



LOWER SWATARA TOWNSHIP

Dauphin County, Pennsylvania

Chesapeake Bay Pollutant Reduction Plan

September 2017

Updated: May 2018

HRG Project No. R000257.0439

HRG

**Herbert, Rowland & Grubic, Inc.
Engineering & Related Services**

AN EMPLOYEE-OWNED COMPANY

Chesapeake Bay Pollutant Reduction Plan

LOWER SWATARA TOWNSHIP

DAUPHIN COUNTY, PENNSYLVANIA

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INTRODUCTION

Lower Swatara Township (Township) discharges stormwater to surface waters located within the Chesapeake Bay Watershed and is, therefore, regulated by a PAG-13 General Permit, Appendix D (nutrients and sediment in stormwater discharges to waters in the Chesapeake Bay watershed). The Township also has watershed impairments regulated by PAG-13 General Permit, Appendix E (nutrients and/or sediment in stormwater discharges to impaired waterways). This Chesapeake Bay Pollutant Reduction Plan (CBPRP) was developed in accordance with both PAG-13 requirements and documents how the Township intends to achieve the pollutant reduction requirements listed in the Pennsylvania Department of Environmental Protection (PADEP) Municipal MS4 Requirements Table¹.

This document was prepared following the guidance provided in the PADEP National Pollutant Discharges Elimination System (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems Pollutant Reduction Plan (PRP) Instructions².

General Information	
Permittee Name: Lower Swatara Township	NPDES Permit No.: PAG133543
Mailing Address: 1499 Spring Garden Drive	Effective Date: March 18, 2013
City, State, Zip: Middletown, PA 17057	Expiration Date: March 15, 2018
MS4 Contact Person: Ann Hursh	Renewal Due Date: September 16, 2017
Title: Planning & Zoning Coordinator	Municipality: Lower Swatara Township
Phone: (717) 939-9377	County: Dauphin
Email:	Consultant Name: Herbert, Rowland & Grubic, Inc.
Co-Permittees (if applicable): N/A	Consultant Contact: Erin Letavic, P.E. 369 East Park Drive Harrisburg, PA 17109 (717)564-1121

Lower Swatara Township is a small MS4 community that will be starting its second permit term in March 2018. According to the United States Census Bureau's 2010 census, 100% of the Township (7,943.2 acres) is classified as urbanized area (UA).

The municipal UA is split between the Swatara Creek-Susquehanna River and Laurel Run-Susquehanna River HUC-12 Watersheds. The Laurel Run-Susquehanna River has been classified as impaired by PADEP. The Pollution Reduction Plan (PRP) requirements for this impaired watershed are included as part of this CBPRP.

¹ PADEP, MS4 Requirements Table (Municipal) (rev. 5/9/2017)

² PADEP PRP Instructions; Document # 3800-PM-BCW0100k (rev. 3/2017)

SECTION A: PUBLIC PARTICIPATION

A complete copy of this CBPRP was made available for the public to review at the Lower Swatara Township municipal office from August 1, 2017 to August 31, 2017. The availability of the document was publicized on the Township website for 30 days and published in *The Patriot News* on August 1, 2017. The published public notice contained a brief description of the plan, the dates and locations at which the plan was available for review by the public, and the length of time provided for the receipt of comments. Copies of the public notice as posted on the Township website and published in *The Patriot News* are included in Appendix A.

Written comments were accepted for 30 days following the publication date of the public notice. One public comment was received during this time. The public comment and response is included in Appendix A. The information contained in this report was presented to the public during the regularly scheduled Lower Swatara Township Board of Supervisors workshop meeting held on August 2, 2017. Comments and questions regarding the CBPRP were received during the public presentation. A copy of CBPRP presentation and the meeting minutes are included in Appendix A.

SECTION B: MAPPING

The Lower Swatara Planning Area Map depicts the Township's Municipal Separate Storm Sewer System (MS4), as required under MCM #3, BMPs 2 and 3 of the PAG-13 Notice of Intent (NOI). In addition to the MS4 infrastructure (inlets, pipes, outfalls, existing BMPs, etc.), the Planning Area Map also shows the CBPRP planning area, UA boundary, watershed boundaries, existing BMP locations, and proposed BMP locations.

The Township's Land Use Map was developed using the most recent National Land Cover Database³. Much of the northern part of the municipality is farmland or low density residential areas. Medium to High density developed areas are concentrated in the southwest portion of the municipality along Eisenhower Boulevard, in the southeast along the Turnpike, and in the central portion of the Township along Fulling Mill Road.

Per the request of PADEP the map was updated accordingly in May of 2018 and is attached to this report.

³ Multi-Resolution Land Characteristics (MRLC) Consortium, *National Land Cover Database 2011* (NLCD 2011)

SECTION C: POLLUTANTS OF CONCERN

The pollutants of concern for Lower Swatara Township were determined by referencing the PADEP MS4 Municipal Requirements Table⁴ (Table 1). The applicable section of this table is included for reference in Appendix C.

Table 1. Pollutants of Concern by Watershed Planning Area

Planning Area (Watershed)	Impaired Downstream Water	Pollutants of Concern
CBPRP	Chesapeake Bay Nutrients/Sediment	Appendix D - Nutrients, Siltation (4a)
Laurel Run	Unnamed Tributaries to Susquehanna River, Unnamed Tributaries to Sherman Creek	Appendix E - Siltation (5)

⁴ PADEP, MS4 Requirements Table (Municipal) (rev. 5/9/2017)

SECTION D: DETERMINE EXISTING LOADING FOR POLLUTANTS OF CONCERN

D.1 Parsed Area Calculation, CBPRP Planning Area

In order to calculate the actual pollutant loads applicable to the Lower Swatara Township MS4, the PRP instructions allow areas that do not drain to the MS4 and areas that are already covered by an NPDES permit to be removed from the planning area⁵ through the parsing process.

The following areas were parsed from the CBPRP and PRP planning areas:

- **PennDOT Roadways/PA Turnpike** – The impervious area attributed to state roadways (PennDOT) and the portion of the PA Turnpike located within the Township was parsed from the existing pollutant base load, as PennDOT and the Turnpike Commission maintain their own MS4 permits to account for stormwater runoff generated from their systems.
- **Private Properties** – Portions of the Susquehanna Regional Airport and Penn State University (Harrisburg campus) are located within the Township. As these facilities are operated and maintained under their own NPDES permits, they were removed from the Township planning areas. Additionally, the PA Turnpike Commission has two office buildings located adjacent to the Turnpike that were removed from the Township planning areas.
- **General Permit for Stormwater Associated with Industrial Activity (PAG-03)** – The Township contains four facilities currently covered by NPDES PAG-03 permits. The property areas regulated by the existing PAG-03s were removed from the planning area.
- **Direct Discharge Areas** – Direct discharge areas are areas in which stormwater runoff does not enter the MS4. The majority of the Township MS4 is located in the central and southern portions of the Township. Much of the UA along the outer boundaries of the Township is drained by tributaries to the Swatara Creek and Susquehanna River and does not enter the MS4. Therefore, these areas were removed from the Township planning areas.

A summary of parsed area removed from the Township planning areas is shown in Tables 2A and 2B. Parsed areas are shown on the Planning Area Map (Appendix B) and supporting calculations for the pollutant loads associated with each parsed area are included in Appendix D.

Table 2A. Parsed Area Summary - CBPRP Planning Area

Planning Area	Urbanized Area (acres)
CBPRP	7,943
Parsed Area (PennDOT/PA Turnpike)	- 274
Parsed Area (Private Properties)	- 892
Parsed Area (PAG-03)	- 116
Parsed Area (Direct Discharge)	- 2,902
Adjusted Planning Area	3,759

⁵ PADEP - PRP Instructions, Attachment A: Parsing Guidelines for MS4s in Pollutant Reduction Plans (rev. 3/2017)

Table 2B. Parsed Area Summary – Laurel Run Planning Area

Planning Area	Urbanized Area (acres)
Laurel Run PRP	4,647
Parsed Area (PennDOT Roadways)	- 200
Parsed Area (Private Properties)	- 892
Parsed Area (PAG-03)	- 53
Parsed Area (Direct Discharge)	- 1,089
Adjusted Planning Area	2,413

D.2 Existing Pollutant Load Calculation

The existing pollutant loads were calculated using the Simplified Method⁶. In accordance with this method, the adjusted UA from Tables 2A and 2B were multiplied by the percent pervious and impervious land use values for Lower Swatara Township listed in the Statewide MS4 Land Cover Estimates⁷ guidance document from PADEP. This calculation evaluates the acres of impervious and pervious land within the given planning area. The impervious and pervious acreages were then multiplied by the Developed Land Loading Rates for Dauphin County⁸ to determine the total existing pollutant load attributed to each planning area. The existing pollutant loading was determined for the CBPRP planning area as well as for the Laurel Run impaired watershed (PRP planning area).

As stated previously in Section C, the pollutants of concern are TSS, TN, and TP, however, it is presumed that within the overall Bay watershed, the TP and TN goals will be achieved when the permit-required sediment reduction is achieved⁹. Therefore, only the TSS pollutant loading was calculated (Table 3). Detailed pollutant load calculations are provided in Appendix D.

Table 3. Pollutant Loading for Lower Swatara Township

Planning Area	Urbanized Area (acres)	Regulated Pollutant Load TSS (lbs/yr)
Laurel Run PRP	2,413	1,681,152
Lower Swatara Township CBPRP	3,759	2,619,554

As the Laurel Run PRP planning area is located within the overall CBPRP planning area, the pollutant loads associated with this impaired watershed planning areas are a portion of, and not in addition to, the CBPRP planning area pollutant load.

⁶ PADEP PRP Instructions, Attachment C: Chesapeake Bay PRP Exemplified Using DEP Simplified Method (rev. 3/2017)

⁷ PADEP - Statewide MS4 Land Cover Estimates

⁸ PADEP - PRP Instructions, Attachment B: Developed Land Loading Rates for PA Counties (rev. 3/2017)

⁹ PADEP - PRP Instructions, Document # 3800-PM-BCW0100k (rev. 3/2017)

D.3 Existing Pollutant Loading Adjustment for Previously Implemented BMPs

Lower Swatara Township contains multiple existing BMPs that are being used as credit towards reducing the Township baseline load. Additional information for these BMPs is included in Appendix D. The pollutant loading reduction for existing BMPs was calculated using the Simplified Method in terms of pounds per year using PADEP's standard BMP Effectiveness Values¹⁰. Only those BMPs installed within the non-parsed portions of the UA area being counted as credit towards reducing the existing baseline.

Originally, this was calculated using DEP's "Statewide MS4 Land Cover Estimate" document. This method is acceptable for larger areas, but there can be errors when calculating for smaller areas. Based on this information, PADEP asked that the calculations be done using a different method that would provide more accuracy. Therefore, new calculations were completed using WikiWatershed "Model my Watershed" tool to determine the land use included within the BMP drainage area. The impervious and pervious areas were determined using the percentage information provided in each land use definition.

The recalculations resulted in an increased load reduction for the total baseline reduction the existing BMPs provided.

Table 4A: Adjusted Baseline Load Summary – CBPRP Planning Area

Planning Area	UA (acres)	Regulated Pollutant Load TSS (lbs/yr)	Existing BMP Load Reduction TSS (lbs/yr)	Adjusted Pollutant Load TSS (lbs/yr)
CBPRP	3,759	2,619,554	217,460	2,402,094

Table 4B: Adjusted Baseline Load Summary – Laurel Run Planning Area

Planning Area	UA (acres)	Regulated Pollutant Load TSS (lbs/yr)	Existing BMP Load Reduction TSS (lbs/yr)	Adjusted Pollutant Load TSS (lbs/yr)
Laurel Run PRP	2,413	1,681,152	132,885	1,548,267

¹⁰ PADEP Document 3899-PM-BCW0100M, NPDES Stormwater Discharges from Small MS4s, BMP Effectiveness Values (5/2015)

SECTION E: BMPS TO ACHIEVE THE REQUIRED POLLUTANT LOAD REDUCTIONS

E.1 Required Pollutant Load Reduction Calculation

Lower Swatara Township discharges stormwater to surface water located within the Chesapeake Bay watershed and is, therefore, regulated by PAG-13 General Permit, Appendix D (nutrients and sediment in stormwater discharges to waters in the Chesapeake Bay watershed). The pollutants of concern for Appendix D are TSS, TP, and TN with required loading reductions of 10-percent, 5-percent, and 3-percent, respectively. However, as stated previously, it is presumed that within the overall Bay watershed, the TP and TN goals will be achieved when a 10-percent reduction in sediment is achieved¹¹. Therefore, only the required 10-percent TSS reduction is calculated herein as a requirement for planning area load reductions (Table 5). The pollutant load reduction requirements listed below take into account adjustments to baseline loading from the parsed areas and existing BMPs discussed in Section D.

Table 5: Required Pollutant Load Reduction Goals – CBPRP Planning Area

Planning Area	UA (acres)	Required Load Reduction TSS (lbs/yr)
CBPRP	3,759	242,238

In addition to meeting the PAG-13 General Permit, Appendix D requirements listed in Table 5, the Laurel Run watershed has four streams (three unnamed tributaries to Susquehanna River and one unnamed tributary to Sherman Creek) with impairments regulated by PAG-13 General Permit, Appendix E (nutrients and/or sediment in stormwater discharges to impaired waterways). Appendix E siltation impairments require a minimum 10-percent reduction in sediment load. The pollutant load reduction requirements in pounds per year for Laurel Run, Appendix E watershed is shown in Table 6. The pollutant load reduction requirements listed below take into account adjustments to baseline loading from the parsed areas and existing BMPs discussed in Section D. The planning areas associated with each of these impaired waters are shown on the Planning Area Map (Appendix B).

Table 6: Required Pollutant Load Reduction Goals – Laurel Run PRP Planning Area

Planning Area	UA (acres)	Required Load Reduction TSS (lbs/yr)
Laurel Run PRP	2,413	152,857

As stated previously, the load reduction requirements for the Laurel Run planning area is included as a portion of, and not in addition to, the CBPRP pollutant load reduction. Of the total CBPRP planning area required sediment load reduction (242,238 lbs/yr), 63-percent (152,857 lbs/yr) is to be achieved within the Laurel Run watershed.

¹¹ PADEP - PRP Instructions, Document # 3800-PM-BCW0100k (rev. 3/2017)

E.2 Proposed BMPs

The following section outlines the BMP implementation strategy developed to achieve the required pollutant load reduction goals stated in Section E.1. The proposed BMPs were determined through discussions with the public works employees and municipal staff, in-field site assessments, and public outreach meetings.

The proposed strategy (Table 7) includes multiple BMP types including bioretention (rain gardens), stream restoration, and riparian buffer plantings. The pollutant loading reduction for each proposed BMP was calculated in terms of pounds per year using PADEP's standard BMP Effectiveness Values¹². Complete calculations for the anticipated pollutant load reductions for each of the BMPs listed below is provided in Appendix E.

Table 7: BMP Strategy Summary

Site	BMP ID	BMP Type	Planning Area	Drainage Area (acres)	Length (ft)	Load Reduction TSS (lbs/yr)
Shireman Parcel	BMP-1	Bioretention	CBPRP	1.08	n/a	357
	BMP-2	Buffer Planting		1.61	700	322
Old Reliance Park	BMP-3	Bioretention	CBPRP	1.11	n/a	621
Shope Gardens Park	BMP-4	Bioretention	CBPRP/Laurel Run PRP	1.33	n/a	1,458
Middletown Area High School	BMP-5	Stream Restoration	CBPRP/Laurel Run PRP	n/a	1,600	71,808
Greenfield Park	BMP-6	Basin Retrofit	CBPRP/Laurel Run PRP	8.65	n/a	4,452
		Stream Restoration		n/a	1,600	71,808
Hershey Creamery	BMP-7	Stream Restoration	CBPRP	n/a	1,800	89,760
Total						240,586

Table 7 has been updated per PADEP's request as of May, 2018. New calculations were completed using WikiWatershed "Model my Watershed" tool to determine the land use included within the BMP drainage area. The impervious and pervious areas were determined using the percentage information provided in each land use definition.

The combination of proposed projects listed in Table 7 meet both the pollutant load reduction requirements for the Chesapeake Bay (CBPRP planning area) as well as the pollutant load reductions for the local impaired waters (Laurel Run PRP planning area).

Table 8: Proposed BMP Load Reductions by Planning Area

Planning Area	Load Reduction from Proposed BMPs TSS (lbs/yr)	Required Load Reduction TSS (lbs/yr)	Percent of Goal Achieved
Laurel Run PRP	156,296	152,857	102%
CBPRP	245,829	242,238	101%

¹² PADEP Document 3899-PM-BCW0100M, NPDES Stormwater Discharges from Small MS4s, BMP Effectiveness Values (5/2015)

E.3 BMP Project Descriptions

Unless otherwise noted, the proposed BMP projects described below have not been fully designed. The following projects descriptions are conceptual and intended for planning and implementation purposes only. When designed, all proposed BMP projects will be in accordance with the Pennsylvania BMP Manual and all local ordinances and regulations, as well as any applicable DEP guidance documents. Proposed projects have been evaluated in terms of preliminary feasibility and estimated pollutant load reductions in order to meet the goals of this plan. It is anticipated that during plan implementation, proposed BMP projects may change or be replaced as additional information becomes available. Details for each proposed project will be documented in the Annual Status Reports.

Shireman Parcel Park Development – The Shireman parcel is a property slated to be acquired for future development as a community park. Though not yet master planned, the park project will likely incorporate a small rain garden located next to a future parking lot and riparian buffer plantings for the approximately 700-ft of unnamed tributary to the Swatara Creek located along the southern property line. The rain garden will be designed as an excavated shallow surface depression with amended soil media (a mixture of sand, soil, and organic material) and planted with specially selected native vegetation to treat and capture runoff from the parking area.

The unnamed tributary to the Swatara Creek that flows along the southern property line is in relatively good condition. No major stream restoration is planned for this stream, however the condition of the riparian buffer is in need of improvements. The existing buffer is of minimal width and choked with invasive species. The proposed riparian buffer enhancement will expand the buffer to a minimum width of 35 feet. The buffer will provide wildlife habitat, enhance park aesthetics, and provide vegetative stabilization for the stream. Vegetative stabilization relies on the root structures of established plantings to stabilize the streambank and provide scour protection. Additionally, the buffer will promote plant uptake of pollutant-laden runoff from neighboring residential lawn areas in order to reduce the amount of nutrients and sediment reaching the creek.



Old Reliance & Shope Gardens Park Bioretention – Both Old Reliance Park and Shope Gardens Park have received recent upgrades in park facilities. New play structures and swing sets have been installed at each park. A small bioretention basin is planned to be installed at each park next to the playground areas to manage runoff from the play structure and swing set area. The rain garden will be designed as excavated shallow surface depressions with amended soil media (a mixture of sand, soil, and organic material) and planted with specially selected native vegetation to treat and capture runoff. The bioretention basin design will also include educational signage.

Middletown High School Stream Restoration – An unnamed tributary is located on the school district property between the Middletown high school and middle school. The stream flows from Blue Raider Lane south towards the Pennsylvania Turnpike. The stream enters a culvert under the Turnpike and is conveyed south along the Penn State Harrisburg campus before ultimately discharging to the Susquehanna River.



Streambank Scour

A site investigation of this stream showed multiple areas of scour and significant erosion as well as debris and other obstructions in the stream channel. This proposed project will implement streambank stabilization measures along approximately 1,600 feet of the unnamed tributary. Stream restoration will include the repair and stabilization of existing eroded areas and regrading the slope of incised streambanks to reconnect the stream to the surrounding floodplain. This will prevent further degradation of disturbed streambanks and reduce the amount of sediment being washed downstream. In areas where streambanks are not in need of structural repair, stream calming measures (rock vanes, wing deflectors, etc.) may

be implemented to direct stream flow away from eroding or newly stabilized streambanks. These structures will be constructed of natural materials such as rock, root wads, and logs. The exact number and locations for the proposed in-stream structures will be determined during the engineering design phase of the project.

Stream stabilization and restoration will also include improvements to the vegetated buffer surrounding the stream. Riparian buffer enhancement will include removal of invasive species, brush, and debris as well as the installation of additional native plantings. The root structures of the riparian plantings will provide vegetative stabilization for the newly-stabilized streambanks, and promote plant uptake of potentially pollutant-laden runoff from neighboring lawn and turf field areas. The Township anticipates that this project will be a partnership opportunity with the neighboring schools and provide educational opportunities for middle and high school students to learn about local water quality and environmental issues.



Obstructions to Stream Channel
(Invasives / Vegetative Debris)

Greenfield Park Basin Retrofit and Stream Restoration – Greenfield Park is a municipally-owned community park located in the central portion of the Township. The 25-acre park contains several soccer fields and three small parking areas. A siltation-impaired unnamed tributary is located in a wooded area along the northern part of the park. A site visit conducted to determine the condition of the stream found multiple eroded areas of streambank and sediment-laden runoff in the stream.



The proposed project will implement streambank stabilization measures along approximately 1,600 feet of the stream. This will include the repair of existing eroded areas and regrading the slope of incised streambanks to reconnect the stream to the surrounding floodplain in order to prevent further degradation of disturbed streambanks and reduce the amount of sediment being washed downstream. In areas where streambanks are not in need of structural repair, stream calming measures (rock vanes, wing deflectors, etc.) may be implemented to direct stream flow away from eroding or newly stabilized streambanks. These structures will be constructed of natural materials such as rock, root wads, and logs. The exact number and locations for the

proposed in-stream structures will be determined during the engineering design phase of the project.

Stream stabilization and restoration will also include improvements to the vegetated buffer surrounding the stream. The stream currently has an existing vegetated buffer, but it is in need of improvements. The riparian buffer enhancement will include removal of invasive species, brush, and debris as well as the installation of additional native plantings. The root structures of the riparian plantings will provide vegetative stabilization for the newly-stabilized streambanks, and promote plant uptake of potentially pollutant-laden runoff from the school's athletic fields.

The existing stormwater basin adjacent to the parking lot was originally designed as a bioretention basin but it was installed as a detention basin. As currently constructed, the detention basin receives, temporarily holds, and discharges stormwater at a controlled rate. While this can provide rate and volume control, the basin offers only a limited water quality benefit. The only water quality benefit is realized through minimal infiltration. This project proposes to retrofit the existing basin with bioretention features to transform the basin from a simple catch, store, and release pond into a BMP which will provide infiltration and improved sediment and nutrient removal capabilities. These benefits are achieved by extending the storage time by modifying the structure, improving soil conditions to allow for greater infiltration rates, and naturalizing the basin with native and/or wetland plant species.

The extent and nature of the retrofit will rely on the results of future engineering investigations, however for modeling purposes, the load reduction attributed to each basin retrofit was calculated by applying the standard bioretention removal efficiency to only the portion of the stormwater runoff not currently being treated by the basin. Therefore the pollutant load reduction attributed to a basin retrofit is slightly lower than the pollutant load reduction of a similarly sized new bioretention basin.

Hershey Creamery Stream Restoration – Hershey Creamery is located just north of the turnpike in the high-intensity development portion of the Township. This project proposes to restore approximately 1,800 feet of an unnamed tributary to the Swarata Creek located along the northern Hershey Creamery property line.



A site investigation of this stream revealed that although this is a relatively small stream, its stream banks are highly-eroded which is causing a significant amount of sediment to be conveyed from this tributary to the Swatara Creek. During high-intensity rain fall events, stormwater quickly concentrates into the stream channel instead of spreading out across the floodplain. This project proposes to regrade the streambanks and connect the streambank to the surrounding floodplain. This will reduce the quantity and velocity of flow in the channel and thereby reduce the amount of streambank erosion.

The existing vegetated buffer appears to be in overall good condition. However, additional native plantings may be added to supplement and expand the existing buffer.

Table 9: BMP Implementation Schedule

Site	BMP ID	BMP Type	Permitting & Engineering Design (Permit Year)	Construction/ Reporting (Permit Year)
Shireman Parcel	BMP-1	Bioretention	1	2/3
	BMP-2	Buffer Planting		
Old Reliance Park	BMP-3	Bioretention	1	1
Shope Gardens Park	BMP-4	Bioretention	1	1
Middletown Area High School	BMP-5	Stream Restoration	2	3
Greenfield Park	BMP-6	Basin Retrofit	3	4
		Stream Restoration		
Hershey Creamery	BMP-7	Stream Restoration	4	5



SECTION F: IDENTIFY FUNDING MECHANISMS

Funding for the design and construction of the BMPs proposed herein will be funded through a variety of sources including the Township's General Fund, available grants, and public donation of materials and manpower.

SECTION G: BMP OPERATIONS AND MAINTENANCE (O&M)

Stream Restoration/Riparian Restoration

Operation and maintenance requirements for the streambank stabilization and buffer restoration projects include:

- Ensure disturbed areas are kept free of foot and/or vehicular traffic until full stabilization has occurred.
- Regular watering of plantings during the first growing season. Planting in the fall may reduce the need for additional watering.
- Conduct monthly site visits to ensure plantings are healthy and sufficiently watered, weeds are properly managed, sufficient mulch is in place until site is stabilized and planting have become established.
- Conduct monthly site visits to ensure all disturbed earth remains stabilized and erosion or cutting of the streambank has not taken place. Any destabilized earth or active streambank erosion shall be repaired immediately upon discovery.
- Conduct annual inspections once streambank is stabilized and plants have become established.
- Immediately upon notice; repair any rills, gullies, or streambank cutting that may occur.
- Remove weeds and invasive plant species during each growing season. Naturally growing native vegetation should be left intact to promoted stabilization of the streambank and surrounding area.
- Replace mulch as needed.
- Remove accumulated trash and debris weekly.
- Remove and replace dead and diseased plantings annually.
- Keep machinery and vehicles away from stabilized areas.

The contractor shall be responsible for the operation and maintenance of the streambank restoration and buffer project(s) until all features of the project have been successfully constructed to the specifications and design standards set forth by the Township Engineer. The Contractor shall remain responsible for operation and maintenance of the streambank restoration and buffer project(s) until 70% permanent stabilization has been achieved.

Once construction of the project(s) is complete and stabilization has occurred, the Township shall be responsible for long term implementation of all Operation and Maintenance procedures to ensure the streambank stabilization and buffer improvements remain operationally functional and physically consistent with the original design.

Bioretention Areas/Basin Retrofits

Operation and maintenance requirements for the bioretention projects includes:

- Ensure disturbed areas are kept free of foot and/or vehicular traffic until full stabilization has occurred. Properly designed and installed Bioretention areas require some regular maintenance.
- While vegetation is being established, pruning and weeding may be required.
- Detritus may also need to be removed every year. Perennial plantings may be cut down at the end of the growing season.
- Mulch should be re-spread when erosion is evident and be replenished as needed. Once every 2 to 3 years the entire area may require mulch replacement.
- Bioretention areas should be inspected at least two times per year for sediment buildup, erosion, vegetative conditions, etc.
- During periods of extended drought, Bioretention areas may require watering.
- Trees and shrubs should be inspected twice per year to evaluate health.

The contractor shall be responsible for the operation and maintenance of the bioretention basin until all features of the project have been successfully constructed to the specifications and design standards set forth by the Township Engineer. The Contractor should provide a one-year 80% care and replacement warranty for all planting beginning after installation and inspection of all plants.

Once construction of the project(s) is complete, the Township shall be responsible for long term implementation of all Operation and Maintenance procedures to ensure the basin remains operationally functional and physically consistent with the original design.



APPENDIX A

Public Participation Documentation

Notice of Public Participation & Public Meeting Notice Published on Township Website
(<http://lowerswatara.org/stormwater.php>)

The screenshot shows the homepage of the Lower Swatara Township website. At the top, there is a navigation bar with links for Home, About Us, History, Directory, Calendar, Voting Districts, Newsletter, Utilities, MS4 (STORMWATER), and Links. The main content area features a central notice titled "MS4 (STORMWATER)" with a logo for "municipal separate storm sewer system". The notice text states: "Citizens observing illicit discharge during normal office hours should contact Dan Wagner, Public Works Superintendent, at the Township immediately at (717) 939-9377. Observances after hours should be reported immediately by phoning (717) 558-6900." Below this, a "NOTICE OF PUBLIC PARTICIPATION AND PUBLIC MEETING FOR CHESAPEAKE BAY POLLUTANT REDUCTION PLAN" is displayed, detailing a 30-day public comment period for the NPDES Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) Pollutant Reduction Plan (PRP). The notice is signed by Ann Hursh, Planning and Zoning Coordinator. A sidebar on the left contains a menu of township services, a "CLICK HERE TO SIGN UP FOR OUR EMAILS!" button, and a weather widget for Middletown showing 77°F. A sidebar on the right lists "UPCOMING EVENTS" for August 16, 23, and 24.

Lower Swatara Township

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Board
Manager's Office
Finance
Emergency Services
Emergency Management
Planning/Zoning
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Waste/Recycling Info

CLICK HERE TO SIGN UP FOR OUR EMAILS!

Middletown
77°F
SSE 5 MPH
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MS4 (STORMWATER)

Citizens observing illicit discharge during normal office hours should contact Dan Wagner, Public Works Superintendent, at the Township immediately at (717) 939-9377. Observances after hours should be reported immediately by phoning (717) 558-6900.

NOTICE OF PUBLIC PARTICIPATION AND PUBLIC MEETING FOR CHESAPEAKE BAY POLLUTANT REDUCTION PLAN

Lower Swatara Township hereby gives notice of the 30-day public comment period for its National Pollutant Discharge Elimination (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) Pollutant Reduction Plan (PRP). Best management practices (BMPs) are proposed in the Plan to satisfy PRP requirements for the Chesapeake Bay and local stream impairments. The public is invited to review this document and provide written comments to the Planning and Zoning Coordinator. 1499 Spring Garden Drive, Middletown, PA 17057
Ann Hursh, ahursh@lowerswatara.org

The 30-day public comment period begins August 1, 2017 and ends August 31, 2017.
The Plan will be discussed during the regularly scheduled municipal meeting on August 2, 2017 starting at 7PM, at the municipal building.

[2017.07.27 Lower Swatara CBPRP - FOR REVIEW](#)

UPCOMING EVENTS

August 16
7 PM
Board of Commissioners Legislative Mtg.

August 23
7 PM
Municipal Authority Mtg.

August 24
7 PM
Planning Commission Mtg.

Notice of Public Participation & Public Meeting Notice from Patriot News (August 1, 2017)

		5066432 Order Confirmation Ad Order Number 0008285861
Customer LOWER SWATARA TOWNSHIP Account: 67130 LOWER SWATARA TOWNSHIP 1499 SPRING GARDEN DR, MIDDLETOWN PA 17057 USA (717)939-7633 FAX: Itaylor@hrg-inc.com	Payor Customer LOWER SWATARA TOWNSHIP Account: 67130 LOWER SWATARA TOWNSHIP 1499 SPRING GARDEN DR, MIDDLETOWN PA 17057 USA (717)939-7633	PO Number Sales Rep. Marianna Aldridge Order Taker Marianna Aldridge Order Source Phone Special Pricing
Tear Sheets 0 Proofs 0 Affidavits 1 Blind Box Promo Type Materials Invoice Text	Net Amount \$144.03 Tax Amount \$0.00 Total Amount \$144.03 Payment Method Invoice Payment Amount \$0.00 Amount Due \$144.03	

Ad Schedule

Product The Patriot News # Inserts 1 Cost \$136.53 Ad Type PA CLS Legal Liner Pick Up # External Ad # Production Method AdBooker Run Dates Sort Text 08/01/2017 NOTIC2500OFPUBLICPARTICIPATIONANDPUBLICMEETINGFORCHESAPEAKEBAYPOLLUTANTREDUCTIONPLANLO	Placement/Class Main Legals POS/Sub-Class Meeting Notices AdNumber 0008285861-01 Ad Size 1 X 29 li Ad Attributes Color <NONE> Production Notes
Product PennLive.com # Inserts 1 Cost \$2.50 Ad Type PA CLS Legal Liner Pick Up # External Ad # Production Method AdBooker Run Dates Sort Text 08/01/2017 NOTIC2500OFPUBLICPARTICIPATIONANDPUBLICMEETINGFORCHESAPEAKEBAYPOLLUTANTREDUCTIONPLANLO	Placement/Class Main Legals POS/Sub-Class Meeting Notices AdNumber 0008285861-01 Ad Size 1 X 29 li Ad Attributes Color <NONE> Production Notes

0008285861-01

Ad Content Proof

**NOTICE OF PUBLIC
PARTICIPATION AND PUBLIC
MEETING FOR
CHESAPEAKE BAY POLLUTANT
REDUCTION PLAN**

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MINUTES

NON-LEGISLATIVE MEETING – AUGUST 2, 2017

The August 2, 2017 Non-Legislative Meeting of the Lower Swatara Township Board of Commissioners was called to order at 7:00 P.M. by President Jon G. Wilt. The following officials were in attendance:

- Jon G. Wilt, President
- Laddie J. Springer, Vice President
- Michael J. Davies, Assistant Secretary
- Todd F. Truntz, Commissioner
- Benjamin C. Hall, Commissioner
- Jean R. Arroyo, Secretary
- Peter R. Henninger, Solicitor
- Erin G. Letavic, HRG, Engineer
- Ann Hursh, Planning and Zoning Coordinator
- Daniel L. Wagner, Public Works Director
- Scott Young, Officer in Charge

Residents and visitors in attendance: (PLEASE SEE ATTACHED SIGN-IN SHEET)

President Wilt welcomed everyone to the meeting and opened the floor for public comments.

PUBLIC COMMENTS:

Lee Dickerson, 1880 North Union Street, expressed concerns with the sewerage issues and problems at the end of North Union Street and with the lack of action on the comprehensive plan. Mr. Dickerson stated that he was told over two years ago by his personal attorney that this is how the script would play out on the development of his property: it would be a slow process, would make it through the Planning Commission, and then be stale mated by the Commissioners before it was even presented. He was told that if he went for a variance, the variance would not be approved. Solicitor Henninger explained that Mr. Dickerson had originally filed an application for a zoning change. He then withdrew that application and decided to ask for a variance. The variance was denied, so Mr. Dickerson took an appeal to the Court of Common Pleas. Briefs have been filed, and the court's decision is being awaited. Since this is a pending

legal matter, he advised the Board not to discuss this further. As far as the comprehensive plan is concerned, the Board will take action when it feels it is appropriate, which could be tonight

Dave Klingaman, 241 Keystone Drive, referenced Mr. Dickerson's comments and asked why, when residents bring concerns to the Board, the Commissioners can just table them and never discuss them. He asked why they can't set a time limit to give a decision. Solicitor Henninger explained that in regards to the Dickerson matter, the issue is in litigation. The Zoning Hearing Board did make a ruling, and that ruling was challenged and is now in court. Timeframes on many other matters are not controlled by this Board, but are set by the state legislature through rules and regulations under the first class township code.

Marjie Hartz, North Union Street, referenced page 66 of the draft comprehensive plan, which indicates that the Dauphin County Comprehensive Plan was last updated in 2008. She noted that it was just updated, and asked if this will be adjusted in the Township's plan. Solicitor Henninger agreed it should be. Ms. Hartz also questioned page 33, which says Area 1 North Union Street north of Fulling Mill Road should retain its current zoning designation of Mineral Recovery. However, the attached map shows the current zoning as Industrial (Mineral Recovery). Ms. Letavic recalled that the context of this was related to particular areas that the committee was looking at as far as alternate uses/rezoning. Ultimately, it was decided to retain the Mineral Recovery zoning, but she believes that the map and chart may simply document the discussion that occurred. Ms. Hartz stated this is very confusing. She also noted that the Concerned Citizens' Group in regards to the UPS project is actively involved and attending meetings and would like the Board to know that is strongly opposed to the project. She suggested that politics seem to be playing a huge role in the UPS process. As elected officials, the Commissioners must remember that it is people above politics.

Bill Leonard, 1401 Heritage Square, stated that he spent about fourteen years on the Board of Commissioners, two on the Planning Commission, and also served as Fire Chief for about six to eight years. He recalled that he rarely saw any big issues that had 100% agreement one way or the other. The UPS project is no different, and there are many concerns that need addressed. However, Mr. Leonard stated that he feels there may be people who have not spoken up yet that do support that kind of development in that part of the community. There are pictures on social media expressing concerns about truck traffic on Fulling Mill Road. He explained that Fulling Mill Road was designed from North Union Street to the Fire Department to be a collector

road to get as much traffic out of Old Reliance, Shopes Gardens, and Route 230 and into that part of the Township as much as possible. Also, the North Union Street interchange was expanded to further help with getting truck and business traffic out of the central part of the Township and over to the northeast part. Mr. Leonard noted that he does not favor development on the west side of North Union Street, but does see value in continuing to build out business and commercial opportunities on the east side. Using the approximately one mile of roadway involved and comparing it to the about 40 miles of road in the Township, it sounds like what will be seen through incremental truck traffic is an impact of 2 1/2 % of Township roads.

Mr. Leonard referenced the Pennsy Supply quarry, and stated he does not know if they own it or are leasing it. He stated that he understands they may be paying some royalties, but is not sure if that information is accurate. He asked if the Township gets any tax revenue from the holes in the ground at the Pennsy quarry. Solicitor Henninger explained that the Township only receives real estate taxes. Mr. Leonard added that concerns are being expressed about farmland being taken away, yet the two quarries on North Union Street already took farmland away and do not provide any revenue. Those two quarries combined are almost twice the size of the site UPS is interested in. Truck traffic also results from the quarry. He surmised that the \$12,000 - \$15,000 expenditure recently approved by the Township for resurfacing a portion of North Union Street is needed as a result of the traffic that is already there. UPS has indicated that if its plan is approved, it will be willing to make some of these improvements for the Township. Mr. Leonard stated that he feels UPS is a very good company, and he would hate to see them relocate on the east side of the Swatara Creek and pay tax revenue to either Derry Township or Londonderry Township rather than Lower Swatara Township and the Middletown Area School District, while hypothetically still driving through Lower Swatara Township to get off at the Vine Street interchange. He agreed there will be sacrifices involved, but suggested everyone also consider the overall benefits of the project.

Ms. Hartz stated that the area is zoned Mineral Recovery for a reason; the quarry has been there for a long, long time and there is stone there to recover.

NANCY AVOLESE AND RUTH SHIREMAN: HISTORIC PRESERVATION SOCIETY OF LOWER SWATARA TOWNSHIP:

Nancy Avolese, 1451 North Union Street and Ruth Shireman, 790 Longview Drive, referenced a concept paper they had provided the Board about establishing a Historic Preservation Society of Lower Swatara Township. The mission is to educate, promote interest in, and advocate for the preservation of historic buildings, cemeteries, and landscapes in Lower Swatara Township. The group would provide advisory information to the Board of Commissioners on needed preservation efforts. There would be no cost to the taxpayers; Ms. Avolese and Ms. Shireman would be doing this on their own, and would also provide a digital library of historical landmarks, historical properties, etc. and would give out plaques to those who apply (the applicant would pay for the plaque). Ms. Avolese added that if the Board approves, one of the things the group will do is be caretakers of the small cemetery on Route 230. She noted that she has two masons that are willing to do some of the work for free. No decision is needed tonight. This is just something that the Board is being asked to consider. Ms. Avolese stated that they feel history is important, and anyone that doesn't think so is awfully shortsighted.

APPROVAL OF MINUTES:

A motion was made by Vice President Springer, seconded by Commissioner Hall, to approve the Minutes of the July 5, 2017 Workshop Meeting. The motion was unanimously approved.

PLANNING AND ZONING REPORT:

Ann Hursh, Planning and Zoning Coordinator, reported that the Planning Commission met on July 27 for the review and discussion of the Petition to Amend the Zoning Ordinance and Zoning Map Amendment for BT-NEWYO, LLC as submitted by McNees, Wallace & Nurick LLC for a proposed regional hub facility for UPS. It took action to table the application until the August 24 meeting. This was done to allow residents to submit any additional information or concerns that they may have and to give the Planning Commission members time to review any new information. The Zoning Hearing Board met on July 6 as rescheduled due to the lack of a quorum at the June 27 meeting. The hearing was for Docket No. 2017-03 – MRPI Fulling Mill

Road, 140 Fulling Mill Road, requesting a variance from Zoning Ordinance §Maximum Fence Height, for a 9' high security fence. The decision was to approve the variance. The hearing also addressed Docket No. 2017-04 – Phoenix Contact, 586 Fulling Mill Road, requesting a variance from Zoning Ordinance §27-2402 Off-Street Parking, Required Parking Spaces. The decision was to approve the variance.

Staff completed the Organizational Analysis for the Codification Project Update and returned it to General Code as required. Storm damage complaints concerning erosion and debris were investigated, documented and resolved. Ms. Hursh reported that she attended a day long training seminar titled “Selling Stormwater” on July 17. The Chesapeake Bay Pollution Reduction Plan (CBPRP) has been submitted for staff review; Ms. Letavic will present it later this evening. The Land Development Plans for Soccer Shots and AV Flight are ready to be recorded. A resident from Evergreen Drive attended the last Board meeting to discuss a concern regarding a detention basin issue. Ms. Hursh explained that the president of the Woodridge Homeowners Association has been asked to provide her with a list of the names and addresses of the other homeowners involved. Meetings will be set up in the near future, even if they need to be one-on-one due to scheduling conflicts. In response to a question from Commissioner Hall, Ms. Hursh confirmed that the department is busier this year than the previous year.

PUBLIC WORKS REPORT:

Mr. Wagner reported that the Department has been very busy. Recently completed projects include placing a border around the playset areas at both Shopes and Old Reliance Parks, applying the remaining grub control at the parks, applying soil amendments again to the playing surfaces of both soccer and baseball fields, completing the annual leak detection test with the fueling system, setting up and cleaning up from the movie night at Shopes Gardens and Vacation Bible School week at both Georgetown and Market St. Playgrounds, completing vehicle inspections for the month, watering the soccer fields regularly as needed, and replacing signs that were not meeting specs or were hit during vehicle crashes.

Current projects include weekly mowing of the parks, mowing of the hazard mitigation lots, mowing around the tree plantings at the Fulling Mill Road property, addressing cleanup and repair issues from the rain event on July 23, making repairs to North Union St. for the paving at the end of September, and removal of the fallen tree at Old Reliance Park. The Department also hopes to get

back to the Shope Gardens and Old Reliance playground projects to get the remaining border, wood carpet, and drainage installed. Mr. Wagner added that he was contacted by Suez today. They anticipate coming in tomorrow to repair the cross bore on Swatara Drive. Mr. Wagner also updated the Board on the situation with PPL and the cross bore at the Market Street and Hanover Street area. He anticipated this will be taken care of in the upcoming months.

Mr. Wagner again noted that there are an overwhelming number of one calls for the Public Works and Municipal Authority, routinely 40 – 50 month. This is very time consuming.

The Board discussed the PennDOT 2017-2018 Winter Maintenance Agreement. Mr. Wagner explained that after the last winter storm (March 13 – 14, 2017), the Public Works Department took a pretty good “whooping” about its response, and there was staff discussion with Terry Kauffman (previous Interim Manager) and Mr. Williamson about continued plowing of certain PennDOT roads. Concerns of when Township roadways or developments were plowed factored into this. It was suggested that PA Route 230 no longer be taken care of by the Township. President Wilt asked if this has been discussed with PennDOT since he believes the Township is in year three of a five-year agreement. Mr. Wagner stated it has not, but changes can be made at any time. President Wilt commented that he is concerned this could be a safety hazard if PennDOT does not address 230 in a timely manner. Commissioner Truntz agreed this could be looked into, but added that there were tempers flaring during the storm and no one meant to be derogatory. He suggested this be discussed further. Commissioner Davies asked if the Township is equipped to handle plowing 230. Mr. Wagner explained that the Township has been able to maintain it pretty well, although a snow blower for the front of the loader would be useful. The Board agreed to table any action on this item until further discussions are held with PennDOT.

Mr. Wagner stated that before the Board tonight is a memo relative to the sale of items on Municibid which were previously approved via resolution. A motion was made by Commissioner Truntz, seconded by Commissioner Hall, to approve the sale of the following equipment to the high bidders upon receipt of a certified check, money order, or cash:

- | | |
|---------------------------------|--|
| 1.) 2006 Crown Victoria | Sale Price of \$1,178.00 sold to Glenda Washington of
Pittsburg, PA |
| 2.) 2009 Dodge Charger SE | Sale Price of \$1,450.00 sold to Kevin Kline of Bernville PA |
| 3.) 2008 Dodge Charger SE | Sale Price of \$5,000.00 sold to David Huff of Saint Marys
PA |
| 4.) Stihl Demolition Saw | Sale Price of \$ 410.00 sold to Hayden Crick of Harrisburg
PA |
| 5.) Accu-Turn 5402 Tire Machine | Sale Price of \$ 701.00 sold to Dale Hess of Mount Joy, PA |

The motion was unanimously approved.

A motion was made by Vice President Springer, seconded by Commissioner Hall, to approve authorization for Lester Lanman, Municipal Authority Manager/Assistant Superintendent of Public Works, to sign title transfers on behalf of Lower Swatara Township. The motion was unanimously approved.

Mr. Wagner recognized Seth Myers, who recently resigned from the Department, and stated that he was a great worker and will be missed. He wished him well. Mr. Wagner reported that the Department is in need of help. It is now down a total of four employees – two full time and two part time. In 1990, the Department had four employees, which was expanded to five. In 2002, it was expanded to six employees. That is currently where the Department stands, and there are additional requirements such as extra roads, MS4 regulations, and parks. He stated that the Department needs expanded; he has been looking for part-time help since March. President Wilt stated these are personnel issues which should not be addressed at a public meeting. Commissioner Truntz added that the Township has advertised for help, and interviews will be scheduled.

Mr. Wagner reminded residents that the dumpster will be available on August 5 from 8:00 A.M. to noon.

Commissioner Truntz commented that he understands the pressure the Department is under, and expressed his appreciation for the efforts of the crew during the recent storm. He also inquired if there is an estimated time for re-opening of the two parks. Mr. Wagner explained that he hopes they can be completed by the end of next week. In response to a question from Commissioner Truntz, Mr. Wagner confirmed that the old playground equipment was removed last fall because of safety issues.

Commissioner Hall stated that he would like to discuss the PA One Call issue with Mr. Wagner. He also asked Mr. Wagner to remind Suez about the issue with Anglesey Circle. Mr. Wagner confirmed that they are aware of this and it will be addressed.

The Board discussed a letter from the County offering gypsy moth spraying. Solicitor Henninger recalled that in the past, the Township did not participate because of ineligibility or lack of interest. Unless interest has been expressed, he recommended the Township advise the County that it is not interested in participating this year. A motion was made by Commissioner Truntz, seconded by Commissioner Davies, to decline participation in the gypsy moth spraying. The motion was unanimously approved.

MANAGER'S REPORT:

A motion was made by Commissioner Hall, seconded by Commissioner Davies, to approve Resolution No. 2017-R-15 appointing Jean R. Arroyo, Township Secretary, as the Right To Know Officer for the Township and Scott A. Young, Officer in Charge, as the Right to Know Officer for the Police Department until their successors are appointed. The motion was unanimously approved.

The Board discussed modifications to the Fire Company Lease to allow for Life Lion EMS to be housed at the Lower Swatara Township Volunteer Fire Company building on Fulling Mill Road. The Township owns that property, and it has a long-term lease with the Fire Department; Article 10.1 of that lease states that the tenant may not assign or transfer this lease or sublease the whole or any part of the leased premises. A motion was made by Commissioner Truntz, seconded by Vice President Springer, to waive the provisions of Article 10.1 of the lease in order to allow the Life Lion EMS to sublease the property. The motion was unanimously approved.

Commissioner Truntz remarked that hearing the public outcry, he feels it is time for move forward with approval of the draft comprehensive plan. A motion was made by Commissioner Truntz, seconded by Commissioner Hall, to direct the consultant for the comprehensive plan to revise the draft plan to delete the recommended rezoning to Commercial of the property on the southeast quadrant of the North Union Street interchange with PA Route 283 leaving it residential, and further directing the preparation of a resolution to adopt the proposed plan as revised. The motion was unanimously approved. Solicitor Henninger added that the plan should also be revised as per Ms. Hartz' comment to change the 2008 reference of the Dauphin County Comprehensive plan to 2017. He explained that the comprehensive plan needs to be adopted by resolution, so he will prepare this for action at the August legislative meeting. Solicitor Henninger summarized the comprehensive plan process to-date. The steering committee for the plan met for a period of about two years, and came up with a recommendation. The plan then went to the Planning Commission,

which recommended three changes, one of which was the southeast quadrant of North Union Street (the Dickerson property) which was not recommended for any change by the comp plan committee but was recommended for change by the Planning Commission. The Board's motion is to go with the steering committee's recommendation on that quadrant. Kathy Gotshall, Oberlin Road, explained that she was a member of that steering committee, and it had actually suggested to the Planning Commission that it be changed from Residential to Commercial. Chris DeHart, who was a member of the Planning Commission at that time, explained that the parcel was not done in this comp plan, but was done prior to the comp plan process. The only changes suggested pertained to the Williams' farm.

Solicitor Henninger reported that if the Board is comfortable with what was negotiated, it can approve the hiring of Francis P. Lynch as the interim Township Manager on a month-to-month basis at a salary of \$6,000 per month. A motion was made by Commissioner Truntz, seconded by Commissioner Davies, to approve the hiring of Francis "Frank" P. Lynch under the terms and conditions of the employment letter/agreement, effective August 7, 2017 as drafted and negotiated by the solicitor. The Board and public congratulated Mr. Lynch. Mr. Lynch thanked the Board for the opportunity, and gave some background on his employment history, which included Comcast, the Patriot-News, and Labor and Industry. He has also served on the Board for Susquehanna Township for the last fifteen years. Mr. Lynch stated that he is pleased to work with the team and to try to fulfill the Commissioners wishes of being a truly first-class Township.

SOLICTIOR'S REPORT:

Solicitor Henninger noted that a Public Hearing was held earlier this evening on proposed Ordinance No. 570, which would amend the Zoning Ordinance pertinent to the location, placement, construction, and maintenance of Wireless Telecommunications Towers and Wireless Telecommunications Antennas. A motion was made by Commissioner Davies, seconded by Commissioner Hall, to approve Ordinance No. 570. A roll call vote was taken with the following ballot tabulation: Commissioner Hall – aye, Commissioner Truntz – aye, Commissioner Davies – aye, Vice President Springer -- aye, and President Wilt – aye. Ordinance No. 570 was approved by a 5 – 0 margin.

Solicitor Henninger reported on the Phillips Real Estate Investment Partnership versus Dauphin County Board of Assessment Appeals. Several years ago, Phillips had appealed the County's assessment of its fair market value of \$3,157,800; the Township had participated proportionately in hiring an appraiser to appraise the property, and that figure came in at \$3,100,000. The property owner is willing to accept this appraisal, and all parties are in agreement. A motion was made by Vice President Springer, seconded by Commissioner Truntz, to approve the settlement agreement for a fair market value of 3.1 million dollars for the Phillips property. The motion was unanimously approved.

Solicitor Henninger noted that there is a pension amendment being proposed to the Non-Uniformed Pension Plan with regards to the retirement age for participants hired on or after August 2, 2017. Specifically, it would require anyone who is retiring at 62 to have at least 12 years of service in order to be vested in the pension. This change would need to be done by ordinance. A motion was made by Commissioner Truntz, seconded by Commissioner Davies, to approve advertisement of an ordinance amending the Non-Uniformed Pension Plan with regards to this change. The motion was unanimously approved.

ENGINEER'S REPORT:

Ms. Letavic presented the Board with a memo relative to field views performed by HRG to assist staff with an evaluation of the Township's infrastructure after the storm of July 23. She noted there is a separate report in the Board packet documenting some of the things that were looked at. The majority of the work that needs to be done would require an emergency permit from DEP.

HRG has drafted a project manual for the portions of the Old Reliance and Shope Gardens park project projects to be publicly bid (stormwater BMP installation) The bid documents have been sent to DCNR for concurrence prior to advertisement. Periodic site inspections continue in an effort to facilitate the completion of the project.

Ms. Letavic updated the Board on the Capital Improvement Plan -- PENNVEST funding for stormwater projects. Due to the July 23 storms, and in order to update staff on the utility conflict information that has been obtained for the stormwater designs at Rosedale and Georgetown, Township staff, Municipal Authority staff, and HRG met on July 26. Priorities for the project were re-evaluated and it was determined to add the Hanover Street storm sewer system to the Rosedale project. Though the Georgetown neighborhood will benefit from drainage improvements in the

future, staff's recommendation it to put the project on hold for design and accelerate the schedule for the expanded Rosedale project. HRG is reviewing the engineering scope for an adjustment to the contract for the additional survey and design that is necessary; however, the Township will see short-term cost savings by putting the other project on hold.

Ms. Letavic presented a Power Point on the Chesapeake Bay Pollutant Reduction Plan (see attached). The Township has a new MS4 permit cycle coming up, and part of that is updating the Chesapeake Bay Pollutant Reduction Plan. The Swatara Creek – Susquehanna River Watershed has no local impairments. The Lauren Run – Susquehanna River Watershed and the Chesapeake Bay Watershed do. She explained some of the proposed BMPs (Best Management Practices). The next step is the public comment period (August 1 – 31). The plan is on the Township's website and is also available at the Township Building. Additional steps include the revision of the report (Sept. 1 – 14), and then submission of the report (Sept. 15). Implementation is to start in 2018 when the permit is approved, with completion in five years – 2023. Ms. Letavic noted that while no specific cost estimates have been done on the Township plan, a preliminary cost estimate is \$1.2 million.

FINAL COMMENTS:

Commissioner Truntz thanked Sergeant Scott Young for coordinating the effort to participate in Middletown's National Night Out, and thanked Detective Ryan Gartland for participating. He also thanked everyone for attending tonight's meeting.

Commissioner Hall also thanked Sergeant Young for his efforts. He noted that he appreciates the comments from the public tonight, and how they were kept professional. This is democracy at its best. Commissioner Hall stated that he is also excited about what Ms. Avolese and Ms. Shireman hope to achieve with the historical society.

Vice President Springer thanked Sergeant Young, Detective Gartland, and Fire Chief Weikle and the Fire Department volunteers for assuring that Lower Swatara Township was well represented at National Night Out.

Commissioner Davies thanked the Public Works employees and the engineer for responding to the recent stormwater issues. He also gave a "hats off" to Sergeant Young and the Police Department for participation in Middletown's National Night Out. Commissioner Davies thanked the public for its comments on the proposed development plans. While the Board has not seen any

filed plans yet, it is good to know what people are thinking. He also welcomed Mr. Lynch on board.

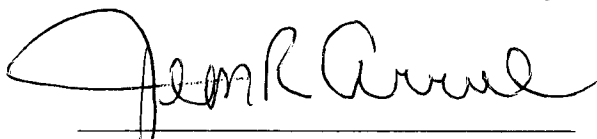
President Wilt thanked those who came out this evening, and again thanked Sergeant Young and Detective Gartland for their efforts at National Night Out. He also welcomed Mr. Lynch on board.

President Wilt requested an executive session immediately upon conclusion of tonight's meeting in order to discuss personnel issues.

ADJOURN AND CONVENE INTO EXECUTIVE SESSION:

Hearing no other business, a motion was made by Commissioner Truntz, seconded by Vice President Springer, to adjourn the meeting and convene into executive session. The motion was unanimously approved, and the meeting adjourned at 8:50.

ATTEST:



Jean R. Arroyo
Township Secretary

PLEASE PRINT NAME CLEARLY

AUGUST 2, 2017

PUBLIC HEARING ON WIRELESS FACILITIES ORDINANCE – 6:45 PM

BOARD OF COMMISSIONERS WORKSHOP – 7:00 PM

Name/Organization	Address/Contact Information
BILL LEONARD	1461 HERITAGE SQUARE
Ruth Shuevari	Longview Dr.
Carolyn Lutz	Woodridge Drive
Tom Williams	Tulling Mill
Ron Paul	Richard Ave.
Jimmie Dymus	3812 Hilcrest Rd.
Sheryl Cyphert	Candlewyske Dr.
Chris DeJure	old Reliance
Paul & Chris Hartz	N. Union St.
Bruce & Joanne Harker	1134 Slater Rd.
Sherry Sontag	Union St.
Nancy Avolose	1451 N. Union St.
R. BOBBERHOLDER	
Laura Ribic	N. Union St.
Jen Neumann	N. Union
Wagner	Longview Drive
Frye	LSFD
John Weikle	Longview Drive
Brianna Clark	old Reliance
B. Lyllif	S. Stwp
Robert J. Feeder	Union St
Marie Hartz	



Herbert, Rowland & Grubic, Inc.
Engineering & Related Services
AN EMPLOYEE-OWNED COMPANY

[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Lower Swatara Township
Chesapeake Bay Pollutant
Reduction Plan
(CBPRP)

August 2, 2017



2013 PAG-13

NPDES (National Pollutant Discharge Elimination System) General Permit (PAG-13) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)

- Water Quality Permit
- Improved quality of local streams
- Quality \leftrightarrow Developed Land without Stormwater Controls



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

2018 PAG-13

NPDES (National Pollutant Discharge Elimination System) General Permit (PAG-13) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)

Updated permit requires:

- ✓ Pollution Control Measures (PCMs)
- ✓ Updated list of authorized non-stormwater discharges
- ✓ Increased public involvement
- ✓ Clearer requirements requiring public access
- ✓ Pollutant Reduction Plans – Chesapeake Bay and locally impaired waters



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Pollutant Reduction Plans

2018 PAG-13

Appendix D

- Estimate existing sediment (TSS), Total Phosphorus (TP), and Total Nitrogen (TN) loads to the Chesapeake Bay
- Identify BMPs to reduce pollutant loads by 10%, 5% and 3% respectively within 5 years*

Appendix E

- Estimate existing TSS, TP, TN loads to locally impaired waters
- Identify BMPs to reduce pollutant loads by 10%, 5% and 3% respectively within 5 years*

**Presumptive approach in which a 10% sediment reduction is assumed to also result in a 5% TP reduction and a 3% TN reduction.*



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Impaired Watershed Planning Areas

Chesapeake Bay Watershed

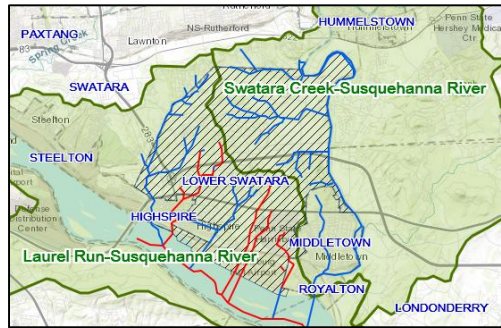
- Includes all Urbanized Area (UA) within Township (hatched area)

Swatara Creek – Susquehanna River Watershed

- No local impairments

Laurel Run- Susquehanna River Watershed

- Unnamed Tributaries to Sherman Creek (TSS)
- Unnamed Tributaries to Susquehanna River (TSS)



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Existing Pollutant Loading, Baseline

- **Township UA** (2010 US Census)
7,943.2 acres
- **UA Land Use** (PADEP)
26% Impervious / 74 % Pervious
- **Dauphin County Developed Land Loading Rates** (PADEP)
1,999.14 lbs/ac/yr (Impervious) 299.62 lbs/ac/yr (Pervious)

Baseline Pollutant Loading

Planning Area	UA (acres)	Pollutant Load TSS (lbs/yr)
CBPRP	7,943	5,889,845
Laurel Run PRP	4,648	3,446,173



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Existing Pollutant Loading

Sediment (TSS)

- Loose particles of clay, silt and sand
- Generated by natural weathering, accelerated erosion from development, and resuspension of previously eroded sediments stored in stream corridors
- Excess TSS affects stream flows, degrades water quality, and negatively affects local and downstream habitats

Sediment Measurement - "lbs/yr"

- Mass per unit area per unit time
- Model-based measure of water quality
- Not a literal pounds removed



Chesapeake Bay (2011)
Sediment transported after Hurricane Irene & T.S. Lee



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Existing Pollutant Loading, Adjusted

Parsed Areas

- **PennDOT / PA Turnpike**
- **Private Properties**
 - Susquehanna Regional Airport
 - Penn State Harrisburg Campus
- **PAG-03s**
 - Stormwater Associated w/ Industrial Activity Permittees
- **Direct Discharge Areas**

Existing BMPs

- Previously installed structural BMPs that provide water quality benefit

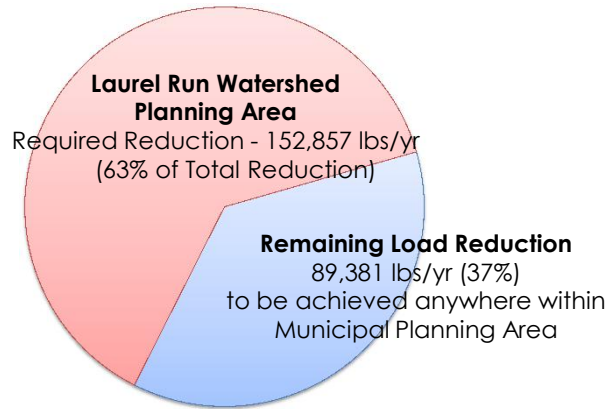
Planning Area	UA (acres)	Pollutant Load TSS (lbs/yr)	Pollutant Goal TSS (lbs/yr)
CBPRP	2,413	2,422,383	242,238
Laurel Run PRP	3,759	1,528,658	152,865



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Pollutant (TSS) Reduction Requirements

Total Required Pollutant Reduction – 242,238 lbs/yr



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

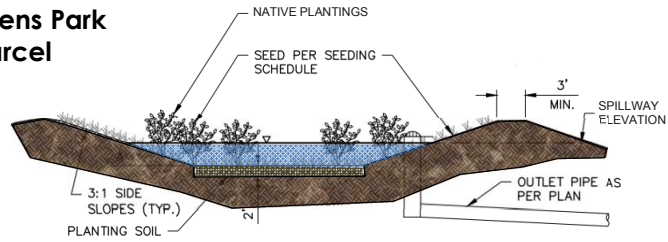
Pollutant Load Reduction Strategy

Site	BMP Type	Planning Area	Drainage Area (acres)	Length (ft)	Load Reduction
Shireman Parcel	Bioretention	CBPRP	1	n/a	667
	Buffer Plantings		20	700	7,415
Old Reliance Park	Bioretention	CBPRP	1	n/a	667
Shope Gardens Park	Bioretention	CBPRP	1	n/a	667
Middletown Area High School	Stream Restoration	CBPRP/ Laurel Run	n/a	1,600	71,808
Greenfield Park	Basin Retrofit	CBPRP/ Laurel Run	20	n/a	12,013
	Stream Restoration		n/a	1,600	71,808
Hershey Creamery	Stream Restoration	CBPRP/ Laurel Run	n/a	1,800	80,784
Total (CBPRP Planning Area)					245,829
Total (Laurel Run Planning Area)					156,296

Proposed BMPs

Bioretention - excavated shallow surface depressions with amended soil media (sand, soil, and organic material mix) planted with specially selected native vegetation to capture and treat stormwater runoff.

**Old Reliance Park
Shope Gardens Park
Shireman Parcel**



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Proposed BMPs

Stormwater Detention Basins – designed to temporarily detain runoff and discharge at a controlled rate, offers limited water quality benefit.

Basin Retrofit – addition of amended soil media (sand, soil, and organic material mix) and native vegetation to existing detention basin promotes infiltration and increases the basins ability to treat runoff and improve water quality.



Proposed BMPs

Stream Restoration

- Repair/stabilization of eroded areas, reconnection to surrounding floodplain, in-stream calming measures
- Improvements to vegetated buffers, removal of invasive species, installation of native plantings

Hershey Creamery

Middletown Area High School

Greenfield Park



Next Steps

- **Public comment period** **Aug 1-31, 2017**
- **Revise report** **Sept 1-14, 2017**
- **Submit report** **Sept 15, 2017**
- **Implementation**
 - Start in 2018 when permit is approved
 - Complete in 2023 (5-years)
 - Preliminary cost estimate: \$1.2 million

Questions?



[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]



Record of Consideration

Comment #1

Received from: Nancy Avolese

Date: 8/16/17

Comment: Email expressed support for the CBPRP and inquired if there were any ways homeowners could help.

Changes made to CBPRP in response to comment: Comment acknowledged, no changes to CBPRP required.

From: Ann Hursh <ahursh@lowerswatara.org>
Sent: Thursday, August 17, 2017 2:57 PM
To: 'lonewolffarm@verizon.net'
Cc: Letavic, Erin; Ben Hall; Frank Lynch
Subject: RE: Chesapeake Bay Pollutant Reduction Plan for LST

Hello Nancy:

Thank you for taking time to read the *Chesapeake Bay Pollutant Reduction Plan for Lower Swatara Township*. I agree that the report can be difficult to understand, but having citizens like you read the report and take away the importance of our Municipal Separate Storm Sewer System (MS4) and the Pollution Reduction Plan (PRP) requirements helps to educate our residents. Education is a very important part of our MS4 permit requirements. We have information on the Township website under the MS4 heading <http://lowerswatara.org/stormwater.php>. We publish homeowner information in the newsletter, watch for a new one in the Fall, and we also have information at the Township building that may be of interest to you. I received a new homeowner pamphlet today that can be accessed at: <http://www.phrc.psu.edu/Publications/Land-Development-Briefs.aspx>.

Lower Swatara Township also is concerned with Illicit Discharges. Our residents can help by being our eyes and notifying us if they see any suspicious or concerning discharges, people dumping into inlets, or unusual construction site runoff or erosion. There is also information concerning how to report illicit discharges on the Township website.

Again, I appreciate your time. If I can ever answer any questions concerning our MS4 Permit or our compliance requirements you may contact me at ahursh@lowerswatara.org or at (717) 939-9377.

Sincerely,

Ann M. Hursh

Planning & Zoning Coordinator
Lower Swatara Township
1499 Spring Garden Drive
Middletown, PA 17057
(717)939-9377 phone

From: Nancy Avolese [mailto:lonewolffarm@verizon.net]
Sent: Wednesday, August 16, 2017 8:26 PM
To: Ann Hursh <ahursh@lowerswatara.org>
Subject: Chesapeake Bay Pollutant Reduction Plan for LST

Public Comments:

I reviewed the *Chesapeake Bay Pollutant Reduction Plan for Lower Swatara Township* document and support the expertise of HRG in which areas are of most concern for pollutants (photos were very helpful). I also support the best management practices

for each of the given areas including bioretention, regrading, planting and/or expanding riparian buffers, bioswales, planting rain gardens, removal of debris, etc.

MS4 appears to be an expensive, ongoing mandate. I am happy to see LST take this seriously. The report, though not the easiest to understand for your average resident, appears to have tapped into the most needed areas to reduce water and soil pollutants and storm-water runoff.

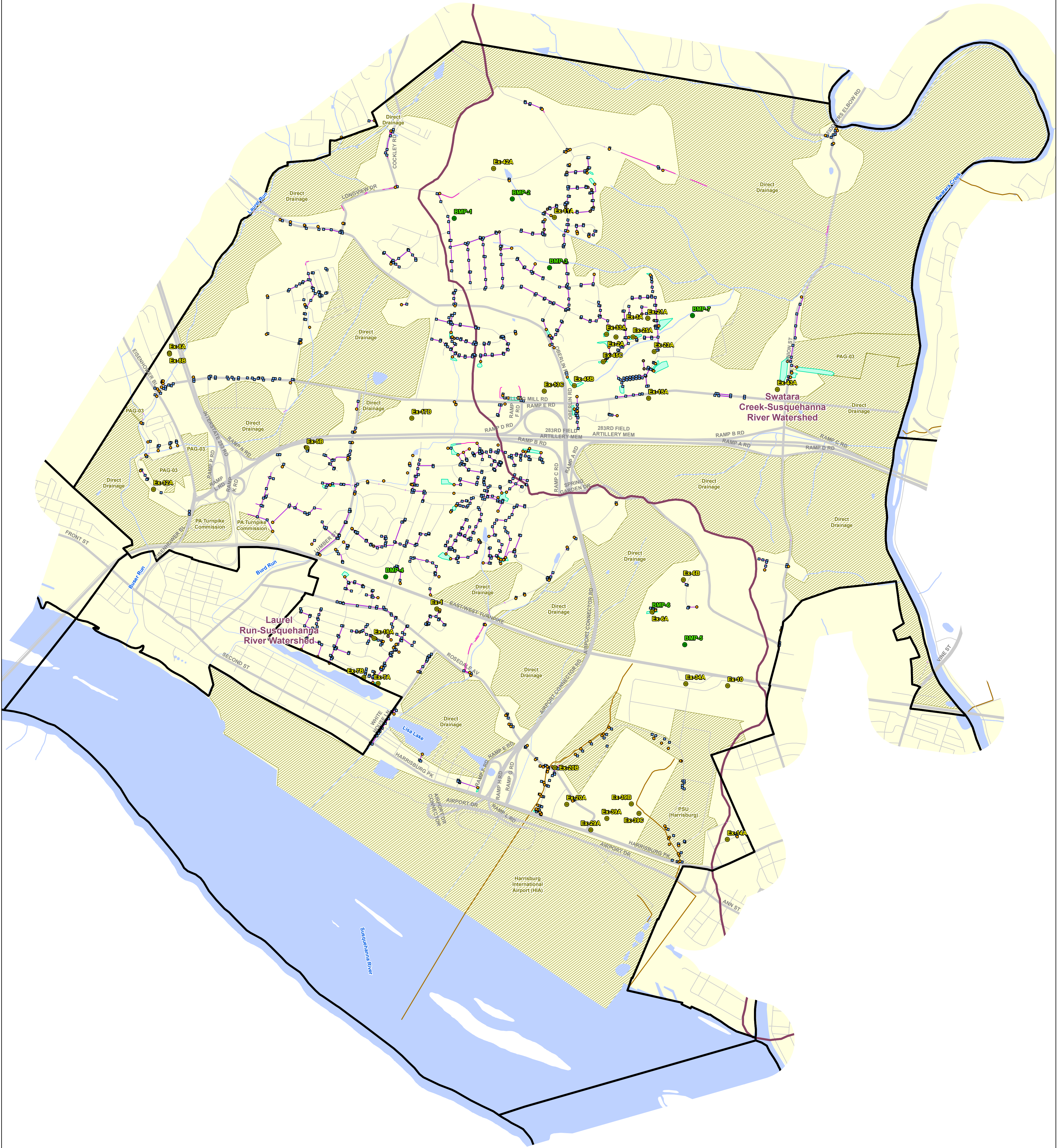
I would also suggest that if there is something that a normal homeowner could do to prevent storm-water runoff, even on a tiny scale, that we be provided that information via the township website and/or public meetings.

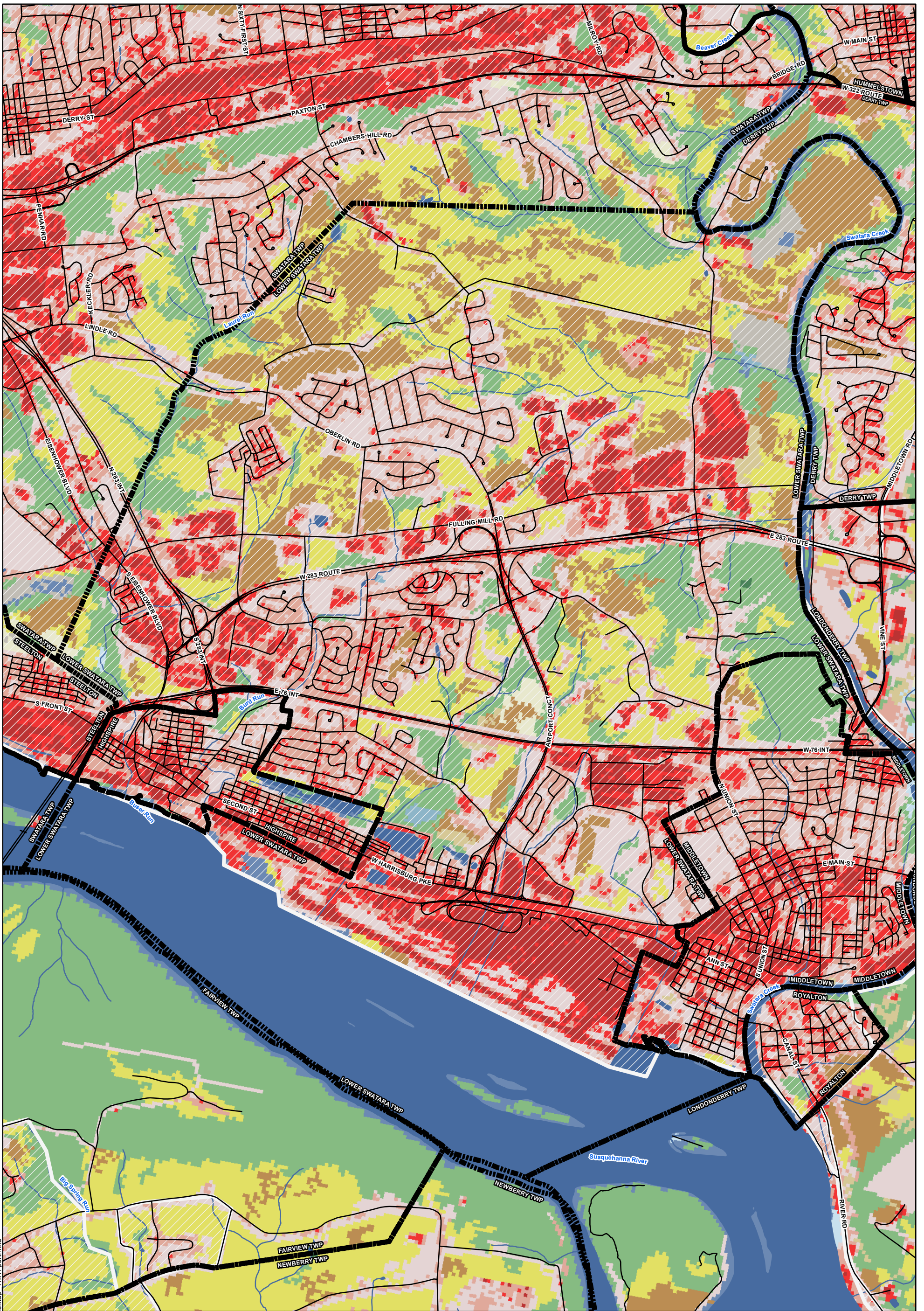
Nancy Avolese
1451 N Union Street
Middletown, PA 17057
(717) 944-9891























APPENDIX B

Mapping






 2,500 0 2,500 Feet
 Mapping derived from data provided by Dauphin County, York County, USGS, US Census, and MRLC.
 5/5/2017 PM: EGL GIS: BLS/HMG QA: HSH R000257.0439

369 East Park Drive
Harrisburg, PA 17111
717.564.1121 [phone]
717.564.1158 [fax]
www.hrg-inc.com
Herbert, Rowland & Grubic, Inc.
 Engineering & Related Services
 An Employee-Owned Company

 Road	 Developed, High Intensity	 Grassland/Herbaceous
 Municipal Boundary	 Barren Land (Rock/Sand/Clay)	 Pasture/Hay
 Open Water	 Deciduous Forest	 Cultivated Crops
 Developed, Open Space	 Evergreen Forest	 Woody Wetlands
 Developed, Low Intensity	 Mixed Forest	 Emergent Herbaceous Wetlands
 Developed, Medium Intensity	 Shrub/Scrub	 Urban Areas (2010)

Land Use Map

Lower Swatara Township Dauphin County, Pennsylvania

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APPENDIX C

PADEP Municipal MS4 Requirements Table

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Dauphin County	LONDONDERRY TWP	PAG133547	No		Appendix E-Organic Enrichment/Low D.O. (4a)	Other Habitat Alterations (4c)
					Appendix E-Siltation (5)	
					Appendix E-Siltation (5)	
					Appendix C-PCB (5)	
					Appendix E-Nutrients, Siltation, Suspended Solids (4a)	
					Appendix D-Nutrients, Siltation (4a)	
					Appendix E-Siltation (4a)	Cause Unknown, Turbidity (4a)
						Cause Unknown (5)
						Water/Flow Variability (4c)
LOWER PAXTON TWP	PAG133643	Yes	TMDL Plan		Appendix B-Pathogens (5)	Cause Unknown (5)
					Appendix C-PCB (5)	
				TMDL Plan-Siltation, Suspended Solids (4a)		
				Appendix B-Pathogens (5)	Other Habitat Alterations, Water/Flow Variability (4c)	
					Appendix B-Pathogens (5)	Flow Alterations, Other Habitat Alterations (4c)
					Appendix D-Nutrients, Siltation (4a)	
					Appendix C-PCB (5)	
LOWER SWATARA TWP	PAG133543	No			Appendix C-PCB (5)	
					Appendix D-Nutrients, Siltation (4a)	
					Appendix E-Siltation (5)	Other Habitat Alterations (4c)
					Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations (4c)
MIDDLE PAXTON TWP	PAG133688*	Yes	SP		Appendix D-Nutrients, Siltation (4a)	
					Appendix C-PCB (5)	
MIDDLETOWN BORO	PAG133645	No			Appendix E-Siltation (5)	Other Habitat Alterations (4c)
					Appendix E-Siltation (5)	Other Habitat Alterations (4c)
					Appendix C-PCB (5)	
					Appendix D-Nutrients, Siltation (4a)	
PAXTANG BORO	PAG133554	No			Appendix C-PCB (5)	
					Appendix E-Siltation (5)	Cause Unknown (5)
					Appendix D-Nutrients, Siltation (4a)	
					Appendix D-Nutrients, Siltation (4a)	

MS4 Name	Permit Number	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Dauphin County				
LOWER PAXTON TWP	PAG133643	Beaver Creek	Nyes Run	Appendix B-Pathogens
		Laurel Run-Susquehanna River, Paxton Creek	Asylum Run, Paxton Creek, Paxton Creek TMDL	Appendix B-Pathogens, Appendix E-Siltation, Suspended Solids, TMDL Plan-Siltation, Suspended Solids
		Laurel Run-Susquehanna River, Paxton Creek, Spring Creek	Asylum Run, Chesapeake Bay Nutrients/Sediment, Paxton Creek, Paxton Creek TMDL	Appendix D-Siltation/Nutrients, Appendix E-Siltation, Suspended Solids, TMDL Plan-Siltation, Suspended Solids
		Laurel Run-Susquehanna River	Susquehanna River	Appendix C-PCB
		Beaver Creek, Swatara Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
LOWER SWATARA TWP	PAG133543	Laurel Run-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Susquehanna River, Unnamed Tributaries to Sherman Creek, Unnamed Tributaries to Susquehanna River	Appendix C-PCB, Appendix D-Siltation/Nutrients, Appendix E-Siltation
		Swatara Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
MIDDLE PAXTON TWP	PAG133688	Clark Creek, Cove Creek-Susquehanna River, Fishing Creek-Dauphin County, Fishing Creek-Perry County, Laurel Run-Susquehanna River, Stony Creek	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
		Cove Creek-Susquehanna River, Laurel Run-Susquehanna River	Susquehanna River	Appendix C-PCB
MIDDLETOWN BORO	PAG133645	Laurel Run-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Unnamed Tributaries to Spring Creek	Appendix C-PCB, Appendix D-Siltation/Nutrients, Appendix E-Siltation
PAXTANG BORO	PAG133554	Laurel Run-Susquehanna River, Spring Creek	Chesapeake Bay Nutrients/Sediment, Unnamed Tributaries to Spring Creek	Appendix D-Siltation/Nutrients, Appendix E-Siltation
		Laurel Run-Susquehanna River, Spring Creek	Susquehanna River	Appendix C-PCB
PENBROOK BORO	PAG133555	Laurel Run-Susquehanna River	Unnamed Tributaries to Spring Creek	Appendix E-Siltation
		Laurel Run-Susquehanna River	Susquehanna River	Appendix C-PCB
ROYALTON BORO	PAG133641	Laurel Run-Susquehanna River, Paxton Creek	Asylum Run, Paxton Creek, Paxton Creek TMDL	Appendix B-Pathogens, TMDL Plan-Siltation, Suspended Solids
		Laurel Run-Susquehanna River, Paxton Creek, Spring Creek	Asylum Run, Chesapeake Bay Nutrients/Sediment, Paxton Creek, Paxton Creek TMDL, Unnamed Tributaries to Spring Creek	Appendix D-Siltation/Nutrients, Appendix E-Siltation, Suspended Solids, TMDL Plan-Siltation, Suspended Solids
		Hartman Run-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Susquehanna River	Appendix C-PCB, Appendix D-Siltation/Nutrients
SOUTH HANOVER TWP	PAG133500	Laurel Run-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Susquehanna River	Appendix C-PCB, Appendix D-Siltation/Nutrients
		Swatara Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment	Appendix D-Siltation/Nutrients
		Beaver Creek	Unnamed Tributaries to Beaver Creek	Appendix E-Siltation
STEELTON BORO	PAG133625	Beaver Creek, Manada Creek, Swatara Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Unnamed Tributaries to Beaver Creek	Appendix D-Siltation/Nutrients, Appendix E-Siltation
		Manada Creek, Swatara Creek-Susquehanna River	Manada Creek	Appendix B-Pathogens
		Beaver Creek, Manada Creek, Swatara Creek-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Unnamed Tributaries to Beaver Creek	Appendix D-Siltation/Nutrients, Appendix E-Siltation
STEELTON BORO	PAG133625	Laurel Run-Susquehanna River	Chesapeake Bay Nutrients/Sediment, Pennsylvania Canal, Susquehanna River, Unnamed Tributaries to Spring Creek, Unnamed Tributaries to Susquehanna River, Unnamed Tributaries to Swatara Creek	Appendix C-PCB, Appendix D-Siltation/Nutrients, Appendix E-Siltation



APPENDIX D

Existing Pollutant Loading Calculations

Appendix D – Table 1A: Existing Pollutant Load Calculation Summary, CBPRP Planning Area

Planning Area	Urbanized Area*					Loading Rate TSS** (lb/ac/yr)		Total Load TSS (lb/yr)
	UA (acres)	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Lower Swatara CBPRP	7,943	26%	74%	2065.2	5878.0	1999.14	299.62	5,889,845
Parsed Areas (State Roads)	274	n/a	n/a	169.8	103.6	1999.14	299.62	370,525
Parsed Areas (Properties)	892	26%	74%	31.4	36.9	1999.14	299.62	661,525
Parsed Areas (PAG-03)	116	26%	74%	30.2	85.9	1999.14	299.62	86,088
Parsed Areas (Direct Drainage)	2,902	26%	74%	754.6	2,147.8	1999.14	299.62	2,152,153
Existing BMPs	n/a	n/a	n/a	n/a	n/a	n/a	n/a	197,171
Adjusted Baseline Total	3,759							2,422,383

*PADEP - Statewide MS4 Land Cover Estimates

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 1B: Existing Pollutant Load Calculation Summary, Laurel Run Planning Area

Planning Area	Urbanized Area*					Loading Rate TSS** (lb/ac/yr)		Total Load TSS (lb/yr)
	UA (acres)	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Laurel Run PRP	4,647	26%	74%	1,208.4	3,439.2	1999.14	299.62	3,446,173
Parsed Areas (State Roads)	200	n/a	n/a	115.8	84.4	1999.14	299.62	256,819
Parsed Areas (Properties)	892	26%	74%	232.0	660.2	1999.14	299.62	661,525
Parsed Areas (PAG-03)	53	26%	74%	13.8	39.4	1999.14	299.62	39,448
Parsed Areas (Direct Drainage)	1,089	26%	74%	283.0	805.6	1999.14	299.62	807,229
Existing BMPs	n/a	n/a	n/a	n/a	n/a	n/a	n/a	152,584
Adjusted Baseline Total	2,413							1,528,568

*PADEP - Statewide MS4 Land Cover Estimates

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 2A: Parsed Area Load Reductions - State Roadways (PennDOT), CBPRP Planning Area

Parsed Area (Roadway Name)	UA Length (ft)	UA Width (ft)	Roadway surface Width (ft)	Urbanized Area					Loading Rate* TSS (lb/ac/yr)		Total Load TSS (lb/yr)
				UA (acres)	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
PA Turnpike	16,767.5	200	60	77.0	n/a	n/a	23.1	53.9	1999.14	299.62	62,318
283	21,615.0	150	90	74.5	n/a	n/a	44.7	29.8	1999.14	299.62	98,200
Rosedale Ave	10,148.3	24	24	5.6	100%	0%	5.6	0.0	1999.14	299.62	11,173
Whitehouse Lane	1,520.3	26	26	0.9	100%	0%	0.9	0.0	1999.14	299.62	1,813
W Harrisburg Pike	9,079.2	38	38	7.9	100%	0%	7.9	0.0	1999.14	299.62	15,827
Airport Connector	21,762.0	130	90	64.9	n/a	n/a	45.0	20.0	1999.14	299.62	95,874
Oberlin Rd	19,010.8	26	26	11.3	100%	0%	11.3	0.0	1999.14	299.62	22,674
N Union St	13,022.0	24	24	7.2	100%	0%	7.2	0.0	1999.14	299.62	14,337
S 80th St	385.1	22	22	0.2	100%	0%	0.2	0.0	1999.14	299.62	388
Cockley Rd	4,073.3	22	22	2.1	100%	0%	2.1	0.0	1999.14	299.62	4,111
Fulling Mill Rd	19,422.2	48	48	18.2	100%	0%	21.4	0.0	1999.14	299.62	36,270
Eisenhower Blvd	4,834.1	34	34	3.8	100%	0%	3.8	0.0	1999.14	299.62	7,540
Total				273.6							370,525

*PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 2B: Parsed Area Load Reductions - State Roadways (PennDOT), Laurel Run Planning Area

Parsed Area (Roadway Name)	UA Length (ft)	UA Width (ft)	Roadway surface Width (ft)	Urbanized Area					Loading Rate* TSS (lb/ac/yr)		Total Load TSS (lb/yr)
				UA (acres)	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
PA Turnpike		200	60	76.0	n/a	n/a	22.8	53.2	1999.14	299.62	61,575
283	11,450.0	150	90	39.4	n/a	n/a	23.7	15.8	1999.14	299.62	52,019
Rosedale Ave	10,148.3	24	24	5.6	100%	0%	5.6	0.0	1999.14	299.62	11,173
Whitehouse Lane	1,520.3	26	26	0.9	100%	0%	0.9	0.0	1999.14	299.62	1,813
W Harrisburg Pike	9,079.2	38	38	7.9	100%	0%	7.9	0.0	1999.14	299.62	15,826
Airport Connector	16,762.0	130	90	50.0	n/a	n/a	34.6	15.4	1999.14	299.62	73,846
Oberlin Rd	12,367.8	26	26	7.7	100%	0%	7.4	0.0	1999.14	299.62	14,751
Fulling Mill Rd	8,300.0	48	48	9.1	100%	0%	9.1	0.0	1999.14	299.62	18,276
Eisenhower Blvd	4,834.1	34	34	3.8	100%	0%	3.8	0.0	1999.14	299.62	7,540
Total				200.4							256,819

*PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 3A: Parsed Area Load Reductions – Private Properties, CBPRP Planning Area

Parsed Areas	Urbanized Area*					Loading Rate** TSS (lb/ac/yr)		Total Load TSS (lb/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Pervious (acres)	Imperv.	Pervious	
Susquehanna Regional Airport	686.9	26%	74%	178.6	508.3	1999.14	299.62	509,333
Penn State Harrisburg	176.6	26%	74%	45.9	130.7	1999.14	299.62	130,948
Turnpike Commission Offices	28.7	26%	74%	7.5	21.2	1999.14	299.62	21,244
Total	892.2							661,525

*PADEP - Statewide MS4 Land Cover Estimates

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 3B: Parsed Area Load Reductions – Private Properties, Laurel Run Planning Area

Parsed Areas	Urbanized Area*					Loading Rate** TSS (lb/ac/yr)		Total Load TSS (lb/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Pervious (acres)	Imperv.	Pervious	
Susquehanna Regional Airport	686.9	26%	74%	178.6	508.3	1999.14	299.62	509,333
Penn State Harrisburg	176.6	26%	74%	45.9	95.4	1999.14	299.62	130,948
Turnpike Commission Offices	28.7	26%	74%	7.5	21.2	1999.14	299.62	21,244
Total	892.2							661,525

*PADEP - Statewide MS4 Land Cover Estimates

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D - Table 4A: Parsed Area Load Reductions - PAG-03 Discharge of Stormwater Associated with Industrial Activities, CBPRP Planning Area

Site*	Permit Date	Site Address	Urbanized Area**					Loading Rate *** TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
			Acres	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
FEDEX Freight	4/26/16	2030 N Union St Middletown PA 17057-2958	62.9	26%	74%	16.35	46.55	1999.14	299.62	46,640
Borger Concrete	12/2/15	401 Richardson Rd Middletown PA 17057-5512	2.7	26%	74%	0.702	2.0	1999.14	299.62	2,002
Highspire Terminals DE LLC	4/14/15	911 S Eisenhower Blvd Middletown PA 17057-5504	36.0	26%	74%	9.36	26.64	1999.14	299.62	26,694
Mack Trucks Remanufacturing Center	6/13/14	2800 Commerce Dr Middletown PA 17057-3294	14.5	26%	74%	3.77	10.73	1999.14	299.62	10,752
Total			116.1							86,088

*As listed on EFACTS (7/2017)

**PADEP - Statewide MS4 Land Cover Estimates

***PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D - Table 4B: Parsed Area Load Reductions - PAG-03 Discharge of Stormwater Associated with Industrial Activities, Laurel Run PRP Planning Area

Site*	Permit Date	Site Address	Urbanized Area**					Loading Rate *** TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
			Acres	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Borger Concrete	12/2/15	401 Richardson Rd Middletown PA 17057-5512	2.7	26%	74%	0.702	2.0	1999.14	299.62	2,002
Highspire Terminals DE LLC	4/14/15	911 S Eisenhower Blvd Middletown PA 17057-5504	36.0	26%	74%	9.36	26.64	1999.14	299.62	26,694
Mack Trucks Remanufacturing Center	6/13/14	2800 Commerce Dr Middletown PA 17057-3294	14.5	26%	74%	3.77	10.73	1999.14	299.62	10,752
Total			53.2							39,448

*As listed on EFACTS (6/2017)

**PADEP - Statewide MS4 Land Cover Estimates

***PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 5: Parsed Area Load Reductions – Direct Discharge by Planning Area

Planning Area	Urbanized Area*					Loading Rate** TSS (lb/ac/yr)		Total Load TSS (lb/yr)
	UA (acres)	% Imperv.	% Perv.	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Laurel Run PRP	1,088.7	26%	74%	283.0	805.6	1999.14	299.62	807,229
CBPRP	2,902.5	26%	74%	754.6	2,147.8	1999.14	299.62	2,152,153

*PADEP - Statewide MS4 Land Cover Estimates

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

Appendix D – Table 6: Baseload Reduction Documentation - Previously Installed BMPs

BMP ID	Development Name	Location	Long	Lat	BMPs	Size (acre) / Length (ft)	Drainage area (acre)	Drainage Area Characteristics					Loading Rate TSS (lb/ac/yr)		Total Load TSS (lb/yr)	BMP Efficiency	Load Reduction TSS (lbs/yr)
								% imperv.	% Pervious	Imperv. (acres)	Pervious (acres)	Acres Total	Imperv.	Pervious			
Ex-1	Morgans Run	Rear of Lot 6. N. of Morgan Dr, S. of Turnpike	-76.767197	40.212306	Detention Basin	0.09 ac	9.53	35.37%	64.63%	3.37	6.16	9.53	1,999.14	299.62	8,587.47	0.6	5,152.48
Ex-2A	Stone Ridge Commerce Park Lot 7	Rear of Lot 7. S.W. corner of the Lot	-76.754064	40.232968	Detention Basin	0.30 ac	2.66	6.58%	93.42%	0.18	2.49	2.66	1,999.14	299.62	1,094.80	0.6	656.88
Ex-3A	Stone Ridge Commerce Park Lot 3	North of building	-76.751398	40.234565	Detention Basin	0.39 ac	5.10	23.91%	76.09%	1.22	3.88	5.10	1,999.14	299.62	3,600.21	0.6	2,160.13
Ex-5B	Conway Dr	Conway Dr. East of Lot 51, South of Rt. 283	-76.780973	40.222379	Detention Basin	0.08 ac	2.66	34.00%	66.00%	0.90	1.76	2.66	1,999.14	299.62	2,334.46	0.6	1,400.68
Ex-6A	Middletown Area School District Middle School	Middletown Middle School 215 Oberlin Rd.	-76.747500	40.214061	Detention Basins (1,2)	0.30 ac	22.46	20.63%	79.37%	4.63	17.83	22.46	1,999.14	299.62	14,605.03	0.6	8,763.02
Ex-6B		Middletown, PA 17057 (Greenfield Rd.)	-76.745022	40.216599		0.08 ac	3.99	23.28%	76.72%	0.93	3.06	3.99	1,999.14	299.62	2,774.48	0.6	1,664.69
Ex-7A	Lakeside Towns	Southern corner of development behind Lots 27-32	-76.771669	40.206538	Detention Basin	0.20 ac	5.99	52.33%	47.67%	3.13	2.85	5.99	1,999.14	299.62	7,117.69	0.6	4,270.61
Ex-7B			-76.773048	40.206837	Swale	100 ft	5.75	47.89%	52.11%	2.75	3.00	5.75	1,999.14	299.62	6,665.54	0.6	3,999.32
Ex-8A	Highspire Road (Emerald Pointe)	Southeast corner of development, Along Rt 283	-76.794675	40.227760	Basin A	0.72 ac	9.98	48.33%	51.67%	4.82	5.15	9.98	1,999.14	299.62	11,184.55	0.6	6,710.73
Ex-8B		Northeast corner of development along Rt 283	-76.796499	40.231426	Basin B												
Ex-10	Woody Waste Recycling Facility	Western edge of parking area, south of industrial rd.	-76.739725	40.209578	Detention Basin	0.07 ac	2.22	49.00%	51.00%	1.09	1.13	2.22	1,999.14	299.62	2,510.58	0.6	1,506.35
Ex-11A	Old Reliance Farms Section 19	Rear of Lot 336	-76.756986	40.240788	Detention Basin	0.24 ac	9.09	7.17%	92.83%	0.65	8.44	9.09	1,999.14	299.62	3,831.31	0.6	2,298.79
Ex-12A	Hollywood Motel Expansion	155 Richardson Rd. Middletown PA 17057. Adjacent to parking area.	-76.794498	40.218069	Infiltration Trenches (1, 2)	0.08 ac	2.66	34.00%	66.00%	0.90	1.76	2.66	1,999.14	299.62	2,334.46	0.6	1,400.68
Ex-13C	1399 Fulling Mill Rd	Northern and Eastern sides of Office / Warehouse	-76.759972	40.228527	Detention Basin (1) and Forebay(2)	0.69 ac	14.85	19.21%	80.79%	2.85	12.00	14.85	1,999.14	299.62	9,300.01	0.6	5,580.01
Ex-15A	Phoenix Contact Land Development	586 Fulling Mill Road, Middletown, PA 17057	-76.750355	40.228977	Detention Basins (2)	1.34 ac	57.20	36.13%	63.87%	20.67	36.54	57.20	1,999.14	299.62	52,259.46	0.6	31,355.68
Ex-16A	Re-subdiv. Lot 100 Georgetown	Southeastern corner of development NW of White House Lane	-76.772584	40.209667	Infiltration Basin	0.24 ac	18.85	52.18%	47.82%	9.83	9.01	18.85	1,999.14	299.62	22,357.29	0.6	13,414.38
Ex-17D	Fulling Mill Rd Lot 185	2035 Fulling Mill Rd	-76.771748	40.225422	Detention Basin	0.43 ac	7.98	39.78%	60.22%	3.17	4.81	7.98	1,999.14	299.62	7,787.11	0.6	4,672.27
Ex-20A	Linden Centre Land Development	Northwest corner of the site, wrapping around to the east along University Drive	-76.756180	40.199333	Stormwater channel stabilization	1400 ft	n/a			n/a	n/a		1,999.14	299.62	n/a	44.88	62,832.00
Ex-20B		Southeast corner of site	-76.754538	40.202268	Detention Basin	0.08 ac	5.10	67.26%	32.74%	3.43	1.67	5.10	1,999.14	299.62	7,358.11	0.6	4,414.86
Ex-21A	Land Development Lot 11A Stoneridge Commerce Park AIS Property Management	Americhem International 1401 AIP Dr. Suite 100 Middletown, PA 17057 North side of lot	-76.751387	40.234568	Retention Basin	0.2 ac	15.96	34.47%	65.53%	5.50	10.46	15.96	1,999.14	299.62	14,134.84	0.6	8,480.91
Ex-23A	Stoneridge Commerce Park Land Development Lot 13	AIP Dr. at Kreider Dr. Middletown, PA 17057	-76.750397	40.232300	Detention Basin	0.44 ac	5.37	31.07%	68.93%	1.67	3.70	5.37	1,999.14	299.62	2,995.45	0.6	1,797.27
Ex-25A	Stoneridge Commerce Park Land Development Lot 6	500' North of the Kreider Dr. and Stoneridge Dr. intersection	-76.752512	40.233134	Detention Basin	0.61 ac	6.65	29.40%	70.60%	1.96	4.70	6.65	1,999.14	299.62	5,316.17	0.6	3,189.70
Ex-29A	Medical Office Building (Family Care and Radiology / Lab Suite)	Southern edge of site, along Harrisburg Pike S.R. 230	-76.750497	40.198246	Detention Basin	0.19	4.21	28.47%	71.53%	1.20	3.01	4.21	1,999.14	299.62	3,300.60	0.6	1,980.36
Ex-33A	Flagger Force Parking Lot Stoneridge Commerce Park Lot 7	1411 Stoneridge Dr., Middletown, PA 17057	-76.754969	40.233083	Detention Basin	0.33 ac	19.73	37.20%	62.80%	7.34	12.39	19.73	1,999.14	299.62	18,387.75	0.6	11,032.65
Ex-34A	PA Turnpike Highspire Service Plaza	PA Turnpike Eastbound, mile post 249.7	-76.743562	40.209336	Rain Garden	0.2 ac	6.65	68.00%	32.00%	4.52	2.13	6.65	1,999.14	299.62	9,679.48	0.6	5,807.69
Ex-39A	Middletown Home Access Driveways and Parking Revisions	Middletown Home 999 West Harrisburg Pike Middletown, PA 17057	-76.749167	40.199192	Detention Basins 1	0.24 ac	3.10	36.14%	63.86%	1.12	1.98	3.10	1,999.14	299.62	2,836.58	0.6	1,701.95
Ex-39B			-76.747107	40.200436	Detention Basins 2	0.22 ac	1.77	49.00%	51.00%	0.87	0.90	1.77	1,999.14	299.62	2,008.47	0.6	1,205.08
Ex-39C			-76.746300	40.199827	Detention Basins 3	0.1 ac	3.33	41.00%	59.00%	1.36	1.96	3.33	1,999.14	299.62	3,313.72	0.6	1,988.23
Ex-42A	William Young / Accord Restoration SWMP	Northern side of Longview Dr, approx. 1500' east of Ebenezer Road / Longview Dr	-76.767262	40.243648	Infiltration Berm	.04 ac	0.67	19.00%	81.00%	0.13	0.54	0.67	1,999.14	299.62	414.06	0.6	248.43
Ex-43A	Fulling Mill Rd	201 Fulling Mill Road eastern side of existing parking lot and southern side of prop paving	-76.738697	40.23078	Subsurface Infiltration	100 ft	19.07	38.88%	61.12%	7.41	11.65	19.07	1,999.14	299.62	18,312.82	0.6	10,987.69
Ex-45B	Harris Corp.	Oberlin Rd	-76.757296	40.229187	Infiltration Basins(2)	0.68 ac	7.76	51.97%	48.03%	4.03	3.73	7.76	1,999.14	299.62	9,178.88	0.6	5,507.33
Ex-45C	Securitas Security Services	Kreider Dr	-76.754943	40.231122	Infiltration Basin	0.18 ac	4.21	12.16%	87.84%	0.51	3.70	4.21	1,999.14	299.62	2,132.52	0.6	1,279.51
TOTAL																	217,460.35

*Plan on file in municipal office

**PADEP - Statewide MS4 Land Cover Estimates

***PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

****PADEP – BMP Effectiveness Values

Notes:

As of May 2018, this chart was updated per PADEP's request using WikiWatershed "Model my Watershed" tool, as it provides additional accuracy for smaller areas.

In addition to the calculation changes the following BMP's were removed:

- BMPs Ex-31A, Ex-31B, Ex-26C – were removed as these BMPs treat drainage from the parsed areas.
- BMP Ex-46 – was removed because it is not within the Township's boundaries.



APPENDIX E

Proposed BMP Pollutant Load Reduction Calculations

Appendix E – Table 1: Proposed BMPs

Site	Map ID	BMP Type	Location	Lat	Long	Drainage Area (acres)	Length (ft)	Drainage Area Characteristics*				Loading Rate** TSS (lbs/yr)		Total Load TSS (lbs/yr)	BMP Effectiveness	Pollutant Load Reduction TSS lbs/yr
								% Imperv.	Imperv. (acres)	% Perv.	Perv. (acres)	Imperv.	Perv.			
Shireman Park	BMP-1	Rain Garden	Ebenezer Road at Longview Drive	40.239802	-76.770266	1.08	n/a	4%	0.04	96%	1.04	1,999.14	299.62	396.1146	90%	322
	BMP-2	Buffer Planting		40.241676	-76.765194	1.61	700	5%	0.08	95%	1.53	1,999.14	299.62	625.6164	50%	322
Old Reliance Park	BMP-3	Rain Garden	Powderhorn Road	40.237214	-76.760967	1.11	n/a	19%	0.21	81%	0.90	1,999.14	299.62	690.094	90%	622
Shope Gardens	BMP-4	Rain Garden	Theodore Ave, Middletown	40.214081	-76.772251	1.33	n/a	54%	0.72	46%	0.61	1,999.14	299.62	1619.387	90%	1458
High School	BMP-5	Stream Restoration	Blue Raider Lane, Middletown	40.212065	-76.744124	n/a	1,600	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88 (lbs/yr)	71,808
Greenfield Park	BMP-6	Stream Restoration	Greenfield Drive	40.214075	-76.747488	n/a	1,600	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88 (lbs/yr)	71,808
		Basin Retrofit		40.2134345	-76.750750	8.65	n/a	20	1.71	80	6.94	1999.14	299.62	5495.788	90	4452
Hershey Creamery	BMP-7	Stream Restoration	Ajp Dr, Middletown	40.235171	-76.747341	n/a	1800	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88 (lbs/yr)	89,760
Total															240,586	

* Land Cover Estimates calculated using WikiWatershed "Model My Watershed" tool

**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

***PADEP – BMP Effectiveness Values

Note: Per PADEP's request the following changes were made as of May 2018:

- Proposed BMP-2 was updated as the proposed buffer area is approximately 700 feet in length and 50 feet wide, therefore the drainage area was revised to 1.61 acres.