

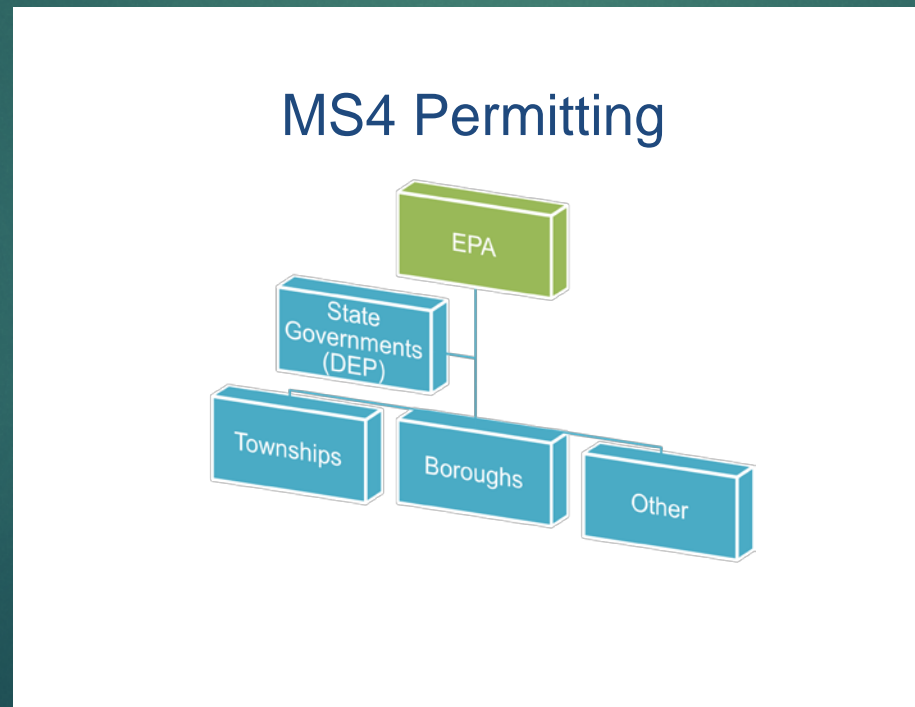
Borough of Chambersburg Stormwater Management Program

'WE ALL LIVE DOWNSTREAM'

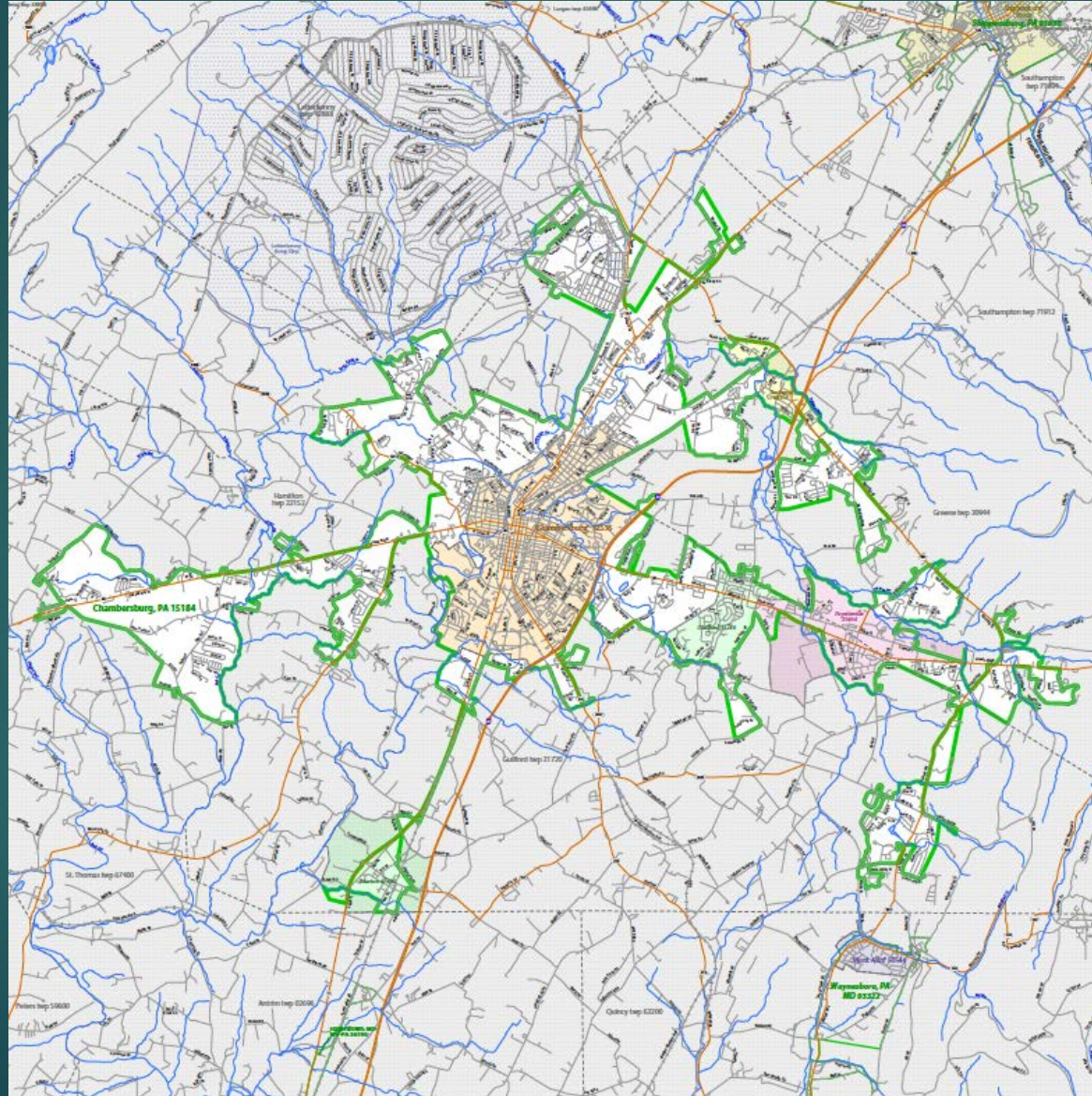
Andrew M. Stottlemyer
Storm Sewer System Manager
Borough of Chambersburg

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 be 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

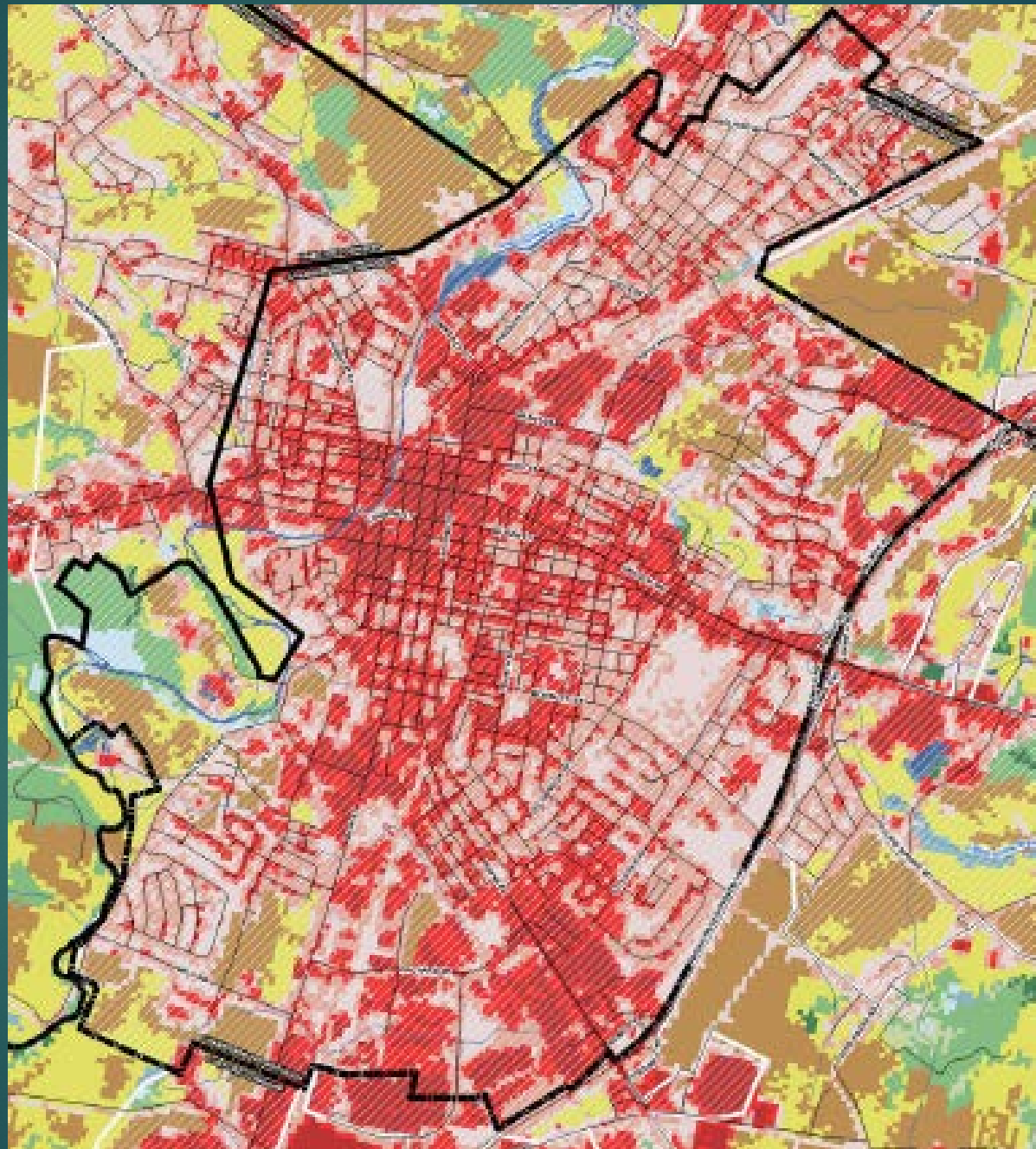


**PLANNING
IS NOT
OPTIONAL**

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