



STAUNTON TMDL 2023 & 2028 PERMIT CYCLES

September 22, 2022

TABLE OF CONTENTS

1. MS4 History
2. 2018 Plan
3. Current Status
4. Plan Revisions
5. Recommendations

LOAD REDUCTION BY PERMIT CYCLE

- Staunton became an MS4 in 2013
 - 5% load reduction by 2018 waived due to date of MS4
- Current permit cycle (L2) ends June 30, 2023
 - Need to achieve 40% load reduction
- Next permit cycle (L3) begins July 1, 2023 and ends June 30, 2028
 - Need to achieve 100% load reduction

2018 PLAN

Table 1 - Load Reduction Calculation (2018 Plan)

SITE	BMP TYPE	POLLUTANT REDUCTIONS (lbs/ac/yr)		
		TN	TP	TSS
Existing Load Reduction		3,272	1,201	378,350
Peyton Creek Stream Restoration 1	Stream Restoration	63	57	37,523
Peyton Creek Stream Restoration 2	Stream Restoration	26	24	15,659
Green Hills Wet Pond 1	BMP Retrofit	115	11	7,713
Green Hills Wet Pond 2	BMP Retrofit	347	44	34,996
Green Hills Wet Pond 3	BMP Retrofit	188	21	15,855
Wharf Pavers	Permeable Pavers	0.80	0.11	728
Central Avenue Streetscape	Redevelopment	8	1	567
Anticipated Projects Subtotal		748	158	113,041
Total Reductions to be Implemented by 2023		4,020	1,359	491,391
Required 2nd Cycle Reductions		1,799	210	173,409
Excess Load Reductions		2,221	1,149	317,982

2018 PLAN PROGRESS

Table 2 - Load Reduction Calculation (Updated 2022)

SITE	BMP TYPE	POLLUTANT REDUCTIONS (lbs/ac/yr)		
		TN	TP	TSS
Existing Load Reduction ¹		421	53	50,481
		3,272	1,201	378,350
Peyton Creek Stream Restoration	Stream Restoration	367	57	19,659
Green Hills Wet Pond 1	BMP Retrofit	115	11	7,713
Green Hills Wet Pond 2	BMP Retrofit	347	44	34,996
Green Hills Wet Pond 3	BMP Retrofit	188	21	15,855
Wharf Pavers	Permeable Pavers	0.80	0.11	728
Central Avenue Streetscape	Redevelopment	8	1	567
Cole Avenue Stream Restoration	Stream Restoration	50	25	100,000
Green Thumb Park Bio-Retention	Bio-Retention	13	1	782
Western State Land Conversion	Land Use Change	1,064	0	20,460
Anticipated Projects Subtotal		1,494	83	140,901
Total Reductions to be Implemented by 2023		1,915	136	191,382
Required 2nd Cycle Reductions ²		1,798	209	173,409
Excess Load Reductions		117	-73	17,973

1. VA DEQ Guidance Memo No. 20-2003 revised the load reduction calculations which reduced effectiveness of Street Sweeping by 97%.

2. Guidance Memo clarified L2 and L3 required reduction calculations. Change is minimal relative to required load reductions calculated with 2015 Guidance Memo.

REVISED PLAN FOR L2 PERMIT

Table 6: Proposed Projects for 2018-2023 Permit Cycle

SITE	BMP TYPE	POLLUTANT REDUCTIONS (lbs/yr)		
		TN	TP	TSS
Existing Load Reduction ¹		421	53	50,481
		3,272	1,201	378,350
Asylum Creek Stream Restoration	Stream Restoration	79	71	47,000
Cole Avenue Stream Restoration	Stream Restoration	50	25	100,000
Gypsy Hill Park Stream Restoration	Stream Restoration	367	57	19,659
Staunton High School Stream Restoration	Stream Restoration	38	34	22,000
Western State Land Conversion	Land Use Change	1,064	0	20,460
Anticipated Projects Subtotal		1,598	187	209,119
Total Reductions to be Implemented by 2023		2,019	240	259,600
Required 2nd Cycle Reductions ²		1,798	209	173,409
Excess Load Reductions		221	31	86,191
Notes:				
1. Struck-through values are the existing load reductions calculated in the previous version of this report using the outdated Guidance Memo No. 15-2005 (2015)				
2. See Table 3				

2023 – 2028 PERMIT CYCLE 100% REDUCTION REQUIRED

Table 4 - Load Reduction Calculation (L3 2023-2028 Permit Cycle)

SITE	BMP TYPE	POLLUTANT REDUCTIONS (lbs/ac/yr)			COST (2022\$)	
		TN	TP	TSS		
Excess Load Reduction Carry Over from L2		221	31	86,191		
Staunton High School Stream Restoration	Stream Restoration	367	57	19,659	\$	1,135,745
Western State Hospital 100% MS4	Stream Restoration	150	136	89,760	\$	1,615,282
Green Hills Wet Pond 1 - Level 1	BMP Retrofit	189	72	26,179	\$	1,203,899
Green Hills Wet Pond 2 - Level 2	BMP Retrofit	41	148	6,001	\$	912,774
Green Hills Wet Pond 3 - Level 2	BMP Retrofit	66	14	4,038	\$	580,778
Anticipated 2023-2028 Projects Subtotal		813	427	145,637	\$	5,448,478
Total Reductions to be Implemented by 2028		1,034	458	231,828		
Required 3rd Cycle Reductions		4,495	522	433,524		
Excess Load Reductions		-3,461	-64	-201,696		
Nutrient Credit		3,461	272	Varies	\$	6,000,000
Total Cost					\$	11,000,000+

RECOMMENDED NEXT STEPS

- Implementation of current TMDL Action Plan
- Additional study to determine cost effective opportunities
- Evaluate current stormwater funding program