

# Final Chesapeake Bay TMDL Action Plan

Second MS4 Permit Cycle  
40% Load Reductions



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August 2021

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## Acronyms and Abbreviations

ACG	Arlington County Government
APS	Arlington Public Schools
B-WET	Bay Watershed Education and Training
BMP	Best Management Practice
DEQ	Virginia Department of Environmental Quality
E&SC	Erosion and Sediment Control
EOS	Edge of Stream
EPA	United States Environmental Protection Agency
GIS	Geographic Information Systems
HUC	Hydrologic Unit Code
lb	pound
LDA	Land Disturbing Activity
MCM	Minimum Control Measure
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer Systems
MS4 Permit	General Permit for Discharges of Stormwater from Small MS4s No. VAR040127
MWEE	Meaningful Watershed Education Experience
NOAA	National Oceanic and Atmospheric Administration
NMP	Nutrient Management Plan
PL24	Potomac River - Pimmit Run
PL25	Potomac River - Four Mile Run
POC	Pollutant of Concern
RLD	Registered Land Disturber
SWM	Storm Water Management
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
VSMP	Virginia Stormwater Management Program
WLA	wasteload allocation
yr	year

# 1. Introduction

Arlington Public Schools (APS) is authorized to discharge under the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) No. VAR040127 (MS4 Permit), effective November 1, 2018 through October 31, 2023, issued by the Virginia Department of Environmental Quality (DEQ). Section II.A of the MS4 Permit (Chesapeake Bay TMDL Special Condition) requires compliance with nitrogen, phosphorus, and sediment load reductions set forth in the Chesapeake Bay total maximum daily load (TMDL)<sup>1</sup> through the preparation and implementation of a Chesapeake Bay TMDL Action Plan. Section II.B of the MS4 Permit (Local TMDL Special Condition) requires compliance with wasteload allocations (WLAs) assigned to permittees discharging to impaired waters for which a TMDL has been developed and approved by the United States Environmental Protection Agency (EPA). As of the date of this report, APS has not been assigned a WLA in any EPA-approved TMDL, and this report focuses solely on compliance with the Chesapeake Bay TMDL.

As established by the DEQ, APS must reduce its share of Chesapeake Bay TMDL pollution by 40 percent (%) total during the second permit cycle (2018–2023) and the final 60% (100% total) during the third permit cycle (2023–2028). APS's overall strategy to meet the TMDL requirements includes nutrient and sediment credit purchase with the Arlington Water Pollution Control Plant and pollutant reduction from structural stormwater best management practices (BMPs) as two key strategies to meet the pollution reduction requirements. While APS does not implement standalone BMPs for the purposes of TMDL compliance, APS construction projects are subject to stringent regulation of the stormwater runoff from development/redevelopment by Arlington County Government (ACG). BMPs installed as part of development and redevelopment projects will continue to achieve incremental and cumulative reductions in stormwater pollutants.

This Chesapeake Bay TMDL Action Plan was developed to document a minimum of 40% reduction of the total Chesapeake Bay TMDL pollutant of concern (POC) required for APS' MS4 service area during the five-year MS4 Permit cycle from November 2018 through October 2023. The plan meets the requirements of the MS4 Permit and complies with the DEQ Guidance Memo No. 20-2003 Chesapeake Bay TMDL Special Condition Guidance, dated February 6, 2021.

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<sup>1</sup> United States Environmental Protection Agency, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus, and Sediment, December 29, 2010.

## 1.1 Required Action Plan Elements

**Table 1-1** provides each of the requirements of APS's MS4 Permit relevant to the TMDL and the specific section where the requirement is addressed in this Chesapeake Bay TMDL Action Plan.

**Table 1-1 – Action Plan and Permit Compliance Crosswalk**

APS Action Plan Section	Element from DEQ TMDL Special Condition Guidance	MS4 Permit Part	MS4 Permit Requirement
2	Existing, new, or modified legal authority	II.A.11.a	Any new or modified legal authorities, such as ordinances, permits, policy, specific contract language, orders, and inter-jurisdictional agreements, implemented or needing to be implemented to meet the requirements of Part II A 3, A 4, and A 5.
3	The Load and Cumulative Reduction Calculations	II.A.11.b	The load and cumulative reduction calculations calculated in accordance with Part II A 3, A 4, and A 5.
4	The total reductions achieved as of July 1, 2018, for each pollutant of concern	II.A.11.c	The total reductions achieved as of July 1, 2018, for each pollutant of concern.
5	List of BMPs implemented prior to July 1, 2018 to achieve reductions for the Chesapeake Bay TMDL	II.A.11.d	A list of BMPs implemented prior to July 1, 2018, to achieve reductions associated with the Chesapeake Bay TMDL including: a) The date of implementation; and b) The reductions achieved.
6	BMPs implemented by the permittee prior to the expiration of this permit to meet cumulative reductions	II.A.11.e	The BMPs to be implemented by the permittee prior to the expiration of this permit to meet the cumulative reductions calculated in Part II A 3, A 4, and A 5, including as applicable: a) Type of BMP; b) Project name; c) Location; d) Percent removal efficiency for each pollutant of concern; and e) calculation of the reduction expected to be achieved by the BMP calculated and reported in accordance with the methodologies established in Part II A 8 for each pollutant of concern.
7	Public comments on draft Chesapeake Bay TMDL Action Plan	II.A.11.f	A summary of any comments received as a result of public participation required in Part II A 12, the permittee's response, identification of any public meetings to address public concerns, and any revisions made to Chesapeake Bay TMDL action plan as a result of public participation.

## 2. Existing, New, or Modified Legal Authority

APS adopted an MS4 Program Plan that documents implementation of all MS4 permit requirements, including the programmatic and legal authorities required to meet the Special Condition for the Chesapeake Bay TMDL. **Table 2-1** provides a summary of elements of the six minimum control measures (MCMs) implemented by APS under the MS4 Permit that relate to controlling total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS).

**Table 2-1 – MS4 Program Plan Components Pertaining to the Chesapeake Bay TMDL**

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Total Nitrogen, Total Phosphorus, and Total Suspended Solids
MCM 1 – Public Education and Outreach	<p>APS's MS4 Program Plan identifies the following three high-priority pollutants for the focus of APS's public education program during the permit cycle: (1) using techniques that keep water onsite and/or reduce imperviousness, (2) litter prevention, and (3) the importance of native vegetation for preventing soil erosion. Actions specific to nutrients and sediment and their impact on the Chesapeake Bay include:</p> <ul style="list-style-type: none"> <li>• Stormwater Pollution Prevention Plan (SWPPP) training of staff.</li> <li>• The National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education and Training (B-WET) program provides local grants to Grade 9, students, and teachers in the Bay Watershed to focus on project based learning.</li> <li>• Meaningful Watershed Education Experience (MWEE) integrates field work in the Chesapeake Bay watershed with multidisciplinary classroom activities and instruction. Students then share their discoveries within their schools and communities, both orally and in writing. MWEEs have an intentional connection to the watershed as a whole. Experiences focus not only on the Chesapeake Bay, rivers, and streams, but also on terrestrial issues such as native plant species, erosion control, buffer creation, groundwater protection, and pollution prevention.</li> </ul>
MCM 2 – Public Involvement and Participation	<p>APS designed a program to involve the public in the decision-making process by meeting all public notice requirements and sponsoring at least four activities annually focusing on water quality. Examples include:</p> <ul style="list-style-type: none"> <li>• Outdoor Laboratory water quality field trips,</li> <li>• Middle school Meaningful Watershed Education Experience projects, and</li> <li>• Outdoor learning environments on local and native plant species.</li> </ul>
MCM 3 – Illicit Discharge Detection and Elimination	<p>APS integrated into its MS4 Program Plan an Illicit Discharge Detection and Elimination Program. This program includes preventing, identifying, and eliminating sources of pollutants, including total nitrogen and total phosphorus as well as total suspended solids.</p>
MCM 4 – Construction Site Stormwater Runoff Control	<p>APS's construction site stormwater runoff control program is designed to ensure that its construction projects comply with all local legal authorities. APS construction projects are subject to review, approval, and enforcement by Arlington County Government (ACG), the locality where the land-disturbing activity for APS occurs.</p>
MCM 5 – Post-Construction Stormwater Management	<p>APS contracts with a third party for long-term operation, inspection, and maintenance of all its stormwater management facilities. ACG maintains the electronic database of all stormwater management facilities including APS' stormwater management facilities. APS is responsible for the accuracy of this information and works closely with ACG to ensure the database remains up-to-date. APS post-construction stormwater management facilities are subject to review and approval by ACG.</p>

**Table 2-1 – MS4 Program Plan Components Pertaining to the Chesapeake Bay TMDL (continued)**

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Total Nitrogen, Total Phosphorus, and Total Suspended Solids
MCM 6 – Pollution Prevention and Good Housekeeping for Municipal Operations	<p>APS included in its MS4 Program Plan actions to meet the pollution prevention and good housekeeping requirements for municipal operations. APS operates one high priority municipal facility, the APS Trades Facility located at the ACG Trades Center. APS' Trades Facility is included in ACG's SWPPP for the Trades Center. APS is responsible for this facility under ACG's Trade Center SWPPP and inspects and maintains the area.</p> <p>ACG uses a turf management contractor to manage all necessary pesticide, herbicide and fertilizer applications for athletic fields. This contractor develops and implements the nutrient management plans (NMPs) for APS lands with a contiguous area greater than one acre.</p>

## 2.1 Existing Legal Authorities

APS is a governing body with its own school board of elected officials and is a separate permitted entity from ACG. However, APS is not a governing authority on land development projects but instead all land development on APS property is overseen by ACG. APS relies on ACG to develop and enforce legal authorities such as ordinances, permits, and orders related to all land development projects. While APS does hold construction and service contracts, property lease agreements, and inter-jurisdictional agreements, they do not include traditional legal enforcement mechanisms. **Table 2-2** provides a list and description of relevant existing legal authorities maintained by APS.

**Table 2-2 – Existing Legal Authorities Maintained by APS**

Type of Legal Authority	Legal Authority Description
Construction Contracts	Construction contracts are held by APS, and APS has standard contract language requiring that an onsite team member for the Contractor shall maintain the DEQ Erosion and Sediment Control (E&SC) and Storm Water Management (SWM) inspector certification. This member is also required to ensure proper record keeping of the SWPPP, conduct self-inspections of the Site at least every four days, and ensure compliance with APS' MS4 Permit as it relates to Site storm water runoff control and proper E&SC. Lastly, the contract language requires the Contractor to provide on-site personnel certified for and designated as the Registered Land Disturber (RLD).
Interjurisdictional Agreements	<p>There is a Memorandum of Agreement (MOA) between APS and ACG to set forth the agreed upon use of APS and County athletic facilities. The MOA specifies the parties responsible for trash pickup, custodial services, and field maintenance. This MOA addresses the responsible parties for some pollution prevention and good housekeeping items.</p> <p>APS issued a notice of MS4 interconnection letter to ACG on August 14, 2015.</p>



**Table 2-2 – Existing Legal Authorities Maintained by APS (continued)**

Type of Legal Authority	Legal Authority Description
Property Lease Agreements	<p>APS is a tenant subject to property lease agreements for two office buildings with private owners. Those office buildings are not located within the APS MS4 area, and the lease agreements stipulate that the property owner is responsible for maintenance of the grounds.</p> <ul style="list-style-type: none"> <li>• Syphax Education Center 2100 Washington Blvd, Arlington VA 22204</li> <li>• APS Employment Assistance Program and Alternative High School 2847 Wilson Blvd, Arlington VA 22201</li> <li>• Fleet Elementary School 115 South Old Glebe Rd, Arlington VA 22204</li> </ul>
Service Contracts	<p>APS holds a service contract with a third-party contractor that conducts annual inspection, maintenance, and repairs of stormwater best management practices (BMPs). The contractor keeps records and submits maintenance and inspection reports for every site visited. APS reviews inspection reports and maintains a database of inspections records.</p> <p>APS also contracts with a third-party contractor to support its illicit discharge detection and elimination program through annual screening and inspections of outfalls.</p>

APS also complies with relevant ACG legal authorities as all APS properties are located within Arlington County, and these ACG legal authorities are summarized in **Table 2-3**. Any additional legal authorities identified after the completion of this Chesapeake Bay TMDL Action Plan will be updated and published in the most recent version of the APS MS4 Program Plan.

**Table 2-3 – ACG Legal Authorities with which APS Complies**

ACG Legal Authority	Legal Authority Description	Corresponding MCM
Arlington County Code Chapter 26-5b Utilities	Arlington County Code Chapter 26-5 - Utilities prohibiting unauthorized discharges into the storm sewer system.	3
ACG Plan Review Procedures	APS is subject to ACG's written plan review process. The plan review procedures and all associated documents utilized in plan review may be found online at <a href="http://topics.arlingtonva.us/building/stormwater-management-ordinance/">http://topics.arlingtonva.us/building/stormwater-management-ordinance/</a> .	4 and 5
Chesapeake Bay Preservation Ordinance	The Chesapeake Bay Preservation Ordinance (Arlington County Code Chapter 61) was adopted to implement the requirements of § 62.1-44.15:67 et seq., of the Code of Virginia, the Chesapeake Bay Preservation Act, and the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830-10 et. seq.) Sensitive areas along streams throughout Arlington have been designated as Resource Protection Areas.	4 and 5
Compliance Inspection Procedures	ACG's compliance inspection procedures and all associated documents utilized during inspection, including the inspection schedule, may be found online at <a href="http://topics.arlingtonva.us/building/stormwater-management-ordinance/">http://topics.arlingtonva.us/building/stormwater-management-ordinance/</a> .	4 and 5
Erosion and Sediment Control Ordinance	A land disturbing activity (LDA) permit is required for any activities that disturb equal to or greater than 2,500 square feet of land, as required by the Erosion and Sediment Control Ordinance (Arlington County Code Chapter 57) and the Virginia Erosion and Sediment Control Program.	4

**Table 2-3 – ACG Legal Authorities with which APS Complies (continued)**

ACG Legal Authority	Legal Authority Description	Corresponding MCM
Stormwater Management Ordinance	The Stormwater Management Ordinance (Arlington County Code Chapter 60) provides stormwater requirements for land disturbing activities in Arlington County in response to comprehensive new Virginia stormwater regulations which became effective in 2014.	4 and 5

## 2.2 New or Modified Legal Authorities

**Table 2-4** provides the only legal authority needing to be implemented to meet the requirements of Part II A 3, A 4, and A 5 of the MS4 Permit.

**Table 2-4 – Future Planned Legal Authorities to be Implemented by APS**

Type of Legal Authority	Legal Authority Description
Nutrient and Sediment Credit Purchase Agreement	APS will implement a Chesapeake Bay Nutrient Offset Agreement between APS and ACG's Water Pollution Control Plant for the purchase of total phosphorous and total nitrogen credits towards POC required reductions. The agreement will go into effect prior to the June 30, 2023 deadline.

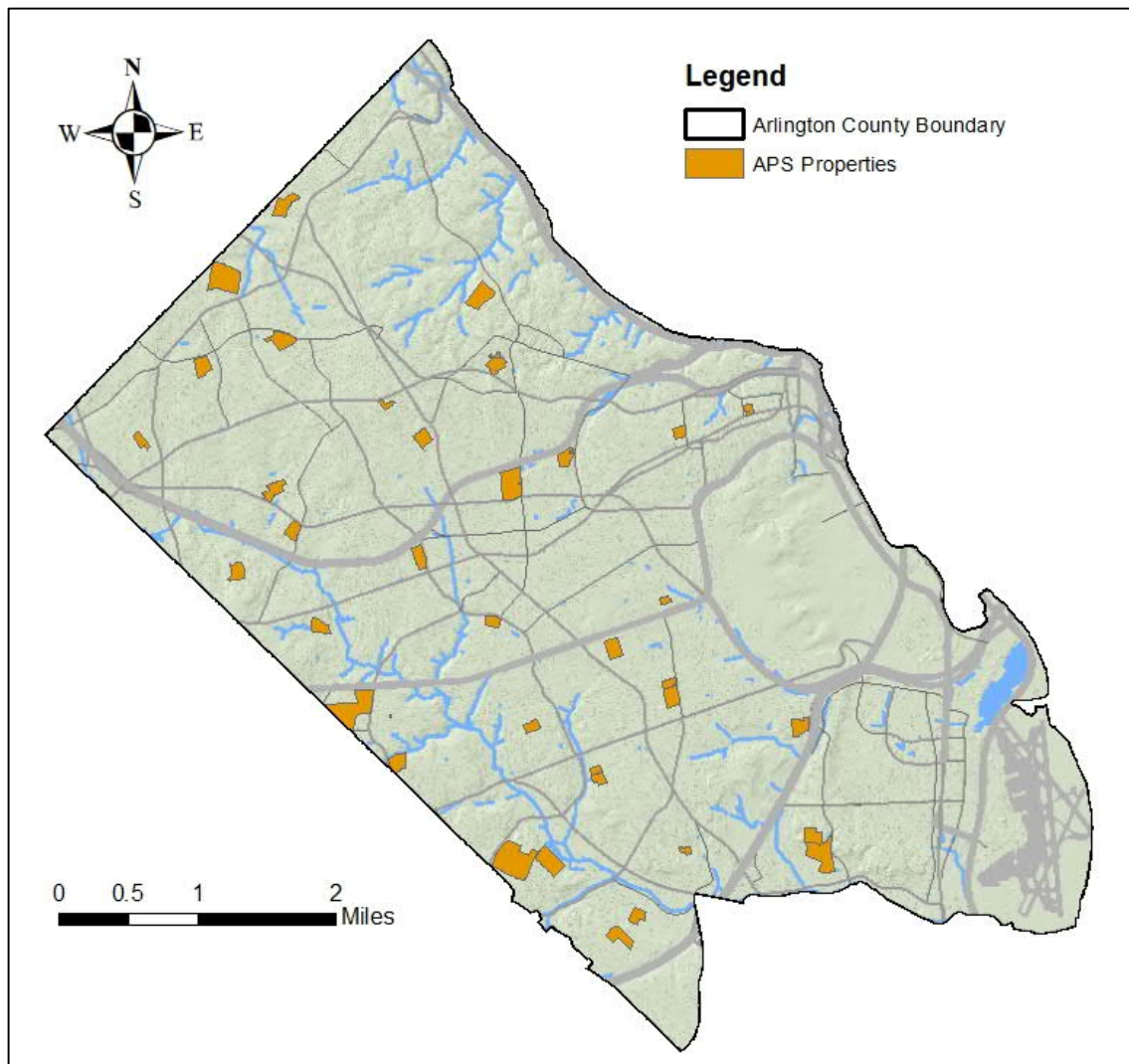
APS does not have any plans to develop any additional new or modified legal authorities to meet the requirements of the Chesapeake Bay TMDL at this time. APS will comply with relevant new and modified ACG legal authorities as they are developed or modified in the future.

### 3. Load and Cumulative Reduction Calculations

#### 3.1 Estimated Existing Source Loads and Calculated Total Pollutant of Concern Required

The APS MS4 is comprised of approximately 350 acres of land across 40 facilities located throughout Arlington County, Virginia. APS' MS4 does not extend into any expanded urbanized areas that were identified as a result of the 2010 US Census. APS facilities are located throughout Arlington County and consequently fall into one of two hydrologic unit codes (HUCs): Potomac River - Pimmit Run (PL24) and Potomac River - Four Mile Run (PL25). However, the entirety of the MS4 and associated watersheds are located within the Potomac River Basin.

The APS MS4 service area is comprised of all lands within the property boundaries of the 40 APS facilities located in Arlington County (see **Figure 3-1**). Currently, there is a MOA between APS and ACG to differentiate which MS4 operator is responsible for which part of the interconnected MS4. In most cases, the boundary of the interconnection between the ACG MS4 boundary follows the property boundaries of the APS facilities. There are, however, some cases in which ACG has a stormwater easement to maintain storm infrastructure owned by APS within APS' property boundaries.



**Figure 3-1 – APS MS4 Area Map**

ACG develops and maintains all geographic information systems (GIS) data pertaining to APS. Impervious and pervious surfaces within APS' MS4 were determined by ACG using Planimetric data developed from Ortho-rectified Aerial Photography taken in 2009. Polygons for impervious surfaces include the following:

1. Structures
2. Bridges (roadway and pedestrian)
3. Alleys
4. Driveways
5. Parking lots
6. Paved Medians
7. Roadways
8. Sidewalks (including handicap ramps and bike/pedestrian trails)
9. Hard surface sports courts including but not limited to: tennis and basketball courts

To calculate the 2009 impervious regulated area, the 2009 planimetric impervious cover features were clipped using the APS MS4 boundary polygon layer. Estimated acres of forest were delineated in GIS using the 2009 ortho-rectified aerial photography. Regulated pervious acres were calculated by subtracting the regulated impervious acres and forest acres from the total MS4 acres. APS' MS4 does not extend into any expanded urbanized areas that were identified as a result of the 2010 US Census; therefore, the clipped values from 2009 planimetric data were used. **Table 3-1** summarizes the existing source acreage for APS' MS4. Acres of forest have been included for reference; however, forest acres do not affect the total source load calculation.

**Table 3-2 – APS MS4 Acreage<sup>1</sup>**

Total APS MS4 Area (acres)	Impervious Area (acres) <sup>2</sup>	Pervious Area (acres)	Forested Area (acres)
349.87	132.47	190.99	26.41

**Note:**

<sup>1</sup> Planimetric data from 2009 was used to identify impervious and pervious acreage reflecting 2009 land cover conditions. APS' MS4 does not extend into any expanded urbanized areas that were identified as a result of the 2010 US Census. The acreages for various schools have been corrected based on property exchanges with Arlington County regarding right of ways and boundaries. As a result of those corrections, the acreages identified in this table do not align perfectly with the acreages communicated in the Registration Statement for coverage under the 2018 MS4 Permit.

APS' MS4 is located entirely within the Potomac River Basin. Consequently, MS4 Permit Table 3b<sup>2</sup> was used to calculate existing source loads and required reductions. Existing source loads include loads from pervious or impervious lands served by the MS4 as of June 30, 2009<sup>3</sup>. Pervious cover consists of land with some type of vegetative cover, such as forested area or open space and managed turf. Impervious cover consists of material that significantly impedes or prevents natural infiltration of water into soil, which includes lands that have been previously developed. Prior developed lands include land that has been previously utilized for residential, commercial, industrial, institutional, recreation, transportation, or utility facilities or structures, and that will have the impervious areas associated with those uses altered during a land-disturbing activity. **Table 3-2** provides the calculation sheet for estimating existing source loads for the Potomac River Basin which is found by multiplying the total existing acres served by the MS4 as of Jun 30, 2009 and the 2009 Edge of Stream (EOS) loading rate. These values correlate with the total baseline loads that theoretically are discharged into the Potomac River Basin as a result of runoff from existing impervious and pervious acreage, prior to accounting for any installed BMPs.

<sup>2</sup> MS4 Permit Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac Basin \*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2.

**Table 3-3 – APS MS4 Existing Source Loads (Potomac River Basin)**

<b>Subsource</b>	<b>Pollutant</b>	<b>Total Existing Acres Served by MS4 (6/30/09)<sup>1</sup></b>	<b>2009 EOS Loading Rate (lbs/ac/yr)<sup>2</sup></b>	<b>Estimated Total POC Load Based on 2009 Progress Run (lbs/yr)</b>	<b>Sum of Total POC Loads (lbs)</b>
Regulated Urban Impervious	Nitrogen	132.47	16.86	2,233.44	4,156.71
Regulated Urban Pervious		190.99	10.07	1,923.26	
Regulated Urban Impervious	Phosphorus	132.47	1.62	214.60	292.91
Regulated Urban Pervious		190.99	0.41	78.31	
Regulated Urban Impervious	Total Suspended Solids	132.47	1171.32	155,164.76	188,740.70
Regulated Urban Pervious		190.99	175.8	33,575.94	

**Notes:**

<sup>1</sup> APS' MS4 does not extend into expanded urbanized areas that were identified as a result of the 2010 US Census; therefore, clipped values from 2009 planimetric data were used to calculate total existing acres served by MS4.

<sup>2</sup> 9VAC25-890, General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s), Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin, based on Chesapeake Bay Program Watershed Model Phase 5.3.2.

APS is required to plan to meet 40% of the L2 scoping run reductions for existing sources by the end of the second MS4 Permit cycle (June 30, 2023). **Table 3-3** provides the calculation sheet to determine the 40% load reduction required during the second permit cycle.

**Table 3-4 – Calculation Sheet for Determining Total POC Reductions Required by the End of Second Permit Cycle for the Potomac River Basin<sup>1</sup> for APS**

Subsource	Pollutant	Estimated Total POC Load Based on 2009 Progress Run (lbs/yr) <sup>2</sup>	Percentage of MS4 required Chesapeake Bay total L2 loading reduction	Percentage of L2 required reduction by 6/30/2023	40% cumulative reduction required by 6/30/2023 (lbs/yr)	Sum of 40% cumulative reduction (lb/yr)
Regulated Urban Impervious	Nitrogen	2,233.44	9%	40%	80.40	126.56
Regulated Urban Pervious		1,923.26	6%	40%	46.16	
Regulated Urban Impervious	Phosphorus	214.60	16%	40%	13.73	16.00
Regulated Urban Pervious		78.31	7.25%	40%	2.27	
Regulated Urban Impervious	Total Suspended Solids	155,164.76	20%	40%	12,413.18	13,588.34
Regulated Urban Pervious		33,575.94	8.75%	40%	1,175.16	

Notes:

<sup>1</sup> **Table 3-3** calculates the total POC Reductions Required by the end of the second permit cycle based on additional information provided in MS4 Permit Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac Basin

\*Based on Chesapeake Bay Program Watershed Model Phase 5.3.2.

<sup>2</sup> Total POC loads calculated in Table 3-2 of this plan.

Section 6 of this Action Plan discusses the means and methods available for implementation in order to meet the required reductions identified in **Table 3-3**.

### 3.2 Means and Methods to Address Discharges from New Sources

The MS4 permit requires a discussion on the means and methods that will be utilized to address discharges into the MS4 from new sources for projects where construction was initiated between July 1, 2009 through June 30, 2019. Development or redevelopment projects for which construction was initiated between July 1, 2009 and June 30, 2019; that disturb one acre or greater; and utilize an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities require an offset of increased loads. The following means and methods are used by APS to address discharges from these new sources:

- For all construction projects disturbing greater than 2,500 square feet, APS adheres to the Arlington County Code, Chapter 60 on Stormwater Management, which provides stormwater requirements for land disturbing activities in Arlington County and are more stringent than the Virginia Stormwater Management Program (VSMP) regulations for the implementation of post-development stormwater management facilities. This includes acquiring coverage under the General Construction Permit as well as a LDA permit and development of a stormwater plan.

- APS works with ACG to minimize impervious surfaces for all new construction and additions to include parking and pervious pavement.

### 3.2.1 Construction Initiated July 1, 2009 through June 30, 2014

APS calculated new source loads associated with construction projects disturbing 1 acre or greater and initiating construction between July 1, 2009 through June 30, 2014 as required in the previous MS4 Permit, effective 2014-2018. Construction was initiated for the following three projects during that time period:

1. Wakefield High School renovation and expansion (36.3 acres);
2. Ashlawn Elementary School renovation and expansion (4.1 acres); and
3. Discovery Elementary School construction (14.7 acres).

Arlington County is the VSMP authority for APS and executes a rigorous plan review process and BMP certification process for all APS projects with land disturbance over 2,500 square feet, which exceeds the state requirement. APS calculated new source loads resulting from the increased impervious area for these three projects, which are reported in **Table 3-4**. These calculations confirm that none of the three projects result in an increased TP load of 0.45 lbs TP per acre per year or more, which is the minimum threshold that requires permittees to make reductions for new source loads. Therefore, APS is not required to make reductions due to new source loads.

**Table 3-5 – New Source Loads Initiating Construction July 1, 2009 - June 30, 2014**

Project Name	Total Disturbed Area (acres)	Pre-Dev TP Loads (lbs)	Post-Dev TP Loads (lbs)	TP Load Reduction from Post-Dev BMPs (lbs)	TOTAL TP Load Increase, minus BMP reduction (lbs)	TP Load Increase Per Acre (lbs TP/ac/yr)	Less Than 0.45 lbs TP/ac/yr <sup>1</sup> ?
Wakefield High School	36.3	29.3	30.0	2.47	-1.73	-0.05	Yes - no additional reductions required for redevelopment.
Ashlawn Elementary School	4.08	2.8	3.4	1.10	-0.50	-0.11	Yes - no additional reductions required for redevelopment.
Discovery Elementary School	14.7	7.4	16.6	5.40	4.89	0.33	Yes - no additional reductions required for redevelopment.

**Note:**

<sup>1</sup> DEQ Memo No. GM20-2003, Chesapeake Bay TMDL Special Condition Guidance (February 6, 2021) specifies that permittees do not have to make reductions beyond the 16% average land cover condition or .45lbs TP/ac/yr. This .45lbs/TP/ac/yr should be compared to the difference between the site's pre-development TP load and post-development TP load, accounting for load reductions associated with any BMPs installed for post-development.

### 3.2.2 Construction Initiated July 1, 2014 through June 30, 2019

Arlington County is the VSMP authority for APS and executes a rigorous plan review process and BMP certification process for all APS projects with land disturbance over 2,500 square feet. This plan review and BMP certification process ensures that all required offsets are incorporated. Consequently, there are no new source loads from construction initiated between July 1, 2014 through June 30, 2019.

### 3.3 Means and Methods to Offset Increased Loads from Grandfathered Projects that Began Construction after July 1, 2014

Although APS is not a VSMP authority, it complies with the water quality requirements of Arlington County, the locality and VSMP Authority in which APS' construction occurs.

Grandfathered projects are defined as those which meet the following criteria established in the DEQ Memo No. GM20-2003, Chesapeake Bay TMDL Special Condition Guidance, Part V – Chesapeake Bay TMDL Plan Elements, Pages 17-18:

*“...projects that have been approved or have an obligation of locality, state or federal funding prior to July 1, 2012, but have not received coverage under the General Permit for Discharges of Stormwater from Construction Activities prior to July 1, 2014. This permit requirement applies solely to new development, not redevelopment projects.”*

All APS construction projects qualify as redevelopment; furthermore, projects funded prior to July 1, 2012 have received stormwater permit coverage prior to July 1, 2014. APS has no construction projects that meet the criteria of grandfathered projects.



## 4. Total Reductions Achieved for Each Pollutant of Concern

The means and methods implemented to date include redevelopment-based reductions in the form of BMPs implemented between 2009 and 2021, and BMPs implemented between 2006 and 2009 that have been submitted to DEQ by the required deadline and to receive credit as historical BMPs. While the MS4 Permit requires that construction initiated through June 30, 2019 and associated BMPs are accounted for in the TMDL Action Plan, this plan incorporates construction and BMPs implemented through May 2021, to include all available information as of the date of this plan update. APS plans to purchase TN, TP, and TSS credits through an agreement with the Arlington County Water Pollution Control Plant to fulfill any remaining reduction requirements through June 30, 2023.

BMPs retrofitted and installed as part of development and redevelopment projects have achieved incremental and cumulative reductions in stormwater pollutants. Projects initiating construction between July 1, 2009 and May 2021 have yielded credit toward Chesapeake Bay TMDL reduction requirements in the following cases:

1. A BMP is designed as oversized and goes above and beyond the VSMP offset requirements due to construction; or
2. A functional BMP is retrofitted, resulting in an increased pollutant reduction rate.

Credit these BMPs are accounted for in the TMDL calculation spreadsheet, submitted with this action plan. **Table 4-1** provides a summary of the in-place reductions for each type/category of practice for this permit cycle through FY 2021. For BMPs that meet the Virginia Stormwater BMP Clearinghouse criteria, BMP Clearinghouse removal rates were used for TN and TP. For BMPs that do not meet the Virginia Stormwater BMP Clearinghouse criteria, removal rates were determined using either the Chesapeake Bay Program Efficiencies or Retrofit Curve equations, as specified in the DEQ Guidance Memo No. 20-2003, Appendix V.A, Appendix V.B, and Appendix V.C. At this time, the total 40% POC reduction requirement for TN has been met. The total 40% POC reduction requirements for TP and TSS will be met through a phosphorus and sediment credit purchase agreement with the Arlington County Water Pollution Control Plant, which will go into effect prior to June 30, 2023.

**Table 4-1 – POC Reductions from Means and Methods Implemented to Date**

Means and Methods Implemented	Total TN Reduction (lbs/yr)	Total TP Reduction (lbs/yr)	Total TSS Reduction (lbs/yr)
40% POC Reduction Requirement by June 30, 2023	126.56	16.00	13,588.34
Increased Loads from Construction 2009-2021	88.13	15.70	12,920.88
<i>Subtotal of Reduction Required</i>	<i>214.69</i>	<i>31.70</i>	<i>26,509.22</i>
BMP Credit from Construction and Retrofits (2009-2021)	-272.03	-24.28	-17,910.43
Credit from Historic BMPs (2006-2009)	-11.58	-0.92	-955.15
<i>Subtotal of BMP Credits</i>	<i>-283.61</i>	<i>-25.20</i>	<i>-18,865.58</i>
Percent of Total POC Load Reduction (100%)	68.9%	23.7%	17.5%
Required Percent of Total POC Load Reduction for Second Permit Cycle	40%	40%	40%
<b>Additional POC Load Reduction Required to Meet Second Permit Cycle Reductions (40%)</b>	<b>0</b>	<b>6.52</b>	<b>7,643.64</b>

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## **5. List of BMPs Implemented to Achieve Reductions for the Chesapeake Bay TMDL**

A list of BMPs implemented to date is included in the provided TMDL calculation spreadsheet that has been submitted alongside this Action Plan. The spreadsheet includes a tab for BMPs that were implemented along with projects initiating construction between July 1, 2009 through May 2021 and accounts for reductions associated with BMP retrofits and design of construction BMPs above VSMP offset requirements. The spreadsheet includes a separate tab documenting historical BMPs implemented between 2006 and 2009. APS claims credit for two BMPs that meet the Virginia BMP Clearinghouse criteria for a Bioretention Level 1. These historical BMPs were submitted to the DEQ and approved for full mass removal credit for TP and TN.

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## 6. Methods Implemented by the Permittee Prior to the Expiration of This Permit to Meet Cumulative Reductions

The required reductions from existing sources identified in **Table 3-3** of this Action Plan must be achieved by the end of second permit cycle, which is June 30, 2023. This section identifies the strategy that APS intends to implement by the end of the second permit cycle in order to meet the 40% reduction targets. APS had already met its 40% reduction target for TN. **In order to meet its 40% reduction targets for TP and TSS, APS intends to purchase TP and TSS credits through an Agreement with the Arlington County Water Pollution Control Plant. The agreement will be executed prior to June 30, 2023.**

**Table 6-1** summarizes the costs associated with the annual nutrient and sediment credit purchase to meet Phase II reduction requirements by June 30, 2023. Costs are based on actual quotes received from the Arlington County Water Pollution Control Plant.

**Table 6-1 – Annual Costs of Credit Purchase from Arlington County Water Pollution Control Plant**

Pollutant	Cost per Pound	Total Pounds Purchased	Total Cost
TN	\$20	0	\$0 / yr
TP	\$20	7	\$140 / yr
TSS	\$1	7,644	\$7,644 / yr
<b>Total Annual Cost of Credit Purchase</b>			<b>\$7,784 / yr</b>

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## 7. Public Comments on Draft Chesapeake Bay TMDL Action Plan

The Chesapeake Bay TMDL Action Plan will be posted to the Arlington Public Schools Stormwater Management Program website<sup>3</sup>. To solicit public comments, a notice requesting comment was sent through the APS School and Community Relations office. The opportunity to provide comments was open for over 15 days, and no public comments were received.

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<sup>3</sup> <https://www.apsva.us/aps-goes-green/stormwater-management-program/>

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## 8. References

9VAC25-890, General VPDES Permit No. VAR040127 for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, Virginia Legislative Information System, Effective 2018-2023.

Arlington Public Schools 2020 Phase II (Small) Municipal Separate Storm Sewer System (MS4) Annual Report, September 30, 2020.

Arlington Public Schools Small MS4 Program Plan, 2018-2023 Permit Cycle, Revised April 2019.

Virginia Department of Environmental Quality. Commonwealth of Virginia Department of Environmental Quality Water Division Guidance Memo No. 20-2003 (for Chesapeake Bay TMDL Special Condition requirements in the 2018-2023 General Permit for Discharges of Stormwater from Small (Phase II) MS4s), Virginia Department of Environmental Quality, Water Division, Richmond, VA, February 6, 2021.

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