NPDES Stormwater Discharges from MS4

Total Maximum Daily Load (TMDL) & Pollutant Reduction Plan (PRP)

Indian Creek
Skippack Creek
Neshaminy Creek

Franconia Township
Montgomery County, Pennsylvania

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Prepared For:

Franconia Township
671 Allentown Road
Telford, PA 18969-2205
(215) 723-1137

Prepared By:

Gilmore & Associates, Inc.
Engineers ♦ Land Surveyors ♦ Planners ♦ GIS Consultants
65 East Butler Avenue, Suite 100
New Britain PA 18901
(215)345-4330

MS4 TMDL/PRP
for
Franconia Township
Montgomery County, Pennsylvania

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A. Introduction

Franconia Township, Montgomery County, is submitting this TMDL and Pollution Reduction Plan (PRP) in accordance with the requirements of Individual Permit PAG-13 for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4); specifically, in accordance with the MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term. Tributaries within the Urbanized Area within the Township drain to the East Branch Perkiomen, Indian, Skippack and West Branch Neshaminy Creeks. The Indian, Skippack and West Branch Neshaminy Creeks are deemed impaired and TMDL Plans are required for the Indian and Skippack Creeks. Franconia Township is required to create a TMDL and PRP due to discharges from their MS4 to Impaired Downstream Waters, which are listed as impaired as noted below in Table A-1 and within Appendix A.

Table A- 1: PA DEP MS4 Requirements Table

Unnamed Tributaries to Skippack Creek		Water/Flow Variability (4c)
Skippack Creek Watershed TMDL	TMDL Plan-Siltation (4a)	
West Branch Neshaminy Creek	Appendix E-Siltation (4a), Appendix E-Excessive Algal Growth, Nutrients, Organic Enrichment/Low D.O. (5)	Water/Flow Variability (4c)
West Branch Skippack Creek		Water/Flow Variability (4c)
Indian Creek TMDL	TMDL Plan-Nutrients (4a)	
Indian Creek	Appendix E-Siltation (4a)	Cause Unknown, TDS (4a)
Skippack Creek	Appendix E-Excessive Algal Growth, Nutrients (5)	

The plan was developed using the modeling program, Mapshed, to determine the adjusted baseline sediment loading as permitted by DEP based on the land use files provided. Based on the Total Maximum Daily Loading for the Indian Creek, Franconia Township is required to reduce the nutrient loading by 74%. Franconia Township is required to develop a PRP for the Indian Creek, Skippack Creek, and West Branch Neshaminy Creek along with establishing compliance with the Indian Creek TMDL for Nutrients and Skippack Creek TMDL for Siltation.

The purpose of this document is to outline how Franconia Township will comply with the Individual Permit requirement to reduce 10% of sediment and 5% of nutrient loads from the MS4 to waters impaired by such pollutants. The plan will also demonstrate how the Township is on track to achieve the Indian Creek TMDL for Nutrients and Skippack Creek TMDL for Siltation within the next 5 permit terms (25 years).

In accordance with guidance provided by DEP, achieving a 10% reduction in sediment will also result in a 5% nutrient reduction. As such, only sediment loading was considered in the pre- and post- improvement analysis of this report with respect to PRP requirements. The intent of this MS4 TMDL/PRP is to utilize the existing loading of sediment and pollutants discharged from the MS4 to Impaired Downstream Waters, and to present a plan to reduce these loadings.

In addition to the Indian Creek and Skippack Creek watersheds, there is a *de minimis* area of the West Branch Neshaminy Creek watershed which is located within Franconia Township, of which has been parsed out due to being privately owned land with direct discharge.

This Plan is organized to follow the “Required PRP Elements” presented in the PRP Instructions included as part of the *PAG-13 MS4 Individual Permit* instruction packages. This Plan will be evaluated and updated by Franconia Township on an as-needed basis, based on 1) its effectiveness in reducing pollutant loads in discharges from the regulated small MS4, 2) the reasonableness of achieving the reductions, and 3) the cost/benefit of the BMP”(s) under consideration. If this occurs, Franconia Township will work with the Department of Environmental Protection (DEP) for review and approval of any revisions or updates. The “potential BMPs” listed in this document are intended to show that compliance with the required reductions can be achieved within the coming 5-year term. The 5-year term is assumed to begin upon DEP’s approval of this Plan. The Township reserves the right to implement a combination of the listed BMPs, remove BMPs, and/or add BMPs, should the opportunity to implement them present itself.

B. Public Participation

As part of the preparation of this MS4 TMDL/PRP, public participation is required. The public participation measures that are required are:

- A complete copy of the TMDL/PRP shall be available for public review.
- A public notice containing a statement describing the plan, where it may be reviewed by the public and the length of time provided for the receipt of comments shall be published by the MS4 in a newspaper of general circulation in the area.
- Written comments shall be accepted by the MS4 for a minimum of 30 days from the date of public notice.
- The MS4 shall accept comments from any interested member of the public at a public meeting, which may include a regularly scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.
- Consider, and make a record of the consideration of, each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment.

A copy of the newspaper public notice, copies of all written comments received from the public, and a copy of the MS4's record of consideration of all timely comments received in the public comment period are included with this TMDL/PRP in Appendix B. Note that no comments were received and no revisions were required to the TMDL /PRP.

All required documentation of public participation, as outlined above, is included as Appendix B.

- Date TMDL/PRP public notice was published in newspaper: July 20, 2017
- Date TMDL/PRP was made available for public review/comment: July 21, 2017
- End date for receipt of written comments (30 days from the date of public notice): August 20, 2017
- Date TMDL/PRP listed on the public meeting agenda: August 21, 2017
- Date TMDL/PRP comments were accepted at a public meeting: August 21, 2017, no comments received.

C. Mapping

Mapping is an integral part of developing the TMDL/PRP and requires a level of detail suitable to determine the existing land uses, impervious/pervious surface coverages, topography and loading for the listed impairments. The MS4 TMDL/PRP Map in Appendix C-1 shows the PRP Planning Area, which includes all storm sewershed boundaries, as well as, the proposed locations of structural BMPs to be implemented to achieve pollutant load reductions. The storm sewershed boundaries shown on the Franconia Township MS4 TMDL/PRP Map constitute the combined storm sewershed of all MS4 outfalls within the MS4's jurisdiction that discharge to Skippack Creek Watershed, including the West Branch Skippack Creek, and the Indian Creek.

The Township's MS4 TMDL/PRP Map includes parsed areas, which are areas within the storm sewershed that are excluded in the calculation of land area and existing pollutant loading. BMPs located within parsed areas do not count toward achieving pollutant reduction objectives.

Examples of land area that have been parsed include:

- The land area associated with non-municipal stormwater NPDES permit coverage that exists within the urbanized area of a municipality;
- Land area associated with PennDOT roadways and the Pennsylvania Turnpike (roads and right of ways);
- 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.

D. Pollutants of Concern

For all TMDL/PRPs, Franconia Township shall determine a baseline loading of the pollutant(s) of concern (lb/year); determine the minimum required reduction in loading (lb/year); select BMP(s) to reduce loading; and install selected BMPs to achieve the reductions with associated documentation.

For TMDL/PRPs developed for impaired waters, the pollutants are based on the "Appendix E" impairment listing as provided in the MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term. If the impairment is based on siltation only, a minimum of 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% Total Phosphorus (TP) reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. The Indian and Skippack Creeks are impaired as follows:

Franconia Township Municipal MS4 Requirements for Indian Creek

Indian Creek TMDL	TMDL Plan-Nutrients (4a)
Indian Creek	Appendix E-Siltation (4a)

Franconia Township Municipal MS4 Requirements for the Skippack Creek

Skippack Creek Watershed TMDL:	TMDL Plan for Siltation (4a)
Skippack Creek PRP:	Appendix E-Excessive Algal Growth, Nutrients (5)

The Indian Creek was placed on Pennsylvania's 1996, 2004 and 2006 Clean Water Act's 303(d) list of impaired waterbodies for not meeting designated aquatic life use due to various pollutants, including salinity, siltation, and nutrients. Impairment classifications were supported by chemical and biological sampling from 1996 to 2004. Impairments included municipal point sources, agriculture, urban and residential stormwater runoff, and sewage effluent at two locations. Based on the 2008 TMDL, the sediment TMDL was developed to meet loading targets established from a reference watershed (and subsequently remanded). The nutrient TMDL was developed to meet the seasonal average concentration targets for total phosphorus. There was a remand for sediment TMDL so no sediment TDML is currently required. Franconia Township is still required to submit a TMDL Plan for nutrients and a PRP Plan for sediment.

Indian Creek Sediment Allocation Project Update: Indian Creek Watershed stakeholders were notified on June 29, 2017 that EPA plans to determine the existing sediment loads and sediment allocations to attain water quality standards in the Indian Creek watershed located in Montgomery County, PA. They are calling a meeting to present the new existing sediment loads, start a discussion on possible allocation scenarios and offer stakeholders a chance to provide feedback and ask questions.

The Skippack Creek basin is classified as a trout stocked fishery (TSF) in the Pennsylvania Chapter 93 water quality standards (WQS). The TSF classification requires that permitted discharges in the basin meet water quality criteria designed to allow for the maintenance of stocked trout and the maintenance and propagation of warm water fishes and associated flora and fauna.

Potential sources of the impairment were listed in the Clean Water Act §303d/305b reports (1996-2004) as excessive blooms of algae, siltation, and flow variability. The creek is listed for Siltation/Sediment and water/flow variability from small residential runoff and land development. Related to nutrient loading, excess nutrients, erosion and sediment from agricultural and municipal point sources impair portions of the sub-basin.

Sampling was done in 2004 (14 sites) to measure biomass, nutrient content, and species composition of periphyton assemblages (freshwater organisms indicative of water quality). The TMDL was prepared by EPA and finalized in January 2005 with close DEP oversight. The TMDL identifies "nuisance algae" as the endpoint and chlorophyll-a as the threshold for "nuisance periphyton" conditions. The algal target is the amount of plants DEP will allow to grow on rocks in this stream. Nutrient loading can be increased from human activities such as fertilizer applications, sewage discharges, and runoff from agricultural land or construction sites. Since the TMDL was developed and approved, land uses have changed, structural and non-structural BMPs have been installed, sewer improvements have been made (see Appendix F), and stricter stormwater requirements have been established for controlling sediment during and following construction. The stricter regulations and improvements appear to have reduced pollution loadings overall. The areas where onsite stormwater controls were installed have been parsed out of the Township’s Planning Area to reduce the baseline sediment load. Further, to reduce the excessive nutrients within the stream and unnamed tributaries, focus is set on protecting the existing stream morphology including stream stabilization, riparian buffer

restoration to increase canopy cover, and reduction of agriculture and impervious along the stream corridor. Retrofits will also be considered to gain additional benefit from existing BMPs.

The Indian Creek TMDL identifies a required nutrient reduction of 74% and the Skippack Creek TMDL identifies a required sediment reduction of 18% with the next 25-year period. As shown within this Report, Franconia Township's TMDL strategies are both on track to meet the required reductions for each watershed.

E. Existing Loading for Pollutants of Concern, Wasteload Allocations, & Analysis of TMDL Objectives

In accordance with DEP requirements, existing loading must be calculated and reported as of the date of the development of this TMDL/PRP. Any methodology that calculates existing pollutant loading in terms of pounds per year, evaluates BMP-based pollutant reductions utilizing BMP effectiveness values contained in Document 3800-PM-BCW0100m (see Appendix E-10).

In modeling the existing load, a software program known as MapShed was utilized in the development of this MS4 TMDL/PRP to determine the source areas and the total load of listed impairments based on the existing land uses. MapShed is a customized GIS interface that is used to create input data for an enhanced version of the GWLF watershed model originally developed at Cornell University. MapShed was improved by Dr. Barry Evans and his group at PSIEE using AVGWLF, a GIS-based watershed modeling tool that uses hydrology, land cover, soils, topography, weather, pollutant discharges, and other critical environmental data to model sediment and nutrient transport within a watershed.

BMPs installed by the Township within the Indian and Skippack Creek watersheds since the sampling of the TMDL took place are as follows and have been incorporated into the plan as a reduced existing sediment load:

- Rain Garden (40.313263, -75.365643) 2014
- Riparian Buffer Plantings (40.298833, -75.379574) 2009
- Conversion of Farmland to Meadow (40.298714, -75.324463) 2010

The baseline date for existing load calculations is July 2017 as ground cover at the time of initial submission of this Plan was contemplated. Franconia Township's permit obligation applies only to runoff collected by and discharged from the MS4. The storm sewershed land area that is collected by and discharges from the MS4 to various tributaries of the Indian Creek and Skippack Creek have been delineated using PAMAP data known as Light Detection and Ranging (LiDAR) contours. LiDAR contours were also utilized in determining the planning areas. Refer to Appendix D for MapShed outputs related to the planning area calculations for each watershed. The following tables reflect a summary of the required TMDL/PRP requirements:

Table E- 1: TMDL Strategy – Indian Creek

FT MS4 Indian Creek TMDL Summary	
EPA DATA (MAY 19, 2015)	
Pollutant	**Nutrient (Phosphorus)**
Existing Load (lbs/yr)	2,863
WLA (lbs/yr)	744
Required Reduction (lbs/yr)	2,119
Required Reduction (%)	74.0%
Area of Indian Creek Watershed in FT (ac.)	3,013
Area Parsed (ac.)	2,434
Area Parsed (%)	81%
Min. Required TMDL Reduction - 25 Years (lbs/yr)	407
Min. Required TMDL Reduction - 5 Years (lbs/yr)	81

Table E- 2: Franconia Township Planning Area Summary – Indian Creek

Franconia Township's Planning Area - Indian Creek	
Franconia Twp Area in Watershed (ac)	3,013
Area Parsed (ac)	2,434
Area Parsed (%)	81%
Franconia Twp Planning Area in Watershed (ac)	579

Table E- 3: Franconia Township Planning Area Breakdown – Indian Creek

Franconia Township's Planning Area - Indian Creek		
Parcel	**Sediment Load (lbs)**	**Area (ac)**
0	138,802	222
1	28,883	65
2	98,649	211
3	0	0
4	2,788	5
5	0	0
6	25,203	54
7	475	2
8	6,918	11
9	1,913	2
10	0	0
11	1,248	2
12	2,788	5
Total Baseline Load for Planning Area	**307,667.0**	579
Required Sediment Reduction (10%)	**30,766.7**	***Areas from MapShed**

Table E- 4: TMDL Strategy – Skippack Creek

FT MS4 Skippack Creek TMDL Summary	
EPA DATA (2005)	
Pollutant	**Sediment**
Existing Load (lbs/yr)	3,329,329
WLA (lbs/yr)	2,728,310
Required Reduction (lbs/yr)	601,019
Required Reduction (%)	18.1%
Area of Indian Creek Watershed in FT (ac.)	3,903
Area Parsed (ac.)	3,297
Area Parsed (%)	84%
Min. Required TMDL Reduction - 25 Years (lbs/yr)	93,317
Min. Required TMDL Reduction - 5 Years (lbs/yr)	18,663

Table E- 5: Franconia Township Planning Area Summary – Skippack Creek

Franconia Township's Planning Area - Skippack Creek	
Franconia Twp Area in Watershed (ac)	3,903
Area Parsed (ac)	3,297
Area Parsed (%)	84%
Franconia Twp Planning Area in Watershed (ac)	606

Table E- 6: Franconia Township Planning Area Breakdown – Skippack Creek

Franconia Township's Planning Area - Skippack Creek		
Parcel	**Sediment Load (lbs)**	**Area (ac)**
0	13,605	20
1	364,512	417
2	106,373	120
3	41,632	49
4	0	0
Total Baseline Load for Planning Area	**526,122.0**	606
Required Sediment Reduction (10%)	**52,612.2**	***Areas from MapShed**

F. BMP Selection to Achieve the Minimum Required Reductions in Pollutant Loading

Franconia Township has a requirement to reduce siltation and nutrient pollution from their MS4 draining to impaired streams. Implementation of BMPs or land use changes are required that will result in meeting the minimum required reduction in pollutant loading within the storm sewershed(s) identified by the MS4. These BMP(s) must be implemented within five (5) years of DEP's approval of coverage under the PAG-13 General Permit, and must be located within the storm sewersheds of the applicable impaired waters.

If the applicant is aware of BMPs that will be implemented by others (either in cooperation with the applicant or otherwise) within the storm sewersheds that will result in net pollution loading reductions (not E&S BMPs to satisfy Chapter 102 requirements), the applicant may propose those BMPs within its TMDL/PRP. In calculating future pollutant loading, the applicant must be cognizant of planned changes to land uses or BMPs. For example, if a tract of land (<1 acre) currently in pasture will be converted within the next few years to residential land use, and there are no ordinances in place to control the rate, volume or quality of stormwater draining from the tract, the potential net increase in pollutant loading must be factored into the future loading estimate. This means that BMPs must be implemented on the tract or elsewhere within the storm sewersheds to compensate for this change.

Franconia Township plans to achieve the sediment and nutrient reductions by designing, constructing, operating and maintaining select Best Management Practices (BMPs) over the next five (5) years and carry over the remaining TMDL reduction requirement until the subsequent terms. Tables F-1 and F-2 summarize proposed BMPs under consideration, including location, type, and areas treated, and potential reduction for the Indian Creek and Skippack Creek, respectively. Specific locations and drainage areas are depicted on the map found in Appendix C-1.

Table F- 1: Summary of BMPs – Indian Creek

Potential BMPs - Indian Creek					
BMP #	**Type**	**Location**	**Area Treated (ac.)**	**TSS Reduction (lbs/yr)**	**TP Reduction (lbs/yr)**
1	Bioswale	Godshall Road	10.8	882	0
2	Streambank Restoration	Township Building	Up to 470 feet	54,050	82
3	Streambank Restoration	Godshall Quality Meats	Up to 350 feet	40,250	61
4	Bioswale	Indian Creek Road (North)	14.8	1,996	1
5	Bioswale	Indian Creek Road & Meetinghouse Road	15.5	1,389	1
6	Streambank Restoration	Indian Creek Road	Up to 300 feet	34,500	52
			Min. Required PRP TSS Reduction	**30,767**	
			Total Potential TSS Reduction	**133,067**	
				Min. Required TMDL TP Reduction	**81**
				Total Potential TP Reduction	**197**

Table F- 2: Summary of BMPs – Skippack Creek

Potential BMPs - Skippack Creek				
BMP #	**Type**	**Location**	**Area Treated (ac.)**	**TSS Reduction (lbs/yr)**
7	Streambank Restoration	Allentown Road	Up to 470 feet	54,050
8	Wet Pond Retrofit	Godshall Park	25.5	4,928
9	Riparian Buffer Restoration	898 Laurel Lane	29.6	16,665
			Minimum Required TMDL Reduction	**18,663**
			Minimum Required PRP Reduction	**52,612**
			Total Potential TSS Reduction	**75,643**

Proposed load reductions were calculated using the BMP Effectiveness Table in conjunction with the MapShed program. Refer to Appendix E for MapShed input parameters and outputs related to each BMP.

The proposed reduction in sediment and nutrients for each BMP is calculated by taking the proposed TSS and TP loading with the BMP and deducting it from the base total watershed loading. The new watershed loading for each BMP can be found in Appendix E - Urban Area Viewer window. The base total watershed loading for the Indian Creek is 2,418,866 pounds of sediment (TSS) and 1,252 pounds of nutrients (TP), as noted in Appendix D-1. The base total watershed loading for the Skippack Creek is 8,638,448 pounds of sediment (TSS), as noted in Appendix D-3. By taking the difference of the two loadings pre- and post-BMP, the result is the net TSS and TP reduction for each BMP. The summation of all proposed BMP load reductions for the Indian and Skippack Creeks yield a total sediment and nutrient reduction that exceed both the TMDL and PRP requirements for this permit term.

Since the proposed BMPs exceed the minimum TSS and TP reduction requirements, Franconia Township reserves the right to choose which BMPs are to be implemented and the linear footage of streambank to be stabilized in order to satisfy the MS4 TMDL/PRP requirements of this permit term. The BMPs included in Tables F-1 and F-2 are shown to demonstrate compliance, and the Township intends to implement a combination of the listed BMPs to meet the minimum required pollutant load reductions.

This PRP is a working document and in the event that any of the above-listed BMPs cannot be implemented, the Township understands that this plan will need to be revised in order to achieve compliance within the current 5-year permit term. The Township remains fully committed to meeting applicable water standards and has the ability to revise the plan and include detailed BMP design and additional BMPs for consideration if additional controls are required in the long-term.

G. Funding Mechanism(s)

The Municipality intends to apply for related grants, such as TreeVitalize, and Growing Greener Grants, to implement BMPs. The Municipality intends to utilize general fund money to cover the construction costs for the proposed BMPs should grant money not be awarded. Once the PRP has been approved by PADEP, the Municipality intends to authorize design of the BMP(s) depending on whether or not grant funding has been awarded to the Township. At that time a feasibility and cost analysis will be prepared and shared with PADEP.

H. Responsible Parties for Operation and Maintenance (O&M) of BMPs

Once implemented, the BMPs must be maintained in order to continue producing the expected pollutant reductions. Applicants must identify the following for each selected BMP:

- The parties responsible for ongoing O&M;
- The activities involved with O&M for each BMP; and
- The frequency at which O&M activities will occur.

Actual O&M activities will be identified by the MS4 in their Annual MS4 Status Reports, submitted under the Permit.

Table H- 1: Operation & Maintenance of BMPs – Indian Creek

BMP O&M Table - Indian Creek				
BMP #	**Type**	**Location**	**Responsible Party**	**Activity & Frequency**
1	Bioswale	Godshall Road	Franconia Township	Per PA BMP Manual
2	Streambank Restoration	Township Building	Franconia Township	Per PA BMP Manual
3	Streambank Restoration	Godshall Quality Meats	Franconia Township	Per PA BMP Manual
4	Bioswale	Indian Creek Road (North)	Franconia Township	Per PA BMP Manual
5	Bioswale	Indian Creek Road & Meetinghouse Road	Franconia Township	Per PA BMP Manual
6	Streambank Restoration	Indian Creek Road	Franconia Township	Per PA BMP Manual

Table H- 2: Operation & Maintenance of BMPs – Skippack Creek

BMP O&M Table - Skippack Creek				
BMP #	**Type**	**Location**	**Responsible Party**	**Activity & Frequency**
7	Streambank Restoration	Allentown Road	Franconia Township	Per PA BMP Manual
8	Wet Pond Retrofit	Godshall Park	Franconia Township	Per PA BMP Manual
9	Riparian Buffer Restoration	898 Laurel Lane	Franconia Township	Per PA BMP Manual

As shown in tables H-1 and H-2, Franconia Township will be responsible for ownership and maintenance of all constructed BMPs.

I. General Information

Terms: The term "nutrients" refers to "Total Nitrogen" (TN) and "Total Phosphorus" (TP) unless specifically stated otherwise in DEP's latest Integrated Report. The terms "sediment," "siltation," and "suspended solids" all refer to inorganic solids and are hereinafter referred to as "sediment."

Pollutants of Concern and Required Reductions: For all TMDL/PRPs, MS4s shall calculate existing loading of the pollutant(s) of concern, in lbs/year; calculate the minimum reduction in loading, in lbs/year; select BMP(s) to reduce loading; and demonstrate that the selected BMP(s) will achieve the minimum reductions.

For PRPs developed for impaired waters (Appendix E), the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% TP reduction is required. If the impaired is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed.

Existing Pollutant Loading: Existing loading must be calculated and reported as of the date of the development of the TMDL/PRP. MS4s may not claim credit for street sweeping and other non-structural BMPs implemented in the past. If structural BMPs were implemented prior to development of the TMDL/PRP and continue to be operated and maintained, the MS4 may claim pollutant reduction credit in the form of reduced existing loading.

> **NOTE** – An MS4 may not reduce its obligations for achieving pollutant load reductions through previously installed BMPs. An MS4 may only use such BMPs to reduce its estimate of existing pollutant loading. For example, if a rain garden was installed ten years ago and is expected to remove 100 lbs of sediment annually, and the overall annual loading of sediment in the storm sewershed is estimated to be 1,000 lbs without specifically addressing the rain garden, an MS4 may not claim that the rain garden satisfies its obligations to reduce sediment loading by 10%. The MS4 may, however, use the rain garden to demonstrate that existing loading is 900 lbs instead of 1,000 lbs, and 90 lbs rather than 100 lbs needs to be reduced during the term of permit coverage.

BMP Effectiveness: All MS4s must use the BMP effectiveness values contained within DEP's BMP Effectiveness Values document (3800-PM-BCW0100m) or Chesapeake Bay Program expert panel reports for BMPs listed in those resources when determining pollutant load reductions in TMDL/PRPs. For BMPs not listed in 3800-PM-BCW0100m or expert panel reports, MS4s may use effectiveness values from other technical resources; such resources must be documented in the TMDL/PRP.

Combining PRPs: If the MS4 discharges into multiple local surface waters impaired for nutrients and/or sediment, one PRP may be submitted to satisfy Appendix E but calculations and BMP selections must be completed independently for the storm sewershed of each impaired water. If, for example, an MS4 permittee must complete three PRPs according to the MS4 Requirements Table for three separate surface waters, storm sewershed maps must be developed, existing loads must be calculated, and BMPs must be implemented for pollutant reductions independently within those storm sewersheds. In other words, BMPs cannot be implemented in one storm sewershed to count toward pollutant reductions in an entirely separate storm sewershed for a different impaired water.

Where local surface waters are impaired for nutrients and/or sediment, and those waters are tributary to a larger body of water that is also impaired, MS4s can propose BMPs within the upstream impaired waters to meet the pollutant reduction requirements of both the upstream and downstream waters. For example, if Stream A flows through a municipality that is tributary to Stream B, both are impaired and the MS4 has discharges to both streams, the MS4 can implement BMPs in the storm sewershed of Stream A to satisfy pollutant reduction requirements for both Streams A and B. In general, the MS4 permittee would not be able to satisfy pollutant reduction requirements for both streams if BMPs were only implemented in the storm sewershed of Stream B; however, on a case by case basis DEP will consider such proposals where it can be demonstrated that implementing BMPs in the upstream storm sewershed is infeasible.

If, however, Stream A does not flow into Stream B, both are impaired and the MS4 has discharges to both streams, in general DEP would expect that BMPs be implemented in the storm sewershed of both streams to meet pollutant reduction requirements.

MS4s participating in collaborative efforts are encouraged to contact DEP's Bureau of Clean Water during the PRP development phase for feedback on proposed approaches.

Joint PRPs: MS4s may develop and submit a joint PRP, regardless of whether the MS4s will be submitting a "joint NOI" or are already co-permittees. In general, the MS4s participating in a joint PRP should have contiguous land areas. The "study area" to be mapped is the combined storm sewershed for all MS4 jurisdictions.

BMP Selection: MS4s may propose and take credit for only those BMPs that are not required to meet regulatory requirements or otherwise go above and beyond regulatory requirements. For example, a BMP that was installed to meet Chapter 102 NPDES permit requirements for stormwater associated with construction activities may not be used to meet minimum pollutant reductions unless the MS4 can demonstrate that the BMP exceeded regulatory requirements; if this is done, the MS4 may take credit for only those reductions that will occur as a result of exceeding regulatory requirements.

> **NOTE** – Street sweeping may be proposed as a BMP for pollutant loading reductions if 1) street sweeping is not the only method identified for reducing pollutant loading, and 2) the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports are utilized.

Submission of PRP: Attach one copy of the PRP with the NOI or individual permit application that is submitted to the regional office of DEP responsible for reviewing the NOI or application. In addition, one copy of the PRP (not the NOI or application) must be submitted to DEP's Bureau of Clean Water (BCW). BCW prefers electronic copies of PRPs, if possible. Email the electronic version of the PRP, including map(s) (if feasible), to RA-EPPAMS4@pa.gov. If the MS4 determines that submission of an electronic copy is not possible, submit a hard copy to: PA Department of Environmental Protection, Bureau of Clean Water, 400 Market Street, PO Box 8774, Harrisburg, PA 17105-8774.

PRP Implementation and Final Report: Under the PAG-13 General Permit, the permittee must achieve the required pollutant load reductions within 5 years following DEP's approval of coverage under the General Permit, and must submit a report demonstrating compliance with the minimum pollutant load reductions as an attachment to the first Annual MS4 Status Report that is due following completion of the 5th year of General Permit coverage. For example, if DEP issues written approval of coverage to a permittee on June 1, 2018, the required pollutant

load reductions must be implemented by June 1, 2023 and the final report documenting the BMPs that were implemented (with appropriate calculations) must be attached to the annual report that is due September 30, 2023. In general, the same methodology used to calculate the existing pollutant loads should be used in the final report to demonstrate the reductions. If BMP effectiveness values are updated in DEP's BMP Effectiveness Values document or Chesapeake Bay Program expert panel reports between the time the PRP is approved and the time the final report is developed, those updated effectiveness values may be used.