

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



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.

Appendix D – Chesapeake Bay

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
<i>Surplus Reduction</i>	+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 assess 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.
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- 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

<u>Task</u>	<u>Implementation Date</u>
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

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.

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.

**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"

First Addendum
(Schedule A)

is CBPRP

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:

BOROUGH OF DALLAS



Council Secretary

By:



Council President

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



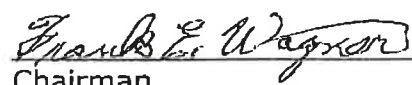
ATTEST:

TOWNSHIP OF DALLAS



Board Secretary

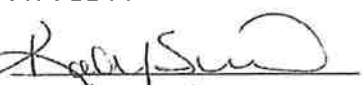
By:



Chairman
Board of Supervisors

ATTEST:

TOWNSHIP OF KINGSTON



Board Secretary


By:



Chairman
Board of Supervisors


ATTEST:

**DALLAS AREA MUNICIPAL
AUTHORITY**



Board Secretary

By:



Chairman
Board of Directors

(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.

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 31st, 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.

(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

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.

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 INTERGOVERNMENTAL 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

<i>Project Name</i>		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
P45T	LBS REDUCED	1,499.24	0.99	1.64
P45	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	6,391.21	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

705	Registered Open-End Mutual Funds - All	Projected	100	1.00	51.2%	1,564.68	0.85	1.18	70.0%	45.0%	45.0%	818.34	0.29	1.41
707	Registered Open-End Mutual Funds - All	Actual	100	1.00	50.0%	1,512.21	0.90	1.36	70.0%	45.0%	45.0%	477.89	0.14	0.79
71	Real Estate Funds	Projected	10	0.10	15.0%	2,253.80	1.01	1.22	60.0%	40.0%	30.0%	1,165.96	0.40	0.76
72	Real Estate Funds	Actual	10	0.10	14.0%	1,950.37	0.79	0.81	60.0%	40.0%	30.0%	1,017.17	0.34	0.55
73	Real Estate Funds	Projected	10	0.10	15.0%	1,942.46	1.19	1.19	60.0%	40.0%	30.0%	1,184.65	0.39	1.19
737	Real Estate Funds	Actual	10	0.10	14.0%	1,928.80	0.18	1.75	60.0%	40.0%	30.0%	1,103.16	0.18	0.71
741	Real Estate Funds	Actual	10	0.10	14.0%	204.68	0.17	0.47	60.0%	40.0%	30.0%	132.83	0.18	0.40

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 in drainage areas within a given planning area. If an individual planning area has multiple "discharge land" types, each type can be represented in separate rows, with each row having the same "Project Name". 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 discharge areas" (i.e., areas treated by different BMP systems) if a BMP discharge area has multiple "discharge land" types, however "land use area" can be represented on separate rows, with each row having the same "Project Name". Also, in the case of "W" and "S" BMP types, the treatment depth should be the same for any one discharge. 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 Quantity (column) to type in the treatment depth instead of column D as would normally be done. Examples of various columns 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	Discharge Land Cover of Discharge Area	Discharge Area Treated by BMP (Acres)	Impervious Area, ac	Impervious Surface (%)	TSS Load (lb/yr)	TP Load (lb/yr)	TH Load (lb/yr)	TSS Reduction (%)	TP Reduction (%)	TH Reduction (%)	TSS Reduction (lb/yr)	TP Reduction (lb/yr)	TH Reduction (lb/yr)
P1	Wet Ponds/Land Use/Groves	Proposed	Wet Ponds	0.76	0.02	12.0%	382.05	0.31	1.53	60.0%	49.0%	20.0%	317.29	0.24	0.31
P1	Wet Ponds and Wetlands	Proposed	Wetlands	0.08	0.00	0.0%	440.00	0.20	1.55	60.0%	49.0%	20.0%	294.22	0.23	0.31
P1	Wet Ponds and Wetlands	Proposed	Wetlands	0.11	0.00	0.0%	45.81	0.23	1.12	60.0%	49.0%	20.0%	24.91	0.01	0.23
P1	Wet Ponds and Wetlands	Proposed	Wetlands	0.07	0.00	0.0%	17.30	0.01	0.04	60.0%	49.0%	20.0%	10.84	0.00	0.01
P2	Wet Ponds and Wetlands	Proposed	Wet Ponds	1.1	0.33	13.0%	798.37	0.43	2.01	60.0%	49.0%	20.0%	441.50	0.38	0.43
P2	Wet Ponds and Wetlands	Proposed	Wetlands	0.84	0.00	0.0%	433.78	0.23	1.53	60.0%	49.0%	20.0%	241.58	0.28	0.30
P2	Wet Ponds and Wetlands	Proposed	Wetlands	0.00	0.00	0.0%	56.78	0.00	0.11	60.0%	49.0%	20.0%	15.08	0.00	0.00
P2	Wet Ponds and Wetlands	Proposed	Wetlands	0.00	0.00	0.0%	3.59	0.00	0.00	60.0%	49.0%	20.0%	1.15	0.00	0.00
P2	Wet Ponds and Wetlands	Proposed	Wetlands	0.00	0.00	0.0%	18.83	0.00	0.04	60.0%	49.0%	20.0%	5.69	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	118.80	0.00	1.17	60.0%	49.0%	20.0%	34.44	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	322.00	0.18	1.18	60.0%	49.0%	20.0%	114.24	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,155.19	0.44	2.27	60.0%	49.0%	20.0%	377.59	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	822.81	0.48	2.47	60.0%	49.0%	20.0%	246.4	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	811.26	0.41	1.89	60.0%	49.0%	20.0%	241.58	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	404.63	0.18	1.41	60.0%	49.0%	20.0%	121.59	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	7,011.35	1.42	3.25	60.0%	49.0%	20.0%	2,103.38	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	3,732.18	1.78	2.73	60.0%	49.0%	20.0%	1,116.54	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	303.33	0.17	1.40	60.0%	49.0%	20.0%	90.29	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	704.11	0.33	1.32	60.0%	49.0%	20.0%	211.23	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,296.51	0.57	2.02	60.0%	49.0%	20.0%	389.15	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,753.12	0.53	4.70	60.0%	49.0%	20.0%	515.51	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	188.38	0.20	0.31	60.0%	49.0%	20.0%	54.89	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	306.89	0.27	0.60	60.0%	49.0%	20.0%	90.29	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,801.88	0.31	1.13	60.0%	49.0%	20.0%	545.26	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	544.34	0.14	1.19	60.0%	49.0%	20.0%	163.29	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	195.29	0.08	0.31	60.0%	49.0%	20.0%	57.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,023.86	0.27	0.80	60.0%	49.0%	20.0%	307.16	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,401.88	0.29	0.28	60.0%	49.0%	20.0%	420.56	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	566.07	0.14	0.28	60.0%	49.0%	20.0%	169.24	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	86.41	0.04	0.12	60.0%	49.0%	20.0%	25.92	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	301.54	0.14	0.11	60.0%	49.0%	20.0%	90.46	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,834.34	0.32	1.88	60.0%	49.0%	20.0%	550.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	663.03	0.28	1.01	60.0%	49.0%	20.0%	198.90	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,84.34	0.12	1.38	60.0%	49.0%	20.0%	550.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	811.71	0.41	1.29	60.0%	49.0%	20.0%	241.58	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	613.89	0.34	1.17	60.0%	49.0%	20.0%	184.74	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,800.49	0.40	1.28	60.0%	49.0%	20.0%	545.26	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,84.34	0.12	1.18	60.0%	49.0%	20.0%	550.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	722.47	0.24	0.49	60.0%	49.0%	20.0%	216.74	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,161.07	0.30	1.40	60.0%	49.0%	20.0%	348.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	188.47	0.08	0.38	60.0%	49.0%	20.0%	57.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	86.41	0.04	0.11	60.0%	49.0%	20.0%	25.92	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	239.79	0.09	0.24	60.0%	49.0%	20.0%	71.84	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	2,130.10	0.17	1.61	60.0%	49.0%	20.0%	639.44	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	3,249.88	0.10	0.37	60.0%	49.0%	20.0%	974.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,84.34	0.12	1.18	60.0%	49.0%	20.0%	550.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	6,791.20	1.00	6.44	60.0%	49.0%	20.0%	2,037.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,430.29	0.32	0.97	60.0%	49.0%	20.0%	429.88	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,308.70	0.21	1.29	60.0%	49.0%	20.0%	392.55	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	761.18	0.14	0.33	60.0%	49.0%	20.0%	228.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,00.17	0.17	0.49	60.0%	49.0%	20.0%	300.54	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	300.85	0.23	0.60	60.0%	49.0%	20.0%	90.29	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,173.45	0.49	0.84	60.0%	49.0%	20.0%	352.04	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	1,162.88	0.47	2.48	60.0%	49.0%	20.0%	348.34	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.19	0.16	60.0%	49.0%	20.0%	255.60	0.00	0.00
P3	Dry Extended Detention Ponds	Proposed	Wet Ponds	0.00	0.00	0.0%	861.6	0.1							

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.

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

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.

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

**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)
<i>Initial MMW Loads</i>	7,779,980	147,579	6,783	1,958,272	3,841	1,127
<i>Loads Removed w/Existing Urban BMPs</i>	55,575	50	25	55,575	50	25
<i>Loads Removed w/Proposed Urban BMPs</i>	242,880	372	315	242,880	372	315
<i>Loads Removed w/Existing Agricultural BMPs</i>	-	-	-	-	-	-
<i>Loads Removed w/Proposed Agricultural BMPs</i>	-	-	-	-	-	-
<i>Loads Removed w/Existing Floodplain Restoration BMPs</i>	-	-	-	-	-	-
<i>Loads Removed w/Proposed Floodplain Restoration BMPs</i>	-	-	-	-	-	-
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%

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

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			
Existing TOTAL LBS REDUCED					55,574.88	25.28	49.53

ATTACHMENT D: Existing BMP Pollutant Reductions

Urban BMP Load Reduction Calculation Table

NOTES: Each row in the table below can represent either different areas of land use/cover within a single planning area (e.g., multi-parcel), or different BMP drainage areas within a given planning area. If an individual planning area has multiple "discharge area" 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 a 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 "discharge area" types, separate "land use areas" can be represented in separate rows, with each row having the same "Project Name". Also, in the case of "RM" and "SF" BMP types, treatment depth should be the same for any row associated with the same Project Name. If used from a land use/cover type with full impervious cover (e.g., Cropland), it is treated by a BMP system (either existing or proposed), use the Manual On-site Pollution Efficacy type in the treatment depth instead of reported 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 Mobil MySolutions site.

Project Name	BMP Type	Existing or Proposed	Year Installed	Max/Min Land Cover of Drainage Area	Drainage Area Treated by BMP (Acres)	Impervious Area (%)	Impervious Surface (%)	TSS Load (lb/yr)	TP Load (lb/yr)	TC Load (lb/yr)	TSS Reduction (%)	TP Reduction (%)	TC Reduction (%)	TSS Reduction (lb/yr)	TP Reduction (lb/yr)	TC Reduction (lb/yr)
311	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
312	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
313	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
314	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
315	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
316	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
317	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
318	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
319	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
320	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
321	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
322	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
323	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
324	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
325	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
326	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
327	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
328	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
329	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
330	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
331	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
332	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
333	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
334	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
335	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
336	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
337	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
338	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
339	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
340	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
341	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
342	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
343	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
344	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
345	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
346	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
347	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
348	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
349	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
350	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
351	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
352	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
353	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
354	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
355	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
356	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
357	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
358	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
359	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
360	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
361	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
362	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
363	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
364	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
365	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
366	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
367	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
368	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
369	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
370	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
371	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
372	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
373	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
374	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
375	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
376	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
377	Impervious	Existing	1991	100%	0.00	100%	100%	1,111.11	1.11	1.11	100%	100%	100%	1,111.11	1.11	1.11
378	Impervious	Existing	1991													

ATTACHMENT C: Existing Pollutants of Concern

Data Entered By: Richard Collins
 Date Data Entered: 6/26/2015
 Source File Name: MCD17_Landuse
 Watershed: City Creek
 Year: 2012

Model My Watershed OUTPUT DATA

Source	Area	Sediment	Tot N	Tot P
Unit	acres	ton/Year	kg/Year	kg/Year
Highway	2,469.3	113.3	1,824.1	1,359.3
Cropland	79.3	1.1	22.9	1.7
Forest	11,044.1	88.3	1,111.9	73.4
Wetland	96.3	3.3	349.3	18.4
Disturbed	2.1	10.1	1.3	1.8
Turfgrass	5.6	2.1	2.6	1.5
Open Land	49.9	2.3	18.6	1.7
Barren_Rock	172.9	2.5	84.8	3.8
Sandy_Areas	5.2	2.5	2.7	2.0
Unpaved_Road	2.9	6.6	2.2	2.5
Ld_Mixed	2,947.7	25.1	1,031.1	246.5
Md_Mixed	3,666.9	29.4	2,078.9	292.4
Hd_Mixed	889.7	22.1	888.9	146.3
Ld_Residential	8.8	1.8	2.5	1.8
Md_Residential	1.8	1.8	2.5	1.8
Hd_Residential	2.3	1.8	2.5	1.8
Farm Animals	0.0	145.9	22.9	22.9
Tire Damage	2.2	1.4	1.4	2.8
Stream Bank	174.3	1,174.1	2,282.4	2,282.4
Groundwater	0.0	12,524.1	1,022.8	1,022.8
Point Source	0.0	5.9	9.2	9.2
Basic Inputs	0.0	1,128.9	8.0	8.0
Totals	22,656.8	3,460.0	147,570.7	6,742.0

STREAM LENGTHS*	KM	FEET	Sed lb/m	TN lb/m	TP lb/m
Total Length	84.8	210,984.0	35.3	0.03	0.01
Ag Streams	2.1	5,428.8			
Non-Ag Streams	82.7	205,555.2			

* 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 TIME/DAY	KG PHE/DAY	TOTAL LBS/DAY	TOTAL PHE/YR
Chickens, Broilers	10	0.9	9	0.018	1.07	0.3	0.01026	0.0054
Chickens, Layers	0	1.8	0	0	0.85	0.29	0	0
Cows, Dairy	300	320	96,000	8.28	0.31	0.08	2.568	0.7422
Cows, Dairy	500	640	320,000	15.84	0.41	0.17	8.724	1.3068
Horses	500	14000	7,000,000	19	0.28	0.06	3.82	0.84
Pigs/Hogs/Sows	0	400	0	0	0.48	0.18	0.15	0.2424
Sheep	10	50	500	1.45	0.37	0.1	0.6102	0.165
Turkeys	0	8.5	0	0	0.55	0.2	0	0
Daily Totals							18.08	3.22
Poultry Totals							0.02	0.01
Livestock Totals							16.06	3.21
Poultry Fraction							0.0012	0.0017
Livestock Fraction							0.1686	0.1683

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

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

TYPE	AREA (acres)	AREA (hectares)
Open Water	0	0
Perennial Ice/Snow	0	0
Developed - Open Space	11.62	4,718.91
Developed - Low Intensity	1,417	570,234
Developed - Medium Intensity	1,847.65	744,815
Developed - High Intensity	17.11	6,914
Barren Land (Rock/Sand/Clay)	171.18	69,118
Deciduous Forest	17,119.49	6,911,815
Evergreen Forest	1,711.9	691,181.5
Mixed Forest	3,167.78	1,262,815
Shrub/Scrub	1,711.9	691,181.5
Grassland/Herbaceous	1,711.9	691,181.5
Pasture/May	3,167.78	1,262,815
Cultivated Crops	1,711.9	691,181.5
Woody Wetlands	1,711.9	691,181.5
Emergent Herbaceous Wetlands	1,711.9	691,181.5
Totals	22,657	9,028.75

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

SOURCE	SEDIMENT (lb)	TOTAL TN (kg)	TOTAL P (kg)	SEDIMENT (ton)	TOTAL TN (lb)	TOTAL P (lb)
Highway	113.3	1,824.1	1,359.3	113.3	1,824.1	1,359.3
Cropland	1.1	22.9	1.7	1.1	22.9	1.7
Wooded Areas	88.3	1,111.9	73.4	88.3	1,111.9	73.4
Wetlands	3.3	349.3	18.4	3.3	349.3	18.4
Open Land	2.3	18.6	1.7	2.3	18.6	1.7
Barren Areas	2.5	84.8	3.8	2.5	84.8	3.8
Low-Density Mixed	25.1	1,031.1	246.5	25.1	1,031.1	246.5
Medium-Density Mixed	29.4	2,078.9	292.4	29.4	2,078.9	292.4
High-Density Mixed	22.1	888.9	146.3	22.1	888.9	146.3
Low-Density Open Space	1.8	2.5	1.8	1.8	2.5	1.8
Farm Animals	145.9	22.9	22.9	145.9	22.9	22.9
Stream Bank Erosion	1,174.1	2,282.4	2,282.4	1,174.1	2,282.4	2,282.4
Subsurface Flow	0	0	0	0	0	0
Point Sources	5.9	9.2	9.2	5.9	9.2	9.2
Basic Systems	1,128.9	8.0	8.0	1,128.9	8.0	8.0
Totals	2,528,223.9	48,922.4	3,879.2	3,860.0	147,570.3	6,742.0

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

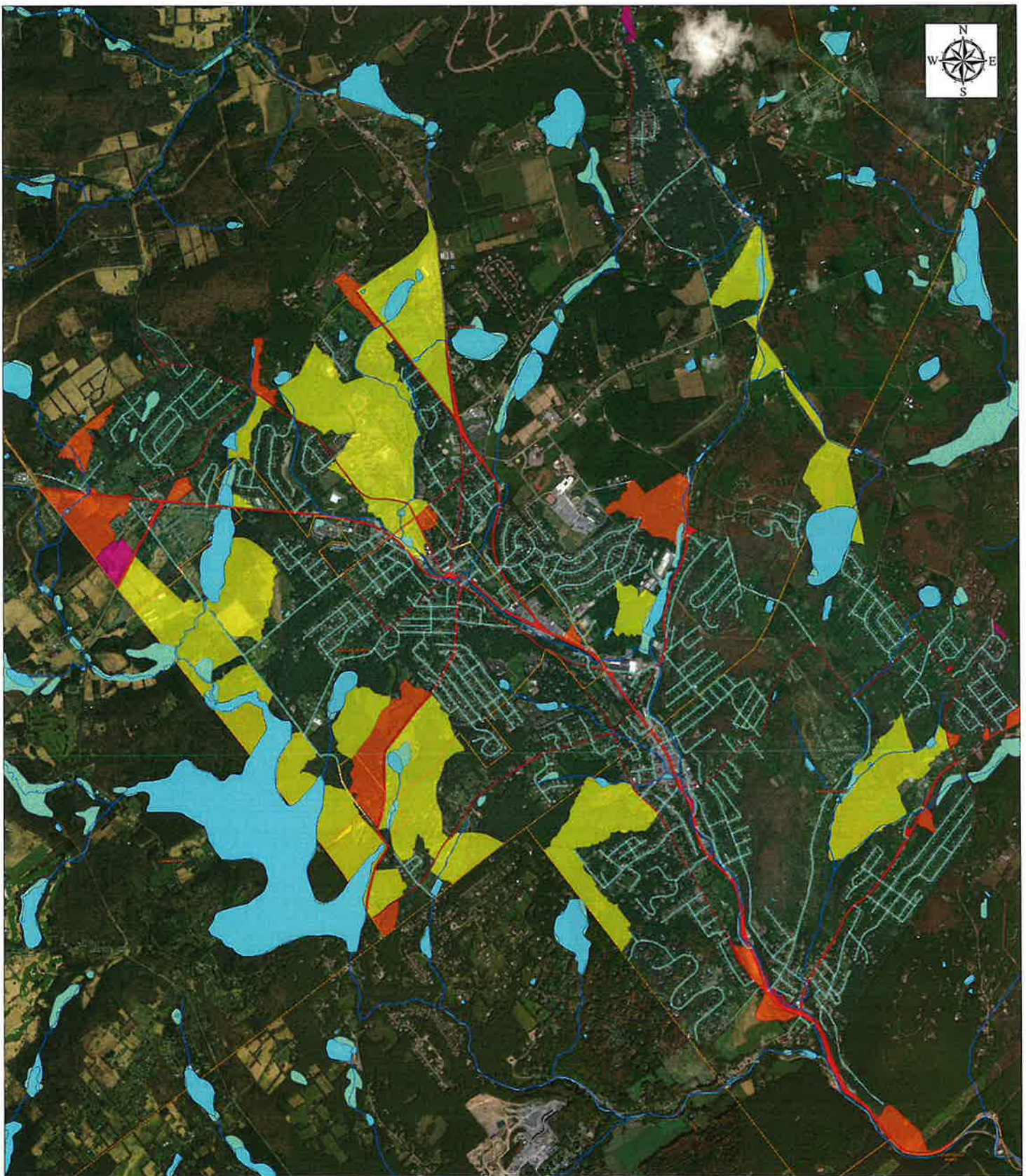
MW NLCD Land Cover Categories for Urban Area (from second, smaller "Analyze" csv file)

TYPE	AREA (acres)	AREA (hectares)	TN (lb/yr)	TP (lb/yr)	Sediment (lb/yr)
Open Water	0	0	0	0	0
Perennial Ice/Snow	0	0	0	0	0
Developed - Open Space	11.62	4,718.91	224.32	224.32	1,111.12
Developed - Low Intensity	1,417	570,234	2,282.4	2,282.4	11,111.14
Developed - Medium Intensity	1,847.65	744,815	2,282.4	2,282.4	11,111.14
Developed - High Intensity	17.11	6,914	2,282.4	2,282.4	11,111.14
Barren Land (Rock/Sand/Clay)	171.18	69,118	2,282.4	2,282.4	11,111.14
Deciduous Forest	17,119.49	6,911,815	2,282.4	2,282.4	11,111.14
Evergreen Forest	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Mixed Forest	3,167.78	1,262,815	2,282.4	2,282.4	11,111.14
Shrub/Scrub	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Grassland/Herbaceous	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Pasture/May	3,167.78	1,262,815	2,282.4	2,282.4	11,111.14
Cultivated Crops	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Woody Wetlands	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Emergent Herbaceous Wetlands	1,711.9	691,181.5	2,282.4	2,282.4	11,111.14
Totals	22,12	8,842.20	3,841.09	1,126.89	1,958,271.93

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

STREAM LENGTH*	KM	FEET
Total Length	22.1	57,408.0
Ag Streams	2.1	5,428.8
Non-Ag Streams	20.0	51,979.2

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



Legend:

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

PRP Parsing Comparison Map

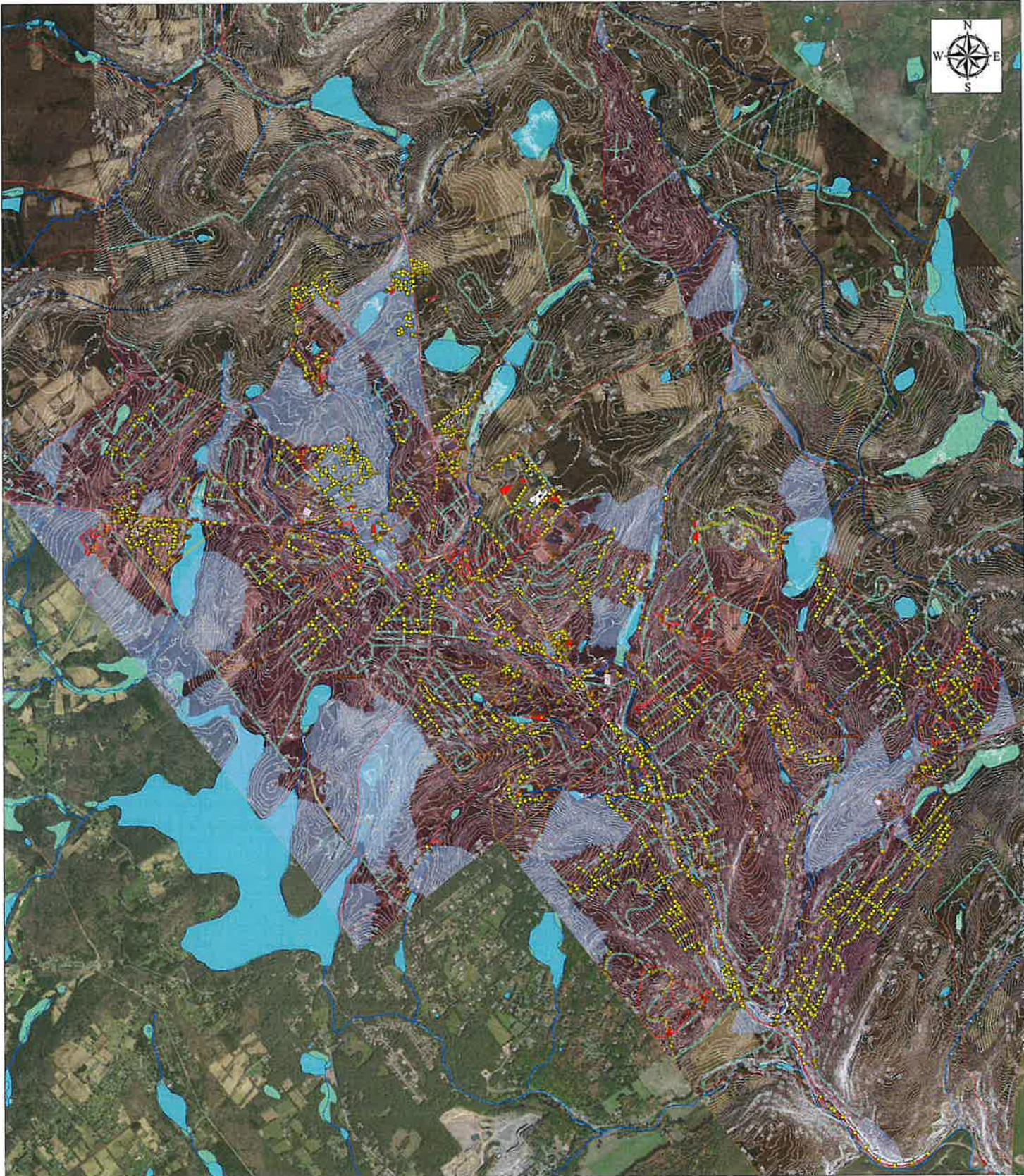
Dallas Area Municipal Authority

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



Data Provided by:
© 1997-2013 RWCC
Princeton/Courtesy of Esri
NAAD 1988-2011 Sian/Pan & Pincus/Arund North FIPS 2011 PLU
Data Source:
World Imagery: Maxar





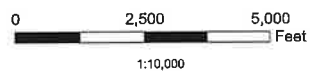
Legend:

- Existing BMP
- Selected PRP BMPs
- ▲ Outfall
- Inlet (Catch Basin)
- Outlet Structure
- ⌋ Endwall
- ⌋ Headwall
- Manhole
- Swale
- Stormwater Pipe
- Municipally Owned Roads
- Contour Lines 10ft
- Pa State Roads
- NHD Streams
- Existing BMP Drainage Area
- Proposed PRP BMP Drainage Area
- ▨ 2010 Urbanized Area
- ▨ NHD Waterbodies
- ▨ NWI Wetlands
- ▨ HUC12 Watershed
- ▨ Municipal Boundaries
- ▨ BMP
- ▨ Parsed Area

Pollutant Reduction Plan Map

Dallas Area Municipal Authority

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



Data Produced/Author: SW0205 TRAC
 Projection: Conic Equal-Area
 NAD 1983 StatePlane Pennsylvania North FIPS 3101 Feet
 Date Source: World Imagery Master
 PCE/Mapage/2018 WEB



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