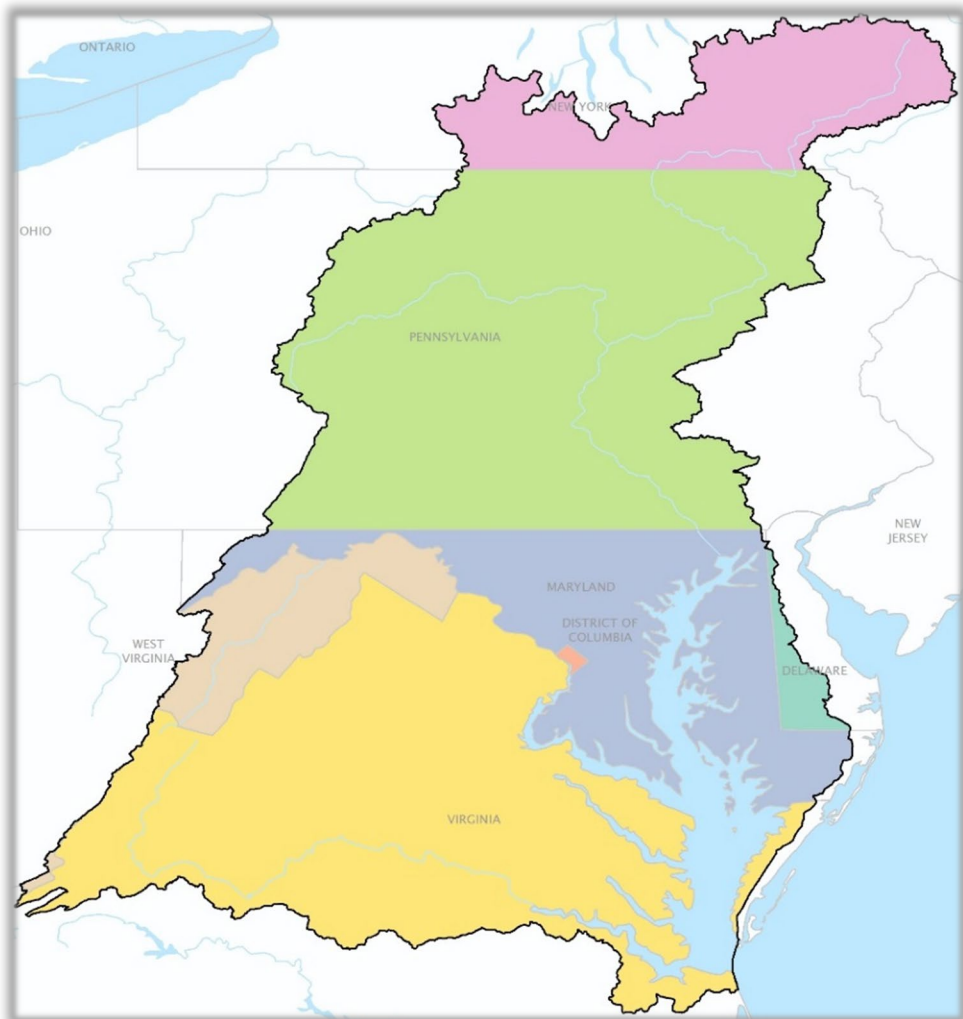


PHASE III CHESAPEAKE BAY TMDL ACTION PLAN

**A Plan for Achieving an Additional 60% Pollutant Reduction
(100% Cumulative)
in Accordance with 9VAC25-890-40 Part II A**

**October 2024
Revised June 2025**



This plan satisfies the requirements of Part I of the 2023 – 2028 MS4 General Permit (9VAC25-890-40) and Part II A of the 2023 – 2028 MS4 General Permit for Special Conditions for the Chesapeake Bay TMDL. This plan is consistent with the Chesapeake Bay TMDL and the Virginia Phase I, II, and III WIPs to meet the Level 2 (L2) scoping run for existing developed lands as it represents an implementation of 5.0%, 35% and 60% of L2. The data and analysis provided herein is based on the combined 2000 and 2010 census urbanized area.

Northern Virginia Community College



Alexandria Campus



Annandale Campus



Loudoun Campus



Woodbridge Campus

EXECUTIVE SUMMARY

Northern Virginia Community College (NOVA) is authorized to discharge stormwater from its municipal separate storm sewer system (MS4) under the Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharge of Stormwater from Small MS4s (MS4 General Permit). To maintain permit compliance, NOVA implements an MS4 Program Plan that includes best management practices (BMPs) to address six minimum control measures (MCMs) and special conditions for the Total Maximum Daily Load (TMDL) in which NOVA has been assigned a wasteload allocation (WLA). The Environmental Protection Agency (EPA) describes a TMDL as a “pollution diet” that identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards. A WLA determines the required reduction in pollutant of concern loadings from the MS4s to meet water quality standards. The MS4 General Permit serves as the regulatory mechanism for addressing the load reductions described in the TMDL, predominantly through the requirement of a TMDL Action Plan.

The Chesapeake Bay TMDL was established by the EPA on December 29, 2010, and initiated WLAs for phosphorus, nitrogen, and total suspended solids. In response, the Commonwealth of Virginia developed Watershed Implementation Plans (WIPs) that, in part, identify the MS4 General Permit as a mechanism for enforcing load reductions in urban areas. Subsequently, the Commonwealth included special conditions into the latest MS4 General Permit to address the reductions required by the TMDL for the pollutants of concern (POC). The WIPs intended the reductions to be achieved over the course of three 5-year permit cycles. The first cycle (2013 – 2018) required 5%, the second cycle (2018 – 2023) an additional 35%, and the third permit cycle (2023 – 2028) required an additional 60% of the reductions to be achieved, respectively.

NOVA developed Phase I, Phase II and Phase III Chesapeake Bay TMDL Action Plans consistent with the Virginia Department of Environmental Quality (DEQ) Guidance Memos No. 15-2005 and 20-2003. The guidance documents were used to determine the required pollutant load reductions for the previous and current permit cycles; and to evaluate the means and methods for achieving the reductions. Consistent with the DEQ Guidance documents, certain credits from historic water quality best management practices (BMPs) can be credited towards pollutant load reductions requirements. A review of NOVA’s water quality BMPs identified applicable pollutant reduction credits from five stormwater management facilities, including three bioretention BMPs, a Filterra and a retention basin. The pollutant reductions available with these BMPs exceeded the required Phase I 5% reductions for the first permit cycle (2013 – 2018). NOVA implemented street sweeping and land use change conversions to achieve the Phase II 35% required reductions for the second permit cycle (2018 – 2023). This Phase III Action Plan will discuss the additional 60% required reductions for the third permit cycle (2023 – 2028).

These means and methods along with continued inspection and maintenance of the stormwater management facilities to ensure functionality; and continued implementation of the NOVA MS4 Program Plan are consistent with the provisions of an iterative MS4 Program and constitutes compliance with the MS4 General Permit standard of reducing pollutants to the maximum extent practicable.

Table 1: Summary of POC Load Reductions

POC	Phase I (2013 – 2018)	Phase II (2018 – 2023)	Phase III (2023 – 2028)	Cumulative 100% Load Reduction
	5% Load Reduction (lbs./yr.)	35% Load Reduction (lbs./yr.)	60% Load Reduction (lbs./yr.)	Reduction (lbs./yr.)
Nitrogen	11.17	78.16	134.00	223.33
Phosphorus	1.50	10.49	17.99	29.98
TSS	1,290.82	9,035.71	N/A	N/A

Table of Contents

1.0 Introduction and Purpose	1
1.1 Total Maximum Daily Loads.....	1
1.2 MS4 General Permit Special Conditions	2
1.3 Watershed Implementation Plan and Strategy for MS4s	2
1.4 NOVA Chesapeake Bay Action Plan	2
2.0 Applicable Overview of NOVA’s MS4 Program	3
2.1 Current Program and Existing Legal Authority	3
2.2 New or Modified Legal Authorities.....	4
3.0 Pollutant of Concern Loadings	5
3.1 Baseline Loading Characterization.....	5
3.2 5% Annual Loadings from Existing Sources	5
3.3 5% Annual Loadings from New Sources and Grandfathered Projects	7
3.4 Required 5% Load Reductions	7
3.5 Required 35% Load Reductions	8
3.6 Required 40% Cumulative Load Reductions	10
3.7 Required 60% Load Reductions	11
3.8 Required Cumulative 100% Load Reductions	12
4.0 Means to Achieve 5% POC Reductions	13
4.1 5% POC Reductions Achieved from Existing BMPs.....	13
4.2 Implementation of 5% POC Reductions to the MEP.....	15
4.3 Supplemental Means and Methods for 5% POC Reductions	15
4.4 Public Comment Period 5% POC Reductions.....	15
4.5 Annual Reporting 5% POC Reductions.....	16
5.0 Means to Achieve 40% Overall POC Reductions	17
5.1 40% Overall POC Reductions Achieved with Existing BMPs	17
5.2 40% Overall POC Reductions Achieved with Street Sweeping Prior to July 1, 2022	17
5.3 40% Overall POC Reductions Achieved with Street Sweeping After July 1, 2022	18
5.4 40% Overall POC Reductions Achieved with Oversized & Redevelopment BMPs	18
5.5 Implementation of 40% POC Reductions to the MEP.....	19
5.6 Supplemental Means and Methods for 40% POC Reductions	19
5.7 Public Comment Period 40% POC Reductions.....	19
5.8 Annual Reporting 40% POC Reductions.....	20
6.0 Means to Acheive 100% Cumulative POC Reductions	21
6.1 Supplemental Means and Methods for 100% Cumulative POC Required Reductions	22
6.2 Public Comment Period for 100% Cumulative POC Required Reductions	22
6.3 Annual Reporting for 100% Cumulative POC Required Reductions	22

Tables

Table 1: Summary of POC Load Reductions.....	ii
Table 2: Classification of Campus Land Cover Area (Acres).....	5
Table 3: 5% Loadings from the Alexandria Campus	6
Table 4: 5% Loadings from the Annandale Campus	6
Table 5: 5% Loadings from the Loudoun Campus	6
Table 6: 5% Loadings from the Woodbridge Campus	6
Table 7: Estimated 5% POC Reductions from the Alexandria Campus.....	7
Table 8: Estimated 5% POC Reductions from the Annandale Campus	7
Table 9: Estimated 5% POC Reductions from the Loudoun Campus.....	8
Table 10: Estimated 5% POC Reductions from the Woodbridge Campus.....	8
Table 11: Compiled 5% POC Reductions from all NOVA Regulated Campuses.....	8
Table 12: Estimated 35% POC Reductions from the Alexandria Campus.....	9
Table 13: Estimated 35% POC Reductions from the Annandale Campus	9
Table 14: Estimated 35% POC Reductions from the Loudoun Campus.....	9
Table 15: Estimated 35% POC Reductions from the Woodbridge Campus.....	10
Table 16: Compiled 35% POC Reductions from all NOVA Regulated Campuses.....	10
Table 17: Compiled 40% Cumulative POC Reductions from Regulated Campuses.....	10
Table 18: Estimated 60% POC Reductions from the Alexandria Campus.....	11
Table 19: Estimated 60% POC Reductions from the Annandale Campus	11
Table 20: Estimated 60% POC Reductions from the Loudoun Campus.....	11
Table 21: Estimated 60% POC Reductions from the Woodbridge Campus.....	11
Table 22: Compiled 60% POC Reductions from all NOVA Regulated Campuses.....	12
Table 23: Compiled 100% Cumulative POC Reductions from Regulated Campuses.....	12
Table 24: Summary of 5% POC Reductions from the 2009 Bioretention BMP	13
Table 25: Summary of 5% POC Reductions from the 2011 Bioretention & Filterra BMPs.....	14
Table 26: Summary of 5% POC Reductions from the 2012 Retention Basin III BMP	14
Table 27: Summary of 5% POC Reductions from Existing BMPs	15
Table 28: POC Reductions from Existing BMPs.....	17
Table 29: 40% Overall POC Reductions Achieved w/ Street Sweeping Prior to July 1, 2022	18
Table 30: Summary of 40% POC Reductions	19
Table 31: Summary of 40% Overall POC Reductions	19
Table 32: Summary of 100% Cumulative POC Reductions per BMP	21
Table 33: Summary of Total 100% Cumulative POC Reductions	21

Appendices

- Appendix A: 2009 Baseline Mapping for Characterization of NOVA Campuses
- Appendix B: POC Reduction Calculations
- Appendix C: Land Use Change Map

Acronyms

BMP	Best Management Practice
CUA	Census Urbanized Area (2013 -2023) / Census Urban Area (2023 – 2028)
CWA	Clean Water Act
DEQ	Virginia Department of Environmental Quality
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
LA	Load Allocation
L2	Level 2
MCM	Minimum Control Measure
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NOVA	Northern Virginia Community College
POC	Pollutant of Concern
SWM	Stormwater Management
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorous
TSS	Total Suspended Solids
VAC	Virginia Administrative Code
VCCS	Virginia Community College System
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Stormwater Management Program
WIP	Watershed Implementation Plan
WLA	Wasteload Allocation

Definitions

Best Management Practices (BMPs) are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface waters and groundwater systems.

Census Urbanized Area (CUA) are areas identified as urban by the United States Census Bureau (latest census). MS4 regulations only apply within CUAs.

Existing Sources are pervious and impervious urban land uses served by the MS4 as of June 30, 2009.

Impervious Cover is a surface composed of material that significantly impedes or prevents natural infiltration of water into soil.

L2 Scoping Run is a model run to determine required reductions from urban sources as of June 30, 2009. The L2 reductions are summarized in the following table:

Pollutant of Concern	Regulated Impervious (%)	Regulated Pervious (%)
Nitrogen	9	6
Phosphorus	16	7.25
Sediment	20	8.75

Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains that are:

- Owned or operated by a federal state, city, town, county, district, association, or other public body, created by or pursuant to state law that discharges to surface waters;
- Designed or used for collecting or conveying stormwater;
- Not a combined sewer; and
- Not part of a publicly owned treatment works.

New Sources are pervious and impervious urban land uses served by the MS4 developed or redeveloped on or after July 1, 2009.

NOVA MS4 Program Plan is the guiding document of the NOVA's MS4 Program and includes best management practices to address conditions of the MS4 General Permit.

Pollutants of Concern (POC) are total nitrogen ("TN"), total phosphorus ("TP"), and total suspended solids ("TSS").

Prior Developed Lands are lands 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.

Transitional Sources are regulated land disturbing activities that are temporary in nature and discharge through the MS4.

1.0 INTRODUCTION AND PURPOSE

Mandated by Congress under the Clean Water Act (CWA), the National Pollutant Discharge Elimination System (NPDES) storm water program includes the Municipal Separate Storm Sewer System (MS4), Construction, and Industrial General Permits. In Virginia the NPDES Program is administered by the Department of Environmental Quality (DEQ) through the Virginia Stormwater Management Program (VSMP) and the Virginia Pollutant Discharge Elimination System (VPDES). Northern Virginia Community College (NOVA) is authorized to discharge stormwater from its MS4 under the VPDES General Permit for Discharge of Stormwater from Small MS4s (MS4 General Permit). As part of the MS4 General Permit authorization, NOVA developed and implements a MS4 Program Plan with best management practices (BMPs) to address the six minimum control measures (MCMs) and the special conditions for applicable total maximum daily loads (TMDLs), as outlined in the MS4 General Permit. Implementation of these BMPs is consistent with the provisions of an iterative MS4 Program constituting compliance with the standard of reducing pollutants to the "maximum extent practicable" or MEP.

"NVCC's MS4 program strives to improve environmental compliance, quality and stewardship through effective management, implementation, and enforcement."

The NOVA MS4 program strives to achieve environmental compliance and good stewardship through effective management, implementation, and enforcement of sound technical guidelines, criteria and practices for stormwater management and erosion and sediment control. The plan presented herein demonstrates how NOVA's MS4 Program Plan addresses sediment and nutrients (nitrogen and phosphorus) in its MS4 regulated area consistent with the requirements of the Chesapeake Bay TMDL.

1.1 Total Maximum Daily Loads

A TMDL is the total amount of a given pollutant that a waterbody can assimilate and still meet water quality standards. Typically, TMDLs are represented numerically in three main components: Waste Load Allocations (WLAs), a Load Allocation (LA), and a Margin of Safety. A WLA is the allocated amount of pollutant from areas discharging through a pipe or other conveyance considered a point source. Point sources include sewage treatment plants, industrial facilities, and storm sewer systems. In contrast, a LA is the amount of pollutant from existing non-point sources and natural background sources such as agricultural runoff and atmospheric deposition. As a point source discharge, MS4's are assigned a WLA representing the annual loading of the pollutant of concern (POC) that can be discharged from its regulated MS4 area.

1.2 MS4 General Permit Special Conditions

NOVA's MS4 General Permit includes a series of special conditions that must be addressed for permit compliance where NOVA has been assigned a WLA as part of an approved TMDL. The special conditions state that any TMDL approved by the State Water Control Board assigning a WLA to an MS4 must be addressed by the Permittee through the measurable goals of their MS4 Program Plan.

In 1998, large portions of Chesapeake Bay and its tidal tributaries within Virginia were identified as not meeting water quality standards and listed as impaired because of excess nitrogen, phosphorus, and sediment. Due to the Chesapeake Bay waters remaining on the impaired waters list, the Environmental Protection Agency (EPA) required that a TMDL be developed, which was subsequently approved on December 29, 2010.

1.3 Watershed Implementation Plan and Strategy for MS4s

The Chesapeake Bay Watershed Implementation Plans (WIPs) are plans that detail how and when the six Chesapeake Bay states and the District of Columbia will meet pollutant allocations. In the Phase I and Phase II WIPs for the Chesapeake Bay TMDL, Virginia committed to a phased approach to reducing nutrients and suspended solids discharging from MS4s. The issuance of the 2013 - 2018 MS4 General Permit set forth special conditions required by all MS4 General Permit holders within the Chesapeake Bay watershed. In part, the special conditions require the permittee to achieve 5% of the required reductions identified in the Level 2 Scoping Run from existing baseline loads by July 1, 2018, 40% by July 1, 2023, and 100% by July 1, 2028. Baseline loads are defined as those occurring on June 20, 2009, and are computed using loading rates provided in the MS4 General Permit. The issuance of the Phase III 2023-2028 MS4 General Permit removed the requirement for reducing suspended solids discharging from MS4s.

1.4 NOVA Chesapeake Bay Action Plan

The NOVA Action plan presented herein provides a review of the current MS4 program, which demonstrates NOVA's ability to ensure compliance with the special conditions and includes the means and methods NOVA used to meet 5.0% of the Level 2 (L2) scoping run reductions by July 1, 2018, and 40% reductions by July 1, 2023. This Plan also describes how NOVA anticipates meeting the 100% reductions by July 1, 2028.

This Action Plan was developed to comply with the special conditions of the MS4 General Permit (9VAC25-890) and under the advisement of DEQ's Guidance Memo No. 15-2005 and Guidance Memo No. 20-2003, which provides background information and procedures to meet the Chesapeake Bay TMDL special condition requirements.

2.0 APPLICABLE OVERVIEW OF NOVA'S MS4 PROGRAM

NOVA's MS4 Permit regulates stormwater discharges from areas included within census urbanized areas (CUAs). NOVA campuses included in CUAs include the Alexandria, Annandale, Loudoun, and Woodbridge campuses, as depicted in Appendix A. NOVA's collective efforts, as described in the NOVA MS4 Program Plan, result in significant reduction of pollutants that could potentially be discharged from its regulated MS4. BMPs already included in the NOVA Program Plan that address the Chesapeake Bay TMDL POCs, sediment and nutrients, are described in the following sub-sections. Each sub-section is provided to address the referenced special condition in the in the 2013 – 2018, 2018 – 2023, and 2023 – 2028 MS4 General Permits.

2.1 Current Program and Existing Legal Authority

As a non-traditional MS4, NOVA does not have the ability to create legal authorities and has not identified any necessary legal authorities necessary to meet the requirements of the special conditions. However, NOVA's MS4 Program includes Minimum Control Measures (MCMs) that include policies and procedures consistent with the goals of the Chesapeake Bay TMDL.

- *MCM 1 (Public Education and Outreach)* – NOVA's MS4 Program includes a Public Education and Outreach Program (PEOP) that identifies the Chesapeake Bay TMDL POCs as a high priority water quality issue. The PEOP is described in BMP 1.2 of the NOVA MS4 Program Plan and includes the distribution of educational materials regarding methods to reduce introduction of the POCs into stormwater runoff.
- *MCM 3 (Illicit Discharge Detection and Elimination)* – NOVA's MS4 Program includes an Illicit Discharge Detection and Elimination (IDDE) Program that includes written procedures to detect, identify, and address non-stormwater discharges, including illegal dumping, to the small MS4 with policies and procedures for when and how to use legal authorities. NOVA prohibits non-stormwater discharges into the storm sewer system through language provided within the Standards of Conduct for employees and the Student Handbook for students. IDDE BMPs are described in the Minimum Control Measure 3 BMPs in the NOVA MS4 Program Plan. The IDDE Program is effective at addressing the POC through staff training, prohibition of illicit discharges, and annual outfall screening.

MCM 4 (Construction Site Runoff Control) – NOVA's MS4 Program includes a Construction Site Runoff Control Program that includes mechanisms to ensure compliance and enforcement on regulated construction sites with implementation of the DEQ-approved "VCCS Standards and Specifications." The standards and specifications are consistent with the Virginia Erosion and Sediment Control and Stormwater Management Laws and Regulations. The Construction Site Runoff Control Program is especially effective at reducing downstream conveyance of sediment from transitional sources. Minimum Control Measure 4 BMPs in the NOVA MS4 Program Plan describe construction site runoff control BMPs.

The Construction Site Runoff Control Program is especially effective at reducing downstream conveyance of sediment from transitional sources. Minimum Control Measure 4 BMPs in the Brightpoint MS4 Program Plan describe construction site runoff control BMPs.

- *MCM 5 (Post-Construction Stormwater Management)* – NOVA’s MS4 Program includes a Post-Construction SWM Program that ensures water quality criteria in the Virginia Stormwater Management Regulations has been achieved on new developments and developments on prior developed land since July 1, 2009. Included among these requirements are written policies and procedures in the VCCS Standards and Specifications to ensure that stormwater management facilities are designed and installed in accordance with appropriate law and regulations. Post-construction, the Program includes schedules and written procedures to ensure long-term inspections and maintenance of stormwater management BMPs. Minimum Control Measure 5 BMPs in the NOVA MS4 Program Plan describe post-construction stormwater management BMPs.
- *MCM 6 (Good Housekeeping)* – NOVA’s MS4 Program includes a Pollution Prevention/Good Housekeeping Program that includes policies and procedures to ensure that day-to-day operations minimize the exposure of pollutants to rainfall on campus grounds to the maximum extent practicable. The program is supported with NOVA’s Pollution Prevention & Good Housekeeping Manual and biennial training for applicable staff. NOVA also utilizes contract language to ensure appropriate certifications for application of fertilizers per a Nutrient Management Plan approved by Virginia Department of Conservation and Recreation. Minimum Control Measure 6 BMPs in the NOVA MS4 Program Plan describe pollution prevention and good housekeeping BMPs.

2.2 New or Modified Legal Authorities

Consistent with the MS4 General Permit, NOVA uses an iterative approach to ensure the College is minimizing the discharge of pollutants through its MS4 to the MEP. The iterative approach is implemented through the annual reporting process with the review of the effectiveness of each MS4 Program Plan BMP. BMPs are modified, as necessary, to increase effectiveness. If new or modified authorities are identified as part of the annual measure of effectiveness as described for each BMP in the NOVA MS4 Program Plan annual reporting, they will be reported through the annual report process.

As a non-traditional MS4, NOVA does not have the ability to create legal authorities. No new policies and procedures or modifications to existing policies and procedures were identified as necessary to meet the requirements of the special conditions. Means and methods to meet the special conditions are described in Section 4.

3.0 POLLUTANT OF CONCERN LOADINGS

The 2013 – 2018 MS4 General Permit required NOVA to estimate the annual loadings and the POC load reductions 5.0% of the L2 Scoping Run reductions and 35% of L2. To complete these requirements, NOVA determined the amount of pervious and impervious land cover for their regulated campuses and input the data into the appropriate loading and reduction tables provided in the MS4 General Permit. The methodology to determine sediment and nutrient loadings and the required reductions are described in the following sub-sections.

3.1 Baseline Loading Characterization

Prior to estimating the POC loadings and required reductions, NOVA first evaluated the extent of their regulated MS4 area, including the regulated acres of urban pervious and impervious surface served by its MS4 as of June 30, 2009. These evaluations were conducted using Geographic Information System (GIS) digitization utilizing aerial photography, as depicted in Appendix A.

NOVA's MS4 regulated area was calculated using the NOVA property boundaries as a conservative estimate of the areas the MS4 serves. Campus boundaries were obtained from City of Alexandria, Fairfax County, Loudoun County, and Prince William County GIS data, for each respective regulated campus. The determination of regulated area was based on the 2010 CUA. Aerial photography was obtained from the 2009 Virginia Base Map Program Orthophotography Program Aerials¹. The extent of pervious, impervious and forest areas were digitized based on the aerial imagery using best professional judgment. For areas that were under construction or disturbed in the 2009 aerial imagery, current aerial images were used to determine whether the areas resulted in pervious or impervious surfaces after construction. A summary of baseline land cover results is provided in Table 2.

Table 2: Classification of Campus Land Cover Area (Acres)

Land Cover	Alexandria Campus	Annandale Campus	Loudoun Campus	Woodbridge Campus
Impervious	23.3	44.1	18.6	16.9
Pervious	12.6	16.5	65.9	16.2
Forest*	17.8	12.6	7.1	95.9
Surface Water*	0.0	2.6	1.5	4.7

* Consistent with methodology described in the DEQ Guidance, these areas are not included in the loading computations described in Section 3.2.

3.2 5% Annual Loadings from Existing Sources

The data summarized in Table 2 was used to estimate pollutant loads from existing sources as of June 30, 2009, using the Potomac River Basin calculation sheet for estimating existing source loads provided in the MS4 General Permit. The calculation sheet was completed for each regulated NOVA campus as provided in Tables 3 – 6.

¹ Virginia Base Map Program Orthophotography Program, 2009. <http://www.vita.virginia.gov/isp/default.aspx?id=8412>

Table 3: 5% Loadings from the Alexandria Campus

Pollutant	Regulated Urban Land Cover	Total Existing Acres Served by MS4 (06/30/09)	2009 EOS Loading Rate (lbs./acre)	Estimated Total POC Load Based on 2009 Progress Run (lbs.)	Total Load (lbs.)
Nitrogen	Impervious	23.3	16.86	392.84	519.72
	Pervious	12.6	10.07	126.88	
Phosphorus	Impervious	23.3	1.62	37.75	42.91
	Pervious	12.6	0.41	5.17	
TSS	Impervious	23.3	1,171.32	27,291.76	29,506.84
	Pervious	12.6	175.8	2,215.08	

Table 4: 5% Loadings from the Annandale Campus

Pollutant	Regulated Urban Land Cover	Total Existing Acres Served by MS4 (06/30/09)	2009 EOS Loading Rate (lbs./acre)	Estimated Total POC Load Based on 2009 Progress Run (lbs.)	Total Load (lbs.)
Nitrogen	Impervious	44.1	16.86	743.53	909.68
	Pervious	16.5	10.07	166.16	
Phosphorus	Impervious	44.1	1.62	71.44	78.21
	Pervious	16.5	0.41	6.77	
TSS	Impervious	44.1	1,171.32	51,655.21	54,555.91
	Pervious	16.5	175.8	2,900.70	

Table 5: 5% Loadings from the Loudoun Campus

Pollutant	Regulated Urban Land Cover	Total Existing Acres Served by MS4 (06/30/09)	2009 EOS Loading Rate (lbs./acre)	Estimated Total POC Load Based on 2009 Progress Run (lbs.)	Total Load (lbs.)
Nitrogen	Impervious	18.6	16.86	313.60	977.21
	Pervious	65.9	10.07	663.61	
Phosphorus	Impervious	18.6	1.62	30.13	57.15
	Pervious	65.9	0.41	27.02	
TSS	Impervious	18.6	1,171.32	21,786.55	33,371.77
	Pervious	65.9	175.8	11,585.22	

Table 6: 5% Loadings from the Woodbridge Campus

Pollutant	Regulated Urban Land Cover	Total Existing Acres Served by MS4 (06/30/09)	2009 EOS Loading Rate (lbs./acre)	Estimated Total POC Load Based on 2009 Progress Run (lbs.)	Total Load (lbs.)
Nitrogen	Impervious	16.9	16.86	284.93	448.0
	Pervious	16.2	10.07	163.13	7
Phosphorus	Impervious	16.9	1.62	27.38	34.02
	Pervious	16.2	0.41	6.64	
TSS	Impervious	16.9	1,171.32	19,795.31	22,64
	Pervious	16.2	175.8	2,847.96	3.27

3.3 5% Annual Loadings from New Sources and Grandfathered Projects

In addition to computing baseline loadings from existing conditions as of June 30, 2009, the special conditions require the determination of offsets for increased loads from development occurring on or after July 1, 2009, including grandfathered projects. No offsets are necessary for new sources since:

- Loadings from new sources are addressed with the water quality criteria in the stormwater management regulations. Water quality criteria for new sources from regulated development between July 1, 2009, and June 30, 2014, was based on an average land cover condition of 16% and therefore appropriate offsets were incorporated within the development project's stormwater management plan.
- No NOVA projects are grandfathered.

3.4 Required 5% Load Reductions

The 2013 – 2018 MS4 General Permit required NOVA to reduce 5.0% of the L2 Scoping Run POC reductions for existing sources as of June 30, 2009. The required load reductions for all four campuses were calculated using the calculation sheet in the MS4 General Permit for determining POC reductions for the Potomac River basin in DEQ's Guidance. The required load reductions for each campus are depicted in Tables 7 - 10. A summary is provided in Table 11.

Table 7: Estimated 5% POC Reductions from the Alexandria Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required First Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	23.3	0.07587	1.77	2.15
	Pervious	12.6	0.03021	0.38	
Phosphorus	Impervious	23.3	0.01296	0.30	0.32
	Pervious	12.6	0.00148625	0.02	
TSS	Impervious	23.3	11.7132	272.92	282.61
	Pervious	12.6	0.769125	9.69	

Table 8: Estimated 5% POC Reductions from the Annandale Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required First Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	44.1	0.07587	3.35	3.84
	Pervious	16.5	0.03021	0.50	
Phosphorus	Impervious	44.1	0.01296	0.57	0.60
	Pervious	16.5	0.00148625	0.02	
TSS	Impervious	44.1	11.7132	516.55	529.24
	Pervious	16.5	0.769125	12.69	

Table 9: Estimated 5% POC Reductions from the Loudoun Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required First Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	18.6	0.07587	1.41	3.40
	Pervious	65.9	0.03021	1.99	
Phosphorus	Impervious	18.6	0.01296	0.24	0.34
	Pervious	65.9	0.00148625	0.10	
TSS	Impervious	18.6	11.7132	217.87	268.55
	Pervious	65.9	0.769125	50.69	

Table 10: Estimated 5% POC Reductions from the Woodbridge Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required First Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	16.9	0.07587	1.28	1.77
	Pervious	16.2	0.03021	0.49	
Phosphorus	Impervious	16.9	0.01296	0.22	0.24
	Pervious	16.2	0.00148625	0.02	
TSS	Impervious	16.9	11.7132	197.95	210.41
	Pervious	16.2	0.769125	12.46	

Table 11: Compiled 5% POC Reductions from all NOVA Regulated Campuses

Pollutant	Alexandria Reduction (lbs.)	Annandale Reduction (lbs.)	Loudon Reduction (lbs.)	Woodbridge Reduction (lbs.)	Total Reduction Required (lbs.)
Nitrogen	2.15	3.84	3.40	1.77	11.17
Phosphorus	0.32	0.60	0.34	0.24	1.50
TSS	282.61	529.24	268.55	210.41	1,290.82

3.5 Required 35% Load Reductions

The 2018 – 2023 MS4 General Permit required NOVA to reduce 35.0% of the L2 Scoping Run POC reductions for existing sources as of June 30, 2009. The required load reductions for all four campuses were calculated using the calculation sheet in the MS4 General Permit for determining POC reductions for the Potomac River basin. The required load reductions for each campus are depicted in Tables 12 - 15. A summary is provided in Table 16.

Table 12: Estimated 35% POC Reductions from the Alexandria Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Second Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	23.3	0.53109	12.374397	15.04
	Pervious	12.6	0.21147	2.664522	
Phosphorus	Impervious	23.3	0.09072	2.113776	2.24
	Pervious	12.6	0.010404	0.13108725	
TSS	Impervious	23.3	81.9924	1,910.42292	1,978.26
	Pervious	12.6	5.383875	67.836825	

Table 13: Estimated 35% POC Reductions from the Annandale Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Second Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	44.1	0.53109	23.42107	26.91
	Pervious	16.5	0.21147	3.489255	
Phosphorus	Impervious	44.1	0.09072	4.000752	4.17
	Pervious	16.5	0.010404	0.171662	
TSS	Impervious	44.1	81.9924	3,615.865	3,704.70
	Pervious	16.5	5.383875	88.83394	

Table 14: Estimated 35% POC Reductions from the Loudoun Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Second Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	18.6	0.53109	9.87274	23.81
	Pervious	65.9	0.21147	13.93587	
Phosphorus	Impervious	18.6	0.09072	1.687392	2.37
	Pervious	65.9	0.010404	0.685607	
TSS	Impervious	18.6	81.9924	1,525.059	1,879.86
	Pervious	65.9	5.383875	354.7974	

Table 15: Estimated 35% POC Reductions from the Woodbridge Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Second Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	16.9	0.53109	8.975421	12.40
	Pervious	16.2	0.21147	3.425814	
Phosphorus	Impervious	16.9	0.09072	1.533168	1.70
	Pervious	16.2	0.010404	0.168541	
TSS	Impervious	16.9	81.9924	1,385.672	1,472.89
	Pervious	16.2	5.383875	87.21878	

Table 16: Compiled 35% POC Reductions from all NOVA Regulated Campuses

Pollutant	Alexandria Reduction (lbs.)	Annandale Reduction (lbs.)	Loudon Reduction (lbs.)	Woodbridge Reduction (lbs.)	Total Reduction Required (lbs.)
Nitrogen	15.19	26.88	23.8	12.39	78.16
Phosphorus	2.23	4.2	2.38	1.68	10.49
TSS	1,978.28	3,704.68	1,879.85	1,472.87	9,035.71

- No expanded sources identified in the 2000 and 2010 census urbanized area.
- No additional 35% reduction for new sources developed between 2009 and 2014 and for which the land use cover condition was greater than 16%.
- No modifications to the applicable loading rate provided to the operator as a result of TMDL modification.

3.6 Required 40% Cumulative Load Reductions

The required 40% cumulative load reductions for NOVA are depicted in Table 17.

Table 17: Compiled 40% Cumulative POC Reductions from Regulated Campuses

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	40% Reduction in Loading Rate (lbs./acre)	Total Reduction Required Second Permit Cycle (lbs.)	40% Reduction (lbs.)
Nitrogen	Impervious	102.9	0.60696	62.45618	89.33
	Pervious	111.20	0.24168	26.87482	
Phosphorus	Impervious	102.9	0.10368	10.66867	11.99
	Pervious	111.20	0.01189	1.322168	
TSS	Impervious	102.9	93.7056	9,642.306	10,326.52
	Pervious	111.20	6.153	684.2136	

3.7 Required 60% Load Reductions

The 2023 – 2028 MS4 General Permit will require NOVA to reduce 60.0% of the L2 Scoping Run POC reductions for existing sources as of June 30, 2009. The required load reductions for all four campuses for this permit cycle were calculated using the calculation sheet in the MS4 General Permit for determining POC reductions for the Potomac River basin. The required load reductions for each campus are depicted in Tables 18 - 21. Since each regulated campus is in the Potomac Basin, reductions are not campus-specific and therefore summed in Table 22.

Table 18: Estimated 60% POC Reductions from the Alexandria Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Third Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	23.3	0.91044	21.213252	25.78
	Pervious	12.6	0.36252	4.567754	
Phosphorus	Impervious	23.3	0.15552	3.623616	3.85
	Pervious	12.6	0.017835	0.224721	

Table 19: Estimated 60% POC Reductions from the Annandale Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Third Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	44.1	0.91044	40.1504	46.13
	Pervious	16.5	0.36252	5.98158	
Phosphorus	Impervious	44.1	0.15552	6.858432	7.15
	Pervious	16.5	0.017835	0.294278	

Table 20: Estimated 60% POC Reductions from the Loudoun Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Third Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	18.6	0.91044	16.93418	40.82
	Pervious	65.9	0.36252	23.89007	
Phosphorus	Impervious	18.6	0.15552	2.892672	4.07
	Pervious	65.9	0.017835	1.175329	

Table 21: Estimated 60% POC Reductions from the Woodbridge Campus

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	Reduction in Loading Rate (lbs./acre)	Reduction Required Third Permit Cycle (lbs.)	Total Reduction (lbs.)
Nitrogen	Impervious	16.9	0.91044	15.38644	21.26
	Pervious	16.2	0.36252	5.872824	
Phosphorus	Impervious	16.9	0.15552	2.628288	2.92
	Pervious	16.2	0.017835	0.288927	

Table 22: Compiled 60% POC Reductions from all NOVA Regulated Campuses

Pollutant	Alexandria Reduction (lbs.)	Annandale Reduction (lbs.)	Loudon Reduction (lbs.)	Woodbridge Reduction (lbs.)	Total Reduction Required (lbs.)
Nitrogen	25.78	46.13	40.82	21.26	134.00
Phosphorus	3.85	7.15	4.07	2.92	17.99

- No expanded sources identified in the 2000 and 2010 expanded census urbanized area.
- No additional 60% reduction for new sources developed between 2009 and 2014 and for which the land use cover condition was greater than 16%.
- No modifications to the applicable loading rate provided to the operator as a result of TMDL modification.

3.8 Required Cumulative 100% Load Reductions

The required 100% cumulative load reductions for NOVA are depicted in Table 23.

Table 23: Compiled 100% Cumulative POC Reductions from Regulated Campuses

Pollutant	Regulated Urban Land Cover	Existing Acres Served by MS4 (06/30/09)	100% Reduction in Loading Rate (lbs./acre)	Total Reduction Required Third Permit Cycle (lbs.)	100% Reduction (lbs.)
Nitrogen	Impervious	102.9	1.1574	156.1405	223.33
	Pervious	111.20	0.6042	67.18704	
Phosphorus	Impervious	102.9	26.67168	26.67168	29.98
	Pervious	111.20	0.029725	3.30542	

4.0 MEANS TO ACHIEVE 5% POC REDUCTIONS

DEQ's Guidance Memo 15-2005 was used to identify appropriate means and methods for achieving the required reductions computed in Section 3.4. A review of NOVA's existing stormwater management facilities determined that the required reductions were achieved for the 2013 - 2018 MS4 General Permit cycle as described in the following sub-sections.

Reduction credits described in this section demonstrate compliance with the reduction requirements for the 2013 - 2018 MS4 General Permit cycle with the understanding that any changes in established BMP efficiencies will not be retroactively applied to projects approved to meet reductions for the MS4 General Permit cycle.

4.1 5% POC Reductions Achieved from Existing BMPs

Consistent with the DEQ Guidance, certain credits from historic water quality BMPs can be credited towards pollutant load reductions requirements. Specifically, permittees can receive full credit from BMPs that were:

- Initially installed on or after January 1, 2006, and prior to July 1, 2009, and constructed to address water quality within the permittee's regulated service area; and
- Initially installed after June 30, 2009, if credit is only taken for reductions achieved more than the reductions required by the SWM regulations water quality criteria for the development.

A review of NOVA's water quality BMPs found one water quality BMP installed on or after January 1, 2006, and prior to July 1, 2009, described as follows:

- In April 2009, a bioretention facility, as described in the Virginia Stormwater Management Handbook, was installed on the Alexandria campus as part of a plan completed by EYP Architecture & Engineering, P.C., entitled "Northern Virginia Community College New Construction Phase III Renovation Phase I & II." Consistent with the stormwater regulations water quality criteria at the time, design computations for the bioretention demonstrate phosphorus reductions based on a 16% land cover condition. To quantify the amount of phosphorus, nitrogen and sediment being removed by the bioretention facility, water quality calculations were conducted based on the Chesapeake Bay Program Retrofit Equations. Computations are provided in Appendix B and summarized in Table 24.

Table 24: Summary of 5% POC Reductions from the 2009 Bioretention BMP

Pollutant	Load Reduction Provided by BMP (lbs./yr.)
Nitrogen	7.49
Phosphorus	0.68
TSS	492.69

A review of NOVA's water quality BMPs also identified four BMPs initially installed after June 30, 2009, that provide reductions more than the reductions required by the SWM regulations water quality criteria for the associated development. Each are described as follows:

- In June 2011, two bioretention filters, as described in the Virginia Stormwater Management Handbook, and a Filterra structure were installed on the Loudoun campus as part of a plan completed by EYP Architecture & Engineering, P.C., titled "Northern Virginia Community College Loudoun Phase III North Parking Lot." The plan indicated that pollutant removal requirements for the development were met and exceeded by 0.06 pounds of phosphorus per year. Calculations to determine the proportional nitrogen and sediment reductions achieved were computed based on the DEQ Guidance and are included in Appendix B and summarized in Table 25.

Table 25: Summary of 5% POC Reductions from the 2011 Bioretention & Filterra BMPs

Pollutant	Load Reduction Required for Associated Development (lbs./yr.)	Load Reduction Provided (lbs./yr.)	Remaining Credit (lbs./yr.)
Nitrogen	N/A	21.61	0.39
Phosphorus	3.27	3.33	0.06
TSS	N/A	2,939	52.90

- In July 2012, a retention basin III, as described in the Virginia Stormwater Management Handbook, was installed on the Loudoun campus as part of a plan completed by EYP Architecture & Engineering, P.C., entitled "Northern Virginia Community College Loudoun Phase III." Water quality compliance for the development was achieved utilizing the retention basin III BMP, referred to as "Pond 2" on the design plan, and two other existing BMPs installed prior to 2006. The design plan demonstrated that pollutant removal requirements were met and exceeded. To determine the amount of credit remaining in the retention basin III BMP, additional water quality calculations were performed and are included in Appendix B. The computations determined 1.88 pounds of phosphorus reduction per year is achieved more than what was required by the development. Calculations to determine the proportional nitrogen and sediment reductions achieved were computed based on DEQ's Guidance and are included in Appendix C and summarized in Table 26.

Table 26: Summary of 5% POC Reductions from the 2012 Retention Basin III BMP

Pollutant	Load Reduction Required for Associated Development (lbs./yr.)	Load Reduction Provided (lbs./yr.)	Remaining Credit (lbs./yr.)
Nitrogen	N/A	16.70	4.01
Phosphorus	5.99	7.87	1.88
TSS	N/A	3,406	817.53

The sum of the reductions summarized in Tables 20 and 21 exceeds the required POC reductions identified in Section 3.4. Therefore, the existing BMPs served as the means to meet the required reductions in accordance with the Chesapeake Bay TMDL special conditions for the 2013 – 2018 permit cycle. Required and provided reductions for NOVA are summarized in Table 27.

Table 27: Summary of 5% POC Reductions from Existing BMPs

Pollutant	5% Reductions Required by L2 Scoping Run (lbs./yr.)	Reductions Provided By 2009 Bioretention (lbs./yr.)	Remaining Reductions Provided By 2011 Bioretentions/ Filterra (lbs./yr.)	Remaining Reductions Provided By 2012 Retention Basin III (lbs./yr.)	Total Reductions Provided by Existing BMPs (lbs./yr.)
TN	11.17	7.49	0.39	4.01	11.89
TP	1.50	0.68	0.06	1.88	2.62
TSS	1,290.82	492.69	52.90	817.53	1,363.12

In summary, the existing BMPs exceeded the required 5% reductions.

4.2 Implementation of 5% POC Reductions to the MEP

Implementation of the 2013 – 2018 Action Plan was dependent on continued execution of the NOVA MS4 Program Plan. MS4 Program Plan BMPs was implemented per the schedules outlined in the NOVA MS4 Program Plan.

Since the 2013 – 2018 Action Plan was supported with existing stormwater BMPs, all actions were incorporated into the financially supported implementation of NOVA’s MS4 Program Plan. Therefore, an estimate of expected costs was considered neutral.

4.3 Supplemental Means and Methods for 5% POC Reductions

In addition, the remaining Minimum Control Measure BMPs described in Section 2.1 were implemented by NOVA as part of the NOVA MS4 Program Plan. Continued implementation of these BMPs demonstrates implementation of the NOVA Chesapeake Bay Action Plan to the maximum extent practicable and demonstrates adequate progress.

4.4 Public Comment Period 5% POC Reductions

NOVA solicited public comments on the Plan and considered all comments that were provided for potential plan modifications. Public comment was provided through the following means:

- A draft of the Chesapeake Bay TMDL Action plan was posted on NOVA’s website for a minimum of 7 total days.
- An email was sent to the target audience identified in Minimum Control Measure 1 of the NOVA MS4 Program Plan with a link where the public commented on the Plan.

4.5 Annual Reporting 5% POC Reductions

The effectiveness of the Action Plan was measured through the MS4 General Permit annual reporting requirement. NOVA reported annually on the implementation of the BMPs described in Section 4.1 of this Plan.

5.0 MEANS TO ACHIEVE 40% OVERALL POC REDUCTIONS

Prior to July 1, 2022, DEQ’s Guidance Memo No. 15-2005 was used to identify appropriate means and methods for achieving the required reductions computed in Section 5.2. After July 1, 2022, DEQ’s recent Guidance Memo No. 20-2003 was used to identify appropriate means and methods for achieving the required reductions computed in Section 5.3. The means and methods are described in the following sub-sections and is incorporated into the NOVA MS4 Program Plan for implementation.

POC load reductions described in the following sub-sections demonstrate compliance with the reduction requirements for the 2013 – 2018 and 2018 - 2023 MS4 General Permit cycles with the understanding that any changes in established BMP efficiencies will not be retroactively applied to projects approved to meet reductions for this MS4 General Permit cycle.

5.1 40% Overall POC Reductions Achieved with Existing BMPs

The existing BMPs described in Section 4.0 and summarized in Table 28 were used to partially satisfy the required 40% overall reduction.

Table 28: POC Reductions from Existing BMPs

Pollutant	5% Reductions Provided by Existing BMPs (lbs./yr.)
Nitrogen	11.89
Phosphorus	2.62
TSS	1,363.12

5.2 40% Overall POC Reductions Achieved with Street Sweeping Prior to July 1, 2022

Prior to July 1, 2022, NOVA implemented street sweeping to satisfy the required POC reductions. The “mass loading approach,” as described in DEQ’s Guidance Memo No. 15-2005, was used to determine the extent of street sweeping efforts to be implemented. Per the mass loading approach, the overall weight of material collected through street sweeping is multiplied by a dry weight factor and then a factor specific to each POC to quantify the pollutant reductions achieved. Given the target pollutant reductions and the dry weight and POC factors, it was determined that NOVA must collect a minimum of 44,252 pounds of material per year to meet the POC reduction requirements. Required reductions achieved through sweeping efforts prior to July 1, 2022, are summarized in Table 29.

Table 29: 40% Overall POC Reductions Achieved w/ Street Sweeping Prior to July 1, 2022

Pollutant of Concern (POC)	40% Annual Reductions Required of L2 (lbs./yr.)	Existing BMP Reduction Credit (Section 6.1)	Revised 40% Annual Reductions Required (lbs./yr.)	Dry Weight Factor	POC Multiplication Factor	40% Required Street Sweeping Material Weight (lbs./yr.)
Nitrogen	89.33	11.89	77.44	0.7	0.0025	44,251.43
Phosphorus	11.99	2.62	9.37	0.7	0.001	13,385.71
TSS	10,326.52	1,363.12	8,963.40	0.7	0.3	42,682.86

5.3 40% Overall POC Reductions Achieved with Street Sweeping After July 1, 2022

During the 2022 - 2023 reporting year, NOVA continued to implement street sweeping to partially satisfy the required POC reductions identified in Section 3.6 in accordance with DEQ's Guidance Memo No. 20-2003. The "revised street cleaning module," as described in the Guidance Memo was used to determine the extent of street sweeping efforts to be implemented. Table 1 within Appendix V.G – Street Cleaning Section of the Guidance Memo reflects the module's preferences to use regenerative air sweepers and sweeping frequency to increase nutrient sediment reduction rates. Nutrient and sediment reductions are provided for various street sweeping practices (SCP).

Using the standard street cleaning unit of one mile of curb miles swept on one-side and one acre equivalent for parking lots to one curb lane mile swept, NOVA has determined the number of total "curb lane miles" on their property. It was calculated that NOVA has 80.85 curb lane miles on their MS4 properties. Using the nutrient and sediment loading rates for urban impervious cover for the Potomac River provided in the 2018 – 2023 MS4 General Permit (9VAC25-890-40), the required nutrient reductions were calculated. NOVA selected SCP-3: 1 Pass Per 2 Weeks to implement to partially meet the required nutrient and sediment reductions.

5.4 40% Overall POC Reductions Achieved with Oversized & Redevelopment BMPs

In addition to street sweeping, NOVA selected several calculation methodologies from the DEQ Guidance Memo (GM) 20-2003 to quantify additional available reductions. NOVA evaluated existing BMPs built after June 30, 2009, for oversized reductions in accordance with Appendix V.A of the DEQ Guidance Memo. A summary is provided in Table 2 of Appendix B. NOVA also evaluated BMPs built after June 30, 2009 for redevelopment reductions in accordance with Appendix V.E of the DEQ GM 20-2003. A summary is provided in Table 3 in Appendix B. A spreadsheet with the calculations is available upon request for Tables 1 - 3.

During the 2022 – 2023 reporting year, NOVA evaluated the regulated properties to identify areas that had already been converted and areas to convert from turf to mixed open or forest through landscape maintenance practices. One land use change was identified on the Alexandria Campus to have been converted from 0.72 acres of turf to mixed open beginning in 2010. Calculations are provided in Appendix B and a map is provided in Appendix C. During the 2022 – 2023 reporting year, NOVA implemented storm drain cleaning as a BMP. The calculations are provided in Appendix B. Table 30 depicts the 40% POC reductions achieved by NOVA based on the selected best management practices. Table 31 provides a summary of 40% overall POC reductions.

Table 30: Summary of 40% POC Reductions

POC	BMPs Installed Prior to 7/1/2009 (lbs./yr.)	BMPs Installed After 6/30/2009 (lbs./yr.)	Redevelopment BMPs (lbs./yr.)	Land Use Change (lbs./yr.)*	Storm Drain Cleaning (lbs./yr.)	Street Sweeping (lbs./yr.)
TN	7.49	25.90	8.92	3.8	9.56	9.29
TP	0.68	5.30	1.69	0.83	2.12	2.68
TSS	492.69	0	0	0	0	3,872.38

* Street Sweeping reductions were not fully satisfied in the 2022 – 2023 reporting year due to mechanical and staffing issues. However, street sweeping at the appropriate frequency will be conducted in subsequent reporting years.

Table 31: Summary of 40% Overall POC Reductions

POC	Total 40% Reductions Achieved (lbs./yr.)	40% Reductions Required (lbs./yr.)
TN	64.96	89.33
TP	13.30	11.99
TSS	4,365.07	10,326.52

5.5 Implementation of 40% POC Reductions to the MEP

Implementation of the 2018 – 2023 Action Plan was dependent on continued execution of the NOVA MS4 Program Plan. MS4 Program Plan BMPs were implemented per the schedules outlined in the NOVA 2018 – 2023 MS4 Program Plans.

5.6 Supplemental Means and Methods for 40% POC Reductions

In addition, the remaining Minimum Control Measure BMPs described in Section 2.1 were implemented by NOVA as part of the NOVA MS4 Program Plan. Continued implementation of these BMPs demonstrates implementation of the NOVA Chesapeake Bay Action Plan to the maximum extent practicable and demonstrates adequate progress.

5.7 Public Comment Period 40% POC Reductions

NOVA solicited public comments on the Plan and considered all comments that were provided for potential plan modifications. Public comment was provided through the following means:

- A draft of the Chesapeake Bay TMDL Action plan was sent via email to the target audience identified in Minimum Control Measure 1 of the NOVA MS4 Program Plan with a link where comments can be provided on the Action Plan for 15 days.

5.8 Annual Reporting 40% POC Reductions

The effectiveness of the Action Plan was measured through the MS4 General Permit annual reporting requirement. NOVA reported annually on the implementation of the BMPs described in Sections 4.0 and 5.0 of this Plan.

6.0 MEANS TO ACHIEVE 100% CUMULATIVE POC REDUCTIONS

Implementation of the Phase III Action Plan will be dependent on continued execution of the NOVA MS4 Program Plan and implementation of new BMPs to meet the required additional 60% or cumulative 100% reductions. NOVA calculated the remaining 60% additional POC reductions required.

NOVA solicited bids for the purchase of the remaining nutrient credits required during the 2023 – 2024 permit year. During the 2024 – 2025 permit year, a bid was awarded, and the purchase of the remaining required credits were finalized.

NOVA plans to continue to street sweep annually. NOVA selected SCP-4: 1 Pass Per 4 Weeks to implement to meet the required POC reductions annually. Refer to Table 5 in Appendix B for the calculations. Table 32 summarizes the BMPs that will be implemented to achieve the required additional 60% reductions or cumulative 100% reductions during this permit cycle. A summary of the 100% cumulative POC reductions is provided in Table 33.

Table 32: Summary of 100% Cumulative POC Reductions per BMP

POC	BMPs Installed Prior to 7/1/2009 (lbs./yr.)	Oversized BMPs Installed After 6/30/2009 (lbs./yr.)	Redevelopment BMPs (lbs./yr.)	Land Use Change (lbs./yr.)	Street Sweeping (lbs./yr.)*	Nutrient Credit Purchase (lbs./yr.)**
TN	7.49	25.90	8.92	3.80	13.63	163.59
TP	0.68	5.30	1.69	0.83	3.93	28.39

* The full reductions associated with the street sweeping annual practice are included.

** 163.58 TN and 28.39 TP nutrients credits were purchased under contract number VCCS-NVCC-24-35307-ECO Nutrient Credits for NVCC-TMDL-Grist Mill NB; and .01 TN and .0037 TP nutrient credits were purchased under contract number VCCS-VCCS-24-35307-CBA Nutrient Credits for NVCC-VSMP Whispering Hills.

Table 33: Summary of Total 100% Cumulative POC Reductions

POC	Reductions Achieved to Date (lbs./yr.)*	Cumulative 100% Required Reduction (lbs./yr.)
TN	223.33	223.33
TP	40.82	29.98

* The reductions associated with the storm drain cleaning annual practice are not included in the 60% reductions (100% cumulative reductions).

6.1 Supplemental Means and Methods for 100% Cumulative POC Required Reductions

In addition, the remaining Minimum Control Measure BMPs described in Section 2.1 will be implemented by NOVA as part of the NOVA MS4 Program Plan. Continued implementation of these BMPs demonstrates implementation of the NOVA Chesapeake Bay Action Plan to the maximum extent practicable and demonstrates adequate progress.

6.2 Public Comment Period for 100% Cumulative POC Required Reductions

NOVA solicited public comments on the Plan and considered all comments that were provided for potential plan modifications. Public comment was provided through the following means:

- A draft of the Chesapeake Bay TMDL Action plan was sent via email to the target audience identified in Minimum Control Measure 1 of the NOVA MS4 Program Plan with a link where comments could be provided on the Action Plan for 15 days.

6.3 Annual Reporting for 100% Cumulative POC Required Reductions

The effectiveness of the Action Plan will be measured through the Chesapeake Bay annual reporting requirement as described in the 2023 – 2028 MS4 General Permit. NOVA will report annually on the implementation of the BMPs described in Section 7.0 of this Plan.

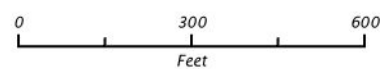
Appendix A: 2009 Baseline Mapping for Characterization of NOVA Campuses



Prepared by J. Bradley, October 11, 2024
Sources: 2009 VGIN Imagery
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



**ALEXANDRIA CAMPUS
IMPERVIOUS AND PERVIOUS LAND COVER**
NORTHERN VIRGINIA COMMUNITY COLLEGE



Prince William, Virginia

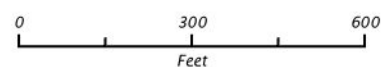
-  Campus Boundary
-  Impervious
-  Pervious



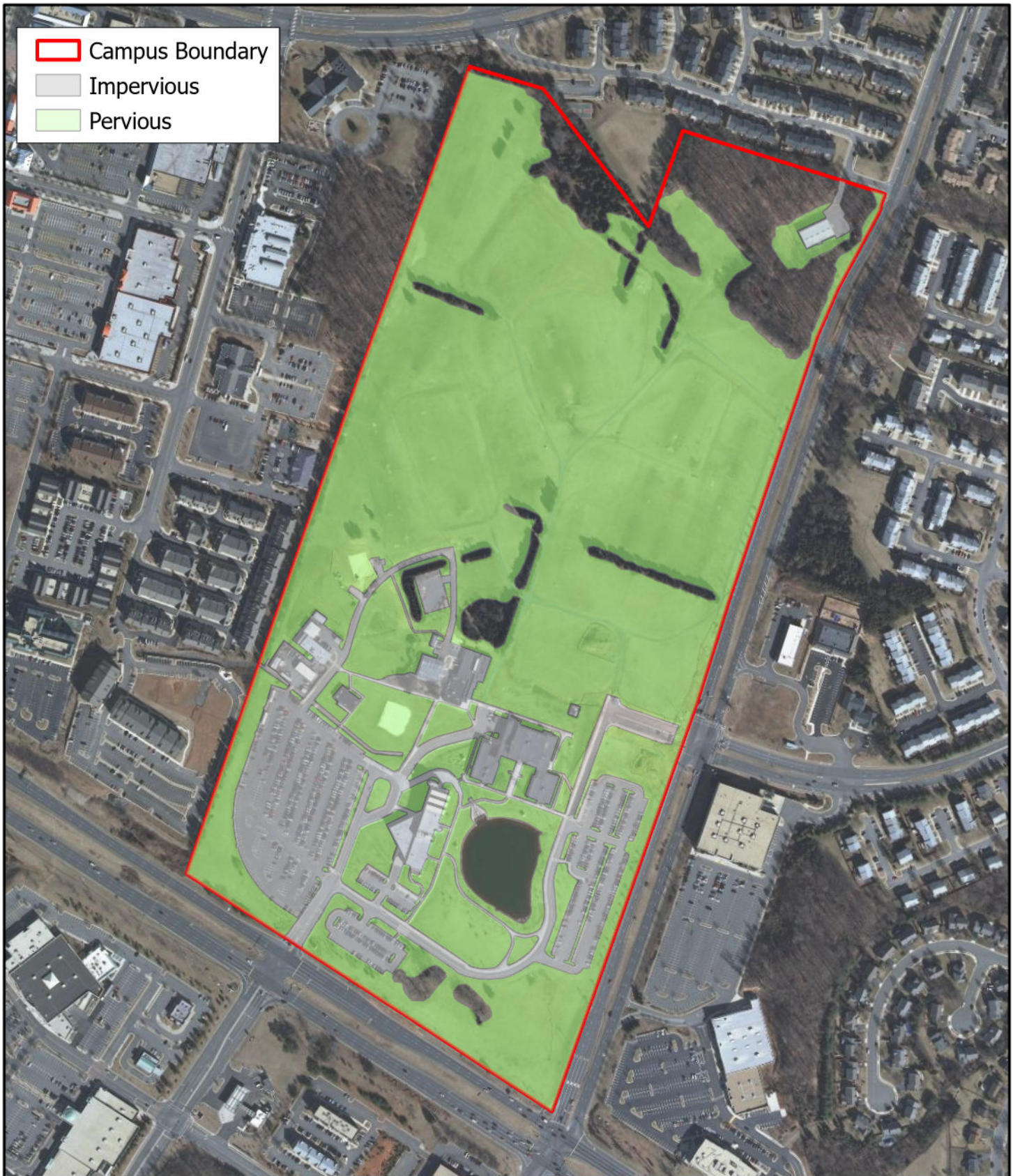
Prepared by C. Ferguson, October 11, 2024
 Sources: 2009 VGIN Imagery
 Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



ANNANDALE CAMPUS
IMPERVIOUS AND PERVIOUS LAND COVER
 NORTHERN VIRGINIA COMMUNITY COLLEGE



Prince William, Virginia



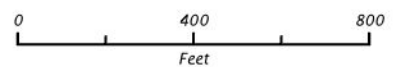
-  Campus Boundary
-  Impervious
-  Pervious



Prepared by C. Ferguson, October 11, 2024
Sources: 2009 VGIN Imagery
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



**LOUDOUN CAMPUS
IMPERVIOUS AND PERVIOUS LAND COVER**
NORTHERN VIRGINIA COMMUNITY COLLEGE



Prince William, Virginia

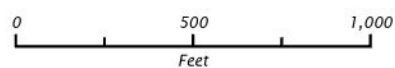
-  Campus Boundary
-  Impervious
-  Pervious



Prepared by C. Ferguson, October 11, 2024
 Sources: 2009 VGIN Imagery
 Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



WOODBIDGE CAMPUS
IMPERVIOUS AND PERVIOUS LAND COVER
 NORTHERN VIRGINIA COMMUNITY COLLEGE



Prince William, Virginia

Appendix B: POC Reduction Calculations

Table 1: Reductions for BMPs Installed after January 1, 2006, and prior to July 1, 2009

BMP	TN Reductions (lbs./yr.)	TP Reductions (lbs./yr.)	Implementation Date
AL-1 Bioretention	7.49	0.68	06/30/2009

Table 2: Reductions for Oversized BMPs Installed after June 30, 2009

BMP	TN Reductions (lbs./yr.)	TP Reductions (lbs./yr.)	Implementation Date
AL-3 & AL-4 Bioretentions	9.74	1.38	06/30/2017
AL-5, AL-6, AL-7 & AL-8 Infiltration Practices	0.97	0.14	06/30/2017
AL-10 Bioretention	0.87	6.99	06/30/2019
AN-4, AN-5 & AN-8 Bioretentions	1.72	0.18	06/30/2015
AN-6 & AN-7 Filterrras	0.28	0.05	06/30/2015
LO-1 Retention Pond	2.19	4.63	06/30/2012
LO-4 Vegetated Roof	0.05	0.31	06/30/2015
LO-5 Filterra	0.04	0.01	06/30/2011
LO-6 & LO-7 Bioretention	0.38	0.05	06/30/2011
LO-13 & LO-14 Proprietary Hydrodynamic (Barracuda)	0.00	0.10	06/30/2023
LO-15 Proprietary Filtering (Isolator Row)	0.00	0.16	06/30/2023
LO-16 Bioretention	0.84	0.12	06/30/2023
TOTAL	25.90	5.30	

Table 3: Reductions for Redevelopment BMPs installed after June 30, 2009

BMP	TN Reductions (lbs./yr.)	TP Reductions (lbs./yr.)	Implementation Date
AL-3 & AL-4 Bioretentions	6.73	0.95	06/30/2017
AL-5, AL-6, AL-7 & AL-8 Infiltration Practices	0.67	0.10	06/30/2017
AL-10 Bioretention	0.16	0.02	06/30/2019
LO-13, LO-14, LO-15 & LO-16 Proprietary Devices	1.36	0.62	06/30/2023
TOTAL	8.92	1.69	

Table 5: Reductions for Street Sweeping (Phase III)

Campus/Street Cleaning Practice	Total Lane Miles per Pass	TN Reductions (lbs./yr.)	TP Reductions (lbs./yr.)	TSS Reductions (lbs./yr.)
Alexandria - SCP-S4 (1 pass /4 weeks)	22.80	3.84	1.10	NA
Annandale– SCP-4 (1 pass /4 weeks)	31.67	5.34	1.54	2,225.74
Loudoun– SCP-4 (1 pass /4 weeks)	12.69	2.14	0.62	NA
Woodbridge – SCP-4 (1 pass /4 weeks)	13.69	2.31	0.67	NA
TOTAL	80.85	13.63	3.93	-

Street Sweeping Calculations

The Annandale campus is used in the below example to demonstrate the calculations in Table 5:

TN: (Lane Miles X Potomac River TN Load) X SCP-4 TN Removal Rate = lbs./yr. Reduction

$$TN: (31.67 \times 16.86).01 = 5.34 \text{ lbs./yr.}$$

TP: (Lane Miles X Potomac River TP Load) X SCP-4 TP Removal Rate = lbs./yr. Reduction

$$TP: (31.67 \times 1.62).03 = 1.54 \text{ lbs./yr.}$$

TSS: (Lane Miles X Potomac River TSS Load) X SCP-4 TSS Removal Rate = lbs./yr. Reduction

$$TSS: (31.67 \times 1,171.32).06 = 2,225.74 \text{ lbs./yr.}$$

Land Use Change Calculations

Areas converted from turf to mixed open on Alexandria (regulated) Campus: 0.72 acres

Table V.H.1 Potomac Land Use Change Conversion Efficiency Table				
From	Conversion	TN (lb./ac/yr.)	TP (lb./ac/yr.)	TSS (lb./ac/yr.)
Turf	Mixed Open	5.28	1.15	0

TN: Acres converted X Mixed Open to Forest TN = lbs./yr. Reduction

$$TN: 0.72 \times 5.28 = 3.80 \text{ lbs./yr.}$$

TP: Acres converted X Mixed Open to Forest TP = lbs./yr. Reduction

$$TP: 0.72 \times 1.15 = 0.83 \text{ lbs./yr.}$$

Storm Drain Cleaning Calculations

Table V.G.1 Storm Drain Cleaning Dry Weight Calculation			
Type of Solid Material	Weight of initial wet material (lbs.)	Conversion Factor	Dry Weight (lbs.)
Wet sediment	5,056	0.7	3,539.20

Table V.G.2 Mean Nutrient Enrichment Factor to Apply to Dry Weight Mass of Solids Physically Removed From Storm Drains

Type of Material Captured	Nutrient %	Enrichment Factor	Dry Weight (lbs.)	TN	TP
Catch basin sediment	TN/TP	0.06/0.27	3,539.20	9.56	2.12

Appendix C: Land Use Change Map



Prepared by C. Ferguson, 10/11/2024
Sources: VCIN, VBMP 2009
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



APPENDIX D LANDCOVER CONVERSION NVCC - ALEXANDRIA CAMPUS

0 250 500
Feet

Alexandria, VA