CHAMBERSBURG BOROUGH

Franklin County, Pennsylvania

Chesapeake Bay Pollutant Reduction Plan

September 2017
HRG Project No. R004061.0431

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

Chesapeake Bay Pollutant Reduction Plan

CHAMBERSBURG BOROUGH

FRANKLIN COUNTY, PENNSYLVANIA

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INTRODUCTION

Chambersburg Borough discharges stormwater to surface waters located within the Chesapeake Bay watershed and is therefore regulated by the PAG-13 General Permit, Appendix D (nutrients and sediment in stormwater discharges to waters in the Chesapeake Bay watershed). In accordance with the PAG-13 requirements, this Chesapeake Bay Pollutant Reduction Plan (CBPRP) was developed to document how the Borough intends to achieve the pollutant reduction requirements listed in the Pennsylvania Department of Environmental Protection (PADEP) Municipal MS4 Requirements Table[1].

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) Instructions[2].

General Information	
Permittee Name: Chambersburg Borough	**NPDES Permit No.:** PAG133704
Mailing Address: 100 South Second Street	**Effective Date:** August 1, 2013
City, State, Zip: Chambersburg, PA 17201	**Expiration Date:** March 15, 2018
MS4 Contact Person: Andrew Stottlemyer	**Renewal Due Date:** September 16, 2017
Title: Storm Sewer System Manager	**Municipality:** Chambersburg Borough
Phone: (717) 709-2289	**County:** Franklin
Email: astottlemyer@chambersburgpa.gov	**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

Chambersburg Borough is a small MS4 community currently in its second general permit term. The Borough is fully developed with the entire municipality (4,457.4 acres) classified as urbanized area (UA) according to the United States Census Bureau's 2010 census. Chambersburg Borough is located in the Falling Spring Branch-Conococheague Creek and Mountain Creek-Conococheague Creek HUC-12 watersheds. Neither of these watersheds has been classified as impaired by PADEP. However, the Borough MS4 discharges to the Chesapeake Bay watershed and is, therefore, required to complete this plan.

[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 Chambersburg Borough Office from July 28, 2017 to August 28, 2017. The availability of the document was publicized in *The Chambersburg Public Opinion* on July 28, 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. A copy of the public notice is included in Appendix A.

Public comments were accepted for 30 days following the publication date of the public notice. The Borough received several inquiries to review the CBPRP and one public comment was submitted. Copies of all public documentation is included in Appendix A. Additionally, the Borough sent a notice to all property owners that were identified as having a potential BMP's located on their property. A copy of this notice is also included in Appendix A.

A public meeting was held on June 29, 2017 at the Chambersburg Borough Municipal Office to present the information contained in this report to the public. Subsequently, a presentation of the plan to Borough Council occurred on August 7, 2017. Comments and questions regarding the CBPRP were received during the public presentations. As the June 29, 2017 presentation did not occur during a Borough Council meeting, minutes were not taken at this meeting. The sign-in sheet for this meeting as well as a copy of the presentation are included in Appendix A. A copy of the meeting minutes at which the CBPRP was presented to the Borough Council are included in Appendix A.

SECTION B: MAPPING

The Borough's MS4 Map depicts the Borough's entire 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 MS4 Map also shows the CBPRP planning area, UA, and proposed BMP locations.

The Borough's Land Use Map was developed using the most recent National Land Cover Database[3]. The Borough is largely developed at a level of medium or high intensity with minimal open space.

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

SECTION C: POLLUTANTS OF CONCERN

The pollutants of concern for Chambersburg Borough were determined by referencing the PADEP MS4 Municipal Requirements Table[4] (Table 1). The applicable section of this table is included for reference in Appendix C.

Table 1. Pollutants of Concern by Watershed

Watershed	Pollutants of Concern
Chesapeake Bay	Sediment (TSS), Total Nitrogen (TN), Total Phosphorus (TP)

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

SECTION D: DETERMINE EXISTING LOADING FOR POLLUTANTS OF CONCERN

D.1 Parsed Area Calculation

In order to calculate the actual pollutant loads applicable to the Chambersburg Borough 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 CBPRP planning area[5] through the parsing process.

Therefore, the following areas were parsed from the CBPRP planning area:

- **PennDOT Roadways** - The impervious area attributed to state roadways located within the Borough was parsed from the existing pollutant base load, as PennDOT maintains their own MS4 permit to account for stormwater runoff generated from their system.
- **General Permit for Stormwater Associated with Industrial Activity (PAG-03)** - Two industrial properties already covered by existing NPDES permits were parsed from the CBPRP planning area.
- **Private Community** - The Menno Haven retirement community is a private facility that maintains its own stormwater collection system. As this system is privately maintained and does not connect to the Borough MS4, the drainage area tributary to the Menno Haven stormwater system was parsed from the CBPRP planning area.
- **Direct Discharge Areas** – Direct discharge areas are areas in which stormwater runoff does not enter the MS4. Although the majority of the Borough is developed, there are three undeveloped areas located along the southern municipal border. As these areas have no existing MS4 infrastructure and do not drain to the MS4, they were removed from the CBPRP planning area.

A summary of parsed areas removed from the Borough planning area is shown in Table 2. Parsed areas are shown on the MS4 Map (Appendix B) and supporting calculations for the pollutant loads associated with each parsed area are included in Appendix D.

Table 2. Chambersburg Borough Parsed Area Summary

Planning Area	Urbanized Area (acres)
Chambersburg Borough Planning Area	4,457.4
Parsed Area Adjustment (PennDOT Roadways)	- 43.4
Parsed Area Adjustment (PAG-03s)	- 40.3
Parsed Area Adjustment (Private Community – Menno Haven)	- 48.5
Parsed Area (Direct Discharge Areas)	- 212.3
Adjusted Planning Area	**4,112.9**

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

D.2 Existing Pollutant Load Calculation

The existing pollutant loadings were calculated using the Simplified Method[6]. In accordance with this method, the adjusted UA from Table 2 was multiplied by the percent pervious and impervious land use values for Chambersburg Borough listed in the Statewide MS4 Land Cover Estimates[7] guidance document from PADEP. This calculation evaluates the acres of impervious and pervious land within the planning area. The impervious and pervious acreages were then multiplied by the Developed Land Loading Rates for Franklin County[8] to determine the total existing pollutant load. 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 achieved[9]. Therefore, only the TSS pollutant loading was calculated (Table 3). Detailed pollutant load calculations are provided in Appendix D.

Table 3. Pollutant Loading for Chambersburg Borough

Planning Area	Urbanized Area (acres)	Regulated Pollutant Load TSS (lbs/yr)
Chambersburg Borough	4,112.9	4,357,393

D.3 Existing Pollutant Load Adjustment for Previously Implemented BMPs

Chambersburg Borough contains multiple existing BMPs from both private and municipal development projects. These BMPs treat a combined total of 134.8 acres of UA and are therefore being claimed as credit to reduce the existing baseline loading (Table 4). Additional information on the existing BMPs is provided in Appendix D. The locations of existing BMPs are shown on the BMP Location Map (Appendix B).

Table 4. Installed BMP Baseline Reduction

Planning Area	Treated Area (acres)	Regulated Pollutant Load TSS (lbs/yr)
Chambersburg Borough	--	4,357,393
Existing BMPs (Privately Installed)	80.2	148,701
Existing BMPs (Municipally Installed)	54.6	39,438
Adjusted Baseline		**4,169,254**

[6] PADEP PRP Instructions, Attachment C: Chesapeake By PRP Exampled 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)

SECTION E: SELECT BMPS TO ACHIEVE THE MINIMUM REQUIRED REDUCTIONS IN POLLUTANT LOADING

E.1 Required Pollutant Load Reduction Calculation

Chambersburg Borough 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 total nitrogen (TN) with required loading reductions of 10-percent, 5-percent, and 3-percent, respectively. However, 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 achieved[10]. Therefore, only the required 10-percent TSS reduction is calculated herein as a requirement for CBPRP planning area load reductions (Table 5).

Table 5: Required Pollutant Load Reduction

Planning Area	UA (acres)	Impairment	Total Loading TSS (lbs/yr)	Required Load Reduction TSS (lbs/yr)
Chambersburg Boro	4,112.9	Chesapeake Bay Nutrients/Sediment	4,169,254	416,925

E.2 Proposed BMPs

Chambersburg Borough is fully developed and lacks the available open or green space that is generally required for the placement of traditional land-based BMPs. During implementation of the previous CBPRP, the Borough integrated water quality BMPs into planned infrastructure projects and developed other BMPs as remedies for flood-prone areas. As this strategy has proven to be successful in the past, the current BMP strategy outlined in this CBPRP also includes BMPs that will serve a dual benefit of alleviating flooding and aging infrastructure issues while also meeting the required reduction goals for the Chesapeake Bay and improving the quality of local waterways.

The proposed BMP strategy (Table 6) includes multiple BMP types including bioretention, infiltration, stream restoration, porous pavement, and riparian buffer plantings. The pollutant loading reductions for each proposed BMP were calculated in terms of pounds per year using PADEP's standard BMP Effectiveness Values[11]. Complete calculations for the anticipated pollutant load reductions for each of the BMPs listed below is provided in Appendix E.

[10] PADEP - PRP Instructions, Document # 3800-PM-BCW0100k (rev. 3/2017)
[11] PADEP Document 3899-PM-BCW0100M, NPDES Stormwater Discharges from Small MS4s, BMP Effectiveness Values (5/2015)

Table 6: Proposed BMPs

Site	BMP ID	BMP Type	Drainage Area (acres)	Length (ft)	Pollutant Load Reduction TSS (lbs/yr)
Rhodes Drive	BMP-1A	Bioswale	2.39	n/a	2,766
	BMP-1B	Pervious Pavement	0.31	n/a	81
Fifth Ave Extension	BMP-2	Subsurface Infiltration	6	600	3,879
Elder Street / W Commerce Street	BMP-3A	Subsurface Infiltration	9.2	n/a	5,047
	BMP-3B	Streambank Restoration	n/a	1,400	62,832
	BMP-3C	Subsurface Infiltration	9.18	n/a	5,036
	BMP-3D	Bioretention	4.35	n/a	3,580
Stevens Elementary	BMP-4A	Streambank Restoration	n/a	500	22,440
	BMP-4B	Riparian Buffer	12.38	n/a	6,670
Wilson College	BMP-5	Bioretention	103.5	n/a	100,368
Mill Creek Acres Park	BMP-6	Bioretention	100	n/a	96,974
Nitterhouse Park	BMP-7	Bioretention	7.2	n/a	5,925
Wolf Ave Rail Trail	BMP-8A	Bioretention Pocket	5.08	100	4,926
	BMP-8B	Bioretention Pocket	4.59	100	4,451
	BMP-8C	Bioretention Pocket	4.02	100	3,898
	BMP-8D	Bioretention Pocket	6.22	100	6,032
	BMP-8E	Bioretention Pocket	5.28	100	5,120
Fourth Street	BMP-9	Streambank Restoration	n/a	250	11,220
South Fourth Street	BMP-10	Subsurface Infiltration	29.3	n/a	16,074
Ludwig Ave Parking Lot	BMP-11	Subsurface Infiltration	2.52	100	1,383
South Main Street	BMP-12A	Stream Restoration	n/a	675	30,294
	BMP-12B	Riparian Buffer	7.06	675	3,804
Sheffler Drive	BMP-13	Riparian Buffer	31.6	n/a	14,447
Total					**417,247**

E.3 BMP Project Descriptions

Unless otherwise noted, the proposed BMP projects described below have not been fully designed. The following project descriptions are conceptual and intended for planning 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 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.

Rhodes Drive - This project involves the implementation of a bioretention basin, pervious concrete sidewalk, and storm pipe improvements along Rhodes Drive between North Main Street and Second Street. The project will remove the existing sidewalk along Rhodes Drive and install a five-foot wide bioretention basin with amended soils and bioretention planting along the north side of Rhodes Drive. A new pervious-pavement sidewalk will be constructed along Falling Spring Branch Creek. The project is planned by the Borough and has been designed.

Fifth Avenue Extension - This project will extend Fifth Avenue from its current end point in Chambersburg Borough to connect with North Parkwood Drive in Greene Township. The roadway extension will include infiltration trenches to capture runoff along multiple segments of the proposed roadway. The infiltration trenches will contain an 8-inch perforated HDPE pipe within a 16-inch geotextile-wrapped stone trench. The drainage area to an infiltration trench to be located within the Borough is listed on Table 6. This project is planned by the Borough and has been designed.

Elder Street / West Commerce Street - This project is proposed to lessen stormwater runoff volume and improve water quality at a known flooding area in the vicinity of the Stash-A-Way mini-storage facility at the intersection of West Commerce Street and Hood Street. The project will include two subsurface infiltration facilities, a bioretention basin, and stream restoration along an unnamed tributary that flows to the west of West Commerce Street. Elder Street is located one block west of West Commerce Street; however, due to an approximately 50-foot elevation change between Elder Street and West Commerce Street, a significant volume of runoff flows from the Elder Street area down to the unnamed tributary that flows parallel with West Commerce Street. This project proposes several BMPs located throughout the site to target runoff along each of the three main drainage pathways that flow to the unnamed tributary with a goal of reducing volume and runoff velocity.

A subsurface infiltration BMP will be placed at the end of Elder Street near the intersection of Rife Street to capture and treat runoff coming to the site from the northwest. There is currently a system of three inlets along Elder Street near the intersection with Center Street that discharge to a swale directly behind the storage facility's northern most building. A second subsurface infiltration BMP will be placed behind this building to capture and treat runoff coming from these inlets. The infiltration basins will be shallow impoundments designed to store and infiltrate runoff over a level area of uncompacted soil. A bioretention basin will be constructed across West Commerce Street, in front of the electrical transformer station. This BMP will include an excavated shallow surface depression with amended soils and specially selected native vegetation designed capture and treat runoff coming from the east. In addition, stream restoration will be conducted along the unnamed tributary to stabilize the streambank and prevent future erosion.

Stevens Elementary - Stevens Elementary school is located in the southern portion of the Borough and contains a small unnamed tributary along the northern property line. The streambanks have eroded and there is currently no vegetation, other than turf grass, along either side of the stream. This project will stabilize the eroded streambank in order to prevent further erosion, and plant a 35-foot-wide vegetative buffer along either side of the stream. In addition to a structural repair of eroded streambank, the root structure of the

new trees and shrubs will provide long-term stabilization of the streambank and promote plant uptake of nutrient-laden runoff from the neighboring lawn area. The riparian buffer restoration will be implemented concurrently with the stabilization project in order to maximize the nutrient load reduction potential. The combination of streambank stabilization and riparian buffer will provide a more naturalized appearance and function to the stream.

Wilson College - Wilson College is located within the Borough. A large (100+ acre) drainage area is conveyed through the Borough MS4 to an outfall located on the Wilson College campus where it discharges to the Conococheague Creek. Prior to this outfall is a large lawn area owned and maintained by the College. This project proposes to construct a large water quality BMP in this lawn area to capture and treat runoff before it enters the Conococheague Creek. However, the athletic field adjacent to the proposed BMP site is planned for future Wilson College improvements, potentially a new parking lot. Therefore it is anticipated that during the design phase for this project, the exact location of the proposed BMP within specified drainage area may change depending on the College's development plans. The Borough will coordinate with the College to design and construct a BMP in this general area that both meets the needs of the College and is consistent with the Borough's CBPRP goals.

Wilson College has a sustainable farm and horse stables that are used as part of the educational programs offered by the college. As these facilities are included within the planning area, there are opportunities to include agricultural-based BMPs[12] located at the College within the Borough's CBPRP BMP strategy. The Borough intends to work with the College to document any agricultural management/conservation practices currently being implemented as part of the operation of the sustainable farm as well as discuss potential opportunities for additional agricultural-based BMPs. The results of this partnership and BMP documentation with be included in the Annual Status Reports.

Mill Creek Acres Park - Mill Creek Acres Park is a municipally-owned park located in the southern portion of the Borough between Hollywell Avenue, Channing Drive and Eisenhower Drive. This eight-acre park currently includes two play units, swing sets, a multi-purpose field for sports activities, a walking pathway, and a considerable amount of open green space. A large branch of the Borough's MS4 extends from the park eastward to the railroad tracks. The inlets and pipes from this section of the MS4 collect stormwater runoff from approximately 100 acres, conveys the stormwater underneath the park, and discharges to the Conococheague Creek. This project proposes to divert the runoff collected by the MS4 as it travels through the park into a new large bioretention BMP. The new bioretention BMP will be designed as an excavated shallow surface depression planted with specially selected native vegetation to treat and capture runoff before it reaches the Conococheague Creek.

Nitterhouse Park - The existing MS4 infrastructure in Nitterhouse Park includes one inlet in the grassed area to the east of the parking lot that is connected by a pipe to a row of inlets that travel west across the playing fields to an outfall on the Conococheague Creek. The pipe connecting these inlets is currently in poor condition and partially crushed. This project will remove the existing pipe/inlets and replace them with a rain garden located in the grassed area to the east of the parking lot. Additionally, the parking lot will be regraded to maximize the drainage area to the new rain garden.

Wolf Avenue Rail Trail - The Wolf Avenue Rail Trail in between West Commerce Street and West King Street currently has issues with flooding. The grassed areas between the road and the paved trail functions as a swale to convey runoff from the residential neighborhood to the west of the trail to the Conococheague Creek. This project will reduce the frequency of flooding by installing a series of small bioretention pockets

[12] USEPA, Chesapeake Bay Phase 5.3 Community Watershed Model EPA 903S10002 - CBP/TRS-303-10. (12/2010).

along the grassed swale adjacent to the rail trail. The bioretention pockets will capture and treat runoff before it enters the creek.

Fourth Street - Fourth Street runs north to south through the Borough's central business area. The northern end of Fourth Street is located adjacent to Falling Spring Branch Creek. Due to highly-eroded streambanks, the stream often floods at this location and causes water to flow down Fourth Street. This project will rebuild the streambanks in the vicinity of Fourth Street to prevent further erosion and reduce the frequency of flooding. Additionally, in-stream measures will be placed within the Falling Spring Branch Creek to reduce the velocity of the water and further protect the restored streambank.

Approximately 400 feet upstream from the project site, there are two small tributary streams that discharge to the Falling Spring Branch, the northern tributary at outfall 22 and the southern tributary at outfall 23. Both tributaries are in need of stream restoration/stabilization. During the design phase of the project, the condition of these two tributaries will be evaluated and the Fourth Street stream restoration project may be expanded to include additional lengths of stream restoration along these tributaries.

South Fourth Street - The area of South Forth Street between the Wayne Avenue and Guilford Avenue intersections is another area of the Borough that is currently impacted by localized flooding. A large drainage area to the north and east of the project site contribute to a significant amount of runoff draining to the inlets located along the alley between Wayne Avenue and Guilford Avenue. This project includes installing subsurface infiltration trenches along the length of the alley to capture and infiltrate excess runoff.

Ludwig Avenue Parking Lot - This project includes the installation of approximately 138 feet of perforated 10-inch pipe with a goal to infiltrate stormwater and alleviate stormwater issues at the parking lot behind the Borough Hall. The project was previously designed, but was not implemented.

South Main Street - The South Main Street project site includes approximately 675 feet of highly-eroded stream channel (unnamed tributary to the Conococheague Creek). The unnamed tributary flows to asphalt-lined pipe under South Main Street. The pipe is in need of repair as the asphalt is cracking apart and being transported to outfall. This project proposes to replace the pipe as well as restore the eroded stream bank and prevent future erosion. The most appropriate method of stabilization will be determined during the design phase of the project, but will likely include rock and/or armoring. Additionally 35-foot-wide vegetative buffer will be planted along either side of the stream. The root structure of the new trees and shrubs will provide additional long-term stabilization of the streambank and provide a more naturalized appearance and function to stream.

Sheffler Drive - Sheffler Drive is located in the southern commercial portion of the Borough. The unnamed tributary to the Conococheague Creek that flows through the site is fully stabilized with rock; however, there is currently no vegetative buffer. This project will plant a 35-foot-wide vegetative buffer of various trees and shrubs along the approximately 800-foot section of stream. The vegetation will intercept and filter pollutant loads from runoff generated by the pavement and lawn areas to the north of the stream. The buffer will also provide shade and help mitigate thermal impacts to the stream.

Table 7: BMPs Implementation Schedule

Site	BMP ID	BMP Type	Permitting & Engineering Design (Permit Year)	Construction/ Reporting (Permit Year)
Rhodes Drive	BMP-1A	Bioswale	1	1
	BMP-1B	Pervious Pavement		
Fifth Ave Extension	BMP-2	Subsurface Infiltration	3	4
Elder Street / W Commerce Street	BMP-3A	Subsurface Infiltration	2	3/4
	BMP-3B	Streambank Restoration		
	BMP-3C	Subsurface Infiltration		
	BMP-3D	Bioretention		
Stevens Elementary	BMP-4A	Streambank Restoration	4	5
	BMP-4B	Riparian Buffer		
Wilson College	BMP-5	Bioretention	4	5
Mill Creek Acres Park	BMP-6	Bioretention	3	4
Nitterhouse Park	BMP-7	Bioretention	1	2
Wolf Ave Rail Trail	BMP-8A	Bioretention Pocket	2	3
	BMP-8B	Bioretention Pocket		
	BMP-8C	Bioretention Pocket		
	BMP-8D	Bioretention Pocket		
	BMP-8E	Bioretention Pocket		
Fourth Street	BMP-9	Streambank Restoration	3	4
South Fourth Street	BMP-10	Subsurface Infiltration	4	5
Ludwig Ave Parking Lot	BMP-11	Subsurface Infiltration	4	5
South Main Street	BMP-12A	Stream Restoration	2	3
	BMP-12B	Riparian Buffer		
Sheffler Drive	BMP-13	Riparian Buffer	3	4

SECTION F: IDENTIFY FUNDING MECHANISMS

The design and construction of the BMPs proposed herein will be funded through a stormwater fee, as well as potentially through available grants and public donation of materials and manpower. Several of the proposed projects are similar in size and scope to projects that have been previously completed by Borough public works staff. Therefore, it is anticipated that Borough public works staff, at least in part, will able to be used to implement CBPRP projects in order to lessen the overall cost of implementing the CBPRP.

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

Pervious Pavement

Operation and maintenance requirements for pervious pavement includes, as referenced in the Pennsylvania Stormwater BMP Manual:

- Prevent Clogging of Pavement Surface with Sediment
  - Vacuum pavement 2 or 3 times per year.
  - Maintain planted areas adjacent to pavement.
  - Immediately clean any soil deposited on pavement.
  - Do not allow construction staging, soil/mulch storage, etc. on unprotected pavement surface.
  - Clean inlets draining to the subsurface bed twice per year.
- Winter Maintenance
  - Abrasives such as sand or cinders should not be applied on or adjacent to the pervious pavement. Snow plowing is fine, provided it is done carefully (i.e. by setting the blade slightly higher than usual, about an inch).
  - Salt is acceptable for use as a de-icer on the pervious pavement, though nontoxic, organic de-icers, applied either as blended, magnesium chloride-based liquid products or as pretreated salt, are preferable.
- Repairs
  - For damaged areas of less than 50 square feet, a declivity could be patched by any means suitable with standard pavement, with the loss of porosity of that area being insignificant. The declivity can also be filled with pervious mix.
  - For an area greater than 50 square feet, approval of patch type should be sought from either the engineer or owner.
  - Under no circumstance should the pavement surface ever be seal coated.
  - Any required repair of drainage structures should be done promptly to ensure continued proper functioning of the system.

The contractor shall be responsible for the operation and maintenance of the porous pavement until all features of the project have been successfully constructed to the specifications and design standards set forth by the Borough Engineer.

Once construction of the project(s) is complete and stabilization has occurred, the Borough or private property owner, based upon ownership of the project area, shall be responsible for long term implementation of all Operation and Maintenance procedures to ensure the BMP remains operationally functional and physically consistent with the original design.

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 promote 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 Borough 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 Borough or private property owner, based upon ownership of the project area, 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

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 Borough 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 Borough or private property owner, based upon ownership of the project area, 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.

Subsurface Infiltration

Operation and maintenance requirements for the subsurface infiltration projects includes:

- Inspect the infiltration facility at least four times a year, as well as after every storm exceeding 1 inch.
- Dispose of sediment, debris/trash, and any other waste material removed from the infiltration facility at suitable disposal/recycling sites and in compliance with local, state, and federal waste regulations.
- Evaluate the drain-down time of the infiltration facility to ensure the maximum time of 72 hours is not being exceeded. If drain-down times are exceeding the maximum, drain the infiltration facility via pumping and clean out perforated piping, if included. If slow drainage persists, the system may need replacing.
- Regularly clean out gutters and ensure proper connections to facilitate the effectiveness of the infiltration facility.
- Replace filter screen that intercepts runoff as necessary.
- If an intermediate sump box exists, clean it out at least once per year.

The contractor shall be responsible for the operation and maintenance of the infiltration facility until all features of the project have been successfully constructed to the specifications and design standards set forth by the Borough Engineer.

Once construction of the project(s) is complete and stabilization has occurred, the Borough or private property owner, based upon ownership of the project area, shall be responsible for long term implementation of all Operation and Maintenance procedures to ensure the BMP remains operationally functional and physically consistent with the original design.

APPENDIX A

Public Participation Documentation

Notice of Public Participation & Public Meeting Notice Published in *The Public Opinion* (July 28, 2017)

PUBLIC NOTICE: Chesapeake Bay Pollutant Reduction Plan

In conjunction with our storm sewer engineering firm, Herbert, Roland, and Grubic (HRG), the Borough is currently receiving comments on the 'Chesapeake Bay Pollutant Reduction Plan'. This plan will be submitted to DEP for review in mid-September along with our Notice of Intent for general MS4 permit renewal coverage. Best management practices (BMP's) are proposed in the Chesapeake Bay Pollutant Reduction Plan, which are intended to reduce the amount of nitrogen, phosphorous, and sediment that are conveyed into our local waterways. Once submitted to DEP, the Borough will have 5 years to implement the BMP's. The plan will be presented and discussed at a Town Council public meeting on Monday, August 7, 2017 at 7:00 p.m. in Borough Hall Council Chambers, 100 South Second Street, Chambersburg, PA.

The Chesapeake Bay Pollutant Reduction Plan is available for public review and comment at Borough Hall. Please contact Andrew Stottlemyer at (717) 709-2289 or astottlemyer@chambersburgpa.gov if you would like more information. Comments will only be received by mail or email. The plan is available at:

http://www.chambersburgpa.gov/pdf/ChesapeakeBayPollutantReductionPlan.pdf

Borough of Chambersburg
Andrew Stottlemyer
100 South Second Street
Chambersburg, PA 17201
astottlemyer@chambersburgpa.gov

COMMENTS MUST BE RECEIVED BY 5:00 P.M. ON MONDAY, AUGUST 28, 2017

Thursday, June 29, 2017
Borough of Chambersburg- Stormwater Public Meeting

	Name	Phone	Email	Company/Business/Agency
1	Eric Grace	717 404 6019	ccpfcpa@gmail.com	
2	BRIAN K FOGAL	717-264-6441	bfogal@chambersburgpa.gov	Borough of C'burg
3	JANICE COOK	717-263-4650	JANC@PA.Net	
4	Rich Hayman	717 552 4514	RAHaymanP@yahoo.com	" "
5	KEN RIFE	717 264-7738	krife553@comcast.net	" "
6	Herb Dolaway	717 264 9058	dolaway@pa.net	" "
7	Phil Wolgamuth	261-3232	pwolgamuth@chambersburgpa.gov	
8	Russell Martz	263-5533	emartz@embarqmail.com	
9	Walt Bietsch	729-2316		
10	Corey Allen	816-7425		
11	Joseph D Hagle	377 4699		
12	Marlyn Palmer	717-377-7912	marlypalm@comcast.net	BOD
13	KEN ADAMS	264-4651		
14	RANDY GUSHARD	331-1570		

	Name	Phone	Email	Company/Business/Agency
15	CHRISTOPHER ICKNDALL	717 360 4800	C-KENDALL@COMCAST.NET	PROGRESS PARTNERS
16	BARBARA/LARRY LAHR	1428 ALEX. AVE.	"	
17	Ken Hill	(717) 267-3527	KLgill1@gmail.com	Boro Resident
18	Lisa Costanza	———	———	Boro Resident
19	ALLEN B. COFFMAN	267-2739		BOROUGH COUNCIL
20				
21				
22				
23				
24				
25				
26				
27				
28				

Borough of Chambersburg Stormwater Management Program

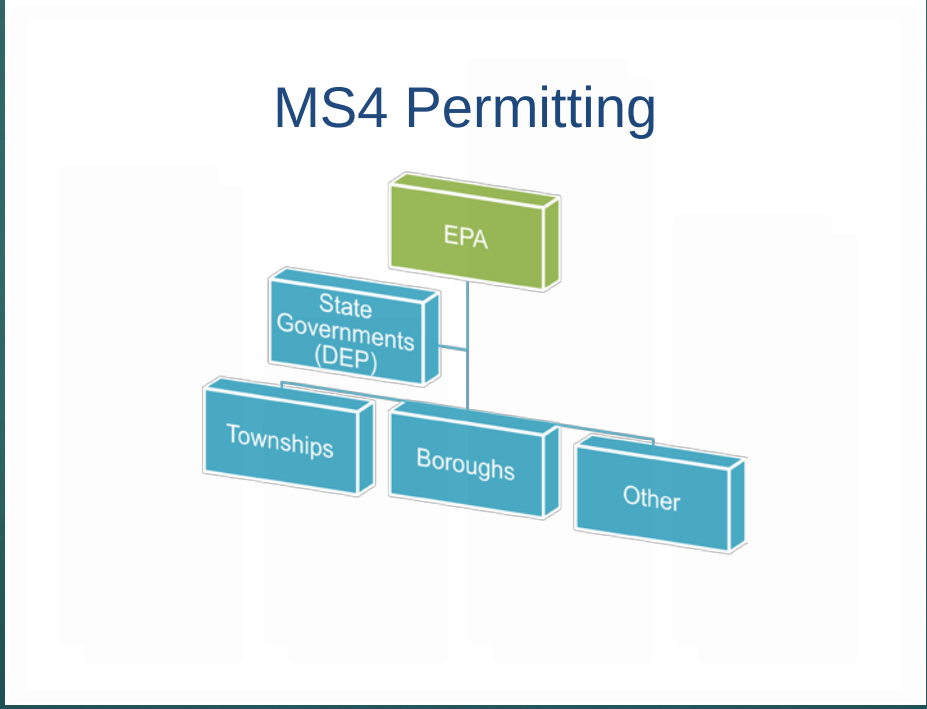
‘WE ALL LIVE DOWNSTREAM’

Andrew M. Stottlemyer
Storm Sewer System Manager
Borough of Chambersburg

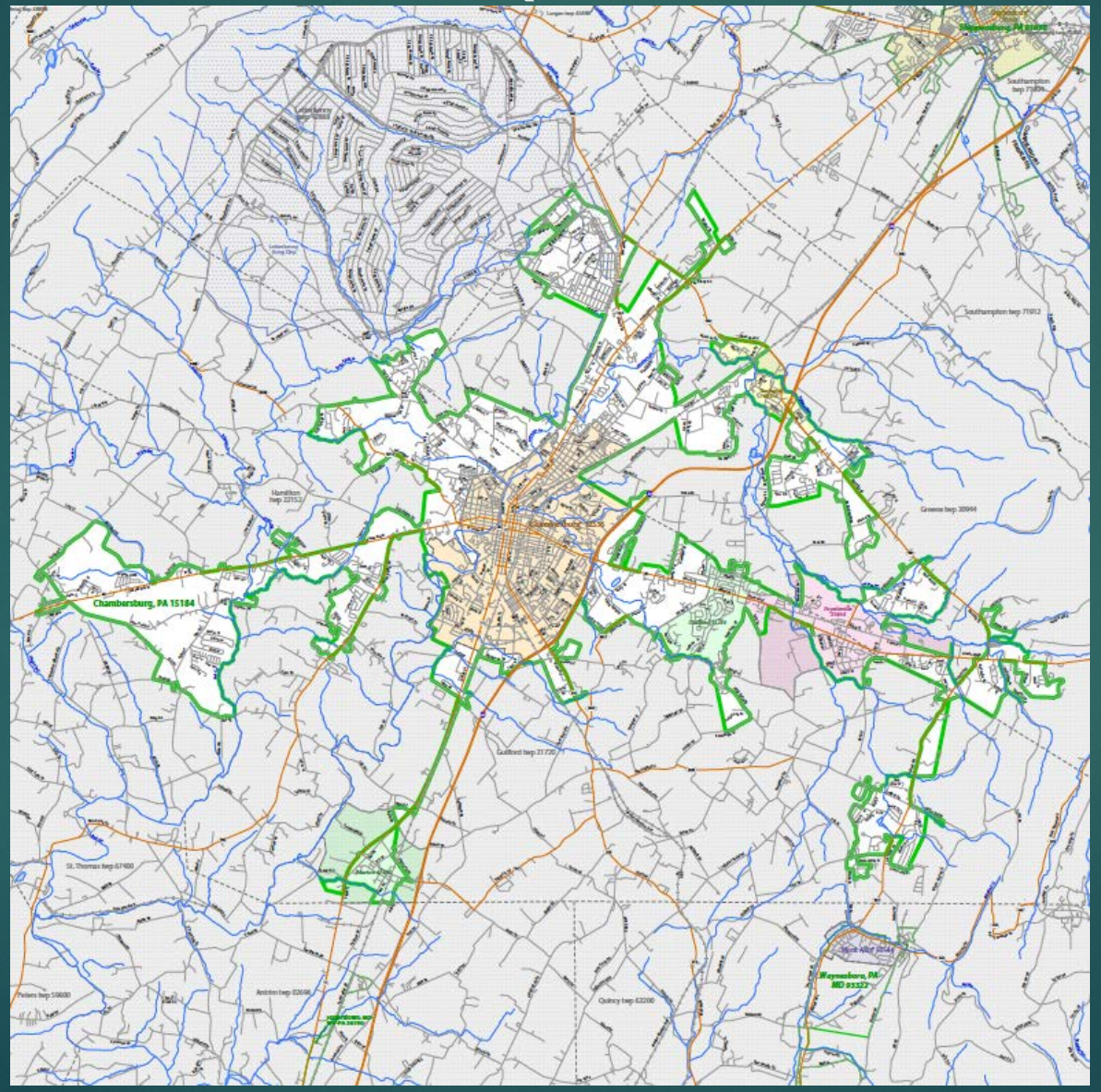
Public Meeting Presentation (6/29/17)

Who mandates the permit?

- Federal regulation requires a MS4 permit for the Borough of Chambersburg
- The Pennsylvania Department of Environmental Protection created a state permitting program to meet the federal regulation



Urbanized areas (2010 census):



MS4 Minimum Control Measures

- MCM 1- Public Education and Outreach on Stormwater Impacts
- MCM 2- Public Involvement/Participation
- MCM 3- Illicit Discharge Detection and Elimination
- MCM 4- Construction Site Stormwater Runoff Control
- MCM 5- Post-Construction Stormwater Management in New Development and Redevelopment
- MCM 6- Pollution Prevention/Good Housekeeping

Stormwater in the Borough of Chambersburg

- All stormwater in the Borough goes to either the Conococheague Creek or Falling Spring Branch
  - Neither stream is 'special protection' which allows us to operate under a General Permit
- The older parts of the Borough has minimal to no stormwater management
  - Curb and gutter
- Newer parts of the Borough has stormwater best management practices
  - Norland Avenue, Chambers 5 Business Park

Chesapeake Bay Pollution Reduction Plan

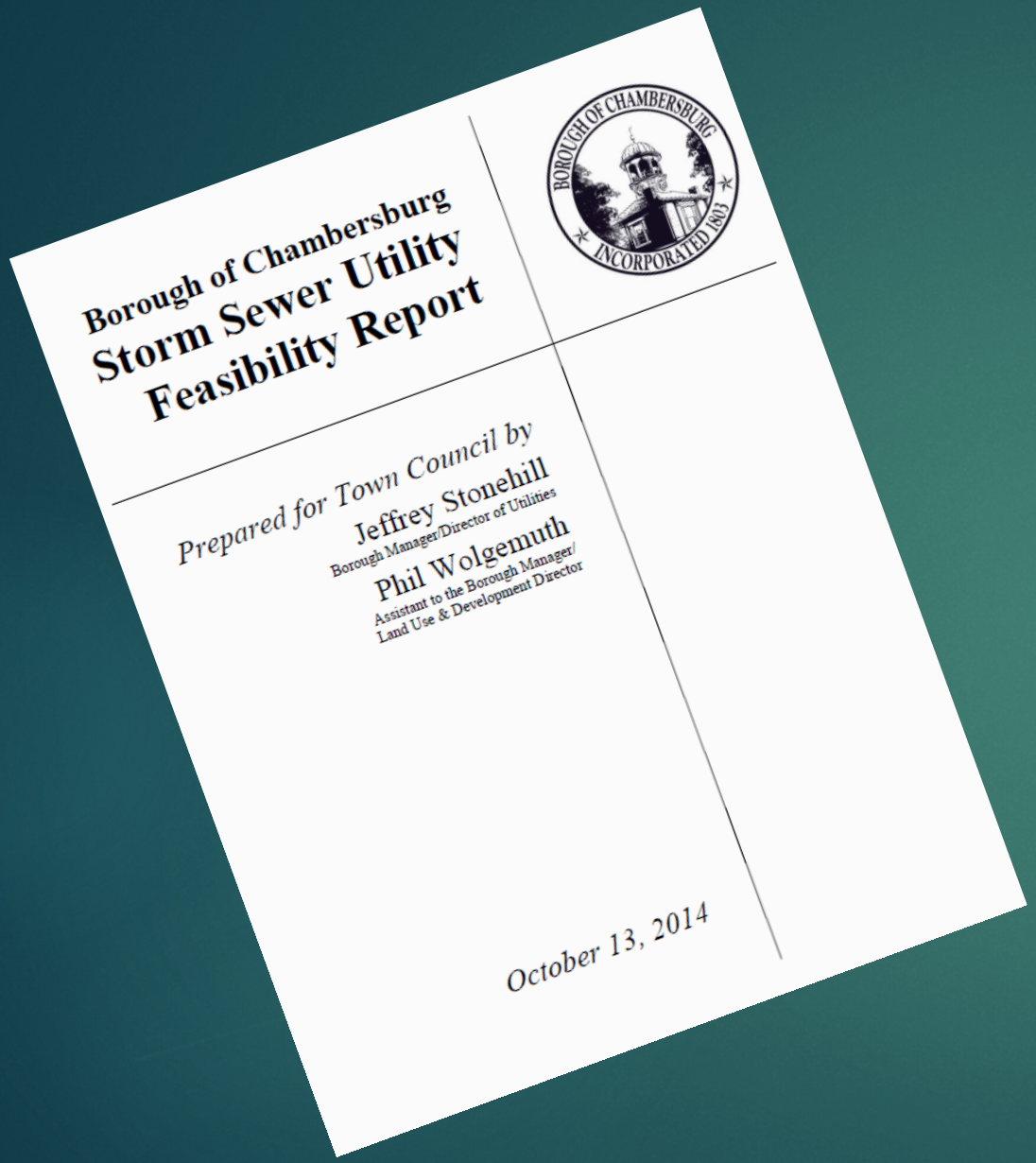
Appendix D – Table 1: Existing Pollutant Load Calculation Summary

MS4	Urbanized Area*					Loading Rate** TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Chambersburg Boro	4,457.4	47%	53%	2,094.98	2,362.42	1944.85	308.31	4,802,776
Parsed Area (Roads)	43.4	100	0%	4,335.71	0.00	1944.85	308.31	121,007
Parsed Area (PAG-03s)	40.3	47%	53%	18.92	21.33	1944.85	308.31	43,369
Parsed Area (Private Community)	48.5	47%	53%	22.80	25.71	1944.85	308.31	52,258
Parsed Area (Direct Discharge)	212.3	47%	53%	99.78	112.52	1944.85	308.31	228,750
Adjusted Baseline	**4,112.9**							**4,357,393**

*PADEP - Statewide MS4 Land Cover Estimates

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

*Required load reduction- 416,925 lbs/year



Borough of Chambersburg
Storm Sewer Utility
Feasibility Report

Prepared for Town Council by

Jeffrey Stonehill
Borough Manager/Director of Utilities

Phil Wolgemuth
Assistant to the Borough Manager/
Land Use & Development Director

October 13, 2014

YEAR 1 AND 2

- Adopt Ordinance establishing storm sewer utility to be managed by the Borough Manager and Land Use and Development Director.
- Hire a Storm Sewer System Manager who will responsible for day-to-day management of the storm sewer utility, storm sewer system and stormwater management program.
- Secure office space, purchase office equipment and vehicle for Storm Sewer System Manager.
- Administer MS4 Permit Minimum Control Measures and implement Chesapeake Bay Pollutant Reduction Plan.
- Enforce the Floodplain Management Ordinance.
- Hire GIS technician and purchase software to analyze impervious cover and establish ERU or hire an engineering firm to conduct the analysis.

YEAR 3 AND 4

- Evaluate storm sewer system maintenance needs and establish a capital improvement program and personnel plan to maintain system and implement program.
- Establish storm sewer utility rate structure based on ERU.
- Hire an engineering firm to establish a program to monitor and model stormwater system flow and recommend strategies to implement BMP's to address problem areas.
- Establish storm sewer utility credit program and Stormwater Credit Manual.
- Evaluate areas prone to flooding and establish corrective measures.
- Consider moving street sweeping and fall leaf collection operation from General Fund to storm sewer utility.

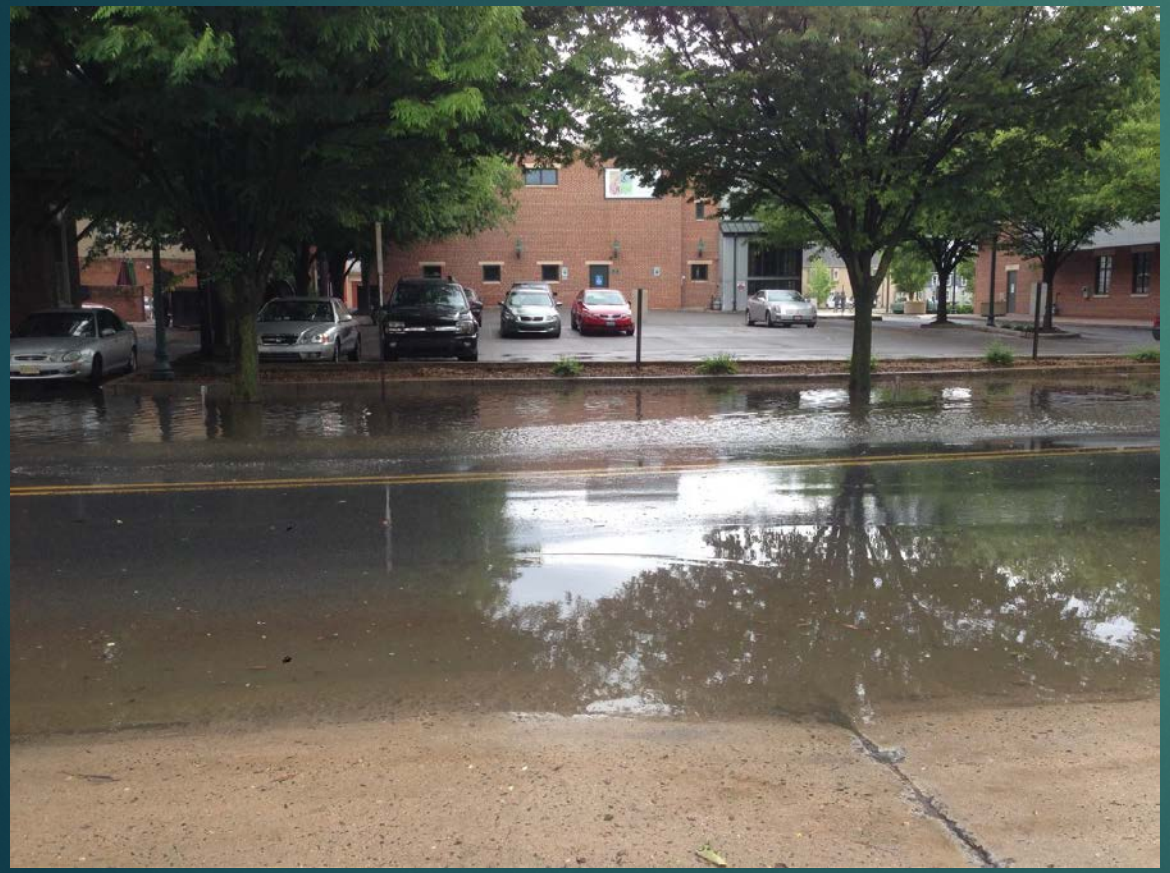
YEAR 5

- Implement rate structure based on ERU.
- Implement credit program.
- Implement capital improvements program.
- Hire personnel necessary to maintain system and implement capital improvements program.

2017 Accomplishments

- Released RFP's for Storm Sewer Utility Rate Structure and Plan Reviews
- Hired HRG
- Completed draft Chesapeake Bay Pollution Reduction Plan
- Established a Stakeholder Advisory Committee for the Storm Sewer Utility Rate Structure and Credit Program
  - Borough staff, Reps from Borough Council, King Street Church, CASD, YMCA, Summit Health, Franklin Co. Planning, Wilson College

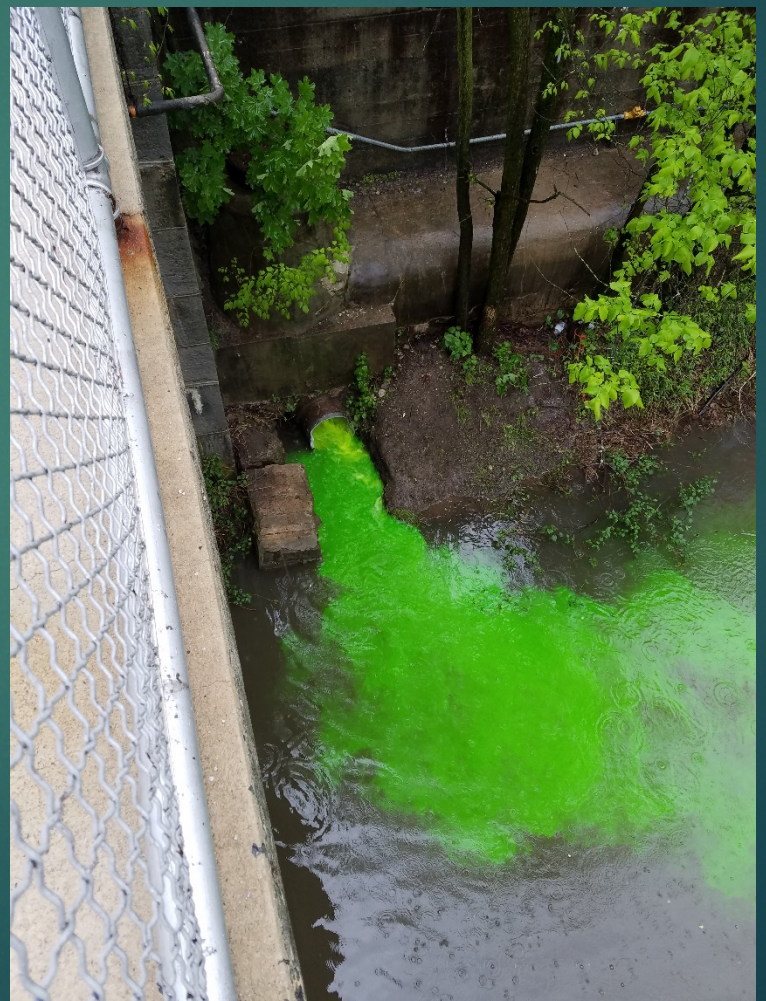
West King Street Storm Sewer Improvements (Before)



West King Street Storm Sewer Improvements (Before/After)

BEFORE PIPE LINING

AFTER PIPE LINING



Stormwater in the Borough of Chambersburg

- Length of storm pipe – 66.54 miles *(61.26 miles)
- Inlets/catch basins – 2,609 *(2,437)
- Detention basins – 82 *(79)
- Rain gardens – 33 *(27)
- Subsurface detention - 70 separate areas *(51)
- Outfalls – 131*(126)
- *(2015 totals)

2016 Year End Summary

- ~8,196 sanitary sewer connections
  - $4/month
- Total revenue for the storm sewer utility was $295,134
- Currently working towards developing phase 2 of the utility fee that would reflect the amount of impervious coverage on each parcel
- An Equivalent Residential Unit (ERU) would be established

Chesapeake Bay Pollutant Reduction Plan

ERIN G. LETAVIC, P.E.

HERBERT, ROWLAND & GRUBIC, INC.

Chesapeake Bay Pollutant Reduction Plan

- Originally developed in 2014
- Project implementation

- Plan Update
  - MS4 Permit Application Requirement
  - New standards for pollutant reductions
  - Prescribed goal to be met

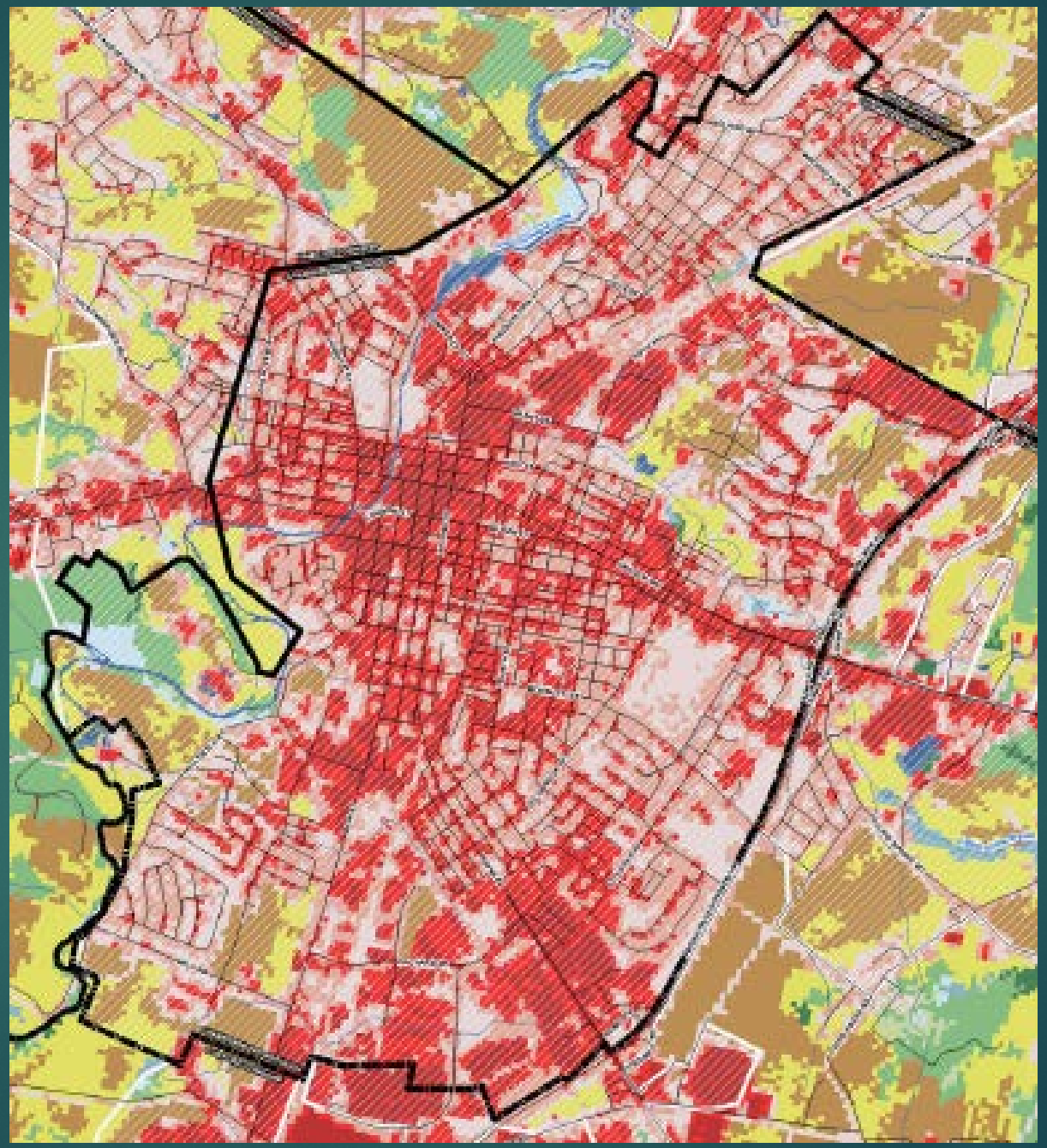
Chesapeake Bay Pollutant Reduction Plan

- Borough staff outreach
- GIS mapping
- Modeling – Simplified Method
- Data collection (existing BMPs)
- Pollutants of concern
  - Sediment (total suspended solids) ← Plan Focus
  - Total Nitrogen
  - Total Phosphorus

Chesapeake Bay Pollutant Reduction Plan

- Pollutant Source
  - Correlated to surface area type and acreage
    - Impervious surfaces – rooftops, roads, sidewalks, driveways, parking lots, etc.
    - Pervious surfaces – lawns, meadows, forest
- Chambersburg Borough
  - 47% impervious cover
  - 53% pervious cover
  - 4.8 MM lb sediment

Land Use



Chesapeake Bay Pollutant Reduction Plan

- Sediment Baseline Reductions
  - Pollutant Goal = 10% of baseline sediment lb
  - Parsing
    - Exclude areas that do not drain to the MS4
    - Exclude areas that have their own stormwater quality obligations
      - Venture Foods
      - United Postal Service
      - PennDOT road surface
  - Existing BMPs
    - Land development
    - Municipal projects

Chesapeake Bay Pollutant Reduction Plan

- Sediment Reduction Goal Determination

  4.8 MM lb baseline

- 0.5 MM lb (parsing)

- 0.1 MM lb (existing BMPs)

  4.2 MM lb reduced baseline

  4.17 MM lb x 10% = 417,000 lb

Chesapeake Bay Pollutant Reduction Plan

- Sediment Reduction BMPs
  - Borough capital improvement project areas
  - Localized flooding areas
  - Stream erosion
  - Streamside properties
  - Public property

Chesapeake Bay Pollutant Reduction Plan

- 13 project areas
- BMP types
  - Bioswale
  - Pervious pavement
  - Infiltration
  - Bioretention
  - Streambank restoration
  - Riparian buffer
  - Outfall stabilization

Site	BMP ID	BMP Type	Drainage Area (acres)	Length (ft)	Pollutant Load Reduction
Rhodes Drive	BMP-1A	Bioswale	2.39	n/a	2,766
	BMP-1B	Pervious Pavement	0.31	n/a	81
Fifth Ave Extension	BMP-2	Subsurface Infiltration	6	600	3,232
Elder Street / W Commerce Street	BMP-3A	Bioretention	9.2	n/a	7,571
	BMP-3B	Streambank Restoration	n/a	1,400	62,832
	BMP-3C	Bioretention	9.18	n/a	7,554
	BMP-3D	Bioretention	4.35	n/a	3,580
Stevens Elementary	BMP-4A	Streambank Restoration	n/a	500	22,440
	BMP-4B	Riparian Buffer	12.38	n/a	6,670
Wilson College	BMP-5	Bioretention	103.5	n/a	100,368
	BMP-6	Agricultural BMPs	n/a	n/a	7,921
Nitterhouse Park	BMP-7	Bioretention	7.2	n/a	5,925
Wolf Ave Rail Trail	BMP-8A	Bioretention pocket	5.08	100	4,926
	BMP-8B	Bioretention pocket	4.59	100	4,451
	BMP-8C	Bioretention pocket	4.02	100	3,898
	BMP-8D	Bioretention pocket	6.22	100	6,032
	BMP-8E	Bioretention pocket	5.28	100	5,120
Fourth Street	BMP-9	Streambank Stabilization	n/a	250	11,220
South Fourth Street	BMP-10	Subsurface Infiltration	29.3	n/a	24,112
Ludwig Ave Parking Lot	BMP-11	Subsurface Infiltration	2.52	100	1,383
Lincoln Hwy, Storage Facility	BMP-12A	Bioretention	80	300	65,834
	BMP-12B	Outfall Stabilization	100	n/a	4,488
Sheffler Drive	BMP-13	Riparian Buffer	31.6	n/a	14,447
Gospel Bookstore, Lincoln Hwy	BMP-14A	Bioretention	39.7	n/a	32,670
	BMP-14B	Outfall Stabilization	200	n/a	8,976
Total					**418,497**

Chesapeake Bay Pollutant Reduction Plan

- BMP examples

A road ditch can serve as a bioswale. The rock trench and wetland vegetation are notable features, along with the natural drainageway in the background that serves as a bioswale for residential runoff.

Borough Stormwater Initiatives

- CBPRP Next Steps
  - Public Review – written comments due July 31
  - Cost Estimate and Implementation Schedule
  - Submittal to DEP by September 15, 2017

- Stormwater Fee Update
  - Storm Sewer Utility Rate Structure and Credit Program Advisory Committee
  - Stormwater Management Program Review

REGULAR PUBLIC COUNCIL MEETING #17-15	M I N U T E S	MONDAY August 7, 2017

1. **GENERAL** . . . The following are the minutes of the Regular Public Council Meeting of Town Council (hereinafter "Council") of the Borough of Chambersburg held Monday, August 7, 2017 at 7:00 P.M. with the President of Council, Allen B. Coffman, presiding.

2. **PRESENT** . . . President of Council A. B. Coffman, Vice-President of Council H. E. Talhelm; Mayor D. Brown; and Councilmen K. J. Leedy, A. C. Elia, L. C. Cowles, J. S. Scott, S. J. Bietsch, H. R. Dolaway, J. D. Cate and S. A. Bigler were present. Also present were J. M. Stonehill, Borough Manager, D. C. Finch, Assistant Borough Manager, P. Wolgemuth, Assistant to the Borough Manager, S. Wiser, Borough Solicitor's Office, J. L. Wright, Borough Secretary, H. Leonhard, E. S. Chief, D. Ulrich, Asst. E. S. Chief, A. Stottlemyer, Storm Sewer System Manager, and approximately 23 guests.

3. **MOMENT OF SILENCE OR PRAYER** . . . The President of Council opened the meeting and asked for a moment of silence or prayer followed by the Pledge of Allegiance.

4. **HEAR VISITORS** . . . The President of Council noted that at this time Council will hear visitors concerning matters other than those on the final agenda. Visitors desiring to comment on a particular agenda item should make comments as that agenda item occurs. There were no visitor comments

5. **CONSENT AGENDA** . . . The President of Council asked if there were any items listed on the Consent Agenda that any Councilman wanted removed from the Consent Agenda so that item could be discussed and voted on as a separate resolution. There was none.

   WHEREAS, The Mayor and Town Council has either previously discussed or considers certain agenda items to be of a routine nature; and

   WHEREAS, Items of the nature noted in the paragraph above generally meet with the consensus approval of The Mayor and Town Council.

   NOW, THEREFORE, On a motion by Councilman Elia, seconded by Councilman Cowles, by a vote of 10-0, it was resolved that the following items are approved by the Mayor and Town Council:

Award of Contracts:

1. Authorization to Award Contract for the Catherine Street Storm Sewer Improvements Project to Affordable Excavating and Hauling, Inc., Shippensburg, PA, the Lowest Complying Bidder, at Their Bid Price of $38,364.70, in Accordance with Sealed Bids received July 31, 2017.

Routine:

1. Approve Payments of Bills for July 2017 in the Amount of $8,043,563.35 Covered by Check Number 174517 thru 175192 and Itrans 903255 thru 903337.

2. Authorization to Approve the Minutes of the June 26, 2017 and July 10, 2017 Regular Public Council Meetings.

3. Authorization to Readopt the May 8, 2017 Regular Public Council Meeting Minutes as Amended (in reference to): ITEM NO. 8 - AUTHORIZATION TO REQUEST A CERTIFIED LIST FOR FIREFIGHTER FROM THE CHAMBERSBURG CIVIL SERVICE COMMISSION TO HIRE UP TO THREE (3) NEW FIREFIGHTERS FOR THE AUGUST/SEPTEMBER 2017 HACC FIRE ACADEMY AND FURTHER TO ACCEPT THE RECOMMENDATION TO EXTEND THE 7/5/16 FIREFIGHTER ELIGIBILITY LIST FOR ONE YEAR AS ALLOWED PER THE CSC RULES AND REGULATIONS . . . As presented by the Borough Manager, on a motion by Councilman Cate, seconded by Councilman Bigler, by a vote of 8-2-0 (Councilman Leedy and Councilman Bietsch were opposed), it was resolved to request a Certified List for Firefighter from the Chambersburg Civil Service Commission to hire up to three (3) new Firefighters for the August/September 2017 HACC Fire Academy and Further to Accept the Recommendation to Extend the 7/5/16 Firefighter Eligibility List for One Year as Allowed Per the CSC Rules and Regulations.

4. Authorization to Accept Donation of Funds from Government Management Services (GMS) and Sazlmann Hughes, P.C. to the Chambersburg Police Department K-9 Unit for the purchase and training of the new K-9.

5. Authorization of Support to the Franklin County Historical Society's Application to the PA Liquor Control Board for a Special Occasion Event Liquor License for their Lock, Stock, & Rock Fundraiser Event on September 9, 2017.

6. Authorization to Advertise the Recreation Department New Aquatic Center in the Franklin County Visitor's Bureau Outdoor Recreation Guide for $500.

7. Authorization -- Referral to the Parking, Traffic and Street Light Committee a Request from Tina Jones for a dedicated left turn signal from Lincoln Way East onto S. Sixth Street.

8. Authorization for the Electric Department to Advertise for the Sale of Scrap Transformers and Award the Sale in the Best Interest of the Borough.

9. Authorization to Re-approve and Re-stamp Borough Plan RE-1474, a Final Subdivision and Land Development Plan for Twain Glaser to Subdivide Land and Construct a Building for an Indoor Baseball/Softball Training Facility on Benedict Avenue.

10. Authorization to Approve Borough Plan RE-1484, a Final Land Development Plan for Silanco Properties, LLC to Construct a Multi-tenant Retail Building on Parcel G2 on Walker Road and the Associated Standard Stormwater Facilities Maintenance and Monitoring Agreement.

11. Authorization to Refer Citizen Petitions Regarding Their Opposition to the Installation of Sidewalks to Their Respective Ward Representatives.

12. Authorization to Approve Subrecipient Agreement with United Way of Franklin County for a FY 2016 Community Development Block Grant Totaling $17,320 that was Allocated to the Stepping Forward Works Program.

13. Authorization for the Proper Borough Officials to Execute a Professional Services Agreement with Smith Elliott Kearns & Company, LLC to Provide Independent Auditor Services for the Audit of H2O Grant Contract #C000056148 at a Fee of $3,000.

14. Authorization for the Proper Borough Officials to Execute a Professional Services Agreement with Smith Elliott Kearns & Company, LLC to Provide Independent Auditor Services for the Audit of Multimodal Transportation Fund Grant Contract No. C000059346 at a Fee of $3,000.

15. Authorization for the Proper Borough Officials to Execute a Professional Services Agreement with Smith Elliott Kearns & Company, LLC to Provide Independent Auditor Services for the Audit of Keystone Communities Program Contract No. C000057190 at a Fee of $3,000.

16. Authorization for the Shade Tree Commission to Enter Into a Partnership with Tree Vitalize to Provide Financial Assistance Not to Exceed $2,500.00 for Street Tree Plantings at Wilson College.

Previously Discussed:

1. Authorization to Release the Public Works Maintenance Bond for Borough Plan RE-1404, a Subdivision and Land Development Plan for Brandale, LLC for Chambers Hill Center on Fifth Avenue.

2. Authorization to Approve the Public Works Acceptance and Security Release, Public Works Maintenance Agreement and Public Works Maintenance Bond Associated with Borough Plan RE-1431, a Final Land Development Plan for ALDI, Inc. on Gateway Avenue.

6. **APPOINTMENT OF THE FIRST OF THREE ADDITIONAL PROBATIONARY FIREFIGHTERS IN THE CHAMBERSBURG FIRE DEPARTMENT** . . . The Borough Manager noted to Council that pursuant to the recent Collective Bargaining Memorandum of Agreement approved by Council between the Borough and Local 1813 of the International Association of Fire Fighters (IAFF) the Borough is required to increase the size of the paid Fire Department force by three new firefighters (and promote one additional captain). These are new employees and will increase the size of the full time force to 24 not including the Chief, Assistant Chief, or clerical staff.

   The Borough Manager on June 26, 2017 made conditional appointments to applicants to the position of Firefighter conditioned on the successful passage of a physical exam including drug screening, a fitness evaluation and a psychological appraisal. Mr. Samuel Nehf successfully completed the conditional testing. It is recommended that Council act to appoint Candidate Nehf to Firefighter. His effective hire date will be determined based on his availability, the HACC Academy and the Fire Department shift schedule.

   ES Chief Leonhard introduced Mr. Nehf. The Borough Manager advised Council that two more probationary firefighters will be at the September 11, 2017 Council meeting for appointments.

7. **ADMINISTRATION OF OATH OF OFFICE AND LOYALTY OATH FOR PROBATIONARY FIREFIGHTER . . .** The Mayor administered the Oath of Office to Samuel Nehf.

8. **PROPOSED STORM WATER CHESAPEAKE BAY POLLUTANT REDUCTION PLAN FOR THE BOROUGH OF CHAMBERSBURG AND AUTHORIZATION FOR SUBMISSION TO PA DEP** . . . The Storm Sewer System Manager introduced Erin Letavic, Herbert, Roland and Grubic (HRG), to Council. Mrs. Letavic made a Power Point presentation to Council on the Storm Water Chesapeake Bay Pollutant Reduction Plan. On a motion by Councilman Dolaway, seconded by Councilman Cowles, it was resolved by a vote of 10-0, to submit the plan by HRG to PA DEP.

9. **AUTHORIZATION TO APPROVE A MEMORANDUM OF UNDERSTANDING WITH CHAMBERSBURG HEALTH SERVICES TO AUTHORIZE PAYMENT TO FAYETTEVILLE CONTRACTORS, INC. FOR ASPHALT BASE COURSE REPAIRS, MILLING AND OVERLAY ON NORLAND AVENUE AND FIFTH AVENUE TO COMPLETE THIS PORTION OF THE NORTH CHAMBERSBURG TRANSPORTATION IMPROVEMENTS PROGRAM** . . . The Assistant to the Borough Manager reported to Council that the North Chambersburg Transportation Improvements Program includes four parts and is being undertaken by Chambersburg Health Services and their contractor Fayetteville Contractors. The first phase is the construction of Parkwood Drive from Norland Avenue to Grand Point Road, mostly in Greene Township. The second phase is the improvement of St. Paul Drive between Parkwood Drive and Norland Avenue into a public street in the Borough of Chambersburg. The third phase is the widening of Fifth Avenue and Norland Avenue in Chambersburg. Finally, the fourth phase will be the extension of Fifth Avenue in the Borough of Chambersburg to meet Parkwood Drive in Greene Township.

He noted to Council that they approved this project, supported the application by Chambersburg Health Services to the Pennsylvania Department of Transportation for a grant to pay for a significant portion of this project and has authorized staff to participate in project management and inspection as Chambersburg Health Services has undertaken the phases of the project over the last two years.

He reviewed with Council that it was brought to the Borough's attention that the widening of the Fifth and Norland Ave. intersection did not originally contemplate a full mill and repave of these streets surfaces. The contract between Chambersburg Health Services and Fayetteville Contractors includes bituminous tack coat, leveling course and wearing course to be applied on Norland Avenue between Fifth Avenue and St. Paul Drive for a total cost of $131,102.00. The Borough Engineering Department does not recommend those construction methods as suitable to properly repair Norland Avenue. As such, the Borough Engineering Department secured from Fayetteville Contractors a cost estimate to mill the entire area and make base course repairs before applying bituminous tack coat, leveling course and wearing course. The estimate includes costs for conducting milling and overlay work during nighttime, which is not part of the current contract. Base course repairs can be made during daytime. Fayetteville Contractors provided a cost estimate of $290,396.96 to do the milling and overlay work during nighttime, traffic control included. Base course repairs are estimated to cost $41,110.00, traffic control included.

It is the staff’s recommendation that Council contribute cash to this phase of the project, the first such contribution of money (as opposed to staff time) to the North Chambersburg Transportation Improvements Project, in order to insure that Fifth and Norland is fixed correctly.

On a motion by Councilman Leedy, seconded by Councilman Bietsch, it was resolved by a vote of 10-0, to Authorize approval of a Memorandum of Understanding with Chambersburg Health Services to Authorize Payment to Fayetteville Contractors, Inc. for Asphalt Base Course Repairs, Milling and Overlay on Norland Avenue and Fifth Avenue to Complete this Portion of the North Chambersburg Transportation Improvements Program the Borough of Chambersburg portion being approximately $200,404.96.

10. **CONDUCT PUBLIC HEARING FOR THE FY 2017 ANNUAL ACTION PLAN FOR THE USE OF COMMUNITY DEVELOPMENT BLOCK GRANT FUNDS** . . . The Assistant to the Borough Manager announced that the 2017 CDBG budget to recommend to Council is $254,867 to the Elder Street Improvements Project and $63,716 to Borough grant administration. He noted that the CDGB Criteria/Ranking Committee met on 2/27/17. The President of Council opened the Public Hearing at 8:20 PM. There were no comments in favor of the FY 2017 Annual Action Plan. There were no comments opposed to the FY 2017 Annual Action Plan. The President of Council closed the Public Hearing at 8:25 PM. On a motion by Councilman Bigler, seconded by Councilman Cate, it was resolved by a vote of 10-0, to approve the following resolution:

A RESOLUTION OF TOWN COUNCIL OF THE BOROUGH OF CHAMBERSBURG APPROVING THE FY 2017 ANNUAL ACTION PLAN

WHEREAS, under Title I of the Housing and Community Development Act of 1974, as amended, the Secretary of the U.S. Department of Housing and Urban Development is authorized to extend financial assistance to communities in the prevention or elimination of slums or urban blight, or activities which will benefit low- and moderate-income persons, or other urgent community development needs; and

WHEREAS, the U.S. Department of Housing and Urban Development has advised the Borough of Chambersburg that under Fiscal Year 2017, the Borough is eligible to apply for an entitlement grant under the Community Development Block Grant (CDBG) Program in the amount of $318,583; and

WHEREAS, the Borough of Chambersburg's Land Use & Community Development Department has prepared an Annual Action Plan for Fiscal Year 2017 which proposes how the entitlement grant funds will be expended to address the housing and community development needs identified in the Borough's Five Year Consolidated Plan; and

WHEREAS, a draft of the FY 2017 Annual Action Plan was on public display from July 6, 2017 through August 4, 2017 and the Borough held a series of public hearings on the said Plan and the comments of various agencies, groups, and residents were taken into consideration in the preparation of the final document.

NOW, THEREFORE, BE IT RESOLVED BY TOWN COUNCIL OF THE BOROUGH OF CHAMBERSBURG, FRANKLIN COUNTY, PENNSYLVANIA, AS FOLLOWS:

SECTION 1. That the Annual Action Plan for the Fiscal Year 2017 CDBG Program is hereby in all respects APPROVED and the President of Town Council is hereby directed to file a copy of said Annual Action Plan for Fiscal Year 2017 with the Official Minutes of this Meeting of this Town Council.

SECTION 2. That the Borough is COGNIZANT of the conditions that are imposed in the undertaking and carrying out of the Community Development Block Grant Program with Federal financial assistance, including those relating to (a) the relocation of site occupants, (b) the prohibition of discrimination because of race, color, age, religion, sex, disability, familial status, or national origin, and (c) other assurances as set forth under the certifications.

SECTION 3. That the President of Town Council, on behalf of the Borough of Chambersburg, Pennsylvania, is AUTHORIZED to file an Application for financial assistance with the U.S. Department of Housing and Urban Development which has indicated its willingness to make available funds to carry out the CDBG Program in the amount of $318,583; and its further AUTHORIZED to act as the authorized representative of the Borough of Chambersburg to sign any and all documents in regard to these programs.

SECTION 4. That the President of Town Council, on behalf the Borough of Chambersburg, Pennsylvania, is AUTHORIZED to provide assurances and/or certifications as required by the Housing and Community Development Act of 1974, as amended; and any other supplemental or revised data which the U.S. Department of Housing and Urban Development may request in review of the Borough's Application.

ADOPTED INTO A RESOLUTION THIS 7TH DAY OF AUGUST 2017 BY TOWN COUNCIL OF THE BOROUGH OF CHAMBERSBURG, PENNSYLVANIA.

11. **REPORT OF MATTERS DISCUSSED AT THE JULY 20, 2017 CURB AND SIDEWALK POLICY COMPLIANCE COMMITTEE MEETING** . . . Councilman Cate and the Assistant to the Borough Manager reviewed with Council the following matters discussed at the July 20, 2017 Curb and Sidewalk Policy Compliance Committee Meeting:

Amendments to Borough Engineering Department specifications, which require a grass strip between the curb and sidewalk – On a motion by Councilman Dolaway, seconded by Councilman Cate, it was resolved by a vote of 10-0, to approve the Permit Application and Waiver for Use of Alternate Materials in Sidewalk Buffer Form as presented to Council.

Sidewalk Installation Program - Councilman Kathy Leedy and Councilman Heath Talhelm provided to the Committee citizen petitions regarding their opposition to the installation of sidewalks in their respective Wards. Councilman Leedy also presented to the Committee a detailed presentation regarding her beliefs why sidewalk waivers should be granted. It was noted that the Committee would be discussing the Sidewalk Installation Program and associated map depicting parcels without sidewalks where future sidewalks should or should not be considered will be discussed in detail at the October 19, 2017 meeting. The Borough Solicitor's Office reviewed a Memorandum with Council on their statutory authority to lay out, establish and compel the construction of sidewalks.

12. **REPORT OF MATTERS DISCUSSED AT THE AUGUST 1, 2017 PLANNING AND ZONING COMMISSION MEETING** . . . The Assistant to the Borough Manager reported to Council on the matters discussed at the August 1, 2017 Planning and Zoning Commission Meeting. The following was reviewed:

Borough Plan RE-1477, a Final Land Development Plan for Zanes Hotels, LLC to construct a Springhill Suites hotel on Gateway Avenue - The plan proposes development of Lot No. 1, as subdivided through Borough Plan RE-1455, by constructing a 4-story, 88 room hotel building (Springhill Suites) and associated off-street parking lot with 90 stalls. There will be one full movement driveway onto Gateway Avenue. Lot 1 has 20 and 30 foot utility and waterline easements. Stormwater runoff will be collected by an inlet and pipe system and conveyed to a detention/infiltration facility along the southern corner of the line. The Assistant to the Borough Manager reported to Council that based on Post Construction Storm Water Management Report review comments provided by ARRO Consulting, the Borough's former stormwater engineering consultant, Advantage Engineers submitted a request for modification from the Stormwater Management Code provisions for limiting zones. Based on the justification provided through the request from Advantage Engineers ARRO Consulting recommends granting the modification. The Commission by a unanimous vote recommended the modification to Council for approval consideration. On a motion by Councilman Talhelm, seconded by Councilman Scott, it was resolved by a vote of 10-0, to approve the following resolution:

PREAMBLE AND RESOLUTION FOR COUNCIL MEETING OF AUGUST 7, 2017
The Borough Land Use and Development Director submitted a land development plan for Zanes Hotels, LLC entitled "Final Land Development Plan for Springhill Suites for Zanes Hotels, LLC", being Borough Land Development Plan RE-1477. Council was advised that this plan had been reviewed by the Borough Planning and Zoning Commission but review by the Franklin County Planning Commission is not yet complete. It was further reported that the plan had been reviewed by the Borough utilities departments and the Borough Engineering Department. Final approval was recommended upon the following conditions:

1. The review by the Franklin County Planning Commission has not yet been completed and final approval of this plan should be upon the express condition that the developer must comply with any conditions recommended by the Franklin County Planning Commission.

2. That the developer be required to install stormwater management facilities within the area of the proposed development as the same are more particularly shown on the plans exhibited and, upon completion, to dedicate the same to the Borough, provided, however, where there are retention or detention basins and or drainage swales, easements only should be dedicated to the Borough with responsibility for maintenance of the same to be that of the lot owner on which the particular facility is located.

3. That the developer provide and dedicate to the Borough all utility, storm water drainage and access easements required pursuant to this land development approval as the same are more particularly shown on the plans exhibited.

WHEREUPON, on motion of Councilman Elia, seconded by Councilman Cowles, it was resolved by a vote of 10-0, that the land development plan for Zanes Hotels, LLC. entitled “Final Land Development Plan for Springhill Suites for Zanes Hotels, LLC”, being Borough Land Development Plan RE-1477, as exhibited to Council, be finally approved subject to the following terms and conditions:

1. That the developer install stormwater management facilities within the area of proposed development as the same are more particularly shown on the plans exhibited and, upon completion, to dedicate the same to the Borough, provided, however, where there are retention or detention basins and or drainage swales, easements only shall be dedicated to the Borough with the responsibility for maintenance of the same to be that of the lot owner on which the particular facility is located.

2. That the developer execute the Standard Stormwater Facilities Maintenance and Monitoring Agreement with the Borough, which agreement is by this reference incorporated herein as fully as though it were set forth herein.

3. That final approval is expressly conditioned upon developer complying with all conditions recommended by the Franklin County Planning Commission including providing such bonding as may be required for said compliance and submitting a revised plan should said compliance so require.

4. That the developer provide and dedicate to the Borough all utility, storm water drainage and access easements required pursuant to this land development approval as the same are more particularly shown on the plans exhibited to Council, Provided, However, as to any retention or detention basins within the development, easements only shall be dedicated with the

owner of the land on which any said retention or detention basins are located being responsible for maintenance.

5. All public improvements within the area of the proposed development shall be completed in accordance with Borough specifications within two (2) years from the date of this approval. As security for the required construction of public improvements and to defray the anticipated cost for inspecting the installation of public improvements required pursuant to the provisions of this resolution, the developer shall furnish security to the Borough of Chambersburg in an amount not less than One Hundred Eleven Thousand Three Hundred Eighty Dollars ($111,380.00), in form and substance satisfactory to the Assistant Borough Solicitor. In the event all public improvements required to be constructed pursuant to this approval are not completed within one (1) year from the date of approval hereof, security for the public improvements then remaining to be constructed shall not be less than one hundred twenty percent (120 %) of the estimated cost to construct the remaining public improvements. In the event the required security for the construction of public improvements and the amount provided for the inspection fees is not provided and this plan is not recorded within ninety (90) days from the date of this approval, the approval hereby granted shall be null and void.

13. **AUTHORIZATION TO ACCEPT THE RESIGNATION OF COUNCILMAN JEREMY CATE FROM THE PLANNING AND ZONING COMMISSION EFFECTIVE IMMEDIATELY AND CONSIDER APPOINTMENT OF ANOTHER COUNCILMAN TO SERVE ON THE COMMISSION FOR THE REMAINDER OF COUNCILMAN CATE'S TERM THROUGH DECEMBER 31, 2017**. . . On a motion by Councilman Dolaway, seconded by Councilman Elia, it was resolved by a vote of 9-0-1 (Councilman Cate abstained), to accept the resignation of Councilman Cate from the Planning and Zoning Commission effective immediately. On a motion by Councilman Bigler, seconded by Councilman Bietsch, it was resolved by a vote of 9-0-1 (Councilman Cate abstained), to appoint President Coffman to the unexpired term of Councilman Cate on the Planning and Zoning Commission, term to expire on December 31, 2017.

14. **REPORT OF MATTERS DISCUSSED AT THE AUGUST 3, 2017 PARKING, TRAFFIC AND STREET LIGHT COMMITTEE MEETING** . . . Vice President Talhelm and the Borough Manager reviewed with Council the following matters discussed at the August 3, 2017 Parking, Traffic and Street Light Committee Meeting:

HANDICAP PARKING SPACE - 114 SOUTH MAIN STREET - Barbara Day, 114 S. Main Street requested a handicap parking space. On a motion by Vice President Talhelm, seconded by Councilman Elia, it was resolved by a vote of 10-0, to deny the recommendation of the Committee to provide Ms. Day with a free

parking permit to park in the metered area along the back wall of Koontz Memorial behind J&B Bridal Co.

It was the consensus of Council to suggest to Ms. Day to purchase a $16 per month parking permit for the J & B Bridal Co. parking lot.

90-DAY TRIAL PARKING AND TRAFFIC RESOLUTION - On a motion of Vice President Talhelm, seconded by Councilman Bigler, on a vote of 10-0, it was resolved to adopt the following resolution:

RESOLVED, that pursuant to Section 286-4, Experimental Regulations of Chapter 286, Vehicles and Traffic of the Code of the Borough of Chambersburg, the following experimental traffic regulation be adopted for a trial period of not more than 90 days:

The following shall be **ADDED TO** Article III, Parking Regulations, Section 286.31, Special Purpose Parking Zones Established:

Highway	Side	Location	Authorized Purpose or vehicle
South Main St	East	area of 428	Handicapped person or disabled veteran's vehicle *

* Such vehicles shall bear a special handicapped registration plate or display a placard issued by the Commonwealth, or any other state, evidencing a handicapped person or disabled veteran's vehicle.

90-DAY TRIAL PARKING AND TRAFFIC RESOLUTION - On being presented by the Borough Manager, on a motion by Vice President Talhelm, seconded by Councilman Cowles, by a vote of 10-0, it was resolved to adopt the following 90 Trial Resolution:

RESOLVED, that pursuant to Section 286-4, Experimental Regulations of Chapter 286, Vehicles and Traffic of the Code of the Borough of Chambersburg, the following experimental traffic regulation be adopted for a trial period of not more than 90 days:

The following shall be **ADDED TO** Article III, Parking Regulations, Section 286.25, Parking Prohibited at All Times in Certain Locations:

Highway	Side	Between
Redwood St.	Both	Buchanan Street curb line and a point 30 feet north

Highway	Side	Between
Buchanan St.	Both	Redwood Street curb line and a point 30 feet north

15. **DEPARTMENT PRESENTATION – ENGINEERING, LAND USE AND COMMUNITY DEVELOPMENT** . . . The Assistant to the Borough Manager presented Council with a PowerPoint presentation highlighting the Codes, Community and Economic Development, Engineering and Planning and Zoning Offices. In his presentation, he noted the accomplishments for each department as well as the goals and challenges.

16. **DEPARTMENT PRESENTATION - PUBLIC WORKS DEPARTMENT, SANITATION AND MOTOR EQUIPMENT** . . . The Assistant Borough Manager presented Council with a PowerPoint presentation. He highlighted all the departments (Sanitation, Motor Equipment and Public Works) noting the challenges and opportunities for each departments. On a motion by Councilman Elia, seconded by Councilman Cowles, it was resolved by a vote of 10-0, to approve the distribution of a combined Utility Bill Flyer for Bulky Item Drop and Electronic Waste Drop Off Days (two separate events): Electronic Waste Items will be collected September 27-30, 2017, from 8:00 AM to 3:00 PM. Bulky Items will be collected October 9-14, 2017, from 8:00 AM to 3:00 PM.

17. **NEXT MEETING** . . . The President of Council announced that the next Regular Public Council Meeting will be held on August 21, 2017.

18. **ADJOURNMENT** . . . The President of Council adjourned the meeting at 10:30 PM.

Respectfully Submitted,

Jamia L. Wright

Jamia L. Wright, Borough Secretary

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

[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Chambersburg Borough
Chesapeake Bay Pollutant Reduction Plan (CBPRP)

August 7, 2017

2018 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 ←→ Developed Land and Stormwater Controls

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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

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[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.*

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Impaired Watershed Planning Areas

Chesapeake Bay Watershed

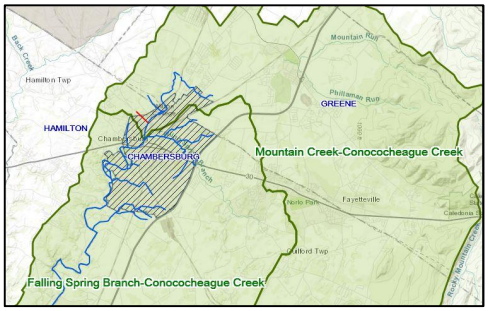
- Includes all Urbanized Area (UA) within Borough (hatched area)

Mountain Creek – Conococheague Creek Watershed

- No local impairments

Falling Spring Branch – Conococheague Creek Watershed

- No local impairments



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Existing Pollutant Loading, Baseline

- **Borough UA** (2010 US Census)
  4,457.4 acres
- **UA Land Use** (PADEP)
  47% Impervious / 53 % Pervious
- **Franklin County Developed Land Loading Rates** (PADEP)
  1,944.85 lbs/ac/yr (Impervious) 308.31 lbs/ac/yr (Pervious)

Baseline Pollutant Loading

Planning Area	UA (acres)	Pollutant Load TSS (lbs/yr)
CBPRP	4,457.4	4,802,776

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[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

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Existing Pollutant Loading, Adjusted

Parsed Areas

PennDOT State Roadways

Private Properties
Menno Haven Retirement Community

PAG-03s
Stormwater Associated w/ Industrial Activity Permittees

Direct Discharge Areas

Existing BMPs

Previously installed structural BMPs located within the UA that provide water quality benefit

Adjusted Pollutant Loading

Planning Area	UA (acres)	Pollutant Load TSS (lbs/yr)	Pollutant Load Reduction Goal TSS (lbs/yr)
CBPRP	4,113	4,169,254	**416,925**

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[BUILDING RELATIONSHIPS. DESIGNING SOLUTIONS.]

Pollutant Load Reduction Strategy

Site	BMP	Drainage Area (acres)	Length (ft)	Load Reduction TSS (lbs/yr)
Rhodes Dr	Bioswale	2.39	n/a	2,766
	Pervious Pavement	0.31	n/a	81
Fifth Ave Ext	Subsurface Infiltration	6	600	3,879
Elder St/ W Commerce St	Subsurface Infiltration	9.2	n/a	5,047
	Stream Restoration	n/a	1,400	62,832
	Subsurface Infiltration	9.18	n/a	5,036
	Bioretention	4.35	n/a	3,580
Stevens Elementary	Stream Restoration	n/a	500	22,440
	Riparian Buffer	12.4	n/a	6,670
Wilson College	Bioretention	103.5	n/a	100,368
Mill Creek Acres Park	Bioretention	100	n/a	96,974
Nitterhouse Park	Bioretention	7.2	n/a	5,925
Wolf Ave Rail Trail	Bioretention	5.1	n/a	24,428
Fourth Street	Stream Restoration	n/a	250	11,220
South Fourth Street	Subsurface Infiltration	29.3	n/a	16,074
Ludwig Ave Lot	Subsurface Infiltration	2.52	100	1,383
1065 S Main St	Stream Restoration	n/a	675	30,294
	Riparian Buffer	7.06	675	3,804
Sheffler Dr	Riparian Buffer	31.6	n/a	14,447
Total				**417,246**

Proposed BMPs

Stream Restoration

- Repair/stabilization of eroded areas
- Reconnection to surrounding floodplain
- In-stream calming measures (rock vanes, wing deflectors)

Riparian Buffer Restoration

- Installation of native plantings, removal of invasive species
- Root structure of vegetation provides long-term stabilization of the streambank/promotes plant uptake of nutrient-laden runoff

1065 S Main Street (Unnamed Trib to Conococheague Creek)
Fourth Street (Falling Spring Branch)
Stevens Elementary (Unnamed Trib to Conococheague Creek)

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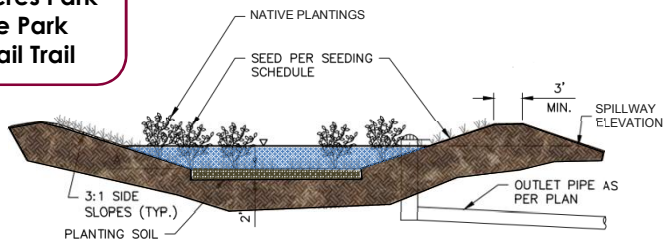
[BUILDING RELATIONSHIPS. DESIGNING SOLUTIONS.]

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.

Elder Street
Wilson College
Mill Creek Acres Park
Nitterhouse Park
Wolf Ave Rail Trail



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Proposed BMPs

Subsurface Infiltration

- Subsurface gravel trench wrapped in filter fabric.
- Designed to temporarily hold large volumes of runoff.
- Sediment is removed as runoff percolates through the filter fabric and infiltrates into the ground.

Fifth Ave Ext.
Elder Street
South Fourth Street
Ludwig Ave Lot

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[BUILDING RELATIONSHIPS. DESIGNING SOLUTIONS.]

Next Steps

- **Public comment period** — **July 28 - Aug 28, 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: $2 Million**

Questions?

HRG
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[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Borough of Chambersburg

A full service municipality in Franklin County
celebrating over 65 years of consumer owned natural gas service
over 100 years of community electric and a
regional wastewater, water, and municipal solid waste utility

Chesapeake Bay Pollutant Reduction Plan - Notice to Property Owners

To Whom It May Concern,

In conjunction with our storm sewer engineering firm, Herbert, Roland, and Grubic (HRG), the Borough is currently drafting a 'Chesapeake Bay Pollutant Reduction Plan'. This plan will be submitted to DEP for review in mid-September along with our Notice of Intent for general MS4 permit renewal coverage. Best management practices (BMPs) are proposed in the Chesapeake Bay Pollutant Reduction Plan, which are intended to reduce the amount of nitrogen, phosphorous, and sediment that are conveyed into our local waterways. Once submitted to DEP, the Borough will have 5 years to implement the BMPs. The plan will be discussed at a Council meeting on August 7, 2017.

This correspondence is to serve as a notice that your property has been 'identified' as a potential location for the implementation of best management practices. At this point, only a conceptual idea of BMP types and locations have been considered. We would be more than happy to discuss the details as they become available. Please contact me at (717) 709-2289 or astottlemyer@chambersburgpa.gov if you would like more information. Thank you for your consideration.

Sincerely,

Andrew M. Stottlemyer
Storm Sewer System Manager

Public Comment Summary

Date	Public Inquiry	Name	Summary
7/31/2017	Email	Lawrence Lahr	Has requested a PDF copy of Pollutant Reduction Plan for review. PDF was sent via email on July 31, 2017
7/31/2017	Phone	Peter Fike	Called about the notice that was sent to all property owners that have been identified as having potential BMP's located on their properties. Mr. Fike owns property at 183 North Fourth Street
8/1/2017	Phone	Sue Bender	Called about notice that was sent to all property owners that have been identified as having potential BMP's located on their properties. Ms. Bender called about the property off of Commerce Street at PAB Stash Away Storage Units.
8/7/2017	In-Person	Alice Elia	Requested a copy of the Chesapeake Bay Pollutant Reduction Plan.
8/9/2017	Phone	George Conner	Called about notice that was sent to all property owners who have that have been identified as having potential BMP's on their properties. Mr. Conner called about the property located off of Elder Street.
8/17/2017	Email	Lawrence Lahr	Emailed Larry Lahr final draft of Pollutant Reduction Plan for his review and comment. Advised Larry that comments must be received by Monday, August 28, 2017 by 5:00 p.m.
8/28/2017	Email	Lawrence Lahr	Comments received via email.

Record of Consideration

Comment #1

Received from: Lawrence Lahr

Date: 8/28/17

Comment: My copy did not contain any public notice or public comments. At Section F, I think it important to include in funding options the incentive where practical to restore to suitable absorption areas those impervious areas that are no longer needed under current land use conditions and any other incentives that lessen the costs of SWM abatement.

Response: Comment acknowledged.

Changes made to CBPRP in response to comment: N/A

BOROUGH OF CHAMBERSBURG

Andrew Stottlemyer <astottlemyer@chambersburgpa.gov>

Re: Chesapeake Bay Pollutant Reduction Plan

1 message

lawrence lahr <ljlplanners@gmail.com> Mon, Aug 28, 2017 at 1:19 PM
To: Andrew Stottlemyer <astottlemyer@chambersburgpa.gov>

My copy did not contain any public notice or public comments.At Section F. I think it important to include in funding options the incentive where practical to restore to suitable absorption areas those impervious areas that are no longer needed under current land use conditions and any other incentives that lessen the costs of SWM abatement

On Thu, Aug 17, 2017 at 6:53 PM, lawrence lahr <ljlplanners@gmail.com> wrote:
thank you

On Thu, Aug 17, 2017 at 9:31 AM, Andrew Stottlemyer <astottlemyer@chambersburgpa.gov> wrote:
Larry,

I have attached a copy of the final draft of the Borough's Chesapeake Bay Pollutant Reduction Plan. Comments must be received by 5:00 p.m. on Monday, August 28, 2017. The Borough will be delivering the permit renewal application as well as the Chesapeake Bay Pollutant Reduction to DEP the week of September 11, 2017. If you have any questions please do not hesitate to contact me. Thank you,

Andy

--
Andrew M. Stottlemyer
Borough of Chambersburg- Storm Sewer System Manager
(717) 709-2289
astottlemyer@chambersburgpa.gov

--

Lawrence Lahr
717-729-2123
ljlplanners@gmail.com

--

Lawrence Lahr
717-729-2123
ljlplanners@gmail.com

BOROUGH OF CHAMBERSBURG

Andrew Stottlemyer <astottlemyer@chambersburgpa.gov>

Re: Committee update

1 message

Andrew Stottlemyer <astottlemyer@chambersburgpa.gov> Mon, Jul 31, 2017 at 7:26 AM
To: lawrence lahr <ljlplanners@gmail.com>

Please see attached. Thanks,

Andy

On Mon, Jul 31, 2017 at 6:50 AM, lawrence lahr <ljlplanners@gmail.com> wrote:
Good Morning: I tried to access the web site where the proposed stormwater ordinance is to be available but was unsucessful. Could you possibly send me a pdf copy for me to review the draft? Thank you

On Fri, Jul 21, 2017 at 10:18 AM, Andrew Stottlemyer <astottlemyer@chambersburgpa.gov> wrote:

Good afternoon,

I wanted to take the opportunity to thank all of the Committee members for agreeing to serve. As mentioned when I initially reached out to you, the storm sewer utility rate structure and credit program is a very important project for the Utility. We feel very fortunate to have such a diverse Committee that will be involved with the process. Herbert, Roland and Grubic (HRG) is our storm sewer engineering firm that we will be working with. Right now HRG is completing their stormwater program review. We expect to commence meeting with the Committee in November.

Between now and then if you have any questions please do not hesitate to contact me. Thank you,

Andy

--
Andrew M. Stottlemyer
Borough of Chambersburg- Storm Sewer System Manager
(717) 709-2289
astottlemyer@chambersburgpa.gov

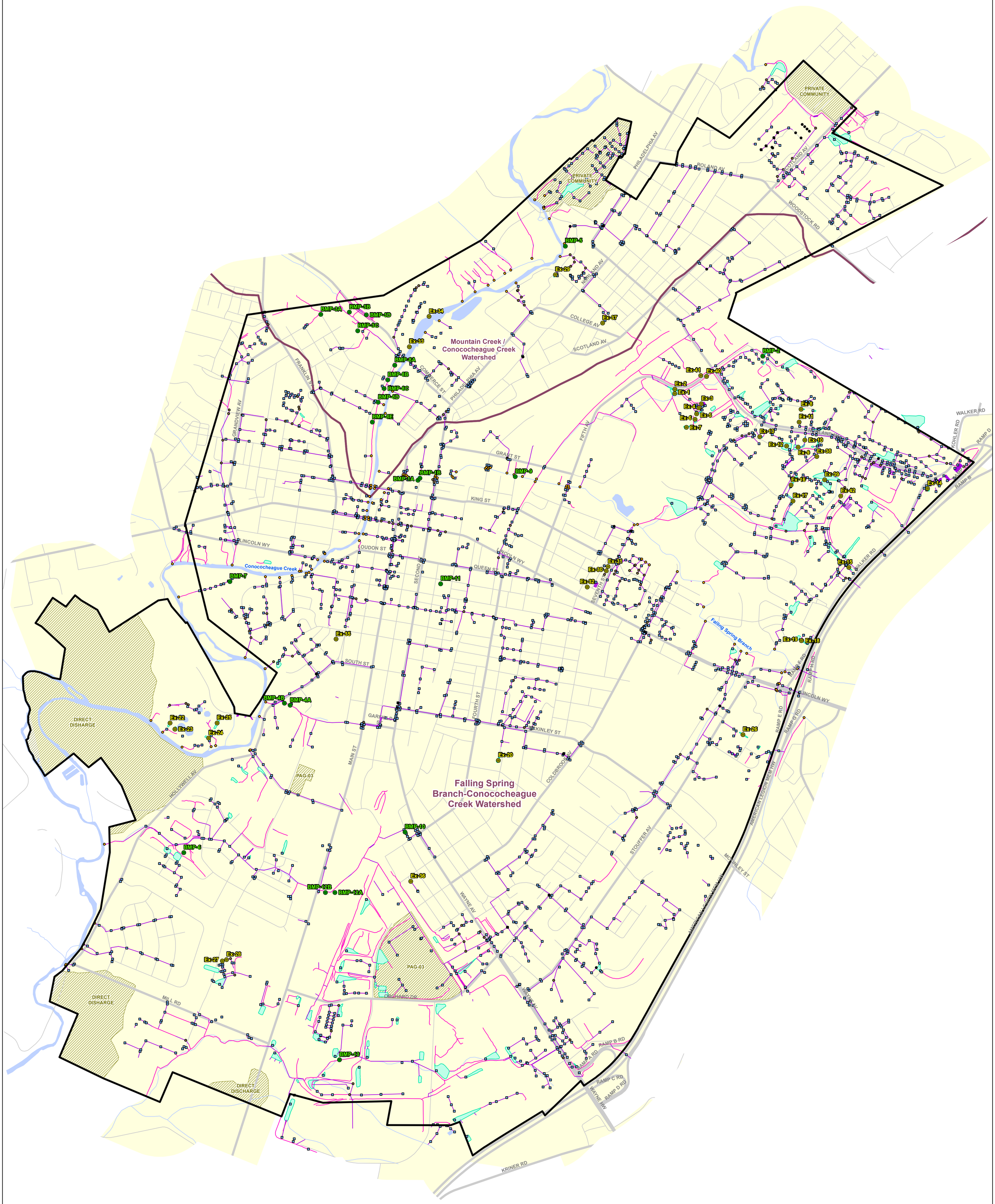
--

Lawrence Lahr
717-729-2123
ljlplanners@gmail.com

--
Andrew M. Stottlemyer
Borough of Chambersburg- Storm Sewer System Manager
(717) 709-2289
astottlemyer@chambersburgpa.gov

APPENDIX B

Mapping



800 0 800 Feet

Mapping derived from data provided by Chambersburg Borough, PennDOT, and USGS.

7/17/2017	PM: AMV	GIS: BLS	QA: MDW	R004061.0431

HRG Herbert, Rowland & Grubic, Inc.
Engineering & Related Services
An Employee-Owned Company

369 East Park Drive
Harrisburg, PA 17111
717.564.1121 [phone]
717.564.1158 [fax]
www.hrg-inc.com

- Proposed BMP
- Existing BMP
- Storm Observation Point
- Storm Clean Out
- Storm Outfall
- Storm Fitting
- Storm Inlet
- Storm Manhole
- Storm Culvert
- Storm Gravity Main
- Storm Open Drain
- Storm Virtual Drainline
- Storm Basin
- Local Roads
- State Road
- Parsed Areas
- Municipal Boundary
- Urbanized Area (2010)

CBPRP Planning Area

Chambersburg Borough
Franklin County, Pennsylvania

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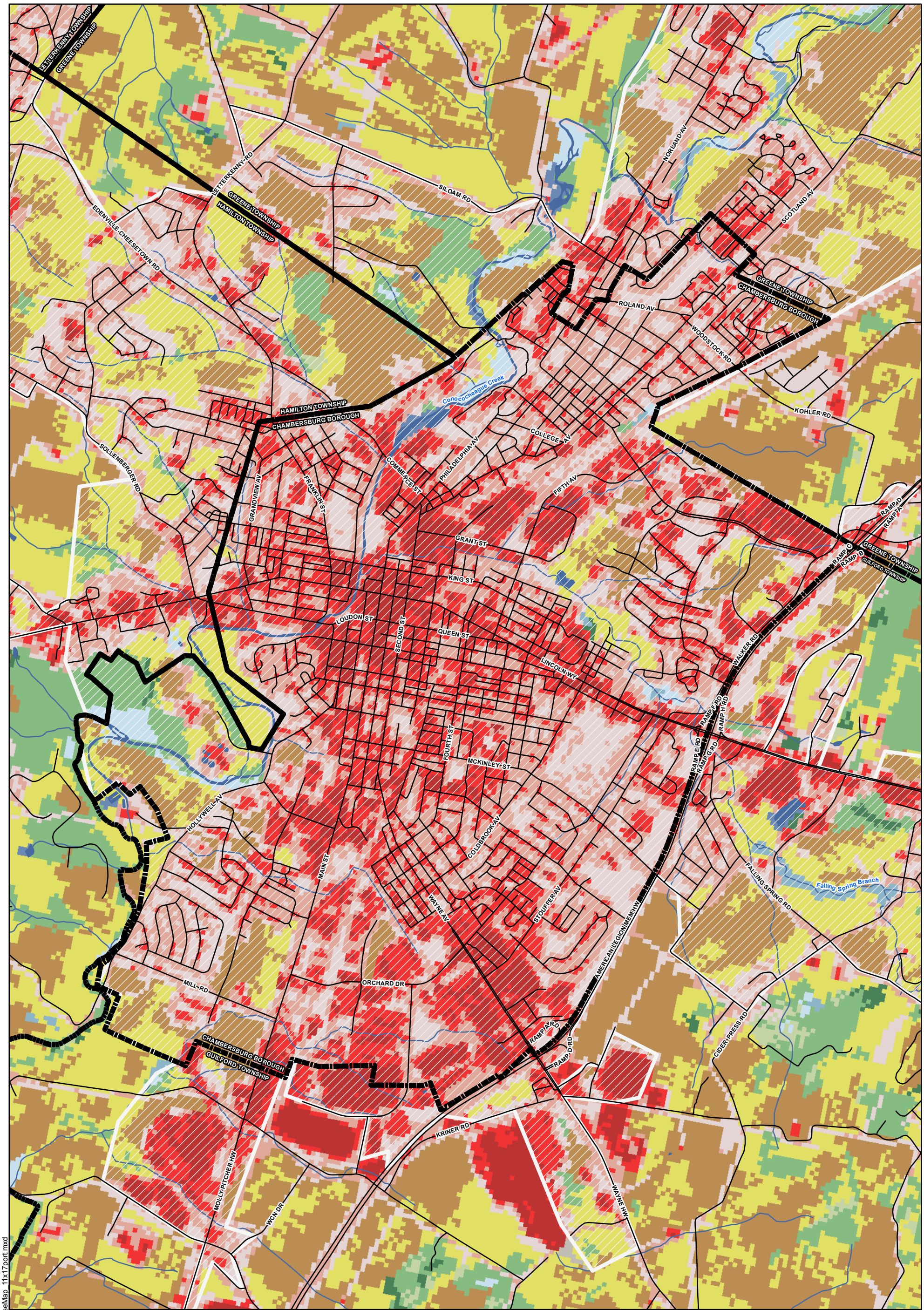

2,000 0 2,000 Feet

Mapping derived from data provided by PennDOT, USGS, US Census, and MRLC.

5/5/2017	PM: EGL	GIS: BLS/HMG	QA: HSH	R004061.0431

HRG
Herbert, Rowland & Grubic, Inc.
Engineering & Related Services
An Employee-Owned Company

369 East Park Drive
Harrisburg, PA 17111
717.564.1121 [phone]
717.564.1158 [fax]
www.hrg-inc.com

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

Land Use Map

Chambersburg Borough
Franklin 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
Franklin County						
ANTRIM TWP	PAG133705	Yes	SP	Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Unnamed Tributaries to Muddy Run	Appendix E-Organic Enrichment/Low D.O., Siltation (5)	Other Habitat Alterations (4c)
				Unnamed Tributaries to Conococheague Creek		Water/Flow Variability (4c)
CHAMBERSBURG BORO	PAG133704	No		Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Unnamed Tributaries to Conococheague Creek		Oil and Grease (5), Water/Flow Variability (4c)
GREENCASTLE BORO		No		Unnamed Tributaries to Conococheague Creek		Water/Flow Variability (4c)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
GREENE TWP		Yes	SP	Rowe Run	Appendix E-Organic Enrichment/Low D.O., Siltation (4a)	
				Rocky Spring Branch	Appendix E-Siltation (5)	Turbidity (5)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Unnamed Tributaries to Conococheague Creek	Appendix E-Nutrients, Siltation (5)	
				Back Creek	Appendix E-Siltation (5)	Cause Unknown, Turbidity (5)
GUILFORD TWP		Yes	SP	Unnamed Tributaries to Conococheague Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation (5)	Other Habitat Alterations (4c)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
HAMILTON TWP		No		Rocky Spring Branch	Appendix E-Siltation (5)	Turbidity (5)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Unnamed Tributaries to Conococheague Creek		Oil and Grease (5), Water/Flow Variability (4c)
				Back Creek	Appendix E-Siltation (5)	Cause Unknown, Turbidity (5)
LETTERKENNY TWP		No		Back Creek	Appendix E-Siltation (5)	Cause Unknown, Turbidity (5)
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Rocky Spring Branch	Appendix E-Siltation (5)	Turbidity (5)
ST THOMAS TWP		No		Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Back Creek	Appendix E-Siltation (5)	

MS4 Name	Permit Number	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Franklin County				
ANTRIM TWP	PAG133705	Muddy Run, Rockdale Run-Conococheague Creek	Chesapeake Bay Nutrients\Sediment, Unnamed Tributaries to Muddy Run	Appendix D-Siltation/Nutrients, Appendix E-Organic Enrichment/Low D.O., Siltation
		West Branch Marsh Run-Marsh Run	Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients
CHAMBERSBURG BORO	PAG133704	Falling Spring Branch-Conococheague Creek, Mountain Creek-Conococheague Creek	Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients
GREENCASTLE BORO		Muddy Run, Rockdale Run-Conococheague Creek	Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients
GREENE TWP		Lehman Run-Muddy Run, Rowe Run, Trout Run-Conodoguinet Creek	Chesapeake Bay Nutrients\Sediment, Rowe Run	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
		Dennis Creek-Back Creek, Rocky Spring Branch	Back Creek, Chesapeake Bay Nutrients\Sediment, Rocky Spring Branch	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
		Falling Spring Branch-Conococheague Creek, Mountain Creek-Conococheague Creek	Chesapeake Bay Nutrients\Sediment, Unnamed Tributaries to Conococheague Creek	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
GUILFORD TWP		Falling Spring Branch-Conococheague Creek, Mountain Creek-Conococheague Creek, Rockdale Run-Conococheague Creek	Chesapeake Bay Nutrients\Sediment, Unnamed Tributaries to Conococheague Creek	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
HAMILTON TWP		Falling Spring Branch-Conococheague Creek, Mountain Creek-Conococheague Creek	Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients
		Campbell Run-Back Creek, Dennis Creek-Back Creek, Rocky Spring Branch	Back Creek, Chesapeake Bay Nutrients\Sediment, Rocky Spring Branch	Appendix D-Siltation/Nutrients, Appendix E-Siltation
LETTERKENNY TWP		Dennis Creek-Back Creek, Rocky Spring Branch	Back Creek, Chesapeake Bay Nutrients\Sediment, Rocky Spring Branch	Appendix D-Siltation/Nutrients, Appendix E-Siltation
ST THOMAS TWP		Falling Spring Branch-Conococheague Creek	Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients
		Campbell Run-Back Creek, Dennis Creek-Back Creek	Back Creek, Chesapeake Bay Nutrients\Sediment	Appendix D-Siltation/Nutrients, Appendix E-Siltation

APPENDIX D

Existing Pollutant Loading Calculations

Appendix D – Table 1: Existing Pollutant Load Calculation Summary

MS4	Urbanized Area*					Loading Rate** TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Chambersburg Boro	4,457.4	47%	53%	2,094.98	2,362.42	1944.85	308.31	4,802,776
Parsed Area (Roads)	43.4	100	0%	4,335.71	0.00	1944.85	308.31	121,007
Parsed Area (PAG-03s)	40.3	47%	53%	18.92	21.33	1944.85	308.31	43,369
Parsed Area (Private Community)	48.5	47%	53%	22.80	25.71	1944.85	308.31	52,258
Parsed Area (Direct Discharge)	212.3	47%	53%	99.78	112.52	1944.85	308.31	228,750
Adjusted Baseline	**4,112.9**							**4,357,392**

*PADEP - Statewide MS4 Land Cover Estimates

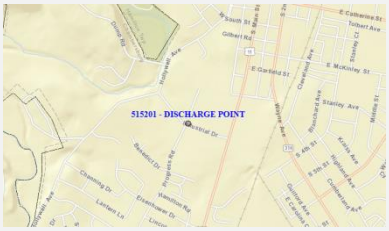
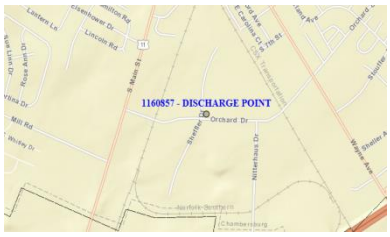
**PADEP PRP Instructions - Attachment B, Developed Land Loading Rates for PA Counties

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

Parsed Area (Roadway Name)	Urbanized Area						Loading Rate* TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
	Length (ft)	Width (ft)	% Imperv.	% Pervious	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Scotland Ave	7,070	36	100%	0%	5.84	0	1944.85	308.31	11,364
College Ave	1,125	36	100%	0%	0.93	0	1944.85	308.31	1,808
Edgar Ave	1,300	36	100%	0%	1.07	0	1944.85	308.31	2,090
Philadelphia Ave	5,500	36	100%	0%	4.55	0	1944.85	308.31	8,840
W Commerce St	2,700	36	100%	0%	2.23	0	1944.85	308.31	4,340
N Second St	2,700	36	100%	0%	2.23	0	1944.85	308.31	4,340
N Main St	12,250	36	100%	0%	10.12	0	1944.85	308.31	19,690
N Franklin St	4,000	36	100%	0%	3.31	0	1944.85	308.31	6,429
Lincoln Way W	400	36	100%	0%	0.33	0	1944.85	308.31	643
Lincoln Way E	8,080	36	100%	0%	6.68	0	1944.85	308.31	12,987
W Queen St	3,835	36	100%	0%	3.17	0	1944.85	308.31	6,164
E Queen St	3,000	36	100%	0%	2.48	0	1944.85	308.31	4,822
S Main St	12,250	36	100%	0%	10.12	0	1944.85	308.31	19,690
Wayne Ave	10,500	36	100%	0%	8.68	0	1944.85	308.31	16,877
Garfield St	575	36	100%	0%	0.48	0	1944.85	308.31	924
Total									**121,008**

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

Appendix D – Table 2B: Parsed Area Load Reductions – PAG-03s

Permittee Name*	Permit Date	Site	Site Address	UA	Site Area	Discharge Location Map
Ventura Foods LLC (117181)	8/18/2015	Ventura Foods LLC	1501 Orchard Dr. Chambersburg, PA 17201-4812	Yes	37.36 acres	
United Parcel Svc Inc (143513)	3/20/2014	UPS Chambersburg Pkg Distr Fac	118 Industrial Park Chambersburg, PA 17201	Yes	2.89 acres	

*As listed on EFACTS (7/2017)

Appendix D – Table 2C: Parsed Area Load Reductions – Private Community

Property	Urbanized Area*					Loading Rate** TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Perv. (acres)	Imperv.	Perv.	
Menno Haven 2075 Scotland Ave, Chambersburg, PA 17201	48.5	47%	53%	22.80	25.71	1944.85	308.31	52,258

*PADEP - Statewide MS4 Land Cover Estimates

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

Appendix D – Table 2D: Parsed Area Load Reductions – Direct Discharge Areas

Property Location	Urbanized Area					Loading Rate TSS (lbs/ac/yr)		Total Load TSS (lbs/yr)
	UA (acres)	% Imperv.	% Pervious	Imperv. (acres)	Perv. (acres)	Imperv.	Pervious	
Paper Mill Road at Hollywell Ave	160.2	47%	53%	75.29	84.91	1944.85	308.31	172,613
Mill Road at Hollywell Ave	42.8	47%	53%	20.12	22.69	1944.85	308.31	46,116
Main Street	9.3	47%	53%	4.37	4.93	1944.85	308.31	10,021
Total								**228,750**

*PADEP - Statewide MS4 Land Cover Estimates

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

Appendix D – Table 3A: Baseload Reduction Documentation - Previously Installed BMPs (Privately Installed BMPs)

BMP ID	BMP Type	Name	Location	Lat	Long	Date Installed	Plan Reference*	Approx. Drainage Area (acres)	Drainage Area Characteristics**				Loading Rate TSS (lbs/yr)***		Total Load TSS (lbs/yr)	BMP Effectiveness ****(%)	Est. Pollutant Load Reduction TSS (lbs/yr)
									% Imperv.	Imperv. (acres)	% Perv.	Perv. (acres)	Imperv.	Perv.			
Ex-1	Rain Gardens	F-023-0010 RG	5th Ave at Norland Ave	39.943994	-77.643128	2014	Plan RA-1404	15.0	47%	7.05	53%	7.95	1944.85	308.31	13,715	90%	12,344
Ex-2	Rain Gardens	F-023-0019 RG		39.944208	-77.643117												
Ex-3	Rain Gardens	F-023-0020 RG	6th Ave at Norland Ave	39.943475	-77.641390	2014	Plan RA-1404	10.0	47%	4.70	53%	5.30	1944.85	308.31	9,144	90%	8,229
Ex-4	Rain Gardens	F-023-0021 RG		39.943270	-77.641561												
Ex-5	Rain Gardens	F-023-0022 RG		39.942974	-77.641701												
Ex-6	Rain Gardens	F-023-0024 RG		39.942694	-77.641808												
Ex-7	Rain Gardens	F-023-0025 RG		39.942291	-77.642366												
Ex-8	Rain Garden	F-023-0029 RG	Parkwood Dr at Norland Ave	39.943192	-77.634899	2015	Plan RE-1445	1.4	47%	0.65	53%	0.73	1944.85	308.31	1,262	90%	1,136
Ex-9	Rain Gardens	F-029-0007 RG	Norland Ave at Parkwood Dr	39.941296	-77.635092	2014	Plan RE-1311	1.6	47%	0.77	53%	0.86	1944.85	308.31	1,490	90%	1,341
Ex-10	Rain Gardens	F-029-0008 RG		39.941649	-77.634652												
Ex-11	Rain Garden	F-029-0015 RG	Norland Ave at Parkwood Dr	39.942558	-77.635022	2009	Plan RE-1348	2.5	47%	1.19	53%	1.35	1944.85	308.31	2,322	90%	2,090
Ex-12	Rain Garden	F-029-0005 RG	Norland Ave at Parkwood Dr	39.941357	-77.635843	2013	Plan RE-1403	7.5	47%	3.53	53%	3.98	1944.85	308.31	6,858	90%	6,172
Ex-13	Rain Garden	F-029-0006 RG	Norland Ave at St Paul's Dr	39.941822	-77.637592	2014	Plan RE-1343	1.5	47%	0.71	53%	0.80	1944.85	308.31	1,372	90%	1,234
Ex-14	Rain Garden	F-029-0001 RG	Walker Road at I-81	39.939217	-77.626670	2013	Plan RE-1414	0.9	47%	0.40	53%	0.46	1944.85	308.31	786	90%	708
Ex-15	Rain Garden	F-029-0002 RG	Gateway Ave	39.935267	-77.631803	2013	Plan RE-1399	3.3	47%	1.55	53%	1.75	1944.85	308.31	3,017	90%	2,716
Ex-16	Rain Gardens	F-029-0003 RG	Parkwood Dr at Matthew Dr	39.939398	-77.635550	2013	Plan RE-1399	3.8	47%	1.79	53%	2.01	1944.85	308.31	3,475	90%	3,127
Ex-17	Rain Gardens	F-029-0004-RG		39.938600	-77.635432												
Ex-18	Rain Garden	F-038-0016 RG	Limekiln Dr at Walker Rd	39.931603	-77.634880	n/a	Plan RE-1317	2.0	47%	0.94	53%	1.06	1944.85	308.31	1,829	90%	1,646
Ex-19	Rain Garden	F-023-0009 RG	Walker Rd at Gateway Ave	39.931590	-77.634903	n/a	Plan RE-1380	3.5	47%	1.65	53%	1.86	1944.85	308.31	3,200	90%	2,880
Ex-20	Rain Garden	C-012-0018 RG	Stanley Ave at Middle St	39.925611	-77.654637	n/a	n/a	3.8	47%	1.79	53%	2.01	1944.85	308.31	3,475	90%	3,127
Ex-22	Rain Garden	C-008-0030 RG	WWTP (Dump Rd)	39.927494	-77.676009	2015	Chambersburg WWTP Upgrade	8.5	47%	4.00	53%	4.51	1944.85	308.31	7,772	90%	6,995
Ex-23	Rain Garden	C-008-0031 RG		39.927194	-77.675698												
Ex-24	Rain Garden	C-009a-0032 RG		39.926741	-77.673503												
Ex-25	Rain Gardens	C-009b-0033 RG		39.927498	-77.672946												
Ex-26	Rain Garden	F-037-0026 RG	Kennebec Dr	39.926884	-77.638712	n/a	Plan RE-1322	5.6	47%	2.62	53%	2.96	1944.85	308.31	5,102	90%	4,592
Ex-27	Rain Garden	C-001-0027 RG	Progress Rd	39.915571	-77.672618	2014	Plan RE-1419	1.0	47%	0.47	53%	0.53	1944.85	308.31	914	90%	823
Ex-28	Rain Garden	C-001-0028 RG		39.915637	-77.672350												
Ex-29	Rain Garden	C-058-0034 RG	Wilson College	39.949959	-77.650889	2015	Plan RE-1413	2.2	47%	1.03	53%	1.17	1944.85	308.31	2,012	90%	1,810
Ex-30	Infiltration	Chambersburg Hospital (North)		39.935106	-77.647595	n/a	Plan RE-1351	1.08	47%	0.51	53%	0.57	1944.85	308.31	1,164	60%	698
Ex-31	Infiltration	Chambersburg Hospital (South)		39.935321	-77.647487	n/a		1.2	47%	0.56	53%	0.64	1944.85	308.31	1,293	60%	776

Appendix D – Table 3A: Baseload Reduction Documentation - Previously Installed BMPs (Privately Installed BMPs) - Continued

BMP ID	BMP Type	Name	Location	Lat	Long	Date Installed	Plan Reference*	Approx. Drainage Area (acres)	Drainage Area Characteristics**				Loading Rate TSS (lbs/yr)***		Total Load TSS (lbs/yr)	BMP Effectiveness ****(%)	Est. Pollutant Load Reduction TSS (lbs/yr)
									% Imperv.	Imperv. (acres)	% Perv.	Perv. (acres)	Imperv.	Perv.			
Ex-32	Infiltration	Hardees Parking Lot		39.934294	-77.648833	n/a	n/a	0.8	47%	0.38	53%	0.42	1944.85	308.31	862	60%	517
Ex-33	Stream Restoration	Wolf Lake Dam Removal		39.946356	-77.660401	2007	American Rivers Final Report, Project # 410021075	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88	84,128
Ex-34	Riparian Buffer			39.947872	-77.659118			2.99	47%	1.41	53%	1.59	1944.85	308.31	3,223	50%	1,611
Total																	**148,700**

*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

Appendix D – Table 3B: Baseload Reduction Documentation - Previously Installed BMPs (Municipally Installed Projects)

BMP ID	BMP Type	Name / Location	Lat	Long	Date Installed	Plan Reference Document*	Approx. Drainage Area (acres)	Length (ft)	Assumed Drainage Area Characteristics**				Loading Rate TSS (lbs/yr)***		Total Load TSS (lbs/yr)	BMP Effectiveness ****(%)	Est. Pollutant Load Reduction TSS (lbs/yr)
									% Imperv.	Imperv. (acres)	% Perv.	Perv. (acres)	Imperv.	Perv.			
Ex-35	Infiltration	South Street Reconstruction	39.931694	-77.665193	2014	Plan E-336	5.65	925	47%	2.66	53%	2.99	1944.85	308.31	6,088	60%	3,653
Ex-36	Infiltration	Carolina Ct	39.919556	-77.660354	n/a	Plan E-338	2.25	20	47%	1.06	53%	1.19	1944.85	308.31	2,424	60%	1,455
Ex-37	Infiltration	Belvedere CT	39.947526	-77.647814	n/a	Plan E-338	2.5	20	47%	1.18	53%	1.33	1944.85	308.31	2,694	60%	1,616
Ex-38	Swale 1	North Chambersburg Improvement Project (Parkwood Dr)	39.940823	-77.633873	n/a	n/a	10	800	47%	4.70	53%	5.30	1944.85	308.31	10,775	70%	7,542
Ex-39	Swale 2	North Chambersburg Improvement Project (Norland Ave and Parkwood Dr)	39.939661	-77.633364	n/a	n/a	3	800	47%	1.41	53%	1.59	1944.85	308.31	3,232	70%	2,263
Ex-40	Subsurface Infiltration	North Chambersburg Improvement Project (Norland Ave at Fifth Ave)	39.944843	-77.641046	n/a	n/a	5.57	600	47%	2.62	53%	2.95	1944.85	308.31	6,002	60%	3,601
Ex-41	Vegetated Swale	5th Ave Swale	39.944898	-77.641430	n/a	Plan RE-1325	21.10	2,160	47%	9.92	53%	11.18	1944.85	308.31	22,735	70%	15,914
Ex-42	Vegetated Swale	Gateway Drive Swale	39.938847	-77.632320	n/a	Plan RE-1399	4.50	800	47%	2.12	53%	2.39	1944.85	308.31	4,849	70%	3,394
Total																	**39,438**

*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

APPENDIX E

Proposed BMP Pollutant Load Reduction Calculations

Appendix E – Table 1: Proposed BMPs

Site	BMP ID	BMP Type	Lat	Long	Drainage Area (acres)	Length (ft)	Drainage Area Characteristics*				Loading Rate TSS (lbs/yr)**		Total Load TSS (lbs/yr)	BMP Effectiveness *** (%)	Estimated Pollutant Load Reduction TSS (lbs/yr)
							% Imperv.	Imperv. (acres)	% Pervious	Pervious (acres)	Imperv.	Pervious			
Rhodes Drive	BMP-1A	Bioswale	39.939655	-77.659863	2.39	n/a	n/a	1.7	n/a	0.49	1944.85	308.31	3,457	80%	2,766
	BMP-1B	Pervious Pavement	39.939764	-77.659724	0.31	n/a	n/a	0	n/a	0.31	1944.85	308.31	96	85%	81
Fifth Ave Extension	BMP-2	Subsurface Infiltration	39.945860	-77.637387	6	600	47%	2.82	53%	3.18	1944.85	308.31	6,465	60%	3,879
Elder Street/ W Commerce Street	BMP-3A	Subsurface Infiltration	39.947979	-77.666170	9.2	n/a	47%	4.32	53%	4.88	1944.85	308.31	8,412	60%	5,047
	BMP-3B	Streambank Restoration	39.948087	-77.664308	n/a	1,400	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88	62,832
	BMP-3C	Subsurface Infiltration	39.947148	-77.663772	9.18	n/a	47%	4.31	53%	4.87	1944.85	308.31	8,394	60%	5,036
	BMP-3D	Bioretention	39.947953	-77.663204	4.35	n/a	47%	2.04	53%	2.31	1944.85	308.31	3,977	90%	3,580
Stevens Elementary	BMP-4A	Streambank Restoration	39.928384	-77.668196	n/a	500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88	22,440
	BMP-4B	Riparian Buffer	39.928483	-77.668567	12.38	n/a	47%	5.82	53%	6.56	1944.85	308.31	13,339	50%	6,670
Wilson College	BMP-5	Bioretention	39.951391	-77.650239	103.5	n/a	47%	48.65	53%	54.86	1944.85	308.31	111,520	90%	100,368
Mill Creek Acres Park	BMP-6	Bioretention	39.921110	-77.675127	100	n/a	47%	47.0	53%	53.0	1944.85	308.31	107,748	90%	96,974
Nitterhouse Park	BMP-7	Bioretention	39.934589	-77.672104	7.2	n/a	47%	3.38	53%	3.82	1944.85	308.31	6,583	90%	5,925
Wolf Ave Rail Trail	BMP-8A	Bioretention Pocket	39.945424	-77.661355	5.08	100	47%	2.39	53%	2.69	1944.85	308.31	5,474	90%	4,926
	BMP-8B	Bioretention Pocket	39.944690	-77.661809	4.59	100	47%	2.16	53%	2.43	1944.85	308.31	4,946	90%	4,451
	BMP-8C	Bioretention Pocket	39.944264	-77.662048	4.02	100	47%	1.89	53%	2.13	1944.85	308.31	4,331	90%	3,898
	BMP-8D	Bioretention Pocket	39.943568	-77.662442	6.22	100	47%	2.92	53%	3.30	1944.85	308.31	6,702	90%	6,032
	BMP-8E	Bioretention Pocket	39.942580	-77.662827	5.28	100	47%	2.48	53%	2.80	1944.85	308.31	5,689	90%	5,120
Fourth Street	BMP-9	Streambank Restoration	39.939835	-77.653521	n/a	250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88	11,220
South Fourth Street	BMP-10	Subsurface Infiltration	39.922021	-77.660717	29.3	n/a	47%	13.77	53%	15.529	1944.85	308.31	26,791	60%	16,074
Ludwig Ave Parking Lot	BMP-11	Subsurface Infiltration	39.934467	-77.658381	2.52	100	47%	1.18	53%	1.34	1944.85	308.31	2,304	60%	1,383
South Main Street	BMP-12A	Stream Restoration	39.919224	-77.665285	n/a	675	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.88	30,294
	BMP-12B	Riparian Buffer	39.919153	-77.665901	7.06	675	47%	3.32	53%	3.74	1944.85	308.31	7,607	50%	3,804
Sheffler Drive	BMP-13	Riparian Buffer	39.910609	-77.665005	31.6	n/a	47%	14.85	53%	16.75	1944.85	308.31	28,894	50%	14,447
Total															**417,247**

*PADEP - Statewide MS4 Land Cover Estimates

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

***PADEP - BMP Effectiveness Values