials; each department is responsible to ensure their employees take and comply with the pertinent training.

### **Schedule:**

Employee training is conducted on a biennial basis. The County will review the training program on a biennial basis and update it, as needed.

### **Measurable Goals:**

Compliance with **BMP 6-3** training goals with evidence that the topic of PCBs has been incorporated into the training material as a high priority water quality issue and into the SOPs for Pollution Prevention and Good Housekeeping, as described in **BMP 6-2**.

Employee training is performed every two years, pursuant to the MS4 permit requirements, and it was conducted last year (Permit Year 5 of the previous permit, 2022-2023).

### **TMDL Consistency:**

The Enhanced Employee Training was specifically tailored to address ways to reduce PCBs in stormwater runoff.

### **Evaluation and Modification:**

This training is important to give County employees the understanding that PCBs are a high priority water quality issue and that measures shall be implemented, where practical, to reduce their discharge into stormwater. No modifications are planned for this BMP.

## **BMP P-3: Use of Existing Ordinances and Programs**

### **Goal:**

Given the TMDL assumption that PCBs are widely dispersed across the impaired watersheds in minute quantities, the goal of this BMP is to continue to implement the following ordinances and programs to achieve overall long-term reductions of the discharge of PCBs:

#### **Illicit Discharge Ordinance**

Roanoke County will continue to identify and eliminate illicit discharges in accordance with Chapter 24 of the County Code.

#### **Erosion and Stormwater Management (ESM) Ordinance**

Roanoke County will adopt and implement this new ordinance on August 1, 2024; it integrates the County's stormwater management (SWM) requirements with its erosion and sediment control (ESC) requirements to establish a consolidated program consistent with the Virginia Erosion and Stormwater Management Program (VESMP). The purpose of this ordinance is to ensure the general health, safety, and welfare of its citizens to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater and soil erosion, including protection from land disturbing activities causing unreasonable degradation of properties, water quality, stream channels, steep slopes, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.

- Erosion and Sediment Control - The ordinance requires ESC controls for all regulated land disturbances of 2,500 square feet or more and an engineered ESC Plan for any land disturbance greater than 10,000 square feet. The ESC Plan must provide for the implementation of appropriate erosion and sediment controls, to include their proper placement, design, and maintenance requirements. The ordinance includes administrative oversight, plan review, site inspection and compliance/enforcement procedures for erosion and sediment control. Through implementation of the erosion and sediment requirement requirements specified in the ordinance, the discharge of sediments, which may potentially have PCBs adhered to them because of atmospheric deposition, will be minimized.
- Stormwater Management - The ordinance requires a SWM Plan or an Agreement-in-lieu-of a Stormwater Management Plan for all regulated construction activities that disturb 1 acre or greater. The ordinance includes site inspection and compliance/enforcement procedures for active construction projects and post-construction stormwater management facilities. The County will conduct annual site inspections of County-owned stormwater facilities, and it will conduct site inspections of privately-owned stormwater facilities once every 5-years. During such inspections, County staff will assure that the stormwater facility is properly functioning, that adequate vegetation exists for facility stability, and that water is not ponding in the facility for periods longer than designed. It is anticipated that the SWMFs will interrupt the pathway of incoming PCBs and keep them from entering the downstream impaired waters. By properly disposing of the sediments during maintenance, as described in the County's Standard Operating Procedures (SOPs), potential PCBs-laden sediments will be eliminated as a potential source.

### **Emergency Spill Response and Containment**

The Roanoke County Fire and Rescue Department provides emergency response services to County residents. As part of this service, approximately 200 uniformed career employees and 61 volunteers are trained in hazardous materials operations. In response to spills and accidental releases, Fire and Rescue staff may assist the responsible party in mitigating containment of an accidental release.

### **Regulation of Open Burning**

Roanoke County regulates open burning under Chapter 9 of the County Code. This code section places restrictions on the burning of construction and demolition waste and debris, which may contain PCBs. Thus, by implementing Chapter 9, the release of PCBs into the environment from local airborne deposition is minimized.

### **Regulation of Illegal Dumping and Littering**

Roanoke County regulates illegal dumping and littering under Chapter 13 of the County Code, which provides the County with the necessary legal authority to minimize debris and wastes that are dumped, in turn minimizing the discharge of incidental PCBs that may be present in such materials.

### **Contract Language**

Roanoke County uses general contract language in its vendor contracts to ensure that demolition and construction wastes are lawfully disposed of in permitted landfills. The proper disposal of demolition and construction waste minimizes the amount of PCBs that are available for entry into receiving waters by interrupting their travel path.

### **DEQ Coordination**

Roanoke County will continue to coordinate with the DEQ. Through combined state and local efforts, the quantity of PCBs being discharged from current sources into local waterways will likely diminish. In addition, DEQ will continue to strategize on how best to remove the legacy pollutants that currently exist in these impaired waterways.

#### **Responsible Party:**

Department of Development Services, with assistance from other departments such as Fire & Rescue and Planning/Zoning.

#### **Schedule:**

Roanoke County has the above-named ordinances, programs, and strategies already in place and believes they help achieve overall long-term reductions of the discharge of PCBs.

#### **Measurable Goals:**

Success for this BMP will be measured by the continued implementation of the above-named ordinances, programs, and strategies.

#### **TMDL Consistency:**

Actions that reduce the discharge of PCBs are consistent with the TMDL for PCBs.

#### **Evaluation and Modification:**

These ordinances, programs, and strategies help to reduce the discharge of PCBs into the environment. Therefore, no modifications are planned for this BMP.

### **Section III. Supporting Documents**

**(See Appendix)**