

POLLUTANT REDUCTION PLAN

FOR

Scott Township

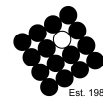
Situated In

Allegheny County, Pennsylvania

Prepared For

TOWNSHIP OF SCOTT
301 Lindsay Road
Carnegie, Pennsylvania 15106

JULY 2017



**Lennon, Smith, Souleret
Engineering, Inc.**

Civil Engineers and Surveyors

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SECTION A
PUBLIC PARTICIPATION

This Pollutant Reduction Plan was advertised in the Township's general circulation newspaper of record to solicit public comment. The advertisement was placed on July 21, 2017 and identified a 30 day comment beginning on July 24, 2017 and ending August 24, 2017. A copy of proof of publication of the public notice is included as Attachment A-1. During the 30 day comment period, the draft PRP document was available for public review and comment at the Township Office. Written comments were accepted and the comment log documenting comments received is included as Attachment A-2. In addition, the PRP was discussed at regularly scheduled advertised Sewer Committee meetings on June 5, 2017 and August 7, 2017 and was placed on the Township web site for viewing.

The PRP was discussed as an agenda item at the regularly scheduled August 8, 2017 meeting of the Township Board of Commissioners. Notice of discussion of PRP at the August 8, 2017 Board of Commissioners meeting was included in the above noted public notice. Comments received during the Board of Commissioners meeting are included in Attachment A-3.

As comments were received during the public participation period and at the Board of Commissioners meeting, a review of the PRP was completed with respect to each comment submitted. A summary of the Township's consideration and response to each comment received is provided as part of Attachment A-3.

SECTION B MAPS

Comprehensive mapping of the Township's regulated MS4 was completed as part of compliance with Minimum Control Measure 3. Mapping has been completed to identify the complete network of stormwater collection and conveyance facilities to determine the tributary area to each regulated outfall, and subsequently the PRP Planning Area. Attachment B-1 ó MS4 Drainage Areas depicts the drainage areas tributary to each MS4 outfall.

Areas not collected or conveyed by the Township's regulated MS4 are not included in the planning area and appear as non-shaded areas on the MS4 Drainage Area map. In addition, tributary area within the rights-of-way of entities holding independent MS4 NPDES permits were parsed from the Planning Area. These areas, rights-of-way owned by the Pennsylvania Department of Transportation or Allegheny County, are depicted as bounded by a heavy red line on the Drainage Area map. Areas parsed assume a 50 foot right of way width for two lane roadways and an 80 foot right of way width for roadways exceeding two lanes. Areas with private stormwater conveyance systems were also excluded from the Planning Area.

Attachment B-2 ó Land Cover depicts land cover conditions present within the Township. Land cover is based on National Land Cover Database data. Tributary or Planning Areas to each outfall as developed on Attachment B-1 are also shown on the Land Cover map.

Attachment B-3 ó Proposed BMPs map depicts the location and tributary area for each of the proposed structural BMPs identified in this PRP.

SECTION C POLLUTANTS OF CONCERN

The Pennsylvania Department of Environmental (PADEP) Protection Pollutant Reduction Plan instructions identify sediment and nutrients as pollutants of concern to be addressed in the PRP for impaired local surface water. Determination of impaired waters requiring implementation of a PRP was based on a review eMapPA and the PADEP MS4 Requirements Table. An excerpt from the Requirements Table is provided below:

MS4 Name	NPDES ID	Individual Permit Required?	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Allegheny County				
SCOTT TWP	PAG136138	No	Chartiers Creek	Appendix A-Metals (4a), Appendix C-PCB (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)
			Scrubgrass Run	Appendix A-Metals (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)
			Ohio River	Appendix C-PCB (4a), Appendix B-Pathogens (5)
			Painters Run	Appendix A-Metals (4a), Appendix C-Chlordane, PCB (4a), Appendix E-Suspended Solids (4a), Appendix E-Siltation (5)

Per the Requirements Table, Scott Township has four (4) existing streams with identified impairments. Painters Run is impaired for Metals, Chlordane, PCB, Suspended Solids and Siltation; The Ohio River is impaired for PCB and Pathogens; Chartiers Creek is impaired for Metals, PCB, Suspended Solids and Siltation; Scrubgrass Run is impaired for Metals, Suspended Solids and Siltation.

With regard to pollutants of concern requiring development of a PRP, a sediment impairment is noted for Chartiers Creek, Scrubgrass Run and Painters Run. Additionally, though not specifically noted in the Requirements Table, the Township's regulated MS4 discharges to Georges Run and Whiskey Run within 5 miles of the impaired Chartiers Creek and as such these areas are included in the PRP Planning Area.

The Township's MS4 does not discharge directly, or within 5-miles, to surface waters impaired for nutrients. As such, this PRP addresses only sediment as the pollutant of concern.

SECTION D
DETERMINING EXISTING LOADING FOR POLLUTANTS OF CONCERN

The PADEP Simplified Method was implemented in determination of existing pollutant loading. Existing loading calculations, completed in accordance with the PADEP Simplified Method have an effective date of June 2017. Mapping of regulated MS4 infrastructure is presented with best available information as of June 2017 and land cover information used is from the most recent issuance of National Land Cover Database (NLCD) data, dated 2011.

Storm sewershed tributary areas were calculated using mapping presented in Section B and with sewershed boundaries delineated based on current topography and accounting for the presence of existing collection and conveyance facilities, including inlets, pipes, swales, curbs, etc.

GIS software was used to tabulate the land cover composition of each individual storm sewershed based on NLCD data. NLCD defines the following categories of developed land cover:

- Developed, Open Space ó **Impervious surfaces account for less than 20% of total cover.** These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
- Developed, Low Intensity - **Impervious surfaces account for 20% to 49% percent of total cover.** These areas most commonly include single-family housing units.
- Developed, Medium Intensity - **Impervious surfaces account for 50% to 79% of the total cover.** These areas most commonly include single-family housing units.
- Developed High Intensity - **Impervious surfaces account for 80% to 100% of the total cover.** Highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial.

Land Cover categories were converted to impervious and pervious areas to allow for application of the Simplified Method Loading Rates. Impervious/Pervious Area ratios were applied as follows based on the above noted NLCD descriptions. The most conservative (i.e. highest impervious area percentage) was used for each category. The following table presents impervious area ratios applied for developed land cover.

Land Cover	Impervious Area	Pervious Area
Developed, High Intensity	100%	0%
Developed, Low Intensity	49%	51%
Developed, Medium Intensity	79%	21%
Developed, Open Space	19%	81%

Undeveloped land (i.e. deciduous forest, evergreen forest, cultivated crops, etc) was assumed to be entirely pervious.

Following determination of impervious and pervious cover for each storm sewershed, pollutant loading where applied based on the values presented in Attachment B, Developed Land Loading Rates for PA Counties. As Scott Township is located in Allegheny County, loadings listed for "All Other Counties" were used as noted in the following table:

Pollutant Loading Factors	Sediment (TSS)	Nutrients (TP)
	(lb/ac/yr)	(lb/ac/yr)
Impervious Cover	1839.0	2.28
Pervious Cover	264.96	0.84
Non Urbanized Areas	234.6	0.033

Attachment D-1 provides a complete tabulation of the storm sewershed associated with each regulated MS4 Outfall including land cover composition, impervious and pervious area acreages and the calculated existing annual sediment loading.

Based on a review of eMapPA and the PADEP Pollutant Aggregation Suggestions for MS4 Municipal Requirement Table, each of the Township's surface waters with an identified sediment impairment is tributary to the Lower Chartiers Creek HUC 12 watershed. As such, existing pollutant loadings have been aggregated to identify the Township's total loading to be reduced.

As shown on the Attachment D-1, the total existing sediment loading from the Planning Area for Scott Township's regulated MS4 is 1,476,618 pounds per year.

SECTION E
SELECTION OF BMPS TO ACHIEVE REQUIRED REDUCTIONS IN POLLUTANT
LOADING

A reduction of 10% of the existing sediment loading is required. Based on an existing loading of 1,476,618 pounds per year as noted in Section D, the Township minimum pollutant reduction is 147,662 pounds per year.

The Township will implement BMPs during the five-year permit period to achieve the required reduction. The Township intends to implement a combination of three types of BMPs during this permit period as described below. BMP names and descriptions, as identified in the Chesapeake Bay Program Model are identified as follows:

Filtering Practices - Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.

Bioretention/Rain Gardens – C/D Soils, Underdrain, An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.

Stream Restoration - An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.

Attachment E-1 provides a listing of proposed BMPs, as were depicted on Attachment B-3, Proposed BMPs. Final design will determine the actual pollutant reduction of each selected BMP, however, Attachment E-1 provides planning level design and pollutant reduction information on each BMP. Attachment E-1 provides a tabulation of tributary areas and land covers to calculate existing pollutant loading to the BMPs using the methodology described in Section D, above.

No new development is proposed as part of PRP implantation. Therefore, determination of BMP efficiency was completed using the methodology identified in the Chesapeake Bay Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects¹.

¹ Prepared by Tom Schueler and Cecilia Lane, Chesapeake Stormwater Network, last revised January 20, 2015

BMP efficiencies were determined using the Retrofit Removal Adjustor Curve for Sedimentation in Chapter 4 for the above noted Expert Panel Report. Attachment E-1 provides tabulation of the anticipated capture/storage volume for each BMP based on planning-level BMP sizing. The runoff depth is calculated using the following Expert Panel Report equation;

$$R_{adj} = \frac{R_{adj} - 12}{R_{adj} - 12}$$

This runoff depth value is then used as the x-axis value of the Retrofit Removal Adjustor Curve to determine the BMP efficiency. For calculations in this PRP, the proposed filtration practices and bio-retention/rain gardens have been considered Stormwater Treatment BMPs, as such, efficiency values are taken from the ST curve, rather than the Runoff Reduction (RR) curve. The final column of Attachment E-1 notes the anticipated pollutant reduction associated with each BMP, calculated by multiplying the BMP efficiency by the existing loading tributary to the BMP.

Calculation of pollutant reductions associated with proposed stream restoration projects utilized a reduction factor of 44.88 pounds per year per linear foot restored, as provided in the *Chesapeake Bay Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects*². A tabulation of anticipated reduction due to stream restoration projects is included in Attachment E-1.

As proposed, the BMPs noted on Attachment E-1 should result in a total sediment reduction of slightly in excess of the required 10% reduction. Because actual reductions will be impacted by final design considerations, additional options for pollutant reductions have been included in this plan. It is not the intent of the Township to construct all of the proposed BMPs noted in this plan. It is the intent of the Township to construct BMPs as required to achieve the minimum reduction required. Additional BMPs have been included as contingency in event that final design considerations or as-built performance of BMPs negatively impact the feasibility or effectiveness of proposed BMPs. In the event that the total required pollutant reduction is achieved with implementation of fewer BMPs than proposed, construction of the remaining BMPs will be held for consideration as part of a future PRP.

The following presents a general description of BMPs noted in Appendix E-1:

- **BMP Type:** Filtration Practices ó New Retrofits
 - Proposed BMPs:
 - Hope Street Park
 - Scott Park 1
 - Public Works

² Prepared by Tom Schueler, Chesapeake Stormwater Network and Bill Stack, Center for Watershed Protection, last revised September 8, 2014

- Spinner Field
 - Sillview Park
 - Artvue Drive
 - Stancey Road
 - Neville Street
- Description of BMP implementation consists of construction of new BMPs to capture and treat runoff from existing developed areas. BMPs will consist of construction surface storage basins intended to detain captured runoff for treatment. Treatment will be achieved through engineered filtering media practices. Biofiltration products such as Focal Point or other filtration technologies will be implemented in storage basins bottoms to improve infiltration and treatment of captured runoff.
- **BMP Type: Filtration Practice of Existing Retrofits**
 - Proposed BMPs:
 - Green Commons
 - Description of BMP implementation alteration of an existing dry detention basin to provide additional storage for treatment. Treatment will be achieved through engineered filtering media practices. Biofiltration products such as Focal Point or other filtration technologies will be implemented in storage basins bottoms to improve infiltration and treatment of captured runoff.
- **BMP Type: Bioretention/Rain Garden of New Retrofits**
 - Proposed BMPs:
 - Township Building
 - Description of BMP implementation consists of construction of new BMPs to capture and treat runoff from existing developed areas. BMPs will consist of construction surface storage basins intended to detain captured runoff for treatment. Treatment will be achieved by infiltration through rain garden/bioretention soil mix and discharged through and underdrain.
- **BMP Type: Stream Restoration**
 - Locations:
 - To be determined
 - Description of BMP implementation consists of implementation of streambank restoration projects at areas of known streambank erosion.

SECTION F. FUNDING

The Township intends to budget costs associated with implementation of the PRP as part of their annual general fund budget, including costs associated with design, permitting, property acquisition, construction and maintenance.

Preliminary Opinions of Probable Cost have been prepared for each proposed BMP. The following table provides a summary of anticipated implementation costs for each BMP:

ITEM NO.	DESCRIPTION	Preliminary Cost	Approx. Sediment Removal	Approx. Price Per Pound of Sediment Removed
Filtering Practices - Rain Garden/Detention Basin with Focal Point				
1	Public Works Building	\$150,000.00	26,239	\$5.72
2	Green Commons Drive Retrofit	\$210,000.00	19,934	\$10.53
3	Spinner Field	\$125,000.00	13,012	\$9.61
4	Scott Park	\$100,000.00	7,651	\$13.07
5	Hope Street Park	\$100,000.00	13,174	\$7.59
6	Township Building	\$50,000.00	1,001	\$49.95
7	Silview Park	\$150,000.00	26,689	\$5.62
8	Artvue Drive	\$110,000.00	7,834	\$14.04
9	Stancey Road	\$100,000.00	12,615	\$7.93
10	Neville Street	\$110,000.00	13,381	\$8.22
	Subtotal	\$1,205,000.00	141,530	\$8.51
Stream Restoration				
8	Stream Restoration (2000 Linear Feet)	\$1,400,000.00	89,760	\$15.60
Average Anticipated Cost Per Pound Removed				\$11.26
Total Required Reduction				147,662
Preliminary Anticipated Implementation Cost				\$1,664,000.00
Preliminary Anticipated Annual Budget				\$332,800.00

As summarized above, the total cost for implementation is estimated at approximately \$1,700,000, or an annual budget of \$330,000 through the 5-year permit period. Preliminary opinions of probable cost, as summarized above have been provided to establish initial budgeting ranges. It is anticipated that final design and value engineering of each pollutant reduction BMP will impact final implementation values. Note that it is the Township's intent to achieve the required pollutant reduction as cost-effectively as possible and the above noted budgets should not necessarily be considered final budgetary commitments to PRP implementation.

While the Township may seek grant funding as opportunities are available, annual general fund budgeting is intended to account for anticipated implementation costs.

SECTION G. RESPONSIBLE PARTIES FOR OPERATION AND MAINTENANCE

Scott Township will be responsible for operation and maintenance of each proposed BMP. Detailed O&M Plans will be developed with the final design of each BMP. Typical O&M Procedures and frequencies for each BMP type area included as Attachment G-1.

DRAFT

ATTACHMENT D-1
 Scott Township
 Pollutant Reduction Plan
 Existing Loading
 Watershed: Lower Chartiers Creek

NLCD Land Cover ²	Impervious Area	Pervious Area
Deciduous Forest	0%	100%
Developed, High Intensity	100%	0%
Developed, Low Intensity	49%	51%
Developed, Medium Intensity	79%	21%
Developed, Open Space	19%	81%

Pollutant Loading Factors ¹	Sediment (TSS)
Impervious Cover (lb/ac/yr)	1,839.00
Pervious Cover (lb/ac/yr)	264.96
Non Urbanized Areas (lb/ac/yr)	234.60

Storm Sewershed	Tributary Area - NLCD Land Cover (ac)						Impervious/Pervious Area Tabulation (ac)				Existing Sediment (TSS) Loading (lb/yr)
	Tributary Area - Total	Deciduous Forest	Developed, High Intensity	Developed, Low Intensity	Developed, Medium Intensity	Developed, Open Space	Urbanized Area - Impervious	Urbanized Area - Pervious	Non-Urbanized Area	Tributary Area - Total	
1	1.150			0.026	1.124		0.901	0.249	0.000	1.150	1,722
2	0.847		0.242	0.082	0.523		0.695	0.152	0.000	0.847	1,319
3	0.967		0.381		0.586		0.844	0.123	0.000	0.967	1,585
4	1.084		0.181	0.315	0.588		0.800	0.284	0.000	1.084	1,546
5	0.249		0.102	0.028	0.119		0.210	0.039	0.000	0.249	396
6	0.641		0.09	0.051	0.401	0.099	0.451	0.190	0.000	0.641	879
7	1.925		0.518	0.217	1.19		1.564	0.361	0.000	1.925	2,973
8	1.089		1.003	0.056	0.03		1.054	0.035	0.000	1.089	1,948
009OP	1.733	0.002		1.359	0.364	0.008	0.955	0.778	0.000	1.733	1,962
10	155.018	7.168	0.533	70.243	19.8	57.274	61.476	93.542	0.000	155.018	137,839
11	51.619		15.169	17.853	13.954	4.643	35.823	15.796	0.000	51.619	70,063
13	10.657			4.183	5.937	0.537	6.842	3.815	0.000	10.657	13,593
14	3.251		0.085	0.069	3.06	0.037	2.543	0.708	0.000	3.251	4,865
15	73.073		15.129	19.974	35.704	2.266	53.553	19.520	0.000	73.073	103,656
17	25.668			9.156	12.106	4.406	14.887	10.781	0.000	25.668	30,234
18	3.762		0.152	0.665	2.801	0.144	2.718	1.044	0.000	3.762	5,275
19	1.734		0.001	0.62	0.35	0.763	0.726	1.008	0.000	1.734	1,603
21	23.936		0.39	7.675	3.112	12.759	9.033	14.903	0.000	23.936	20,561
023NT	38.825			26.94	4.399	7.486	18.098	20.727	0.000	38.825	38,774
24	7.663		0.153	3.206	1.119	3.185	3.213	4.450	0.000	7.663	7,088
25	14.918		0.219	6.682	2.984	5.033	6.807	8.111	0.000	14.918	14,667
26	0.188			0.07	0.05	0.068	0.087	0.101	0.000	0.188	186
27	17.438		0.059	9.64	2.007	5.732	7.457	9.981	0.000	17.438	16,358
29	1.960			1.369	0.553	0.038	1.115	0.845	0.000	1.960	2,274
30	3.034			1.868	1.165	0.001	1.836	1.198	0.000	3.034	3,694
31	54.977		1.792	24.678	16.619	11.888	29.272	25.705	0.000	54.977	60,642
32	4.065			2.453	0.549	1.063	1.838	2.227	0.000	4.065	3,970
034NT	104.756	15.654	0.933	38.724	14.574	34.871	38.047	66.709	0.000	104.756	87,643
36	0.928			0.8		0.128	0.416	0.512	0.000	0.928	901
37	1.164			0.983		0.181	0.516	0.648	0.000	1.164	1,121
41	24.352	3.259	0.745	11.267	1.236	7.845	8.733	15.619	0.000	24.352	20,198
42	2.203			1.987	0.064	0.152	1.053	1.150	0.000	2.203	2,241
043NT	20.046			3.92	1.13	14.996	5.663	14.383	0.000	20.046	14,225
44	12.951			9.392	1.512	2.047	6.185	6.766	0.000	12.951	13,168
047NT	134.332	13.995	5.454	35.94	25.552	53.391	53.395	80.937	0.000	134.332	119,638
48	21.834		1.746	11.836	4.422	3.83	11.767	10.067	0.000	21.834	24,306
49	6.391			3.148	0.949	2.294	2.728	3.663	0.000	6.391	5,987
50	5.632			2.461	0.254	2.917	1.961	3.671	0.000	5.632	4,579
51	10.696	0.77		5.392	2.193	2.341	4.819	5.877	0.000	10.696	10,420
53	6.077			4.229	1.349	0.499	3.233	2.844	0.000	6.077	6,699
54	4.421			3.009	0.535	0.877	2.064	2.357	0.000	4.421	4,420
55	6.208			3.243	1.038	1.927	2.775	3.433	0.000	6.208	6,013
56	13.012			7.4	1.584	4.028	5.643	7.369	0.000	13.012	12,329
57	7.381			4.838	0.633	1.91	3.234	4.147	0.000	7.381	7,045
61	4.381		0.469	2.127	1.139	0.646	2.534	1.847	0.000	4.381	5,149
064NT	1.789			0.757	0.77	0.262	1.029	0.760	0.000	1.789	2,094
67	6.612			4.365	0.947	1.3	3.134	3.478	0.000	6.612	6,685
68	0.403			0.398	0.001	0.004	0.197	0.206	0.000	0.403	416
69	2.762			2.749	0.013		1.357	1.405	0.000	2.762	2,868
70	8.625			6.59	1.621	0.414	4.588	4.037	0.000	8.625	9,508
73	14.732			11.438	1.434	1.86	7.091	7.641	0.000	14.732	15,065
74	9.338			5.561	2.374	1.403	4.867	4.471	0.000	9.338	10,135
76	3.529			3.515	0.014		1.733	1.796	0.000	3.529	3,664
80	30.138		1.896	15.668	8.318	4.256	16.953	13.185	0.000	30.138	34,670
83	1.968		0.318	0.149	0.197	1.304	0.794	1.174	0.000	1.968	1,772
85	0.855		0.122	0.187	0.546		0.645	0.210	0.000	0.855	1,242
103	4.125			1.793	0.565	1.767	1.661	2.464	0.000	4.125	3,707
106	3.175			1.627	1.057	0.491	1.726	1.449	0.000	3.175	3,557
109	1.874	0.026		0.73	1.108	0.01	1.235	0.639	0.000	1.874	2,440
113	1.834			1.773		0.061	0.880	0.954	0.000	1.834	1,872
114	3.347			1.836	0.438	1.073	1.450	1.897	0.000	3.347	3,168
119	31.283	4.413		14.411	5.077	7.382	12.475	18.808	0.000	31.283	27,925
120	5.028			2.597	1.44	0.991	2.598	2.430	0.000	5.028	5,422
121	1.351			1.067	0.088	0.196	0.630	0.721	0.000	1.351	1,349
132	0.433			0.284	0.149		0.257	0.176	0.000	0.433	519
138	7.109			3.188	1.966	1.955	3.487	3.622	0.000	7.109	7,372

Note 1: Pollutant Loading Factors Based on Appendix B of PADEP PRP Instructions dated 3/2017
 Note 2: Impervious Area coverages based on 2011 NLCD data

ATTACHMENT D-1
 Scott Township
 Pollutant Reduction Plan
 Existing Loading
 Watershed: Lower Chartiers Creek

NLCD Land Cover ²	Impervious Area	Pervious Area
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Storm Sewershed	Tributary Area - NLCD Land Cover (ac)						Impervious/Pervious Area Tabulation (ac)				Existing Sediment (TSS) Loading (lb/yr)
	Tributary Area - Total	Deciduous Forest	Developed, High Intensity	Developed, Low Intensity	Developed, Medium Intensity	Developed, Open Space	Urbanized Area - Impervious	Urbanized Area - Pervious	Non-Urbanized Area	Tributary Area - Total	
150	1.260			1.258	0.002		0.618	0.642	0.000	1.260	1,307
151	1.207			1.005	0.202		0.652	0.555	0.000	1.207	1,346
152	0.750			0.347	0.403		0.488	0.262	0.000	0.750	967
163	64.166			52.339	4.458	7.369	30.568	33.598	0.000	64.166	65,117
164NT	26.745		0.479	20.04	3.417	2.809	13.532	13.213	0.000	26.745	28,386
165NT	93.425		0.008	67.292	7.743	18.382	42.591	50.834	0.000	93.425	91,793
171NT	6.708			3.154	3.514	0.04	4.329	2.379	0.000	6.708	8,592
172NT	5.245	1.8		1.974	0.82	0.651	1.739	3.506	0.000	5.245	4,127
173NT	8.204	3.076		1.66	1.658	1.81	2.467	5.737	0.000	8.204	6,057
174NT	1.628	0.503		0.441	0.172	0.512	0.449	1.179	0.000	1.628	1,138
176NT	12.689		0.939	2.871	8.173	0.706	8.937	3.752	0.000	12.689	17,429
177NT	3.825			0.977	2.453	0.395	2.492	1.333	0.000	3.825	4,935
178	10.779		0.952	2.494	4.823	2.51	6.461	4.318	0.000	10.779	13,026
180NT	53.806		1.811	28.514	9.629	13.852	26.022	27.784	0.000	53.806	55,216
182NT	2.236		0.017	0.339	1.811	0.069	1.627	0.609	0.000	2.236	3,153
185	63.937	5.293	3.856	24.293	8.731	21.764	26.792	37.145	0.000	63.937	59,113
186	9.554		0.001	2.778	1.347	5.428	3.458	6.096	0.000	9.554	7,974
188NT	66.113		4.427	33.781	7.255	20.65	30.635	35.478	0.000	66.113	65,737
Total:	1,460.823	55.959	60.372	686.414	284.092	373.986	692.205	768.618	0.000	1,460.823	1,476,618

Note 1: Pollutant Loading Factors Based on Appendix B of PADEP PRP Instructions dated 3/2017
 Note 2: Impervious Area coverages based on 2011 NLCD data

ATTACHMENT E-1
Scott Township
Pollutant Reduction Plan
Proposed BMPs
Watershed: Lower Chartiers Creek

NLCD Land Cover ²	Impervious Area	Pervious Area
Evergreen Forest	0%	100%
Developed, High Intensity	100%	0%
Developed, Low Intensity	49%	51%
Developed, Medium Intensity	79%	21%
Developed, Open Space	19%	81%

Pollutant Loading Factors ¹	Sediment (TSS)
Impervious Cover (lb/ac/yr)	1,839.000
Pervious Cover (lb/ac/yr)	264.960
Non Urbanized Areas (lb/ac/yr)	234.600

Minimum Required Reduction (lb/yr)	147,662
Anticipated Reduction Achieved with Proposed BMPs (lb/yr)	231,297

BMP Description	BMP Type	Tributary Area - NLCD Land Cover (ac)						Impervious/Pervious Area Tabulation (ac)			Existing Sediment (TSS) Loading (lb/yr)	Capture/ Treatment Volume (ac-ft)	Capture/ Treatment Volume (cf)	X - Runoff Depth Captured (in)	BMP Surface Area (sf)	BMP Depth (ft)	BMP Storage Capacity (cf)	Focal Point Area (sf)	BMP Efficiency Values	BMP Sediment Removal (lbs/yr)
		Total	Deciduous Forest	Developed, High Intensity	Developed, Low Intensity	Developed, Medium Intensity	Developed, Open Space	Urbanized Area - Impervious	Urbanized Area Pervious	Tributary Area Non-Urbanized										
Green Commons Retrofit	Filtering Practices	52.37		3.725	15.012	13.235	20.397	25.412	26.957	0.000	53,875	0.635	27674	0.30	4,500	3.0	13,500	140	37%	19,934
Hope Street Park	Filtering Practices	23.79		0.39	7.621	2.916	12.862	8.872	14.917	0.000	20,268	0.591	25763	0.80	3,750	4.0	15,000	70	65%	13,174
Public Works	Filtering Practices	62.52	14.147	0.266	21.2	9.612	17.293	21.533	40.985	0.000	50,459	0.897	39083	0.50	4,000	5.0	20,000	155	52%	26,239
Scott Park	Filtering Practices	13.33	1.533		6.051	1.073	4.671	4.700	8.628	0.000	10,930	0.392	17062	1.00	4,000	2.0	8,000	100	70%	7,651
Spinner Field	Filtering Practices	22.39	0.035		16.246	0.741	5.364	9.565	12.821	0.000	20,987	0.558	24305	0.70	5,000	3.0	15,000	60	62%	13,012
Twp Building	Rain Garden, Underdrain	2.01			0.33	0.148	1.533	0.570	1.441	0.000	1,430	0.047	2069	1.00	1,750	1.5	2,625	--	70%	1,001
Sillview Park	Filtering Practices	64.17			52.339	4.458	7.369	30.568	33.598	0.000	65,117	1.019	44385	0.40	5,000	4.0	20,000	150	41%	26,698
Artvue Drive	Filtering Practices	14.73			11.438	1.434	1.86	7.091	7.641	0.000	15,065	0.295	12870	0.50	2,000	2.5	5,000	120	52%	7,834
Stancey Road	Filtering Practices	33.59			19.998	2.521	11.067	13.893	19.693	0.000	30,768	0.463	20173	0.40	2,750	4.0	11,000	70	41%	12,615
Neville Street	Filtering Practices	23.65	0.239		13.21	4.205	5.993	10.934	12.713	0.000	23,475	0.547	23813	0.60	4,000	3.0	12,000	100	57%	13,381
Total:		312.53	15.95	4.38	163.45	40.34	88.41	133.14	179.39	0.000	292,373									141,537

BMP Description	Sediment Removal Rate (lbs/ac/yr)	Length of Restoration	BMP Sediment Removal (lbs/yr)
Stream Restoration	44.88	2000	89,760

Note 1: Pollutant Loading Factors Based on Appendix B of PADEP PRP Instructions dated 3/2017
Note 2: Impervious Area coverages based on 2011 NLCD data