CITY OF CHARLOTTESVILLE

Department of Public Works
Environmental Sustainability Division

305 4th Street NW • Charlottesville, Virginia 22903
Telephone 434-970-3631
Fax 434-970-3659

September 30, 2023

Department of Environmental Quality
Megan O'Gorek
DEQ Valley Regional Office
4411 Early Road
Harrisonburg, VA 22801

Re: Submittal of the Year 5 Annual Report for General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, Permit # VAR040051

Ms. O'Gorek,

In accordance with Permit VAR040051 effective November 1, 2018, the City of Charlottesville has compiled an Annual Report addressing the status of our Stormwater Management Program for the reporting year covering July 1, 2022 through June 30, 2023.

If you have any questions or comments, please contact me at 434-970-3631 or Dan Frisbee, Water Resources Specialist, at 434-970-3997.

Respectfully,

City of Charlottesville

Kristel Riddervold
Environmental Sustainability Manager

CITY OF CHARLOTTESVILLE
"To be One Community Filled with Opportunity"

Office of the City Manager

P.O. Box 911 • Charlottesville, Virginia 22902
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www.charlottesville.gov

September 30, 2023

Megan O'Gorek
Department of Environmental Quality
DEQ Valley Regional Office
4411 Early Road
Harrisonburg, VA 22801

Re: Certification of MS4 Annual Report for Permit # VAR040051

Ms. O'Gorek,

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.

Sincerely,

Samuel Sanders
City Manager
City of Charlottesville, Virginia

9/27/2023
Date

VAR040051 — Permit Number
City of Charlottesville — MS4 Name

City of Charlottesville

Year 5 Annual Report

General Permit for Stormwater Discharges

From Small Municipal Separate Storm Sewer Systems (MS4)

VAR040051

Submitted to:

Department of Environmental Quality
DEQ Valley Regional Office
4411 Early Road
P.O. Box 3000
Harrisonburg, VA 22801

October 1, 2023

Introduction

In compliance with the City of Charlottesville's coverage under the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, VAR040051, this Year 5 (July 1, 2022 – June 30, 2023) Annual Report summarizes the status of permit compliance and stormwater management program elements pertaining to the six required Minimum Control Measures (MCMs).

As required by Part I.D.2.e, the City evaluated the MS4 Program implementation, including a review of each MCM, to determine the MS4 Program's effectiveness. This included an assessment of the selection of best management practices (BMP) that constitute the MS4 Program Plan. The City has determined that the identified BMPs represent an appropriate selection and implementation of an iterative stormwater management program as defined by the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. The City did not receive any written comments regarding the MS4 Program Plan or any modifications.

The City revised our MS4 Program Plan as follows: to incorporate updated standard operating procedures; to incorporate the City's Chesapeake Bay TMDL Action Plan by reference; and to update roles and responsibilities of various City staff.

The City is utilizing its local VSMP to satisfy pertinent requirements of MCM 4, Construction Site Stormwater Runoff Control, and MCM 5, Post-construction Stormwater Management for New Development and Development on Prior Developed Lands.

As required by Part II.A.13.c, Attachment C of the Annual Report is an updated Chesapeake Bay TMDL Summary Ledger, which details the City's progress toward meeting the required cumulative reductions for total nitrogen, total phosphorus, and total suspended solids. In accordance with Part II.A.13.d, the City currently envisions implementing the following BMPs during the next reporting period: street sweeping, urban nutrient management, and stream restoration.

As described in the City's DEQ-approved *Combined Benthic and Bacteria TMDL Action Plan for the Rivanna River* and in the City's *Sediment TMDL Action Plan for Moores Creek, Lodge Creek, Meadow Creek, and Schenks Branch,* the City intends to demonstrate its progress on implementation of the Action Plans by tracking and reporting on BMPs in its MS4 Annual Reports. As such, this Annual Report details the implementation status of the BMPs identified in the Action Plans and provides the summary of actions conducted to implement the Action Plans as required by Part II.B.9. These BMPs are notated "*Local TMDL Action Plan BMP" in the Annual Report.

Report Format

The information summarizing program status is presented in a matrix format with a separate section for each of the six MCMs.

Under each MCM is a series of BMPs and associated measurable goals. A column is provided for each of the five years of the permit term. For the purposes of this Year 5 Annual Report, results are posted in the column labeled "FY23".

Results are presented in one of three colors indicating the status of that program element:

- Green – activity/action proposed has been successfully completed in the proposed timeframe.
- Yellow – activity/action has been partially completed in the proposed timeframe.
- Red – activity/action has not been completed in the proposed timeframe.

Cells in the various annual columns that are shaded grey indicate program elements that are not applicable in those permit years.

In every case, a further explanation of the BMP status is provided in the rows directly below the subject program element. The previous year's BMP status is included in grey to provide context to DEQ in your review.

City of Charlottesville, Virginia

MS4 PERMIT NUMBER VAR040051

REPORTING YEAR 5 (JULY 1, 2022 - JUNE 30, 2023) ANNUAL REPORT

MCM #1: PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
1.1 - Regional Stormwater Partnership **Local TMDL Action Plan BMP*	*Participate in a Minimum of Six Meetings, Summarize Activities, Maintain Website, One Major Event/Activity Per Permit Cycle*					

FY23 - The City continued its involvement in the Rivanna Stormwater Education Partnership (RSEP) this reporting year. The RSEP exceeded its meeting frequency commitment, meeting seven times during the reporting year. The RSEP continued to conduct public education campaigns to educate the general public and the local business community on steps they can take to reduce their impacts on stormwater quality. A range of outreach strategies were utilized this year, including a rain barrel workshop, sponsorship of a Rivanna River Watershed cleanup event, an informational table at the 2023 Rivanna RiverFest, Rivanna River Basin Commission Annual Conference, and Kid*Vention events, a newspaper advertisement, posters on Charlottesville Area Transit (CAT) buses, an expanded social media and online presence, and the distribution of stickers, magnets, and brochures. RSEP placed a half-page ad in the *Cville Weekly* newspaper, a local paper with a distribution of over 10,000. The ad, which featured information on managing leaf litter, grass, and yard debris, also appeared on the *Cville Weekly* website. Posters with fall yard care best management practices were displayed on CAT buses. Building on the success of last year's efforts, RSEP provided an additional 200 *Stormwater Pollution Prevention: A Lawn and Landscape Guide* brochures, as well as a set of stickers and magnets to the Piedmont Master Gardeners for distribution at their events, site visits, and workshops. A rain barrel brochure was developed with information on how to create and use a rain barrel at home; 200 brochures were distributed. The RSEP continued to host both its website (www.rivanna-stormwater.org), and its GIS-based Story Map website, The Rivanna River Watershed (www.tinyurl.com/RivannaStoryMap). The Love Your Watershed campaign (www.rivanna-stormwater.org/love-your-watershed) continued as a social media and online campaign designed to motivate residents of the greater Charlottesville area to reduce their impact on waterways and ultimately improve local water quality. Social media posts covered the topics of proper care and maintenance of septic systems, fall lawn and garden care, proper grease disposal during the Thanksgiving holiday, leaf and yard debris management, winter salt use, Chesapeake Bay Awareness Week, and rain barrels. The campaign will continue for the foreseeable future. The RSEP partners coordinated on the implementation of the regional Public Education and Outreach Plan for the current five year MS4 permit cycle.

FY22 - The City continued its involvement in the Rivanna Stormwater Education Partnership (RSEP) this reporting year. The RSEP exceeded its meeting frequency commitment, meeting eight times during the reporting year. The RSEP continued to conduct public education campaigns to educate the general public and the local business community on steps they can take to reduce their impacts on stormwater quality. A range of outreach strategies were utilized this year, including sponsorship of a Rivanna River Watershed cleanup event, an informational table at the 2022 Rivanna RiverFest, an expanded social media and online presence, and the distribution of stickers, magnets, and brochures. RSEP provided 200 *Stormwater Pollution Prevention: A Lawn and Landscape Guide* brochures, as well as a set of stickers and magnets to the Piedmont Master Gardeners for distribution at their annual Native Plant Sale. The RSEP continued to host both its website (www.rivanna-stormwater.org), and its GIS-based Story Map website, The Rivanna River Watershed (www.tinyurl.com/RivannaStoryMap). The Love Your Watershed campaign (www.rivanna-stormwater.org/love-your-watershed) continued as a social media and online campaign designed to motivate residents of the greater Charlottesville area to reduce their impact on waterways and ultimately improve local water quality. Social media posts included the topics of proper grease disposal during the Thanksgiving holiday, leaf and yard debris management, winter salt use, and redirecting downspouts onto vegetated areas. The campaign will continue for the foreseeable future. The RSEP partners coordinated on the implementation of the regional Public Education and Outreach Plan for the current five year MS4 permit cycle.

1.2 - City Environmental Webpages **Local TMDL Action Plan BMP*	*Maintain Website, Provide Stormwater Education Information*					

FY23 - The City continued to maintain several pages of stormwater, green infrastructure, and environmental content on the official City website, www.charlottesville.gov. The website contains information on stormwater, local waterways and watersheds, the City's stormwater management program (including the MS4 Program Plan, current MS4 Permit and coverage letter, and most recent Annual Reports), the City's Water Resources Protection Program (WRPP) and Stormwater Utility (SWU), green stormwater infrastructure, and the Adopt-A-Stream program. A new webpage (www.charlottesville.gov/stream-health) was created with information on urban stream health, stream monitoring efforts, and ways for residents to protect local water resources. Online reporting of illegal dumping, illicit discharges, or other environmental problems is also available through the City website, as well as through the MyCville app, which enables real-time reporting and tracking of water pollution concerns. The website also provides a mechanism for the public to provide input on the City's MS4 Program Plan. The webpages are www.charlottesville.gov/380/Stormwater-Management-Program, www.charlottesville.gov/wrpp, www.charlottesville.gov/greencity, and www.charlottesville.gov/greeninfrastructure.
The City continued to host CityGreen, an interactive, online mapping tool that shows “green” projects and resources around Charlottesville that contribute to making Charlottesville “A Green City”. CityGreen can be found at www.charlottesville.gov/citygreenmap.

FY22 - The City continued to maintain several pages of stormwater, green infrastructure, and environmental content on the official City website, www.charlottesville.gov, as described below in last year's Annual Report.

1.3 - Youth Stormwater Education **Local TMDL Action Plan BMP*	*Document and Describe Number of Activities Targeting Youths*					

FY23 - The City was active in engaging youth in stormwater education activities during the reporting year. The City’s Department of Parks and Recreation (DPR) continued its partnership with the Virginia Master Naturalists on the Little Nature Explorers program, which provides pre-school aged children with positive nature experiences. Participants are taught age-appropriate information on a different nature topic each week for six weeks through storytelling, songs, activities, art projects, and hikes or walks. Some of the topics include birds, animals, trees, seeds and nuts, signs and tracks, animal habitats, and bees.
The City's Urban Forester participated in several speaking engagements and tours with students, including two Arbor Day talks with students at Johnson and Burnley-Moran Elementary Schools. He also worked with St. Anne's-Belfield School tenth grade students, delivering both a classroom based presentation as well as a field session at Riverview Park. Finally, he participated in one DPR Summer Camp session at Heywood Community Forest where the participants went on a scavenger hunt for acorns, hickory nuts, and tree leaves and discussed tree identification.
The City again partnered with Charlottesville City Schools (CCS) and the Thomas Jefferson Soil and Water Conservation District (TJSWCD) to provide a watershed educational experience to 369 City fourth grade students, encouraging and engaging students’ participation in hands-on environmental learning about the Rivanna River Watershed and our place in the Chesapeake Bay Watershed. Each student participated in a rotation of field investigations that include three core stations: 1) A nature study hike highlighting a variety of habitats; 2) a stream study and a biological water quality assessment of Moormans River benthic macroinvertebrates; and 3) a watershed station including watershed maps, soil box experiments, and an Enviroscape demonstration that allows students (and adults) to gain a better understanding of how our day-to-day activities impact the environment.

FY22 - The City was active in engaging youth in stormwater education activities during the reporting year. The City’s Department of Parks and Recreation (DPR) continued to engage youths in active outdoor environmental education in parks and natural areas through their Summer Day Camp, Little Nature Explorers, Outdoor Artists, and Canoeing with Kids programs. These programs provided opportunities to explore and learn about natural environments through visits to local parks and kayaking the Rivanna River and served 83 children this reporting year. The City's Water Resources Specialist worked with a student from Monticello High School conducting his senior year internship. The student learned about green stormwater infrastructure and visited City projects. Finally, the City again partnered with Charlottesville City Schools (CCS) and the Thomas Jefferson Soil and Water Conservation District (TJSWCD) to provide a Meaningful Watershed Educational Experience (MWEE) to 339 City fourth grade students, encouraging and engaging students’ participation in environmental learning about the Rivanna River Watershed and our place in the Chesapeake Bay Watershed. The watershed education programs featured virtual engagement opportunities and an online Educational Resource Library available from the TJSWCD website, www.tjswcd.org/education-resources/. This provided students, families, and teachers various resources to explore on a weekly basis.

1.4 - Illicit Discharge and Pollution Prevention Education **Local TMDL Action Plan BMP*	*Document and Describe Number and Type of Education Efforts*					

FY23 - Illicit discharge educational information was targeted to various audiences again this reporting year, including the general public, local businesses, and City employees. As described above in BMP 1.1, the RSEP continued to provide educational messages through various media to the general public that stress the connection of the stormwater drainage system to local waterways, as well as best management practices that residents can employ to prevent stormwater pollution. The PSA that was created by the City's Communications Office and Department of Public Works (DPW) continued to air on the City's public access TV10 station during the reporting year. The sixty second video features a man and his son embarking on a fishing trip just after a storm. The son asks his father a series of questions as they journey to the river, following the path of the stormwater from the sky, to the parking lot, into the stormwater drainage system, through small streams, and finally into the Rivanna River. The video is also featured online at the City's video hosting site, Vimeo.com/Cvilletv10. PSA slides developed by the RSEP on pet waste management, car washing, and lawn care were also aired on the City's TV10.

FY22 - Illicit discharge educational information was targeted to various audiences again this reporting year, including the general public, local businesses, and City employees. As described above in BMP 1.1, the RSEP continued to provide educational messages through various media to the general public that stress the connection of the stormwater drainage system to local waterways, as well as best management practices that citizens can employ to prevent stormwater pollution. The PSA that was created by the City's Communications Office and Department of Public Works (DPW) and that is described below in last year's Annual Report continued to air on the City's public access TV10 station during the reporting year. PSA slides developed by the RSEP on pet waste management, car washing, and lawn care were also aired on the City's TV10.

1.5 - Public Education and Outreach Plan **Local TMDL Action Plan BMP*	*Identify high priority issues; select strategies for public education and outreach; identify public audiences; delivery of high-priority messages.*					

FY23 - The updated Public Education and Outreach Plan that was developed in coordination with the RSEP continued to be implemented this reporting year. Education and outreach activities were conducted using the following strategies to communicate and address the high-priority issues of runoff volume reductions, potential runoff pollutants, and TMDL impairments (bacteria, sediment, nitrogen, phosphorus): media materials (newspaper advertisement in the Cville Weekly; PSAs on public access TV; City and RSEP websites including stormwater, green infrastructure, urban stream health, water quality monitoring, and Love Your Watershed content; Rivanna River Watershed Story Map; CityGreen Map; and social media posts), traditional written materials (RSEP brochures; posters on CAT buses), alternative materials (Love Your Watershed stickers and magnets; Love Your Watershed logo on t-shirt and other promotional items), and signage (caution signs deployed along streams experiencing high bacteria levels).

FY22 - The updated Public Education and Outreach Plan that was developed in coordination with the RSEP continued to be implemented this reporting year. Education and outreach activities were conducted using the following strategies to communicate and address the high-priority issues of runoff volume reductions, potential runoff pollutants, and TMDL impairments (bacteria, sediment, nitrogen, phosphorus): media materials (PSAs on public access TV, City and RSEP websites including stormwater, green infrastructure, and Love Your Watershed content, Rivanna River Watershed Story Map, CityGreen Map, and social media posts), traditional written materials (RSEP brochures), alternative materials (Love Your Watershed stickers and magnets, Love Your Watershed logo on t-shirt and other promotional items), and speaking engagements (presentation at a public meeting and to the Charlottesville Tree Commission).

MCM #2: PUBLIC INVOLVEMENT / PARTICIPATION

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
2.1 - Volunteer Stream Clean Up **Local TMDL Action Plan BMP*	*Support At Least Two Events, Document Number of Events and Volunteers*					

FY23 - The City supported the Rivanna Conservation Alliance's (RCA) Rivanna River Round-Up event, a day long watershed-wide trail and stream cleanup. The event involved 243 volunteers and collected 173 tires, 148 bags of trash, a bicycle, part of a park bench, a mattress, and a television. The City is counting this event as the first of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of volunteer involved and the amount of trash and debris removed; based upon the large number of volunteers and amount of trash removed, the City has determined that the activity is beneficial to improving water quality. The City also supported cleanups performed by The Nature Conservancy, Piedmont Virginia Community College and the Rivanna Trails Foundation; these cleanups involved 48 volunteers and collected 56 bags of trash as well as a skateboard, a fire hose, wheel hubs, bicycles, and pieces of rusty metal.

FY22 - The City supported four stream clean-up events over the course of the reporting year. The City partnered with the Rivanna Conservation Alliance (RCA), The Nature Conservancy (TNC), the University of Virginia (UVA), and the general public on the clean-ups. The events involved 244 volunteers and collected four dump truck loads, five pick-up truck loads, and 153 bags of trash and debris, 72 tires, as well as other bulky items. One of the events weighed the trash collected, which came in at over 1.5 tons. The City is counting these stream clean-ups as the first of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the amount of trash and debris removed; based upon the large amount removed, the City has determined that the activity is beneficial to improving water quality.

2.2 - Adopt-A-Stream Program **Local TMDL Action Plan BMP*	*Document Number of Events, Volunteers, Volunteer Hours, Debris Collected*					

FY23 - The Adopt-a-Stream Program continues to be administered by the Environmental Sustainability Division of the DPW. During the reporting year, seven clean-ups were conducted, which involved 43 volunteers and 73 volunteer hours, collecting 21 bags of trash and two abandoned bicycles. The program added three new members during the reporting year.

FY22 - The Adopt-a-Stream Program continues to be administered by the Environmental Sustainability Division of the DPW. During the reporting year, 2 clean-ups were conducted, which involved 16 volunteers and 32 volunteer hours, collecting 19 bags of trash.

2.3 - Tree Planting Program **Local TMDL Action Plan BMP*	*Hold At Least Two Events, Document Number of Events, Volunteers, and Trees Planted*					

FY23 - The City's DPR worked with RCA and 10 volunteers to plant eight large native trees and 10 large shrubs to improve the riparian buffer along Meade Creek. There was discussion about riparian plantings, instructions on tree and shrub planting and care, and invasive plant ecology. RCA also demonstrated how their staff and volunteers take bacteria water quality samples and were available to answer questions about bacteria monitoring efforts in Meade Creek and elsewhere in the Rivanna River watershed. The City worked with ReLeaf Cville, a project initiated by the City's Tree Commission, to engage with families in the 10th and Page neighborhood and plant 39 trees.

FY22 - The City's DPR worked with the Charlottesville Area Tree Stewards (CATS) and four volunteers to plant approximately 25 hardwood shrubs in Riverview Park and Forest Hills Park. The City also partnered with CATS to plant 17 trees at Darden Towe Park. As part of the annual Arbor Day event, four volunteers planted a Willow oak at Clark Elementary School.

City of Charlottesville, Virginia

MS4 PERMIT NUMBER VAR040051

REPORTING YEAR 5 (JULY 1, 2022 - JUNE 30, 2023) ANNUAL REPORT

2.4 - Watershed and Water Quality Activities **Local TMDL Action Plan BMP*	*Document Number and Description of Activities*

FY23 - The City was active in organizing, participating in, promoting, and sponsoring watershed and water quality activities in the community this reporting year.
The City sponsored, served on the planning committee, and participated in the 2023 Rivanna RiverFest, which included tabling by community organizations, family friendly activities, and a celebration at the Rivanna River Company. The City's Urban Forester led an educational walk that included tree and plant identification as well as discussion of invasive plant ecology. It is estimated that one thousand community members attended the event. The City is counting this support as the second of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of attendees; based upon the number of people attending the event, estimated at one thousand, the City has determined that the activity is beneficial to improving water quality.
DPR continued its Adaptive Recreation Program, which serves individuals with physical and/or mental disabilities whose recreational needs cannot be met by regular programs. The program included kayaking and tubing on the Rivanna River, stand-up paddleboarding and kayaking at Walnut Creek Park, rafting on the James River, and swimming at Lake Anna and served 86 individuals. The City is counting this program as the third of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of participants; based upon the number of participants, 86, the City has determined that the activity is beneficial to improving water quality.
The City continued to provide financial and technical support to RCA and its community-based water quality monitoring program StreamWatch. The City is counting this support as the fourth of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of sites monitored by StreamWatch; based upon the number of sites monitored, 68, the City has determined that the activity is beneficial to improving water quality.

In partnership with RSEP and TJSWCD, the City conducted a rain barrel workshop. The workshop provided 25 attendees with all the materials and instruction they needed to build their own rain barrel. The City continued its rain barrel rebate program, which provides $30 back to residents who purchase and install a rain barrel; rebates for 14 rain barrels were issued, for a total of $420. The City also ran a photo contest where the community was encouraged to provide a photo of their rain barrel. Then the community voted on their favorite rain barrel and the winners recevied a gift card to a local business. The contest was to promote the rain barrel rebate program and to show some real examples of people in the community using rain barrels.
DPR worked with RCA to lead a family hike in which approximately 45 hikers participated, and also continued their guided tours of Heywood Community Forest, holding three walks with a total of 20 participants. During these hikes the natural and human history of the area was discussed, as well as ecological topics including tree identification, invasive plant ecology, and wildlife and pollinator habitat and management. Building upon last year's efforts to remove invasive plants in Washington Park's bog garden, DPR worked with seven voluteers to replant the garden with a variety of native shrubs, grasses, and flowers that do well in saturated conditions.
City staff continue to serve on and support several public boards and bodies. The City's Urban Forester continued to provide staff support to the City Tree Commission. DPR staff also provide support to the Parks and Recreation Advisory Board, Charlottesville Area Tree Stewards (CATS), and the Botanical Garden of the Piedmont (BGP). The City's Water Resources Specialist is an active member of RCA's Science Advisory Committee.
The City's Water Resources Specialist again collaborated with the Chesapeake Bay Landscape Professional (CBLP) program to arrange for a tour of green stormwater infrastructure at Charlottesville High School (CHS) for a CBLP Level 1 certification class.

FY22 - The City was active in organizing, participating in, promoting, and sponsoring watershed and water quality activities in the community this reporting year. The City's DPR hosted 25 St. Anne's-Belfield High School students at the City's Heywood Community Forest property, leading a guided hike and instructing students on tree species identification, geology, and general natural history. DPR also hosted an invasive plant removal and site restoration at Washington Park, where approximately 35 volunteers helped remove invasive plants from the Bog Garden trail. The focus of the work was on removing invasive vines and liberating native trees and shrubs. Debris was cut and dragged off site by DPR staff and was later chipped, with mulch to be used in other DPR projects in the future. DPR resumed its Adaptive Recreation Program, which serves individuals with physical and/or mental disabilities whose recreational needs cannot be met by regular programs. The program included kayaking on Beaver Creek Reservoir and tubing on the Rivanna River and served 19 individuals. The City is counting this support as the second of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of participants; based upon the number of participants, 19, the City has determined that the activity is beneficial to improving water quality.

The City sponsored, served on the planning committee, and participated in the 2022 Rivanna RiverFest, which included the Fix-a-Leak Family 5K, Rivanna River Race, community tabling, and a celebration at the Rivanna River Company. Several hundred community members attended the event. The City is counting this support as the third of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of attendees; based upon the number of people attending the event, estimated at several hundred, the City has determined that the activity is beneficial to improving water quality.

The City continued to provide financial and technical support to RCA and its community-based water quality monitoring program StreamWatch. The City is counting this support as the fourth of the four activities required by the MS4 General Permit that are meant to provide an opportunity for public involvement to improve water quality and support local restoration and cleanup projects. The metric to determine if the activity is beneficial to water quality is the number of sites monitored by StreamWatch; based upon the number of sites monitored, 68, the City has determined that the activity is beneficial to improving water quality.

The City's Water Resources Specialist provided a tour of City green stormwater infrastructure facilities to a Watershed Management class from Longwood University, and collaborated with the Chesapeake Bay Landscape Professional (CBLP) program to arrange for a tour of green stormwater infrastructure at Charlottesville High School (CHS) for a CBLP Level 1 certification class. The City continued the Pollocks Branch Walkable Watershed process. Coordination continued amongst the City and the Charlottesville Redevelopment and Housing Authority (CRHA) for construction of the bridge which will be used to provide a pedestrian crossing of Pollocks Branch, as well as for the installation of a natural plant community-based landscape that will treat stormwater from a residential street; stream clean-ups of Pollocks Branch were performed; and an ash tree that was felled was used to create wood slabs that will be fashioned into benches to be placed in a pocket park by the stream.

City staff continue to serve on and support several public boards and bodies. The City's Urban Forester continued to provide staff support to the City Tree Commission. DPR staff also provide support to the Parks and Recreation Advisory Board, CATS, and the Botanical Garden of the Piedmont. The City's Water Resources Specialist is an active member of RCA's Science Advisory Committee. The City continued its rain barrel rebate program, which provides $30 back to residents who purchase and install a rain barrel; rebates for 18 rain barrels were issued, for a total of $600.

2.5 - Public Involvement **Local TMDL Action Plan BMP*	*MS4 Program Plan and Annual Reports Posted to City Website, Provide for Public Comment on Proposed MS4 Program Plan*	

FY23 - The City has maintained its MS4 Program Plan in accordance with the MS4 General Permit. The City keeps a copy of the most current version of the MS4 Program Plan posted to its website. The City also keeps copies of the Annual Reports required by the MS4 General Permit posted to its website; a copy of the most current Annual Report is posted within 30 days of submittal of the report to DEQ. The MS4 Program Plan and Annual Reports can be found at the following webpage: www.charlottesville.gov/380/Stormwater-Management-Program. The public can provide input on the MS4 program via this webpage; no public input was received during the reporting year.

FY22 - The City has maintained its MS4 Program Plan in accordance with the MS4 General Permit. The City keeps a copy of the most current version of the MS4 Program Plan posted to its website. The City also keeps copies of the Annual Reports required by the MS4 General Permit posted to its website; a copy of the most current Annual Report is posted within 30 days of submittal of the report to DEQ. The MS4 Program Plan and Annual Reports can be found at the following webpage: www.charlottesville.gov/380/Stormwater-Management-Program. The public can provide input on the MS4 program via this webpage; no public input was received during the reporting year.

MCM #3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
3.1 - Illicit Discharge Detection and Elimination Program **Local TMDL Action Plan BMP*	*Develop Procedures, Keep Records of IDDE Program, Including Number of Outfalls Screened and Illicit Discharges Addressed*					

FY23 - The City continued to implement its illicit discharge detection and elimination (IDDE) program this reporting year. The City responded to several reports of water pollution from internal City staff and the public; see Attachment A for a list of illicit discharges to the City's MS4. Dry weather screening of City MS4 outfalls will be conducted using a tailored version of the Center for Watershed Protection's Outfall Reconnaissance Inventory before the end of the permit year (by October 31, 2023).

FY22 - The City continued to implement its illicit discharge detection and elimination (IDDE) program this reporting year. The City responded to several reports of water pollution from internal City staff and the public; see Attachment A for a list of illicit discharges to the City's MS4. Additionally, dry weather screening of 25 of the City's MS4 outfalls was conducted using a tailored version of the Center for Watershed Protection's Outfall Reconnaissance Inventory. The remaining 25 outfalls will be screened before the end of the permit year (by October 31, 2022). The dry weather screening did not detect any illicit discharges and as a result no follow up actions were necessitated.

3.2 - Maintenance of GIS Data, MS4 Map, and Information Table **Local TMDL Action Plan BMP*	*Document Efforts Related to Maintenance of GIS Data, Up-to-date MS4 Map and Information Table*					

FY23 - The City continued to maintain GIS data layers of its stormwater infrastructure system, areas where streams flow through the stormwater infrastructure system, waters receiving discharges from the City's MS4, the outfalls of the City's MS4 and their drainage areas, the MS4 regulated service area, and stormwater management facilities (SMF) owned or operated by the City. The City MS4 Map and associated Information Table were updated to reflect changes to the MS4 occurring on or before June 30 of the reporting year.

FY22 - The City continued to maintain GIS data layers of its stormwater infrastructure system, areas where streams flow through the stormwater infrastructure system, waters receiving discharges from the City's MS4, the outfalls of the City's MS4 and their drainage areas, the MS4 regulated service area, and stormwater management facilities (SMF) owned or operated by the City. The City MS4 Map and associated Information Table were updated to reflect changes to the MS4 occurring on or before June 30 of the reporting year.

3.3 - Notification of Physically Interconnected MS4s	*Document Existence of Physical Interconnections and Written Notification*					

FY23 - No known physical interconnections to any downstream MS4s were established or discovered after the effective date of the MS4 General Permit.

FY22 - No known physical interconnections to any downstream MS4s were established or discovered after the effective date of the MS4 General Permit.

3.4 - Online Reporting of Environmental Concerns and Illicit Discharges **Local TMDL Action Plan BMP*	*Track Problems Reported and City Responses*					

FY23 - The City continues to maintain online reporting features on the City website and has worked with the RSEP to administer the regional Water Pollution Hotline. These features allow public reporting of potential illicit discharges. The City conducts investigations of the reports to ensure that the discharges are addressed and proper corrective actions are taken by the responsible party.

FY22 - The City continues to maintain online reporting features on the City website and has worked with the RSEP to administer the regional Water Pollution Hotline. These features allow public reporting of potential illicit discharges. The City conducts investigations of the reports to ensure that the discharges are addressed and proper corrective actions are taken by the responsible party.

MCM #4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
4.1 - Erosion and Sediment Control Program **Local TMDL Action Plan BMP*	*Track Number of Inspections Conducted and Type and Number of Enforcement Actions, Status of E&S Control Program*					

FY23 - The City's Erosion and Sediment Control (E&S) Program continues to be administered by DPW in accordance with, and is currently considered “consistent” with, state standards. The City's E&S Program is implemented in accordance with Part I.E.4.a (1) of the MS4 General Permit. A total of 1,716 E&S and Virginia Stormwater Management Program (VSMP) inspections were conducted during the reporting year. Enforcement actions stemming from these inspections included the issuance of 89 Corrective Action Reports, 1 Notice to Comply, and 4 Stop Work Orders.

FY22 - The City's Erosion and Sediment Control (E&S) Program continues to be administered by DPW in accordance with, and is currently considered “consistent” with, state standards. The City's E&S Program is implemented in accordance with Part I.E.4.a (1) of the MS4 General Permit. A total of 1,650 E&S and Virginia Stormwater Management Program (VSMP) inspections were conducted during the reporting year. Enforcement actions stemming from these inspections included the issuance of 772 Corrective Action Reports, five Notices to Comply, and five Stop Work Orders.
New checklist revisions related to E&S and stormwater management (SWM) were undertaken and these revised documents were still under development at the end of the reporting year. The process to perform formal changes to City Standards and Design Manual (SADM) checklists was in progress during the reporting year.

4.2 - General Permit for Discharges From Construction Activities **Local TMDL Action Plan BMP*	*Keep Evidence of Permit Issuance in Project File*					

FY23 - During the reporting year, three projects located in the city were issued initial coverage under the General VPDES Permit for Discharges of Stormwater from Construction (CGP) and one project was issued a modification of coverage.

FY22 - During the reporting year, four projects located in the city were issued initial coverage under the General VPDES Permit for Discharges of Stormwater from Construction (CGP).

MCM #5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND DEVELOPMENT ON PRIOR DEVELOPED LANDS

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
5.1 - Stormwater Management Materials **Local TMDL Action Plan BMP*	*Keep Materials Available on City Website, Document Significant Changes, Updates, or New Materials*					

FY23 - No formal procedural changes were made the past reporting year; however the City continues to make improvements to the “Dirt Watcher” application, which is currently undergoing use on project sites. We have continued development of management dashboards for project management of Erosion and Sediment Control (E&S) inspections and have made additional progress in the effort to create an improved watcher system for stormwater management (SWM)/best management practices (BMP) inspections during construction, along with stormwater pollution prevention plan (SWPPP) inspections. The City has also made progress regarding the design and implementation of the Enterprise Land Management (ELM) system for permitting, with notable progress being made in 2023. We look forward to finalizing the development of these applications and formalizing standard operating procedures. Revisions to the City's Standards and Design Manual (SADM) checklists and details related to E&S/SWM have continued to move forward as well.

FY22 - No formal procedural changes were made this past reporting year; however the City continues to make improvements to the “Dirt Watcher” application, which is currently undergoing use on project sites. “Dirt Watcher” is a combination of mobile inspection applications, City maintained databases, management dashboards, and interactive GIS maps. City inspectors can log digital inspections at the project site and submit data to Dirt Watcher. This information is stored in a database and synchronizes with dashboards and maps, which allows the creation of .pdf inspection reports and maps that contain project status and information that can be accessed in the office or at the construction site using mobile devices. The City is further developing management dashboards for project management of Erosion and Sediment Control inspections and has started the process of creating a new system for SWM and stormwater pollution prevention plan (SWPPP) inspections. In addition, the City has selected a vendor to create a new Enterprise Land Management (ELM) system for permitting. Part of this scope will be to include organizational assistance with our developing inspection applications. The City looks forward to the continued development and formalizing of Standard Operating Procedures. Updates were made to the City's E&S/SWM Plan and Plan Amendment Applications.

5.2 - Development Plan Review **Local TMDL Action Plan BMP*	*Document Number of Site Plans Reviewed*					

FY23 - The Department of Neighborhood Development Services (NDS) continues to administer the site plan review process for the City. During the reporting year, 14 site plans with a stormwater management component were received by DPW's Engineering Division. This is the number of plans that were initially submitted for review during the reporting year. Many of these plans will eventually be approved, but some may end up being denied, on hold for a period of time, or potentially approved but never implemented.

FY22 - The Department of Neighborhood Development Services (NDS) continues to administer the site plan review process for the City. During the reporting year, eight site plans with a stormwater management component were received by DPW's Engineering Division. This is the number of plans that were initially submitted for review during the reporting year. Many of these plans will eventually be approved, but some may end up being denied, on hold for a period of time, or potentially approved but never implemented.

5.3 - Structural Stormwater Management Facility and Best Management Practice Inventory and Reporting **Local TMDL Action Plan BMP*	*Maintain Updated Database, Annual Certification Statements*					

FY23 - DPW's Engineering and Environmental Sustainability Divisions maintain a database of public and private structural stormwater management facilities (SMF) in the city; all best management practices (BMP) that the City implements to meet Chesapeake Bay TMDL pollutant of concern load reduction requirements are also tracked. The City electronically reported SMFs that were installed as part of a project that did not have coverage under the CGP to the DEQ BMP Warehouse on October 1, 2023. The City did not complete construction of any projects requiring coverage under the CGP.

FY22 - DPW's Engineering and Environmental Sustainability Divisions maintain a database of public and private structural stormwater management facilities (SMF) in the city; all best management practices (BMP) that the City implements to meet Chesapeake Bay TMDL pollutant of concern load reduction requirements are also tracked. The City electronically reported SMFs that were installed as part of a project that did not have coverage under the CGP to the DEQ BMP Warehouse on September 30, 2022. The City did not complete construction of any projects requiring coverage under the CGP.

5.4 - Structural Stormwater Management Facility Inspection and Maintenance Program **Local TMDL Action Plan BMP*	*Track Number of Inspections and Number and Type of Enforcement Actions, Description of Significant Maintenance, Repair, or Retrofit Activity*					

FY23 - The City’s SMF inspection and maintenance program remains active. The program typically follows the calendar year with the first round of inspections starting in late winter or early spring. For the second half of the calendar year, post inspection letters are typically sent to property owners, HOA representatives, and property managers. Re-inspections are performed for failed facilities and follow-up letters sent to the responsible party. For the second half of 2022, the City performed inspections for privately owned facilities. The goal of the altered schedule was to view these facilities in the fall in lieu of the summer months. 19 privately-owned SMFs were inspected with 12 facilities failing initial inspections. City staff sent notification letters and provided additional support to owners that reached out regarding compliance. The City plans to continue to help owners work towards compliance where needed. City-owned SMFs are typically inspected during the first half of the calender year; however, the City plans to inspect these in the second half of 2023 to be in line with privately-owned SMF inspections. Underground detention facilities owned by the City are not part of the City’s TMDL Action Plans and will be subject to an alternative inspection frequency (per 9VAC25-890-40, Part I.E.5.b.2) of once every three years.
Vegetative maintenance work to control invasive plant species and promote native species was performed at several City owned SMFs, including the Charlottesville High School (CHS) vegetated filter strip and bioretention basin, Azalea Park constructed wetlands, and Old Lynchburg Road, Fontaine Fire Station, Meade Park and Pen Park bioretention basins. This work included planting of additional native species at CHS and Meade Park bioretention basins. Maintenance was performed on the City's vegetated filter strip located at CHS, including removal of sediment and accumulated debris from gravel diaphragms and level spreaders, as well as cleaning and replacing of stone within gravel diaphragms and level spreaders. The permeable pavers at CHS were swept with a vacuum sweeper and areas that were experiencing clogging were power washed to remove accumulated debris from the voids between pavers. Choker stone was replaced in the voids after washing and sweeping. The bioretention basins in Tonsler Park, Forest Hills Park, and Rives Park were also maintained. This work included cutting and removing vegetation from basin floors, embankments, inlets, outlets, and outfalls; installing geotextile fabric at basin inlets; reworking riprap and removing sediment and debris from basin inlets; repairing eroded areas of embankments; and removing trash and debris.

FY22 - The City's SMF inspection and maintenance program remains active. The program typically follows the calendar year with the first round of inspections starting in late winter or early spring. For the second half of the calendar year, post inspection letters are typically sent to property owners, HOA representatives, and property managers. Re-inspections are performed for failed facilities and follow-up letters sent to the responsible party. For the first half of the 2022 calendar year, most City-owned SMFs were inspected with a few underground detention systems remaining. Zero inspections of privately owned facilities occurred during the permit year. Inspections are planned for the second half of the 2022 calendar year; the City plans to send notices to property owners and begin the first round of inspections. 29 City-owned SMFs were inspected with 17 facilities failing initial inspections. Revised management plans for public BMPs are being developed with coordination across several City Departments. Underground detention facilities owned by the City are not part of the City's TMDL Action Plans and will be subject to an alternative inspection frequency (per 9VAC25-890-40, Part I.E.5.b.2) of once every three years.
Vegetative maintenance work to control invasive plant species was performed at several City owned SMFs, including the Charlottesville High School (CHS) vegetated filter strip, Azalea Park constructed wetlands, Old Lynchburg Road bioretention basin, and Fontaine Fire Station bioretention basins.
Maintenance was performed on the City's vegetated filter strip located at CHS. Maintenance included removal of sediment and accumulated debris from gravel diaphragms and level spreaders; cleaning and replacing of stone within gravel diaphragms and level spreaders; and installation of a Filtrexx sock for flow diversion. Maintenance was also performed at the City's constructed wetlands in Azalea Park. Accumulated sediment was removed from the forebay and behind one of the wetland's weir walls, and a bypassing issue affecting the same weir wall was addressed.

5.5 - Urban Forest Management **Local TMDL Action Plan BMP*	*Track Urban Forest Management Efforts, Number of Trees Planted*					

FY23 - Implementation of urban forest management efforts continued during the reporting year. Tree planting and invasive plant management in City parks and public areas continued to be focus areas of urban forest management efforts. DPR planted (via contractors and DPR staff) 162 trees in parks, on school campuses, and in the public right-of-way this reporting year, which are typically two-inch caliper ball and burlap trees. Species are chosen as most appropriate for the location to be planted and to complement other species in the area. Several events focused on removing invasive vines from native trees in City parks. DPR partnered with RCA on vine cutting workdays in Forest Hills and Riverview Parks. The days began with a brief session teaching volunteers how to identify and properly cut the invasive plants being targeted, followed by a removal effort. DPR also hosted 35 volunteers for another event to cut vines out of trees at Azalea Park. Additional invasives management events included work in Azalea and Riverview Parks focused on removal of lesser celandine, garlic mustard, autumn olive, and multi-flora rose with 60 St. Anne's-Belfield School students; and events with more than 60 University of Virginia students and staff in Quarry Park, Heywood Community Forest, and along trails to remove multi-flora rose, autumn olive, and Japanese knotweed. DPR also worked with the City's Environmental Sustainability Division (ESD) to apply for a $300,000 grant from the US Department of Agriculture to update the Urban Forest Management Plan and perform a tree canopy analysis and an urban forest inventory.
The City maintained its Tree City USA status, having now held that status for 17 years. The annual Arbor Day celebration included two events - one was held at McIntire Park with the Virginia Department of Forestry and CATS and recognized a large Catalpa tree adjacent to the skate park while the other was at Burnley-Moran Elementary School with ReLeaf Charlottesville.

DPR continued to work with the Tree Commission (TC), which met once a month during the reporting year. Meeting minutes and agendas were posted on the City website with a range of urban forestry initiaitives discussed at length. The TC continued their ReLeaf Cville program, with the goal to plant trees, preserve trees, and educate children and families about the value of trees to our health and well-being. The program is a public-private partnership that plants trees in and protects low-canopy neighborhoods from the heat impacts of climate change while educating residents. Their efforts were focused on the 10th and Page neighborhood, which is one of Charlottesville's lowest canopy neighborhoods. ReLeaf also completed an exercise to simulate the number of trees that need to be planted in order to meet a range of urban tree canopy coverages in Charlottesville. The exercise considered the number of trees that would need to be planted to maintain the current canopy percentage, and to increase the canopy to 45% or 50% over the next 30 years. The TC has been a vocal supporter of DPR's invasive plant control and tree planting efforts. The City's Environmental Sustainability Manager delivered a presentation to the TC on the City's Climate Action Plan.
DPR continued their partnership with CATS to support invasive plant management and native plant restoration efforts in City parks and school campuses. CATS continued to improve the public landscape in The Grove at McIntire Park, planting several dogwoods, redbuds, and serviceberrys. CATS helped to plant trees in the 10th and Page neighborhood in conjunction with ReLeaf, providing watering buckets, rain gauges, and education materials on tree care to the tree's new owners.
The City Department of Utilities (DU) continued its Energy Saving Trees Program, which is intended to incentivize tree planting on private property in the city. The City pays the cost of the trees and residents are responsible for planting and care. With guidance from the TC, 180 Serviceberry, Black Gum, Ironwood, Willow Oak, and Tulip Poplar trees were given away.

FY22 - Implementation of urban forest management efforts continued during the reporting year. Tree planting and invasive plant management in City parks and public areas continued to be focus areas of urban forest management efforts. DPR planted (via contractors and DPR staff) 162 trees this reporting year, which are typically two-inch caliper ball and burlap trees. Species are chosen as most appropriate for the location to be planted and to complement other species in the area. DPR held an Earth Day event in Washington Park, where approximately 35 volunteers focusing on cutting vines off trees, cutting back invasive vegetation, and hauling debris off site for disposal. DPR also worked with The Nature Conservancy (TNC) and volunteers to hold two invasive plant and vine removal, trash collection, and trail building days in Quarry Park. Invasive autumn olive plants were removed from Heyward Community Forest with the help of 18 volunteers from SNP Global.
DPR continued their partnership with the Charlottesville Area Tree Stewards (CATS) to support invasive plant management and native plant restoration efforts in City parks and school campuses. CATS continued to improve public landscapes in The Grove at McIntire Park. With the help of community partners, CATS volunteers weeded and mulched the trees and shrubs they previously planted and expanded and improved the network of trails through the site. CATS also planted 17 trees at Darden Towe Park including Willow Oaks (Quercus phellos), Swamp White Oaks (Quercus bicolor), Blackgums (Nyssa sylvatica) and Tulip Trees (Liriodendron tulipifera), among others. Placed around the dog park and pavilion area, the trees are the beginning of a major reforestation of the park, where many trees have been lost to the emerald ash borer.
DPR continued to work with the Tree Commission, which met once a month during the reporting year. Meeting minutes and agendas were posted on the City website and attendees averaged 10-15 participants, with a range of urban forestry objectives discussed at length. The Tree Commission launched their ReLeaf Charlottesville program, with the goal to plant trees, preserve trees, and educate children and families about the value of trees to our health and well-being. The program will be a public-private partnership that aims to plant trees in and protect low-canopy neighborhoods from the heat impacts of climate change.

The City maintained its Tree City USA status, having now held that status for 16 years. The annual Arbor Day celebration was held at Sojourners Church, with members of CATS, Charlottesville Tree Commission, and officials from the Virginia Department of Forestry and the City honoring the church’s newly designated Landmark Tree, a magnificent American Elm. The celebration also included an additional tree planting ceremony at Clark Elementary School.
The City Department of Utilities launched its Energy Saving Trees Program, which is intended to incentivize tree planting on private property in the city. The City pays the cost of the trees and residents are responsible for planting and care. 250 trees total were reserved in the first 48 hours of the program.

5.6 - Investigate Green Stormwater Infrastructure Retrofit Opportunities **Local TMDL Action Plan BMP*	*Implementation of Retrofits*	

FY23 - During the reporting year, the City continued to investigate and pursue green stormwater infrastructure retrofit opportunities. The City continued implementation of the Schenks Branch Tributary stream restoration project. Over the course of the year, the City entered into a contract with KBS Earthworks to complete construction of the project, acquired local and state permits, and held a Pre-Construction meeting. The start of construction was delayed by the listing of the northern long-eared bat (NLEB) on the federal endangered species list and a subsequent time-of-year restriction on tree clearing. In order to proceed during the time-of-year restriction, the City completed an acoustic survey to determine if NLEB were present on site and none were detected. A report was filed with the US Fish and Wildlife Service and US Army Corps of Engineers as the reporting year came to a close. The project will continue in the next reporting year and progress will be reported in the next Annual Report.

The Targeted BMP Feasibility Assessment described below in last year's Annual Report was completed. The assessment reviewed the nutrient removal aspects of stormwater management facilities (SMF) at five City sites. Desktop and field assessments were conducted to assess the pollutant load reduction performance of the SMFs. The desktop assessment included a review of design conditions and SMF crediting calculations to confirm that claimed load reduction credits met current guidance for the State of Virginia. Field assessments were conducted to confirm performance aligns with design intent and to identify opportunities for additional nutrient removal at the sites. Lastly, conceptual plans were developed to enhance the water quality benefits and functionality of the SMFs.

The City is partnering with RCA on the Rivanna Restoration at Riverview Park project. This project aims to address erosion and provide better access to the Rivanna River by restoring approximately 600 linear feet of the river’s bank in a core section of the park while also addressing a dangerously eroding stormwater outfall channel that is cutting through the park toward two sanitary sewer lines. The City received funding from the Stormwater Local Assistance Fund for the outfall channel restoration. Over the course of the reporting year, RCA’s contractor Ecosystem Services completed existing conditions and hydrologic and hydraulic modeling, soil samples were analyzed for nutrient concentrations, and pollutant removal calculations and a conceptual design were completed. A community meeting and surveys provided public input that helped inform the concept plan. RCA applied for grant funding for final design and engineering, public engagement, permitting, and construction of the project.

FY22 - During the reporting year, the City continued to investigate and pursue green stormwater infrastructure retrofit opportunities. As described below in last year's annual report, the City was awarded Stormwater Local Assistance Fund (SLAF) grants and began implementation of the design process of the stream restoration projects. One of these projects, the Schenks Branch Tributary stream restoration, advanced through the design and permitting process during the permit year and will continue to construction. The City decided not to pursue two other stream restoration projects. The design process included extensive collaboration with the Botanical Garden of the Piedmont (BGP), who leases land in the City's McIntire Park through which the Schenks Branch Tributary runs. The City held a meeting to present the project to the public, and also presented the project to the Tree Commission. An ArcGIS Story Map for the project was also created and launched - https://bit.ly/schenksbranchtrib. The design was finalized, the City issued an Invitation for Bids (IFB) for the construction of the project, and a Pre-Bid Meeting was held with prospective contractors as the reporting year was coming to an end. The project will continue in the next reporting year. At the end of the reporting year, the City issued a task order for a Targeted BMP Feasibility Assessment. The project will include an evaluation of the potential benefit of retrofitting several existing City SMFs to achieve additional nutrient removal. The retrofitting analysis will include a review of opportunities for rerouting additional flow into the SMFs to achieve additional nutrient removal; dredging of ponds to provide additional storage; identification of opportunities for automation of controls; and conversion of SMFs to a higher credit generating design such as a constructed wetland. Progress made on the project will be reported in the Year 5 Annual Report.

MINIMUM CONTROL MEASURE #6: POLLUTION PREVENTION / GOOD HOUSEKEEPING FOR FACILITIES OWNED OR OPERATED BY THE PERMITTEE WITHIN THE MS4 SERVICE AREA

Best Management Practice	Measurable Goal	FY19	FY20	FY21	FY22	FY23
6.1 - Street Sweeping Program **Local TMDL Action Plan BMP*	*Sweep at Least 2,000 Non-Residential Curb Miles Annually*					

FY23 - The City's street sweeping program continued this reporting year, with 4,692 total curb miles swept.

FY22 - The City's street sweeping program continued this reporting year, with 4,963 total curb miles swept.

6.2 - Stormwater Infrastructure Flushing and Cleaning **Local TMDL Action Plan BMP*	*Clean 10% of City Owned Structures and Flush 10% of City Owned Pipes Annually*					

FY23 - The City continued its stormwater infrastructure cleaning and flushing program. This reporting year 1,438 (32.7%) City stormwater structures were cleaned, and 30,349 (10.4%) linear feet of City stormwater pipe was flushed. In an effort to prevent gross solids from entering and overwhelming the stormwater system, the City again collected leaves from residential properties in the fall and winter months of the reporting year. Approximately 1,650 tons of leaves were collected for composting, preventing the associated nutrient loading to local waterways.
In addition to the stormwater system flushing and cleaning noted above, the City continued to make progress on implementation of drainage projects, completing construction on the Stadium Road Storm Upgrade and Rugby to Westwood Storm Replacement projects. Work completed to rehabilitate the City's aging stormwater drainage system included 381 feet of pipe replaced, 2,478 feet of cured in place pipe (CIPP) installed, 11 new structures installed, and 5,668 feet of closed circuit television (CCTV) footage reviewed.

FY22 - The City continued its stormwater infrastructure cleaning and flushing program. This reporting year 2,010 (45.8%) City stormwater structures were cleaned, and 44,591 (15.2%) linear feet of City stormwater pipe was flushed. In an effort to prevent gross solids from entering and overwhelming the stormwater system, the City again collected leaves from residential properties in the fall and winter months of the permit year. 1,450 tons of leaves were collected for composting, preventing the associated nutrient loading to local waterways. In addition to the stormwater system flushing and cleaning noted above, the City continued to make progress on implementation of drainage projects, starting construction on the Stadium Road Storm Upgrade and Rugby to Westwood Storm Replacement projects. Work completed to rehabilitate the City's aging stormwater drainage system included completion of four point repairs, 193 feet of pipe replaced, 4,892 feet of cured in place pipe (CIPP) installed, five new structures installed, and 17,884 feet of closed circuit television (CCTV) footage reviewed.

6.3 - Training for Appropriate Personnel **Local TMDL Action Plan BMP*	*Document Description of Training Offered and Number of Attendees*					

FY23 - The City continued to implement the training schedule and program for appropriate City staff this reporting year; see Attachment B of the Annual Report for a summary report of the required training, a list of training events, training dates, number of employees attending, and objective of the trainings. Hazmat Technician continuing education was pursued by 26 Charlottesville Fire Department (CFD) staff and Hazmat Operations continuing education was pursued by 68 CFD staff. In an effort to curb water usage and prevent stormwater pollution, CFD purchased a new training device. The device is a mobile fire pump training unit, the Draft Commander 3000, which allows CFD to capture and recirculate the water from fire engines and hose lines during training exercises. The device also allows for the controlled disposal of water at the end of training activity.
City staff members from DPW-Engineering maintain the following DEQ certifications: Erosion and Sediment Control Plan Reviewer, Inspector, and Program Administrator; Stormwater Management Program Administrator, Inspector, Plan Reviewer, and Combined Administrator; and Dual Erosion and Sediment Control and Stormwater Management Inspector. DPW-Engineering staff members completed the following DEQ training during the reporting year: Where the Water Goes, Construction General Permit, Soil Amendments for Inspectors, Armoring Inspection Reports, Dealing with Difficult Site Dilemmas, Erodibility, Sedimentation and Sediment Basin Design, Five Easy Rules for E&S Control, Forest Open Space Part 1 and 2, Is Soil Compaction Really That Bad, Plants for Bioretention, Vermin Controls in Stormwater BMPs, Seeding Demystified, Plants 2.0, and Phosphorus. A DPW-Engineering staff member also completed the following trainings from NC State University: River Course 302 - HEC-RAS for Stream Restoration and River Course 303 - Multi-Dimensional Modeling for Stream Restoration. Another DPW-Engineering staff member completed the following American Society of Civil Engineering (ASCE) trainings: Erosion Control and Revegetation Materials - Design, Installation and Performance; and Understanding HEC-RAS Errors, Warnings and Notes.
Four Department of Utilities (DU) staff completed Erosion & Sediment Control Contractor Certification through the Virginia Transportation Construction Alliance. Two DPR employees attended an all day, in-person recertification class for their pesticide applicator licenses. Six DPW employees completed Operator C training for staff that deal with fueling system operation and maintenance. Staff from DPW attended Virginia Municipal Stormwater Association Quarterly Meetings.

Several training events were completed after the end of the reporting year but before the end of the permit year (October 31, 2023). These events included Stormwater Pollution Prevention training for 42 DU employees, review of several DU standard operating procedures (SOP) by 17 DU employees, and review of several DPW SOPs by 12 DPW employees. DPW and DPR employees are also scheduled to receive Stormwater Pollution Prevention training before the end of the permit year.

FY22 - The City continued to implement the training schedule and program for appropriate City staff this reporting year; see Attachment B of the Annual Report for a summary report of the required training, a list of training events, training dates, number of employees attending, and objective of the trainings. Hazmat Technician continuing education was pursued by 29 Charlottesville Fire Department (CFD) staff and Hazmat Operations continuing education was pursued by 66 CFD staff. Four firefighters from CFD completed a rigorous training course at the Center for Domestic Preparedness (CDP) located in Anniston, Alabama. They spent five days learning the critical skills needed to become certified as Hazardous Materials Technicians.
City staff members from DPW-Engineering maintain the following DEQ certifications: Erosion and Sediment Control Plan Reviewer, Inspector, and Program Administrator; Stormwater Management Program Administrator, Inspector, Plan Reviewer, and Combined Administrator; and Dual Erosion and Sediment Control and Stormwater Management Inspector. DPW-Engineering staff members completed the following DEQ training during the reporting year: Looking Downstream: Understanding Limits of Analysis - Part II. DPW Engineering staff also completed the following trainings: NC State University River Course 101: Stream Morphology Assessment, Retrofitting Existing SCMs, Showcasing Leading Practices in Climate Adaptation - Session 5: Green Stormwater Infrastructure, Our Changing Precipitation: A Conversation on the Science of Precipitation and Planning for the Future, and Seeding Demystified.
City Planning staff members from the Department of Neighborhood Development Services (NDS) completed the following American Planning Association trainings: Climate Science & Planning - The Basics, AdaptVA: Evidence-based Planning for a Changing Climate, A Planner’s Guide to the Chesapeake Bay, and Responding to Climate Change.
1 DPR staff member renewed their Commercial Pesticide Applicator certification, and 4 staff members renewed their Registered Technician certification from the Virginia Department of Agriculture and Consumer Services during the reporting year.
The City's Urban Forester attended the Virginia Association of Forest Health Professionals Conference, and staff from DPW attended Virginia Municipal Stormwater Association Quarterly Meetings.

6.4 - Written Procedures for Operations and Maintenance Activities **Local TMDL Action Plan BMP*	*Maintain and Implement Written Procedures*					

FY23 - Written procedures for operations and maintenance continued to be implemented during the reporting year.

FY22 - Written procedures for operations and maintenance continued to be implemented during the reporting year.

6.5 Stormwater Pollution Prevention Plans for Municipal Facilities **Local TMDL Action Plan BMP*	*Completed Inspection Reports and Annual Comprehensive Site Compliance Evaluation*					

FY23 - The stormwater pollution prevention plans (SWPPP) developed for the City's municipal high priority facilities with a high potential of discharging pollutants continued to be implemented during the reporting year. Annual Comprehensive Site Compliance Evaluations for the sites with SWPPPs will be completed before the end of the permit year (by October 31, 2023). No new SWPPPs were developed during the reporting year.

FY22 - The stormwater pollution prevention plans (SWPPP) developed for the City's municipal high priority facilities with a high potential of discharging pollutants continued to be implemented during the reporting year. Annual Comprehensive Site Compliance Evaluations for the SWPPPs were completed. No new SWPPPs were developed during the reporting year.

6.6 Turf and Landscape Nutrient Management Plans **Local TMDL Action Plan BMP*	*Maintain Turf and Landscape Nutrient Management Plans*					

FY23 - The nutrient management plans (NMP) for all lands owned or operated by the City where nutrients are applied to a contiguous area greater than one acre, which were developed for DPR by a certified turf and landscape nutrient management planner, remained in effect for all 77.36 acres required to be covered by the plan.

FY22 - The nutrient management plans (NMP) for all lands owned or operated by the City where nutrients are applied to a contiguous area greater than one acre, which were developed for DPR by a certified turf and landscape nutrient management planner, remained in effect for all 77.36 acres required to be covered by the plan.

Attachment A
Illicit Discharges to the MS4 List

As required by the MS4 General Permit, the following is a list of illicit discharges to the City's MS4 that were observed or reported during the permit year. City staff was notified of the incidents via internal reports from City colleagues as well as reports from residents. In all cases, the situation was evaluated, the presence of the illicit discharge was confirmed, the source of the discharge was investigated, and the responsible party established (where possible). Subsequent actions, as appropriate, explained the prohibition on such activities, educated the responsible party, and documented corrective actions.

Date Suspected Discharge Observed / Reported	Description of Investigation Including any Follow-Up	Resolution of the Investigation	Date the Investigation was Closed
11/3/2022	The City's Environmental Sustainability Office (ESO) received a report from a colleague at the University of Virginia on November 3, 2022 that they observed a discharge believed to be concrete slurry along University Avenue. The colleague observed that the discharge was entering a stormwater drain at the corner of University Way and Lambeth Lane without any form of treatment. A City Public Works inspector visited the scene on November 3 and tracked the discharge back to construction work occurring at 68 University Way. The City inspector spoke with construction personnel on site, requested that the discharge be cleaned up, and advised that future work on the site needed to be completed in a manner that avoided such discharges. On site personnel specifically mentioned that power washing may occur in the future. Another City Public Works staff member followed up with a call to Harman Construction on November 4 and was directed straight to a recording. A voicemail was left, which was not returned. The City staff member subsequently made a site visit on November 9 and observed that a majority of the slurry that had migrated off site and onto University Avenue had been cleaned up. They placed another call to Harman Construction on November 10, spoke with the front desk, and were transferred to the Project Manager for	The City staff member spoke with the Project Manager for Harman Construction. He confirmed that a concrete slurry release had occurred and that on-site personnel had conducted clean-up activities on November 5. The City staff member explained the City's prohibition on such discharges. A Notice of Violation (NOV) was issued ordering the contractor to immediately cease discharging contaminated water or other construction related releases into the City's stormwater drainage system. The NOV also ordered the contractor to conduct any exterior washing activities in accordance with the City's Exterior Washing Guidelines.	11/11/2022

Date Suspected Discharge Observed / Reported	Description of Investigation Including any Follow-Up	Resolution of the Investigation	Date the Investigation was Closed
	the construction site. They left another voicemail, which was returned the following morning.		
1/12/2023	The City's Environmental Sustainability Office (ESO) received an internal report from a City employee on January 12, 2023 that they observed a power washing operation and associated discharge on the Downtown Pedestrian Mall. The power washing operation was occurring at 300-308 East Main Street, and it was noted that chemicals were being used in the operation. A City ESO employee visited the scene on January 12. The power washing operation was complete, but the ESO employee spoke briefly with two employees of HMM Services, who confirmed that they had performed the work. The ESO employee confirmed that a chemical, *30 Seconds Outdoor Cleaner*, had been used during the operation and that the discharge had been allowed to enter the City's stormwater drainage system. The ESO employee informed the HMM employees that he would follow up with the business owner. The ESO employee called HMM Services on the afternoon of January 12 and left a voicemail explaining the situation and the City's prohibition on such discharges to the City's stormwater drainage system. The ESO employee followed up with another call on January 13 and spoke with the owner of HMM Services.	The ESO employee again explained the City's prohibition and informed the owner that the power washing operation and discharge were in violation of the City's Water Protection Ordinance. The owner responded that he was not aware of the regulation prohibiting these discharges. The owner expressed a desire to conduct his work in accordance with applicable City regulations. A Notice of Violation (NOV) was issued to the contractor and the property owner ordering the contractor to immediately cease discharging contaminated water into the City's stormwater drainage system. The NOV also ordered the contractor to conduct any exterior washing activities in accordance with the City's Exterior Washing Guidelines and the owner to ensure contractors working on their behalf follow the guidelines.	1/13/2023
2/1/2023	The City's Environmental Sustainability Office (ESO) received a report from a resident on the morning of February 1, 2023 of dead fish in Lodge Creek. After receiving the report, an ESO staff member went out and investigated the drainage area. They were able to identify a definitive starting point of the fish kill, and the last dead fish observed was ~2,000 linear feet downstream. The impact appeared to be related to City water line replacement work being performed by the City's contractor, Linco, along Stratford Court. The impact began immediately below the stormwater outfall behind Stratford Court, and there was evidence of a discharge	From conversations with the DU staff, Linco, and the City's third party inspector it was confirmed that the fish kill was caused by a discharge from the water line installation. Even though dechlorination efforts were employed the levels of chlorine and the flow rate of the discharge were too high for them to be effective. This was exacerbated by the close proximity to the stream behind Stratford Court. It was determined that standard operating procedures were not followed by the City's contractor, which led to the elevated chlorine levels in the water that was discharged. The City subsequently changed some	6/20/2023

Date Suspected Discharge Observed / Reported	Description of Investigation Including any Follow-Up	Resolution of the Investigation	Date the Investigation was Closed
	related to the water line installation. ESO staff reached out to Department of Utilities (DU) to find out more about what work had occurred on the site recently. The fish kill was reported to DEQ.	practices and procedures related to water line installation to avoid another situation like this in the future. A Notice of Violation (NOV) was issued to both the City and Linco by DEQ. The City provided information to DEQ in response to the NOV; DEQ subsequently informed the City that no further corrective action was required.	
3/16/2023	The City's Environmental Sustainability Office (ESO) received an internal report from a City employee on March 17, 2023 regarding and incident that occurred on the night of 3/16/23. A drunk driver had struck a Dominion Energy utility pole containing three transformers. The transformers contained 61 gallons of non-PCB mineral oil each, for a total of 183 gallons. Upon impact with the ground approximately 165 gallons of non-PCB mineral oil was released to impervious surfaces. Oil migrated 50 feet down gradient, where approximately 155 gallons of non-PCB mineral oil entered the stormwater drainage system. Oil migrated 0.5 miles through the stormwater system before outfalling into Meade Creek. Oil continued to migrate for .25 miles down gradient through Meade Creek where it was contained prior to entering the Rivanna River. A third party environmental cleanup contractor was called upon by Dominion Energy assisting with clean up. Affected impervious surfaces were pressure washed and steamed and free liquids were collected utilizing a vacuum truck. Absorbent booms were deployed at multiple locations in the stormwater system and along Meade Creek.	At the initial spill site impacted soil and debris was collected into 55-gallon drums for disposal. Additional absorbent was collected from Meade Creek and the stormwater system in 55-gallon drums for disposal. Additional vacuum truck work was conducted in Meade Creek and leaf blowers were utilized to move oil sheen and emulsified oil to a collection pocket where the material could be picked up by the vacuum truck. 250 gallons of impacted water were generated between the initial spill site and remediation at/in Meade Creek. The spill was reported to Dominion Energy Environmental Services, DEQ, and to the National Response Center. Monitoring and replacement of absorbent materials continued for several weeks after the incident until all evidence of the oil was gone from Meade Creek.	4/12/2023
4/5/2023	The City's Environmental Sustainability Office (ESO) received an internal report from a City employee on April 5, 2023 of a reddish fluid in a storm drain near the intersection of 2nd Street SW and Water Street. Department of Public Works (DPW) and Charlottesville Fire Department (CFD) staff conducted site visits and it was determined that the fluid	The property management group, Real Properties, had Service Pro come out and clean the residual glycol out of the storm drain. An ESO staff member spoke with the property management group and explained it is the responsibility of the property owner to ensure that contractors working on their behalf follow local	4/19/2023

Date Suspected Discharge Observed / Reported	Description of Investigation Including any Follow-Up	Resolution of the Investigation	Date the Investigation was Closed
	was pink glycol and was the result of a leak from a geothermal system at the Lewis and Clark apartment building.	regulations and restrictions, including those related to illicit discharge.	
5/11/2023	The City's Environmental Sustainability Office (ESO) received an internal report from a City employee that they had observed the discharge of soapy water from a small pipe on the outside wall of 701 West Main Street on the evening of May 10, 2023. The report was accompanied by a video documenting the soapy water runoff flowing into a storm drain on Elsom Street. This address is the location of DOMA Korean Kitchen. A City ESO representative visited the location on May 11.	Upon inquiry with staff, it was determined that the floor of the basement had been washed the evening before and that the wash water was removed from the basement using a sump pump which discharged to the exterior via a small pipe in the wall. The ESO representative explained the City's prohibition on such discharges to the City's stormwater drainage system. Restaurant staff stated this would not occur again. Via follow up email correspondence with the business owner, the contact information for the property owner representative was provided. Restaurant staff reiterated via email that this activity will not occur again. A Notice of Violation (NOV) was issued to the restaurant and its owner ordering them to immediately cease discharging contaminated water into the City's stormwater drainage system. The NOV also instructed that all wash water must be discharged to the sanitary sewer system.	5/11/2023
6/29/2023	The City's Environmental Sustainability Office (ESO) received a report on June 29, 2023 from a resident of exterior washing work occurring at the City Hall Annex and associated wash water discharging to the stormwater drainage system. An ESO staff member contacted the City's Facilities Maintenance Division (FMD) and verified the work was being conducted by Estate Softwash, a contractor working on behalf of the City. Unfortunately, on this occasion the work was not being performed in accordance with the City's Exterior Washing Guidelines, which are typically followed on City projects. The contractor was using a bleach/water mix while performing the work. The work started at 10:00am and was halted by City staff at 12:16pm before it was completed, as a result of notification that proper controls were not in place. It is estimated that approximately ¼ of the 275 gallon	ESO staff communicated with FMD staff to ensure that they were aware of the City's Exterior Washing Guidelines. It was relayed that the FMD staff member who was managing the work did not typically serve in this role and was not aware of the guidelines, therefore did not relay them to the contractor. FMD staff assured that the guidelines would be followed on subsequent projects. An ESO staff member spoke with the contractor and explained the prohibition on such discharges to the stormwater drainage system. The City's Exterior Washing Guidelines were also provided. The contractor was very receptive to making changes to their work processes to ensure wash water would be captured and not allowed to enter the stormwater system moving forward.	6/30/2023

Date Suspected Discharge Observed / Reported	Description of Investigation Including any Follow-Up	Resolution of the Investigation	Date the Investigation was Closed
	tank of bleach/water mix employed was used, and as a result approximately 69 gallons were discharged. It is assumed that much of this bleach/water mix entered the stormwater drainage system, while some evaporated and/or soaked into the ground. ESO staff investigated the receiving waterway, Pollocks Branch, and did not observe any impacts to aquatic life. The incident was reported to DEQ's Pollution Response Coordinator.		

Attachment B
Training Summary Report

The following report summarizes training that was completed as part of the City's MS4 Training Program during the permit year, and includes a list of training events, the training date, the number of employees attending the training, and the objective of the training.

Training Event	Training Date	# of Employees Attending	Objective of the Training
Hazardous Materials Operations	Numerous dates over the course of the permit year	68	Train personnel to operate under the defensive tactical control principle with some mission specific skills training.
Hazardous Materials Technician	Numerous dates over the course of the permit year	26	Train personnel in advanced detection and monitoring, wearing/using chemical protective clothing, addressing/controlling atmospheric and pressurized leaks, plugging and patching, material categorization.
Various Online Trainings from DEQ and ASCE	Numerous dates over the course of the permit year	3	Objectives varied according to the training
NC State University River Course 302: HEC-RAS for Stream Restoration	7-14-22	1	Covers applications of hydraulic modeling and its use to support stream restoration design work. Gain experience with targeting and setting up a modeling effort, and the various types of analysis that can be used for improving stream restoration designs.
NC State University River Course 303: Multi-Dimensional Modeling for Stream Restoration	8-25-22	1	Covers applications of two-dimensional hydraulic modeling and its use to support stream restoration design work. Improve skills with two-dimensional modeling using real-world stream restoration designs. Learn the latest advancements in HEC-RAS and get practical instruction on developing a project workflow and interpreting results.
Operator C Training	9-6-22	6	Underground storage tank and fueling system operator training
Erosion and Sediment Control Contractor Certification	10-26-22	4	Train individuals implementing E&S control measures on linear development projects
Certified Pesticide Applicator and Registered Technician	3-30-23	2	Re-certification program for pesticide applicators
Department of Utilities Standard Operating Procedures Review	8-23-23	17	Review SOPs for Water Line Flushing and Dewatering; Sanitary Sewer Manhole Overflow Response; and Hydrant Flushing and Dewatering.
Stormwater Pollution Prevention Training	8-24-23 to 8-29-23	42	Provide staff with general awareness training on local streams and watersheds; stormwater and typical stormwater pollutants; the City's MS4; illicit discharge detection and elimination recognition /

			reporting; green stormwater infrastructure; regulations specific to the sites where staff work (SWPPP and SPCC plans); stormwater pollution prevention BMPs; spill prevention and response.
Department of Public Works Standard Operating Procedures Review	8-29-23	12	Review SOPs for Concrete Mixer Truck Operation and Maintenance; Sidewalk Installation and Maintenance; and Snow Anti and De-Icing Program.

City of Charlottesville, VA MS4 Permit VAR040051 Annual Report
Attachment C
Cheaspeake Bay TMDL Progress Towards Meeting Required Cumulative POC Reductions

Summary Page Ledger:
Management Practices and Retrofit Programs to Achieve 5% and 35% Reductions Required For Existing Development

		Location (Lat/Long)	Nitrogen	Phosphorus	Total Suspended Solids
1. Total 5% Reductions Required			150.52	34.70	15,398.65
2. Total 35% Reductions Required			1,053.57	242.83	107,790.62
3. Total Cumulative (40%) Reductions Required			1,204.09	277.53	123,189.27
4. Reduction Practices Implemented / To be Implemented					
Site Name	BMP Type				
ABC Preschool	Bioretention	38.0286/-78.4726	-1.75	-0.25	-89.56
Saint Thomas Aquinas Priory	8'x4' Filterra	38.0386/-78.5163	-0.04	-0.01	-5.38
Saint Thomas Aquinas Priory	Bioretention	38.0388/-78.5157	-2.03	-0.31	-110.92
Cabell Ave Apartments	4'x6' Filterra	38.0419/-78.4966	-0.03	-0.01	-4.03
Brody Jewish Student Center	Bioretention	38.0426/-78.5021	-1.34	-0.24	-92.51
Brody Jewish Student Center	Bioretention	38.0428/-78.5019	-0.72	-0.12	-45.38
Kroger Fueling Center	4'x6' Filterra	38.0599/-78.4928	-0.03	-0.01	-4.12
Jaunt Parking Lot	Permeable Pavers	38.0151/-78.4705	-2.61	-0.51	-205.46
1600 Monticello Ave.	Raintank Infiltration	38.0164/-78.4756	-1.20	-0.24	-102.89
601 Park Street	Bioretention	38.0348/-78.4762	-3.55	-0.50	-174.10
1327 Carlton Ave	Bioretention	38.0214/-78.4666	-0.74	-0.22	-100.86
Brookwood	Bioretention	38.0168/-78.4941	-2.36	-0.40	-149.72
Rives Park	Bioretention	38.0173/-78.4707	-1.12	-0.07	-103.50
Timberlake Place	Bioretention + Rain Garden	38.0231/-78.4625	-0.06	-0.01	-5.10
Meade Park Aquatic Center	2 Bioretention Areas	38.0279/-78.4654	-4.28	-0.30	-395.98
Whole Foods	Sand Filter	38.06/-78.4884	-0.10	-0.04	-16.98
CHS Stadium Improvements	Bioretention	38.052/-78.4712	-4.44	-0.44	-451.03
Hydraulic Road Substation	Filterra & Biopave	38.058/-78.4904	0.00	-1.54	0.00
Sunrise Park	Permeable Pavement	38.0208/-78.467	-11.25	-0.52	-1,141.25
Fontaine Fire Station	2 Bioretention Areas	38.0259/-78.5198	0.00	-0.16	0.00
	Cistern	38.0254/-78.5201			
Arlington & Millmont Apartments	Dry Swale	38.0496/-78.5058	0.00	-0.65	0.00
	4'x6' Roof Drain Filterra	38.04978/-78.50564			
	4'x6' Roof Drain Filterra	38.0504/-78.50507			
Wertland Street	2 BaySavers	38.0354/-78.4959 38.0352/-78.495	0.00	-0.56	0.00
Smith Aquatic Center	Biofilter-1	38.0276/-78.4975	-3.21	-0.45	-571.56
	Biofilter-2 + Rain Garden	38.0271/-78.4972			
250 Bypass@McIntire Rd.	Enhanced Ext. Detention	38.04505/-78.47251	0.00	-1.77	0.00
	Bioretention #1	38.04328/-7847466			
	Bioretention #2	38.04119/-78.47637			
	11 - Filterras	38.04254/-78.4746			
CTS OPERATIONS CENTER	SWM#1 Bioretention	38.0126/-78.4878	0.00	-0.39	0.00
	SWM#2 Bioretention	38.0122/-78.488			
	SWM#3 Bioretention	38.0119/-78.4875			
	SWM#4 Underground Storage	38.0114/-78.4872			
	SWM#5 Extended Detention	38.0118/-78.4861			
	SWM#6 Bioretention	38.0123/-78.4875			
	SWM#7 Bioretention	38.0129/-78.4873			
	SWM#8 Bioretention	38.0132/-78.4873			
	SWM#9 Rainwater Harvesting	38.0122/-78.4876			
Jefferson School	Enhanced Ext. Detention	38.0322/-78.4864	-6.77	-2.04	-1,559.86
Martha Jefferson	Bioswale	38.0322/-78.4718	-37.19	-2.18	-3,387.40
Pace Center	Water Quality Swale	38.0214/-78.4652	-6.66	-1.28	-538.75
	Bioretention	38.0213/-78.4649			
Retail at Barracks Road	4'x6' Filterra	38.0497/-78.5026	-0.14	-0.03	-12.51
600 Preston Place	Permeable Pavers	38.0411/-78.4982	-1.23	-0.21	-80.62
	Raintank Drywell	38.041/-78.4983			
Blue Moon Fund	Bioretention	38.0296/-78.484	-1.57	-0.28	-105.86
	Cistern to Vegetated Swale	38.0295/-78.4841			
	Infiltration	38.0296/-78.484			
CHS MLK	Bioretention	38.053/-78.4772	-23.31	-0.74	-1,364.53
Rugby Road	Permeable Pavers	38.05472/-78.49006	-1.60	-0.22	-76.02
Azalea Park	Constructed Wetland	38.0105/-78.5132	-93.78	-12.01	-6,719.67
City Yard Smart Sponge Inserts	Catch Basin Filters	38.0332/-78.4884	0.00	0.00	-1,408.04
CHS Parking Lot	Permeable Pavement + Vegetated Filter Strip	38.0512/-78.4751	-13.28	-0.39	-952.01
909 E. Market	Permeable Asphalt	38.0298/-78.4746	-0.34	-0.08	-31.61
Old Lynchburg Road	Bioretention	38.0171/-78.5147	-5.89	-0.96	-371.83
Forest Hills Park	Bioretention	38.0231/-78.4975	-52.31	-6.41	-2,040.34
Venable Bioretention	Bioretention	38.0381/-78.4959	-2.59	-0.53	-214.86
Plaza on West Main	MTD Vortex	38.0319/-78.4934	-1.14	-0.47	-92.60
Residence Inn	Sand Filter	38.0310/-78.4855	-5.01	-0.23	-786.24
Coca Cola Building	Permeable Pavers	38.0356/-78.4873	-3.97	-0.57	-825.38
Blue Ridge Commons	Bioretention	38.0234/-78.4944	-0.05	-0.02	-9.26
City Hall Green Roof	Green Roof	38.0299/-78.4773	-1.58	-0.31	-135.05
1012 Druid Ave	Bioretention	38.0167/-78.4772	-1.03	-0.14	-46.50
Pen Park	Bioretention	38.0548/-78.4536	-15.45	-2.24	-900.80
Willoughby	Bioretention	38.0158/-78.4994	-17.96	-3.02	-1,139.32
Woolen Mills Self Storage	Ext. Detention Pond	38.0229/-78.4625	-46.77	-10.74	-4,818.15
One Carlton LLC	Permeable Pavement	38.0220/-78.46827	0.00	-0.23	0.00
English Construction Company	Bioretention	38.04378/-78.51526	0.00	-0.78	0.00
McIntire Plaza	Filtering Devices - StormTech Isolator Row	38.0417/-78.4792	0.00	-1.81	0.00

Summary Page Ledger:

Management Practices and Retrofit Programs to Achieve 5% and 35% Reductions Required For Existing Development

		Location (Lat/Long)	Nitrogen	Phosphorus	Total Suspended Solids
1. Total 5% Reductions Required			150.52	34.70	15,398.65
2. Total 35% Reductions Required			1,053.57	242.83	107,790.62
3. Total Cumulative (40%) Reductions Required			1,204.09	277.53	123,189.27
4. Reduction Practices Implemented / To be Implemented					
Site Name	BMP Type				
CHS Track	Infiltration Practice	38.0521/-78.4761	-12.72	-1.93	0.00
Hillsdale Drive	Filtering Devices - Filterra Bioretention System	38.0647/-78.4864	0.00	-4.99	0.00
Baywood Hotels	Underground Detention - Vault and Isolator Row	38.02908/-78.48483	0.00	-1.12	0.00
Longwood PUD	Permeable Asphalt	38.01235/-78.50913	0.00	-2.40	0.00
Rock Creek	Stream Restoration	38.02317/-78.50182	-19.84	-17.99	-11,870.76
Meadowcreek Golf Course	Stream Restoration	38.05582/-78.44941	-12.75	-11.56	-7,629.60
Meadow Creek	Stream Restoration	38.06384/-78.47599	-541.40	-488.54	-320,496.92
River Run	Stream Restoration	38.05571/-78.45241	-295.33	0.00	0.00
Pen Park	Urban Nutrient Management	38.05494/-78.45036	-0.39	-0.01	0.00
Washington Park	Urban Nutrient Management	38.04138/-78.49126	-0.53	-0.02	0.00
Venable School	Urban Nutrient Management	38.03732/-78.49577	-0.59	-0.02	0.00
Azalea Park	Urban Nutrient Management	38.01057/-78.51649	-0.52	-0.02	0.00
Quarry Park	Urban Nutrient Management	38.01471/-78.4771	-0.22	-0.01	0.00
Quarry Park	Urban Nutrient Management	38.015/-78.4777	-0.45	-0.02	0.00
Quarry Park	Urban Nutrient Management	38.01497/-78.47657	-0.32	-0.01	0.00
Burnley Moran School	Urban Nutrient Management	38.03497/-78.46253	-0.36	-0.01	0.00
Charlottesville High School	Urban Nutrient Management	38.05279/-78.47378	-0.30	-0.01	0.00
Street Sweeping	Street Sweeping	City Wide	-15.10	-7.38	-5,772.94
5. Total Reductions Implemented / To be Implemented			-1,281.30	-593.68	-377,157.76
6. Total Reductions In Excess of 40% Reductions Required			(77.21)	(316.16)	(253,968.48)