

**MS4 POLLUTION REDUCTION PLAN (PRP)**

**FOR**

**BOROUGH OF DUNMORE**

**LACKAWANNA COUNTY**

**PENNSYLVANIA**

**Submitted to:**

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL  
PROTECTION**

**AUGUST 14, 2020**

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## A. Public Participation

The PRP plan will be available for public review starting on August 14, 2020, on the Borough website, and a hardcopy will be available for review during normal business hours at the Dunmore Borough Building. Due to the current Covid-19 pandemic, Dunmore Borough has been closed with employees working from home, the Borough Building recently re-opened and Council meetings will resume on August 18, 2020.

Notice of the public comment period and public meeting will be published in the Scranton Times in accordance with the permit requirements. This notice is included in Appendix A of this plan.

A copy of timely comments received, and documentation of comments received during the Borough Council meeting (September 14, 2020) will be included as Appendix B of the PRP plan. The PRP will be revised as necessary to consider public comment. The Borough's record of consideration of comments will be included in the submission of the PRP as Appendix C of the PRP.

## B. PRP Map

A Pollution Reduction Plan (PRP) map for the Borough of Dunmore has been prepared by analyzing the known Outfall locations along the Meadow Brook and Roaring Brook. The map enclosed was prepared by Reuther+Bowen based on GIS mapping information from the Lackawanna County GIS department and the assistance of Dunmore Borough Public Works Department to determine the existing nine (9) listed outfalls. The map can be found in Appendix D of this report. The aerial base map was utilized to delineate the sewershed areas within the Borough and to determine pervious and impervious landuse surfaces. The areas outside the nine (9) delineated sewersheds either discharge directly to the creek, to a combined sewer system or are the responsibility of the Department of Transportation (PennDOT) or a private entity. As displayed in the map, entire Borough is located within the Lackawanna River Watershed with sewershed areas mapped to verify direct discharge within the Borough planning area in support of the sediment loading calculations.

The locations of potential sediment reduction best management practices (BMPs) are shown on the map. See the enclosed sewershed map.

## C. Pollutants of Concern

The following streams are within or along the Borough boundary and are affected in the PRP designated area, they are as follows: Meadow Brook, and Roaring Brook.

**Table 1. Impairments within The Borough of Dunmore Urbanized Area.**

Municipality	NPDES Permit	Individual Permit?	Waters	Impairment(s)	Other Cause(s) of Impairments	TMDL Priority
Dunmore Borough	PAG132244	No	Meadow Brook	N/A	N/A	N/A
			Roaring Brook	Appendix A- Metals, (4a); Appendix B- Channelization (4c))	Abandon Mine Drainage (4a), Other Habitat Alterations (4c)	N/A

#### D. Existing Loading for Pollutants of Concern

The Borough of Dunmore consists of approximate 8.9 square miles or roughly 5,670 acres, where the entire Borough is within the Lackawanna River Watershed and 4351 acres or 6.8 square miles is Urbanized Area. The nine (9) known outfalls were surveyed within the Borough and approximately 264 acres drain to these outfalls making up the Borough study area. The remaining areas within the borough either drain directly to streams, are collected within combined sewer systems, drain to private stormwater collection systems and are collected within PennDOT storm collection systems.

To determine the total yearly sediment load within the borough, the sediment loading (TSS) values of 1305.05 lb/acre/year for the impervious land cover and 132.98 lb./acre/year for pervious land cover were utilized. These values were taken from Attachment B of the PRP Instructions and are to be used with the DEP Simplified Method as the loading rates for MS4s within the Chesapeake Bay watershed. The landuse was delineated in ArcGIS Pro 2.6.0 while using available lidar contour from the Pennsylvania Department of Conservation and Natural Resources and multiple sources of aerial imagery. For the residential developments, the tracts were typically ¼ acre lots. To determine the pervious and impervious area the SCS curve number reference was utilized which states the ¼ acre residential lot is thirty-eight (38) percent impervious and sixty-two (62) percent pervious. A breakdown of the outfalls along with the areas can be found in the appendix of this report.

As noted in the Pollutant Aggregation Suggestions for MS4 Requirements Table Instructions and the Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal), Dunmore Borough may achieve the ten (10) percent sediment pollutant reduction across the entire Planning Area, as opposed to a 10 percent reduction in the Planning Areas for each receiving impaired surface water. This is due to Meadow Brook and Roaring Brook sharing a common issue (sediment to surface waters in the Chesapeake Bay).

The total sediment load of the Borough Planning Area is calculated to be 17,241 lb. /year.

## E. BMP's to Achieve Required Reduction in Pollutant Loading

The BMP's with potential to provide the required ten (10) percent reduction in sediment pollution in the next five (5) years are identified below. A detailed analysis of each BMP's effectiveness, cost and if site acquisition is required prior to implementation. The calculations prepared to support the selection of BMPs are included in Appendix F.

### Street Sweeping

The Borough currently maintains streets and drainage facilities throughout the Municipality. The Borough performs street sweeping regularly throughout the Municipality when weather allows. The removal of debris and sediment from the roadway will reduce the amount of sediment discharged to the from Borough facilities. The Borough will increase the amount of street sweeping within the identified areas to meet the requirements for the MS4. The following sediment removal was calculated within the sewersheds delineated.

***Estimated Sediment Reduction: 20 acres (streets within sewersheds) \* 1305.05***

***lbs/acre/yr \* 0.09 (9%)***

***= 2,349 lbs/yr***

### Infiltration Basin 1

The Borough is proposing to retrofit an existing detention basin to an infiltration basin (BMP-01) downstream of an existing commercial development in sewershed DA-05. The noted sewershed has sufficient drainage area (approximately 64 acres) to accommodate the sediment reduction requirement. The proposed location of the BMP will be on a Borough owned lot and will not require an easement/land acquisition

***Estimated Sediment Reduction: 6.5 acres (Impervious) \* 1305.05 lbs/acre/yr \* 0.85 (85%)***

***= 7,210 lbs/yr***

***Estimated Sediment Reduction: 5.0 acres (Pervious) \* 132.98 lbs/acre/yr \* 0.85 (85%)***

***= 565 lbs/yr***

***Note: The proposed sediment reduction listed above is based on a portion of the drainage area to the BMP to meet the Borough reduction requirement.***

### Infiltration Basin 2

The Borough is proposing to retrofit an existing detention basin to an infiltration basin (BMP-02) downstream of an existing residential development in sewershed DA-07. The noted sewershed has sufficient drainage area (approximately 64 acres) to accommodate the sediment reduction requirement. The proposed location of the BMP will be on a Borough owned lot and will not require an easement/land acquisition.

***Estimated Sediment Reduction: 6.5 acres (Impervious) \* 1305.05 lbs/acre/yr \* 0.85 (85%)***

***= 7,210 lbs/yr***

***Estimated Sediment Reduction: 5.0 acres (Pervious) \* 132.98 lbs/acre/yr \* 0.85 (85%)***  
***= 565 lbs/yr***

***Note: The proposed sediment reduction listed above is based on a portion of the drainage area to the BMP to meet the Borough reduction requirement.***

## F. Funding

Unless funding changes are provided at the State and Federal levels, the funding of design and installation of BMP's required by the State and Federal MS4 program will be the responsibility of the Borough. The Borough will seek grants from any available sources including Federal, State and private sources.

## G. Operation and Maintenance (O&M) of BMP's

A written O & M program will be developed specifically with the detailed design of each BMP. Dunmore Borough will be the responsible party to maintain all BMP's. General O & M measures as described below:

Street Sweeping – Street sweeping will continue using a vacuum truck on Borough streets. Areas with separate storm systems having outfalls directly to either the Roaring Brook or Meadow Brook Creek watersheds, street sweeping will occur a minimum of 25 times per year.

Infiltration Basins – Routine and non-routine maintenance is required to keep infiltration basins operating effectively. Basins should be inspected following major rainfall events, particularly in the first few months after construction. Water entering the basins should infiltrate within 72 hours. Any base spots in the basin should immediately be replanted to establish overall coverage. Basins should be mowed once the vegetation exceeds 12 inches in height. Grass clippings should be removed to prevent clogging of the surface.

Rain Garden/Bioretenion – Maintenance activities focus largely on maintaining infiltration capacity and the health of the vegetation. Upon installation of the vegetation it should be watered for a minimum of a two week period to help establish the vegetation. Biweekly for the first year the vegetation should be inspected for signs of disease or distress. Once vegetation is established and on a monthly schedule inspect inlet controls and outlet structures for trash and sediment accumulation and remove in an approved manner. Maintain records of all inspections and repairs.

**Appendix A**  
**Public Notice**

## **NOTICE OF PUBLIC COMMENT PERIOD FOR NPDES STORMWATER DISCHARGE POLLUTANT REDUCTION PLAN**

Dunmore Borough is preparing an application for a National Pollution Discharge Elimination System (NPDES) General Stormwater Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) to be submitted on August 14, 2020 to the Pennsylvania Department of Environmental Protection (PADEP). The Borough is required to submit a Pollution Reduction Plan (PRP) to the PADEP as part of the MS4 application. The plan describes potential sediment reduction measures in the Roaring Brook and Meadow Brook Creek watersheds.

The Borough is hereby giving notice of the public comment period on the PRP, which is a requirement of the General MS4 permit. The Borough shall accept comments from August 14, 2020 through September 8, 2020. A copy of the plan will be available on August 14, 2020 on the Borough website, at [www.dunmorepa.gov](http://www.dunmorepa.gov). A hardcopy can be reviewed in person during normal business hours at the Dunmore Borough Building located at 400 South Blakley Street, Dunmore, PA 18512. Written comments may be submitted to the Borough Manager at this address during the comment period. The plan will be discussed, and the public will have the opportunity to comment at the September 14, 2020 Borough Council meeting.

The Borough Council meeting will be held at the Dunmore Community Center on September 14, 2020 at 7 p.m.



**Appendix B**

**Public Comments**

(TO BE INCLUDED AT THE END  
OF PUBLIC REVIEW PERIOD)

**Appendix C**

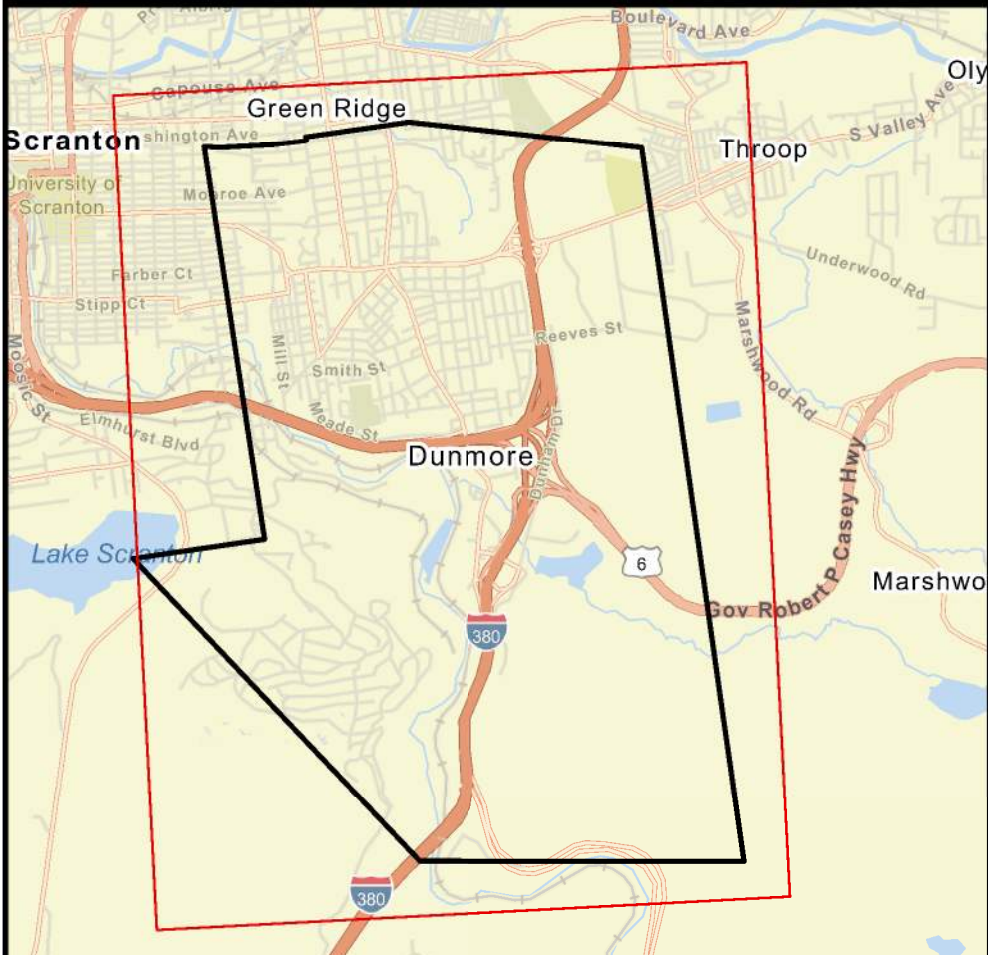
**Record of Consideration of Comments**

(TO BE INCLUDED AT THE END  
OF PUBLIC REVIEW PERIOD)

**Appendix D**  
**Maps**



OF-ID	Latitude	Longitude
OF-01	41° 24' 27.34823465" N	075° 37' 33.84582617" W
OF-02	41° 24' 27.38275814" N	075° 37' 28.82426938" W
OF-03	41° 24' 33.84738104" N	075° 37' 50.37567567" W
OF-04	41° 24' 37.80091445" N	075° 38' 01.22267704" W
OF-05	41° 24' 48.26176036" N	075° 37' 00.87247108" W
OF-06	41° 25' 47.20737391" N	075° 37' 18.42144114" W
OF-07	41° 25' 36.01608505" N	075° 36' 52.43735634" W
OF-08	41° 25' 44.82018698" N	075° 38' 26.81083551" W
OF-09	41° 24' 41.91665667" N	075° 37' 10.69393307" W



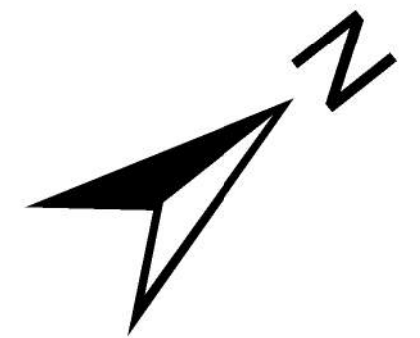
## APPENDIX-D SEWERSHED MAP

# DUNMORE BOROUGH MS4

Dunmore    Lackawanna County    Pennsylvania

Date: August 04, 2020  
 Project No.: 5189.19  
 Prepared By: TMV

- Legend**
- Dunmore MS4 Outfalls
  - Urbanized Area
  - Sewersheds
  - Proposed Storm BMP
  - Street Sweeping
  - Stormlines
  - Storm Structure
  - Streams
  - Dunmore Municipal Boundary
  - Adjoining Municipalities
  - Major Contours
  - Major Contours
  - <all other values>



0    0.13    0.25    0.5  
 Miles

**reuther+bowen**  
 Engineering, Design, Construction Services

Font: HEBI, Corina, SaltGraph, MBTI/NASA, USGS, EPA, NPS, USDA, USDA USA, GeoEye, CNES/Airbus DS

**Appendix E**  
**Loading Calculations**

Project Title: Dunmore Borough MS4

Job Number: 5189.19

Date: 8/7/2020



Stream	ID	Landuse	Area (Acres)	Total Sediment (TSS) (lbs/yr)	Total Drainage Area (Acres)
Roaring Brook	DA-01	1/4 Residential (Impervious)	1.49	1,944.08	8.21
	DA-01	1/4 Residential (Pervious)	2.43	323.21	
	DA-01	Impervious	1.28	1,675.93	
	DA-01	Pervious	3.01	400.18	
Roaring Brook	DA-02	1/4 Residential (Impervious)	0.80	1,046.34	34.62
	DA-02	1/4 Residential (Pervious)	1.31	173.96	
	DA-02	Impervious	14.63	19,086.54	
	DA-02	Pervious	17.89	2,378.70	
Roaring Brook	DA-03	1/4 Residential (Impervious)	11.14	14,538.88	42.05
	DA-03	1/4 Residential (Pervious)	18.18	2,417.12	
	DA-03	Impervious	6.39	8,341.88	
	DA-03	Pervious	6.34	842.75	
Roaring Brook	DA-04	1/4 Residential (Impervious)	3.81	4,974.55	12.55
	DA-04	1/4 Residential (Pervious)	6.22	827.03	
	DA-04	Pervious	2.52	334.81	
Roaring Brook	DA-05	1/4 Residential (Impervious)	1.51	1,971.84	25.22
	DA-05	1/4 Residential (Pervious)	2.47	327.82	
	DA-05	Impervious	11.16	14,570.62	
	DA-05	Pervious	10.08	1,340.34	
Meadow Brook	DA-06	1/4 Residential (Impervious)	11.67	15,231.88	61.32
	DA-06	1/4 Residential (Pervious)	19.04	2,532.33	
	DA-06	Impervious	26.28	34,290.46	
	DA-06	Pervious	4.33	576.19	
Meadow Brook	DA-07	1/4 Residential (Impervious)	14.82	19,347.23	64.40
	DA-07	1/4 Residential (Pervious)	24.19	3,216.52	
	DA-07	Impervious	6.78	8,853.92	
	DA-07	Pervious	18.60	2,473.31	
Meadow Brook	DA-08	1/4 Residential (Impervious)	2.57	3,354.42	10.05
	DA-08	1/4 Residential (Pervious)	4.19	557.68	
	DA-08	Impervious	1.47	1,912.81	
	DA-08	Pervious	1.83	242.69	
Roaring Brook	DA-09	Impervious	1.29	1,683.17	5.96
	DA-09	Pervious	4.67	621.07	

Load Rates:	Impervious	1,305.05	lbs/acre/yr
	Pervious	132.98	lbs/acre/yr

Overall:	Impervious	152,824.55	lbs/yr
	Pervious	19,585.69	lbs/yr

Ex. Sediment Load: 172,410.23

Required Reduction: **17,241.02**

**Appendix F**  
**BMP Calculations**

Project Title: Dunmore Borough MS4  
 Job Number: 5189.19  
 Date: 8/7/2020



Total Load: 172,410.23 lbs/yr  
 Required Reduction: 17,241.02 lbs/yr  
 Developed Load Rates: 1305.05 lbs/acre/yr  
 132.98 lbs/acre/yr

BMP Name	Effectiveness	Impervious Area (Acres)	Pervious Area (Acres)	Impervious Load (lbs/yr)	Pervious Load (lbs/yr)	Total Load (lbs/yr)	BMP Reduction (lbs/yr)
Street Sweeping	9%	20	0	26,101.00	0	26,101.00	2,349.09
Infiltration Basin (BMP-01)	85%	6.5	5	8,482.83	664.9	9,147.73	7,775.57
Infiltration Basin (BMP-02)	85%	6.5	5	8,482.83	664.9	9,147.73	7,775.57
<b>Total Proposed Reduction</b>							<b>17,900.22</b>

Notes: Developed Land Load Rate were taken from Attachment B of the PRP Instruction date 3/2017



**Appendix G**  
**Attachment B – Developed Land Loading**  
**Rates for PA Counties**

**ATTACHMENT B**

**DEVELOPED LAND LOADING RATES FOR PA  
COUNTIES<sup>1,2,3</sup>**

<b>County</b>	<b>Category</b>	<b>Acres</b>	<b>TN lbs/acre/yr</b>	<b>TP lbs/acre/yr</b>	<b>TSS (Sediment) lbs/acre/yr</b>
Adams	impervious developed	10,373.2	33.43	2.1	1,398.77
	pervious developed	44,028.6	22.99	0.8	207.67
Bedford	impervious developed	9,815.2	19.42	1.9	2,034.34
	pervious developed	19,425	17.97	0.68	301.22
Berks	impervious developed	1,292.4	36.81	2.26	1,925.79
	pervious developed	5,178.8	34.02	0.98	264.29
Blair	impervious developed	3,587.9	20.88	1.73	1,813.55
	pervious developed	9,177.5	18.9	0.62	267.34
Bradford	impervious developed	10,423	14.82	2.37	1,880.87
	pervious developed	23,709.7	13.05	0.85	272.25
Cambria	impervious developed	3,237.9	20.91	2.9	2,155.29
	pervious developed	8,455.4	19.86	1.12	325.3
Cameron	impervious developed	1,743.2	18.46	2.98	2,574.49
	pervious developed	1,334.5	19.41	1.21	379.36
Carbon	impervious developed	25.1	28.61	3.97	2,177.04
	pervious developed	54.2	30.37	2.04	323.36
Centre	impervious developed	7,828.2	19.21	2.32	1,771.63
	pervious developed	15,037.1	18.52	0.61	215.84
Chester	impervious developed	1,838.4	21.15	1.46	1,504.78
	pervious developed	10,439.8	14.09	0.36	185.12
Clearfield	impervious developed	9,638.5	17.54	2.78	1,902.9
	pervious developed	17,444.3	18.89	1.05	266.62
Clinton	impervious developed	7,238.5	18.02	2.80	1,856.91
	pervious developed	11,153.8	16.88	0.92	275.81
Columbia	impervious developed	7,343.1	21.21	3.08	1,929.18
	pervious developed	21,848.2	22.15	1.22	280.39
Cumberland	impervious developed	8,774.8	28.93	1.11	2,065.1
	pervious developed	26,908.6	23.29	0.34	306.95
Dauphin	impervious developed	3,482.4	28.59	1.07	1,999.14
	pervious developed	9,405.8	21.24	0.34	299.62
Elks	impervious developed	1,317.7	18.91	2.91	1,556.93
	pervious developed	1,250.1	19.32	1.19	239.85
Franklin	impervious developed	13,832.3	31.6	2.72	1,944.85
	pervious developed	49,908.6	24.37	0.76	308.31
Fulton	impervious developed	3,712.9	22.28	2.41	1,586.75
	pervious developed	4,462.3	18.75	0.91	236.54
Huntington	impervious developed	7,321.9	18.58	1.63	1,647.53
	pervious developed	11,375.4	17.8	0.61	260.15
Indiana	impervious developed	589	19.29	2.79	1,621.25
	pervious developed	972	20.1	1.16	220.68
Jefferson	impervious developed	21.4	18.07	2.76	1,369.63
	pervious developed	20.4	19.96	1.24	198.60
Juniata	impervious developed	3,770.2	22.58	1.69	1,903.96
	pervious developed	8,928.3	17.84	0.55	260.68
Lackawana	impervious developed	2,969.7	19.89	2.84	1,305.05
	pervious developed	7,783.9	17.51	0.76	132.98
Lancaster	impervious developed	4,918.7	38.53	1.55	1,480.43
	pervious developed	21,649.7	22.24	0.36	190.93
Lebanon	impervious developed	1,192.1	40.58	1.85	1,948.53
	pervious developed	5,150	27.11	0.4	269.81