Dallas Area Municipal Authority (DAMA)

Municipal Separate Storm Sewer System (MS4)

Pollutant Reduction Plan (PRP)

for

Chesapeake Bay (Appendix D)

2019 – 2024 MS4 Permit

Original Submission September 2017

Revised May 2025

ARRO Project No.: 00011138.10

DALLAS AREA MUNICIPAL AUTHORITY
101 Memorial Highway
Shavertown, PA 18708

ARRO
108 West Airport Road
Lititz, PA 17543

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1. Introduction

The Dallas Area Municipal Authority (DAMA) consists of Dallas Borough, Dallas Township, and Kingston Township in Luzerne County which were classified as small Municipal Separate Storm Sewer Systems (MS4s) based upon the 2010 U.S. Census urbanized area data. The Pennsylvania Department of Environmental Protection (PA DEP) has notified Dallas Borough, Dallas Township, and Kingston Township that they are required to apply for coverage under a National Pollutant Discharge Elimination System (NPDES) MS4 permit. The requirements for Dallas Borough, Dallas Township and Kingston Township are defined by the PA DEP Municipal MS4 Requirements Table as:

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Luzerne County						
Dallas Borough	PAG132234	No		Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
Dallas Township	PAI132232	No		Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
Kingston Township	PAG132218	No		Susquehanna River	Appendix A-Metals (4a), Appendix C-PCB (4a)	Mercury (5)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	

PA DEP has published the Pollutant Aggregation Suggestions for MS4 Requirements Table; per the aggregation instructions, the aggregate total required reduction may be analyzed and Best Management Practices (BMPs) may be implemented in the identified watersheds, tributary to the same Hydrologic Unit Code (HUC) 12 watershed. The aggregated requirements for the DAMA municipalities are as follows:

MS4 Name	Permit Number	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Luzerne County				
Dallas Borough	PAG132234	City of Wilkes-Barre-Susquehanna River, Toby Creek	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
Dallas Township	PAI132232	City of Wilkes-Barre-Susquehanna River, Toby Creek	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
Kingston Township	PAG132218	City of Wilkes-Barre-Susquehanna River, Warrior Creek-Susquehanna River	Susquehanna River	Appendix A-Metals, Appendix C-PCB
		City of Wilkes-Barre-Susquehanna River, Toby Creek, Warrior Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients

This joint municipal Pollutant Reduction Plan (PRP) has been developed to satisfy the aggregated requirements, as put forward by the PA DEP, of Chesapeake Bay Pollutant Reduction Plan.

2. Public Participation

DAMA's original PRP was approved by DEP in 2018 and was revised in 2024 to include additional projects. Information regarding the previously proposed PRP projects and why they were determined to be infeasible can be found in Attachment F. DAMA encouraged a plan that included public participation and buy in. The PRP was

advertised for public review and comment for a period of 45 days in the local paper on DATE; a copy of the advertisement can be found in Attachment A.I.

A copy of the complete draft PRP was posted on the DAMA website as well as each individual municipal website prior to the public notice. A hard copy was also made available at the DAMA and municipal offices, as well as the library during normal business hours. Written comments regarding the plan were received by DAMA from DATE through DATE; a copy of all written comments are provided in Attachment A.II. The revised PRP was announced as available for review during the DATE public meeting. DAMA accepted public comments on the PRP during the DATE public meeting; a summary of comments received is provided in Attachment A.III.

A record of consideration for all timely comments received is provided in Attachment A.IV. This PRP reflects careful planning of DAMA with respect to the impaired waters of the Commonwealth, local flooding, erosion problems, and the financial impact to the residents.

3. Mapping

In accordance with PA DEP guidelines for development of the PRP, DAMA has completed mapping of the regulated MS4 Storm Sewersheds; the required mapping is provided in Attachment B. Mapping includes the collection and conveyance to regulated outfalls, identified outlets and outfalls, potential BMPs, and waters of the Commonwealth within the DAMA PRP planning area. The 2018 PRP included the parsing of state roadways. The 2024 PRP has been revised to parse state roadways, NPDES permitted facilities, and portions of the planning area that do not interact with the DAMA MS4. A map outlining parsed areas has been provided in Attachment B.

4. Pollutants of Concern

DAMA, in accordance with the PA DEP Municipal requirements table and the impaired waters mapping provided herein, is subject to an aggregation of Appendix D of the MS4 permit.

<u>Appendix D – Chesapeake Bay</u>

Appendix D is the requirement for development of a Chesapeake Bay Pollutant Reduction Plan (CBPRP). In accordance with the PRP guidelines, the goal of the CBPRP is for the following reductions:

- 3% reduction of Total Nitrogen (TN)
- 5% reduction of Total Phosphorous (TP)
- 10% reduction of Sediment (TSS)

Furthermore, the PA DEP PRP instructions state: “Permittees are encouraged to select appropriate BMPs to achieve the 10% sediment loading reduction objective, as it is expected that, overall, within the Bay watershed, the TP (5%) and TN (3%) goals will be achieved when a 10% reduction in sediment is achieved.” The PRP has been prepared to meet the required 10% reduction of sediment.

5. Existing Loading for Pollutants of Concern

Pollutant loadings were calculated using the Model My Watershed methodology; the calculated pollutant loadings for each watershed are provided in Attachment C. The calculations are summarized below:

Appendix D – Chesapeake Bay

Watershed	Drainage Area (ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
Chesapeake Bay/Toby Creek	3,032.10	2,437.04	5,469.14	3,841.00	1,127.00	1,958,272.00
Required Reduction Percent				3%	5%	10%
Required Reduction (lbs/yr)				**115.23**	**56.35**	**195,827.20**

A. Existing BMP Load Reductions

Based upon the mapping provided in Attachment B, DAMA has identified existing BMPs that would reduce the existing pollutant loading. DAMA parsed state and NPDES permitted facilities from calculations; additional information on parsed areas can be found in Attachment B. Attachment D provides a summary of the existing BMPs within each municipality, along with the PA DEP permit number, if available, and approximate date of installation. The percentage of pollutant reduction for each BMP was determined based upon DEPs NPDES Stormwater discharge from small MS4 BMP effectiveness value table. The existing loading for TSS, TP, and TN was re-calculated for each storm sewer shed accounting for the pollutant load reduction from the existing BMPs. BMP reductions and an updated pollutant reduction goal is summarized below and in Attachment E:

Dalla Area Municipal Authority Base Pollutant Loading with Existing BMPs Summary:

Watershed	Drainage Area (ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
Chesapeake Bay/Toby Creek	3,032.10	2,437.04	5,469.14	3,841.00	1,127.00	1,958,272.00
BMP Reductions	134.14	682.58	816.72	50.00	25.00	55,575.00
Base Pollutant Loading with Existing BMPs				*3,791.00*	*1,102.00*	*1,902,697.00*
Required Reduction Percent				3%	5%	10%
Required Reduction (lbs/yr)				**113.73**	**55.10**	**190,269.70**

6. Selected BMPs

DAMA developed a Selected BMP concept plan to identify potential BMPs to be implemented. Projects that were previously identified by DAMA and found to be infeasible during the current permit cycle can be found in Attachment F. The associated pollutant loading reductions for each BMP were calculated and are provided in Attachment G along with a summary description of the Selected BMPs evaluated. The percentage of pollutant reduction provided by each BMP was determined based on the PADEP BMP Effectiveness Value table. BMP efficiency percentages are based upon information available at the time of PRP development and will be confirmed in the PRP Final Report due to DEP at the end of the MS4 permit cycle. DAMA evaluated the following factors in selection of the BMPs to be implemented to achieve the required pollutant load reduction. These factors included:

- Overall BMP cost
- Availability of grant funding
- Feasibility of project
- Local flooding and erosion problems
- Drainage areas associated with identified waterways
- Consistency with Economic Development initiatives

Based upon the above factors, DAMA chose the Selected BMPs to be implemented under the MS4 permit from 2018 – 2023. The Selected BMP locations are identified in Attachment B. The Selected BMP pollutant reductions are summarized below. More information regarding the Selected BMPs can be found in Attachment G.

Watershed	Pollutant Reduction		
	TN (lbs./yr.)	TP (lbs./yr.)	TSS (lbs./yr.)
Chesapeake Bay/Toby Creek	372.22	314.87	242,879.77
Required Reduction	**113.73**	**55.10**	**190,269.70**
Surplus Reduction	*+258.49*	*+259.77*	*+52,610.07*

7. Funding Mechanism

DAMA, through the planning phase, evaluated the cost associated with the selected plan; the Selected BMP implementation cost is summarized below:

BMP ID	BMP Description	Estimated Project Total
P1	Wet Pond/Wetland	$125,000
P2	Wet Pond/Wetland	$125,000
P3	Rain Garden	$100,000
P4	Wet Pond/Wetland	$125,000
P26	Bioswale	$150,000
B1	Dry Extended Detention Basin	$80,000
B7	Dry Extended Detention Basin	$100,000
B16	Dry Extended Detention Basin	$75,000
B33	Dry Extended Detention Basin	$100,000
B34	Dry Extended Detention Basin	$60,000
B35	Dry Extended Detention Basin	$75,000
B41	Dry Extended Detention Basin	$20,000
B45	Dry Extended Detention Basin	$50,000
B51	Dry Extended Detention Basin	$100,000
B71	Dry Extended Detention Basin	$95,000
B72	Dry Extended Detention Basin	$75,000
B74	Dry Extended Detention Basin	$95,000
B79	Dry Extended Detention Basin	$95,000
B80	Dry Extended Detention Basin	$95,000
SR12	Stream Restoration	$931,000
SR17	Stream Restoration	$200,000
SR21	Stream Restoration	$100,000
	Total	**$2,971,000.00**

The required funding identified above will be funded through the municipal stormwater fees. The stormwater fee is based upon the amount of impervious surface on a property. DAMA will also pursue relevant grant opportunities as they arise.

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

The member municipalities and DAMA are the responsible parties for O&M of proposed BMPs. Specific requirements for the BMP are identified below:

BMP-P1 Wet Ponds and Wetlands:

Location:	Dallas Borough Park (Luzerne Ave.)
Responsible Party:	DAMA
O&M Activities:	-During the first growing season or until established, vegetation should be inspected every 2 to 3 weeks. -Inspections should occur at least 4 times per year and after major storms (greater than 2 inches in 24 hours) or rapid ice breakup. -Inspections should access the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, embankment, and sediment/debris accumulation. -The pond drain should also be inspected and tested 4 times per year. Problems should be corrected as soon as possible. -Wet Pond and buffer vegetation may need support (watering, weeding, mulching, replanting, etc.) during the first 3 years. -Undesirable species should be carefully removed and desirable replacements planted if necessary. Vegetation should maintain at least an 85 percent cover of the emergent vegetation zone and buffer area. -Sediment should be removed from the forebay before it occupies 50 percent of the forebay, typically every 5 to 10 years.

BMP-P2 Wet Ponds and Wetlands:

Location:	Lackawanna Ave.
Responsible Party:	DAMA
O&M Activities:	-During the first growing season or until established, vegetation should be inspected every 2 to 3 weeks. -Inspections should occur at least 4 times per year and after major storms (greater than 2 inches in 24 hours) or rapid ice breakup. -Inspections should access the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, embankment, and sediment/debris accumulation. -The pond drain should also be inspected and tested 4 times per year. Problems should be corrected as soon as possible. -Wet Pond and buffer vegetation may need support (watering, weeding, mulching, replanting, etc.) during the first 3 years.

-Undesirable species should be carefully removed and desirable replacements planted if necessary. Vegetation should maintain at least an 85 percent cover of the emergent vegetation zone and buffer area.
-Sediment should be removed from the forebay before it occupies 50 percent of the forebay, typically every 5 to 10 years.

BMP-P3 Rain Garden:

Location:	Dallas Township Park
Responsible Party:	DAMA
O&M Activities:	-Pruning and weeding while vegetation is being established. -Remove detritus and cut down perennial plantings. -Spread mulch along areas of erosion and replace mulch for whole area as needed. -Complete inspection of the restored corridor a minimum of twice a year. -Complete restoration and/or selective vegetation management as needed based upon inspections.

BMP-P4 Wet Pond/Wetland:

Location:	Dallas Nature Playground
Responsible Party:	DAMA
O&M Activities:	-During the first growing season or until established, vegetation should be inspected every 2 to 3 weeks. -Inspections should occur at least 4 times per year and after major storms (greater than 2 inches in 24 hours) or rapid ice breakup. -Inspections should access the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, embankment, and sediment/debris accumulation. -The pond drain should also be inspected and tested 4 times per year. Problems should be corrected as soon as possible. -Wet Pond and buffer vegetation may need support (watering, weeding, mulching, replanting, etc.) during the first 3 years. -Undesirable species should be carefully removed and desirable replacements planted if necessary. Vegetation should maintain at least an 85 percent cover of the emergent vegetation zone and buffer area.

-Sediment should be removed from the forebay before it occupies 50 percent of the forebay, typically every 5 to 10 years.

BMP-P26 Bioswale:

Location:	Hemlock St.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B1 Dry Extended Detention Basin:

Location:	Irem Golf Course Ridgeway Dr.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed.

-Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
-Inspect for litter; remove prior to mowing.
-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B7 Dry Extended Detention Basin:

Location:	Misericordia University Tennis Courts
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall).

Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B16 Dry Extended Detention Basin:

Location:	474 Yalick Rd.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B33 Dry Extended Detention Basin:

Location:	Lincoln St.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing.

-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B34 Dry Extended Detention Basin:

Location: Roosevelt St.

Responsible Party: DAMA

O&M Activities:
-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation).
-Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed.
-Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
-Inspect for litter; remove prior to mowing.
-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B35 Dry Extended Detention Basin:

Location:	Lincoln St.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B41 Dry Extended Detention Basin:

Location:	Wedgewood Wy.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed.

-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B45 Dry Extended Detention Basin:

Location: Masonic Dr.

Responsible Party: DAMA

O&M Activities:

-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation).
-Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed.
-Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
-Inspect for litter; remove prior to mowing.
-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B51 Dry Extended Detention Basin:

Location:	474 Yalick Rd.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B71 Dry Extended Detention Basin:

Location:	Wakefield Rd.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.

-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B72 Dry Extended Detention Basin:

Location: Alfred Rd.

Responsible Party: DAMA

O&M Activities:
-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation).
-Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed.
-Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
-Inspect for litter; remove prior to mowing.
-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B74 Dry Extended Detention Basin:

Location:	Ivy Dr.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed. -Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed. -Plant alternative grass species in the event of unsuccessful establishment. -Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming. -Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B79 Dry Extended Detention Basin:

Location:	Lantern Hill Rd.
Responsible Party:	DAMA
O&M Activities:	-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation). -Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed. -Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade. -Inspect for litter; remove prior to mowing. -Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed. -Inspect for uniformity in cross-section and longitudinal slope, correct as needed.

-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-B80 Dry Extended Detention Basin:

Location: Lantern Hill Rd.

Responsible Party: DAMA

O&M Activities:

-Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when >3 inches at any spot or covering vegetation).
-Inspect vegetation on side slopes for erosion and formation of rills and gullies, correct as needed.
-Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
-Inspect for litter; remove prior to mowing.
-Remove invasive plants as needed or carefully apply selected herbicide to invasive plants as needed.
-Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
-Inspect basin inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
-Plant alternative grass species in the event of unsuccessful establishment.
-Reseed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
-Mow and trim vegetation 1-2 times per year outside of the growing season (i.e., only mow in early spring or late fall). Mower height should be set between 8-12 inches. Mow only when basin is dry to avoid rutting.

BMP-SR12 Stream Restoration:

Location: Toby Creek; Meadow Complex

Responsible Party: DAMA

O&M Activities:

-Maintenance is necessary every quarter to ensure proper functionality of the stream.
-Any structure that is expected to receive and/or trap debris and sediment shall be thoroughly inspected for excessive debris and clogging. Inspections shall be conducted at a minimum four (4) times per year or immediately following any storm creating greater than one (1) inch of water.
-During the regular inspections the ford stream crossing should be thoroughly inspected for erosion. Erosion should be repaired immediately with native stream bed material or in some cases riprap to ensure proper flow rate.
-Vehicles shall not be parked or driven on the streambed and care shall be taken to avoid excessive compaction by mower if applicable.
-Sediment removed from the site shall be disposed of properly, and any areas that were disturbed shall be stabilized and revegetated immediately.
-Care shall be taken to prevent compaction of in situ soils to promote healthy vegetation growth and to encourage infiltration.
-Inspect the stream and floodplain after runoff events and make sure the stream returns to average water levels within 72 hours.
-Also inspect for damage to erosion control measures, signs of water contamination/spills, and slope stability.
-Upkeep of vegetation including mowing and/or trimming shall be performed as necessary to sustain the system. All detritus shall be removed from the basin.

- Fertilizers and pesticides shall not be used in maintaining the vegetation.
- All vegetated areas shall be inspected every year for any erosion.
- All vegetated areas shall be inspected every year for unwanted growth of exotic and/or invasive species.
- Vegetative cover shall be maintained at a minimum of ninety-five (95) percent. Vegetation shall be reestablished if vegetative cover has been reduced by ten (10) percent.

-If during inspection there are invasive species present, methods to control or reduce them include the following:

·Mowing should occur twice each growing season, mowing height should be set between eight and twelve inches.
·Remove the plants immediately and replace with native plants as needed.

-An inspection checklist shall be included in the maintenance and shall be completed at a minimum once every year.
-Regular inspection of the stream shall occur to assure proper implementation of BMP's. Operation and maintenance plans shall be inspected by a qualified person, which may include the landowner or owner's designee (including the municipality for dedicated and owned facilities).

BMP-SR17 Stream Restoration:

Location: Dallas Township Park

Responsible Party: DAMA

O&M Activities:

-Maintenance is necessary every quarter to ensure proper functionality of the stream.
-Any structure that is expected to receive and/or trap debris and sediment shall be thoroughly inspected for excessive debris and clogging. Inspections shall be conducted at a minimum four (4) times per year or immediately following any storm creating greater than one (1) inch of water.
-During the regular inspections the ford stream crossing should be thoroughly inspected for erosion. Erosion should be repaired immediately with native stream bed material or in some cases riprap to ensure proper flow rate.
-Vehicles shall not be parked or driven on the streambed and care shall be taken to avoid excessive compaction by mower if applicable.
-Sediment removed from the site shall be disposed of properly, and any areas that were disturbed shall be stabilized and revegetated immediately.
-Care shall be taken to prevent compaction of in situ soils to promote healthy vegetation growth and to encourage infiltration.
-Inspect the stream and floodplain after runoff events and make sure the stream returns to average water levels within 72 hours.
-Also inspect for damage to erosion control measures, signs of water contamination/spills, and slope stability.

-Upkeep of vegetation including mowing and/or trimming shall be performed as necessary to sustain the system. All detritus shall be removed from the basin.

- ·Fertilizers and pesticides shall not be used in maintaining the vegetation.
- ·All vegetated areas shall be inspected every year for any erosion.
- ·All vegetated areas shall be inspected every year for unwanted growth of exotic and/or invasive species.
- ·Vegetative cover shall be maintained at a minimum of ninety-five (95) percent. Vegetation shall be reestablished if vegetative cover has been reduced by ten (10) percent.

-If during inspection there are invasive species present, methods to control or reduce them include the following:

- ·Mowing should occur twice each growing season, mowing height should be set between eight and twelve inches.
- ·Remove the plants immediately and replace with native plants as needed.

-An inspection checklist shall be included in the maintenance and shall be completed at a minimum once every year.
-Regular inspection of the stream shall occur to assure proper implementation of BMP's. Operation and maintenance plans shall be inspected by a qualified person, which may include the landowner or owner's designee (including the municipality for dedicated and owned facilities).

BMP-SR21 Stream Restoration:

Location:	Overbrook Ave.
Responsible Party:	DAMA
O&M Activities:	-Maintenance is necessary every quarter to ensure proper functionality of the stream. -Any structure that is expected to receive and/or trap debris and sediment shall be thoroughly inspected for excessive debris and clogging. Inspections shall be conducted at a minimum four (4) times per year or immediately following any storm creating greater than one (1) inch of water. -During the regular inspections the ford stream crossing should be thoroughly inspected for erosion. Erosion should be repaired immediately with native stream bed material or in some cases riprap to ensure proper flow rate.

-Vehicles shall not be parked or driven on the streambed and care shall be taken to avoid excessive compaction by mower if applicable.
-Sediment removed from the site shall be disposed of properly, and any areas that were disturbed shall be stabilized and revegetated immediately.
-Care shall be taken to prevent compaction of in situ soils to promote healthy vegetation growth and to encourage infiltration.
-Inspect the stream and floodplain after runoff events and make sure the stream returns to average water levels within 72 hours.
-Also inspect for damage to erosion control measures, signs of water contamination/spills, and slope stability.
-Upkeep of vegetation including mowing and/or trimming shall be performed as necessary to sustain the system. All detritus shall be removed from the basin.

- ·Fertilizers and pesticides shall not be used in maintaining the vegetation.
- ·All vegetated areas shall be inspected every year for any erosion.
- ·All vegetated areas shall be inspected every year for unwanted growth of exotic and/or invasive species.
- ·Vegetative cover shall be maintained at a minimum of ninety-five (95) percent. Vegetation shall be reestablished if vegetative cover has been reduced by ten (10) percent.

-If during inspection there are invasive species present, methods to control or reduce them include the following:

- ·Mowing should occur twice each growing season, mowing height should be set between eight and twelve inches.
- ·Remove the plants immediately and replace with native plants as needed.

-An inspection checklist shall be included in the maintenance and shall be completed at a minimum once every year.
-Regular inspection of the stream shall occur to assure proper implementation of BMP’s. Operation and maintenance plans shall be inspected by a qualified person, which may include the landowner or owner’s designee (including the municipality for dedicated and owned facilities).

9. PRP Implementation Schedule

Task	Implementation Date
MS4 Permit Authorization	August 1, 2019
BMP-P1	Constructed Fall 2021
BMP-P2	Constructed Fall 2021
BMP-P3	Estimated Summer 2025
BMP-P4	Constructed Fall 2020
BMP-P26	Estimated Summer 2025
BMP-B1	Constructed June 2023
BMP-B7	Constructed June 2023
BMP-B16	Constructed June 2023
BMP-B33	Constructed June 2023
BMP-B34	Constructed June 2023
BMP-B35	Constructed June 2023
BMP-B41	Constructed August 2022
BMP-B45	Constructed June 2023
BMP-B51	Constructed June 2023
BMP-B71	Constructed June 2023
BMP-B72	Constructed June 2023
BMP-B74	Constructed June 2023
BMP-B79	Constructed June 2023
BMP-B80	Constructed June 2023
BMP-SR12	Estimated Winter 2025

BMP-SR17	Estimated Summer 2025
BMP-SR21	Estimated Summer 2025
MS4 Permit Expiration	March 15, 2023
PRP Project Implementation Deadline	July 30, 2024

ATTACHMENT A: Public Notice Documentation

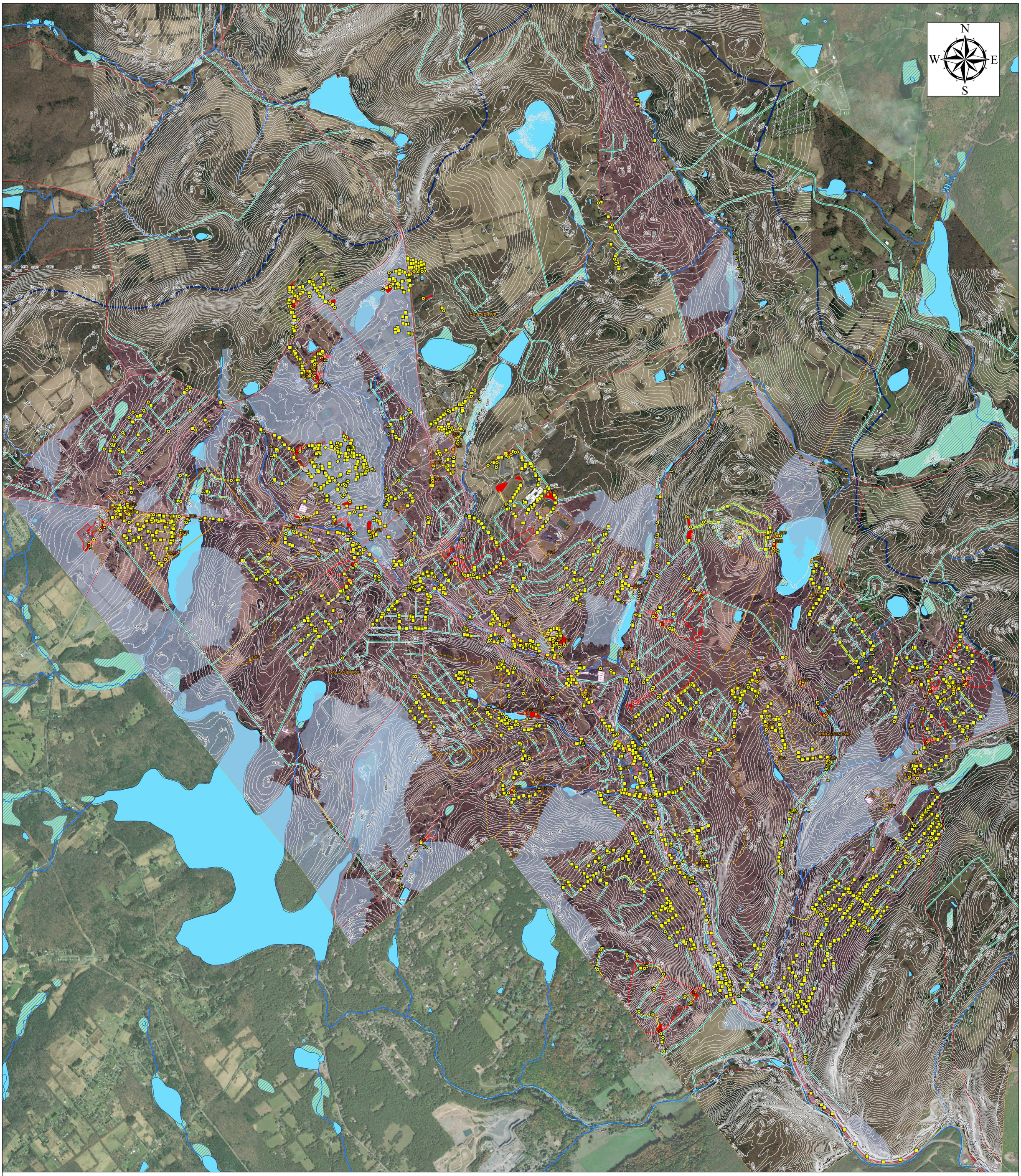
I. PRP ADVERTISEMENT

II. WRITTEN PUBLIC COMMENTS

III. PUBLIC MEETING COMMENTS

IV. RECORD OF CONSIDERATION OF ALL TIMELY COMMENTS RECEIVED

ATTACHMENT B: Map – DAMA MS4 Conveyance System



Legend:

- Existing BMP
- Selected PRP BMPs
- Outfall
- Inlet (Catch Basin)
- Outlet Structure
- Endwall
- Headwall
- Manhole
- Swale
- StormwaterPipe
- Municipality Owned Roads
- Contour Lines 10ft
- Pa State Roads
- NHD Streams
- Existing BMP Drianage Area
- Proposed PRP BMP Drainage Area
- 2010 Urbanized Area
- NHD Waterbodies
- NWI Wetlands
- HUC12 Watershed
- Municipal Boundaires
- BMP
- Parsed Area

Pollutant Reduction Plan Map

Dallas Area Municipal Authority

Dallas Borough, Dallas Township & Kingston Township
Luzerne County, PA

0 2,500 5,000 Feet

1:10,000

Date Produced/Author:
5/5/2025 RWC
Projection/Coordinate System:
NAD 1983 StatePlane Pennsylvania North FIPS 3701 Feet
Data Source:
World Imagery: Maxar
PEMAImagery2018_WEB:

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N
W E
S

FRA

DALLAS TWP

DALLAS BORO

LEHMAN TWP

KINGSTON TWP

COURTDALE BORO

Legend:

Parcing Justification
- Flows to State Road
- Flows Directly to Stream
- Out of Planning Area
- Is State Road
- NHD Waterbodies
- NHD Streams
- NWI Wetlands
- Municipal Boundaires
- Pa State Roads
- Municipality Owned Roads
- 2010 Urbanized Area
- Contour Lines 10ft

PRP Parsing Comparison Map

Dallas Area Municipal Authority

Dallas Borough, Dallas Township & Kingston Township
Luzerne County, PA

0 2,500 5,000 Feet

1:10,000

Date Produced/Author:
5/19/2025 RWC
Projection/Coordinate System:
NAD 1983 2011 StatePlane Pennsylvania North FIPS 3701 Ft US
Data Source:
World Imagery: Maxar

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ATTACHMENT C: Existing Pollutants of Concern

Data Entered By: *Raphael Caloia*
Date Data Entered: *4/28/2025*
Source File Name: *NCLD Landuse*
Watershed: *Toby Creek*
Year: *2019*

Model My Watershed OUTPUT DATA

Source	Area	Sediment	Tot N	Tot P
Units	*acres*	*tons/year*	*lbs/year*	*lbs/year*
Hay/Past	2,688.9	17.0	2,636.3	1,335.3
Cropland	4.9	1.1	20.5	5.7
Forest	11,044.4	6.9	1,144.6	79.4
Wetland	881.5	0.5	348.8	19.8
Disturbed	0.0	0.0	0.0	0.0
Turfgrass	0.0	0.0	0.0	0.0
Open_Land	98.8	2.5	95.0	9.5
Bare_Rock	177.8	0.0	83.8	2.9
Sandy_Areas	0.0	0.0	0.0	0.0
Unpaved_Road	0.0	0.0	0.0	0.0
Ld_Mixed	5,644.4	36.1	1,853.5	198.0
Md_Mixed	1,646.9	55.5	2,373.5	243.4
Hd_Mixed	669.1	22.6	966.0	99.0
Ld_Residential	0.0	0.0	0.0	0.0
Md_Residential	0.0	0.0	0.0	0.0
Hd_Residential	0.0	0.0	0.0	0.0
Farm Animals		0.0	983.0	232.6
Tile Drainage		0.0	0.0	0.0
Stream Bank		3,747.6	6,319.5	2,919.4
Groundwater		0.0	125,524.7	1,637.9
Point Source		0.0	0.0	0.0
Septic Systems		0.0	5,230.0	0.0
Totals	*22,856.8*	*3,890.0*	*147,579.3*	*6,783.0*

STREAM LENGTHS* **KM*** **FEET**

			Sed lb/ft	*TN lb/ft*	*TP lb/ft*
Total Length	64.8	212598.4	35.3	0.03	0.01
Ag Streams	4.25	13943.6			
Non-Ag Streams	60.55	198654.9			

* These values can be obtained from the "Stream" tab in the "Analyze" section of a Model My Watershed run

FARM ANIMAL DATA

TYPE*	NUMBER*	AVG WT KG	TOTAL KG	TOTAL AEU	KG N/AEU/DAY	KG P/AEU/DAY	TOTAL N/DAY	TOTAL P/DAY
Chickens, Broilers	20	0.9	18	0.018	1.07	0.3	0.01926	0.0054
Chickens, Layers	0	1.8	0	0	0.85	0.29	0	0
Cows, Beef	23	360	8280	8.28	0.31	0.09	2.5668	0.7452
Cows, Dairy	31	640	19840	19.84	0.44	0.07	8.7296	1.3888
Horses	28	500	14000	14	0.28	0.06	3.92	0.84
Pigs/Hogs/Swine	8	61	488	0.488	0.48	0.15	0.23424	0.0732
Sheep	33	50	1650	1.65	0.37	0.1	0.6105	0.165
Turkeys	0	6.8	0	0	0.59	0.2	0	0
				Daily Totals			16.08	3.22
				Poultry Totals			0.02	0.01
				Livestock Totals			16.06	3.21
				Poultry Fraction			0.0012	0.0017
				Livestock Fraction			0.9988	0.9983

* These values can be obtained from the "Animal" tab in the "Analyze" section of a Model My Watershed run

MMW NLCD Land Cover Categories for Watershed (from "Analyze" csv file)

TYPE	AREA (km^2)	AREA (acres)
Open Water	1.69	417.28
Perennial Ice/Snow	0	-
Developed, Open Space	13.85	3,419.75
Developed, Low Intensity	9.01	2,224.69
Developed, Medium Intensity	6.67	1,646.91
Developed, High Intensity	2.71	669.14
Barren Land (Rock/Sand/Clay)	0.72	177.78
Deciduous Forest	28.85	7,123.46
Evergreen Forest	1.38	340.74
Mixed Forest	13.71	3,385.19
Shrub/Scrub	0.79	195.06
Grassland/Herbaceous	0.4	98.77
Pasture/Hay	10.89	2,688.89
Cultivated Crops	0.02	4.94
Woody Wetlands	3.23	797.53
Emergent Herbaceous Wetlands	0.34	83.95
Totals	*92.57*	*22,856.79*

Pollutant Load Conversion from Metric to Standard Units (from "Model" csv file)

SOURCE	SEDIMENT (kg)	TOTAL N (kg)	TOTAL P (kg)	SEDIMENT (tons)	TOTAL N (lbs)	TOTAL P (lbs)
Hay/Pasture	15464.6	1195.6	605.6	17.0	2636.3	1335.3
Cropland	1021.1	9.3	2.6	1.1	20.5	5.7
Wooded Areas	6290.1	519.1	36.0	6.9	1144.6	79.4
Wetlands	456.2	158.2	9.0	0.5	348.8	19.8
Open Land	2296.3	43.1	4.3	2.5	95.0	9.5
Barren Areas	45.3	38.0	1.3	0.0	83.8	2.9
Low-Density Mixed	12918.1	331.3	35.4	14.2	730.5	78.1
Medium-Density Mixed	50298.7	1076.4	110.4	55.5	2373.5	243.4
High-Density Mixed	20472.8	438.1	44.9	22.6	966.0	99.0
Low-Density Open Space	19860.4	509.3	54.4	21.9	1123.0	120.0
Farm Animals	0.0	445.8	105.5	0.0	983.0	232.6
Stream Bank Erosion	3399212.0	2866.0	1324.0	3747.6	6319.5	2919.4
Subsurface Flow	0.0	56927.3	742.8	0.0	125524.7	1637.9
Point Sources	0.0	0.0	0.0	0.0	0.0	0.0
Septic Systems	0.0	2371.9	0.0	0.0	5230.0	0.0
Totals	*3,528,335.6*	*66,929.4*	*3,076.2*	*3,890.0*	*147,579.3*	*6,783.0*

Note: The information below is only used for allocation of "urban" loads within a larger watershed boundary

MMW NLCD Land Cover Categories for Urban Area (from second, smaller "Analyze" csv file)

TYPE	AREA (km^2)	AREA (acres)	TN (lb/yr)	TP (lb/yr)	Sediment (lb/yr)
Open Water	0.02	4.94			
Perennial Ice/Snow	0	-			
Developed, Open Space	5.72	1,412.35	903.90	254.22	539,153.32
Developed, Low Intensity	4.64	1,145.68	733.23	206.22	437,355.14
Developed, Medium Intensity	1.56	385.19	774.22	157.93	284,910.83
Developed, High Intensity	0.36	88.89	201.78	46.22	91,269.71
Barren Land (Rock/Sand/Clay)	0.03	7.41	5.04	0.89	1,825.95
Deciduous Forest	4.62	1,140.74	353.63	125.48	281,988.62
Evergreen Forest	0.18	44.44	13.78	4.89	10,986.57
Mixed Forest	2.88	711.11	220.44	78.22	175,785.12
Shrub/Scrub	0.07	17.28	5.36	1.90	4,272.55
Grassland/Herbaceous	0.05	12.35	14.44	2.47	3,669.24
Pasture/Hay	1.34	330.86	512.84	228.30	85,569.30
Cultivated Crops	0	-	0.00	0.00	0.00
Woody Wetlands	0.65	160.49	97.90	19.26	39,655.33
Emergent Herbaceous Wetlands	0.03	7.41	4.52	0.89	1,830.25
Totals	*22.13*	*5,464.20*	*3,841.09*	*1,126.89*	*1,958,271.93*

(Note: The values below only pertain to the smaller target area)

STREAM LENGTHS* **KM*** **FEET**

Total Length	22.38	73425.2
Ag Streams	0.85	2788.7
Non-Ag Streams	21.54	70669.3

* These values can be obtained from the "Stream" tab in the "Analyze" section of a Model My Watershed run

ATTACHMENT D: Existing BMP Pollutant Reductions

Urban BMP Load Reduction Calculation Table

INSTRUCTIONS: Each row in the table below can represent either different areas of land use/cover within a single planning area (e.g., municipality), or different BMP drainage areas within a given planning area.
If an individual planning area has multiple "developed land" types, each type can be represented in separate rows, with each row having the same "Project Name". If it is assumed that the planning area is being treated by one BMP system, then the "Treatment Depth" should be the same for each row.
Similarly, a given planning area can have multiple "BMP drainage areas" (i.e., areas treated by different BMP systems). If a BMP drainage area has multiple "developed land" types, separate "land use areas" can be represented on separate rows, with each row having the same "Project Name". Also, in the case of "RR" and "ST" BMP types, the treatment depth should be the same for any row associated with the same Project N
If runoff from a land use/cover type with NO impervious cover (e.g., Cropland) is treated by a BMP system (either existing or proposed), use the Manual Override (column R) to type in the treatment depth instead of column Q as would normally be done.
Examples of various options for characterizing different types of project areas are provided in the "Example" spreadsheet that is also available for downloading from the Model My Watershed site.

Project Name	BMP Type	Existing or Proposed	Year Installed	MapShed Land Cover of Drainage Area	Drainage Area Treated by BMP (Acres)	Impervious Area (ac)	Impervious Surface (%)	TSS Load (lbs/yr)	TP Load (lbs/yr)	TN Load (lbs/yr)	TSS Reduction (%)	TP Reduction (%)	TN Reduction (%)	TSS Reduction (lbs/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)
Project_name	BMP_type	Existing?	YearInstalled	drainageLandCoverClass	drainageArea_ac	imperv Area_ac	imperv Fraction	TSS_Load_lbPer	TP_Load_lbPerY	TN_Load_lbPerY	TSS_Reduction E	TP_ReductionEfficie	TN_ReductionEfficiency	TSS_Reduction_lbPerY	TP_Reduction_lb	TN_Reduction_lb
B14	Wet Ponds and Wetlands	Existing	Pre-1993	Ld_Mixed	10.26	1.54	15.0%	3,916.68	1.85	6.57	60.0%	45.0%	20.0%	2,350.01	0.83	1.31
B14	Wet Ponds and Wetlands	Existing	Pre-1993	Md_Mixed	5.92	3.08	52.0%	4,378.86	2.43	11.90	60.0%	45.0%	20.0%	2,627.32	1.09	2.38
B14	Wet Ponds and Wetlands	Existing	Pre-1993	Hd_Mixed	4.34	3.78	87.0%	4,456.24	2.26	9.85	60.0%	45.0%	20.0%	2,673.75	1.02	1.97
B14	Wet Ponds and Wetlands	Existing	Pre-1993	Forest	7.89	0.00	0.0%	1,950.39	0.87	2.45	60.0%	45.0%	20.0%	1,170.23	0.39	0.49
B15	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Ld_Mixed	3.16	0.47	15.0%	1,206.31	0.57	2.02	10.0%	10.0%	5.0%	120.63	0.06	0.10
B15	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B15	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	10.0%	10.0%	5.0%	48.70	0.02	0.03
B17	Dry Extended Detention Ponds	Existing	2010	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	60.0%	20.0%	20.0%	180.95	0.03	0.10
B17	Dry Extended Detention Ponds	Existing	2010	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	60.0%	20.0%	20.0%	350.60	0.06	0.32
B17	Dry Extended Detention Ponds	Existing	2010	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	60.0%	20.0%	20.0%	60.52	0.05	0.12
B18	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Ld_Mixed	1.18	0.18	15.0%	450.46	0.21	0.76	10.0%	10.0%	5.0%	45.05	0.02	0.04
B18	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	10.0%	10.0%	5.0%	116.87	0.06	0.16
B19	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Ld_Mixed	3.95	0.59	15.0%	1,507.89	0.71	2.53	10.0%	10.0%	5.0%	150.79	0.07	0.13
B19	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Md_Mixed	2.76	1.44	52.0%	2,041.50	1.13	5.55	10.0%	10.0%	5.0%	204.15	0.11	0.28
B19	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B19	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Hay/Past	6.71	0.00	0.0%	1,735.36	4.63	10.40	10.0%	10.0%	5.0%	173.54	0.46	0.52
B20	Dry Extended Detention Ponds	Existing	2014	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	60.0%	20.0%	20.0%	89.33	0.01	0.05
B20	Dry Extended Detention Ponds	Existing	2014	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	60.0%	20.0%	20.0%	173.08	0.03	0.16
B20	Dry Extended Detention Ponds	Existing	2014	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	60.0%	20.0%	20.0%	240.27	0.04	0.18
B20	Dry Extended Detention Ponds	Existing	2014	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	60.0%	20.0%	20.0%	57.84	0.01	0.02
B21	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	5.92	0.89	15.0%	2,259.92	1.07	3.79	10.0%	10.0%	5.0%	225.99	0.11	0.19
B21	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	3.55	1.85	52.0%	2,625.84	1.46	7.14	10.0%	10.0%	5.0%	262.58	0.15	0.36
B21	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hay/Past	1.58	0.00	0.0%	408.63	1.09	2.45	10.0%	10.0%	5.0%	40.86	0.11	0.12
B21	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Wetland	0.39	0.00	0.0%	96.36	0.05	0.24	10.0%	10.0%	5.0%	9.64	0.00	0.01
B22	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	10.0%	10.0%	5.0%	60.32	0.03	0.05
B22	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	10.0%	10.0%	5.0%	116.87	0.06	0.16
B22	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hay/Past	1.18	0.00	0.0%	305.18	0.81	1.83	10.0%	10.0%	5.0%	30.52	0.08	0.09
B23	Wet Ponds and Wetlands	Existing	2005-2008	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	60.0%	45.0%	20.0%	1,717.84	0.61	0.96
B23	Wet Ponds and Wetlands	Existing	2005-2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	60.0%	45.0%	20.0%	173.08	0.07	0.16
B23	Wet Ponds and Wetlands	Existing	2005-2008	Forest	17.37	0.00	0.0%	4,293.83	1.91	5.38	60.0%	45.0%	20.0%	2,576.30	0.86	1.08
B23	Wet Ponds and Wetlands	Existing	2005-2008	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	60.0%	45.0%	20.0%	122.59	0.25	0.24
B23	Wet Ponds and Wetlands	Existing	2005-2008	Wetland	1.18	0.00	0.0%	291.56	0.14	0.72	60.0%	45.0%	20.0%	174.93	0.06	0.14
B24	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Ld_Mixed	3.16	0.47	15.0%	1,206.31	0.57	2.02	10.0%	10.0%	5.0%	120.63	0.06	0.10
B24	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B24	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B24	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Forest	19.34	0.00	0.0%	4,780.81	2.13	6.00	10.0%	10.0%	5.0%	478.08	0.21	0.30
B24	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Hay/Past	1.58	0.00	0.0%	408.63	1.09	2.45	10.0%	10.0%	5.0%	40.86	0.11	0.12
B25	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Ld_Mixed	3.55	0.53	15.0%	1,355.19	0.64	2.27	10.0%	10.0%	5.0%	135.52	0.06	0.11
B25	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B25	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Forest	3.16	0.00	0.0%	781.15	0.35	0.98	10.0%	10.0%	5.0%	78.11	0.03	0.05
B25	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005-2008	Wetland	0.39	0.00	0.0%	96.36	0.05	0.24	10.0%	10.0%	5.0%	9.64	0.00	0.01
B26	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B26	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B26	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B26	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	10.0%	10.0%	5.0%	48.70	0.02	0.03
B27	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	3.55	0.53	15.0%	1,355.19	0.64	2.27	10.0%	10.0%	5.0%	135.52	0.06	0.11
B27	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	2.76	1.44	52.0%	2,041.50	1.13	5.55	10.0%	10.0%	5.0%	204.15	0.11	0.28
B27	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hd_Mixed	2.37	2.06	87.0%	2,433.48	1.23	5.38	10.0%	10.0%	5.0%	243.35	0.12	0.27
B27	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	10.0%	10.0%	5.0%	48.70	0.02	0.03
B27	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hay/Past	5.53	0.00	0.0%	1,430.19	3.82	8.57	10.0%	10.0%	5.0%	143.02	0.38	0.43
B28	Dry Extended Detention Ponds	Existing	2011	Ld_Mixed	2.37	0.36	15.0%	904.73	0.43	1.52	60.0%	20.0%	20.0%	542.84	0.09	0.30
B28	Dry Extended Detention Ponds	Existing	2011	Md_Mixed	7.89	4.10	52.0%	5,836.01	3.23	15.86	60.0%	20.0%	20.0%	3,501.61	0.65	3.17
B28	Dry Extended Detention Ponds	Existing	2011	Hd_Mixed	2.76	2.40	87.0%	2,833.92	1.44	6.27	60.0%	20.0%	20.0%	1,700.35	0.29	1.25
B31	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	4.74	0.71	15.0%	1,809.46	0.85	3.03	10.0%	10.0%	5.0%	180.95	0.09	0.15
B31	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	3.95	2.05	52.0%	2,921.71	1.62	7.94	10.0%	10.0%	5.0%	292.17	0.16	0.40
B31	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	10.0%	10.0%	5.0%	48.70	0.02	0.03
B31	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B32	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	8.68	1.30	15.0%	3,313.53	1.56	5.56	10.0%	10.0%	5.0%	331.35	0.16	0.28
B32	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B32	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	3.95	0.00	0.0%	976.43	0.43	1.22	10.0%	10.0%	5.0%	97.64	0.04	0.06
B39	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	10.0%	10.0%	5.0%	87.28	0.05	0.12
B40	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	10.0%	10.0%	5.0%	30.16	0.01	0.03
B42	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	10.0%	10.0%	5.0%	30.16	0.01	0.03
B42	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B42	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	10.0%	10.0%	5.0%	19.53	0.01	0.01
B43	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B43	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04

B49	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B52	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Ld_Mixed	89.19	13.38	15.0%	34,047.67	16.05	57.08	10.0%	10.0%	5.0%	3,404.77	1.61	2.85
B52	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Md_Mixed	9.47	4.92	52.0%	7,004.70	3.88	19.03	10.0%	10.0%	5.0%	700.47	0.39	0.95
B52	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	10.0%	10.0%	5.0%	81.12	0.04	0.09
B52	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Forest	18.15	0.00	0.0%	4,486.64	2.00	5.63	10.0%	10.0%	5.0%	448.66	0.20	0.28
B52	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hay/Past	2.76	0.00	0.0%	713.80	1.90	4.28	10.0%	10.0%	5.0%	71.38	0.19	0.21
B53	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Ld_Mixed	24.86	3.73	15.0%	9,490.14	4.47	15.91	10.0%	10.0%	5.0%	949.01	0.45	0.80
B53	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Md_Mixed	3.55	1.85	52.0%	2,625.84	1.46	7.14	10.0%	10.0%	5.0%	262.58	0.15	0.36
B53	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B53	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Forest	5.53	0.00	0.0%	1,367.00	0.61	1.71	10.0%	10.0%	5.0%	136.70	0.06	0.09
B53	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B54	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Ld_Mixed	4.74	0.71	15.0%	1,809.46	0.85	3.03	10.0%	10.0%	5.0%	180.95	0.09	0.15
B54	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Forest	10.66	0.00	0.0%	2,635.13	1.17	3.30	10.0%	10.0%	5.0%	263.51	0.12	0.17
B54	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B55	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B55	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B56	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B56	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B58	Dry Detention Ponds and Hydrodynamic Structures	Existing	2011	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	10.0%	10.0%	5.0%	60.32	0.03	0.05
B58	Dry Detention Ponds and Hydrodynamic Structures	Existing	2011	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	10.0%	10.0%	5.0%	116.87	0.06	0.16
B59	Dry Detention Ponds and Hydrodynamic Structures	Existing	2011	Ld_Mixed	2.76	0.41	15.0%	1,053.61	0.50	1.77	10.0%	10.0%	5.0%	105.36	0.05	0.09
B59	Dry Detention Ponds and Hydrodynamic Structures	Existing	2011	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	10.0%	10.0%	5.0%	9.64	0.00	0.01
B60	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Ld_Mixed	1.97	0.30	15.0%	752.03	0.35	1.26	10.0%	10.0%	5.0%	75.20	0.04	0.06
B60	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Md_Mixed	1.97	1.02	52.0%	1,457.15	0.81	3.96	10.0%	10.0%	5.0%	145.72	0.08	0.20
B60	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hd_Mixed	2.37	2.06	87.0%	2,433.48	1.23	5.38	10.0%	10.0%	5.0%	243.35	0.12	0.27
B60	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Forest	3.55	0.00	0.0%	877.55	0.39	1.10	10.0%	10.0%	5.0%	87.76	0.04	0.06
B60	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B62	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B62	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	9.47	0.00	0.0%	2,340.96	1.04	2.94	10.0%	10.0%	5.0%	234.10	0.10	0.15
B64	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B64	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B64	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	10.0%	10.0%	5.0%	9.64	0.00	0.01
B64	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B65	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	2.37	0.36	15.0%	904.73	0.43	1.52	10.0%	10.0%	5.0%	90.47	0.04	0.08
B65	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	2.76	0.00	0.0%	682.27	0.30	0.86	10.0%	10.0%	5.0%	68.23	0.03	0.04
B66	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	4.74	0.71	15.0%	1,809.46	0.85	3.03	10.0%	10.0%	5.0%	180.95	0.09	0.15
B66	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	4.34	0.00	0.0%	1,072.84	0.48	1.35	10.0%	10.0%	5.0%	107.28	0.05	0.07
B67	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B67	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	10.0%	10.0%	5.0%	116.87	0.06	0.16
B67	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	1.18	0.00	0.0%	291.69	0.13	0.37	10.0%	10.0%	5.0%	29.17	0.01	0.02
B67	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Open_Land	1.58	0.00	0.0%	469.59	0.32	1.85	10.0%	10.0%	5.0%	46.96	0.03	0.09
B67	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B68	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	7.1	1.07	15.0%	2,710.38	1.28	4.54	10.0%	10.0%	5.0%	271.04	0.13	0.23
B68	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B68	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	10.0%	10.0%	5.0%	39.06	0.02	0.02
B68	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Open_Land	1.58	0.00	0.0%	469.59	0.32	1.85	10.0%	10.0%	5.0%	46.96	0.03	0.09
B68	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	1.18	0.00	0.0%	305.18	0.81	1.83	10.0%	10.0%	5.0%	30.52	0.08	0.09
B69	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B69	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	4.74	2.46	52.0%	3,506.05	1.94	9.53	10.0%	10.0%	5.0%	350.60	0.19	0.48
B70	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	1.97	0.30	15.0%	752.03	0.35	1.26	10.0%	10.0%	5.0%	75.20	0.04	0.06
B70	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B73	Wet Ponds and Wetlands	Existing	Pre-1992	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	60.0%	45.0%	20.0%	361.89	0.13	0.20
B73	Wet Ponds and Wetlands	Existing	Pre-1992	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	60.0%	45.0%	20.0%	701.21	0.29	0.64
B77	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B77	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	10.0%	10.0%	5.0%	116.87	0.06	0.16
B77	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	10.0%	10.0%	5.0%	81.12	0.04	0.09
B77	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B78	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Ld_Mixed	51.31	7.70	15.0%	19,587.24	9.24	32.84	10.0%	10.0%	5.0%	1,958.72	0.92	1.64
B78	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Md_Mixed	4.74	2.46	52.0%	3,506.05	1.94	9.53	10.0%	10.0%	5.0%	350.60	0.19	0.48
B78	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Forest	53.67	0.00	0.0%	13,267.11	5.90	16.64	10.0%	10.0%	5.0%	1,326.71	0.59	0.83
B78	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Hay/Past	3.55	0.00	0.0%	918.11	2.45	5.50	10.0%	10.0%	5.0%	91.81	0.24	0.28
B81	Dry Extended Detention Ponds	Existing	2012	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	60.0%	20.0%	20.0%	180.95	0.03	0.10
B81	Dry Extended Detention Ponds	Existing	2012	Md_Mixed	3.95	2.05	52.0%	2,921.71	1.62	7.94	60.0%	20.0%	20.0%	1,753.02	0.32	1.59
B81	Dry Extended Detention Ponds	Existing	2012	Hd_Mixed	3.95	3.44	87.0%	4,055.80	2.05	8.97	60.0%	20.0%	20.0%	2,433.48	0.41	1.79
B82	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	4.34	0.65	15.0%	1,656.77	0.78	2.78	10.0%	10.0%	5.0%	165.68	0.08	0.14
B82	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	14.21	0.00	0.0%	3,512.68	1.56	4.41	10.0%	10.0%	5.0%	351.27	0.16	0.22
B82	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hay/Past	3.55	0.00	0.0%	918.11	2.45	5.50	10.0%	10.0%	5.0%	91.81	0.24	0.28
B83	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	2.37	0.36	15.0%	904.73	0.43	1.52	10.0%	10.0%	5.0%	90.47	0.04	0.08
B83	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	1.97	1.02	52.0%	1,457.15	0.81	3.96	10.0%	10.0%	5.0%	145.72	0.08	0.20
B83	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hd_Mixed	1.18	1.03	87.0%	1,211.61	0.61	2.68	10.0%	10.0%	5.0%	121.16	0.06	0.13
B83	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B76	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Ld_Mixed	8.68	1.30	15.0%	3,313.53	1.56	5.56	10.0%	10.0%	5.0%	331.35	0.16	0.28
B76	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Md_Mixed	2.37	1.23	52.0%	1,753.02	0.97	4.76	10.0%	10.0%	5.0%	175.30	0.10	0.24
B76	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Forest	2.76	0.00	0.0%	682.27	0.30	0.86	10.0%	10.0%	5.0%	68.23	0.03	0.04
B76	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B72	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	10.26	1.54	15.0%	3,916.68	1.85	6.57	10.0%	10.0%	5.0%	391.67	0.18	0.33
B72	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	10.0%	10.0%	5.0%	87.28	0.05	0.12
B72	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	6.71	0.00	0.0%	1,658.70	0.74	2.08	10.0%	10.0%	5.0%	165.87	0.07	0.10
B72	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Hay/Past	1.18	0.00	0.0%	305.18	0.81	1.83	10.0%	10.0%	5.0%	30.52	0.08	0.09
B80	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Ld_Mixed	10.26	1.54	15.0%	3,916.68	1.85	6.57	10.0%	10.0%	5.0%	391.67	0.18	0.33

B80	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B80	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Forest	27.23	0.00	0.0%	6,731.20	3.00	8.44	10.0%	10.0%	5.0%	673.12	0.30	0.42
B80	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Hay/Past	5.53	0.00	0.0%	1,430.19	3.82	8.57	10.0%	10.0%	5.0%	143.02	0.38	0.43
B79	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Ld_Mixed	3.16	0.47	15.0%	1,206.31	0.57	2.02	10.0%	10.0%	5.0%	120.63	0.06	0.10
B79	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	10.0%	10.0%	5.0%	19.53	0.01	0.01
B79	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-1999	Hay/Past	9.08	0.00	0.0%	2,348.30	6.27	14.07	10.0%	10.0%	5.0%	234.83	0.63	0.70
B7	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	3.55	0.53	15.0%	1,355.19	0.64	2.27	10.0%	10.0%	5.0%	135.52	0.06	0.11
B7	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	10.0%	10.0%	5.0%	87.28	0.05	0.12
B7	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	10.0%	10.0%	5.0%	81.12	0.04	0.09
B34	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	3.16	0.47	15.0%	1,206.31	0.57	2.02	10.0%	10.0%	5.0%	120.63	0.06	0.10
B34	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	2.37	1.23	52.0%	1,753.02	0.97	4.76	10.0%	10.0%	5.0%	175.30	0.10	0.24
B34	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	10.0%	10.0%	5.0%	48.70	0.02	0.03
B34	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B33	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	7.89	1.18	15.0%	3,011.95	1.42	5.05	10.0%	10.0%	5.0%	301.20	0.14	0.25
B33	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	4.34	2.26	52.0%	3,210.18	1.78	8.72	10.0%	10.0%	5.0%	321.02	0.18	0.44
B33	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	10.0%	10.0%	5.0%	39.06	0.02	0.02
B33	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	10.0%	10.0%	5.0%	20.43	0.05	0.06
B16	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Hay/Past	1.58	0.00	0.0%	408.63	1.09	2.45	10.0%	10.0%	5.0%	40.86	0.11	0.12
B51	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	10.0%	10.0%	5.0%	60.32	0.03	0.05
B51	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B51	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	10.0%	10.0%	5.0%	81.12	0.04	0.09
B51	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Hay/Past	2.37	0.00	0.0%	612.94	1.64	3.67	10.0%	10.0%	5.0%	61.29	0.16	0.18
B35	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	3.95	0.59	15.0%	1,507.89	0.71	2.53	10.0%	10.0%	5.0%	150.79	0.07	0.13
B35	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B35	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	10.0%	10.0%	5.0%	19.53	0.01	0.01
B35	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B45	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	10.0%	10.0%	5.0%	30.16	0.01	0.03
B45	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B10	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B10	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B10	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B10	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Forest	2.37	0.00	0.0%	585.86	0.26	0.73	10.0%	10.0%	5.0%	58.59	0.03	0.04
B10	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1993	Hay/Past	1.58	0.00	0.0%	408.63	1.09	2.45	10.0%	10.0%	5.0%	40.86	0.11	0.12
B13	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	10.0%	10.0%	5.0%	60.32	0.03	0.05
B13	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Md_Mixed	1.97	1.02	52.0%	1,457.15	0.81	3.96	10.0%	10.0%	5.0%	145.72	0.08	0.20
B13	Dry Detention Ponds and Hydrodynamic Structures	Existing	2010	Hd_Mixed	2.37	2.06	87.0%	2,433.48	1.23	5.38	10.0%	10.0%	5.0%	243.35	0.12	0.27
B1	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B1	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B71	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	4.74	0.71	15.0%	1,809.46	0.85	3.03	10.0%	10.0%	5.0%	180.95	0.09	0.15
B71	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B71	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	10.0%	10.0%	5.0%	39.06	0.02	0.02
B74	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B74	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B74	Dry Detention Ponds and Hydrodynamic Structures	Existing	1992-2005	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	10.0%	10.0%	5.0%	9.64	0.00	0.01
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	5.13	0.77	15.0%	1,958.34	0.92	3.28	10.0%	10.0%	5.0%	195.83	0.09	0.16
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	10.0%	10.0%	5.0%	87.28	0.05	0.12
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hd_Mixed	0.39	0.34	87.0%	400.45	0.20	0.89	10.0%	10.0%	5.0%	40.04	0.02	0.04
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Forest	2.37	0.00	0.0%	585.86	0.26	0.73	10.0%	10.0%	5.0%	58.59	0.03	0.04
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Open_Land	0.79	0.00	0.0%	234.79	0.16	0.92	10.0%	10.0%	5.0%	23.48	0.02	0.05
B29	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	10.0%	10.0%	5.0%	10.09	0.03	0.03
B30	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	10.0%	10.0%	5.0%	286.31	0.14	0.24
B30	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	5.92	3.08	52.0%	4,378.86	2.43	11.90	10.0%	10.0%	5.0%	437.89	0.24	0.59
B30	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Forest	4.34	0.00	0.0%	1,072.84	0.48	1.35	10.0%	10.0%	5.0%	107.28	0.05	0.07
B30	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Open_Land	0.39	0.00	0.0%	115.91	0.08	0.46	10.0%	10.0%	5.0%	11.59	0.01	0.02
B75	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	10.0%	10.0%	5.0%	30.16	0.01	0.03
B75	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	10.0%	10.0%	5.0%	58.43	0.03	0.08
B75	Dry Detention Ponds and Hydrodynamic Structures	Existing	2005	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	10.0%	10.0%	5.0%	9.64	0.00	0.01
B63	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	10.0%	10.0%	5.0%	30.16	0.01	0.03
B63	Dry Detention Ponds and Hydrodynamic Structures	Existing	1993-2005	Forest	2.76	0.00	0.0%	682.27	0.30	0.86	10.0%	10.0%	5.0%	68.23	0.03	0.04
B38	Dry Detention Ponds and Hydrodynamic Structures	Existing	2017	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	10.0%	10.0%	5.0%	87.28	0.05	0.12
B38	Dry Detention Ponds and Hydrodynamic Structures	Existing	2017	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	10.0%	10.0%	5.0%	81.12	0.04	0.09
B41	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	10.0%	10.0%	5.0%	14.89	0.01	0.01
B41	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	10.0%	10.0%	5.0%	28.85	0.02	0.04
B41	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	10.0%	10.0%	5.0%	9.64	0.00	0.01
B41T	Dry Detention Ponds and Hydrodynamic Structures	Existing	2008	Ld_Mixed	0.39	0.06	15.0%	1,366.70	0.72	3.29	10.0%	10.0%	5.0%	136.67	0.07	0.16
B59T	Dry Detention Ponds and Hydrodynamic Structures	Existing	2011	Ld_Mixed	0.39	0.06	15.0%	620.03	0.32	1.63	10.0%	10.0%	5.0%	62.00	0.03	0.08
B54T	Dry Detention Ponds and Hydrodynamic Structures	Existing	Pre-1992	Ld_Mixed	0.39	0.06	15.0%	12,495.10	6.06	22.65	10.0%	10.0%	5.0%	1,249.51	0.61	1.13

Project Name				
B1	**LBS REDUCED**	**43.74**	0.02	0.05
B7	**LBS REDUCED**	**303.92**	0.15	0.32
B13	**LBS REDUCED**	**449.38**	0.23	0.52
B14	**LBS REDUCED**	**8,821.31**	3.33	6.15
B15	**LBS REDUCED**	**198.18**	0.09	0.17
B16	**LBS REDUCED**	**40.86**	0.11	0.12
B17	**LBS REDUCED**	**592.07**	0.15	0.54
B18	**LBS REDUCED**	**161.91**	0.09	0.20
B19	**LBS REDUCED**	**568.52**	0.67	0.97
B20	**LBS REDUCED**	**560.52**	0.10	0.41
B21	**LBS REDUCED**	**539.07**	0.37	0.68
B22	**LBS REDUCED**	**207.70**	0.17	0.30
B23	**LBS REDUCED**	**4,764.75**	1.85	2.58
B24	**LBS REDUCED**	**708.47**	0.41	0.61
B25	**LBS REDUCED**	**252.12**	0.12	0.21
B26	**LBS REDUCED**	**162.06**	0.08	0.17
B27	**LBS REDUCED**	**774.73**	0.70	1.12
B28	**LBS REDUCED**	**5,744.80**	1.02	4.73
B29	**LBS REDUCED**	**415.31**	0.23	0.44
B30	**LBS REDUCED**	**843.07**	0.43	0.93
B31	**LBS REDUCED**	**531.90**	0.30	0.61
B32	**LBS REDUCED**	**487.43**	0.23	0.42
B33	**LBS REDUCED**	**681.70**	0.39	0.77
B34	**LBS REDUCED**	**354.72**	0.20	0.40
B35	**LBS REDUCED**	**238.84**	0.14	0.25
B38	**LBS REDUCED**	**168.40**	0.09	0.21
B39	**LBS REDUCED**	**87.28**	0.05	0.12
B40	**LBS REDUCED**	**30.16**	0.01	0.03
B41	**LBS REDUCED**	**53.38**	0.03	0.06
B41T	**LBS REDUCED**	**136.67**	0.07	0.16
B42	**LBS REDUCED**	**108.12**	0.06	0.12
B43	**LBS REDUCED**	**43.74**	0.02	0.05
B45	**LBS REDUCED**	**88.59**	0.05	0.10
B49	**LBS REDUCED**	**14.89**	0.01	0.01
B51	**LBS REDUCED**	**261.16**	0.27	0.40
B52	**LBS REDUCED**	**4,706.40**	2.42	4.39
B53	**LBS REDUCED**	**1,398.43**	0.70	1.31
B54	**LBS REDUCED**	**464.89**	0.26	0.38
B55	**LBS REDUCED**	**68.89**	0.04	0.08
B56	**LBS REDUCED**	**68.89**	0.04	0.08
B58	**LBS REDUCED**	**177.18**	0.09	0.21
B59	**LBS REDUCED**	**115.00**	0.05	0.09
B59T	**LBS REDUCED**	**62.00**	0.03	0.08
B60	**LBS REDUCED**	**572.45**	0.33	0.65

	TSS Reduction (lbs/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)
Existing TOTAL LBS REDUCED	55,574.88	25.28	49.53

B62	**LBS REDUCED**	**520.40**	0.24	0.39
B63	**LBS REDUCED**	**98.38**	0.04	0.07
B64	**LBS REDUCED**	**63.46**	0.05	0.09
B65	**LBS REDUCED**	**158.70**	0.07	0.12
B66	**LBS REDUCED**	**288.23**	0.13	0.22
B67	**LBS REDUCED**	**499.74**	0.30	0.57
B68	**LBS REDUCED**	**416.42**	0.27	0.47
B69	**LBS REDUCED**	**636.91**	0.33	0.72
B70	**LBS REDUCED**	**104.05**	0.05	0.10
B71	**LBS REDUCED**	**278.44**	0.14	0.26
B72	**LBS REDUCED**	**675.34**	0.39	0.64
B73	**LBS REDUCED**	**1,063.10**	0.42	0.84
B74	**LBS REDUCED**	**324.80**	0.16	0.29
B75	**LBS REDUCED**	**98.23**	0.05	0.11
B76	**LBS REDUCED**	**584.97**	0.31	0.59
B77	**LBS REDUCED**	**233.30**	0.17	0.32
B78	**LBS REDUCED**	**3,727.85**	1.95	3.23
B79	**LBS REDUCED**	**374.99**	0.69	0.82
B80	**LBS REDUCED**	**1,266.24**	0.90	1.26
B81	**LBS REDUCED**	**4,367.45**	0.76	3.48
B82	**LBS REDUCED**	**608.76**	0.48	0.63
B83	**LBS REDUCED**	**377.78**	0.24	0.47

ATTACHMENT E: Existing Loading with BMPs for Pollutants of Concern

	Entire Watershed			Urban Area*		
	Sediment (lbs/yr)	**TN (lbs/yr)**	**TP (lbs/yr)**	**Sediment (lbs/yr)**	**TN (lbs/yr)**	**TP (lbs/yr)**
Initial MMW Loads	7,779,980	147,579	6,783	1,958,272	3,841	1,127
Loads Removed w/Existing Urban BMPs	55,575	50	25	55,575	50	25
Loads Removed w/Proposed Urban BMPs	242,880	372	315	242,880	372	315
Loads Removed w/Existing Agricultural BMPs	-	-	-	-	-	-
Loads Removed w/Proposed Agricultural BMPs	-	-	-	-	-	-
Loads Removed w/Existing Floodplain Restoration BMPs	-	-	-	-	-	-
Loads Removed w/Proposed Floodplain Restoration BMPs	-	-	-	-	-	-
Total Loads Removed	298,455	422	340	298,455	422	340
New Reduced Load	7,481,525	147,158	6,443	1,659,817	3,419	787
Percent Reduction (0-100)	*3.8%*	*0.3%*	*5.0%*	*15.2%*	*11.0%*	*30.2%*
Total Baseline Load (1)	7,724,405	147,530	6,758	1,902,697	3,792	1,102
Total Loads Removed from Baseline (2)	242,880	372	315	242,880	372	315
Percent Reduction from Baseline Load	*3.1%*	*0.3%*	*4.7%*	*12.8%*	*9.8%*	*28.6%*

ATTACHMENT F: DAMA PRP Project Overview

BMP ID	BMP Type	2018 PRP TSS Reduction (lbs/yr)	Project Notes
B7	Dry Extended Detention Basin	3,759.72	
B8	Dry Extended Detention Basin	6,206.61	BMP would provide less credits than previously estimated due to parsing
B13	Dry Extended Detention Basin	3,046.30	
B38	Dry Extended Detention Basin	288.82	Not cost effective for credit provided- moved to Alternative Project list
B63	Dry Extended Detention Basin	808.46	Not cost effective for credit provided- moved to Alternative Project list
B75	Dry Extended Detention Basin	8,757.54	Easement acquisition and utility positioning issues - moved to Alternative Project list
B79	Dry Extended Detention Basin	6,066.03	
B80	Dry Extended Detention Basin	7,572.33	
P1	Dry Extended Detention Basin	12,453.12	
P2	Dry Extended Detention Basin	3,760.33	
P3	Dry Extended Detention Basin	1,628.37	
P4	Dry Extended Detention Basin	12,566.03	
P5	Vegetated Open Channel	13,228.31	DEP not accepting of alternative methods proposed; project no longer needed to fullfil requirement for current permit cycle
P6	Vegetated Open Channel	19,743.81	Determined Water of the Commonwealth by DEP therefore cannot complete BMP project here
P7	Dry Extended Detention Basin	222.81	Project is no longer needed to fulfill permit requirement during current permit cycle
P8	Vegetated Open Channel	881.21	Project is no longer needed to fulfill permit requirement during current permit cycle
P9	Foreset Buffer	251.91	Same location as BMP-SR9
P11	Forest Buffer	899.66	Golf course - cannot install buffer in fairway
P13	Dry Extended Detention Basin	18,224.19	Owner request to stop work immediately
P14	Dry Extended Detention Basin	8,003.99	Permitting issues due to wetlands at outfall
P15	Forest Buffer	2,535.82	Same location as BMP-SR15
P18	Permeable Pavement	510.70	Project is no longer needed to fulfill permit requirement during current permit cycle
P19	Dry Extended Detention Basin	526.94	Project is no longer needed to fulfill permit requirement during current permit cycle
P20	Dry Extended Detention Basin	337.58	Project is no longer needed to fulfill permit requirement during current permit cycle
P21	Dry Extended Detention Basin	2,760.02	Project is no longer needed to fulfill permit requirement during current permit cycle
P22	Vegetated Open Channel	17,461.90	Cannot install proposed BMP at this location due to open channels throughout neighborhood
P23	Vegetated Open Channel	4,975.02	Land acquisition issues - moved to Alternative Project list
P24	Vegetated Open Channel	12,977.02	Cannot install proposed BMP at this location due to open channels throughout neighborhood
SB9	Stream Restoration	15,708.00	Established floodplain, buffer, and streambanks look healthy; no reason to perform stream restoration
SB10	Stream Restoration	17,952.00	Project is no longer needed to fulfill permit requirement during current permit cycle
SB11	Stream Restoration	14,810.40	Buffer would be nearly impossible without significant changes to golf course
SB12	Stream Restoration	17,952.00	
SB15	Stream Restoration	62,832.00	Significantly close to neighboring homes with no room for a buffer. Owners and access will also be an issue.
SB16	Stream Restoration	17,503.00	Wetland/lowland drainage area rather than a stream; restoration would certainly disturb healthy, existing wetlands while modifying what appears to be only an intermittent stream.
SB17	Stream Restoration	67,320.00	

Project is Included in 2024 PRP Selected Project List

Project is Not Included in 2024 PRP Selected Project List

ATTACHMENT G: Selected BMP Pollutant Loading Reduction

Selected BMP Pollutant Loading Reductions - BMP Descriptions

BMP-P1: Wet Pond/Wetland
The analysis evaluated the construction of a new wet pond/wetland basin located at Dallas Borough Park. Construction activities include excavating the bottom of the wet pond/wetland to desired elevation, grading and preparing subsoil, applying and grading planting soil, and seeding, plant and mulching.

BMP-P2: Wet Pond/Wetland
The analysis evaluated the construction of a new wet pond/wetland basin located at Lackawanna Ave. Construction activities include excavating the bottom of the wet pond/wetland to desired elevation, grading and preparing subsoil, applying and grading planting soil, and seeding, plant and mulching.

BMP-P3: Rain Garden
The analysis evaluated the construction of a new dry extended detention basin located at Dallas Township Park. Construction activities include excavating rain garden to proposed depth, backfill rain garden with amended soil, complete final grading, plant vegetation, and mulch and install erosion protection where necessary.

BMP-P4: Wet Pond/Wetland
The analysis evaluated the construction of a new wet pond/wetland basin located at Dallas Nature Playground. Construction activities include excavating the bottom of the wet pond/wetland to desired elevation, grading and preparing subsoil, applying and grading planting soil, and seeding, plant and mulching.

BMP-P26: Bioswale
The analysis evaluated the construction of a bioswale located off Hemlock St. Construction activities include re-grading, installing amended soils, bioswale plantings, and the stabilization of existing storm outlets.

BMP-B1: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located at Ridgeway Dr. at Irem Golf Course. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B7: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located at the Misericordia University Tennis Courts. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin

bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B16: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located at 474 Yalick Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B33: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Lincoln St. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B34: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Roosevelt St. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B35: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Lincoln St. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B41: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Wedgewood Wy. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B45: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Masonic Dr. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B51: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located at 474 Yalick Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B71: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Wakefield Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B72: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Alfred Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B74: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Ivy Dr. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B79: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Lantern Hill Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-B80: Dry Extended Detention Basin
The analysis evaluated a basin retrofit at a pre-existing basin located off Lantern Hill Rd. The basin will be retrofitted from a detention basin to a dry extended detention basin. Construction activities include lowering and leveling the basin bottom, increasing the berm height, modifying basin grading, upgrading the outlet structure and pipe, and increasing the spillway invert.

BMP-SR12: Stream Restoration
The analysis evaluated a stream restoration project and buffer along Toby Creek located within the Meadow Complex. Construction activities include up to 500 linear feet

of streambank restoration, vegetative stabilization, and the establishment of 35 feet of riparian buffer on each side of the stream.

BMP-SR17: Stream Restoration
The analysis evaluated a stream restoration project and buffer along an unnamed tributary to Toby Creek located within the Dallas Nature Playground on Dallas Township property. Construction activities include up to 850 linear feet of streambank restoration, vegetative stabilization, and the establishment of 35 feet of riparian buffer on each side of the stream.

BMP-SR21: Stream Restoration
The analysis evaluated a stream restoration project and buffer along Overbrook Ave. Construction activities include up to 400 linear feet of streambank restoration, vegetative stabilization, and the establishment of 35 feet of riparian buffer on each side of the stream.

Urban BMP Load Reduction Calculation Table

INSTRUCTIONS: Each row in the table below can represent either different areas of land use/cover within a single planning area (e.g., municipality), or different BMP drainage areas within a given planning area.
If an individual planning area has multiple "developed land" types, each type can be represented in separate rows, with each row having the same "Project Name". If it is assumed that the planning area is being treated by one BMP system, then the "Treatment Depth" should be the same for each row.
Similarly, a given planning area can have multiple "BMP drainage areas" (i.e., areas treated by different BMP systems). If a BMP drainage area has multiple "developed land" types, separate "land use areas" can be represented on separate rows, with each row having the same "Project Name". Also, in the case of "RR" and "ST" BMP types, the treatment depth should be the same for any row associa
If runoff from a land use/cover type with NO impervious cover (e.g., Cropland) is treated by a BMP system (either existing or proposed), use the Manual Override (column R) to type in the treatment depth instead of column Q as would normally be done.
Examples of various options for characterizing different types of project areas are provided in the "Example" spreadsheet that is also available for downloading from the Model My Watershed site.

Project Name	BMP Type	Existing or Proposed	MapShed Land Cover of Drainage Area	Drainage Area Treated by BMP (Acres)	Impervious Area (ac)	Impervious Surface (%)	TSS Load (lbs/yr)	TP Load (lbs/yr)	TN Load (lbs/yr)	TSS Reduction (%)	TP Reduction (%)	TN Reduction (%)	TSS Reduction (lbs/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)
Project_name	BMP_type	Existing?	drainageLandCoverClass	drainageArea_ac	impervArea_ac	impervFraction	TSS_Load_lbPer	TP_Load_lbPerY	TN_Load_lbPerY	TSS_ReductionE	TP_ReductionEfficie	TN_ReductionEfficiency	TSS_Reduction_lbPerY	TP_Reduction_lb	TN_Reduction_l
P1	Wet Ponds and Wetlands	Proposed	Md_Mixed	0.76	0.40	52.0%	562.15	0.31	1.53	60.0%	45.0%	20.0%	337.29	0.14	0.31
P1	Wet Ponds and Wetlands	Proposed	Forest	1.78	0.00	0.0%	440.01	0.20	0.55	60.0%	45.0%	20.0%	264.01	0.09	0.11
P1	Wet Ponds and Wetlands	Proposed	Open_Land	0.14	0.00	0.0%	41.61	0.03	0.16	60.0%	45.0%	20.0%	24.97	0.01	0.03
P1	Wet Ponds and Wetlands	Proposed	Wetland	0.07	0.00	0.0%	17.30	0.01	0.04	60.0%	45.0%	20.0%	10.38	0.00	0.01
P2	Wet Ponds and Wetlands	Proposed	Md_Mixed	1	0.52	52.0%	739.67	0.41	2.01	60.0%	45.0%	20.0%	443.80	0.18	0.40
P2	Wet Ponds and Wetlands	Proposed	Forest	1.68	0.00	0.0%	415.29	0.18	0.52	60.0%	45.0%	20.0%	249.18	0.08	0.10
P2	Wet Ponds and Wetlands	Proposed	Open_Land	0.09	0.00	0.0%	26.75	0.02	0.11	60.0%	45.0%	20.0%	16.05	0.01	0.02
P2	Wet Ponds and Wetlands	Proposed	Hay/Past	0.01	0.00	0.0%	2.59	0.01	0.02	60.0%	45.0%	20.0%	1.55	0.00	0.00
P2	Wet Ponds and Wetlands	Proposed	Wetland	0.06	0.00	0.0%	14.82	0.01	0.04	60.0%	45.0%	20.0%	8.89	0.00	0.01
B1R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	50.0%	10.0%	15.0%	74.44	0.01	0.04
B1R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	50.0%	10.0%	15.0%	144.24	0.02	0.12
B7R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	3.55	0.53	15.0%	1,355.19	0.64	2.27	50.0%	10.0%	15.0%	677.59	0.06	0.34
B7R	Dry Extended Detention Ponds	Proposed	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	50.0%	10.0%	15.0%	436.41	0.05	0.36
B7R	Dry Extended Detention Ponds	Proposed	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	50.0%	10.0%	15.0%	405.58	0.04	0.27
B16R	Dry Extended Detention Ponds	Proposed	Hay/Past	1.58	0.00	0.0%	408.63	1.09	2.45	50.0%	10.0%	15.0%	204.31	0.11	0.37
B33R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	7.89	1.18	15.0%	3,011.95	1.42	5.05	50.0%	10.0%	15.0%	1,505.98	0.14	0.76
B33R	Dry Extended Detention Ponds	Proposed	Md_Mixed	4.34	2.26	52.0%	3,210.18	1.78	8.72	50.0%	10.0%	15.0%	1,605.09	0.18	1.31
B33R	Dry Extended Detention Ponds	Proposed	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	50.0%	10.0%	15.0%	195.29	0.02	0.07
B33R	Dry Extended Detention Ponds	Proposed	Hay/Past	0.79	0.00	0.0%	204.31	0.55	1.22	50.0%	10.0%	15.0%	102.16	0.05	0.18
B34R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	3.16	0.47	15.0%	1,206.31	0.57	2.02	50.0%	10.0%	15.0%	603.15	0.06	0.30
B34R	Dry Extended Detention Ponds	Proposed	Md_Mixed	2.37	1.23	52.0%	1,753.02	0.97	4.76	50.0%	10.0%	15.0%	876.51	0.10	0.71
B34R	Dry Extended Detention Ponds	Proposed	Forest	1.97	0.00	0.0%	486.98	0.22	0.61	50.0%	10.0%	15.0%	243.49	0.02	0.09
B34R	Dry Extended Detention Ponds	Proposed	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	50.0%	10.0%	15.0%	50.43	0.03	0.09
B35R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	3.95	0.59	15.0%	1,507.89	0.71	2.53	50.0%	10.0%	15.0%	753.94	0.07	0.38
B35R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	50.0%	10.0%	15.0%	292.17	0.03	0.24
B35R	Dry Extended Detention Ponds	Proposed	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	50.0%	10.0%	15.0%	97.64	0.01	0.04
B35R	Dry Extended Detention Ponds	Proposed	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	50.0%	10.0%	15.0%	50.43	0.03	0.09
B41R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	0.39	0.06	15.0%	148.88	0.07	0.25	50.0%	10.0%	15.0%	74.44	0.01	0.04
B41R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	50.0%	10.0%	15.0%	144.24	0.02	0.12
B41R	Dry Extended Detention Ponds	Proposed	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	50.0%	10.0%	15.0%	48.20	0.00	0.02
B45R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	50.0%	10.0%	15.0%	150.79	0.01	0.08
B45R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	50.0%	10.0%	15.0%	292.17	0.03	0.24
B51R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	1.58	0.24	15.0%	603.15	0.28	1.01	50.0%	10.0%	15.0%	301.58	0.03	0.15
B51R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	50.0%	10.0%	15.0%	292.17	0.03	0.24
B51R	Dry Extended Detention Ponds	Proposed	Hd_Mixed	0.79	0.69	87.0%	811.16	0.41	1.79	50.0%	10.0%	15.0%	405.58	0.04	0.27
B51R	Dry Extended Detention Ponds	Proposed	Hay/Past	2.37	0.00	0.0%	612.94	1.64	3.67	50.0%	10.0%	15.0%	306.47	0.16	0.55
B71R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	4.74	0.71	15.0%	1,809.46	0.85	3.03	50.0%	10.0%	15.0%	904.73	0.09	0.46
B71R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	50.0%	10.0%	15.0%	292.17	0.03	0.24
B71R	Dry Extended Detention Ponds	Proposed	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	50.0%	10.0%	15.0%	195.29	0.02	0.07
B74R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	7.5	1.13	15.0%	2,863.07	1.35	4.80	50.0%	10.0%	15.0%	1,431.54	0.14	0.72
B74R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.39	0.20	52.0%	288.47	0.16	0.78	50.0%	10.0%	15.0%	144.24	0.02	0.12
B74R	Dry Extended Detention Ponds	Proposed	Forest	0.39	0.00	0.0%	96.41	0.04	0.12	50.0%	10.0%	15.0%	48.20	0.00	0.02
B79R	Dry Extended Detention Ponds	Proposed	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	50.0%	10.0%	15.0%	97.64	0.01	0.04
B79R	Dry Extended Detention Ponds	Proposed	Hay/Past	9.08	0.00	0.0%	2,348.30	6.27	14.07	50.0%	10.0%	15.0%	1,174.15	0.63	2.11
B80R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	10.26	1.54	15.0%	3,916.68	1.85	6.57	50.0%	10.0%	15.0%	1,958.34	0.18	0.98
B80R	Dry Extended Detention Ponds	Proposed	Md_Mixed	0.79	0.41	52.0%	584.34	0.32	1.59	50.0%	10.0%	15.0%	292.17	0.03	0.24
B80R	Dry Extended Detention Ponds	Proposed	Forest	27.23	0.00	0.0%	6,731.20	3.00	8.44	50.0%	10.0%	15.0%	3,365.60	0.30	1.27
B80R	Dry Extended Detention Ponds	Proposed	Hay/Past	5.53	0.00	0.0%	1,430.19	3.82	8.57	50.0%	10.0%	15.0%	715.09	0.38	1.29
B41TR	Dry Extended Detention Ponds	Proposed	Ld_Mixed	0.39	0.06	15.0%	1,366.70	0.72	3.29	50.0%	10.0%	15.0%	683.35	0.07	0.49
P3	Bioretention/raingardens - C/D soils, underdrain	Proposed	Ld_Mixed	0.79	0.12	15.0%	301.58	0.14	0.51	55.0%	45.0%	25.0%	165.87	0.06	0.13
P3	Bioretention/raingardens - C/D soils, underdrain	Proposed	Forest	1.58	0.00	0.0%	390.57	0.17	0.49	55.0%	45.0%	25.0%	214.81	0.08	0.12
P3	Bioretention/raingardens - C/D soils, underdrain	Proposed	Hay/Past	0.39	0.00	0.0%	100.86	0.27	0.60	55.0%	45.0%	25.0%	55.47	0.12	0.15
P26	Bioswale	Proposed	Ld_Mixed	14.6	2.19	15.0%	5,573.45	2.63	9.34	80.0%	75.0%	70.0%	4,458.76	1.97	6.54
P26	Bioswale	Proposed	Forest	7.9	0.00	0.0%	1,952.86	0.87	2.45	80.0%	75.0%	70.0%	1,562.29	0.65	1.71
SR12	Stream Restoration	Proposed			#N/A	#N/A	#N/A	#N/A	#N/A	0.0%	0.0%	0.0%	57,500.00	87.00	96.00
SR17	Stream Restoration	Proposed			#N/A	#N/A	#N/A	#N/A	#N/A	0.0%	0.0%	0.0%	97,750.00	147.90	163.20
SR21	Stream Restoration	Proposed			#N/A	#N/A	#N/A	#N/A	#N/A	0.0%	0.0%	0.0%	46,000.00	69.60	76.80
B72R	Dry Extended Detention Ponds	Proposed	Ld_Mixed	10.26	1.54	15.0%	3,916.68	1.85	6.57	50.0%	10.0%	15.0%	1,958.34	0.18	0.98
B72R	Dry Extended Detention Ponds	Proposed	Md_Mixed	1.18	0.61	52.0%	872.81	0.48	2.37	50.0%	10.0%	15.0%	436.41	0.05	0.36
B72R	Dry Extended Detention Ponds	Proposed	Forest	6.71	0.00	0.0%	1,658.70	0.74	2.08	50.0%	10.0%	15.0%	829.35	0.07	0.31
B72R	Dry Extended Detention Ponds	Proposed	Hay/Past	1.18	0.00	0.0%	305.18	0.81	1.83	50.0%	10.0%	15.0%	152.59	0.08	0.27
P4S	Vegetated Open Channels - A/B soils, no underdrain	Proposed	Ld_Mixed	16.97	2.55	15.0%	6,478.18	3.05	10.86	70.0%	45.0%	45.0%	4,534.73	1.37	4.89

P4S	Vegetated Open Channels - A/B soils, no underdrain	Proposed	Md_Mixed	1.58	0.82	52.0%	1,168.68	0.65	3.18	70.0%	45.0%	45.0%	818.08	0.29	1.43
P4S	Vegetated Open Channels - A/B soils, no underdrain	Proposed	Forest	2.76	0.00	0.0%	682.27	0.30	0.86	70.0%	45.0%	45.0%	477.59	0.14	0.39
P4	Wet Ponds and Wetlands	Proposed	Ld_Mixed	5.92	0.89	15.0%	2,259.92	1.07	3.79	60.0%	45.0%	20.0%	1,355.95	0.48	0.76
P4	Wet Ponds and Wetlands	Proposed	Forest	0.79	0.00	0.0%	195.29	0.09	0.24	60.0%	45.0%	20.0%	117.17	0.04	0.05
P4ST	Wet Ponds and Wetlands	Proposed	Ld_Mixed	16.97	2.55	15.0%	1,943.46	1.68	5.97	60.0%	45.0%	20.0%	1,166.07	0.76	1.19
P4ST	Wet Ponds and Wetlands	Proposed	Md_Mixed	1.58	0.82	52.0%	350.60	0.36	1.75	60.0%	45.0%	20.0%	210.36	0.16	0.35
P4ST	Wet Ponds and Wetlands	Proposed	Forest	2.76	0.00	0.0%	204.68	0.17	0.47	60.0%	45.0%	20.0%	122.81	0.08	0.09

Project Name		TSS Reduction (lbs/yr)	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)
P1	**LBS REDUCED**	**636.64**	0.24	0.46
P2	**LBS REDUCED**	**719.47**	0.28	0.54
P3	**LBS REDUCED**	**436.16**	0.26	0.40
P4	**LBS REDUCED**	**1,473.12**	0.52	0.81
P4ST	**LBS REDUCED**	**1,499.24**	0.99	1.64
P4S	**LBS REDUCED**	**5,830.39**	1.80	6.70
P26	**LBS REDUCED**	**6,021.05**	2.62	8.26
B1R	**LBS REDUCED**	**218.68**	0.02	0.16
B7R	**LBS REDUCED**	**1,519.58**	0.15	0.97
B16R	**LBS REDUCED**	**204.31**	0.11	0.37
B33R	**LBS REDUCED**	**3,408.51**	0.39	2.32
B34R	**LBS REDUCED**	**1,773.59**	0.20	1.20
B35R	**LBS REDUCED**	**1,194.19**	0.14	0.74
B41R	**LBS REDUCED**	**266.88**	0.03	0.17
B41TR	**LBS REDUCED**	**683.35**	0.07	0.49
B51R	**LBS REDUCED**	**1,305.80**	0.27	1.21
B71R	**LBS REDUCED**	**1,392.19**	0.14	0.77
B72R	**LBS REDUCED**	**3,376.69**	0.39	1.93
B74R	**LBS REDUCED**	**1,623.98**	0.16	0.86
B79R	**LBS REDUCED**	**1,271.79**	0.64	2.15
B80R	**LBS REDUCED**	**6,331.21**	0.90	3.78
SR12	**LBS REDUCED**	**57,500.00**	87.00	96.00
SR17	**LBS REDUCED**	**97,750.00**	147.90	163.20
SR21	**LBS REDUCED**	**46,000.00**	69.60	76.80
	TOTAL LBS REDUCED	**242,879.77**	**314.87**	**372.22**

ATTACHMENT H: DAMA Intergovernmental Cooperation Agreement

INTERGOVERNMENTAL COOPERATION AGREEMENT FOR THE PREPARATION, CREATION, AND IMPLEMENTATION OF THE REGIONAL CHESAPEAKE BAY POLLUTANT REDUCTION PLAN ("MS4") IN CERTAIN MUNICIPALITIES SITUATED IN LUZERNE COUNTY, PENNSYLVANIA

THIS AGREEMENT is made this 3rd day of October, 2017, by and among the DALLAS AREA MUNICIPAL AUTHORITY ("DAMA") and the BOROUGH OF DALLAS, the TOWNSHIP OF DALLAS, and the TOWNSHIP OF KINGSTON and all other municipalities executing this Intergovernmental Cooperation Agreement ("MUNICIPALITIES") for the preparation of a plan for the implementation of a regional stormwater management and pollution reduction program for certain Back Mountain municipalities in Luzerne County, Pennsylvania, consistent with the Chesapeake Bay Pollutant Reduction Plan and a Plan of Dallas Area Municipal Authority ("DAMA") entitled **SECOND ADDENDUM TO INTERGOVERMENTAL COOPERATION AGREEMENT ("SECOND ADDENDUM")**. The goal of the plan is to achieve water quality of those water courses lying and being within such municipalities, which are tributary to the Susquehanna River.

AUTHORIZATION

THIS AGREEMENT is authorized by the *Pennsylvania Intergovernmental Cooperation Act*, and it is entered into pursuant to applicable Pennsylvania law, including, but not limited to the *Pennsylvania Intergovernmental Cooperation Act,* Act 1996-17, P.L. 1158, *53 Pa. C.S.A. ¶2301,* et seq.

RECITALS

WHEREAS, Municipalities discharging stormwater within the Chesapeake Bay watershed are required to prepare and implement a Chesapeake Bay Pollutant Reduction Plan ("CBPRP"), a draft of which is attached hereto, incorporated as an addendum and made a part hereof, and marked as Schedule "A"; and

WHEREAS, DAMA is assisting the Municipalities in their compliance with the process of preparing a watershed-based pollutant reduction plan; and

WHEREAS, as an alternative to the costs to be borne individually by each of the Municipalities in the preparation and development of their own stormwater management plans, the Municipalities have elected to adopt the stormwater plan prepared by DAMA, which is consistent with the "CBPRP" (Schedule "A"); a draft of which is attached hereto, incorporated herein and marked Schedule "B" and made a part hereof to control stormwater and improve water quality, as required as a mandatory part of the regional pollutant reduction plan; and

WHEREAS, the stormwater management plan prepared by DAMA (Schedule "B") is considered by the Municipalities to provide adequately for certain of the Municipalities' MS4 responsibilities. Accordingly, the aforesaid "CBPRP" (Schedule "A") and the DAMA Stormwater Management Plan (Schedule "B"), together with this Intergovernmental Cooperation Agreement, and any amendments thereof are hereby to be adopted and enacted by an Ordinance of this Municipality as a portion of a regional watershed-based pollutant reduction plan, stormwater discharge plan, and water quality improvement plan of all of the affected Municipalities; all in accordance with the Chesapeake Bay Pollution Reduction Plan ("CBPRP"); and

WHEREAS, the purpose of this Agreement is to set forth herein the accord of the several participating Municipalities to cooperate with DAMA, as its delegate, to comply with, prepare, plan, and implement certain of the rules and regulations of the Chesapeake Bay Pollutant Reduction Plan ("CBPRP"); all within the scope of the DAMA stormwater management plan, as presently constituted on this date and as may be amended hereafter; and

WHEREAS, the parties hereto agree and acknowledge that nothing in this Agreement, nor the resultant actions from it, shall prohibit, prevent, or interfere with any ability or obligation to comply with applicable Pennsylvania law and regulation, Federal law and regulation, applicable regulatory agency rules and policies, permit requirements, DEP directives, or United States Environmental Protection Agency directives, and local ordinances; and

NOW, THEREFORE, the parties hereto, in consideration of the mutual promises, covenants, and undertakings herein stated, each binding itself and representing that it has proper legal authority to enter into this Agreement, and each undertaking to be legally bound hereby, agree as follows.

(1) RECITALS:

All of the Recitals hereto are incorporated by reference as if fully set forth at length herein.

(2) ORGANIZATION:

The Municipalities agree that DAMA shall be responsible for coordinating the planning, implementation and development of the "CBPRP" (Schedule "A") and the DAMA stormwater management Plan (Schedule "B") in their separate municipal jurisdictions, limited only by the terms and provisions stated in such Plans and any amendment thereof.

(3) MUNICIPALITY FUNCTIONS, POWERS, AND RESPONSIBILITY:

The Municipalities' functions, powers and responsibilities shall include, but not limited to:

(a) The Municipalities agree to take any and all legislative or other acts necessary to implement the purposes of this Agreement.

(b) The Municipalities shall timely submit MS4 Annual Status Reports as required by existing law and regulations. Each Municipality shall, contemporaneously upon submission to DEP, provide DAMA with a digital or hard copy of the Municipality's MS4 Annual Status Report.

(c) The Municipalities agree to provide to DAMA for its review any land development plans and applications for stormwater permits received by the Municipality and required by the *Pennsylvania Municipalities Planning Code*, 53 P.S. §10101, et seq., that may impact in any water courses within its geographical jurisdiction, particularly, any stormwater and/or pollutant discharges.

(d) The Municipalities shall cooperate in any application by DAMA for grants or other funding that can be used to fund the regional stormwater discharges and pollutant reduction plan's implementation and/or the actions and activities undertaken pursuant to this Agreement.

(4) ENFORCEMENT ACTIONS:

If any compliance or enforcement action (including the pursuit of a civil penalty, issuance of an Notice of Violation ("NOV"), Order, or any other compliance notice or action) is initiated by either the Commonwealth of Pennsylvania or the Federal Government in any way related to the implementation actions and activities undertaken pursuant to this Agreement and the relevant Municipality MS4 requirements, DAMA shall, in its sole discretion, discuss the enforcement action, whether any one or more

Municipalities are responsible for the alleged violation(s), and determine what DAMA's response action(s) shall be. Where an act of malfeasance, misfeasance, negligence, or other misconduct of a Municipality results in the Municipality or DAMA incurring a civil penalty, issuance of an NOV or other compliance action, a fine, or a damages award of any kind, or other breach of the terms of this Agreement the responsible Municipality, as determined by DAMA, shall indemnify and hold harmless DAMA with respect thereto. Should DAMA become aware of a potential compliance issue or question, it shall send written notice to all relevant Municipalities within three (3) business days, which notice shall include any and all correspondence (including hard, electronic, or telephone call notes/summary) from or with a regulatory entity (including, but not limited to, a County Conservation District, DEP, the United States Environmental Protection Agency, Federal Emergency Management Agency, Pennsylvania Emergency Management Agency, and U.S. Army Corps of Engineers). DAMA shall convene a special meeting in accordance with applicable law, and within ten (10) calendar days of issuance of the notice referenced herein, in an effort to resolve the dispute. In the event that DAMA and a Municipality are unable to resolve the dispute, DAMA may unilaterally terminate the Agreement as to any such Municipality.

(5) RATES:

For the purposes of funding and covering the costs of all preparation, planning, remedial inspections work undertaken by DAMA pursuant to this Agreement, DAMA shall charge reasonable and uniform rates to all ratepayers within each Municipality's borders. DAMA agrees to develop and implement reasonable and uniform rates and rules and regulations in accordance with the Municipality Authorities Act, 53 Pa. C.S. §5601, et seq. with respect to the planning and administration of all work done by DAMA hereunder. Notice to the Municipalities of such rates shall be first given before assessed.

(6) EFFECTIVE DATE AND TERM:

(i) The effective date of this Agreement shall be October 31, , 2017; and

(ii) The term of this Agreement shall be perpetual, beginning on the effective date hereof, unless earlier terminated by the written consent of all parties hereto and following the payment and discharge of all debts incurred by DAMA related to any work or services performed by it in accordance with this Agreement.

(7) APPLICABLE LAW:

The parties agree and affirm that Pennsylvania law applies to this Intergovernmental Cooperation Agreement and all matters covered by and addressed by this Agreement. It is acknowledged and agreed that the sole and exclusive jurisdiction and venue for any dispute relating to any matter covered by this Agreement and/or regarding any dispute over the enforcement or interpretation of this Agreement shall rest with the Luzerne County Court of Common Pleas. The parties hereby submit to the exclusive jurisdiction of that Court.

(8) INTEGRATION:

This Agreement contains the entire agreement between the parties, together with Schedule "A" and Schedule "B" affixed to the Agreement. There are no understandings or agreements, verbal or otherwise, in relation hereto, except those expressly and specifically set forth herein. The parties have not relied upon any statement, projection, disclosure, report, information or any other representation or warranty, except for those as may be specifically and expressly set forth in this Agreement.

(9) NO ORAL MODIFICATION:

This Agreement may not be modified, except in a writing executed by all parties. This Agreement shall be amended only in such writing, by duly authorized representatives of all parties, and such revision(s) must be approved by official action of each Municipality and as required by any applicable law of the Commonwealth of Pennsylvania.

(10) FEES AND COSTS:

Unless otherwise expressly stated herein, the parties agree to bear their own fees and costs in connection with or incurred related to the matters between them and relating to this Agreement.

(11) SIGNATURES:

The parties hereto, and the undersigned individuals and/or representatives, represent and warrant that they have the authority to enter into this Agreement and be legally bound hereby.

IN WITNESS WHEREOF, the parties hereto have caused this Intergovernmental Cooperation Agreement for the implementation of the ("CBPRP") and the DAMA stormwater management plan in compliance with the Chesapeake Bay Pollutant Reduction Plan to be executed and effective on the 5th day of October, 2017.

ATTEST:

Council Secretary

By:

BOROUGH OF DALLAS

Council President

APPROVED this 20 day of September, 2017 by Mayor of Borough of Dallas

Timothy J. Carroll

ATTEST:

Board Secretary

By:

TOWNSHIP OF DALLAS

Chairman
Board of Supervisors

ATTEST:

Board Secretary

By:

TOWNSHIP OF KINGSTON

Chairman
Board of Supervisors

ATTEST:

Board Secretary

By:

DALLAS AREA MUNICIPAL AUTHORITY

Chairman
Board of Directors

First Addendum
(Schedule A)

is CBPRP

SECOND ADDENDUM TO
INTERGOVERNMENTAL COOPERATION AGREEMENT

THIS AGREEMENT dated as of the 31 day of October, 2017 between DALLAS AREA MUNICIPAL AUTHORITY, a Pennsylvania municipality authority organized and existing under the *Pennsylvania Municipality Authorities Act* of 1945, as amended (hereinafter called "DAMA") and DALLAS TOWNSHIP, DALLAS BOROUGH and KINGSTON TOWNSHIP, each of which is a political subdivision of the Commonwealth of Pennsylvania (hereinafter called "Municipalities")

WITNESSETH:

1. DAMA was organized by the Borough of Dallas and the Township of Kingston and Dallas, Pennsylvania (hereinafter referred to as the "Municipalities") for the purpose of providing sewer and sewerage services to the Municipalities. Subsequently, the Articles of Incorporation of the Authority have been amended to include providing other services to the Municipalities; most recently storm water management consistent with Act 68 of 2013.

2. At the request of the Municipalities, DAMA has developed a Chesapeake Bay Pollution Reduction Plan (CBPRP) to meet prevailing mandates of the Pennsylvania Department of Environmental Protection (PADEP) regulations of Municipal Separate Storm Sewer Systems (MS4).

3. To meet the goals of the CBPRP and to meet present and future MS4 regulations, DAMA will be responsible for activities for the Municipalities to comply with Minimum Control Measures (MCM) #1 (Public Education), MCM #2 (Public Involvement) and MCM #3 (Illicit Discharges).

4. MCM #4 (Construction Water Runoff Control), MCM #5 (Post Construction Runoff Control), and MCM #6 (Municipal Operations, Pollution Prevention/Good Housekeeping) will remain the responsibility of the Municipalities.

5. Maintenance of the existing storm water infrastructure and Best Management Practices (BMP), with the exception of those modified by the Pollutant Reduction Plan (CBPRP), will remain the responsibility of the Municipalities (Pages 16, 17 and 18 of the PRP list specific maintenance requirements for the existing BMPs). These pages are included with this

SCHEDULE "B"

Agreement (Schedule "A"), and the responsible party for each BMP will develop a program to comply with the maintenance schedule.

6. The (CBPRP) developed for the Townships of Dallas and Kingston and the Borough of Dallas by T&M Associates lists the existing Best Management Practices (BMP). They consist of fifty nine (59) dry detention basins, twelve (12) extended dry detention basins, eight (8) wet ponds, three (3) underground dry detention and one (1) rain garden.

7. Dallas Area Municipal Authority (DAMA) will be responsible for the design and installation of the BMPs described in the CBPRP.

8. The CBPRP proposes to retrofit eight (8) dry detention basins to extended dry detention basins and install ten (10) new extended dry detention basins; thereby creating a total of extended dry detention basins to thirty (30) to be completed at the expense of DAMA.

9. The CBPRP also proposes to install vegetated open channels in five (5) neighborhoods, construct forest buffers in three (3) areas, and undertake stream bank restoration in seven (7) areas totaling four thousand seven hundred and seventy (4770) feet and install forest buffers in three (3) areas; all to be completed at the expense of DAMA.

10. Dry extended detention basins, forest buffers and vegetated open channels require considerable maintenance to remain affective. DAMA will be responsible for the maintenance of these BMPs (Pages 25 through 32 of the CBPRP) contain specific maintenance requirements for these, as well as other, BMPs. These pages are included with this agreement (Schedule "A"), and DAMA will develop a program to comply with the required maintenance schedule, with the exception of the previous parking lot(s), the maintenance of which will remain the responsibility of the municipalities. Stream bank restoration requires little maintenance, but DAMA will monitor these BMPs for damage after major weather events.

11. Actual BMP O&M activities will be recorded and documented by each municipality and DAMA for inclusion in the Annual MS4 Status Report.

12. The following summary is a statement of the responsibilities hereunder to be assumed by the respective parties. Such responsibilities can be revised and amended in the event of any modification or revision of DEP's rules and regulations at any future time or, in the event, the respective parties agree collectively to amend the Agreement.

MCM 1(all)	DAMA
MCM 2(all)	DAMA
MCM 3.1	DAMA/Municipality
MCM 3.2	DAMA
MCM 3.3	DAMA
MCM 3.4	DAMA
MCM 3.5	Municipality
MCM 3.6	DAMA
MCM 4(all)	Municipality
MCM 5.1	Municipality
MCM 5.2	Municipality
MCM 5.3	Municipality/DAMA
MCM 6.1	Municipality/DAMA
MCM 6.2	Municipality/DAMA
MCM 6.3	DAMA

13. This Addendum, marked Schedule "B" constitutes DAMA's stormwater management plan consistent with "CBPRP", and it is incorporated into and made as integral part of the Intergovernmental Cooperation Agreement between the parties to which it is affixed.