



DRAFT Chesapeake Bay TMDL Action Plan

Reporting Period: October 1, 2023 – October 31, 2028
Permit Number: VAR040075

In compliance with the Virginia Stormwater Management Program (VSMP) General Permit

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Chesapeake Bay TMDL Action Plan

Second TMDL Action Plan Requirements

Legal Authority

Requirements:

Any new or modified legal authorities, such as ordinances, permits, policy, specific contract language, orders, and interjurisdictional agreements, implemented or needing to be implemented to meet the requirements of Part II A 3, A 4, and A5.

Response:

This is the third Chesapeake Bay TMDL Action Plan submittal. All existing legal authorities are noted below. A review has been completed and existing legal authorities are sufficient, except the items noted below. Contract language has been established for future temporary and permanent credit purchases.

Legal Authorities Needing Updates

- Section 7-6 of the City Code; Illicit Discharges and Connections Ordinance
 - This ordinance will be updated to reflect the new language in 9VAC25-890-20
- Contract language prohibiting illicit discharges
 - Language is missing in our contract general terms and conditions

Existing Legal Authorities, <http://www.harrisonburgva.gov/code>

- Section 6-5 of the City Code; Stormwater Utility Fee Ordinance
- Section 7-6 of the City Code; Illicit Discharges and Connections Ordinance
- Section 10-4 of the City Code; Erosion and Sediment Control Ordinance
- Section 10-7 of the City Code; Stormwater Management Ordinance
- Section 10-2 of the City Code; Subdivision Ordinance
- Section 10-3 of the City Code; Zoning Ordinance
- Section 7-3-3.(e) of the City Code; Sewer System Ordinance
- Section 9-6 of the City Code; Public Tree Ordinance
- Design & Construction Standards Manual
- Some of the above ordinances and documents reference the Virginia Erosion and Sediment Control Regulations and the Virginia Erosion & Sediment Control Handbook

Load and Cumulative Reduction Calculations

Requirements:

An estimate of the annual POC loads discharged from the existing sources as of June 30, 2009, based on the Chesapeake Bay Watershed Model Progress Run 5.3.2. The existing developed acres were calculated by determining the extent of the MS4 regulated service area based on the 2010 Census Urbanized Area (CUA) and delineating the lands within the 2010 CUA served by the MS4 as pervious or impervious as of the baseline date of June 30, 2009. The loading was calculated by multiplying the loading rate by the MS4 regulated area.

Response:

Using the best data available at the time, Table 1 below shows the City's MS4 acreages and Table 2 shows the City's estimate of annual POC loads discharged. The acreages and loading used are the same as the first Chesapeake Bay TMDL Action Plan submittal. An explanation of how subsources were calculated is provided in *Appendix A: Explanation of Estimate Annual POC Loads 2009*.

	Total MS4 (ac)
Impervious	3,010
Pervious	3,547
Forest	281
Total	6,839

¹ Acreage methodology found in Appendix A: Explanation of Estimate of Annual POC Loads 2009

Pollutant	Subsource	Loading Rate (lbs/ac/yr)	Existing developed lands as of 6/30/09 served by the MS4 within the 2010 CUA (acres)	Loading (lbs/ac/yr)
Nitrogen	Regulated Urban Impervious	16.86	3,010	50,749.60
	Regulated Urban Pervious	10.07	3,547	35,718.29
Phosphorus	Regulated Urban Impervious	1.62	3,010	4,876.20
	Regulated Urban Pervious	0.41	3,547	1,454.27
Total Suspended Solids	Regulated Urban Impervious	1,171.32	3,010	3,525,673.20
	Regulated Urban Pervious	175.80	3,547	623,563.60

²Table 2 was taken from *Table 3b: Calculation for Estimating Existing Source Loads and Reduction Requirements for the Potomac River Basin* in the 2023-2028 General Permit.

Total Reductions Achieved as of July 1, 2023

Requirements:

The total reductions achieved as of July 1, 2023, for each pollutant of concern in each river basin. The determination of the total pollutant load reductions necessary was based on the 2023-2028 General Permit methodology, which required the pollutant reductions be determined by multiplying the total existing acres served by the MS4 by the first permit cycle required reduction in loading rate. These

required reductions are outlined in Table 3 below. The total reductions achieved are outlined in Table 4 below.

Response:

Using the best data available at the time, below is the City’s estimate of Total POC Reductions required during 2023-2028 permit cycle, as well as a summary of the total reductions achieved as of July 1, 2023.

Pollutant	Subsource	Loading Rate (lbs/ac/yr)	Existing developed lands as of 6/30/09 served by the MS4 within the 2010 CUA (acres)	Load (lbs/yr)	Percentage of MS4 required Chesapeake Bay total L2 loading reduction	100% cumulative reduction required by 10/31/2028 (lbs/yr)	Sum of 100% cumulative reduction (lbs/yr)
Nitrogen	Regulated Urban Impervious	16.86	3,010	50,749	0.09	4567.41	6710
	Regulated Urban Pervious	10.07	3,547	35,718	0.06	2143.08	
Phosphorus	Regulated Urban Impervious	1.62	3,010	4,876	0.16	780.16	886
	Regulated Urban Pervious	0.41	3,547	1,454	0.07	105.42	
Total Suspended Solids	Regulated Urban Impervious		3,010	0		0.00	0
	Regulated Urban Pervious		3,547	0		0.00	

³Table 3 was taken from *Table 3b: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the Potomac River Basin* in the 2023-2028 General Permit.

Pollutant	Total Reduction Required Second Permit Cycle (lbs)	Total Reduction Achieved
Nitrogen	2,684	3,262.98
Phosphorus	354	1,089.02

Total Suspended Solids	303,897	512,603.42
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BMPs Implemented Prior to November 1, 2023

Requirements:

The list of BMPs implemented prior to November 1, 2023 to achieve reductions associated with the Chesapeake Bay TMDL, including: the date of implementation and the reductions achieved.

Response:

The following practices were implemented prior to November 1, 2023 by the City to meet required reductions. Calculation methodologies for each practices are outlined in the appendices.

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Table 5: Summary of Completed BMPs

Type of BMP	Project Name	Date Implemented	Location	Reductions (lbs/yr)		
				TP	TN	TSS
Permanent Water Quality Trading Credits	As Needed		Nutrient Credit Market	8	59.44	571.44
Temporary Water Quality Trading Credits	As Needed (annual)	Annual	HRRSA	73	115	151,989
Stream Restoration	North End Greenway Stream Restoration	2020	North End Greenway	117.90	256.10	40,660.00
Stream Restoration	Mountain View Drive Stream Restoration	2023	Harrisonburg, VA	144.97	415.90	49,980
Stream Restoration	Blacks Run South Stream Restoration-Phase 1	2023	Harrisonburg, VA - PW	685.8	1489.19	236,438.53
Street Sweeping	Street Sweeping (annual)	Annual	Harrisonburg, VA	12.09	42.61	17,478.86
Storm Drain Cleaning	Storm Drain Cleaning (annual)	Annual	Harrisonburg, VA	29.41	132.34	14,704.20
Septic to Sanitary Sewer Connections	Septic to Sanitary Sewer Connections (since 2006)	Specific locations and dates available upon request	Harrisonburg, VA	0	584.66	0
Homeowner BMPs	Homeowner BMPs (annual)	Specific locations and dates available upon request	Harrisonburg, VA	10.61	134.98	0
BMP Retrofits	HCAP Program	Specific locations and dates available upon request	Harrisonburg, VA	0.26	1.21	258.20
Bioreactor	Bioreactor	2019	Purcell Park	0	Pending	0
Urban Tree Canopy Expansion	New Tree Planting	Specific locations and dates available upon request	Harrisonburg, VA	4.05	18.11	524.23
Land Conversion: Turf to Mixed Open	Pollinator Habitats (1.82 ac)	Specific locations and dates	Harrisonburg, VA	2.93	13.44	0

		available upon request				
	Total			1061.48	3202.86	356,990.97
	Amount Needed by 2023			354	2,684	303,897

BMPs to be Implemented During 2023- 2028 Permit Cycle

Requirements:

The list of BMPs to be implemented prior to November 1, 2028 (permit expiration), to meet the cumulative reductions calculated based on the permit methodology.

Response:

Table 6 lists a summary of BMPs that are proposed to be implemented to meet the required reductions outlined above in Table 3. Where available more in-depth information, including percent removal efficiencies for each pollutant of concern, is located in the appendix item for each BMP.

Additional BMPs necessary to meet the required reductions will be identified based on the Stormwater Improvement Plan which is currently being updated. This TMDL Action Plan will use the adaptive management approach so that if better practices are identified, the City may substitute alternative practices. The City of Harrisonburg reserves the right to make adjustments to this plan and to substitute any practices and projects that can achieve Pollutant of Concern (POC) reductions. Any substitutions or additions will be reported to DEQ in future annual reports and this TMDL Action Plan submittal.

Type of BMP	Project Name	Anticipated Date Implemented	Location	Reductions (lbs/yr)	
				TP	TN
Bioreactor	Bioreactor	2019	Purcell Park	0	300
Enhanced Extended Detention Basin	VMRC	2026	Harrisonburg, VA- VMRC	32.43	196.52
Detention Pond	Woodland Drive VDOT BMP	2028	Harrisonburg, VA	10	80
Stream Restoration	Blacks Run South Stream Restoration-Phase 2	2023	Harrisonburg, VA - PW	390.96	848.65
New Tree Planting (assuming 50 trees/yr)	Various tree plantings	2028	Harrisonburg, VA	1.31	0.30
BMPs Identified in 2023 SWIP Update				100	2,602
			Total	534.7	4,027.47
			Amount Needed for 2023-2028 Permit Cycle	531	4,027

Public Comment for TMDL Action Plan

Requirements:

Prior to submittal of the final action plan, the permittee shall provide an opportunity for public comment on the additional BMPs proposed to meet the reductions not previously approved in the first phase Chesapeake Bay TMDL action plan for no less than 15 days.

Response:

A 15 day public comment period was held September 21 – October 5, 2023. One written comment was received to add storm drain labeling informing they drain to the Chesapeake Bay. One verbal comment was received about flooding concerns on a city street. The Action Plan was not modified in response to these comments.

Additional edits to the Action Plan will have a 15-day public comment period. Public comment periods will be noted in Appendix D, as applicable. An opportunity for receipt and consideration of public comment regarding the draft Chesapeake Bay TMDL Action Plan will be provided through the following mediums:

- City Website; www.harrisonburgva.gov
- Harrisonburg Public Works Facebook Page; www.facebook.com/harrisonburgpublicworks
- Harrisonburg Public Works Instagram Page; [hbgpublicworks](https://www.instagram.com/hbgpublicworks)
- Advertisements in Local Newspaper, Local Television Station, and Local Radio Station

Comments will be accepted through social media, hardcopy mediums and e-mail.