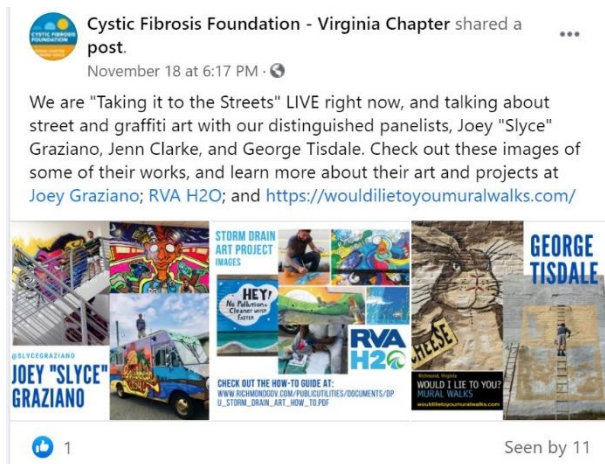
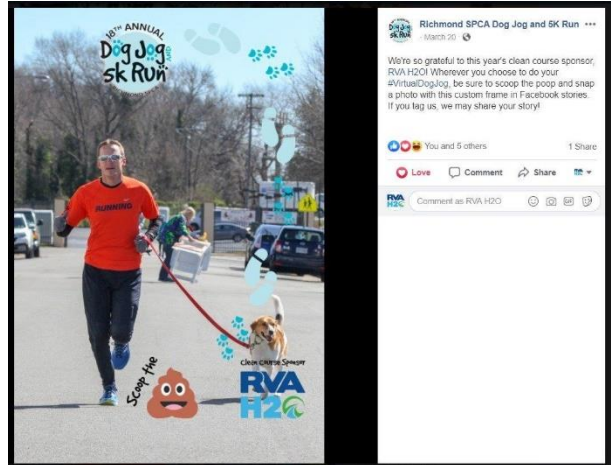


City of Richmond, Virginia Department of Public Utilities Integrated CSS and MS4 2020 Annual Report

March 30, 2021



Prepared by Brown and Caldwell



Legend for Cover Photos:

1. Wastewater Utility Excavation and Vactor Cleaning – 4/24/20
2. Richmond SPCA Dog Job and 5K RVAH2O Scoop the Poop Clean Course Sponsor – Facebook Post
3. “Taking it to the Streets” Webinar
4. Cleaning Roadside Ditches and Driveway Culverts – 4/29/20

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List of Abbreviations

CSS	combined sewer system
DPU	Department of Public Utilities
DWF	dry weather flow
DWO	dry weather overflow
I/I	inflow and infiltration
MG	million gallons
MGD	million gallons per day
MS4	Municipal Separate Storm Sewer System
NMC	nine minimum controls
SCM	six minimum controls
WWTP	Richmond Wastewater Treatment Plant

Section 1

General Information

Permittee Name

City of Richmond

System Name

City of Richmond, Department of Public Utilities (DPU)

Richmond Wastewater Treatment Plant (WWTP), Richmond Combined Sewer System (CSS) and Richmond Municipal Separate Storm Sewer System (MS4)

VPDES Permit No.

VA0063177

Reporting Period

January 1, 2020 through December 31, 2020

Certification Statement

"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."

Calvin D. Farr, Jr. P.E., Director of Public Utilities

Date

Section 2

Combined Sewer System (CSS)

The modeled results of the volume and number of overflows for each combined sewer overflow (CSO) outfall based on the measured storm event data for the 2020 reporting period is presented in Tables 2-1 and 2-2 below, respectively. A map of the CSS outfalls is presented in Appendix A.

Table 2-1. Modeled Overflow Volume (MG)

CSO Outfall	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Total FY20
Hampton Street CSO Area													
19	0	0	0	0	0	0	0	24.90	0.50	0	0	1.40	26.8
33	0	0	0	0	0	0.03	0	0.02	0	0	0	0	0.1
McCloy Street CSO Area													
20	0	0	0	0	0	0	0	17.10	0.49	0	0	1.00	18.6
Northside James River Park CSO Area													
7	0	0	0	0	0	0.17	0	3.70	0.06	0.007	0.01	0.43	4.4
9	0	0	0	0	0	0.22	0.02	0.45	0	0	0	0.003	0.7
10	0	0	0	0	0	0	0	1.5	0	0	0	0.05	1.6
11	18.70	5.00	4.50	22.00	1.90	20.50	5.40	70.50	29.10	11.90	13.30	25.30	228.1
Southside James River Park CSO Area													
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
40	2.60	0.79	0.18	5.30	0.74	9.60	3.80	61.10	12.30	2.30	3.50	13.00	115.2
Shockoe Creek CSO Area													
6	77.20	204.00	49.20	194.00	22.80	139.00	49.70	1525.00	383.00	295.00	155.00	420.00	3513.9
34	0	0	0	0	0	0.18	0.03	0.56	0	0	0.003	0.03	0.803
Wastewater Treatment Plant CSO Area													
14	5.20	2.80	0.76	10.00	1.00	10.40	4.20	60.50	16.80	5.10	5.50	14.60	136.9
21	11.00	16.40	0.21	23.90	0	16.10	7.00	156.00	46.20	10.9	4.00	26.10	317.8
Gillies Creek CSO Area													
4	0.57	0.24	0.05	1.50	0.16	1.80	0.74	12.60	3.00	0.55	1.00	2.50	24.7
5	0.46	1.20	0.03	1.50	0.04	0.46	0.03	9.20	2.60	0.680	0.15	1.50	17.9
24	0.10	0.01	0	0.44	0	0.67	0.18	9.30	1.30	0.07	0.08	1.60	13.8
25	0.004	0	0	0.17	0	0.33	0.09	2.40	0.35	0.01	0.001	0.41	3.8
26	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0.05	0.02	0	0.18	0.005	1.00	0.43	8.20	0.51	0.07	0.270	1.20	11.9
35	0	0	0	0.01	0	0.22	0.07	0.92	0.03	0.001	0.05	0.12	1.4
39	0.67	0.25	0.13	1.20	0.17	1.6	0.65	10.1	2.6	0.76	0.65	2.30	21.1
Hilton Street CSO Area													
12	0.53	0.23	0.13	0.93	0.10	1.20	0.43	9.10	2.00	0.63	0.48	2.10	17.9

Table 2-2. Modeled Number of Overflow Occurrences

CSO Outfall	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Total FY20
Hampton Street CSO Area													
19	0	0	0	0	0	0	0	6	1	0	0	1	8
33	0	0	0	0	0	1	0	1	0	0	0	0	2
McCloy Street CSO Area													
20	0	0	0	0	0	0	0	7	1	0	0	2	10
Northside James River Park CSO Area													
7	0	0	0	0	0	2	1	6	2	1	1	1	14
9	0	0	0	0	0	1	1	4	0	0	0	1	7
10	0	0	0	0	0	0	0	3	0	0	0	1	4
11	3	2	2	4	1	7	4	11	4	6	3	4	51
Southside James River Park CSO Area													
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
40	3	2	1	3	1	7	3	8	4	3	3	4	42
Shockoe Creek CSO Area													
6	2	2	2	2	2	3	2	7	3	3	3	4	35
34	0	0	0	0	0	2	1	5	0	0	1	1	10
Wastewater Treatment Plant CSO Area													
14	3	2	3	3	1	6	2	10	4	4	3	4	45
21	3	2	2	3	0	5	4	7	4	4	4	4	42
Gillies Creek CSO Area													
4	3	2	2	3	1	9	4	10	4	5	4	4	51
5	2	2	1	2	1	2	1	5	2	3	1	3	25
24	2	1	0	2	0	2	2	7	3	1	3	3	26
25	1	0	0	2	0	2	2	7	2	1	1	2	20
26	0	0	0	0	0	0	0	0	0	0	0	0	0
31	3	1	0	2	1	2	2	7	4	1	3	2	28
35	0	0	0	1	1	5	2	9	3	1	3	2	27
39	3	2	3	3	1	7	3	10	4	3	3	4	46
Hilton Street CSO Area													
12	3	2	3	3	1	7	3	10	4	3	3	4	46

Section 3

CSS and MS4 Nine Minimum Controls (NMC) and Six Minimum Controls (MCM)

3.1 Operation and Maintenance of the CSS (NMC 1)

3.1.1 Inspection and Maintenance of CSS Control Structures and Pump Stations

The City follows a regular schedule for inspection and maintenance of regulators, CSO outfalls, and pump stations. The schedule of performance of the City's O&M program is summarized in Table 3-1 and 3-2 below. Equipment inspection, screen cleaning and debris removal are part of the regular activities.

Table 3-1. CSS Control Structure O&M Program			
CSO Control Structures	Inspection Interval	Maintenance	
		Interval	Type
Dry Weather Regulators (29) Wet Weather Regulators (10)	Monthly	Monthly	Preventative Maintenance
CSO Outfalls (25)	Monthly	Monthly	Preventative Maintenance

Table 3-2. CSS Pump Station O&M Program				
Pump Station	Capacity (MGD)		Estimated Dry Weather Peak (MGD)	Inspection/ Maintenance Interval
	Firm	Installed		
Douglasdale	7.5	13.0	2.2	Daily
Hampton/McCloy	0.9	1.7	0.4	Daily
Upham Brook	8.6	13.0	0.3	Daily

If major repairs are deemed necessary at the inspection, a work order is initiated, and the repairs are scheduled. Major repairs may be handled by the City's maintenance department or by outside contractors.

3.1.2 Sewer Flushing and Cleaning

The City follows a regular schedule for routine sewer line flushing and cleaning. Maintenance activities performed on the collection system during the 2020 reporting period are summarized in Table 3-3 below.

Table 3-3. Sewer System Maintenance Activities		
Activity	Interval	Quantity
Sewer Cleaning	Annually (at a minimum)	29.9 miles
CCTV Inspection	Annually	24.6 miles

3.1.3 Catch Basin Cleaning

The City follows a regular schedule for routine catch basin cleaning. The City cleaned 2,429 catch basins throughout the CSS during the 2020 reporting period.

3.2 Use of Collection System for Storage (NMC 2)

3.2.1 Information regarding storage at Shockoe Retention Basin and Hampton/McCloy Tunnel

Storage is provided in the Shockoe and Hampton/McCloy CSO areas through existing retention facilities.

- The Shockoe facilities serve about 8,000 acres of the CSS and comprise a 35 million gallon (MG) retention basin with upstream in-line storage of approximately 15 MG in diversion structures and arch and box sewers.
- The Hampton/McCloy tunnel serves about 1,012 acres of the CSS and comprises a 7.2 MG retention tunnel.

3.2.2 Sewer Re-lining Activities to reduce Inflow and Infiltration (I/I)

The City implements a sewer lining program annually to reduce I/I. The City lined 21,418 feet of sewer during the 2020 reporting period.

3.2.3 Operation of WWTP influent pumping to fill intercepting system

During wet weather events the Main Pumping Station is operated at 140 MGD to maximize flow to the WWTP. As the wet weather event continues, combined sewage is stored in the interceptor system before overflows occur. Portions of the intercepting sewers that convey flow to the WWTP are located at elevations below the lowest CSO outfall overflow elevation. The majority of these low-lying intercepting sewers are in the Shockoe CSO drainage area where the lowest overflow elevation is 1.00 feet. Table 3-4 below summarizes the intercepting sewers below the lowest CSO overflow elevation and the corresponding estimated storage capacity.

Table 3-4. Intercepting Sewers Below Lowest CSO Overflow Elevation			
Intercepting Sewer	Diameter (inches)	Length Below (El + 1.00 (feet))	Storage Capacity (MG)
Lower Goodes Creek	72	10,905	2.61
Twin River Crossings	66	1,100	0.39
Hull Street	60	2,700	0.40
Southside CSO Conveyance (1)	90	4,650	1.54

Table 3-4. Intercepting Sewers Below Lowest CSO Overflow Elevation			
Intercepting Sewer	Diameter (inches)	Length Below (El + 1.00 (feet))	Storage Capacity (MG)
Shockoe	96	2,700	1.02
Gillies Creek	60	2,500	0.37
Northside CSO Conveyance (2)	96, 84, 60	2,850	0.89
Total			7.22
(1) Southside CSO Conveyance stores CSS to an elevation of 10.0 feet			
(2) Northside CSO Conveyance stores CSS to an elevation of 16.0 feet			

3.2.4 Tide Gate Inspections

The City routinely inspects and makes necessary repairs to tide gates to reduce tidal intrusion into the collection system. The City follows a regular schedule for inspection and maintenance of tide gates. The schedule of performance of the City's O&M program is summarized in Table 3-5 below. Equipment inspection, and debris removal are part of the regular activities.

Table 3-5. Tide Gate O&M Program			
Gates	Inspection Interval	Maintenance	
		Interval	Type
CSO 04 (Bloody Run) Tide Gate	Monthly	Monthly	Preventative/Corrective Maintenance
CSO 05 (Peach Street) Tide Gate	Monthly	Monthly	Preventative/Corrective Maintenance
CSO 06 (Shockoe) Tide Gates (6)	Monthly	Monthly	Preventative Maintenance
CSO 14 (Stockton Street) Tide Gate	Monthly	Monthly	Preventative Maintenance
CSO 15 (Canoe Run) Tide Gate	Monthly	Monthly	Preventative Maintenance
CSO 16 (Woodland Heights) Tide Gate	Monthly	Monthly	Preventative Maintenance
CSO 17 (Reedy Creek) Tide Gate	Monthly	Monthly	Preventative Maintenance
CSO 18 (42 nd Street) Tide Gate	Monthly	Monthly	Preventative Maintenance
CSO 21 (Gordon Avenue) Tide Gate	Monthly	Monthly	Preventative/Corrective Maintenance

3.2.5 Use of Public and Private Stormwater Facilities in the CSS Area

Local retention facilities provide additional stormwater storage in the CSS area. Examples of these types of facilities are shown in Table 3-6 below.

Table 3-6. Local Stormwater Retention Facilities in the CSS Area		
Site	Location	Owner
Brander St. Pump Station Holding Pond	Brander St.	City
Gordon Ave. Pump Station Holding Pond	Gordon Ave.	City
DPU Operations Parking Lot	Commerce Rd.	City
Sonoco Products Company	Commerce Rd.	Private (1)

Table 3-6. Local Stormwater Retention Facilities in the CSS Area

Site	Location	Owner
BP Products North America	Commerce Rd.	Private (1)
Citgo Petroleum Corporation	Maury St.	Private (1)
First Energy Corporation	Maury St.	Private (1)
Magellan Terminals Holdings, L.P. Richmond Terminal	East First St.	Private (1)
Transmontaigne Terminaling	Commerce Rd.	Private (1)

(1) Industry that retains stormwater on-site during wet weather events and control releases to permit limits at the WWTP

3.2.6 Use of Real Time Decision Support System to manage flows during CSO Events

In 2020, DPU expanded their collection system monitoring (shown below in Figure 3-1) to include 50 depth sensors, 23 flow meters, and 10 rain gauges.

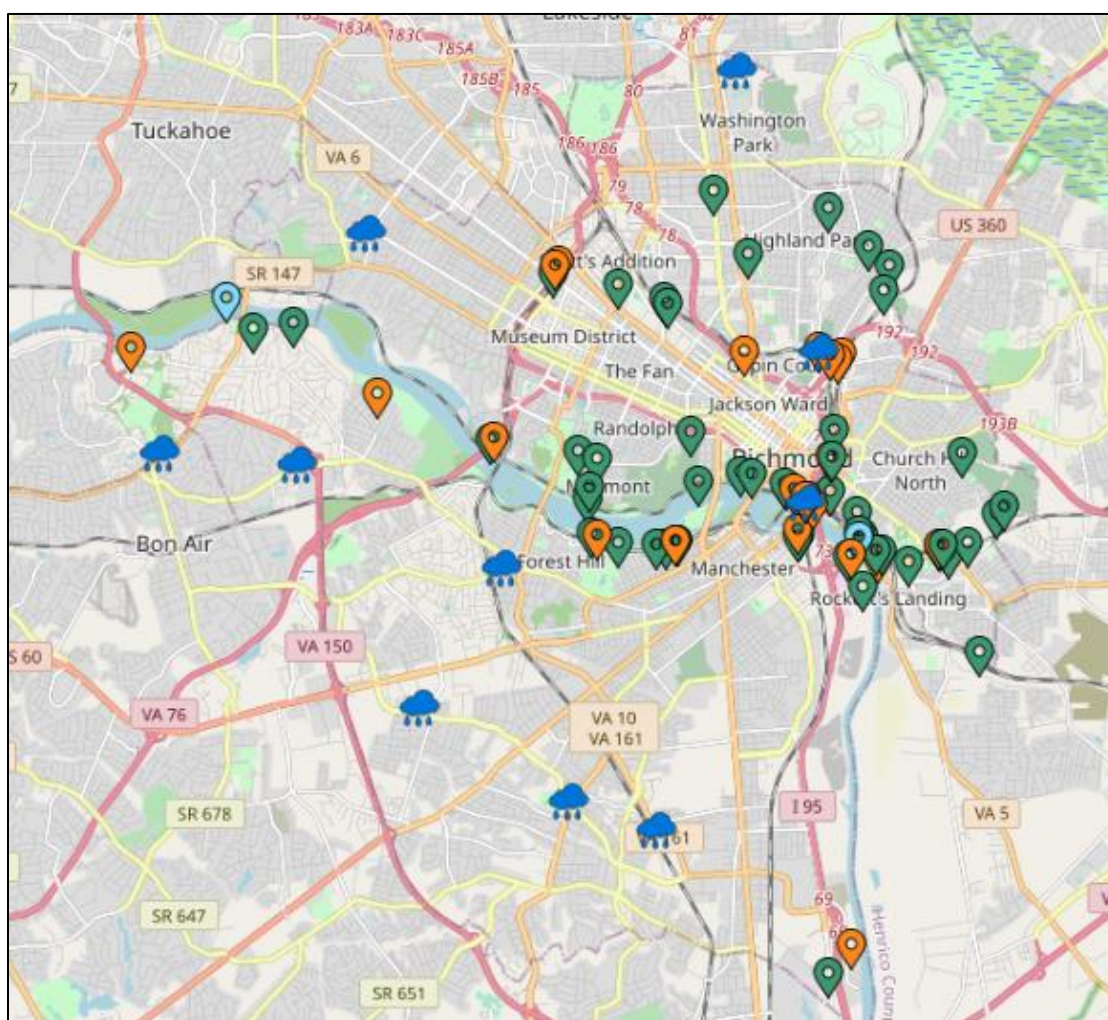


Figure 3-1: Collection System Monitoring System

The data can be displayed in real time, as shown below in Figure 3-2.

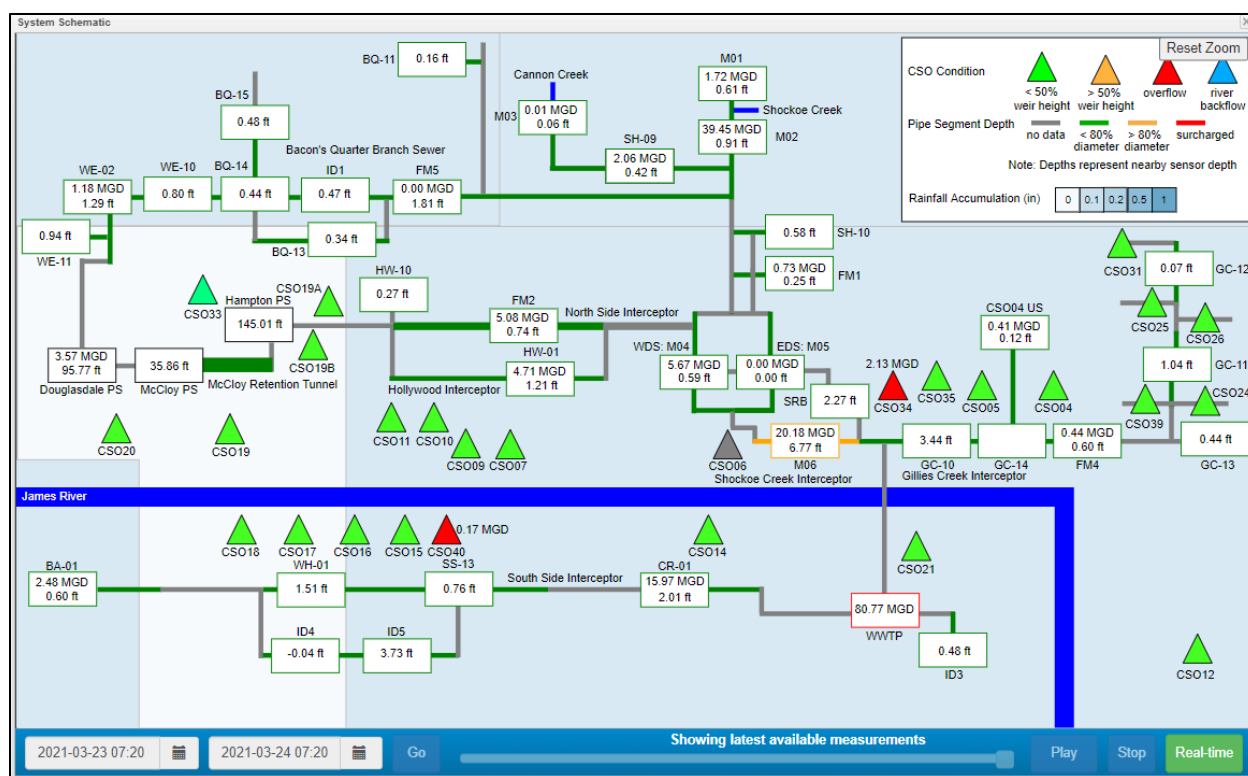


Figure 3-2: Real Time Collection System Data Display

The collected data showed opportunities to optimize the performance of the system through the use of real time control technology. These opportunities were developed into potential projects and were evaluated for implementation in the City's Interim CSO Plan, that is required in accordance with the Amended Consent Order.

3.3 Review of Pretreatment Program (NMC 3)

3.3.1 Changes or Use of Pretreatment Program Authority to minimize flows during CSO Events

The City administers an industrial pretreatment program as required by the VPDES permit. Industries discharging to the CSS retain stormwater on-site during wet weather events and control releases to permit limits at the WWTP. Information on individual industries which utilize retention facilities is summarized in Section 3.2.5 – Use of Public and Private Stormwater Facilities in the CSS Area. Each industry is issued an Industrial User Permit which includes a section on Discharge of Stormwater. The below statement was added to the Industrial User Permits:

E. Storm water runoff collected within the containment dike structure shall be released to the City's Treatment System in accordance with the following criteria:

1. There shall be no discharge of floating solids, visible foam or oily sheen in other than trace amounts; and

2. During storm events where the accumulation of rainfall is in excess of 2.2 inches; the permittee will use the installed precipitation gauge system to determine the volume of rainfall at the terminal; which would then trigger the terminal to call the City of Richmond's Department of Public Utilities Publicly Owned Treatment Works (POTW) at (804) 646-8721 to inform them of the level of rainwater retained in the diked area. It is at this time that the POTW will advise whether the plant is able to handle your facility's effluent. Nevertheless, neither your facility's nor the POTW's welfare will be jeopardized.
3. The Terminal Manager shall contact the City's Environmental Compliance Officer on 804.646.8661 and notify him/her of the intent to discharge, at least 24 hours prior to initiating any discharge other than in 2 above.

During this reporting period, there have been no additional changes to the program to minimize flow during a CSO event.

3.4 Maximize Flow to the WWTP for Treatment (NMC 4)

3.4.1 Operation of WWTP during Precipitation events to show Maximization of Treatment of Wet Weather Flows

The City maximizes flow to the WWTP during wet weather events by performing the following actions:

- Influent flow at the WWTP is increased to 140 MGD in wet weather conditions (see Figure 3-3).
- Flows up to 140 MGD are treated at the WWTP to permit limits.
 - 75 MGD receives full treatment and disinfection (Primary, Secondary, Tertiary and UV Disinfection)
 - 65 MGD receives primary treatment and UV disinfection (Primary and UV Disinfection)
- Combined sewage is stored in the Shockoe Retention Basin (see Figure 3-4), Hampton/McCloy Tunnel (see Figure 3-5) and the collection system prior to overflow.
- The Shockoe Retention Basin and Hampton/McCloy tunnel are drained as soon as possible once overflow conditions concluded. During the draining process the WWTP will operate at 75 MGD.

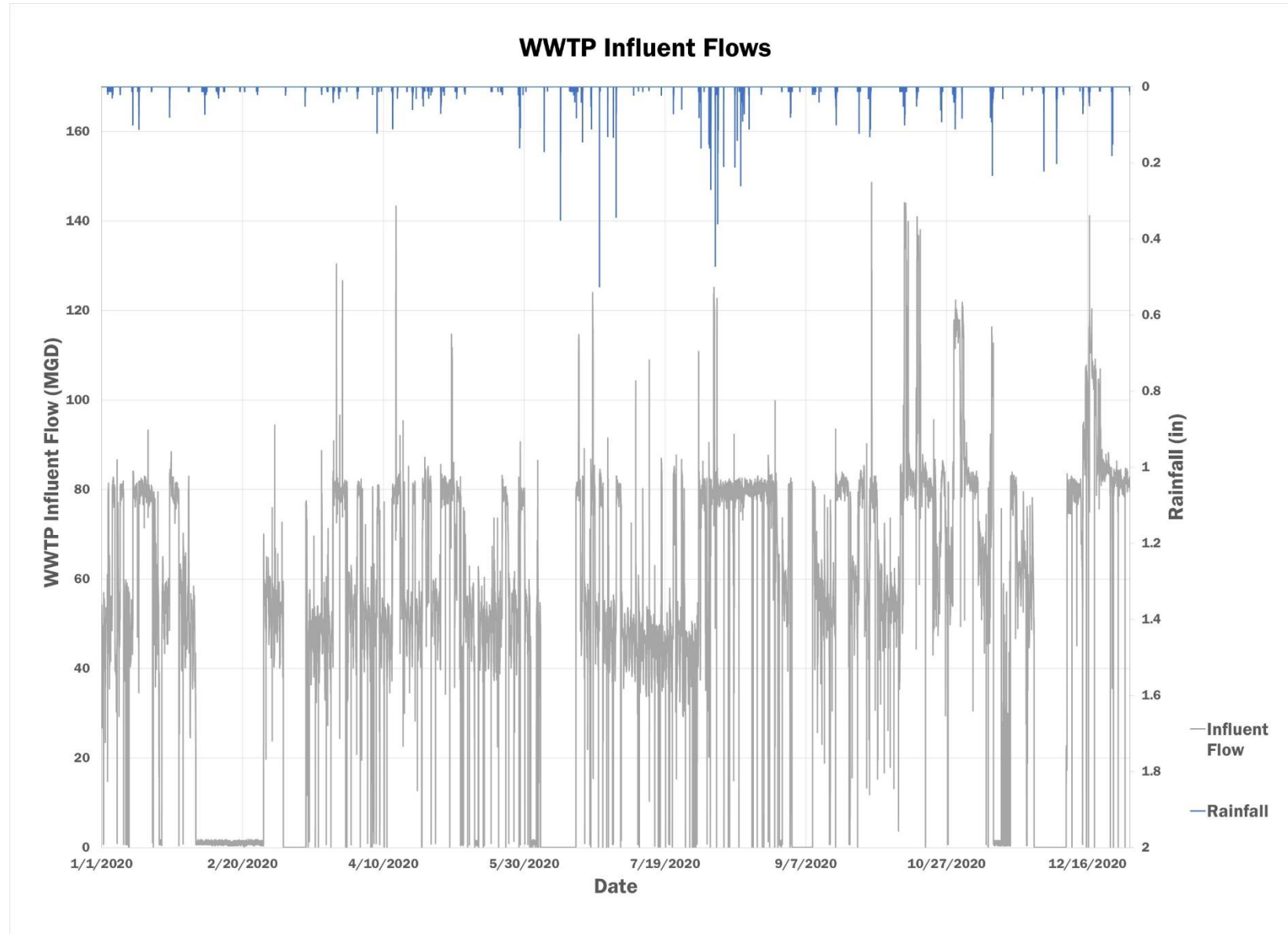


Figure 3-3: WWTP Influent Flows

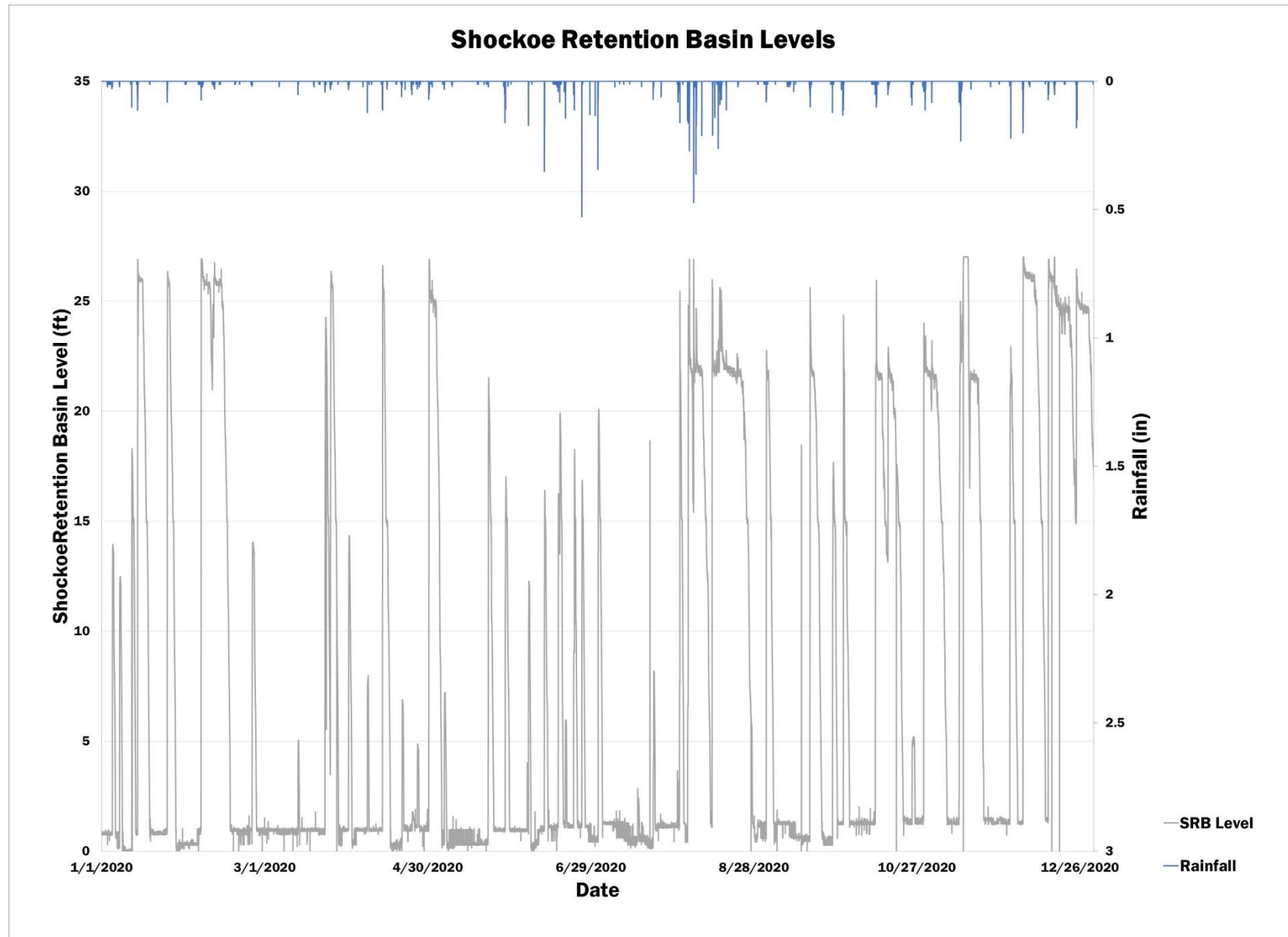


Figure 3-4: Shockoe Retention Basin Levels

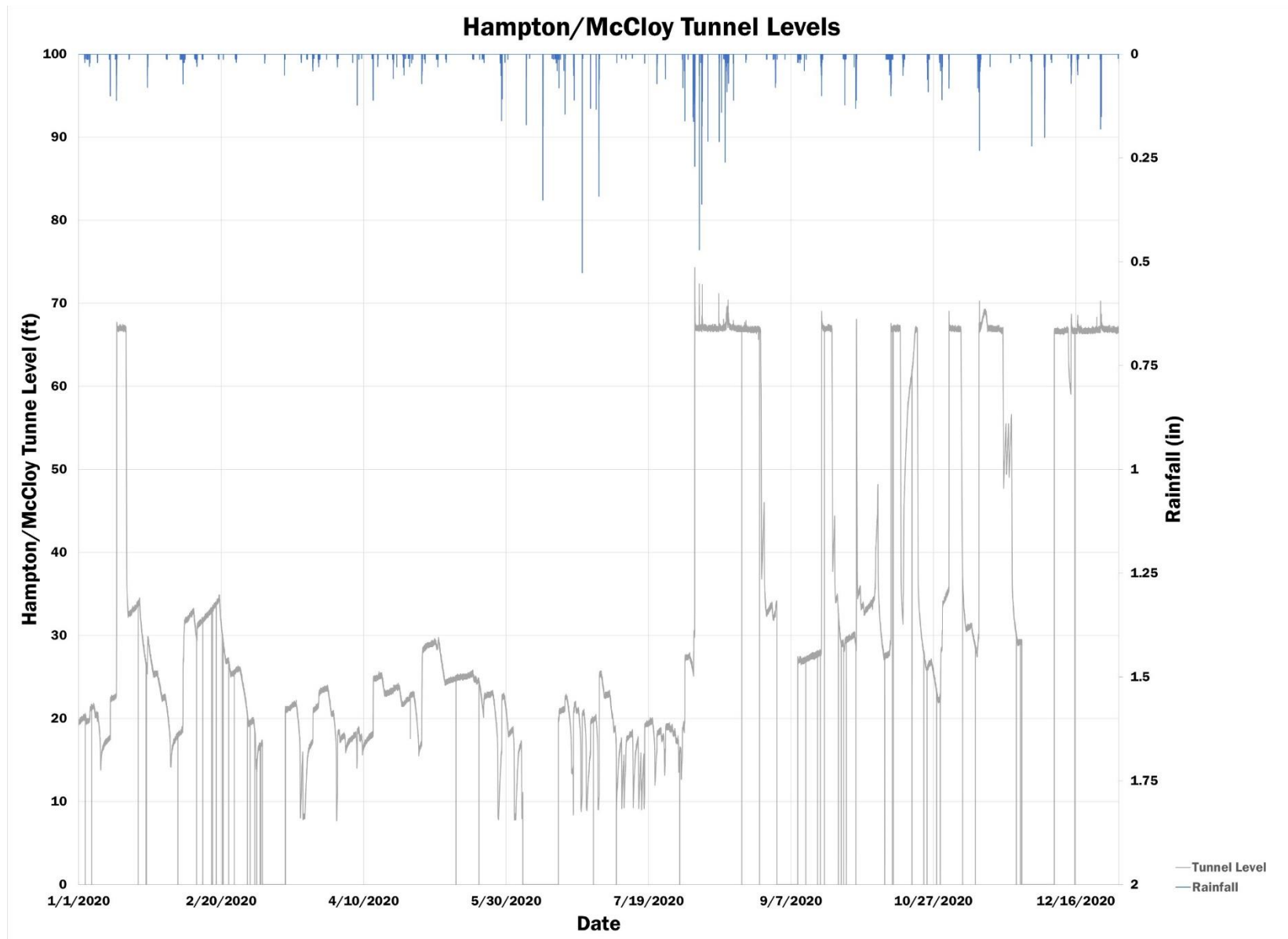


Figure 3-5: Hampton/McCloy Tunnel Levels

3.5 Eliminate Dry Weather Overflows (DWOs) (NMC 5)

3.5.1 Inspection and Maintenance of Diversion Facilities

The City regularly inspects and maintains CSS diversion facilities to prevent dry weather overflows, see Section 3.1.1.

If a dry weather discharges occurs, the City maintains an “on call” team of maintenance personnel to respond to blockages or other occurrences that could result in dry weather discharges.

3.5.2 Monitoring of Pumping Stations for DWOs

The City inspects and maintains the pump stations on a daily basis to prevent dry weather overflows, see Section 3.1.1.

If a dry weather discharges occurs, the City maintains an “on call” team of maintenance personnel to respond to blockages or other occurrences that could result in dry weather discharges.

3.5.3 Operation of the Shockoe Retention Basin

The Shockoe retention basin is continuously staffed. The basin is utilized to store combined sewage during wet weather conditions and is drained as soon as possible after overflow conditions have concluded. The 2020 operating levels of the Shockoe Retention Basin are shown in Section 3.4.1.

3.5.4 Reports of DWOs

All dry weather overflows are reported in accordance with the VPDES permit. Table 3-7 below summarizes each dry weather overflow event that occurred during the reporting period.

Table 3-7. Dry Weather Overflow Reports			
Date of Incident	Location of Incident	Volume Discharged (gallons)	Event Description
1/5/20	Dumbarton Avenue Bridge over Interstate 95	275,000	A vehicle collision damaged the Upham Brook Pump Station force main; bypass pumping was setup to avoid sending flow through the damaged pipe
2/8/20	5 Beaufront Hills	1,500	8-inch sewer line blocked with grease; cleared line with sewer jet truck
3/18/20	5306 Riverside Drive	50	8-inch sewer line blocked; cleared line with sewer jet truck
8/17/20	1202 Loch Lomond Court	1,000	8-inch sewer line blocked with debris; cleared line with sewer jet truck
9/6/20	308 St. David's Lane	500	8-inch sewer line blocked with leaves and sticks; cleared line with sewer jet truck
9/26/20	1202 Loch Lomond Court	1,200	8-inch sewer line blocked with debris; cleared line with sewer jet truck
10/28/20	5701 Westtower Drive	300	8-inch sewer line blocked with debris; cleared line with sewer jet truck

Table 3-7. Dry Weather Overflow Reports

Date of Incident	Location of Incident	Volume Discharged (gallons)	Event Description
11/24/20	Lewis G. Larus Park	10	Sewer line blocked with grease; cleared line with sewer jet truck
12/12/20	3464 Northview Place	1,500	Sewer line blocked with debris; cleared line with sewer jet truck

3.6 Control Solid and Floatable Materials in the CSS (NMC 6)

3.6.1 Cleaning and Maintenance related to Control of Solid and Floatable Materials

The City implements many programs and strategies to capture and remove solid and floatable material from CSS areas. Table 3-8 below summarizes the city-wide programs conducted during the reporting period.

Table 3-8. Solid and Floatable Material Capture Programs

Program	Quantity
Loose-Leaf Collection	8,280 tons removed
Litter Basket Collection	477.5 tons removed
Catch Basin Cleaning	2,429 basins cleaned
Street Sweeping	5,104 miles cleaned 3,735 tons removed

Additional strategies the City implements to control solid and floatable material in CSS areas include:

- The Shockoe retention facilities provide continuous mechanical screening for over two-thirds of the CSS. Screening operations at the facilities are increased during leaf season.
 - The Shockoe Diversion Structure Trash Rake Replacement project is currently under design to replace the screening system at the Shockoe West Diversion Structure to increase the volume of the screenings removed from the facility.
- The Hampton/McCloy tunnel provides continuous mechanical screening. All flow captured in the tunnel is screened prior to transfer to the WWTP, which consist of 1,012 acres of the CSS. The tunnel is equipped with solid and floatable capture chambers.
- The Northside, Southside James River Park, Gillies Creek, and Hilton Street CSO conveyance facilities have flotation or stilling chambers and/or static screens along with baffles to capture solid and floatable material. The material captured is transferred to the intercepting sewers for removal at the WWTP.

3.7 Public Education and Outreach (MCM 1, NMC 7 and NMC 8)

3.7.1 List of High-Priority Stormwater Issues and Strategies

The City identified three high-priority stormwater issues to be addressed in their public education and outreach program.

3.7.1.1 High Priority Issue #1: Pet Waste

- Rationale for Selection: Minimize the degree of pet waste runoff to reduce the bacteria loads entering local waterways
- Identification of Public Audience: Pet Owners
- Strategy: Traditional written materials, alternative materials, signage, media materials, speaking engagements

The specific events/media utilized to address public education on Pet Waste are summarized below in Table 3-9.

Table 3-9. Strategies to Communicate High Priority Issue #1 – Pet Waste		
Date	Event/Media	Audience Reached
1/16/20 - 12/12/20	Distributed 61 Pet Waste Yard Signs to Private Citizens and Parks	
1/23/20	Wild and Scenic Film Festival at the Science Museum of Virginia	250
2/7/20	Richmond Environmental Film Festival at the Main Library	200
3/2/20 - 3/21/20	SPCA Dog Jog and 5K Posters in Shockoe Bottom	
3/20 - 12/20	Pet Waste Banners at the Diamond	
3/21/20	18th Annual Richmond SPCA Dog Jog and 5K Run	35,055
5/11/20 - 6/8/20	Poe's Pub Westbound Pet Waste Billboard	618,023
5/11/20 - 8/11/20	Hull Street/Mayo Bridge Northbound (City View) Pet Waste Billboard	1,285,858
5/11/20 - 8/26/20	Forest Hill at Crossroads Pet Waste Billboard	1,641,122
5/11/20 - 9/22/20	Commerce and Porter Pet Waste Billboard	396,032
5/11/20 - 9/26/20	21st and Broad Street Northbound Pet Waste Billboard	752,030
5/11/20 - 10/30/20	Hull and McGuire Pet Waste Billboard	2,048,542
5/12/20 - 10/22/20	Leigh and Arthur Ashe Boulevard Pet Waste Billboard	1,995,693
7/1/20	Richmond Home and Garden Pet Waste Ad	250,000
7/13/20	Article in Friends of Bellemeade Park Newsletter	
8/20/20	BlueTubes Facebook Promotion with Middle James Roundtable	7,449
9/24/20	10 Spanish Pet Waste Signs for James River Park System	
10/28/20	Hull Street Branch Library River Hero Homes Month Rain Barrel Workshop	25
11/17/20	Belmont Branch Library Rain Barrel Workshop	39
11/18/20	Pet Waste Handouts Included in Distribution Bags	200
12/1/20	Utility Bill Insert Discussing Pet Waste	67,000

3.7.1.2 High Priority Issue #2: General Stormwater Awareness

- Rationale for Selection: Educate residents on stormwater and its impact on the environment to improve the quality and minimize the quantity of urban runoff from residential areas
- Identification of Public Audience: Richmond citizens and school-age students
- Strategy: Traditional written materials, alternative materials, signage, media materials, speaking engagements, curriculum materials

The specific events/media utilized to address public education on General Stormwater Awareness are summarized below in Table 3-10.

Table 3-10. Strategies to Communicate High Priority Issue #2 – General Stormwater Awareness		
Date	Event/Media	Audience Reached
1/1/20 - 7/31/20	GRTC Bus Ads	5,971,000
1/23/20	Wild and Scenic Film Festival at the Science Museum of Virginia	250
2/7/20	Richmond Environmental Film Festival at the Main Library	200
2/10/20	Richmond Environmental Film Festival at the University of Richmond	200
2/29/20	Yards of Tomorrow Workshop with PlanRVA	20
4/20	The Church Hill Association of RVA Community Newsletter Ad	1,200
2/29/20	60 Second Film Festival at Pine Camp Cultural Arts and Community Center	
6/1/20	Utility Bill Insert Discussing 2020 Stormwater	67,000
7/14/20	Greening Richmond Public Libraries - North Avenue Branch Virtual Charrette	16
7/21/20	Greening Richmond Public Libraries - West End Branch Virtual Charrette	
7/23/20	Distributed "Cleaner Water Faster" Handout Notebooks to 5th District seniors	200
7/28/20	Greening Richmond Public Libraries - Broad Rock Branch Virtual Charrette	
4/8/20	Middle James Roundtable Annual Watershed Conference	47
9/18/20	Richmond Public Schools Ancarrow's Landing Environmental Education Walk	2
9/18/20	Middle James Roundtable Annual Watershed Conference	47
9/18/20	Richmond Public Schools Ancarrow's Landing Environmental Education Walk	2
11/4/20	Teen Workforce Rain Barrel Workshop	3
11/9/20	Richmond Public Schools Watershed Lesson with the James River Association	
11/20/20	Richmond Public School Career Expo	230
11/12/20	Richmond Public Schools Watershed Lesson with the James River Association	
11/17/20	Belmont Branch Library Rain Barrel Workshop	39
11/18/20	Taking It To the Streets: Community, Street, & Graffiti Art in RVA Panel	397
12/15/20	Alliance for the Chesapeake Bay Staff Presentation	

3.7.1.3 High Priority Issue #3: Litter Awareness

- Rationale for Selection: Minimize the degree of litter entering the storm sewer system and local waterways to achieve higher water quality
- Identification of Public Audience: Pedestrians
- Strategy: Traditional written materials, alternative materials, signage, media materials, speaking engagements

The specific events/media utilized to address public education on Litter Awareness are summarized below in Table 3-11.

Table 3-11. Strategies to Communicate High Priority Issue #3 – Litter Awareness

Date	Event/Media	Audience Reached
1/1/20 - 2/2/20	2020 Storm Drain Art Project Posters in City Hall and Shockoe Bottom	50 (# of Posters)
1/16/20	RVAH2O Newsletter for the 2020 Storm Drain Art Project	
1/24/20	NBC12 Interview for 2020 Storm Drain Art	
1/24/20	2020 Storm Drain Art Project Press Release	
2/14/20	VCU Interview for 2020 Storm Drain Art	
3/1/20	Utility Bill Insert Discussing Storm Drain Art and Litter in Storm Drains	67,000
3/4/20	Don't Trash Central Virginia Campaign Press Release	
6/1/20	Utility Bill Insert Discussing 2020 Storm Drain Art and Litter in Storm Drains	67,000
6/1/20 - 6/28/20	Anti-Litter Radio Ads on WKHK-FM	840,800
6/1/20 - 6/28/20	Anti-Litter Radio Ads on WURV-FM	268,000
6/1/20 - 6/28/20	Anti-Litter Radio Ads on WKHK-FM HD2	84,000
8/18/20	Distributed 5 BlueTubes to James River Park System	
8/20/20	BlueTubes Facebook Promotion with Middle James Roundtable	7449
11/18/20	Taking It To the Streets: Community, Street, & Graffiti Art in RVA Panel	397

3.7.2 Proper Disposal of Substances - Public Education Programs and Facility Tours

The educational programs and tours conducted and/or hosted by the City during the reporting period to educate on the proper disposal of substances are summarized in Table 3-12 below.

Table 3-12. Public Education Programs and Facility Tours

Date	Program/Tour	Audience Reached
1/6/20	City of Richmond New Employee Orientation	
1/21/20	City of Richmond New Employee Orientation	
2/3/20	City of Richmond New Employee Orientation	21
2/18/20	City of Richmond New Employee Orientation	8
3/2/20	City of Richmond New Employee Orientation	18
5/20/20	Don't Trash Central Virginia Campaign	
8/6/20	Virtual Wastewater Treatment Plant Lesson on Twitter	12,239
8/31/20	Richmond Public Schools Henrico County Public Schools Virtual Wastewater Treatment Plant Tour	
9/3/20	Richmond Public Schools Professional Development Training	
9/18/20	Richmond Public Schools Ancarrow's Landing Environmental Education Walk	2
10/21/20	Virtual Imagine a Day Without Water on Twitter	4,698
11/9/20	Richmond Public Schools Watershed Lesson with the James River Association	
11/12/20	Richmond Public Schools Watershed Lesson with the James River Association	
11/12/20	Virtual Floodwall Lesson on Twitter	26,799

Table 3-12. Public Education Programs and Facility Tours

Date	Program/Tour	Audience Reached
12/15/20	Alliance for the Chesapeake Bay Staff Presentation	

3.7.3 Pretreatment Awareness Programs

The pretreatment awareness programs that were implemented to encourage industrial waste reduction through recycling and improved housekeeping are summarized in Table 3-13 below.

Table 3-13. Awareness Programs to Encourage Waste Reduction

Date	Event/Program	Audience Reached
1/11/20	Household Hazardous Waste Event	800

3.8 Public Involvement and Participation (MCM 2 and NMC 8)

3.8.1 Public Input on MS4 Program

Stormwater complaints received by the City, and complaints that were addressed and closed out through the duration of the reporting period are summarized in Table 3-14 below.

Table 3-14. Stormwater Complaints Summary (Cityworks)

Month	No. of New Complaints Received	No. of Complaints Closed
January	123	112
February	146	136
March	67	202
April	79	108
May	76	106
June	122	81
July	127	217
August	389	112
September	146	183
October	111	186
November	117	149
December	183	142
TOTAL	1,686	1,734

3.8.2 Published Information on a City-Controlled website pertaining to the CSO Control and MS4 Program

Published information on the CSO control and MS4 programs is located at the following City-controlled websites:

<http://www.richmondgov.com/PublicUtilities/projectCombinedSewerOverflow.aspx>

http://www.richmondgov.com/PublicUtilities/StormwaterWhatIsIt.aspx#ms4_comply

<https://www.rva.gov/index.php/public-utilities/wastewater-utility>

<https://www.rva.gov/public-utilities/stormwater-management>

3.8.3 Public Involvement Activities

The public involvement activities conducted and/or hosted by the City during the reporting period are summarized in Table 3-15 below.

Table 3-15. Public Involvement Activities			
Date	Event	Attendees	Water Quality Improvement
1/11/20	Household Hazardous Waste Event at Parker Field Annex	800	34 55-gallon barrels were filled with household hazardous waste; distributed 3 backpacks, 3 Only Rain in the Drain stickers, 3 RVAH2O stickers, 3 thermoses, 1 FOG brochure, 4 Pick Up the Poop keychains, and 17 pet waste bags (containing 340 individual bags)
1/23/20	Wild and Scenic Film Festival at the Science Museum of Virginia	250	Distributed 25 pet waste bags (containing 500 individual bags), 35 RVAH2O pouches, 15 cherry tomato seed pencils, 4 Cleaner Water Faster handouts, and 60 RVAH2O stickers (24 big, 34 small)
2/7/20	Richmond Environmental Film Festival at the Main Library	200	Distributed 6 FOG brochures, 11 grease can lids, 28 seed pencils, 4 Cleaner Water Faster handouts, 10 Cleaner Water Faster notebooks, 19 pet waste bags (containing 380 individual bags), 6 Only Rain in the Drain stickers, and 36 RVAH2O stickers
2/10/20	Richmond Environmental Film Festival at the University of Richmond	200	Distributed 25 seed pencils, 8 Cleaner Water Faster handouts, 9 Cleaner Water Faster notebooks, 15 Only Rain in the Drain stickers, and 36 RVAH2O stickers
2/29/20	Yards of Tomorrow Workshop with PlanRVA	20	Shared information about stormwater runoff and water quality
2/29/20	60 Second Film Festival at Pine Camp Cultural Arts and Community Center		Shared information about the importance of water quality and the importance of picking up litter
3/21/20	18th Annual Richmond SPCA Dog Jog and 5K Run	35,055	Distributed 1,000 RVAH2O stickers, 1,000 RVAH2O Don't Pollute Keychains and 500 RVAH2O pet waste bags (containing 10,000 individual bags)
7/14/20	Greening Richmond Public Libraries - North Avenue Branch Virtual Charrette	16	Shared information about stormwater runoff and water quality in the James River
7/21/20	Greening Richmond Public Libraries - West End Branch Virtual Charrette		Shared information about stormwater runoff and water quality in the James River
7/28/20	Greening Richmond Public Libraries - Broad Rock Branch Virtual Charrette		Shared information about stormwater runoff and water quality in the James River
07/31/20	Pet waste station to Patrick Henry Park		Provided one pet waste Station and 1680 bags for Patrick Henry Park
08/20/20	Middle James Roundtable BlueTubes Promotion	7,449	Shared information about the importance of picking up litter and pet waste to improve and protect water quality
8/31/20	Richmond Public Schools Henrico County Public Schools Virtual Wastewater Treatment Plant Tour		Shared information about stormwater runoff and water quality in the James River
09/18/20	Middle James Roundtable Annual Watershed Conference	47	Shared information about stormwater runoff and water quality in the James River

Table 3-15. Public Involvement Activities

Date	Event	Attendees	Water Quality Improvement
9/18/20	Richmond Public Schools Ancarrow's Landing Environmental Education Walk	2	Shared information about water quality
10/9/20	Pet waste stations to Richmond Parks, Recreation, and Community Facilities		Provided 21 pet waste stations and 4880 bags for Richmond Parks, Recreation, and Community Facilities
10/12/20	Pet waste stations to Bellemeade Park		Provided four pet waste stations and 2720 bags for Bellemeade Park
10/22/20	Richmond World Fish Migration Day Panel Discussion	256	Shared information about stormwater runoff and water quality in the James River
10/28/20	Hull Street Branch Library Rain Barrel Workshop	25	Distributed 25 rain barrels and 25 pet waste bags (containing 500 individual bags)
10/30/20 - 11/8/20	Reforest Richmond #ArborDayRVA Tree Giveaway	8,000	8000 reached with 60 volunteers staffing pickups at 42 separate pickup locations
11/4/20	Teen Workforce Rain Barrel Workshop	3	Outfitted 25 rain barrels and discussed water quality
11/9/20	Richmond Public Schools Watershed Lesson with the James River Association		Shared information about stormwater runoff and water quality
11/10/20	Richmond Public School Career Expo	230	Shared information about stormwater runoff and water quality in the James River
11/12/20	Richmond Public Schools Watershed Lesson with the James River Association		Shared information about stormwater runoff and water quality
11/17/20	Belmont Branch Library Rain Barrel Workshop	39	Distributed 39 rain barrels and 40 pet waste bags (containing 800 individual bags)
11/18/20	Taking It To the Streets: Community, Street, & Graffiti Art in RVA Panel	397	Shared information about stormwater and the importance of picking up litter
12/15/20	Alliance for the Chesapeake Bay Staff Presentation		Shared information about stormwater and water quality improvements in Richmond

3.8.4 Public Involvement Metric Evaluation

The metrics used to evaluate the effectiveness of the implemented public involvement activities are summarized in Table 3-16 below.

Table 3-16. Public Involvement Activities

Public Involvement Opportunity Outlined in Program Plan	Metric as Defined in Program Plan	Metric Measurements	Evaluation
Monitoring – Volunteer Monitoring	The number of participants per training event	5 volunteer samples were conducted during the 2020 reporting year (January-February). Volunteer sampling was postponed after February to comply with Covid-19 protocols.	Engaging volunteers to perform sampling improves the awareness of the local water quality and perpetuates the behavior in each individual.
Restoration – Watershed Cleanup	The number of participants per event	10/30/20 – 11/8/20 #ArborDayRVA Reforest Richmond Event (42 separate pickup	Over three weekends 60 volunteers helped to distribute 8,000 Eastern Redbuds to Richmonders. Planting trees helps to

Table 3-16. Public Involvement Activities

Public Involvement Opportunity Outlined in Program Plan	Metric as Defined in Program Plan	Metric Measurements	Evaluation
		locations): 60 volunteers; 8000 participants	<p>reduce erosion, hold soil in place, and absorb and slow stormwater, in addition to a myriad of other benefits.</p> <p>In addition, many divisions within the City of Richmond and organizations within Richmond host litter cleanups and the impact they have on keeping debris out of the stormwater system and the James River is meaningful. Keeping our waters and infrastructure litter- and pollutant-free are important and beneficial to water quality. In 2020, the Department of Public Utilities sponsored Keep Virginia Cozy, one such organization that held 16 cleanup events throughout Richmond, collecting 3812 pounds of litter and recycling with over 350 volunteer hours. Another organization, Venture Richmond, removed 655,040 gallons of debris.</p>
Disposal or Collection Event – Household Hazardous Waste Collection Events	The number of barrels of hazardous waste collected per event	1/11/20 at Parker Field Annex (1710 Robin Hood Road): 34 55-gallon barrels collected	<p>Though the May household hazardous waste event was cancelled towards the beginning of the COVID-19 pandemic, collecting 34 55-gallon barrels of household hazardous waste in January of 2020 is still 1,870 gallons of household hazardous waste kept out of the environment and waterways. Given the damage that even a single gallon of toxic can have on water quality, 1,870 gallons of material properly disposed of is critical to perpetuating our clean water efforts. Keeping hazardous material from being improperly disposed of and out of the environment, our stormwater, our combined stormwater and sewer infrastructure, and out of waterways is beneficial to improving and protecting water quality.</p>

3.8.5 Public Meetings Organized/Attended

During the reporting period, the City organized and participated in meetings with the community, regulatory agencies, stakeholders, and other MS4 permittees. These meetings are summarized in Table 3-17 below.

Table 3-17. Public Involvement Meetings

Date	Meeting
1/6/20	New Employee Orientation
1/9/20	Mayor Stoney's Green Team
1/11/20	Household Hazardous Waste Event
1/21/20	New Employee Orientation
1/23/20	James River Advisory Council

Table 3-17. Public Involvement Meetings

Date	Meeting
1/23/20	Wild and Scenic Film Festival
1/28/20	State of the City
1/30/20	Middle James Roundtable
2/3/20	New Employee Orientation
2/7/20	Richmond Environmental Film Festival
2/10/20	Clean Virginia Waterways Litter and Stormwater Workshop
2/10/20	Richmond Environmental Film Festival
2/18/20	New Employee Orientation
2/24/20	World Fish Migration Day
2/27/20	Mayor Stoney's Green Team
2/29/20	Yards of Tomorrow Workshop - PlanRVA
2/29/20	60 Second Film Festival - PRCF
3/2/20	New Employee Orientation
3/9/20	East End Green Infrastructure Meeting
3/21/20	18th Annual Richmond SPCA Dog Jog and 5K Run
3/23/20	Mayor Stoney's Green Team
4/6/20	Mayor Stoney's Green Team
4/20/20	Green City Commission
4/30/20	Mayor Stoney's Green Team
5/6/20	James River Outdoor Coalition Meeting
5/12/20	RVAH2O Technical Stakeholders Meeting
5/14/20	Manchester Alliance Meeting
5/17/20	Green City Commission
5/20/20	Don't Trash Central Virginia Campaign
5/26/20	RVAH2O Internal Stakeholders Meeting
5/29/20	PlanRVA Richmond Region Environmental Program COVID Impacts Meeting
6/2/20	East End Green Infrastructure Meeting
6/3/20	James River Outdoor Coalition Meeting
6/10/20	Richmond 300 Thriving Environment Summit
6/23/20	Lower James River Roundtable
6/24/20	RVAgreen 2050 Listening Session
7/1/20	Drexel University: Stormwater Planning in the Era of Climate Change
7/1/20	PlanRVA Richmond Regional Water Quality Planning Partners
7/7/20	Mayor Stoney's Green Team
7/9/20	Manchester Alliance Meeting
7/14/20	Greening Richmond Public Libraries - North Avenue Branch
7/20/20	Green City Commission

Table 3-17. Public Involvement Meetings

Date	Meeting
7/20/20	River Network Water Trust Work Group
7/20/20	Green City Commission
7/21/20	Greening Richmond Public Libraries - West End Branch
7/23/20	James River Advisory Council
7/27/20	Mayor Stoney's Green Team
7/28/20	Broad Rock Branch Library Virtual Charrette
7/29/20	Drexel University: Stormwater Planning in the Era of Climate Change
8/5/20	Green Infrastructure Master Plan Meeting
8/5/20	James River Outdoor Coalition
8/19/20	Richmond Tree Committee
8/20/20	Middle James Roundtable BlueTubes Promotion
8/25/20	James River Association Water Quality on the James River Webinar
8/31/20	Richmond Public Schools Henrico County Public Schools Virtual Wastewater Treatment Plant Tour
9/1/20	Lower James River Roundtable
9/2/20	Drexel University: Stormwater Planning in the Era of Climate Change
9/2/20	James River Outdoor Coalition
9/3/20	Richmond Public Schools Professional Development Training
9/8/20	Sierra Club Falls of the James Chapter Meeting
9/14/20	East End Green Infrastructure Collaborative Meeting
9/18/20	Middle James Roundtable Annual Watershed Conference
9/18/20	Richmond Public Schools Ancarrow's Landing Environmental Education Walk
9/21/20	Green City Commission
9/29/20	James River Association The Great Return of the Atlantic Sturgeon Webinar
9/30/20	Powhatan Hill Community Center Improvement Meeting
10/15/20	Historic Falls of the James Scenic River Advisory Committee
10/19/20	Green Infrastructure Master Plan Workshop
10/22/20	Richmond World Fish Migration Day Panel Discussion
10/22/20	James River Advisory Council
10/27/20	RVAH2O Technical Stakeholder Meeting
10/28/20	Hull Street Branch Library Rain Barrel Workshop
11/8/20	Reforest Richmond #ArborDayRVA Tree Giveaway
11/4/20	Teen Workforce Rain Barrel Workshop
11/6/20	RVAgreen 2050 Environment Working Group
11/9/20	Richmond Public Schools Watershed Lesson with the James River Association
11/10/20	Career Expo with the James River Association
11/10/20	Lower James River Roundtable

Table 3-17. Public Involvement Meetings

Date	Meeting
11/10/20	Richmond Public School Career Event
11/10/20	Lower James River Roundtable
11/12/20	Richmond Public Schools Watershed Lesson
11/12/20	Manchester Alliance Meeting
11/13/20	River Network Water Trust Workgroup
11/16/20	Green City Commission
11/16/20	RVAgreen 2050 Environment Working Group
11/16/20	PlanRVA Richmond Regional Water Quality Planning Partners
11/16/20	Green City Commission
11/17/20	Belmont Branch Library Rain Barrel Workshop
11/18/20	Taking It To the Streets: Community, Street, & Graffiti Art in RVA Panel
12/2/20	James River Outdoor Coalition Meeting
12/7/20	East End Green Infrastructure Collaborative Meeting
12/9/20	Greening Southside Richmond Kick-Off
12/14/20	RVAgreen 2050 Environment Working Group
12/15/20	Alliance for the Chesapeake Bay Staff Presentation
12/15/20	PlanRVA Richmond Regional Water Quality Planning Partners
12/17/20	Historic Falls of the James Scenic River Advisory Committee
12/30/20	Lower James River Roundtable

3.8.6 CSO Warning Signs

Twenty (20) of the twenty-five (25) CSO outfalls were predicted to discharge, more than once per summer on average. Each of these outfalls are required to have a CSO warning sign per the VPDES permit. These signs have been installed and have been maintained by DPU throughout the reporting year.

3.8.7 Local Press Coverage of CSO Program

Local press coverage of the CSS is ongoing. The articles/sessions released during the reporting period are summarized in Table 3-18 below.

Table 3-18. Local Press Coverage

Date	Source	Link
2020	Department of Conservation and Recreation	https://www.dcr.virginia.gov/recreational-planning/scenic-river-stories/sr-james-river?fbclid=IwAR2MoZuBwn5Txg6jvBuqnoNuTR6tRTKm2XD7humG157T1ILI_XVAma7L648
1/22/20	Virginia Mercury	https://www.virginiamercury.com/2020/01/22/why-stormwater-poses-an-increasing-challenge-for-virginia/
2/18/20	CBS6	https://www.wtvr.com/news/problem-solvers/problem-solvers-investigations/why-human-waste-is-allowed-to-flow-into-the-james-river-were-not-a-third-world-country

Table 3-18. Local Press Coverage

Date	Source	Link
2/19/20	ABC8	https://www.wric.com/news/local-news/richmond/massive-tire-fire-at-richmond-facility-prompts-environmental-health-concerns/
2/20/20	FOX	https://www.wfxrtv.com/news/local-news/raw-sewage-flows-into-the-james-river-lynchburg-is-trying-to-stop-it/
3/04/20	CBS6	https://www.wtvr.com/news/problem-solvers/problem-solvers-investigations/lawmakers-take-action-after-problem-solvers-investigation-into-sewage-overflow-in-the-james-river
3/04/20	NBC12	https://www.nbc12.com/2020/03/05/richmond-address-sewage-overflows-into-james-river/
3/04/20	Good Morning RVA	https://gmrv.com/podcast/2020/3/4/good-morning-rva-primary-results-combined-sewer-overflow-and-a-taco-update
3/04/20	Chesapeake Bay Foundation	https://www.cbf.org/news-media/newsroom/2020/virginia/richmond-to-address-sewage-overflows-into-james-river-under-legislation.html
3/05/20	NBC12	https://www.nbc12.com/2020/03/05/news-know-march-patient-has-no-coronavirus-chesterfield-man-stabs-wife-racial-taunts-basketball-game-james-river-sewage-overflow-brief-winter-weather/
3/05/20	VPM/NPR	https://vpm.org/news/articles/11254/deadline-set-for-richmond-to-stop-dumping-sewage-into-james-river
3/10/20	Chesapeake Bay Magazine	https://chesapeakebaymagazine.com/va-passes-bill-to-stop-james-river-sewage-dumps-by-2035/
3/13/20	James River Association	https://thejamesriver.org/a-banner-year-for-the-james-river-at-virginias-general-assembly/
3/17/20	James River Association	https://thejamesriver.org/mayor-stoneys-proposed-budget-funds-improvements-to-richmonds-combined-sewer-system-and-wastewater-treatment-plant/
3/18/20	Richmond Times Dispatch	https://www.richmond.com/opinion/columnists/bill-street-column-america-s-best-river-town-needs-to/article_3534822e-b428-575e-9d14-37e5f4d86a35.html
3/25/20	James River Association	https://thejamesriver.org/richmonds-combined-sewer-system/?fbclid=IwAR1nNR-jfQ22-rFLISrjVtBpU2kZbiTYC5uCQChbxoang9411yYxWjBA
7/13/20	Chesapeake Bay Journal	https://www.bayjournal.com/look-before-you-leap/article_2ce1e252-c209-11ea-a4f5-4713e458fe47.html
7/13/20	The Southern Maryland Chronicle	https://southernmarylandchronicle.com/2020/07/13/look-before-you-leap-water-quality-for-recreation-can-vary-from-site-to-site-day-to-day/?
7/13/20	Chesapeake Bay Journal	https://www.bayjournal.com/news/pollution/look-before-you-leap/article_2ce1e252-c209-11ea-a4f5-4713e458fe47.html
7/28/20	James River Association	https://thejamesriver.org/wp-content/uploads/2020/07/Snapshot-2019-FINAL-FOR-WEB.pdf
8/07/20	Good Morning RVA	https://gmrv.com/podcast/2020/8/7/good-morning-rva-818-25-cities-counties-and-2020-candidate-events
8/15/20	Richmond Times Dispatch	https://richmond.com/opinion/letters-to-editor/cod-aug-16-2020-legislators-must-address-sewer-overflow-problem/article_fc185e4d-b75b-5bee-8045-fd031154c429.html
9/01/20	ABC8	https://www.wric.com/news/local-news/richmond/city-officials-announce-combined-sewer-overflow-in-richmond/
11/13/20	ABC8	https://www.wric.com/news/local-news/wastewater-animal-waste-and-other-bacteria-biggest-health-concern-in-virginias-flood-waters/

3.9 Illicit Discharge Detection and Elimination (MCM 3)

3.9.1 MS4 Map and Information Confirmation Statement

The MS4 map and information table are up to date as of December 31st of the reporting period, and is presented in Appendix B.

3.9.2 Outfall Screening Summary

The total number of outfalls screened during the reporting period as part of the dry weather screening program is summarized in Table 3-19 below. The 2020 reporting period outfall inventory records are provided in Appendix C.

Table 3-19. Outfall Screening Summary		
Creek	No. of Outfalls	IDDE Potential
Goodes Creel	1	1 Unlikely
Reedy Creek	51	49 Unlikely 2 Potential

3.9.3 MS4 Illicit Discharges

The City investigated 18 illicit discharges during the reporting period. A summary of the illicit discharges to the MS4 is included in Appendix D.

3.10 Construction Site Stormwater Runoff Control (MCM 4)

3.10.1 Summary of Inspections

The inspections conducted at construction sites during the reporting period are summarized in Table 3-20 below.

Table 3-20. Summary of Construction Site Stormwater Inspections		
Total Conducted	Enforcement Actions	
	Type	Total
2,252	Notice to Comply	141
	Stop Work Order	3
	Notice of Violation	0

3.11 Post-Construction Stormwater Management for New Development and Development on Prior Developed Lands (MCM 5)

3.11.1 Summary of Inspections of Stormwater Management Facilities

The inspections conducted on privately owned and permittee owned stormwater facilities during the reporting period are summarized in Table 3-21 below.

Table 3-21. Summary of Stormwater Management Facility Inspections		
Stormwater Management Facility	Total Inspections Conducted	Enforcement Actions
Privately-Owned	33	No enforcement actions taken
Public/Permittee-Owned	17	No enforcement actions taken

3.11.2 Summary of Maintenance Activities

The City did not perform any significant maintenance activities on stormwater management facilities throughout the 2020 reporting year. The City performs regular inspections and maintenance activities on City owned and operated stormwater management facilities that includes grass cutting, trash collection, and debris removal.

3.11.3 Submission Confirmation Statements

The Water Resources Division staff of DPU has submitted stormwater management facility information through the Virginia Construction Stormwater General Permit database, and have reported BMPs through the DEQ Warehouse.

3.12 Pollution Prevention and Good Housekeeping for Facilities Owned and Operated by the Permittee within the MS4 Service Area (MCM 6 and NCM 7)

3.12.1 Summary of New or Modified Operational Procedures

In the 2020 reporting year the following operational procedures have been modified or implemented:

- Expansion of the Illicit Discharge Detection and Elimination Program with the standardization of forms, and increased numbers of inspections and follow-up inspections

3.12.2 Summary of New or Modified SWPPPs

No updates were made to the existing SWPPP's during the 2020 reporting year. Training is performed based on the operations outlined in the SWPPP's.

3.12.3 Summary of New Turf and Landscape Nutrient Management Plans

No new Turf and Landscape Plans have been implemented within the City.

3.12.4 Summary of Training Events

The City has conducted a training program for stormwater awareness for new city employees. The program provides education on spill prevention, vehicle maintenance, bulk material storage, road and parking lot maintenance and facility maintenance. A total of five training sessions were provided throughout the 2020 reporting period to over forty attendees and are summarized in Table 3-22. Training sessions were postponed after March 2020, due to social gathering restrictions.

Table 3-22. Awareness Programs to Encourage Waste Reduction

Date	Training	Audience Reached
1/6/20	City of Richmond New Employee Orientation	
1/21/20	City of Richmond New Employee Orientation	
2/3/20	City of Richmond New Employee Orientation	21
2/18/20	City of Richmond New Employee Orientation	8
3/2/20	City of Richmond New Employee Orientation	18

3.12.5 Operation and Maintenance of Septage Receiving Station

In the 2020 reporting year, the City received 1,708 hauled waste discharges for a total of 1.59 million gallons. The Septage Receiving Station is inspected daily and is maintained at regular intervals.

3.12.6 Enforcement of Ordinances that prohibit substances from entering the Collection System

In the 2020 reporting year, the City performed the following activities:

- Collected 374 samples through the Strong Waste Surcharge Program
 - Issued three Notices of Violations to Significant Industrial Users
- Performed 44 inspections at Significant Industrial Users Facilities

Section 4

Chesapeake Bay TMDL Action Plan Status Report

4.1.1 Implemented BMPs

The BMPs that have been implemented by the City to achieve compliance with Chesapeake Bay TMDL Action Plan are summarized in Table 4-1. The City has not acquired any credits during the 2020 reporting year.

Table 4-1. Summary of Implemented BMPs				
BMPs	Completion Date	Pollutant Removal (lbs/year)		
		Total Nitrogen	Total Phosphorus	Total Suspended Solids
Maury Stream Restoration	2016	894.0	176.0	58,720.0
Green Alleys	2016	5.7	1.5	702.0
BMPs	2017	80.2	17.4	5,088.1
Cherokee Lake and Croatan Road	2018	872.4	198.2	16,679.8
Forest Hill	2018	1,354	298.8	25,154.9
Little Westham Creek	2019	3,180.0	1,224.0	422,000.0
Pocosham Creek	2019	4,696.0	1,061.0	354,013.0

4.1.2 Chesapeake Bay TMDL Action Plan Compliance Progress

The City's progress towards meeting the required pollutant load reductions are summarized in Table 4-2.

Table 4-2. City's Chesapeake Bay TMDL Action Plan Compliance Progress						
Goal	Pollutant (lbs/year)					
	Total Nitrogen		Total Phosphorus		Total Suspended Solids	
Removal to Date (End of 2020 Reporting Year)	11,082.2		2,976.8		882,357.8	
2018 Goal	633.7	1,749%	145.5	2,046%	64,646.4	1,365%
2023 Goal	4,852.7	228.4%	1,038.0	286.8%	456,385.5	193.3%
2028 Goal	12,085.0	91.7%	2,568.0	115.9%	1,134,901.2	77.7%

4.1.3 Future Planned BMPs

The BMPs that are scheduled to be constructed in the future are summarized in Table 4-3.

Table 4-3. Summary of Future Planned BMPs				
BMPs	Completion Date	Pollutant Removal (lbs/year)		
		Total Nitrogen	Total Phosphorus	Total Suspended Solids
Pinecamp Stream Restoration	2023	8,091.0	3,778.0	4,620,047.0

Section 5

Local TMDL Action Plan Status

The City has an approved James River Bacteria TMDL Action Plan dated 11/04/2010. The City has continued to implement the CSO program nine minimum control standards and the MS4 six minimum control standards to reduce the pollutants of concern.

In 2020, the Virginia General Assembly passed, and the Governor signed into law, the 2020 CSO Law, that requires the owner or operator of any CSS east of Charlottesville that discharges into the James River watershed to submit to DEQ an Interim and Final Plan to address the requirements of any consent special order issued by the Board.

The 2020 CSO Law identifies the following dates and tasks for the owner or operator:

	Purpose	Due Date	Initiate Construction and Related Activities	Complete Construction and Related Activities
Interim Plan	Identify improvements that can be initiated in the short-term	July 1, 2021	July 1, 2022	July 1, 2027
Final Plan	Re-evaluates the remaining Special Order projects and identifies system-wide improvements	July 1, 2024	July 1, 2025	July 1, 2035
TMDL Report	Identify improvements to meet the requirements of the “James River – Richmond Tributaries Bacteria TMDL”	July 1, 2030	NA	NA

The City has begun developing the Interim and Final CSO Plans. The projects implemented as a part of these plans will reduce the bacteria discharged into the James River.

Section 6

James River and Tributary Monitoring Report

Virginia Commonwealth University (VCU) conducts water quality monitoring in the James River and its tributaries on behalf of the City. The data collected by VCU is provided in Appendix E.

Appendix A: Richmond CSS Map

Appendix B: Richmond MS4 Map

Appendix C: Outfall Inventory Records

Appendix D: Illicit Discharge Records

Appendix E: James River and Tributary Monitoring Data
