



STORMWATER MANAGEMENT PROGRAM TOTAL MAXIMUM DAILY LOAD/POLLUTANT REDUCTION PLAN

Springfield Township

Montgomery County, Pennsylvania
1510 Paper Mill Road,
Wyndmoor, PA 19038

February 2026



photo source: Springfield Township Parks & Recreation

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TABLE OF CONTENTS

Acronym & Abbreviation Definitions	1
1.0 Purpose and Scope.....	2
2.0 Permit Requirements	2
3.0 Background/Setting	4
3.1 Sandy Run	5
3.2 Wissahickon Creek.....	6
3.3 Unnamed Tributaries to Schuylkill River	7
4.0 Pollutant Reduction	7
4.1 Public Participation.....	7
4.2 Storm Sewersheds	7
4.3 Pollutants of Concern	8
4.4 Existing Sediment and Nutrient Loading.....	9
4.5 Proposed Best Management Practices.....	12
4.5.1 Basin Retrofits	15
4.5.2 New Basin BMPs	17
4.5.3 Stream Restoration	19
4.6 Long-Term Objectives for the Wissahickon Creek TMDL	20
4.7 Funding Mechanisms.....	20
4.8 Operations and Maintenance	20
5.0 Conclusions.....	22
Appendices.....	23
Appendix A: Copy of Public Notice.....	24
Appendix B: Public Comment and Response.....	25
Appendix C: Map of Planning Area and Parsed Areas	26
Appendix D: Proposed and Existing BMPs	27
Appendix E: Pollutant Reduction Calculations	28

LIST OF TABLES

Table 1. Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal) Excerpt (revised 11/18/2019).....	3
Table 2. Information from 2014 Integrated Report for Sandy Run and UNT to Sandy Run.....	6
Table 3. Information from 2014 Integrated Report for Wissahickon Creek and UNTs to Wissahickon Creek	6
Table 4. Information from 2014 Integrated Report for UNTs to Schuylkill River	7
Table 5. Excerpt from MS4 Requirements Table (Municipal) (revised 11/18/2019).	8
Table 6. Impervious and pervious land cover within the Plymouth Creek-Schuylkill River Watershed PRP Planning Area per the PA DEP Statewide MS4 Land Cover Estimates.....	10
Table 7. Impervious and pervious land cover within the Lower Wissahickon Creek Watershed PRP Planning Area per the PA DEP Statewide MS4 Land Cover Estimates	10
Table 8. Existing pollutant loading and required reductions for sediment & nutrients within the Plymouth Creek-Schuylkill River Watershed PRP Planning Area of Springfield Township	10
Table 9. Existing pollutant loading and required reductions for sediment & nutrients within the Lower Wissahickon Creek Watershed PRP Planning Area of Springfield Township.....	11
Table 10. Existing pollutant loading and required reductions for sediment & nutrients within the PRP Planning Area of Springfield Township	11
Table 11. Existing pollutant loading and required reductions for sediment & nutrients within PRP Planning Area of Springfield Township	11
Table 12. Existing BMP sediment and nutrient reductions	12
Table 13. Pollutant reductions for proposed BMPs.....	14
Table 14. Operations and maintenance responsibilities for BMPs	21

LIST OF FIGURES

Figure 1. Location of Springfield Township within Montgomery County	4
Figure 2. Streams and watersheds within Springfield Township. UNT = Unnamed Tributary.	5
Figure 3. Skyline Drive Basin Retrofit during construction.	16
Figure 4. Integrity Avenue New Basin during construction.	18
Figure 5. Sandy Run Country Club New Basin immediately post-construction.....	18

APPENDICES

- Appendix A: Copy of Public Notice
- Appendix B: Public Comment and Response
- Appendix C: Planning Area, Parsed Areas, and Land Cover Map
- Appendix D: Proposed and Existing BMPs
- Appendix E: Pollutant Reduction Calculations

ACRONYM & ABBREVIATION DEFINITIONS

Acronym/Abbreviation	Definition
AVGLWF	ArcView Generalized Watershed Loading Function
BMP	Best Management Practice
CAD	Computer-Aided Design
CMAC	Continuous Monitoring and Adaptive Control
CWP	Center for Watershed Protection
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
HUC	Hydrologic Unit Code
MS4	Municipal Separate Storm Sewer System
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PA DEP	Pennsylvania Department of Environmental Protection
PennDOT	Pennsylvania Department of Transportation
PERT	Pennypack Ecological Restoration Trust
PRP	Pollutant Reduction Plan
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UA	Urbanized Area
UNT	Unnamed Tributary
USGS	U.S. Geological Survey
WQIP	Water Quality Improvement Plan

1.0 PURPOSE AND SCOPE

Springfield Township is required to develop and implement a Total Maximum Daily Load (TMDL) Plan for Municipal Separate Storm Sewer System (MS4) discharges to Wissahickon Creek and a Pollution Reduction Plan (PRP) for MS4 discharges to unnamed tributaries to the Schuylkill River within the Plymouth Creek watershed as part of their 2018 National Pollutant Discharge Elimination System (NPDES) MS4 Individual Permit (PAI30070). This permit was approved by Pennsylvania Department of Environmental Protection (PA DEP) with an effective date of October 1, 2024. This document will serve as the single plan for both the TMDL and PRP and was prepared based on the best and most current guidance made available by PA DEP. To support the development of this PRP, an online mapping application was created and may be accessed at:

<https://arcg.is/vz1eO>

2.0 PERMIT REQUIREMENTS

Springfield Township is required by the PA DEP and Environmental Protection Agency (EPA) to reduce sediment pollution from stormwater discharges to surface waters impaired by and/or with an EPA established Total Maximum Daily Load (TMDL) for siltation by ten (10) percent and to reduce total phosphorus (TP) pollution from stormwater discharges to surface waters impaired by nutrients, organic enrichment/low dissolved oxygen (DO), or excessive algal growth by five (5) percent, respectively, within five (5) years of October 1, 2024, the effective date of Springfield Township's NPDES MS4 Individual Permit (i.e. by September 30, 2029). This is to be accomplished by implementing projects or Best Management Practices (BMPs) designed to reduce sediment and nutrients in stormwater.

Springfield has MS4 discharges or "outfalls" to Wissahickon Creek, Sandy Run (a tributary of Wissahickon Creek), and within the watershed for unnamed tributaries (UNT) to the Schuylkill River that are within the Plymouth Creek-Schuylkill River HUC12 watershed, which have Total Maximum Daily Loads established for and/or are listed by the 2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report (Integrated Report) as impaired for siltation (i.e., sediment), nutrients, or other causes. These TMDL and impaired waters are highlighted in Table 1 below. The Township has aggregated pollutant loading in this plan per this table. Springfield also encompasses a small portion of the Tacony Creek-Frankford Creek HUC12 watershed, which contains stormwater infrastructure but no impaired streams or MS4 outfalls.

Table 1. Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal) Excerpt (revised 11/18/2019)

MS4 Name	Permit Number	HUC12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Springfield Twp	PAG130078**	Lower Wissahickon Creek	Sandy Run, Wissahickon Creek, Wissahickon TMDL	Appendix B-Pathogens, Appendix E*-DO/BOD, Nutrients, Siltation, TMDL Plan-Siltation, Suspended Solids
		Plymouth Creek – Schuylkill River	Unnamed Tributaries to Schuylkill River, Wissahickon TMDL	Appendix E-DO/BOD, Nutrients, Siltation, TMDL Plan-Siltation, Suspended Solids
		City of Philadelphia-Schuylkill River, Plymouth Creek-Schuylkill River	Schuylkill River	Appendix C-PCB

*Appendix E refers to Appendix E: Pollutant Reduction Plan Requirements for Discharges to Waters Impaired for Nutrients and/or Sediment of the PAG-13 General Permit (3800-PM-BPNPSM0100d, revised 3/2015).

**This is Springfield Township’s old permit number which is listed in the PA DEP table. The new permit number is PAI30070, as stated in Section 1.0.

3.0 BACKGROUND/SETTING

Springfield Township is located in Montgomery County, PA (Figure 1). The township covers approximately 6.7 square miles and has a population of 20,814 as of the 2020 U.S. Census. The entirety of the Township is located within the Pennsylvania Department of Environmental Protection (PA DEP) MS4 Regulated Area, which is comprised of the 2010 U.S. Census Urbanized Area plus 2020 U.S. Census Urbanized Areas with a population of 50,000 or more.

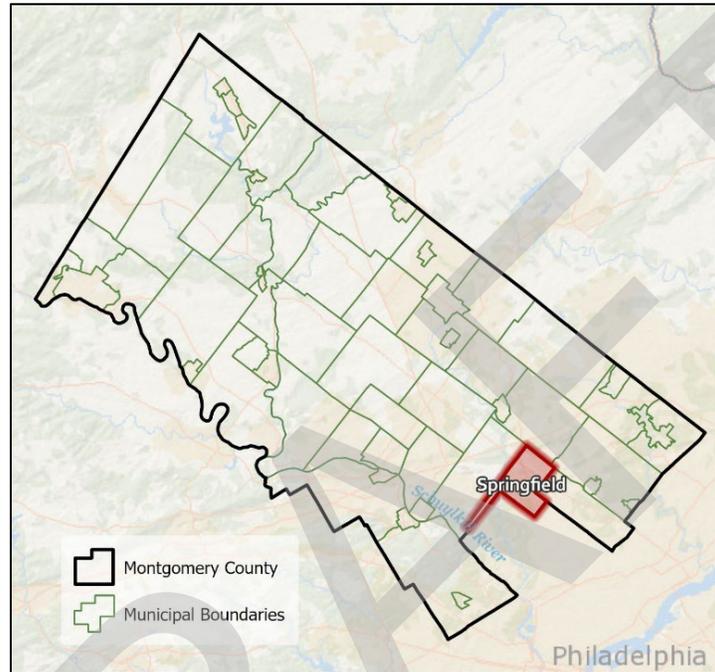


Figure 1. Location of Springfield Township within Montgomery County

Within the Township are portions of the Lower Wissahickon Creek, Tacony Creek - Frankford Creek, and Plymouth Creek-Schuylkill River HUC12 Watersheds. Figure 2 illustrates the streams that flow through the Township and highlights those with impairments. Additional details on impaired streams within the Township are found in the sections below. The portion of Tacony Creek - Frankford Creek Watershed that lies within the Township does not contain any known streams, impaired or unimpaired.

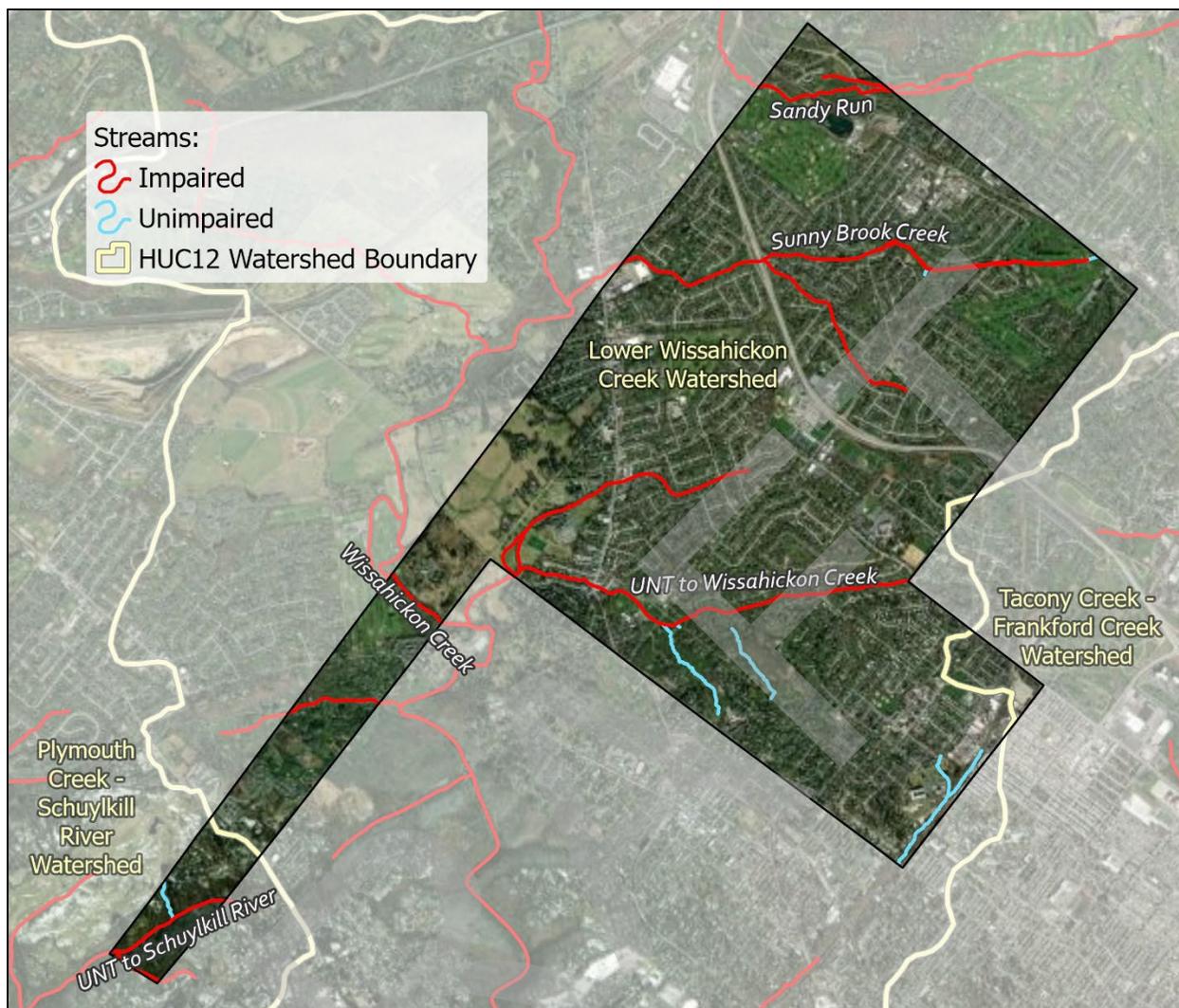


Figure 2. Streams and watersheds within Springfield Township. UNT = Unnamed Tributary.

3.1 Sandy Run

Approximately 0.65 miles of Sandy Run and 0.29 miles of an unnamed tributary to Sandy Run flow from east to west through the northern corner of Springfield, just north of the Sandy Run Country Club. Sandy Run and its tributary are impaired for nutrients and Biological Oxygen Demand (BOD), and Sandy Run alone is also impaired for siltation, pathogens, flow regime modification, habitat alterations, and cause unknown. Table 2 lists the impairment information for both streams from the 2014 Integrated Report.

Table 2. Information from 2014 Integrated Report for Sandy Run and UNT to Sandy Run

Impairment Cause	Impairment Source	Category	Assessed Use	Date Listed
Sandy Run and UNT to Sandy Run				
Nutrients	Municipal Point Source Discharges; Urban Runoff/Storm Sewers	4a	Aquatic Life	1996
BOD	Municipal Point Source Discharges	4a	Aquatic Life	1996
Sandy Run				
Siltation	Urban Runoff/Storm Sewers	4a	Aquatic Life	2002
Pathogens	Municipal Point Sources Discharges	5	Recreational	1996
Flow Regime Modification	Urban Runoff/Storm Sewers; Source Unknown	4c	Aquatic Life	2002
Habitat Alterations	Habitat Modification – Other than Hydromodification	4c	Aquatic Life	2002
Cause Unknown	Urban Runoff/Storm Sewers	4a	Aquatic Life	2002

3.2 Wissahickon Creek

Approximately 0.32 miles of Wissahickon Creek flow through the southern panhandle of Springfield near Whitmarsh Valley Country Club, passing under E. Northwestern Avenue. Additionally, the Township contains roughly 9.03 miles of unnamed tributaries to Wissahickon Creek, 7.13 miles of which are listed as impaired. One of these tributaries is locally named Sunny Brook Creek, as seen in Figure 2. Wissahickon Creek and its tributaries are listed as impaired for nutrients, siltation, flow regime modification, habitat alterations, and cause unknown, with Wissahickon Creek alone also listed as impaired for pathogens. Table 3 lists the impairment information for Wissahickon Creek and the portions of UNTs to Wissahickon Creek that fall within the Township from the 2014 Integrated Report. Wissahickon Creek has TMDLs for ammonia nitrogen, nitrate-nitrite, orthophosphate, and carbonaceous biochemical oxygen demand per the EPA report Wissahickon Creek TMDL, dated October 2003. Wissahickon Creek also has a draft TMDL for phosphorus per the draft EPA report Total Phosphorus TMDL for the Wissahickon Creek, dated May 2015.

Table 3. Information from 2014 Integrated Report for Wissahickon Creek and UNTs to Wissahickon Creek

Impairment Cause	Impairment Source	Category	Assessed Use	Date Listed
Wissahickon Creek and UNTs to Wissahickon Creek				
Nutrients	Urban Runoff/Storm Sewers; Municipal Point Source Discharges (Wissahickon Creek only)	4a	Aquatic Life	1998
Siltation	Urban Runoff/Storm Sewers	4a	Aquatic Life	1998
Flow Regime Modification	Urban Runoff/Storm Sewers; Source Unknown	4c	Aquatic Life	1998
Habitat Alterations	Habitat Modification – Other than Hydromodification	4c	Aquatic Life	1998
Cause Unknown	Urban Runoff/Storm Sewers	4a	Aquatic Life	1998
Wissahickon Creek				
Pathogens	Source Unknown	5	Recreational	2010

3.3 Unnamed Tributaries to Schuylkill River

Approximately 0.97 miles of unnamed tributaries to the Schuylkill River flow through the southern tip of Springfield, southwest of Ridge Pike, before emptying into the Schuylkill River to the east of the Township. Roughly 0.78 miles of these tributaries are listed as impaired for siltation, flow regime modification, and cause unknown. Table 4 lists the impairment information for the portions of the unnamed tributaries to the Schuylkill River that fall within the Township from the 2014 Integrated Report.

Table 4. Information from 2014 Integrated Report for UNTs to Schuylkill River

Impairment Cause	Impairment Source	Category	Assessed Use	Date Listed
Siltation	Urban Runoff/Storm Sewers	5	Aquatic Life	2002
Flow Regime Modification	Urban Runoff/Storm Sewers	4c	Aquatic Life	2002
Cause Unknown	Urban Runoff/Storm Sewers	5	Aquatic Life	2002

4.0 POLLUTANT REDUCTION

The MS4 Individual Permit and PA DEP PRP Instructions developed by PA DEP (3800-PM-BCW0100k Rev. 3/2017) required the following elements: Public Participation, Storm Sewersheds (i.e. Planning Area), Pollutants of Concern, Existing Sediment and Nutrient Loading, Proposed Best Management Practices (BMPs), Funding Mechanisms, and Operations and Maintenance. The following sections detail each of these topics.

4.1 Public Participation

Details for this section will be added after the required 30-day public comment period. Elements to be added include a copy of the public notice, a copy of all written comments received, and a record of consideration of all comments received (Appendices A and B).

4.2 Storm Sewersheds

The PRP Instructions state that storm sewersheds should be delineated for each of the MS4 outfalls that discharge to streams listed as impaired for sediment and/or nutrients, which ultimately becomes the basis for the Planning Area for which existing pollutant loading is calculated. Per coordination with PA DEP, the approach taken for this PRP was to include the entire watershed to each sediment/nutrient-impaired stream in the existing pollutant loading, then parse out large contiguous privately owned areas that drain directly to the stream. This saved time in the planning process and also allowed for a larger area to be considered for proposed BMPs.

The Planning Area for Springfield Township consists of the PA DEP MS4 Regulated Area, which is the entirety of the Township, less areas that were parsed out per guidelines provided in Attachment A of the PRP Instructions and listed below. For the purposes of developing this PRP, parsing is defined as a process in which land area is removed from the Planning Area in order to calculate the pollutant loads that are applicable to the MS4 of Springfield Township. Examples of land that can be parsed from a Planning Area include:

1. The land area associated with non-municipal stormwater NPDES permit coverage that exists within the urbanized area of a municipality.

2. Land area associated with PennDOT roadways and the Pennsylvania Turnpike (roads and right of ways).
3. Lands associated with the production area of a Concentrated Animal Feeding Operation that is covered by an NPDES permit.
4. Land areas in which stormwater runoff does not enter the MS4. If an accurate storm sewershed map is developed, these lands may be parsed or excluded as part of that process. Potential examples include homeowner’s associations and schools which do not contain municipal roads or other municipal infrastructure.

Land draining directly to streams without entering the MS4 (example #4 above) was manually delineated in Autodesk AutoCAD Civil3D using one (1) foot topographic contours derived from a 2008 Digital Elevation Model produced by the Pennsylvania Mapping Program. Land area associated with Pennsylvania Department of Transportation (PennDOT) roadways were also parsed from the Planning Area (example #2). The portion of the Tacony Creek-Frankford Creek watershed contained within the Township was not included in the Planning Area since this watershed is not included in the MS4 Requirements Table (Municipal) (Table 7), and because it contains no impaired streams or MS4 outfalls.

The resulting Planning Area consists of approximately 3,276.96 acres (or 5.12 square miles) and is shown in Appendix C. The PRP Planning Area for Springfield consists of portions of the Plymouth Creek-Schuylkill River Watershed (hereafter referred to as the Plymouth Creek-Schuylkill River Watershed PRP Planning Area) and the Lower Wissahickon Creek Watershed (hereafter referred to as the Lower Wissahickon Creek Watershed PRP Planning Area). Combined, these areas will be referred to as the PRP Planning Area.

4.3 Pollutants of Concern

Springfield Township is required to identify and address pollutants of concern for the PRP Planning Area. According to PRP Instructions, pollutants of concern are based on the impairment listings for surface waters to which Springfield discharges stormwater, as provided in the MS4 Requirements Table (Municipal). Pollutants of concern for Springfield are sediment and nutrients (nitrogen and phosphorus). See Table 5 for Springfield’s requirements.

Table 5. Excerpt from MS4 Requirements Table (Municipal) (revised 11/18/2019).

MS4 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment Date Listed
Springfield Township	Schuylkill River	Appendix C-PCB (4a)*	
	Unnamed Tributaries to Wissahickon Creek		Other Habitat Alterations (4c)
	Unnamed Tributaries to Schuylkill River	Appendix E-Siltation (5)	Water/Flow Variability (4c)
	Sandy Run	Appendix B-Pathogens (4a), Appendix E-DO/BOD, Nutrients (4a)	Other Habitat Alterations, Water/Flow Variability (4c)
	Wissahickon Creek	Appendix E-Nutrients (4a), Appendix B-Pathogens (5)	Water/Flow Variability (4c)
	Wissahickon TMDL	TMDL Plan-Siltation, Suspended Solids (4a)	Cause Unknown (4a)

Springfield is required to address pollutant loads in stormwater discharges to receiving waters considered impaired for nutrients and/or sediment. A body of water is considered impaired if it fails to meet one or more water quality standards. Pollutants of concern for Springfield are sediment (siltation) and nutrients (nitrogen and phosphorus).

Springfield is required to reduce sediment loading by ten percent and TP loading by five percent to the Schuylkill River, Wissahickon Creek, and Sandy Run within five years of the effective date of Springfield Township's NPDES MS4 General Permit (by September 30, 2029). PA DEP has allowed the Township to aggregate existing pollutant loading and proposed reductions for these three watersheds.

In addition, it is assumed that a 10% reduction in sediment loading will also accomplish a 5% reduction in TP loading. However, a reduction in nutrient loading is not assumed to accomplish a commensurate reduction in sediment loading. Springfield has elected to utilize this presumptive approach of using a 10% sediment reduction as the objective in this PRP.

4.4 Existing Sediment and Nutrient Loading

Per the PA DEP Pollutant Aggregation Suggestions for MS4 Requirements Table Instructions (dated 4/4/2017) and the Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal) (revised 11/18/2019), Springfield Township may achieve the ten (10) percent sediment pollutant reduction and the five (5) percent TP pollutant reduction across the entire Planning Area, as opposed to a 10 percent and 5 percent reduction in each pollutant loading, respectively, for each receiving impaired surface water. Per PA DEP, the Planning Areas for the Lower Wissahickon Creek watershed (Sandy Run, Wissahickon Creek) and the Plymouth Creek-Schuylkill River (UNTs to Schuylkill River) watershed may be aggregated into one Planning Area.

To determine existing sediment and nutrient loading to Sandy Run, Wissahickon Creek, and the UNTs Schuylkill River, the PA DEP "simplified method" was used. Guidance for this method is found in the PRP Instructions, which state that it is acceptable to PA DEP to calculate existing pollutant loading by multiplying pollutant loading rates (in lbs/acre/year) by the developed pervious and developed impervious land areas (in acres) within the Planning Area. The existing loading estimate may then be reduced to account for pollutant reductions from existing functioning structural BMPs within the Planning Area.

The PA DEP [Statewide MS4 Land Cover Estimates](#) from the PA DEP MS4 website were used to determine the percentages of pervious and impervious land cover within the PRP Planning Area. The 2010 Urbanized Area (UA) covers the entire land area of Springfield Township, so the "Outside of UA" percentages for pervious and impervious land cover were not utilized.

The percentages of impervious and pervious land cover within the PRP Planning Area are as follows:

- UA % Impervious: 41%
- UA % Pervious: 59%

The acreages of pervious and impervious land cover within each watershed of the PRP Planning Area are shown in Tables 6 and 7 below for the Plymouth Creek-Schuylkill River Watershed PRP Planning Area and the Lower Wissahickon Creek Watershed PRP Planning Area, respectively.

Table 6. Impervious and pervious land cover within the Plymouth Creek-Schuylkill River Watershed PRP Planning Area per the PA DEP Statewide MS4 Land Cover Estimates

Area (ac)	% Impervious	% Pervious	Impervious Area (Ac)	Pervious Area (Ac)
42.37	41%	59%	17.37	25.00

Table 7. Impervious and pervious land cover within the Lower Wissahickon Creek Watershed PRP Planning Area per the PA DEP Statewide MS4 Land Cover Estimates

Area (ac)	% Impervious	% Pervious	Impervious Area (Ac)	Pervious Area (Ac)
3,234.59	41%	59%	1,326.18	1,908.41

The total acreages for impervious and pervious area within the Plymouth Creek-Schuylkill River Watershed PRP Planning Areas were then multiplied by the Chesapeake Bay loading rates (Chesapeake Bay TMDL, 12/29/2010) in pounds per acre per year for sediment (Total Suspended Solids [TSS]), TP, and TN to determine the existing pollutant loading for the PRP Planning Area. The required reductions of 10 percent for sediment and 5 percent for phosphorus were calculated by multiplying each existing pollutant loading by its required reduction percentage. See Table 8 for the total pollutant loading for each pollutant of concern and the required reductions of each pollutant.

Table 8. Existing pollutant loading and required reductions for sediment & nutrients within the Plymouth Creek-Schuylkill River Watershed PRP Planning Area of Springfield Township

Land Use	Area (Ac)	Pollutant Loading Rates (lbs/ac/yr)			Existing Pollutant Loading without BMPs (lbs/ac/yr)			Required Reduction (lbs/ac/yr)	
		TN	TP	TSS	TN	TP	TSS	TP (5%)	TSS (10%)
Impervious, UA	17.37	23.06	2.28	1,839.00	400.59	39.61	31,946.56	1.98	3,194.66
Pervious, UA	25.00	20.72	0.84	264.96	517.96	21.00	6,623.55	1.05	662.35
Plymouth Creek-Schuylkill River Total Pollutant Load or Required Reduction (lbs/ac/yr)					918.56	60.61	38,570.11	3.03	3,857.01

The existing pollutant loading for the Lower Wissahickon Creek Watershed PRP Planning Area (part of the Wissahickon Creek TMDL) was recalculated using the Chesapeake Bay loading rates and PA DEP Statewide MS4 Land Cover Estimates for consistency with the PRP Planning Area calculations and to show compliance with the draft Wissahickon Creek Water Quality Improvement Plan short-term objectives of a 10% reduction in sediment and 5% reduction in phosphorus over five years. See Table 9 for the total pollutant loading for each pollutant of concern and the required reductions of each pollutant.

Table 9. Existing pollutant loading and required reductions for sediment & nutrients within the Lower Wissahickon Creek Watershed PRP Planning Area of Springfield Township

Land Use	Area (Ac)	Pollutant Loading Rates (lbs/ac/yr)			Existing Pollutant Loading without BMPs (lbs/ac/yr)			Required Reduction (lbs/ac/yr)	
		TN	TP	TSS	TN	TP	TSS	TP (5%)	TSS (10%)
Impervious, UA	1,326.18	23.06	2.28	1,839.00	30,581.75	3,023.69	2,438,848.51	151.18	243,884.85
Pervious, UA	1,908.41	20.72	0.84	264.96	39,542.22	1,603.06	505,651.81	80.15	50,565.18
Lower Wissahickon Creek Total Pollutant Load or Required Reduction (lbs/ac/yr)					70,123.97	4,626.76	2,944,500.32	231.34	294,450.03

Due to the small area of the Plymouth Creek-Schuylkill River watershed that exists within Springfield Township, the Plymouth Creek-Schuylkill River Watershed PRP Planning Area and the Lower Wissahickon Creek PRP Planning Area will be combined for the purposes of determining the overall PRP Planning Area pollutant loading and required reductions. Table 10 shows the total pollutant loading and required reduction for each pollutant of concern.

Table 10. Existing pollutant loading and required reductions for sediment & nutrients within the PRP Planning Area of Springfield Township

Watershed	Area (ac)	Existing Pollutant Loading without BMPs (lbs/ac/yr)			Required Reduction (lbs/ac/yr)	
		TN	TP	TSS	TP	TSS
Plymouth Creek-Schuylkill River	42.37	918.56	60.61	38,570.11	3.03	3,857.01
Lower Wissahickon Creek	3,188.35	70,123.97	4,626.76	2,944,500.32	231.34	294,450.03
PRP Planning Area Total Pollutant Load or Required Reduction (lbs/ac/yr)		71,042.53	4,687.37	2,983,070.43	234.37	298,307.04

Six (6) existing BMPs within the PRP Planning Area, specifically within the Lower Wissahickon Creek Watershed PRP Planning Area, were credited to reduce the existing sediment and nutrient loading using the pollutant removal efficiency rates specified in the PA DEP NPDES Stormwater Discharges from Small MS4s BMP Effectiveness Values Table (3800-PM-BCW0100m, revised 6/2018). The resulting pollutant loading for the PRP Planning Area of Springfield Township is 4,615.98 lbs/ac/year for phosphorus and 2,937,641.26 lbs/ac/year for sediment. See Table 11 for the updated pollutant loading and required reductions for sediment and nutrients. See Appendix E for calculations.

Table 11. Existing pollutant loading and required reductions for sediment & nutrients within PRP Planning Area of Springfield Township

Number of Existing BMPs	Total BMP Drainage Area (ac)	Pollutant Reductions by BMPs (lbs/ac/yr)			Pollutant Loading with Existing BMPs (lbs/ac/yr)			Updated Required Reduction (lbs/ac/yr)	
		TN	TP	TSS	TN	TP	TSS	TP (5%)	TSS (10%)
6	75.35	81.68	10.78	6,859.06	69,307.22	4,615.98	2,937,641.26	230.80	293,764.13

All six of the existing BMPs credited to reduce the existing pollutant loading in the Township are being proposed as basin retrofit projects and are summarized in Table 12. They are described further in Section 4.5. Refer to Appendix D for a map of existing BMPs.

Table 12. Existing BMP sediment and nutrient reductions

BMP Name	BMP Drainage Area (ac)	Pollutant Reduction by BMP (lbs/ac/yr)		
		TN	TP	TSS
Skyline Drive Basin	9.91	10.75	1.42	902.52
Penn Weldy Apartments Basin	14.99	16.24	2.14	1,364.15
Ronald Circle Basin	6.34	6.88	0.91	577.47
North Hills Country Club at St. Clair Basin	5.46	5.92	0.78	497.02
Flourtown Country Club No. 1 - Basin to Penn Oak	13.66	14.80	1.95	1,243.16
Flourtown Country Club No. 2 - Basin to Cherry	24.99	27.09	3.57	2,274.75
Totals	75.35	81.68	10.78	6,859.06

4.5 Proposed Best Management Practices

Springfield Township proposes to meet the required pollutant load reductions detailed in Section 4.4 above by implementing 15 BMPs. The proposed BMPs include six (6) basin retrofits, four (4) new basins, one (1) bioswale, and four (4) stream restorations. Refer to Appendix D for a map of existing and proposed BMPs. Due to the small area of the Plymouth Creek-Schuylkill River watershed that exists within Springfield Township, the Plymouth Creek-Schuylkill River Watershed PRP Planning Area and the Lower Wissahickon Creek PRP Planning Area will be combined for the purposes of BMP implementation.

Numerous challenges can be encountered during the design process that can threaten project viability. Because of these potential challenges, the Township has the ability to select any combination of these BMPs that will achieve their 10% sediment reduction. Note that lengths of proposed stream restorations may increase or decrease as projects proceed to the design phase. If the BMP type or location changes or a new BMP is needed, the Township will update the PRP, go through public participation again, and resubmit the updated PRP to PA DEP.

The six basin retrofit BMP names, retrofit types, and locations are as follows (coordinates can be found in Table 13):

- 1) Skyline Drive Basin Retrofit (bioretention/rain garden) - Located in the Paper Mill Estates Community; just west of Skyline Drive
- 2) Penn Weldy Apartments Basin Retrofit (dry extended detention) - Located behind (southwest of) the Penn Weldy Apartments on Pennsylvania Avenue.
- 3) Ronald Circle Basin Retrofit (dry extended detention) - Located just north of and adjacent to the Ronald Circle loop.
- 4) North Hills Country Club at St. Clair Basin Retrofit (dry extended detention) - Located in the northwest corner of the North Hills Country Club, just southeast of the end of St. Clair Road.
- 5) Flourtown Country Club No. 1 - Basin Retrofit to Penn Oak (dry extended detention) - Located on the norther border of the Flourtown Country Club near its northwest corner; south of Penn Oak Road.
- 6) Flourtown Country Club No. 2 - Basin Retrofit to Cherry (dry extended detention) - Located near the northeast corner of Flourtown Country Club; northwest of Norfolk Road.

The four new basin BMP names, basin types, and locations are as follows (coordinates can be found in Table 13):

- 7) Integrity Avenue New Basin (bioretention/rain garden) - Located just south of and adjacent to the southern end of Integrity Avenue.
- 8) Sandy Run Country Club New Basin (dry detention) - Located near the southwest corner of Sandy Run Country Club; north of the intersection of Burton Road and Surrey Road.
- 9) Carson Valley School No. 1 New Basin (dry extended detention) - Located east of the intersection of Bethlehem Pike and W. Wissahickon Avenue; behind the businesses that line the roads.
- 10) Ardmore at Evergreen New Basin (dry extended detention) - Located just north of and adjacent to the junction of Ardmore Avenue and E. Evergreen Avenue.

The one bioswale BMP name and location is as follows (coordinates can be found in Table 13):

- 11) Mermaid Park Bioswale – Located on an UNT to Cresheim Creek north of the pond in Mermaid Park on Mermaid Lane.

The four stream restoration BMP names and locations are as follows (coordinates can be found in Table 13):

- 12) Fulginiti Park Stream Restoration - Located on Sunny Brook Creek as it flows through James R. Fulginiti Park on Hemlock Road.
- 13) UNT to Wissahickon Creek Stream Restoration at Mount Saint Joseph Academy - Located on an UNT to Wissahickon Creek just north of Mount Saint Joseph Academy on W. Wissahickon Avenue.
- 14) Sunny Brook Creek Stream Restoration at Marlow Field - Located on Sunny Brook Creek where it flows through Marlow Field on Enfield Road; west of the baseball fields.
- 15) Sunny Brook Creek Stream Restoration at North Hills Country Club - Located on Sunny Brook Creek where it flows through the northern part of North Hills Country Club on Station Avenue.

All proposed projects will provide benefits to the Springfield community, including water quality improvements, and will meet the pollutant reduction requirements. The analysis of these projects was performed in ArcGIS Pro 3.5.2 and Autodesk AutoCAD Civil3D using aerial imagery, 1-foot contours, and hydrological data. Proposed BMP locations and drainage areas can be found in Appendix D and on the Springfield Township web app. Preliminary site visits to vet the viability of the proposed projects and confirm existing conditions were conducted by Township staff, Woodrow & Associates, Inc., and/or the Center for Watershed Protection.

Reductions from the proposed new BMPs (new basin, stream restoration, and bioswale BMPs) and reductions from the proposed retrofit of existing BMPs (basin retrofit BMPs) were calculated using the pollutant removal efficiency rates specified in the Effectiveness Values Table. The rates for existing basins were subtracted from the rates that reflect the proposed basin retrofit conditions to reflect the overall improvement as a result of the retrofit. The existing pollutant loading from the drainage areas to all proposed BMPs were included in the TMDL Planning Area and factored into the existing pollutant loading. Refer to Appendix E for supporting calculations.

Nitrogen, phosphorus, and sediment load reductions achieved through the implementation of these BMPs can be found in Table 13 below. Appendix E and Table 13 show that the required sediment and nutrient pollutant reductions will be achieved through the implementation of these BMPs.

Table 13. Pollutant reductions for proposed BMPs

BMP No.	BMP Name	Coordinates	BMP Drainage Area (ac) or Linear Feet of Streambank Stabilization (ft)	Pollutant Reduction by BMP (lbs/ac/yr)		
				TN	TP	TSS
1	Skyline Drive Basin Retrofit	-75.2034550, 40.0922808	9.91	140.36	8.14	6,785.88
2	Penn Weldy Apartments Basin Retrofit	-75.1814517, 40.1174777	14.99	49.86	2.61	9,344.06
3	Ronald Circle Basin Retrofit	-75.1873270, 40.1212605	6.34	20.89	1.02	3,479.46
4	North Hills Country Club at St. Clair Basin Retrofit	-75.1835233, 40.1092892	5.46	17.38	0.63	1,648.88
5	Flourtown Country Club No. 1 - Basin Retrofit to Penn Oak	-75.2068971, 40.1075960	13.66	43.43	1.55	4,025.25
6	Flourtown Country Club No. 2 - Basin Retrofit to Cherry	-75.2029448, 40.1073751	24.99	80.86	3.41	10,474.64
7	Integrity Avenue New Basin	-75.1914728, 40.1167702	42.76	764.43	66.94	52,342.75
8	Sandy Run Country Club New Basin	-75.1959955, 40.1164076	5.28	5.61	0.62	328.55
9	Carson Valley School No. 1 New Basin	-75.2154624, 40.1025839	10.85	47.18	3.19	6,208.61
10	Ardmore at Evergreen New Basin	-75.1996054, 40.0837572	15.27	65.35	3.84	6,590.05
11	Mermaid Park Bioswale	-75.1855569, 40.0794182	61.49	933.15	65.97	44,780.28
12	Fulginiti Park Stream Restoration	-75.2035828, 40.1116801	850	63.75	57.80	38,148.00
13	UNT to Wissahickon Creek Stream Restoration at Mount Saint Joseph Academy	-75.2180995, 40.0959753	3,200	240.00	217.60	143,616.00
14	Sunny Brook Creek Stream Restoration at Marlow Field	-75.1867859, 40.1122797	500	37.50	34.00	22,440.00
15	Sunny Brook Creek Stream Restoration at North Hills Country Club	-75.1752705, 40.1121353	1,200	90.00	81.60	53,856.00

Table 13. Pollutant reductions for proposed BMPs

BMP No.	BMP Name	Coordinates	BMP Drainage Area (ac) or Linear Feet of Streambank Stabilization (ft)	Pollutant Reduction by BMP (lbs/ac/yr)		
				TN	TP	TSS
Totals:				2,577.43	534.34	388,719.02

4.5.1 Basin Retrofits

There are six basin retrofit projects proposed on stormwater basins installed prior to 2003. The existing condition of all of the basins is dry detention. The proposed condition is either bioretention/rain garden with underdrain or dry extended detention, depending on site conditions. Once these projects move into the preliminary design phase, a survey and soil infiltration testing will be completed. All appurtenant basin infrastructure (inflow pipes, outlet pipes, etc.) will be assessed for the need of replacement or rehabilitation. If concrete low flow channels exist, they will be removed. Water quality improvements such as plunge pools, forebays, extended flow paths to alleviate “short-circuiting”, amended soils, native plantings, and decreasing the size of the outlet structure orifice (which may require installing an outlet structure if one does not exist) will all be considered, in addition to maintaining the original basin function for peak rate control. Infiltration will be proposed to the maximum extent practicable.

Skyline Drive Basin Retrofit

Skyline Drive Basin was an existing dry detention basin located in the Paper Mill Estates community and west of Skyline Drive. The proposed retrofit for this basin consisted of converting the existing dry detention basin to a bioretention/rain garden BMP (Figure 3). The basin drainage area is 9.91 acres, and it previously provided a nitrogen reduction of 10.80 lbs/year, a phosphorus reduction of 1.48 lbs/year, and a sediment reduction of 969.41 lbs/year. This project was completed in 2024 and provides additional reductions for new total reductions of 140.36 lbs/year for nitrogen, 8.14 lbs/year for phosphorus, and 6,785.88 lbs/year for sediment.



Figure 3. Skyline Drive Basin Retrofit during construction.

Penn Weldy Apartments Basin Retrofit

Penn Weldy Apartments Basin is an existing dry detention basin located behind the Penn Weldy Apartments off of E. Pennsylvania Avenue. The proposed retrofit for this basin consists of converting the existing dry detention basin to a dry extended detention basin BMP. Its drainage area is 14.99 acres, and it currently provides a nitrogen reduction of 16.62 lbs/year, a phosphorus reduction of 2.61 lbs/year, and a sediment reduction of 1,868.81 lbs/year. Once retrofitted, it will provide additional reductions for total reductions of 49.86 lbs/yr for nitrogen, 2.61 lbs/yr for phosphorus, and 9,344.06 lbs/yr for sediment.

Ronald Circle Basin Retrofit

Ronald Circle Basin is an existing dry detention basin located just north of Ronald Circle. The proposed retrofit for this basin consists of converting the existing dry detention basin to a dry extended detention basin BMP. Its drainage area is 6.34 acres, and it currently provides a nitrogen reduction of 6.69 lbs/year, a phosphorus reduction of 1.02 lbs/year, and a sediment reduction of 695.89 lbs/year. Once retrofitted, it will provide additional reductions for total reductions of 20.89 lbs/yr for nitrogen, 1.02 lbs/yr for phosphorus, and 3,479.46 lbs/yr for sediment.

North Hills Country Club at St. Clair Basin Retrofit

North Hills Country Club at St. Clair Basin is an existing dry detention basin located in the northwest corner of the North Hills Country Club property; it is south of Paper Mill Road. The proposed retrofit for this basin consists of converting the existing dry detention basin to a dry extended detention basin BMP. Its drainage area is 5.46 acres, and it currently provides a nitrogen reduction of 5.79 lbs/year, a phosphorus reduction of 0.63 lbs/year, and a sediment reduction of 329.78 lbs/year. Once retrofitted, it will provide additional reductions for total reductions of 17.38 lbs/yr for nitrogen, 0.63 lbs/yr for phosphorus, and 1,648.88 lbs/yr for sediment.

Flourtown Country Club No. 1 – Basin Retrofit to Penn Oak

Flourtown Country Club No. 1 – Basin to Penn Oak is an existing dry detention basin located on the northern border of Flourtown Country Club near the northwest corner of the property; it is south of Penn Oak Road. The proposed retrofit for this basin consists of converting the existing dry detention basin to a dry extended detention basin BMP. Its drainage area is 13.66 acres, and it currently provides a nitrogen reduction of 14.48 lbs/year, a phosphorus reduction of 1.55 lbs/year, and a sediment reduction of 805.05 lbs/year. Once retrofitted, it will provide additional reductions for total reductions of 43.43 lbs/yr for nitrogen, 1.55 lbs/yr for phosphorus, and 4,025.25 lbs/yr for sediment.

Flourtown Country Club No. 2 – Basin Retrofit to Cherry

Flourtown Country Club No. 2 – Basin to Cherry is an existing dry detention basin located near the northeast corner of the Flourtown Country Club property; it is northwest of Norfolk Road. The proposed retrofit for this basin consists of converting the existing dry detention basin to a dry extended detention basin BMP. Its drainage area is 24.99 acres, and it currently provides a nitrogen reduction of 26.95 lbs/year, a phosphorus reduction of 3.41 lbs/year, and a sediment reduction of 2,094.93 lbs/year. Once retrofitted, it will provide additional reductions for total reductions of 80.86 lbs/yr for nitrogen, 3.41 lbs/yr for phosphorus, and 10,474.64 lbs/yr for sediment.

4.5.2 New Basin BMPs

There are four new basin projects proposed as PRP options. Additional information regarding each location is provided below.

Integrity Avenue New Basin

A bioretention/rain garden BMP was proposed for the southern end of Integrity Avenue and was completed in 2024 (Figure 4). This basin has a drainage area of 42.76 acres and provides reductions of 764.43 lbs/yr for nitrogen, 66.94 lbs/year for phosphorus, and 52,342.75 lbs/year for sediment.



Figure 4. Integrity Avenue New Basin during construction.

Sandy Run Country Club New Basin

A dry detention basin was proposed to be constructed near the southwest corner of the Sandy Run Country Club property, to the northwest of Burton Road. This project was completed in 2023 (Figure 5). This basin has a drainage area of 5.28 acres and provides reductions of 5.61 lbs/yr for nitrogen, 0.62 lbs/year for phosphorus, and 328.55 lbs/year for sediment.



Figure 5. Sandy Run Country Club New Basin immediately post-construction.

Carson Valley School No. 1 New Basin

A dry extended detention basin is proposed for construction west of the intersection of Bethlehem Pike and W. Wissahickon Avenue, behind the businesses that line these roads. This

basin will have a drainage area of 10.85 acres and will provide reductions of 47.18 lbs/yr for nitrogen, 3.19 lbs/year for phosphorus, and 6,208.61 lbs/year for sediment.

Ardmore at Evergreen New Basin

A dry extended detention basin is proposed for the junction of Ardmore Avenue and E. Evergreen Avenue; the basin will be located just north of the junction. This basin will have a drainage area of 15.27 acres and will provide reductions of 65.35 lbs/yr for nitrogen, 3.84 lbs/year for phosphorus, and 6,590.05 lbs/year for sediment.

4.5.3 Bioswale

One bioswale is proposed for this PRP. Details for the project are provided below.

Mermaid Park Bioswale

An unnamed tributary to Cresheim Creek flows through Mermaid Park, off of Mermaid Lane. A streambank stabilization project was completed in 2022 on 225 linear feet of the creek north of an existing pond in the park. Conversion to a bioswale is proposed for this reach, which will be achieved through installing native herbaceous plantings along the stabilized channel. Once completed, the project will provide reductions of 933.15 lbs/yr for nitrogen, 65.97 lbs/yr for phosphorus, and 44,780.28 lbs/yr for sediment.

4.5.4 Stream Restoration

Four stream restoration projects are proposed as part of this PRP. In each case, the stream channel is severely eroded and deeply incised. The proposed projects will be consistent with the criteria outlined in *PA DEP's Considerations of Stream Restoration Projects in Pennsylvania for Eligibility as an MS4 Best Management Practice* (May 2018). Floodplain restoration will be the preferential stream restoration approach utilized in all cases where and if appropriate.

Fulginiti Park Stream Restoration

A stream restoration project is proposed for 850 linear feet of Sunny Brook Creek as it flows through James R. Fulginiti Park, located on Hemlock Road. Once completed, the project will provide a nitrogen reduction of 63.75 lbs/year, a phosphorus reduction of 57.80 lbs/year, and a sediment reduction of 38,148.00 lbs/year.

UNT to Wissahickon Creek Stream Restoration at Mount Saint Joseph Academy

A stream restoration project is proposed for 3,200 linear feet of an unnamed tributary to Wissahickon Creek located just north of Mount Saint Joseph Academy on W. Wissahickon Avenue. Once completed, the project will provide a nitrogen reduction of 240.00 lbs/year, a phosphorus reduction of 217.60 lbs/year, and a sediment reduction of 143,616.00 lbs/year.

Sunny Brook Creek Stream Restoration at Marlow Field

A stream restoration project is proposed for 500 linear feet of Sunny Brook Creek where it flows west of the baseball fields at Marlow Field on Enfield Road. Once completed, the project will provide a nitrogen reduction of 37.50 lbs/year, a phosphorus reduction of 34.00 lbs/year, and a sediment reduction of 22,440.00 lbs/year.

Sunny Brook Creek Stream Restoration at North Hills Country Club

A stream restoration project is proposed for 1,200 linear feet of Sunny Brook Creek where it flows through the northern part of North Hills Country Club on Station Avenue. Once completed, the project will provide a nitrogen reduction of 90.00 lbs/year, a phosphorus reduction of 81.60 lbs/year, and a sediment reduction of 53,856.00 lbs/year.

4.6 Long-Term Objectives for the Wissahickon Creek TMDL

Springfield Township is a member of the Wissahickon Clean Water Partnership, a coalition of 13 municipalities and four wastewater treatment plants across the Wissahickon Creek watershed. The Partnership is collaborating with PA DEP and the EPA to address impairments in the watershed through an alternative means than traditional TMDL planning. The Wissahickon Clean Water Partnership has developed a Wissahickon Creek Water Quality Improvement Plan (WQIP), a comprehensive plan to improve water quality and achieve the TMDL objectives. The WQIP is in draft status as of June 2025 and is awaiting final EPA approval.

The Wissahickon Creek WQIP, rather than the Wissahickon Creek TMDL, serves as the plan under which Springfield Township will achieve the long-term objectives for addressing the Wissahickon Creek TMDL. This approach is supported by EPA's Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (December 2013), which, in addition to TMDLs, allows alternatives to meet water quality improvement goals "that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing non-point source pollution."

All proposed basin retrofits, new basin BMPs, bioswale, and stream restoration projects are located within the Lower Wissahickon Creek Watershed portion of Springfield Township. Together, these BMPs will provide a 13.00% sediment reduction and a 11.34% phosphorus reduction towards the long-term objectives of the Wissahickon Creek WQIP and also address the required short-term TMDL/PRP objectives of 10% sediment reduction and 5% phosphorus reduction for this MS4 permit term. These projects also count towards achieving the 10% sediment and 5% nutrient reductions in the aggregated PRP Planning Area as described in Section 4.5 above. Refer to supporting calculations in Appendix E.

4.7 Funding Mechanisms

Funding for the proposed BMPs is the responsibility of Springfield Township. The primary source of funding will be the Township's general fund. Additionally, the Township will seek grant funding from available federal, state, and private grant programs.

4.8 Operations and Maintenance

To ensure the long-term effectiveness of proposed and existing BMPs, proper maintenance is crucial. Springfield Township is responsible for the operation and maintenance (O&M) of BMPs unless an O&M agreement has been made with private entities, in which case those private entities will be responsible for O&M of the BMP specified in the agreement. O&M requirements will depend on the type of BMP, and best practices for O&M of each BMP type will be followed. Table 14 below details the proposed BMP O&M responsibilities and activities.

Table 14. Operations and maintenance responsibilities for BMPs

BMP Name	Owner	Responsible Party for O&M	O&M Responsibilities
Bioretention/Rain Garden			
Skyline Drive Basin Retrofit	Paper Mill Estates Community Association	Paper Mill Estates Community Association	<ul style="list-style-type: none"> • Prune and weed vegetation during establishment. • May cut down perennial plantings at end of growing season. • Water during periods of extended drought. • Re-spread/replenish mulch when erosion is evident and once every 2-3 years. • Remove detritus at least annually. • Inspect 2x/year for sediment buildup, erosion, vegetative conditions, etc. • Inspect trees and shrubs 2x/year to evaluate health.
Integrity Avenue New Basin	Mary Ellen Flynn, Marita & Regina Frain, & Paul Ziegler	Mary Ellen Flynn, Marita & Regina Frain, & Paul Ziegler	
Dry Extended Detention Basin			
Sandy Run Country Club New Basin	Sandy Run Country Club	Sandy Run Country Club	<ul style="list-style-type: none"> • Inspect basin bottoms, trash racks, outlet structures, riprap/gabion structures, and inlets for clogging and excessive debris/sediment at least 4x/year and after storm events >1". • Remove sediment when basin is dry & stabilize/revegetate disturbed areas. • Mow/trim vegetation as necessary to remain functional. • Maintain vegetative cover at $\geq 95\%$; reestablish vegetation if vegetative cover has been reduced by 10%. • Inspect vegetated areas annually for erosion and unwanted growth of exotic/invasive species. • Remove detritus.
Penn Weldy Apartments Basin Retrofit	Stephano Brothers Real Estate Investment Associates & railroad right-of-way	Stephano Brothers Real Estate Investment Associates	
Ronald Circle Basin Retrofit	John (Jr.) & Patricia Davis	John (Jr.) & Patricia Davis	
North Hills Country Club at St. Clair Retrofit	ClubCorp NV XXIII LLC	ClubCorp NV XXIII LLC	
Flourtown Country Club No. 1 – Basin Retrofit to Penn Oak	Springfield Township	Springfield Township	
Flourtown Country Club No. 2 – Basin Retrofit to Cherry	Springfield Township	Springfield Township	
Carson Valley School No. 1 New Basin	PNC Bank & Herbert S. Riband, Jr., Trust	PNC Bank & Herbert S. Riband, Jr., Trust	
Ardmore at Evergreen New Basin	Uranus Star Fund PTE Ltd & Katherine Boothby & David Bickford	Uranus Star Fund PTE Ltd & Katherine Boothby & David Bickford	
Bioswale			

Table 14. Operations and maintenance responsibilities for BMPs

BMP Name	Owner	Responsible Party for O&M	O&M Responsibilities
Mermaid Park Stream Restoration	United States Government	Springfield Township	<ul style="list-style-type: none"> Inspect at least 2x/year and after heavy rainfall events Remove accumulated debris and sediment Reseed or replant bare areas Cut back perennial plants if needed and remove dead vegetation at end of growing season Weed as needed during vegetation establishment Water as needed during dry periods
Stream Restoration			
Fulginiti Park Stream Restoration	Springfield Township	Springfield Township	<ul style="list-style-type: none"> Inspect at least 2x/year. Avoid excess use of fertilizers, pesticides, or other chemicals. Mow surrounding areas as appropriate (remove clippings). Remove invasive species. Remove debris.
UNT to Wissahickon Creek Stream Restoration at Mount Saint Joseph Academy	Convent of the Sisters of Saint Joseph/Saint Joseph Housing Corporation	Convent of the Sisters of Saint Joseph/Saint Joseph Housing Corporation	
Sunny Brook Creek Stream Restoration at Marlow Field	Springfield Township	Springfield Township	
Sunny Brook Creek Stream Restoration at North Hills Country Club	ClubCorp NV XXIII LLC	ClubCorp NV XXIII LLC	

5.0 CONCLUSIONS

The required reductions of ten percent for sediment and five percent for phosphorus to Wissahickon Creek, Sandy Run, and the Schuylkill River will be achieved by the proposed BMPs outlined in this plan. These BMPs will be implemented within five years of October 1, 2024, the effective date of Springfield Township’s NPDES MS4 General Permit (by September 30, 2029).

APPENDICES

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Appendix A: Copy of Public Notice

To be added following public comment period.

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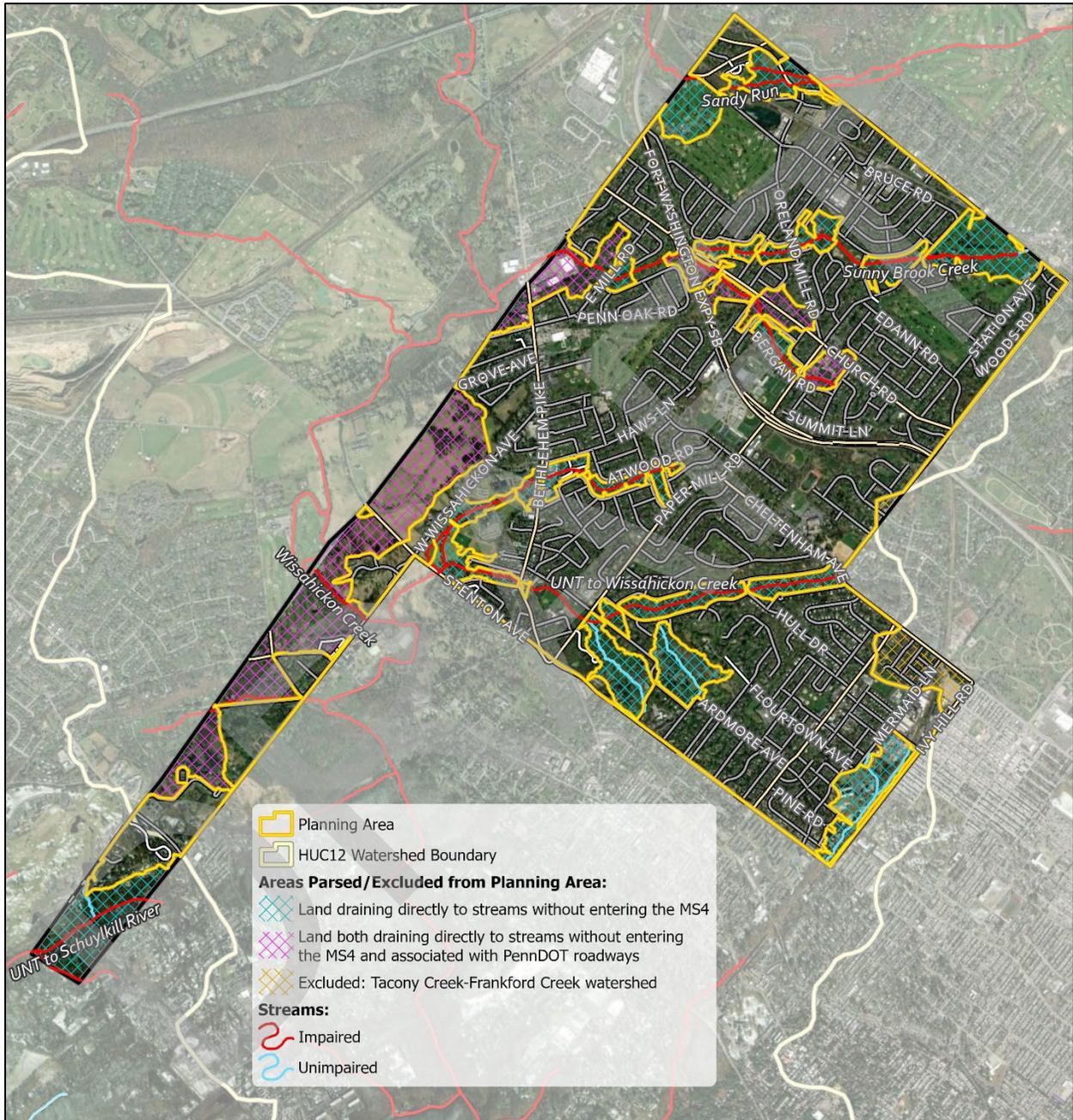
Appendix B: Public Comment and Response

To be added following public comment period.

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Appendix C: Map of Planning Area and Parsed Areas

To see more detail click on the web app: <https://arcg.is/vz1eO>



Appendix D: Proposed and Existing BMPs

To see more detail click on the web app: <https://arcg.is/vz1e0>



Appendix E: Pollutant Reduction Calculations

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Conversion from PA DEP Statewide MS4 Land Cover Estimates

MUNICIPALITY: Springfield Township
 MS4 SEWER SHED: Plymouth Creek - Schuylkill River
 COUNTY: Montgomery

Land Use	Area (ac)	% Impervious	Developed	
			Impervious Area (Ac)	Pervious Area (ac)
Urbanized Area	42.37	41.00%	17.37	25.00

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Conversion from PA DEP Statewide MS4 Land Cover Estimates

MUNICIPALITY: Springfield Township
 MS4 SEWER SHED: Lower Wissahickon Creek
 COUNTY: Montgomery

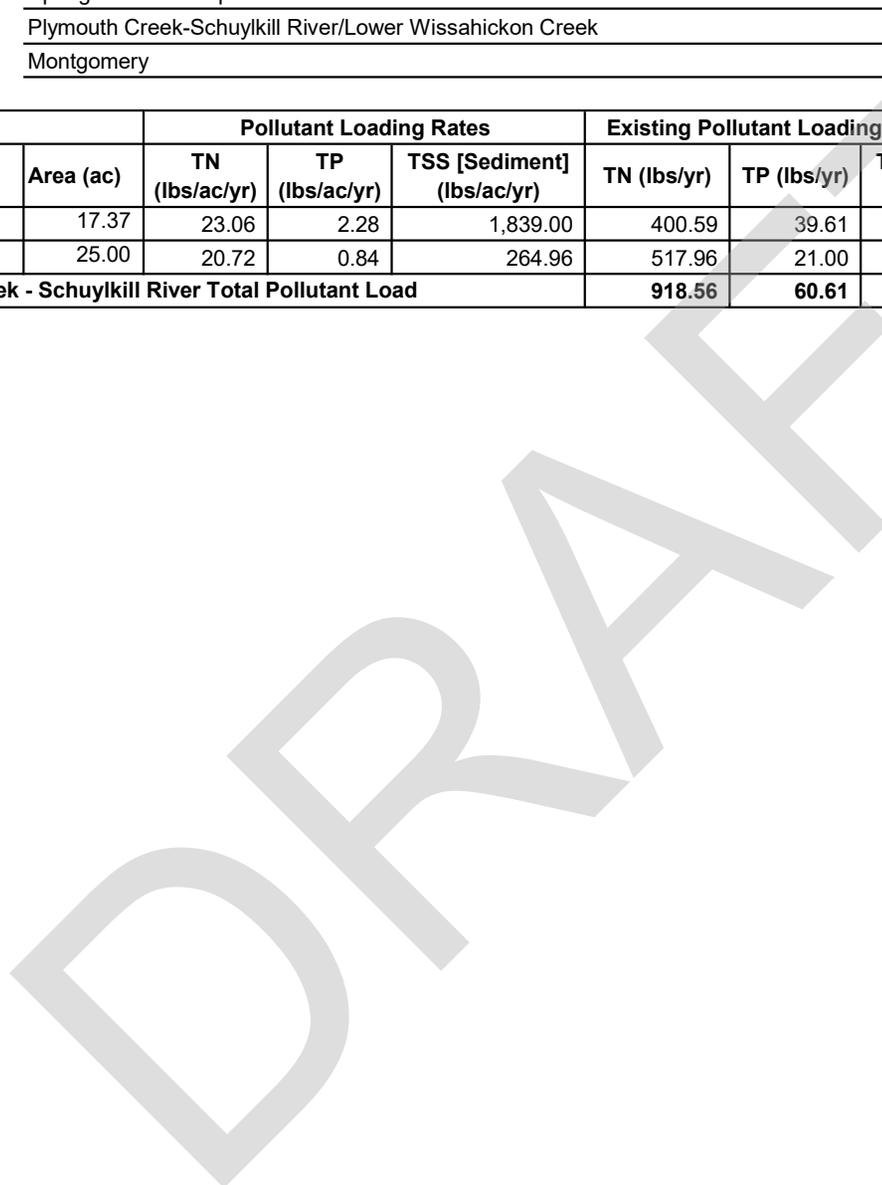
Land Use ¹	Area (ac)	% Impervious ²	Developed	
			Impervious Area (Ac)	Pervious Area (ac)
Urbanized Area	3,234.59	41.00%	1,326.18	1,908.41

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Existing Loads using Chesapeake Bay Loading Rates

MUNICIPALITY: Springfield Township
 PLANNING AREA: Plymouth Creek-Schuylkill River/Lower Wissahickon Creek
 COUNTY: Montgomery

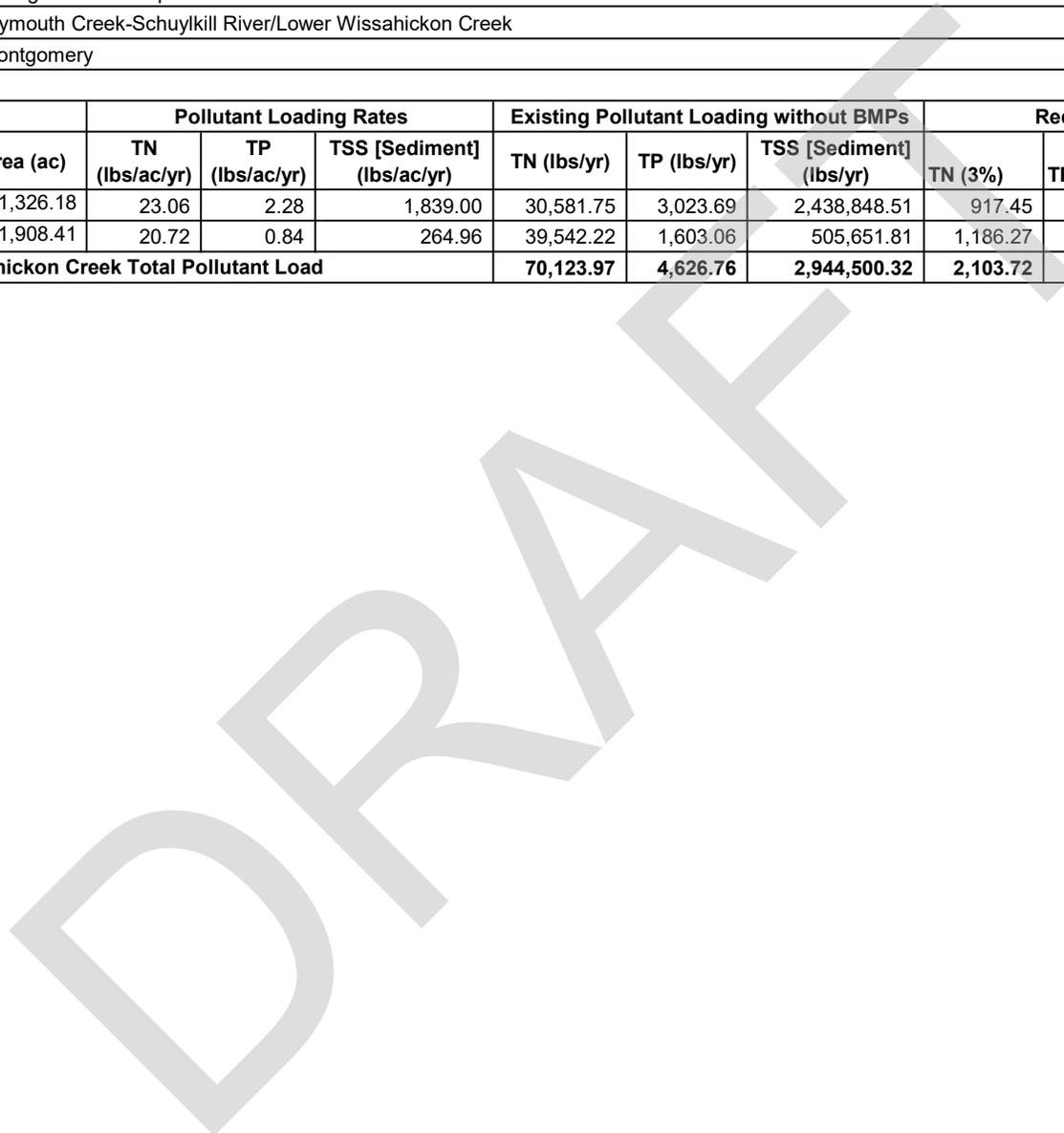
Land Use	Area (ac)	Pollutant Loading Rates			Existing Pollutant Loading without BMPs			Required Reduction		
		TN (lbs/ac/yr)	TP (lbs/ac/yr)	TSS [Sediment] (lbs/ac/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (3%)	TP (5%)	TSS [Sediment] (10%)
Impervious, Urbanized Areas	17.37	23.06	2.28	1,839.00	400.59	39.61	31,946.56	12.02	1.98	3,194.66
Pervious, Urbanized Areas	25.00	20.72	0.84	264.96	517.96	21.00	6,623.55	15.54	1.05	662.35
Plymouth Creek - Schuylkill River Total Pollutant Load					918.56	60.61	38,570.11	27.56	3.03	3,857.01



Existing Loads using Chesapeake Bay Loading Rates

MUNICIPALITY: Springfield Township
 PLANNING AREA: Plymouth Creek-Schuylkill River/Lower Wissahickon Creek
 COUNTY: Montgomery

Land Use	Area (ac)	Pollutant Loading Rates			Existing Pollutant Loading without BMPs			Required Reduction		
		TN (lbs/ac/yr)	TP (lbs/ac/yr)	TSS [Sediment] (lbs/ac/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (3%)	TP (5%)	TSS [Sediment] (10%)
Impervious, Urbanized Area	1,326.18	23.06	2.28	1,839.00	30,581.75	3,023.69	2,438,848.51	917.45	151.18	243,884.85
Pervious, Urbanized Area	1,908.41	20.72	0.84	264.96	39,542.22	1,603.06	505,651.81	1,186.27	80.15	50,565.18
Lower Wissahickon Creek Total Pollutant Load					70,123.97	4,626.76	2,944,500.32	2,103.72	231.34	294,450.03



Pollutant Load Reduction by Existing BMPs

MUNICIPALITY: Springfield Township
 PLANNING AREA: Plymouth Creek-Schuylkill River/Lower Wissahickon Creek
 COUNTY: Montgomery

Existing BMP Name	BMP Drainage Area (ac)	BMP Drainage Area Impervious (ac)	BMP Drainage Area Pervious (ac)	Pollutant Reduction by BMPs		
				TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)
Skyline Drive Basin	9.91	4.06	5.85	10.75	1.42	902.52
Penn Weldy Apartments Basin	14.99	6.14	8.84	16.24	2.14	1,364.15
Ronald Circle Basin	6.34	2.60	3.74	6.88	0.91	577.47
North Hills Country Club at St. Clair Basin	5.46	2.24	3.22	5.92	0.78	497.02
Flourtown Country Club No. 1 — Basin to Penn Oak	13.66	5.60	8.06	14.80	1.95	1,243.16
Flourtown Country Club No. 2 — Basin to Cherry	24.99	10.25	14.74	27.09	3.57	2,274.75
Total	75.35	30.89	44.46	81.68	10.78	6,859.06

MS4 Sewershed	Storm Sewershed Area (ac)	Existing Pollutant without BMPs			Pollutant Load with Existing BMPs		
		TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)
Lower Wissahickon Creek	3,234.59	70,123.97	4,626.76	2,944,500.32	70,042.30	4,615.98	2,937,641.26
Total	3,234.59	70,123.97	4,626.76	2,944,500.32	70,042.30	4,615.98	2,937,641.26

Land Use	Area (ac)	Pollutant Loading Rates			Existing Pollutant Loading without BMPs			Pollutant Load with Existing BMPs			Required Reduction with Existing BMPs		
		TN (lbs/ac/yr)	TP (lbs/ac/yr)	TSS [Sediment] (lbs/ac/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (3%)	TP (5%)	TSS [Sediment] (10%)
Impervious, Urbanized Area	1,326.18	23.06	2.28	1,839.00	30,581.75	3,023.69	2,438,848.51	30,225.56	3,016.65	2,433,167.34	906.77	150.83	243,316.73
Pervious, Urbanized Area	1,908.41	20.72	0.84	264.96	39,542.22	1,603.06	505,651.81	39,081.66	1,599.33	504,473.92	1,172.45	79.97	50,447.39
Lower Wissahickon Creek Total Pollutant Load					70,123.97	4,626.76	2,944,500.32	69,307.22	4,615.98	2,937,641.26	2,079.22	230.80	293,764.13

Sediment Load Reduction by Proposed BMPs

MUNICIPALITY: Springfield Township
 PLANNING AREA: Plymouth Creek-Schuylkill River/Lower Wissahickon Creek
 COUNTY: Montgomery

BMP Name	BMP Drainage Area (ac) or Linear Feet of Stream Restoration	Percent Impervious	Pollutant Reduction by BMPs			Property Owner	Effectiveness Percentage			
			TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)		TN	TP	TSS	
Skyline Drive Basin Retrofit Bioretention / Raingarden (A/B soils w/ underdrain)	9.91	41.0%	139.71	7.80	6,317.62	PAPER MILL ESTATES COMMUNITY ASSN	65%	65%	70%	Completed in 2024
Mermaid Park Bioswale	61.49	41.0%	933.15	65.97	44,780.28	UNITED STATES GOVERNMENT	70%	75%	80%	Completed in 2022 Updated from stream restoration to bioswale
Integrity Avenue New Basin (Bioretention / Raingarden (A/B soils w/o underdrain))	42.76	41.0%	741.56	51.99	35,030.09	FLYNN MARY ELLEN, FRAIN MARITA & REGINA, ZIEGLER PAUL	80%	85%	90%	Completed in 2024
Sandy Run Country Club New Basin (Dry Detention)	5.28	41.0%	5.72	0.75	480.40	SANDY RUN COUNTRY CLUB	5%	10%	10%	Completed in 2023
<i>Fulginiti Park Stream Restoration</i>	<i>850</i>		<i>63.75</i>	<i>57.80</i>	<i>38,148.00</i>	<i>SPRINGFIELD TWP (possibly 9-10 private properties)</i>	<i>0.075</i>	<i>0.068</i>	<i>44.88</i>	
Penn Weldy Apartments Basin Retrofit (Dry Extended Detention)	14.99	41.0%	48.73	2.14	6,820.74	STEPHANO BROTHERS REAL ESTATE INVESTMENT ASSOCIATES, also in PROW	15%	10%	50%	
Ronald Circle Basin Retrofit (Dry Extended Detention)	6.34	41.0%	20.63	0.91	2,887.35	DAVIS JOHN R JR & PATRICIA T	15%	10%	50%	
North Hills Country Club at St. Clair Basin Retrofit (Dry Extended Detention)	5.46	41.0%	17.76	0.78	2,485.12	CLUBCORP NV XXIII LLC	15%	10%	50%	
Flourtown Country Club No. 1 — Basin Retrofit to Penn Oak (Dry Extended Detention)	13.66	41.0%	44.41	1.95	6,215.78	SPRINGFIELD TWP	15%	10%	50%	
Flourtown Country Club No. 2 — Basin Retrofit to Cherry (Dry Extended Detention)	24.99	41.0%	81.26	3.57	11,373.74	SPRINGFIELD TWP	15%	10%	50%	
Carson Valley School No. 1 New Basin (Dry Extended Detention)	10.85	41.0%	47.04	3.10	5,925.86	PNC BANK & RIBAND HERBERT S JR TR	20%	20%	60%	
Ardmore at Evergreen New Basin (Dry Extended Detention)	15.27	41.0%	66.22	4.37	8,342.04	URANUS STAR FUND PTE LTD / BICKFORD DAVID G & KATHERINE BOOTHBY	20%	20%	60%	
UNT to Wissahickon Creek Stream Restoration at Mount Saint Joseph Academy	3,200.00	-	240.00	217.60	143,616.00	CONVENT OF THE SISTERS OF ST JOSEPH / SAINT JOSEPH HOUSING CORPORATION	0.075	0.068	44.88	
Sunny Brook Creek Stream Restoration at Marlow Field	500.00	-	37.50	34.00	22,440.00	SPRINGFIELD TWP	0.075	0.068	44.88	
Sunny Brook Creek Stream Restoration at North Hills Country Club	1,200.00	-	90.00	81.60	53,856.00	CLUBCORP NV XXIII LLC	0.075	0.068	44.88	
Totals:			2,577.43	534.34	388,719.02					

MS4 Sewershed	Storm sewershed Area (ac)	Existing Pollutant Load without BMPs			Existing Pollutant Load with Existing BMPs			Pollutant Load with Proposed BMPs			% Reduction		
		TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN (lbs/yr)	TP (lbs/yr)	TSS [Sediment] (lbs/yr)	TN	TP	TSS [Sediment]	TN	TP	TSS [Sediment]
Lower Wissahickon Creek	3,234.59	70,123.97	4,626.76	2,944,500.32	69,307.22	4,615.98	2,937,641.26	67,546.54	4,092.42	2,555,781.30	2.54%	11.34%	13.00%
Plymouth Creek-Schuylkill River	42.37	918.56	60.61	38,570.11	918.56	60.61	38,570.11	918.56	60.61	38,570.11	0.00%	0.00%	0.00%
Total	3,276.96	71,042.53	4,687.36	2,983,070.43	69,307.22	4,615.98	2,937,641.26	68,465.10	4,153.02	2,594,351.41	2.54%	11.34%	13.00%

Effectiveness

BMP	TN	TP	Sediment
Stream Restoration	0.075	0.068	44.88
Dry Extended Detention	20%	20%	60%
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%
Bioretention / Raingarden (C/D soils w/ underdrain)	25%	45%	55%
Filter Strip Runoff Reduction	20%	54%	56%
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%
Bioswale	70%	75%	80%