Occoquan River Watershed

(Popes Head Creek)

Bacteria TMDL Action Plan

PERMIT NUMBER VAR040064

Submitted to DEQ:

Approved 2016

Updated June 2020

CITY OF FAIRFAX, VIRGINIA OCCOQUAN RIVER WATERSHED E.COLI TMDL ACTION PLAN

INTRODUCTION

The City of Fairfax has updated this Occoquan River Bacteria (E.coli) TMDL Action Plan to address the Special Condition for approved local TMDLs (Part II.B.) in the City's MS4 Permit. The original action plan was approved by DEQ in 2016. The City's approach for updating this Action Plan is based on the requirements listed in the current MS4 General Permit and DEQ's Draft Local TMDL Action Plan Guidance Document that was released on November 21, 2016. Each of the sections in this Action Plan will address one or more of the required action plan content items as listed on pages 6-8 of DEQ's Draft Local TMDL Action Plan Guidance Document.

TMDL BACKGROUND INFORMATION

1. ***The name(s) of the Final TMDL report(s);***
2. ***The pollutant(s) causing the impairment(s);***
3. ***The WLA(s) assigned to the MS4 as aggregate or individual WLAs.***
   [This section of the Action Plan directly addresses Part II.B.3.a-c. of the MS4 Permit and DEQ Guidance Document Action Plan Content Items1-3]

The City of Fairfax was assigned an aggregated Waste Load Allocation (WLA) under the approved TMDL report entitled *Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia dated August 2006*. The City of Fairfax's south western limits drain to the headwaters of Popes Head Creek. Popes Head Creek flows south to its junction with Bull Run, which then joins with the Occoquan River. Because of this, the City is partially within the Occoquan River Watershed and is subject to the aforementioned bacteria TMDL for Popes Head Creek.

The impaired segment of Popes Head Creek (Segment ID: VAN-A23R-02) begins at the confluence of Piney Branch and Popes Head Creek and extends 4.9 miles downstream to the confluence with Bull Run. The segment is listed as impaired on Virginia's Section 303(d) Total Maximum Daily Load Priority List and Report because of violations of the state's water quality standards for fecal coliform bacteria. At the time of the initial listing of the Popes Head Creek segment, the Virginia Bacteria Water Quality Standard was expressed in fecal coliform bacteria; however, the bacteria water quality standard has been changed is now expressed in E.coli. Therefore, the TMDL is expressed in E.coli by converting modeled daily fecal coliform concentrations to daily E. coli concentrations using the following regression based instream translator equation:

$$E.coli\ conc.\ (cfu/100\ mL) = 2^{-0.0172} \times [fecal\ coliform\ conc.\ (cfu/100mL)]^{0.91905}$$

Analyses of physical, chemical, biological, and observational data indicate that potential key sources of fecal coliform in the stream segment included run-off from point source discharges, residential waste, and wildlife sources. A TMDL was therefore developed for bacteria to address the impairments in Popes Head Creek. The City of Fairfax (VAR040064) and Virginia Department of Transportation Urban Area (VAR040062) MS4s were assigned an aggregated WLA in the Final TMDL report as follows:

- Popes Head Creek TMDL Bacteria WLA (E.coli) = 1.03E+10 (cfu./year)

The City's MS4 Boundary, 0.54 square mile contributing drainage area to Popes Head Creek, location of the impaired reach in comparison to the City, and location of the City limits in comparison to the Occoquan River is shown in Figure 1. The remainder of this Action Plan will focus on addressing the City's plan for complying with the aggregated WLA assigned to the City under this TMDL.

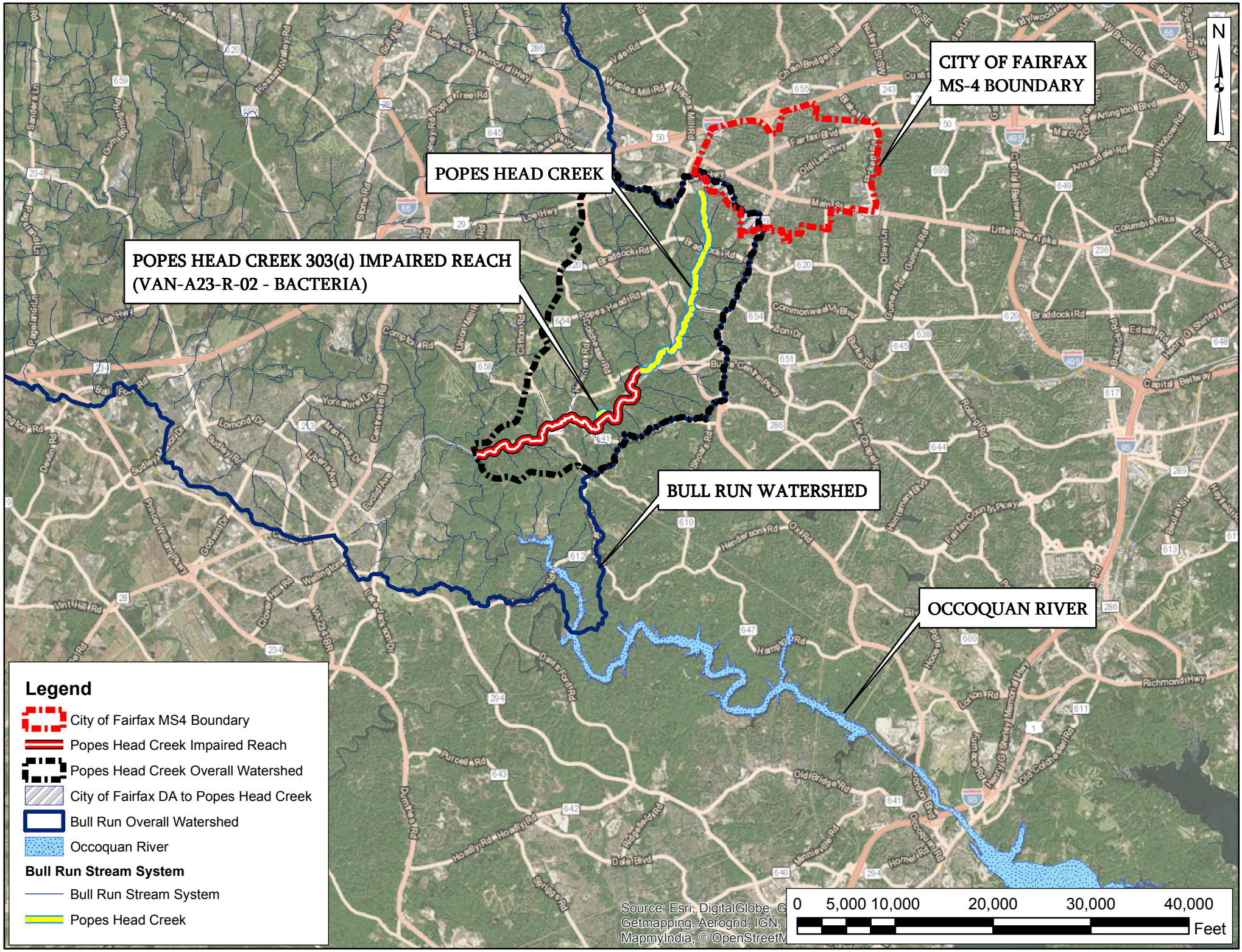

FIGURE 1: CITY OF FAIRFAX CONTRIBUTING DRAINAGE AREA (DA) TO POPES HEAD CREEK (OCCOQUAN RIVER WATERSHED)

SIGNIFICANT SOURCES OF POC(S)

4. ***Identification of significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.***
   [This section of the Action Plan directly addresses Part II.B.3.d. of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 4]

A Geographic Information System (GIS) based evaluation was performed to confirm all City-owned/operated properties in the Popes Head Creek watershed. Utilizing the best available GIS shapefile data including parcel boundaries and current/historical activity descriptions, four (4) City-owned/operated properties were identified in the Popes Head Creek watershed. The results of the initial evaluation are documented in Table 1, and each property's respective location within the City is shown in Figure 2.

Table 1. City-owned/operated properties in the Bull Run Watershed.

GIS ID*	Name	Facility Type	Area (Ac)
1	Jester Property	Park	2.0
2	Providence Park	Park	20.0
3	Westmore Elementary School Parcel (Westmore Dog Park)	Dog Park	10.0
4	Westmore Park	Park	1.0
**** See Figure 2 for corresponding identifier***			

Once the City-owned/operated properties were identified, a desktop based Pollutant of Concern (POC) source evaluation was performed utilizing each parcel's land use type, acreage, presence or absence of MS4 outfall(s), current activity descriptions, and site proximity to Popes Head Creek. Two (2) sites met the metrics listed above, as well as displayed features visible in the City's aerial imagery that would indicate the increased potential for higher bacterial loadings. Forested areas with surface water features were weighted higher in this analysis due to the increased presence of wildlife and waterfowl habitats. Properties, such as dog parks, with activities that have a high likelihood of producing pet waste were also weighted higher in the analysis. Providence Park and Westmore Dog Park were identified as the only sites /having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL.

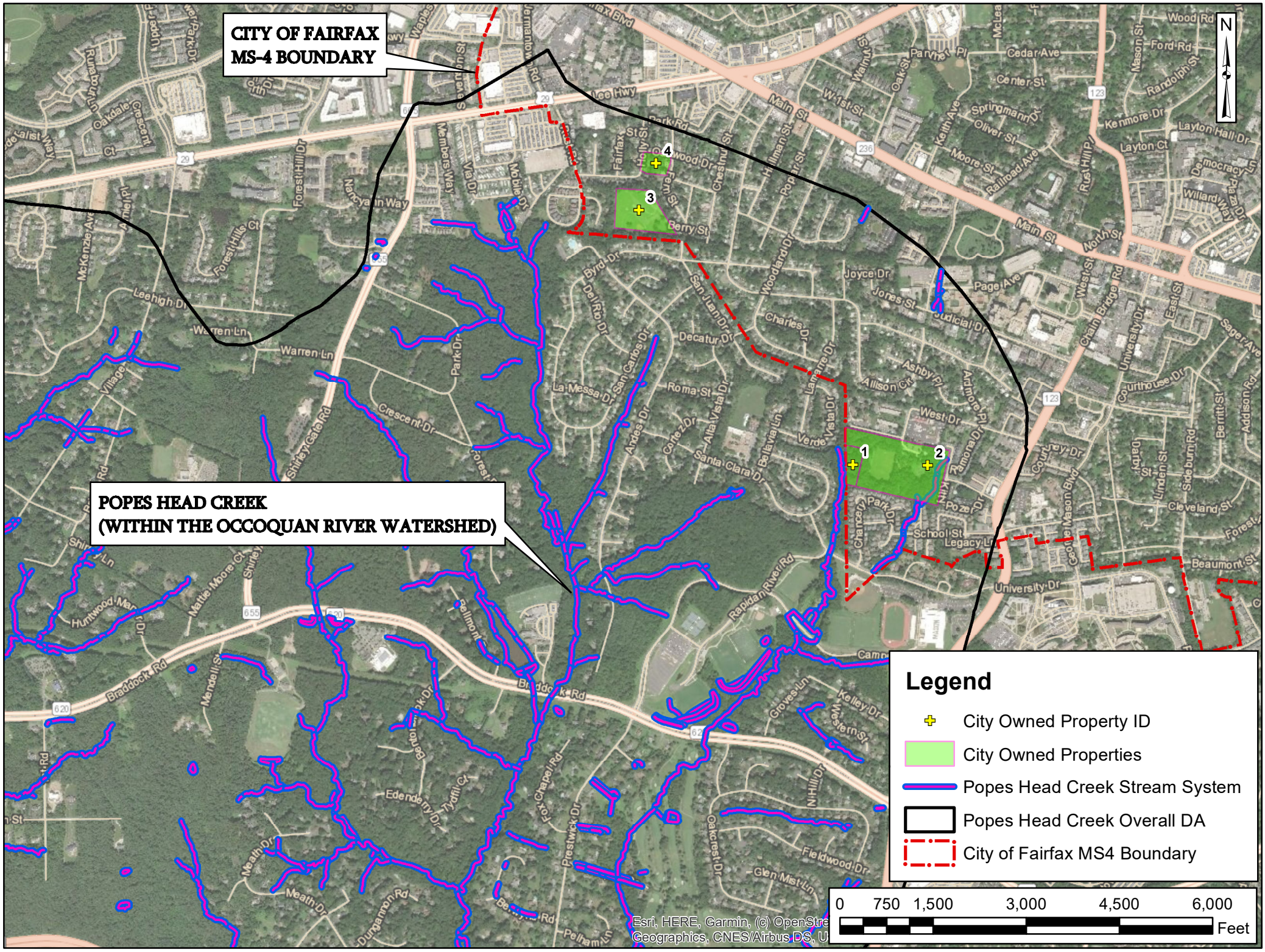

FIGURE 2: CITY OF FAIRFAX MS4 OWNED/OPERATED FACILITIES IN THE POPES HEAD CREEK WATERSHED (OCCOQUAN RIVER WATERSHED)

After the initial desktop analysis was completed, an on-site field reconnaissance was performed to review and assess the on-the-ground conditions for Providence Park and Westmore Dog Park. The sites were visited on June 11, 2020 to evaluate the potential for pollutant of concern (POC) generating activities, as well as to assess the City's progress in implementing their approach to address their TMDL WLA for bacteria. The desktop analysis, coupled with the findings from the on-site field reconnaissance determined that both sites continue to exhibit site features, operations, and pollutant related indicators that could categorize them as "having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL". A description of the City-owned/operated facilities is as follows:

Providence Park

The 20 acre Providence Park Site (Figure 3) features multiple recreational fields, a playground, walking trail, tennis courts, small community center, large parking lot, and several intermittent stream channels which act as the headwaters of Popes Head Creek. The park is partially wooded, and the wooded area itself potentially contributes to above-average amounts of bacterial loading due to the possible presence of a wildlife habitat. The on-site walking trail provides a location for residents to walk dogs and subsequently dispose/not dispose of dog waste, which can also increase the potential bacterial loading on-site. There is no on-site plumbing, and because of this, portable sanitation facilities (Figure 4) are available for public use for park visitors. The site features mentioned above classify the site as having a higher propensity for an increased bacterial loading.

Figure 3. Providence Park Site Limits

Figure 4. On-site portable sanitation facilities.

Figure 5. On-site signage with rules pertaining to animal fecal matter.

Figure 6. On-site dog waste station.

Westmore Elementary School Parcel (Westmore Dog Park)

The 10 acre Westmore Elementary School Parcel (Figure 7) features a vacant lot where Westmore Elementary School used to be located. The school buildings have been demolished leaving behind a large grassed area and several deteriorating paved surfaces (Figure 8). In 2018 the City built a dog park on the parcel (Figure 9), which could potentially contribute to the bacterial loading to Popes Head Creek. There is currently no on-site plumbing, and because of this, portable sanitation facilities (Figure 10) are available for public use for dog park visitors. The site features mentioned above classify the site as having a higher propensity for an increased bacterial loading.

Figure 7. Westmore Elementary School Parcel (Westmore Dog Park).

Figure 8. Westmore Elementary Vacant Lot (2020).

Figure 9. Westmore Dog Park (2020).

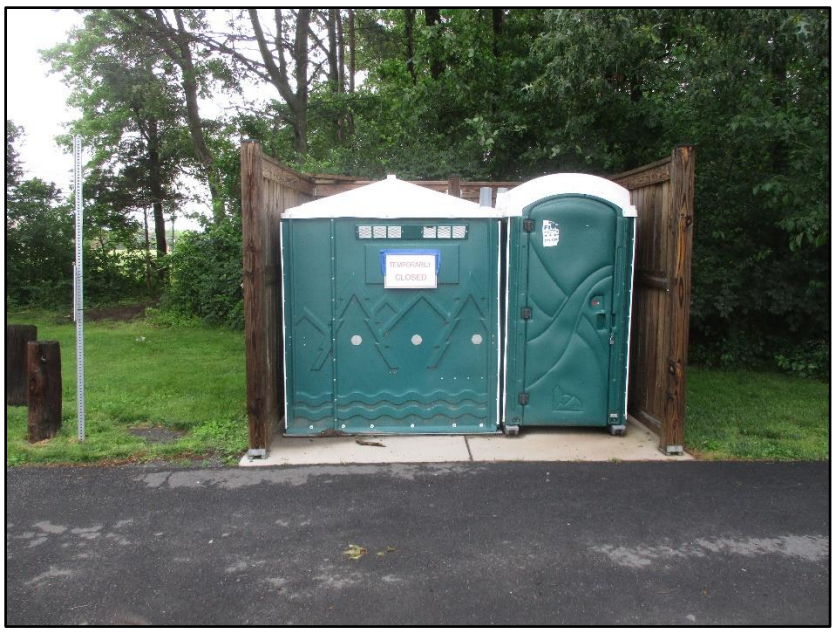

Figure 10. On-Site Portable Sanitation Facilities

Figure 11. On-Site Bioretention Facility

Action Plan elements to address significant sources of POC loadings from facilities of concern owned or operated by the MS4 operator

The following subsection outlines the City's proposed means and methods for addressing existing and future significant sources of POC loadings from the facility identified in the subsequent section site analysis.

Providence Park

To address the potential for significant sources of bacterial loading from Providence Park, the City plans to implement the following means and methods:

- The City will continue to promote, and maintain, all dog waste disposal stations along the park trail. The City will also add brochure holders to each waste station that contain public education / outreach materials related to the water quality impacts of dog waste.
- The City will continue to address the following items pertaining to all on-site portable sanitation facilities:
    - All facilities will be moved to a level ground surface;
    - All facilities will, wherever possible, be located upon natural ground and not within 5 feet of an impervious surface;
    - All facilities will be anchored down to prevent them from tipping over; and
    - Any damaged facilities will be repaired or replaced immediately.

Westmore Dog Park

To address the potential for significant sources of bacterial loading from Westmore Elementary School Parcel, the City plans to implement the following means and methods:

- The City will continue to promote, and maintain, all dog waste disposal stations within the dog park. The City will also add brochure holders to each waste station that contain public education / outreach materials related to the water quality impacts of dog waste.
- The City will continue to address the following items pertaining to all on-site portable sanitation facilities:
    - All facilities will be moved to a level ground surface;
    - All facilities will, wherever possible, be located upon natural ground and not within 5 feet of an impervious surface;
    - All facilities will be anchored down to prevent them from tipping over; and
    - Any damaged facilities will be repaired or replaced immediately.
- The City will continue to maintain the on-site bioretention facility

Note that Section 8 on page 22 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to address the potential for significant sources of POC loadings from facilities of concern owned or operated by the City. Furthermore, the City plans to continue their current pollution prevention activities at all City properties, as well as incorporate additional pollution prevention activities to address Minimum Control Measure (MCM) 6 of their MS4 Program Plan.

EXISTING OR NEW BEST MANAGEMENT PRACTICES

5. ***Existing or new management practices, control techniques, and system design and engineering methods, that have been or will be implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA.***
[This section of the Action Plan directly addresses Part II.B.3.e. of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 5]

Recognizing that bacteria pollutant discharges from the City's MS4 need to be controlled to the maximum extent practicable in order to protect the water quality in Occoquan River, City leaders and staff have incorporated several Best Management Practices (BMPs) into their MS4 Program Plan (revised in 2019), and their subsequent Annual Report(s), that specifically target bacteria and focus on source control. The following is a list of thirty nine (39) BMPs that meet the Minimum Control Measures (MCMs) set forth in the City's MS4 Program Plan, and are further developed in their MS-4 Annual Reports, that specifically address the reduction of bacteria pollutant loads for the City's MS4. BMPs that appear in Table 5 of the MS4 permit and specifically address Part II.B.4. are specified in the following list as well. *(Note: BMPs with an asterisk in their identifier (i.e. 2.a.*) are from the City's 2019 MS4 Program Plan):*

- *BMP 1.1. Stream Monitoring* - The City, in conjunction with George Mason University (GMU), will perform stream monitoring to assess stream water quality. The City will publish an annual report related to the findings.
- *BMP 1.2. Storm Drain Marker Program* - The City will continue to use markers on existing storm drain inlets and place markers on new storm drain inlets. Marker reads "*Drains to the Chesapeake Bay, No Dumping*".
- *BMP 1.3. City of Fairfax Watershed Management Plan* - The City will post their Watershed Management Plan, and any updates, to their website to allow public access to watershed management information.
- *BMP 1.5. Additional Public Education Material* - The City will publish a quarterly newsletter to deliver stormwater program messages and distribute stormwater related information to citizens.
- *BMP 1.6. Additional Public Education Material* – The City will continue to promote the "*Only Rain Down the Storm Drain*" initiative on their website to educate the public on the effects of stormwater conveyance and pollution.
- *BMP 2.1 (2.a.*) Develop and Implement Procedures for Public Involvement* - The City will continue to develop and implement procedures for the public to report potential illicit discharges, report potential stormwater pollution concerns, provide input on the MS4 program plan, and submit complaints.
- *BMP 2.3. Public Education utilizing the City's Stormwater Website* - The City will routinely update its webpage to inform residents on activities regarding the City's Stormwater Program, environmental protection, watershed management, and proper waste disposal.
- *BMP 2.4. Public Outreach and Activities* - The City will continue to participate in local public outreach activities including (1) The City Environmental Sustainability

Committee; (2) The Spring Cleanup Event; (3) The Fall Festival Event; and, (4) Continue to be a member of the Northern Virginia Clean Water Partners.

- *BMP 3.1. Storm Sewer System Map* - The City will continue to update and revise their Storm Sewer Outfall Map, located on the City's website, as needed. The City utilizes a Capital Improvement Plan (CIP) that entails system updates and GIS based revisions. As of 2019, the City mapping has been updated.
- *BMP 3.2. Storm sewer line and structure maintenance* - The City will continue to maintain their storm sewers and associated structures in order to provide uninhibited flow through the City drainage system.
- *BMP 3.3. Illicit Discharge Detection and Elimination (IDDE)* - The City will conduct semi-annual system screening on their outfalls for the presence of illicit discharges. The City will utilize their storm sewer GIS layers to help track the total number of outfalls screened and screening results. The City will keep details of any follow up actions.
- *BMP 3.4. Illicit Discharge Detection and Elimination Enforcement Procedure* - The City will use legal authority to issue summons and prosecute violators for negligence and/or failure to properly report spills.
- *BMP 3.5. Spill Reporting to DEQ and DCR* - The City will ensure that the responsible party(s) reports spills that reach state waters to the Department of Environmental Quality Response Program (PREP).
- *BMP 3.6. Spill Investigation from small MS-4 operated properties* - The City will investigate spills and potential illicit discharges from small MS-4 operated facilities, in order to determine the cause and enforce corrective action to prevent future occurrences.
- *BMP 3.7. Prevention of hazardous / illicit substances into the storm sewer system* - The City will continue to provide residents a hazardous waste disposal facility to prevent hazardous/illicit materials from reaching the storm sewer system.
- *BMP 3.8. (3.a.*) Provide Written Notification to Any Downstream Adjacent MS4 of Interconnections* – The City will provide written notification to downstream adjacent MS4s of any interconnections identified through the site plan review process.
- *BMP 5.1. Public Facilities Manual* - The City will continue to provide information to developers through the Public Facilities Manual (PFM) regarding Stormwater and Best Management Practice (BMP) design requirements. The PFM will be updated as required to address changes in design standards. A copy of the current PFM, as of 2020, can be found here: https://www.fairfaxva.gov/government/public-works/public-facilities-manual
- *BMP 5.2 Stormwater Management Ordinance* - The City will continue to follow and update their Stormwater Management Ordinance to meet the provisions set forth in the State Stormwater Requirements and Chesapeake Bay Program Requirements.
- *BMP 5.3. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Maintenance* - The City will continue to require all public and privately owned BMPs and SWM Facilities to be maintained to function as it was designed. The City will continue to require SWM maintenance plans to be provided on each approved site plan along with an executed stormwater maintenance agreement.

- *BMP 5.4. Stormwater management maintenance and inspection* - The City will maintain a Post-Development Stormwater Management facility inspection program and will perform annual inspections on these facilities.
- *BMP 5.5 Stormwater Management (SWM) Facility and Best Management Practice (BMP) Tracking* - The City will track all known permanent SWM and BMP facilities discharging into their regulated MS-4 area. The City will track the following information: (1) Type of structural SWM Facility installed as defined in the VA Stormwater BMP Clearinghouse; (2) Geographic Location (HUC); (3) The impaired surface water that the SWM facility is discharging into; (4) The number of acres treated. As of 2020 the City has inventoried 38 publicly owned BMPs and 388 privately owned BMPs.
- *BMP 5.6. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Enforcement Procedures* - The City will provide BMPs and SWM facility owners with violation notices when their facilities are not functioning as designed. The City will take enforcement action if the items outlined in the violation notice are not addressed within the City's required time frame.
- *BMP 5.7. Stormwater Program Enhancements* - The City will continue to enhance stormwater programs to reduce the impacts resulting from new and re-development projects. The City will continue to encourage the use of new and innovative stormwater strategies such as Low Impact Development (LID) and Environmental Site Design (ESD) through the site plan process
- *BMP 5.8. Stormwater Program Enhancements - Employee Training* -The City will continue to provide Stormwater Management Facility inspection training for the City's inspection staff.
- *BMP 5.9. Stormwater Infrastructure Evaluation and Assessment* - The City will evaluate, collect data, and inspect 30,000 feet of storm pipe throughout the MS4 to ensure all infrastructure is functioning as designed.
- *BMP 5.11. (5.c.*) - Utilize Legal Authority for Enforcement* – The city will utilize legal authority for the enforcement of maintenance responsibilities if neglected by the owner. Legal authority is obtained primarily through the long-term SWMF Maintenance Agreement, and enforcement is conducted according to §4.16 of the Zoning Ordinance, Chapter 110, Article 4 (Site Development Standards).
- *BMP 6.1. Leaf Collection* - The City will continue to provide special curbside leaf collection services in November and December to prevent decaying leaves from getting into streams, causing blockages, and releasing nutrients.
- *BMP 6.2. Yard Waste Collection (**Satisfies Part II.B.4.**)* - The City will continue to implement and enforce urban trash management practices through yard waste collection services under the City Solid Waste Management Plan. The City will collect yard waste before it can be transported by stormwater runoff to the City's streams.
- *BMP 6.3. - Pollution Prevention Information Posted on City website and flyers distributed to City residents (**Satisfies Part II.B.4.**)* - The City will maintain a Refuse and Recycling website with the most recent version of the City's Solid Waste Management Plan. The website will aid in implementing and enforcing urban trash

management practices through providing information to the public on proper solid waste disposal techniques and recycling practices.

- *BMP 6.6. Employee Education and Training on Pollution Prevention and Good Housekeeping* - The City will continue their employee Pollution Prevention and Good Housekeeping procedures training programs
- *BMP 6.7. - Stormwater Pollution Prevention Plans* - The City will continue to maintain Stormwater Pollution Prevention Plans (SWPPP) for the City's Property Yard.
- *BMP 6.8. (6.e.*) – Annual Review of High Priority Facilities* – The City will annually review high priority facilities that do not have a SWPPP and develop a SWPPP if necessary.
- *BMP 6.9. (6.f.*) – Review SWPPP After Unauthorized Discharges* – The City will review the SWPPP after any unauthorized discharge, release, or spill and revise the SWPPP if necessary.
- *BMP 6.10. - Implement Turf and Landscape Nutrient Management Plans* - The City will maintain and implement Nutrient Management Plans (NMPs) on city owned lands where nutrients are applied to a contiguous area greater than one acre.
- *BMP 6.11. - Written Good Housekeeping and Pollution Prevention Protocols for Daily Municipal Operations and Maintenance* -The City will develop written good housekeeping measures and pollution prevention standard operating procedures to be incorporated into daily operational activities.
- *BMP 6.12.(6.m.*) – Develop and Maintain Training Plan for Staff* -The City will continue to maintain and regularly update their MS4 training plan.
- *Other BMPs - Street Sweeping* - The City will continue its Street Sweeping Program.
- *Pet Waste Signage and Disposal Containers (**Satisfies Part II.B.4.**)* – The city will continue to provide signage to pick up dog waste and provide pet waste bags and disposal containers.
- *Enforcement of Pet Waste Ordinances and Leash Policies (**Satisfies Part II.B.4.**)* – The City will continue to enforce their pet waste and leash policies under their City Code. Under the City Code, it is unlawful for an owner to permit the running at large of any dog within the city. It is also unlawful for the owner of any dog to fail to remove the dog's excrement from a public right-of-way or from any property other than the dog owner's property.

More detailed descriptions for each BMP can be found in the City's MS4 Annual Reports which are available for download at https://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/municipal-separate-storm-sewer-system-ms4. The City plans to continue implementation of these BMPs to address the bacteria WLA listed in the aforementioned TMDL. Based on the results of the City's Action Plan assessment methodology (as described in Section 9 on page 23 of this Action Plan), an adaptive iterative approach will be used to enhance/replace these BMPs to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and to meet the assigned TMDL WLA.

LEGAL AUTHORITIES

6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the POCs identified in each respective TMDL.
[This section of the Action Plan directly addresses DEQ Guidance Document Action Plan Content Item 6]

Along with specific BMPs implemented to address bacteria and focus on source control, the City's political leadership has included several provisions to the City's Code in order to facilitate a reduction in these pollutant discharges. These provisions include:

- Instituting legal ramifications for dog owners that fail to remove dog excrement from public right-of-ways and all properties other than the dog owner's property under Chapter 6 Article 3 - Section 6-61.(b)
- Prohibiting the ownership of wild, exotic, or vicious animals under Chapter 6 Article 5 - All Sections
- Prohibiting the accumulation of solid waste on vacant lots, private roadways, and other lands within the City under Chapter 38 Article 3 - Section 38-38
- Instituting a creek and channel usage, improvement, and preservation provision to improve natural drainage systems within the City in accordance with 9VAC25-870-66 under Section 110-286 of the City's Stormwater Ordinance

The City has reviewed its MS4 Program Plan and ordinances to evaluate its ability to comply with the Special Condition for approved (other than the Chesapeake Bay TMDL) TMDLs (Part II.B.) in the MS4 Permit. Based on this review, it is our opinion that the City of Fairfax does not require any new or modified legal authorities or policies to meet the requirements of this special condition. The following is a list of the City's relevant existing legal authorities and policies:

- City of Fairfax's Code of Ordinance
- City of Fairfax's Storm Drainage Ordinance - (Chapter 110 Article 4 – Section 16 of the City Code)
- City of Fairfax's MS4 Program Plan
- City of Fairfax's Public Facilities Manual (PFM)

However, the City may choose to coordinate with the adjacent MS4 (VDOT) and explore the idea of establishing memoranda of understanding (MOU) to clarify MS4 service boundary lines and inter-jurisdictional responsibilities for POC loads and subsequent required POC load reductions in the future.

ENHANCEMENTS TO PUBLIC EDUCATION, OUTREACH, AND EMPLOYEE TRAINING

7. ***Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned.***
   [This section of the Action Plan directly addresses Part II.B.3.g. of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 7]

Enhancements to Public Education and Outreach Program

The City continues to implement a public education and outreach program as part of its MS4 Program Plan. The City's Stormwater and Floodplain Management webpage (Webpage) (https://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management) is the primary public education and outreach tool utilized for reaching the program's targeted audiences and providing for distribution of educational materials to convey the appropriate messages. The City's webpage has twelve hyperlinks that each contain educational information related to reducing bacteria loading in the Occoquan River watershed. The twelve hyperlinks, and corresponding public education and outreach materials available at those hyperlinks, are as follows:

- ***Stormwater and Floodplain Management Hyperlink***
  - Contact information for the City of Fairfax Stormwater Resource Engineer
  - General information about City of Fairfax's stormwater system
- ***Current Stormwater Projects***
  - Northern Virginia Regional Commission Stream Corridor Restoration information and FAQs.
  - Stream Restoration Project Along an Unnamed Tributary of the Accotink Creek
- ***Stormwater Information***
  - Illustrations and Material Educating the Public on Stormwater Runoff
  - Northern Virginia Clean Water Partners "Only Rain Down the Storm Drain" initiative, as well as corresponding website;
  - Links to the EPA, Virginia DEQ, Chesapeake Bay Foundation, and Center for Watershed Protection
  - Information on Better Management Practices through the Virginia BMP Clearinghouse
  - Mosquito issues in relation to stormwater management facilities
  - Map of the City of Fairfax Streams
- ***Flood Plain Information***
  - City of Fairfax Floodplain Ordinance (current)
  - Floodplain Permit Application
  - The City of Fairfax Zoning Code, which refers to the City's official flood plain map
- ***Reporting Illicit Discharges***
  - Directions on reporting illicit discharges

    - Contact information for the City of Fairfax Fire Marshal and Police Department
- ***Municipal Separate Storm Sewer System (MS4)***
    - A link to the City's MS4 permit
    - MS4 Annual report(s), 2019 Program Plan, and Annual MS-4 Permits
    - Map of Stormwater Outfall Structure Locations
    - Links to the approved 1st and 2nd Phase Chesapeake Bay TMDL Action Plans
- ***Watershed Management Planning***
    - Link to the City of Fairfax Watershed Management Plan completed in 2005
    - Accotink Creek Stream Stability Assessment and Prioritization Plan and Final Report
- ***Chesapeake Bay Ordinance***
    - Links to applications related to RPA and WQIA studies and submissions
    - The Chesapeake Bay Ordinance document, Addendum, and Preservation Area Mapping
    - Site Plan Application
    - Links to design guidelines for BMPs
- ***Stormwater Drainage Improvement Policy and Procedures***
    - Outline of the policies and procedures related to the engineering, funding, approval, design, construction, etc. of stormwater projects in the City of Fairfax
- ***BMP and Stormwater Management Inspection Program***
    - Includes details on the inspection and maintenance process for BMPs
    - Links to the Stormwater BMP Clearinghouse and City of Fairfax BMP Agreement
    - Link to a guidebook for private BMP owners/operators in Northern Virginia
- ***Protecting Water Resources Hyperlink***
    - Contact information for citizens to report illicit discharges;
    - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what citizens can do to report and prevent illicit discharges; and
    - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what children can do to protect our water resources
- ***Virginia Stormwater Management Program (VSMP) Hyperlink***
    - Access to the City's Stormwater Ordinance, as well as any revisions;
    - VSMP related forms, applications, fee forms, and checklists; and
    - The City of Fairfax's VSMP Responsibility Flow Chart

As can be seen from this list, the City has, and continues to, utilize their webpage to compile several different publications and hyperlinks to directly address the pollutant of concern (bacteria) for which a WLA has been assigned to the City. The City plans to add more public education and outreach materials to their website annually. Furthermore, since the development of the initial Occoquan River Action Plan (2016), the City has added seven of the twelve hyperlinks to their webpage in order to continue to facilitate public involvement and outreach. The hyperlinks compiled all existing City publications that directly address the pollutant of concern (bacteria), and added the following materials:

- Virginia Stormwater BMP Clearinghouse website
- Accotink Creek Restoration Project information
- Updated City of Fairfax Code(s) to include an updated Zoning Code
- Floodplain Ordinance and Floodplain Permit Application
- MS4 Annual Reports, Program Plans, and Permits
- Map of Stormwater Outfall Structure Locations
- Chesapeake Bay TMDL Action Plan(s)
- City of Fairfax Watershed Management Plan
- Chesapeake Bay Ordinance
- Site Plan Application, Resource Protection Area Site-Specific Study, and Water Quality Impact Assessment
- Maintaining Stormwater Systems, A Guidebook for Private Owners and Operators in Northern Virginia

Along with a fluid Public Education and Outreach hyperlink, all new available publications posted to the hyperlink may be distributed at future public events, if relevant. Section 8 on page 22 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City's Public Education and Outreach Program.

Enhancements to Employee Training Program

Per MCM 6 of the City's MS4 Program Plan, the City has set guidelines on employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet vehicle and building maintenance, new construction and land disturbance, and stormwater system maintenance. The following is a list of current City employee training activities that specifically address the pollutant of concern (bacteria) for which a WLA has been assigned to the City:

- City Inspectors, Plan Reviewers, and Program Administrators are required to obtain proper certification as necessary under the Virginia Erosion and Sediment Control Law;
- All pertinent staff are required to obtain the Virginia Department of Environmental Quality (DEQ) Stormwater Certifications;
- All pertinent staff utilize training material from the EPA, State of Virginia, and other relevant organizations in conjunction with current City training materials;
- The City maintains and regularly updates an MS4 Training Plan meeting the requirements of Part I.E.6.m.(1)-(7). and documents training activities according to Part I.E.6.n.(1)-(3). of the MS4 General Permit.

BMP/MILESTONES IMPLEMENTATION SCHEDULE

8. A schedule of interim milestones and implementation of the items in 5, 6, and 7. [This section of the Action Plan directly addresses Part II.B.3.h. of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 8]

As permitted in Part II.B.2. of the MS4 General Permit and referred to in DEQ's Draft Local TMDL Action Plan Guidance Document, the City is proposing to implement this Action Plan in multiple stages over multiple permit cycles using an adaptive iterative approach. This approach will allow the City to gather the necessary data and information to determine the most effective BMPs/management strategies for controlling POC loads along with identifying targeted areas for their implementation to meet the TMDL WLA for bacteria. The following schedule is proposed for implementation of the BMPs and milestone activities included in this Action Plan for the current permit cycle ending on June 30, 2023:

BMP/Milestone Activity	Schedule
Submission of Local TMDL Action Plan to DEQ	June 30, 2020
BMP 1.1. Stream Monitoring	Annually
BMP 1.2. Storm Drain Marker Program	Annually
BMP 1.3. City of Fairfax Watershed Management Plan	As-Needed
BMP 1.5. Additional Public Education Material - Quarterly Newsletter	Quarterly
BMP 1.6. Additional Public Education Material – *"Only Rain Down the Storm Drain"*	Monthly
BMP 2.1 (2.a*) Develop and Implement Procedures for Public Involvement	On-Going
BMP 2.3. Public Education utilizing the City's Stormwater Website	On-Going
BMP 2.4. Public Outreach and Community Activities	Annually
BMP 3.1. Storm Sewer System Map	As-Needed
BMP 3.2. Storm sewer line and structure maintenance	Annually
BMP 3.3. Illicit Discharge Detection and Elimination (IDDE)	On-Going
BMP 3.4. IDDE Enforcement and Procedures	As-Needed
BMP 3.5. Spill Reporting to DEQ and DCR	As-Required
BMP 3.6. Spill Investigation from small MS-4 Operated Properties	As-Needed
BMP 3.7. Prevention of Illicit substances into storm sewer system	Annually
BMP 3.8 (3.a.*) Provide Written Notification to Downstream Adjacent MS4s	As-Needed
BMP 5.1. Public Facility Manual (PFM) Updates	As-Required
BMP 5.2. Stormwater Management Ordinance	As-Required
BMP 5.3. BMP and SWM Facility Maintenance Program	Annually
BMP 5.4. BMP and SWM Facility Inspections	Annually
BMP 5.5. SWM Facility Tracking	Annually
BMP 5.6. BMP and SWM Facility Enforcement Procedures	As-Needed
BMP 5.7. Stormwater Program Enhancements - LID and ESD Practices	As-Needed
BMP 5.8. Stormwater Program Enhancements - Employee Training	Annually
BMP 5.9. Stormwater Infrastructure Evaluation and Assessment	Annually
BMP 5.10 (5.a.*) Implementation of VA Stormwater Management Program	On-Going
BMP 5.11 (5.c.*) Utilize Legal Authority for Enforcement	On-Going

BMP 6.1. Leaf Collection	On-Going
BMP 6.2. Yard Waste Collection	On-Going
BMP 6.3. Pollution Prevention Information posted to City Website	On-Going
BMP 6.6. Employee Education on Pollution Prevention / Good Housekeeping	Annually
BMP 6.7. Stormwater Pollution Prevention Plans (SWPPPs)	Annually / As-Needed
BMP 6.8 (6.e.*) Annual Review of High Priority Facilities	Annually
BMP 6.9 (6.f.*) Review SWPPP After Unauthorized Discharges	As-Needed
BMP 6.10. Implement Turf and Landscape Nutrient Management Plans	Annually
BMP 6.11. Standard Operating Procedures (Updates)	As-Needed
BMP 6.12 (6.m.*) Develop and Maintain Training Plan for Staff	On-Going
Other BMPs. Street Sweeping	Annually
Maintain Portable Sanitation Facility BMPs (All Sites)	On-Going
Develop and Implement Dog Waste Impacts Brochure	On-Going
Implement WQ Monitoring Program	On-Going
Prepare WQ Monitoring Reports	Annually
Prepare Estimate of "End Date" for Compliance with WLA	March 30, 2023
Identify BMPs to be Implemented during Next Permit Cycle (2023-2028)	March 30, 2023

METHODS TO ASSESS TMDL ACTION PLAN

9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs.
[This section of the Action Plan directly addresses DEQ Guidance Document Action Plan Content Item 9]

In order to assess the effectiveness of the City's Occoquan River Bacteria TMDL Action Plan, the City has prepared and plans to implement a Water Quality (WQ) Monitoring Program Plan to pair with the on-going City WQ monitoring being performed by George Mason University (GMU). Under the program, the City will collect water quality samples to be analyzed for POCs, in this case bacteria (E. coli), twice a year from representative MS4 outfalls located within the drainage sheds of the impaired reaches of Occoquan River.

The City will analyze the data to determine if any adjustments are necessary to the Action Plan with regards to BMPs / management strategies for controlling POC loads. At the end of each MS4 permit reporting period, the City will also prepare brief annual WQ monitoring summary reports to be included with the City's MS4 Annual Report.

MEASURABLE GOALS AND METRICS TO TRACK COMPLIANCE

10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDL(s).
[This section of the Action Plan directly addresses DEQ Guidance Document Action Plan Content Item 10]

The City intends to demonstrate its progress on implementation of this Action Plan by tracking, monitoring, and reporting on BMP/milestone activity progress (e.g. tracking the number of visitors to the City's Stormwater and Floodplain Management website, tracking how frequently bags are refilled at dog waste stations) in its MS4 Program Annual Report submitted to DEQ on October 1st of each permit year. In the Annual Report, the City will provide updates on the status of each of the BMP/milestone activities listed under Section 8 on page 22 of this Action Plan to include compliance with the proposed schedule. In accordance with the adaptive iterative approach adopted by the City, referenced in this Action Plan, the City may modify/replace BMPs, as necessary, to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and meeting the assigned TMDL WLA.