City of Richmond
Municipal Separate Storm Sewer System
2016 - 2017 Annual Report

Introduction

This annual report covers the reporting cycle July 1, 2016 through June 30, 2017 - Permit Year 4. The report includes the status of compliance with the permit conditions, the appropriateness of the best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures, and the reporting requirements of the general permit.

DPU hired a new Stormwater Administrator who takes over responsibility for the MS4, in addition to the collection system and floodwall. Other roles and responsibilities described in the program plan have not changed during this reporting period. DPU administers all aspects of stormwater management including operation and maintenance, design, construction, and regulatory compliance.

The status of the MS4 program plan and a summary of the activities planned for the next reporting cycle are included in the following sections. We continue with our involvement in the RVAH2O program as we move toward permit reapplication. We used the program for outreach in the Storm Drain Art Contest again this year, as well as other coordinated outreach efforts. Addressing stormwater will be a primary goal as part of the anticipated watershed based permit. The Utility will continue to plan for compliance with VSMP, in addition to MS4, during the remainder of the permit cycle.

The City of Richmond does not rely on another government entity to satisfy any of the permit obligations.

Monitoring data collected by city staff during this reporting cycle from the following creeks (Hughes Spring Branch, Little Westham Creek and 10 unnamed tributaries to the James River. Data are in Attachment A - 1. Samples collected by volunteers and analyzed by the DPU laboratory are included in the Attachment. Creeks sampled by volunteers include Gillie's Creek, Pocosham Creek, Princeton Creek, Rattlesnake Creek, Reedy Creek, Stoney Run and Upham Brook.

The City has continued its Water Quality Monitoring Project with VCU and expanded it this year to include not only the James River, but also tributaries to the river. Four locations were initially selected – Gillie's, Upham Brook, Broad Rock and Reedy Creek. Summary data and a discussion by VCU are in Attachment A - 2. A full report of all VCU data collected are in Attachment A – 3. We intend to expand our monitoring locations in 2017 to cover pre-stream restoration for Pocosham and Rattlesnake creeks.

The City investigated eight potential illicit discharges during this reporting cycle. A summary is in Attachment (B).

There were 262 regulated land disturbing activities during the year and 188 acres disturbed. A full list of structural controls located within the City is included in Attachment (C). A list of new

structural controls placed in operation during the permit cycle is included in Attachment (D).

The city completed its storm sewer outfall map showing all stormwater outfalls discharging to the waters of the Commonwealth. The map shall be updated in accordance with the 2013-2018 permit as development is completed. The city shall continue to identify physical interconnections with other regulated MS4s and notify in writing any downstream regulated MS4 to which the city is physically interconnected.

MS4 Program Plan Compliance Status

1. Public Education & Outreach on stormwater impacts

Purpose

The objective of this BMP is to increase target audience knowledge about steps to take to reduce stormwater pollution and about the hazards of illegal discharges and improper waste disposal.

Measurable Goals

1a. Continue Public Education and Outreach program

1b. Program goals:

1. Increase knowledge on reducing stormwater pollution;
2. Increase knowledge on illegal discharge/improper waste disposal hazards;
3. Target program to audiences most likely to have significant stormwater impacts

1c. Program components:

1. ID three high priority water quality issues, including selection rationale

   The three water quality issues we will focus our efforts on are:

   1. *Pollution Prevention and Illicit Discharge Awareness*
   2. *Reducing bacteria pollution from pet waste*
   3. *Reducing nutrient pollution from improper application of fertilizers*

2. ID and estimate target population size of audience who has most impact
3. Develop messages to targeted audiences
4. Provide for public participation
5. Reach 20% of target audience;
6. Adjust messages as necessary.

Our estimates for target audiences for each of the issues are as follows:

Water Quality Issue	***Target Audience Population***	***Target Audience Population***
PP Awareness	All city residents	215,000
Pet Waste	Dog owners	56,000
Nutrient pollution	City residents, lawn care professionals	50,000

1d. Coordinate with other MS4s

As evidence of our public education and outreach effort, we held the following activities during the reporting period:

Schedule of Activities held this Reporting Cycle

The Utility held the following activities this year and our audience outreach is reported below.

Binford Middle School students marking storm drains April, 2017

Binford Middle School students testing water quality April 2017

High Priority Issue #1: Pollution Prevention & Illicit Discharge Awareness

Measureable Goal	Est. # of People Reached	Est. % of Target Audience Reached	Actual # of people reached	Actual % of target audience reached
Household Hazardous Waste Collection	500	0.2 %	500	0.2 %
Distribute commercials/PSAs	200,000 x 10 views	7.5 %	5,300,000	18.0 %
Billboard campaign	200,000 x 10 views	5.0 %	2,800,000	14.0 %
Educate RPS	3263	20%	3585	22.4 %
Civic Association Meetings	1,200	20%	700	11.6 %

High Priority Issue #2: Bacteria

Measureable Goal	Est. # of bags	Est. % of Target Audience Reached	Actual # of people reached	Actual % of target audience reached
Provide pet waste bags to DPR	125,000	12.2 %	150,000	24 %
Billboard campaign	200,000 x 10 views	5.0 %	2,800,000	10 %
Public Service Announcements	200,000 x 10 views	7.5 %	5,300,000	18 %

High Priority Issue #3: Nutrient Reduction

Measureable Goal	Est. # of People Reached	Est. % of Target Audience Reached	Actual # of people reached	Actual % of target audience reached
Public Service Announcement	200,000 x 10 views	7.5 %	5,300,000	18 %
Billboard Campaign	200,000 x 10 views	5%	2,800,000	10 %

Schedule of Activities for Next Reporting Cycle

During the next year, DPU will continue its public education efforts. The list of activities planned for next year is as follows:

A spreadsheet of activities planned for next year is in Attachment E.

2. Public Involvement & Participation

Purpose

The objective of this BMP is to be a tool to promote public involvement in preventing polluted stormwater runoff from reaching the MS4.

Measurable Goals

2a. Maintain & post online an updated MS4 Program Plan and Annual Report.

A link to the MS4 Program Plan is here 2013 - 2018 MS4 Program Plan. A link to the Annual Report is here.

2b.Participate, through promotion, sponsorship, or other involvement, in a minimum of four local activities annually.

As evidence of our Public Participation effort, Stormwater Utility staff participated and/or planned the following activities held during the reporting period:

Household hazardous waste is collected during an event at the Diamond. May 2017

Activity	Pollutant Target	Audience
Drain Marking Program	Pollution Prevention	residents
Participate in other watershed organizations	Pollution Prevention	residents
Host Nutrient Education Event	Nutrients	residents

2c. The MS4 Program Plan shall include written procedures for these items.

3. Illicit Discharge Detection and Elimination

Purpose

The objective of this Minimum Control Measure is to reduce the discharge of pollutants from the MS4, to protect water quality and ensure compliance with water quality standards and with the Clean Water Act. DPU has a process to investigate and reduce illicit discharges through the industrial pretreatment program and the Community Assisted Public Safety (CAPS) program.

A list of illicit discharges investigated in 201 - 2016 is in Attachment B.

Measurable Goals

3a. Maintain an accurate storm sewer system map and information table.

DPU has a schedule to map the remaining storm sewer system by the end of the permit term, including all relevant required information. We intend to map points of discharge from the MS4 and outfalls to receiving waters. We expect to coordinate with adjacent MS4 permit holders, including VDOT.

3b. DPU has an ordinance that prohibits non-stormwater discharges into the storm sewer system, in accordance with federal, state, and local laws and regulations.

The ordinance that prohibits non-stormwater discharges is here.

3c. DPU has procedures to inspect and identify unauthorized non-stormwater discharges, including illegal dumping to the MS4.

The department has procedures to inspect and identify unauthorized non-stormwater discharges.

The total number of outfalls screened during the reporting period was **94; 63** of the outfalls were dry, leaving **31** outfalls discharging; after reporting the problems to the appropriate department for fixing, samples were collected from these outfalls. Results for the discharging outfalls are in Attachment A.

Pretreatment staff investigated **24** potential illicit discharge activities; a summary of the investigations is included in Attachment B.

Schedule of Activities for Next Reporting Cycle

Throughout the permit term, DPU will continue to investigate and eliminate illicit discharges through the Industrial Waste & Pretreatment and CAPS programs.

4. Construction Site Stormwater Runoff Control

Purpose

The objective is to administer an erosion and sediment control program in accordance with the Virginia Erosion and Sediment Control Regulations, Section 4VAC50-30-40.

Measurable Goals

4a. Applicable oversight

The program compiled the following statistics for construction site inspections during the reporting period:

ESC Activity	#
Total # of regulated land-disturbing activities	262
Total # of acres disturbed	188.076
Total # of inspections conducted	5277
Total # of enforcement actions taken	72
Notice to Comply	68
Stop Work Orders	4

Schedule of Activities for Next Reporting Cycle

DPU will continue to manage the ESC program.

Photos of SCM at Villas at Archer Springs during construction showing vegetation growth. July 2016

5. Post-construction stormwater management in new development and development on prior developed lands

Purpose

The objective is address post-construction stormwater runoff that enters the MS4 from new development and development of prior developed lands.

Measurable Goal

5a. Maintain applicable oversight requirements;

5b. Require design criteria for stormwater runoff controls;

5c. Inspect operate and verify maintenance of stormwater management facilities;

5d. Have an updated Program Plan;

5e. Track stormwater management facilities.

Post-construction Activity	#
Total # of inspections conducted	170
Total # of enforcement actions taken	4
Notice to Comply	0

Schedule of Activities for Next Reporting Cycle

DPU will continue to monitor and track both private and public stormwater management facilities.

Photo of Rain Garden post-construction planting. July 2016

6. Pollution prevention/good housekeeping for municipal operations

Purpose

The objective is to minimize or prevent pollutant discharge from daily operations (road and parking lot maintenance, bulk material storage, etc.) The objective is to prevent pollution at operations facilities from entering the MS4.

Measurable Goal

6a. Minimize or prevent pollution from daily operations;

6b. Identify all municipal high priority (9 types) facilities, and their activities that could contribute to pollution and develop SWPPPs for such facilities;

Summary Report of Development of SWPPPs

Owner	Facility Name	Facility Address	Operations	SWPPP?	Notes
DPR	Forest Hill Park Field Office	4001 Stonewall Ave.	ESM, MS, PSF	Yes	MS4
DPR	Byrd Park Field Office	2301 Amelia St.	ESM, MS, PSF	Yes	MS4
DPR	Oakwood Cemetery	3101 Nine Mile Rd.	ESM, MS	Yes	CS, MS4
DPR	Riverview Cemetery	1305 Randolph St.	ESM, MS, PSF	Yes	CS, MS4
DPR	Maury/Mt. Olivet Cemetery	2700 Maury St.	ESM, MS	Yes	MS4
DPR	Operations Center	823 Azalea Ave.	ESM, MS, PSF	Yes	MS4
DPU	Operations Center	2701 Kern Ave.	ESM, MS, PSF, VSM	Yes	CS, MS4
DPW	Urban Forestry	800 Forest Lawn Dr.	ESM, VSM	Yes	MS4
DPW	Fleet Facility	1701 Commerce Rd.	VSM, ESM	Permit	MS4
DPW	East Richmond Rd. Landfill	3800 E. Richmond Rd	MS, RF, VSM	Yes	MS4
DPW	Hopkins Road Facility	3502 Hopkins Rd.	ESM, MS, SSF, SWF	Permit	CS, MS4
DPW	Grounds Maintenance	6120 Warwick Rd.	ESM, MS, PSF, VSM	Yes	MS4
DPW	Richmond Ambulance Authority	2400 Hermitage Rd.	VSM	Yes	CS
DPW	Whitcomb Laydown Yard	2100 Whitcomb St.	PW, MS, ESM	Yes	MS4
DPW	Maintenance Yard	7400 Forest Hill Ave.	SSF	planning	MS4

CF – composting facilities, ESM = Equipment Storage & Maintenance, MS = Material Storage, PSF = pesticide storage facility, PW = public works, RF = recycling facility, SSF – salt storage facility, SWF = solid waste handling and transfer, VSM = vehicle storage and maintenance

Summary report on development and implementation of SOPs:

SOP Topic	Dept.	Date Developed	Date Implemented
Vehicle/Equipment Storage & Maintenance	DPU/Operations Center	2015	2015
Chemical Handling/Transporting & Spill Response	DPU/Operations Center	2015	2015
Chemical Application, Storage & Disposal (Herbicides/Pesticides)	DPU/Operations Center	2015	2015
Spill Kits/Spill Leak Response	DPU/Operations Center	2015	2015
Dumpster Skids	DPU/Operations Center	2015	2015
General Refuse/Dumpsters	DPU/Operations Center	2015	2015
Transporting/Storing Mulch	DPU/Operations Center	2015	2015
Storage Yard Materials	DPU/Operations Center	2015	2015
Storm Drain Cleaning	DPU/Operations Center	2015	2015
Parking Lot Maintenance	DPU/Operations Center	2015	2015
Landscaping – Mowing & Trimming	DPU/Operations Center	2015	2015

6c. Implement turf and landscape management plans for all areas greater than 1 acre that apply nutrients;

Summary report on turf and landscape management plans required

The City is currently developing a Nutrient Management Plan.

6d. Conduct training for employees;

Dept.	# of emp	EVM	PP Awareness	VSM	Material Storage	Timeline
SW Utility , Collections	85	X	X	X		7/2017 – 6/2018
WWTP		X	X	X	X	7/2017 – 6/2018

City staff developed a training program for stormwater awareness for all city employees and for those employees involved in areas that are likely to have an effect on the MS4. The program will cover spill prevention, vehicle maintenance, bulk material storage, road and parking lot maintenance and facility maintenance. We developed a biennial training schedule to reach the appropriate personnel.

Summary report on required training – list of events, training date, # of employees attending and objective.

Training Date	Objective	Department/Group	# of employees attending
Various	Stormwater Pollution Prevention	New Employees	317

6e. Require municipal contractors use appropriate control measures for stormwater discharges.

City staff is developing a program to satisfy this requirement.

Schedule of Activities for Next Reporting Cycle

Employee Pollution Prevention and Training

Description

DPU will implement an employee-training program for operations staff involved with vehicle maintenance and field activities that may affect the MS4. The objective of this BMP is to provide pollution prevention training to City employees to inform them of proper practices to reduce the potential of pollutants entering the MS4.

Schedule of Activities for Next Reporting Cycle

The City will continue to follow the Training Plan.

Other Information:

H. Information required for any applicable TMDL special condition contained in Section 1 of the general permit.

The Utility planned for five stream restorations to achieve compliance with the TMDL. One project was canceled, but the other four are still in the planning phase. The Utility has another stream restoration project pending to replace the canceled project. We have completed one stream restoration at Maury Cemetery and are in the final planning stages for another restoration at Pocosham Creek. In addition, the Utility continues using green infrastructure to reduce runoff by installing pervious concrete alleys throughout the city.

Pollutant of Concern	2028 Goal Total Reductions Required, lbs	2018 Goal Total removed, lbs	Removed, to date, lbs	% compliance with 2018 Goal
Nitrogen	12,069.75	618.22	191.14	30.9 %
Phosphorus	2,558.95	136.50	144.47	105.8 %
Sediment	1,134,901.10	60,584.67	92,440.64	152.6 %

As stated in the Chesapeake Bay TMDL Action plan, reductions achieved above those required for the permit term will apply to the next permit term.

The Chesapeake Bay TMDL Action Plan is located on the city's website here.

The James River Bacteria TMDL was completed in June 2016.