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# *CHESAPEAKE BAY TMDL ACTION PLAN*

## *PERMIT NUMBER VAR40064*

***Submitted to DEQ:***

***October 2015***

# CITY OF FAIRFAX, VIRGINIA - CHESAPEAKE BAY TOTAL MAXIMUM DAILY LOAD (TMDL) ACTION PLAN

## INTRODUCTION

The City of Fairfax (City) developed this Chesapeake Bay TMDL Action Plan (Action Plan) pursuant to the Special Condition for the Chesapeake Bay TMDL (General Permit Section I.C) as required by the City's Municipal Separate Storm Sewer System (MS-4) Permit. To assist with the development of the Action Plan, the City utilized both the Department of Environmental Quality's (DEQ) Chesapeake Bay TMDL Special Condition Guidance Document (Guidance Memo No. 15-2005), and the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, which became effective July 1, 2013. Furthermore, the City used the Virginia Geographic Information Network (VGIN), and Virginia Environmental Geographic Information Systems (VEGIS) aerial imagery, and coupled the imagery with City GIS data, to meet the technical requirements of the Action Plan.

The focus of the Action Plan is driven by the Chesapeake Bay TMDL, which was approved by the US Environmental Protection Agency (EPA) in December of 2010. Nitrogen, Phosphorous, and Sediment are the Pollutants of Concern (POC) driving the need for required pollutant reductions in the Chesapeake Bay watershed, which includes the entire City. Three permit cycles have been adopted to address the pollutant load reductions required by an MS4 in Virginia. A 5% POC load reduction is required by the end of the first permit cycle on June 30, 2018, followed by a 35%, and 60% reduction in the following 2 cycles respectively. For the purposes of this Action Plan, the primary focus will be on Permit Cycle 1 and the associated 5% reduction requirements.

This Action Plan details the methodology and results used to develop the required plan components. Detailed sections are provided within the report for the following tasks:

- ***Review of Current MS4 Program and Existing Legal Authority*** - (Addresses Section I.C.2a(1) and I.C.2.a(2) of the MS4 Permit
- ***Data Sources Utilized & Estimate of MS4 Regulated Acreages*** – (Addresses Section I.C.2.a(4) and Section I.C.2.a(5) of the MS4 Permit)
- ***Estimated POC Loads and Required Reductions from Existing Sources*** – (Addresses Section 1.C.2.a(4) and Section I.C.2.a(5) of the MS4 Permit)
- ***Estimated POC Loads and Required Reductions from New Sources*** – (Addresses Section 1.C.2.a(7)
- ***Estimated POC Loads and Required Reductions from Grandfathered Sources –*** (Addresses Section I.C.2.a(8) of the MS4 Permit)
- ***Estimated POC Load Reductions from Existing BMPs*** - (Addresses Section I.C.2.a(6) of the MS4 Permit
- ***Means & Methods Strategy, Schedule, & Estimated Costs*** – (Addresses I.C.2.a(6) and I.C.2.a(11) of the MS4 Permit
- **List of Future Grandfathered Projects** – (Addresses I.C.2.a(10) of the MS4 Permit)
- **Public Comment Process** – (Addresses I.C.2.a(12) of the MS4 Permit)

## REVIEW OF CURRENT MS4 PROGRAM AND EXISTING LEGAL AUTHORITY

The jurisdictional area of the City lies completely within a 2010 U.S. Census designated urbanized area. As such, the size and extent of the City's MS4 was evaluated based on the City limits. The City's MS4 regulated land includes all lands owned and operated by the City, as well as all conveyances and drainage areas served by the City's MS4. The City adopted an average land cover condition of 45% impervious, which exceeded the State average land cover condition of 16% impervious, established through the previous VSMP regulations. Because of the differential in impervious coverage, additional POC reductions beyond June 30, 2009 "Existing Sources" had to be derived for this Action Plan. "New Sources "projects that initiated construction between July 1, 2009 and June 30, 2014 required additional pollutant reductions (Satisfying General Permit Section I.C.2.a (7)), (Special Condition 7). "Grandfathered Sources" projects are those grandfathered in accordance with 9VAC25-870-48, which also required additional POC reductions (Satisfying General Permit Section I.C.2.a (8)), (Special Condition 8). Special Conditions 7 and 8 are addressed in later sections of this Action Plan.

The Virginia Department of Conservation and Recreation (DCR) issued a VSMP General Permit for small Municipal Separate Storm Sewer Systems (MS4s) to the City (Permit Registration Number: VAR040064) on July 1, 2013. In accordance with the General Permit, the City is responsible for developing, implementing and maintaining an MS4 Program that guides design, construction, maintenance, and management of all lands within its jurisdictional area.

The City has reviewed its MS4 Program and the 2014 MS4 Annual Report to evaluate its ability to comply with the Special Condition for the Chesapeake Bay TMDL (Section I.C) 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 in order 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 MS4 Program Plan
- City of Fairfax's Illicit Discharge Detection and Elimination (IDDE) Policy
- City of Fairfax's Storm Drainage Facilities (Stormwater Ordinance)
- City of Fairfax's Public Facilities Design Manual (PFM)

The City will coordinate with VDOT, Fairfax County, and George Mason University (adjacent MS4s) to establish any Memorandums of Understanding (MOUs), or to further clarify MS4 service boundary line(s) and inter-jurisdictional responsibilities for POC loads and subsequent required POC load reductions in the future.

## DATA SOURCES UTILIZED & ESTIMATE OF MS4 REGULATED ACREAGE

Because the City adopted an average impervious land cover condition of 45%, two different Land Cover datasets were derived. A 2009, and a 2014 Land Cover dataset was generated for this Action Plan. To determine the City of Fairfax's MS4 regulated land use acreage as of June 30, 2009 and July 1, 2014, four separate land coverage areas had to be generated. The four land covers needed to develop the Action Plan were impervious land, pervious land, forested land, and open waters. Guidance Memo No. 15-2005 states that VGIN, and subsequently VEGIS, has aerial imagery available, which was used to determine the

2009 and 2014 land cover conditions. The City's imperious land cover GIS layer was overlaid with the VEGIS aerial imagery, and was used as the basis to derive the land cover maps shown in Figure 1 (2009 Land Cover) and Figure 2 (2014 Land Cover). Because the City is opting to take the conservative jurisdictional approach to determine the size and extent of its MS4, the City of Fairfax Boundary shapefile was used as the bounding polygon and each of the four land coverage types were manually digitized with the "cut polygons" tool in Arc Map. The new polygons were subsequently characterized by their corresponding land cover classification in the shapefile's attribute table, and the "calculate geometry" tool was run to provide areas for each polygon. Although labor intensive, this methodology was chosen because it was more precise than a raster based land cover processing tool, and it allowed for a simple QA/QC area check at the end of the process to ensure accuracy.

The four land covers were classified by the following features:

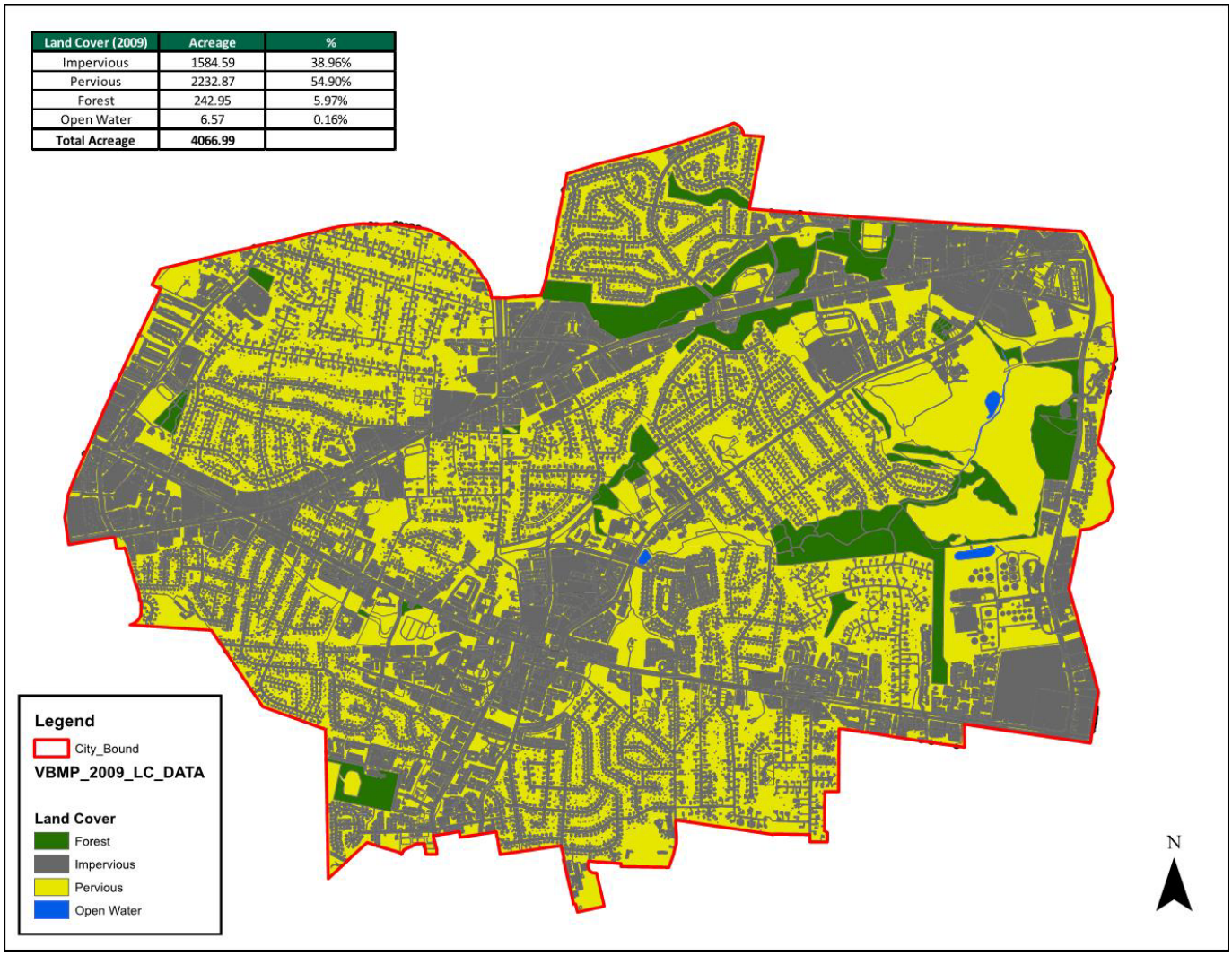
- Pervious Land – including areas of managed turf, high grass, landscaped and mulched areas, and stands of timber that do not meet the DEQ minimum requirements for forested lands;
- Impervious Land - including railroad corridors, compacted gravel areas, roads, parking lots, roofs, and sidewalks;
- Open Waters - including any substantial accumulation of water, ponds, above ground streams; and,
- Forested Land – based off an analysis of available aerial imagery. The analysis showed that the City contains significant tracts of land that appear to be consistent with the definition of "forested lands" as shown in the footnote on page 5 of DEQ's Guidance Document. As such, these lands (shown in Table 1, and Figure 1 and 2) were excluded from the regulated urban impervious and regulated urban pervious cover calculations per the DEQ Guidance Document. Lands within the City's MS4 service area that contained tree canopy based on the 2009/14 aerial imagery, but did not appear to meet the aforementioned criteria for forested lands were classified as pervious lands.

The City's 2009 and 2014 Land Cover Summary, corresponding total acreages, and percent change are shown in Table 1.

**Table 1: 2009 and 2014 Land Cover Summary and 5 year percent change.**

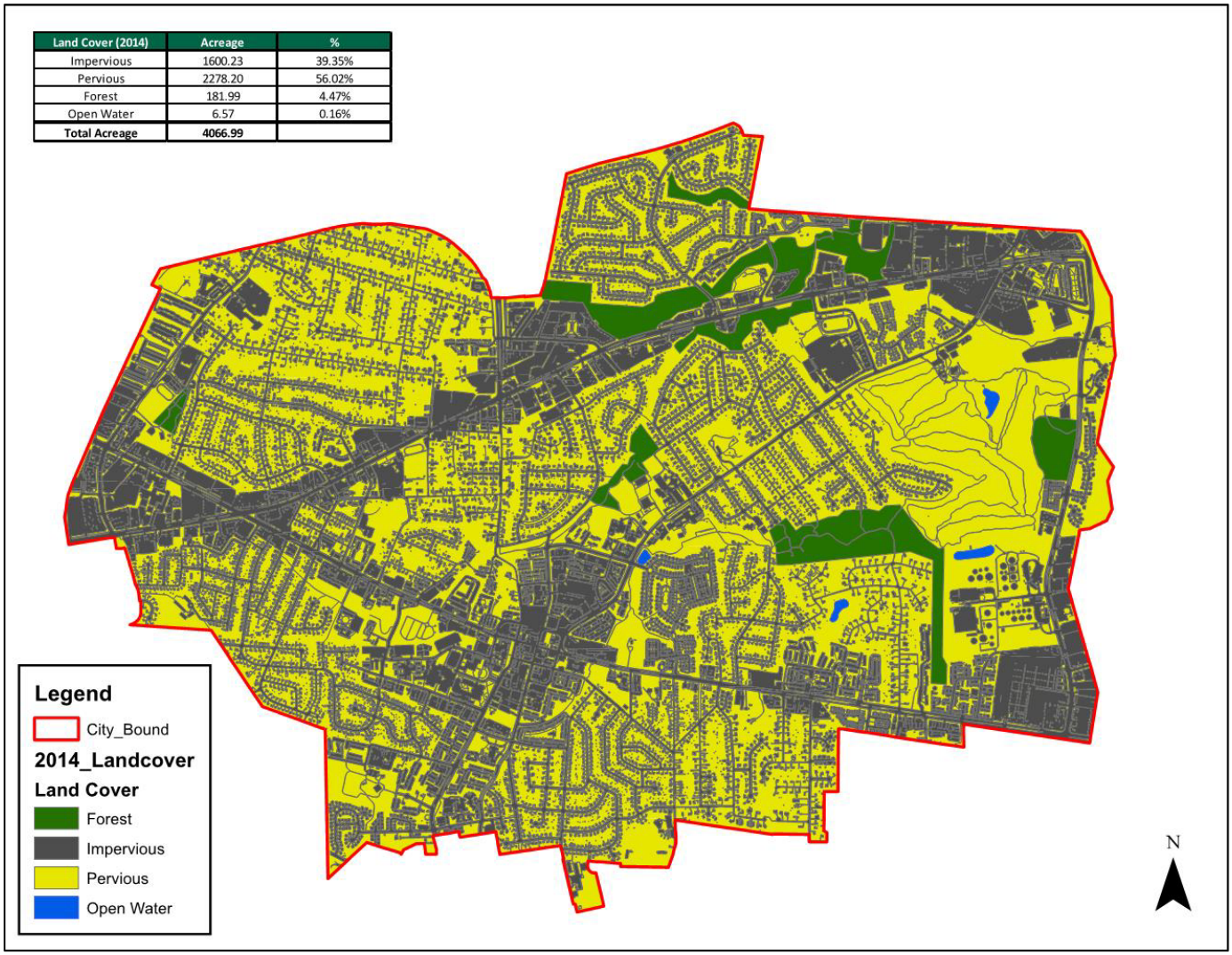
| Land Cover | Acreage (2009) | Acreage (2014) | % Change |
|---|---|---|---|
| Impervious | 1584.59 | 1600.23 | 0.99% |
| Pervious | 2232.87 | 2278.20 | 2.00% |
| Forest | 242.95 | 182.00 | -25.09% |
| Open Water | 6.57 | 6.57 | 0.00% |
| **Total Acreage** | **4066.99** | **4066.99** | |

The results of the land cover analysis illustrate that the City is more pervious than impervious, with a small portion of the land cover having open water characteristics. The City has increased slightly in both impervious and pervious area from 2009 – 2014, while forested lands have decreased. The 2009 land cover results are shown in Figure 1, whereas the 2014 land cover results are shown in Figure 2.




| Land Cover (2009) | Acreage | % |
|---|---|---|
| Impervious | 1584.59 | 38.96% |
| Pervious | 2232.87 | 54.90% |
| Forest | 242.95 | 5.97% |
| Open Water | 6.57 | 0.16% |
| **Total Acreage** | **4066.99** | |

**Figure 1. 2009 Land Cover Summary**




| Land Cover (2014) | Acreage | % |
|---|---|---|
| Impervious | 1600.23 | 39.35% |
| Pervious | 2278.20 | 56.02% |
| Forest | 181.99 | 4.47% |
| Open Water | 6.57 | 0.16% |
| **Total Acreage** | **4066.99** | |

**Figure 2. 2014 Land Cover Summary**

### *EXCLUDED LANDS*

Along with forested lands and open waters, all lands owned and/or operated by a separate MS4 were excluded from the City's regulated area. Furthermore lands regulated under a General VPDES permit for Stormwater Associated with Industrial Activity (VAR05) and lands regulated under an Individual Permit were also excluded. The lands regulated under separate permits are shown in Table 2, and their locations within the City are shown in Figure 3.

**Table 2: Excluded Lands regulated under the General VPDES permit for Industrial Stormwater Activity**

| Facility Name | Address | Permit No. | Permit Type |
|---|---|---|---|
| Fairfax County - Jermantown Maintenance Facility | 3609 Jermantown Rd | VAR051770 | VPDES General Permit |
| National Asphalt Paving Corporation – Fairfax | 3400 Old Pickett Rd | VAR051719 | VPDES General Permit |
| Joint Basin Corporation - Fairfax Terminal Complex | 9601 Colonial Ave | VA0001872 | Individual SW Permit |
| Motiva Enterprises LLC - Fairfax | 3800 Pickett Rd | VA0002283 | Individual SW Permit |

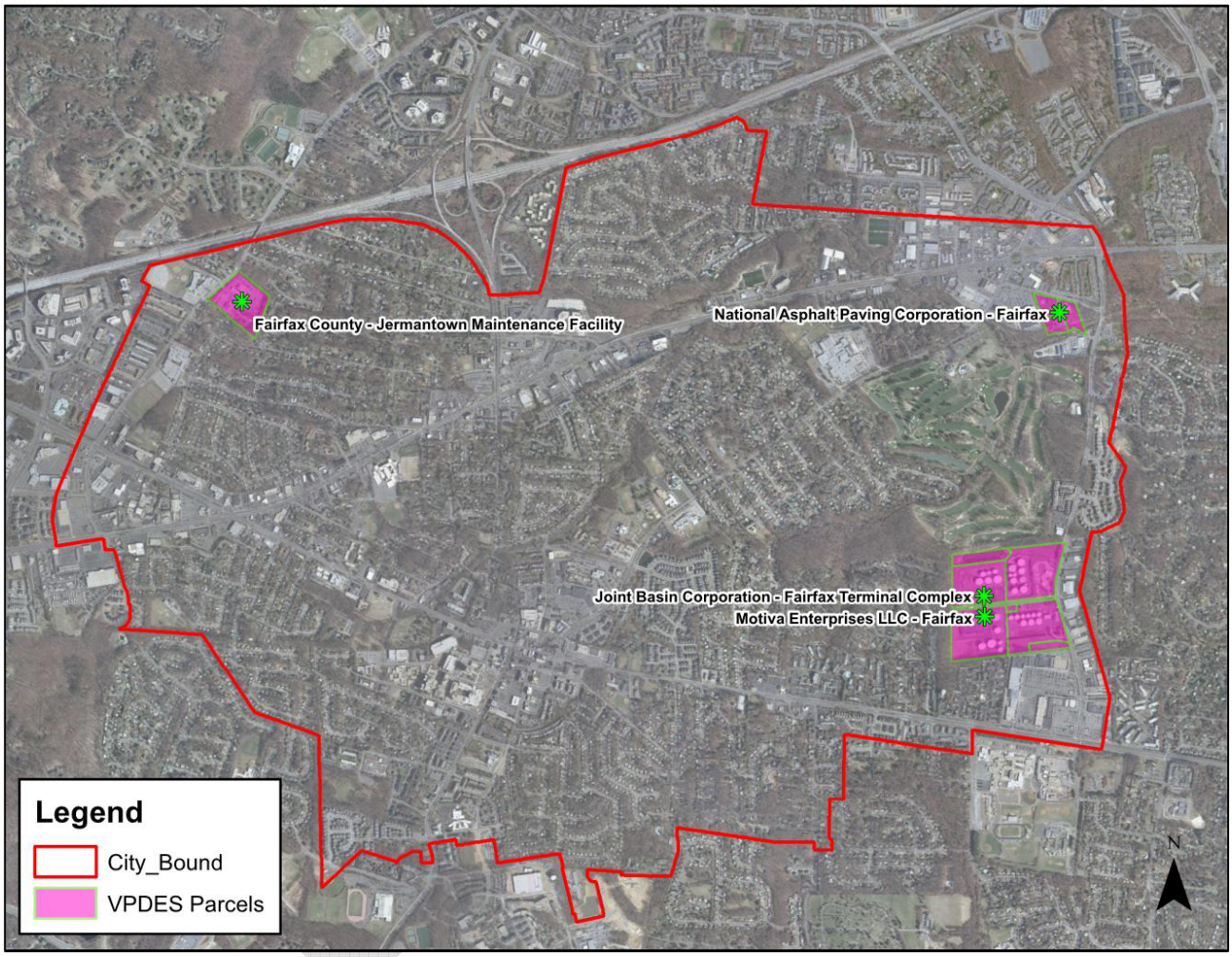



**Figure 3. Lands Regulated Under a Separate VPDES Permit**

Once the land coverage areas were delineated, the regulated acreage served by the City's MS4, as of June 30, 2009, was then determined. Using the conservative jurisdictional approach, pervious and impervious lands located within the City's boundary were classified as regulated, and lands covered under a General VPDES Permit shown in Figure 3 were excluded. The GIS polygon shapefile in Figure 1 was clipped to the polygon shapefile in Figure 3, and the land coverages associated with the VPDES permitted areas were extracted from the City's MS4 regulated area. This process determined the City's MS4 regulated area shown in Figure 4.

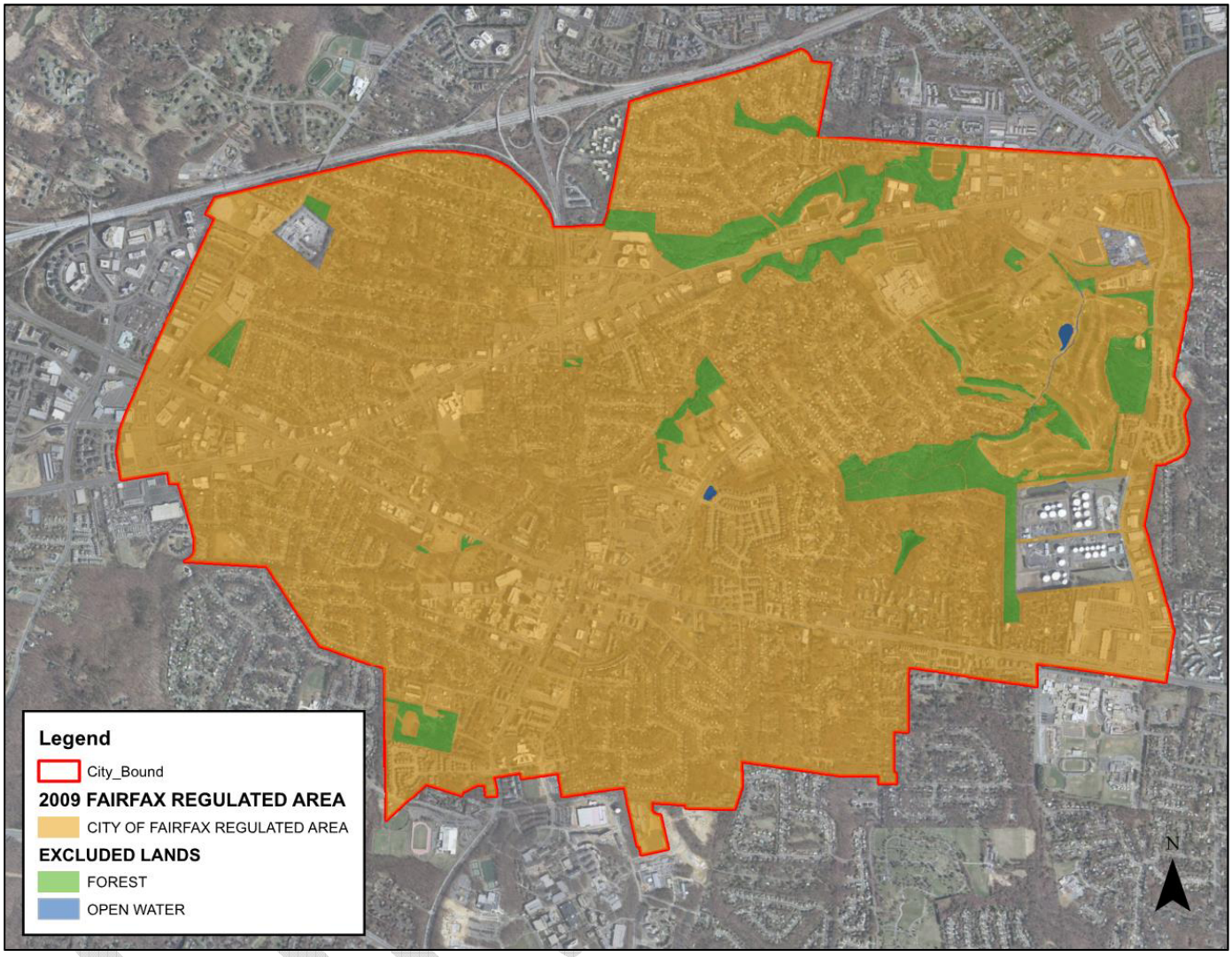



**Figure 4. City of Fairfax MS4 Regulated Area.**

## ESTIMATED POC LOADS AND REQUIRED REDUCTIONS FROM EXISTING SOURCES

The GIS analysis listed in the previous section was imperative in determining the regulated pervious and impervious acres served by the City's MS4. The acreages associated with the regulated pervious and impervious areas were input into Table 2b from the MS4 General Permit titled "*Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin*". Table 2b was then used to derive an estimate of the annual POC loads discharged from the City's "Existing Sources" as of June 30, 2009. The estimated total POC Loadings for Nitrogen, Phosphorous, and Total Suspended Solids (TSS) were calculated by multiplying the acreages for each land cover (Subsource), by the 2009 Edge of Stream (EOS) loading rate for the corresponding pollutant. Forested lands and open waters were included in the regulated extents of the MS4, but were excluded from the Existing Source POC load calculations shown in Table 3 (Table 2b from the MS4 General Permit Table).

**Table 3: Permit Table 2b – Calculation Sheet for Estimating Existing Source Loads from the Potomac River Basin**

| Table 2b: Calculation for Estimating Existing Source Loads for the Potomac River Basin | | | | |
|---|---|---|---|---|
| (*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2) | | | | |
| **Subsource** | **Pollutant** | **Total Existing Acres Served by MS4 (06/30/09)** | **2009 EOS Loading Rate (lbs./acre/yr.)** | **Estimated Total POC Load based on 2009 Progress Run (lbs./yr.)** |
| Regulated Urban Impervious | Nitrogen | 1548.74 | 16.86 | 26,111.79 |
| Regulated Urban Pervious | | 2166.44 | 10.07 | 21,816.04 |
| Regulated Urban Impervious | Phosphorus | 1548.74 | 1.62 | 2,508.96 |
| Regulated Urban Pervious | | 2166.44 | 0.41 | 888.24 |
| Regulated Urban Impervious | Total Suspended Solids | 1548.74 | 1171.32 | 1,814,072.51 |
| Regulated Urban Pervious | | 2166.44 | 175.8 | 380,860.02 |

The calculations in Table 3 illustrate the total "Existing Source" POC Loads for Nitrogen, Phosphorous, and TSS at 47927.83 lbs./year, 3,397.20 lbs./year, and 2,194,932.53 lbs./year, respectively.

The next component of the Action Plan was to determine the total POC load reductions required in order to reduce the annual POC loads from "Existing Sources". As stated earlier in the Action Plan, the focus of this iteration of planning was to address the First Permit Cycle (July 1, 2013 to June 30, 2018) and the associated 5% POC reductions. The same regulated pervious and impervious acreages shown in Table 3 (Permit Table 2b), were input into Table 4 (Permit *Table 3b from the MS4 General Permit titled "Calculation Sheet for Determining Total POC Reductions Required during the Permit Cycle for the Potomac River Basin*"). The 5% "Existing Source" POC reductions were then calculated by multiplying the acreages for each specified land use, by the required reduction loading rate for its corresponding pollutant. The resultant 5% "Existing Source" POC reductions for the City are shown in Table 4.

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**Table 4: Permit Table 3b – Calculation Sheet for Determining Existing Source POC Reductions Required During the First Permit Cycle for the Potomac River Basin**

| Table 3b: Calculation Sheet for Determining Existing Sources POC Reductions Required During the Permit Cycle for the Potomac River Basin | | | | |
|---|---|---|---|---|
| (*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2) | | | | |
| **Subsource** | **Pollutant** | **Total Existing Acres Served by MS4 (06/30/09)** | **First Permit Cycle Required Reduction in Loading Rate (lbs./acre/yr.)** | **Existing Sources - 5% Total Reduction Required First Permit Cycle (lbs./yr.)** |
| Regulated Urban Impervious | Nitrogen | 1,548.74 | 0.08 | 123.90 |
| Regulated Urban Pervious | | 2,166.44 | 0.03 | 64.99 |
| Regulated Urban Impervious | Phosphorus | 1,548.74 | 0.01 | 15.49 |
| Regulated Urban Pervious | | 2,166.44 | 0.001 | 2.17 |
| Regulated Urban Impervious | Total Suspended Solids | 1,548.74 | 11.71 | 18,135.77 |
| Regulated Urban Pervious | | 2,166.44 | 0.77 | 1,668.16 |

The calculations in Table 4 illustrate the 5% "Existing Source" POC load reductions for Nitrogen, Phosphorous, and TSS at 188.89 lbs./year, 17.66 lbs./year, and 19803.93 lbs., respectively. The "Existing Source" values represent the bulk of the City's required POC reductions and will be the baseline from which the "New Source" reductions and "Grandfathered Source" reductions will be added.

## ESTIMATED POC LOADS AND REQUIRED REDUCTIONS FROM NEW SOURCES (SPECIAL CONDITION 7)

The City previously required post-development stormwater management to meet an average land cover condition of 45% imperviousness. Because the adopted land cover condition was greater than the State of Virginia's adopted land cover condition of 16% imperviousness, the City is required to offset additional reductions on all "New Sources" (Special Condition 7) of construction that were initiated between July 1, 2009 and June 30, 2014, and exceeded an average land cover condition of 16% for the design of post-development stormwater management facilities. In order to quantify the additional loadings and subsequent 5% reductions from the new sources, the Aggregate Accounting Method (Example II.2 of the Chesapeake Bay TMDL Special Condition Guidance Document) was used.

The Aggregate Accounting Method was developed to capture all changes in regulated urban impervious and regulated urban pervious loads between July 1, 2009 and June 30, 2014. All excluded lands were removed from the land cover shapefiles shown in Figure 1 (2009) and Figure 2 (2014) to generate the regulated pervious and impervious acreages for 2009 and 2014. The regulated impervious and pervious acreages from 2009, and 2014, were input into Permit Table 2b to determine the loadings for each respective year. To determine the 5 year overall aggregate load change, the 2009 POC loadings were

subtracted from the 2014 POC loads. The “New Sources” POC loading results developed with the Aggregate Method are shown in Table 5.

**Table 5. Total POC Load from “New Sources” between June 30, 2009 and July 1, 2014**

| Special Condition 7. Aggregate Approach to address "New Sources" between June 30, 2009 and July 1, 2014 | | | | | |
|---|---|---|---|---|---|
| Total Load Change from "New Sources" between 06/30/09 and 07/01/14 | | | | | |
| Subsource | Pollutant | Estimate Total POC Load as of 07/01/14 (lbs./yr.) | Estimate Total POC Load as of 06/30/09 (lbs./yr.) | Load Change (lbs./yr.) | Total Load from "New Sources" (lbs./yr.) |
| Regulated Urban Impervious | Nitrogen | 26375.34 | 26,111.79 | 263.55 | 722.09 |
| Regulated Urban Pervious | | 22274.58 | 21,816.04 | 458.54 | |
| Regulated Urban Impervious | Phosphorus | 2534.29 | 2,508.96 | 25.32 | 43.99 |
| Regulated Urban Pervious | | 906.91 | 888.24 | 18.67 | |
| Regulated Urban Impervious | Total Suspended Solids | 1832382.28 | 1,814,072.51 | 18,309.77 | 26,314.80 |
| Regulated Urban Pervious | | 388865.05 | 380,860.02 | 8,005.03 | |

The “New Sources” loads in Table 5 were offset by the First Cycle 5% POC reduction requirements. The required reductions from “New Sources” are shown in Table 6.

**Table 6. “New Sources” 5% POC Reduction Requirements**

| "New Source" Reductions Required during the First permit cycle | | | |
|---|---|---|---|
| **Pollutant** | **Net Load Change from Table 5. (lbs./year)** | **Required 5% Reduction during First Permit Cycle** | **New Source Reductions Required during First Permit Cycle (lbs./yr.)** |
| Nitrogen | 722.09 | 0.05 | 36.10 |
| Phosphorus | 43.99 | 0.05 | 2.20 |
| Total Suspended Solids | 26,314.80 | 0.05 | 1315.74 |

The values in Table 6 illustrate that the City must offset 36.10 lbs./year of Nitrogen, 2.20 lbs./year Phosphorous, and 1315.75 lbs./year TSS, in addition to the “Existing Source” POC reductions shown in Table 4.

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## ESTIMATED POC LOADS AND REQUIRED REDUCTIONS FROM GRANDFATHERED SOURCES (SPECIAL CONDITION 8)

All projects deemed "Grandfathered" are in accordance with 9VAC25-870-48, disturb one acre or greater, have utilized an average land cover condition greater than 16% for the design of post-development stormwater management facilities, and result in an increased POC load. Projects that meet this criterion are required to offset additional pollutant loadings per Special Condition 8. The City does not have any projects considered "Grandfathered" and thus has no additional loadings that need to be offset to meet Special Condition 8.

## OVERALL EXISTING, NEW, AND GRANDFATHERED SOURCE REQUIRED REDUCTIONS

The City's required first permit cycle overall 5% POC load reductions are shown in Table 7. The overall POC reductions were calculated by summing the "Existing", "New", and "Grandfathered" Sources required reductions.

**Table 7. City of Fairfax's Overall 5% POC Load Reduction Requirements**

| Table 3b: Calculation Sheet for Determining Total POC Reductions Required During the Permit Cycle for the Potomac River Basin | | | | | | | |
|---|---|---|---|---|---|---|---|
| (*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2) | | | | | | | |
| Subsource | Pollutant | Total Existing Acres Served by MS4 (06/30/09) | First Permit Cycle Required Reduction in Loading Rate (lbs./acre/yr.) | Existing Sources - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | Special Condition 7. New Sources - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | Special Condition 8. Grandfathered - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | 5 % Total Reduction Required First Permit Cycle (lbs./yr.) |
| Regulated Urban Impervious | Nitrogen | 1,548.74 | 0.08 | 123.90 | 36.10 | 0 | **225.00** |
| Regulated Urban Pervious | | 2,166.44 | 0.03 | 64.99 | | | |
| Regulated Urban Impervious | Phosphorus | 1,548.74 | 0.01 | 15.49 | 2.20 | 0 | **19.85** |
| Regulated Urban Pervious | | 2,166.44 | 0.001 | 2.17 | | | |
| Regulated Urban Impervious | Total Suspended Solids | 1,548.74 | 11.71 | 18,135.77 | 1315.74 | 0 | **21,119.67** |
| Regulated Urban Pervious | | 2,166.44 | 0.77 | 1,668.16 | | | |

## MEANS & METHODS, STRATEGY, SCHEDULE, & ESTIMATED COSTS

In order to meet the 5% POC load reduction requirements set forth in Table 7, the City is utilizing multiple crediting methods. The City will apply the credits provided by the Daniels Run (Daniels Run) Stream Restoration Project (Construction complete as of October 1, 2015) to address the majority of the load reduction requirements. As part of Daniels Run, the City has implemented 765 linear feet of urban stream restoration capturing a drainage area of 410 acres (all within City's MS4 regulated area). The POC crediting, shown in Table 8, for Daniels Run was determined using the TMDL Action Plan Guidance Document Interim Rates for Urban Stream Restoration.

**Table 8. Daniels Run Stream Restoration POC Credits**

| Table V.J.1 - Urban Stream Restoration Interim Approved Removal Rates | | | | |
|---|---|---|---|---|
| **BMPs** | **How Credited** | **TN** | **TP** | **TSS** |
| Stream Restoration | Mass reduction/length (lbs./linear ft.) | 0.075 | 0.068 | 44.88 |
| **City of Fairfax - Daniels Run Stream Restoration Project** | | | | |
| **Linear ft. of Stream Restoration** | **POC Removal provided (lbs./year)** | **TN** | **TP** | **TSS** |
| 765 | | **57.38** | **52.02** | **34333.20** |

Daniels Run is located behind Daniels Run Elementary School, within the City of Fairfax. The Latitude and Longitudinal coordinates of the project are 38°51'5.74"N; 77°17'37.98"W respectively, and the overall construction cost for the project was $563,000.00.

The remainder of the 5% POC reduction was achieved through the City's street sweeping program. The City spends approximately $40,000 per year on street sweeping operations, and collects approximately 2048 cubic yards of material annually through their program. The City used the Mass Loading Approach to quantify street sweeping reductions, as outlined in Appendix V.G of the TMDL Action Plan Guidance Document. The volume of material collected was converted into a unit weight based on a conversion factor of 1yd$^3$ of Residential, Un-compacted Municipal Soil Waste equals 150 lbs. of waste (*Source: EPA Guidance Document - Measuring Recycling: A guide for State and Local Governments – Appendix B: Standard Volume to Weight Conversion Factors*). The Street Sweeping crediting, as well as the calculation methodology is shown in Table 9.

**Table 9. Street Sweeping POC Crediting**

| Street Sweeping - Reference Appendix V.G of the TMDL Action Plan Guidance Document | | | |
|---|---|---|---|
| **Mass Loading** | | **CY of material collected annually** | **Conversion to pounds @ 150 lbs/CY[1]** |
| **Calculation Methodology** | | **2048** | **307200** |
| **Conversion Factor to lbs. of material dry weight** | | **0.7** | |
| **Pounds Dry weight of Material** | | **215040.00** | |
| **POC Factors to determine reductions from street sweeping** | | | |
| **POC** | **TN (lbs/yr.)** | **TP (lbs/yr.)** | **TSS (lbs/yr.)** |
| **Reductions** | 0.0025 | 0.001 | 0.3 |
| **Street Sweeping Reductions Provided - Volumetric Based** | | | |
| **POC** | **Pollutant Removal Credits to be applied to be applied to reductions (lbs./year)** | | |
| **TN (lbs/yr)** | **537.60** | | |
| **TP (lbs/yr)** | **215.04** | | |
| **TSS (lbs/yr)** | **64512.00** | | |

[1] **Residential Municipal Soild Waste conversion of 1yd$^3$ = 150 - 300 lbs, per EPA Guidance Document - *Measuring Recycling: A guide for State and Local Governments – Appendix B: Standard Volume to Weight Conversion Factor***

The Daniels Run project, coupled with the City's street sweeping program, provides the requisite POC reductions to ensure compliance with the First Permit Cycle requirements. The POC reduction crediting and application of the methodology to address the 5% required reductions is shown in Table 10.

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**Table 10. Means and Methods to address the total POC Reductions Required during the First Permit Cycle**

| Means and Methods Crediting to Address the First Permit Cycle (5%) Reduction Requirements | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2) | | | | | | | | | | | | |
| Subsource | Pollutant | Total Existing Acres Served by MS4 (06/30/09) | First Permit Cycle Required Reduction in Loading Rate (lbs./acre/yr.) | Existing Sources - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | Special Condition 7. New Sources - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | Special Condition 8. Grandfathered - 5% Total Reduction Required First Permit Cycle (lbs./yr.) | 5 % Total Reduction Required First Permit Cycle (lbs./yr.) | Means and Methods to Address 5% Reductions | Daniels Run Stream Restoration Project | Street Sweeping Crediting | Total Reductions provided by Means and Methods | Percentage of 5% Reduction |
| Regulated Urban Impervious | Nitrogen | 1,548.74 | 0.08 | 123.90 | 36.10 | 0 | **225.00** | | Nitrogen Removed (lbs./year) | Nitrogen Removed (lbs./year) | Nitrogen Removed (lbs./year) | % N |
| Regulated Urban Pervious | | 2,166.44 | 0.03 | 64.99 | | | | | 57.38 | 537.60 | 594.98 | **264.44%** |
| Regulated Urban Impervious | Phosphorus | 1,548.74 | 0.01 | 15.49 | 2.20 | 0 | **19.85** | | Phosphorous Removed (lbs./year) | Phosphorous Removed (lbs./year) | Phosphorous Removed (lbs./year) | % P |
| Regulated Urban Pervious | | 2,166.44 | 0.001 | 2.17 | | | | | 52.02 | 215.04 | 267.06 | **1345.15%** |
| Regulated Urban Impervious | Total Suspended Solids | 1,548.74 | 11.71 | 18,135.77 | 1315.74 | 0 | **21,119.67** | | TSS Removed (lbs./year) | TSS Removed (lbs./year) | TSS Removed (lbs./year) | % TSS |
| Regulated Urban Pervious | | 2,166.44 | 0.77 | 1,668.16 | | | | | 34333.20 | 64512.00 | 98845.20 | **468.02%** |

## LIST OF FUTURE GRANDFATHERED PROJECTS (SPECIAL CONDITION 10)

The City currently has one future grandfathered project. The project is bisected by the City boundary, with half of the project limits located in the City of Fairfax, and the other half of the project limits located in Fairfax County. The project is located at 9356 Lee Highway, Fairfax Virginia 22031, and is shown in Figure 5.

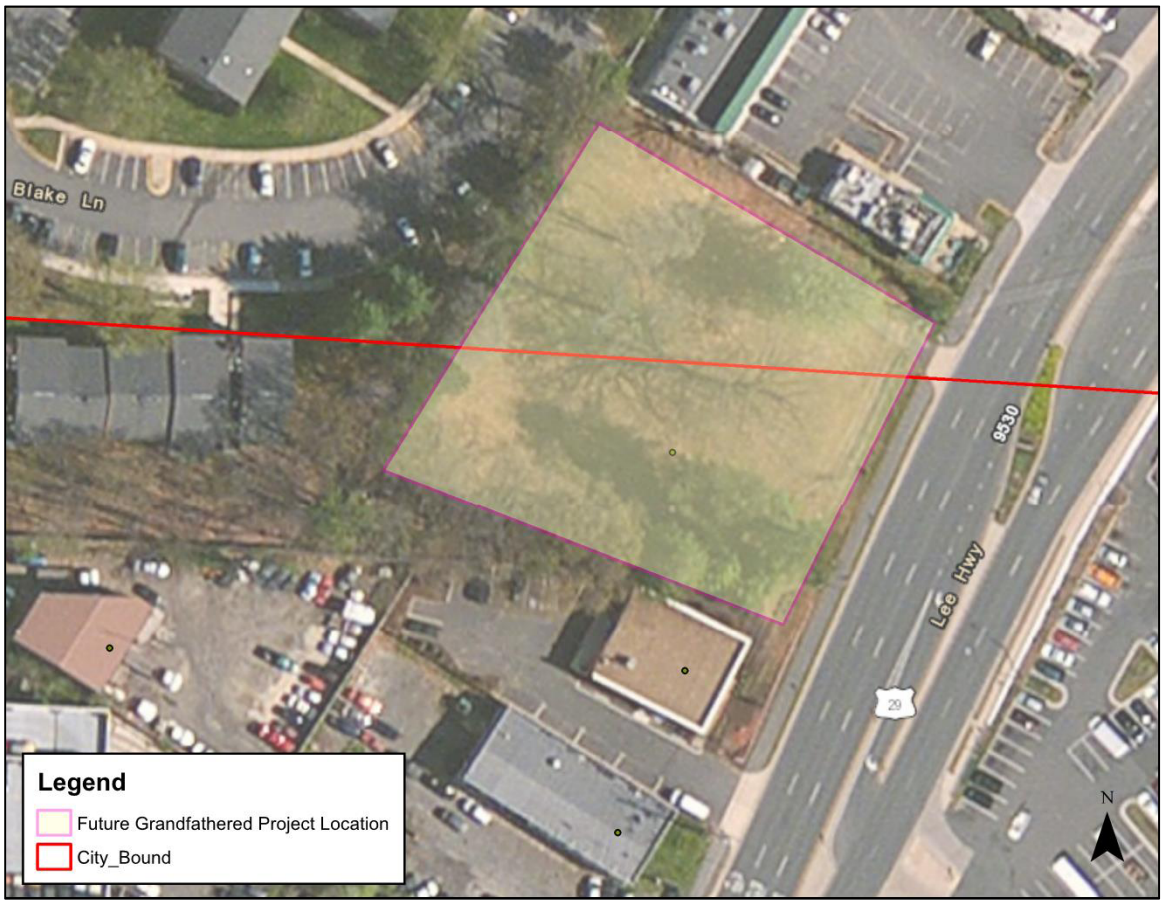


**Figure 5. City of Fairfax's Future Grandfathered Project Location**

## PUBLIC COMMENT PROCESS

The City encourages the public's involvement and participation in the development and implementation of its MS4 Program. In keeping with this objective, the City has posted a copy of its Chesapeake Bay TMDL Action Plan on its website http://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/ms4-permit to solicit public comment on the plan. All comments received from the public will be taken into consideration when developing the final version of the Action Plan submitted to DEQ with its MS4 Annual Report in October of 2015.

## CONCLUSION

The City developed this first permit term Action Plan as required in the 2013-2018 Phase II MS4 Permit Number VAR040064, and in accordance with the DEQ Guidance Document dated May 18, 2015. This TMDL Action Plan concludes that the first permit term pollutant reduction requirements will be met by implementing the proposed methodologies identified in the Means & Methods, Strategy, Schedule, and Estimated Costs section. The City of Fairfax reserves the right to modify this TMDL Action Plan as needed to maintain compliance with its Phase II MS4 Permit.

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