Upper Allen Township

Stormwater Utility Fee
Public Meeting

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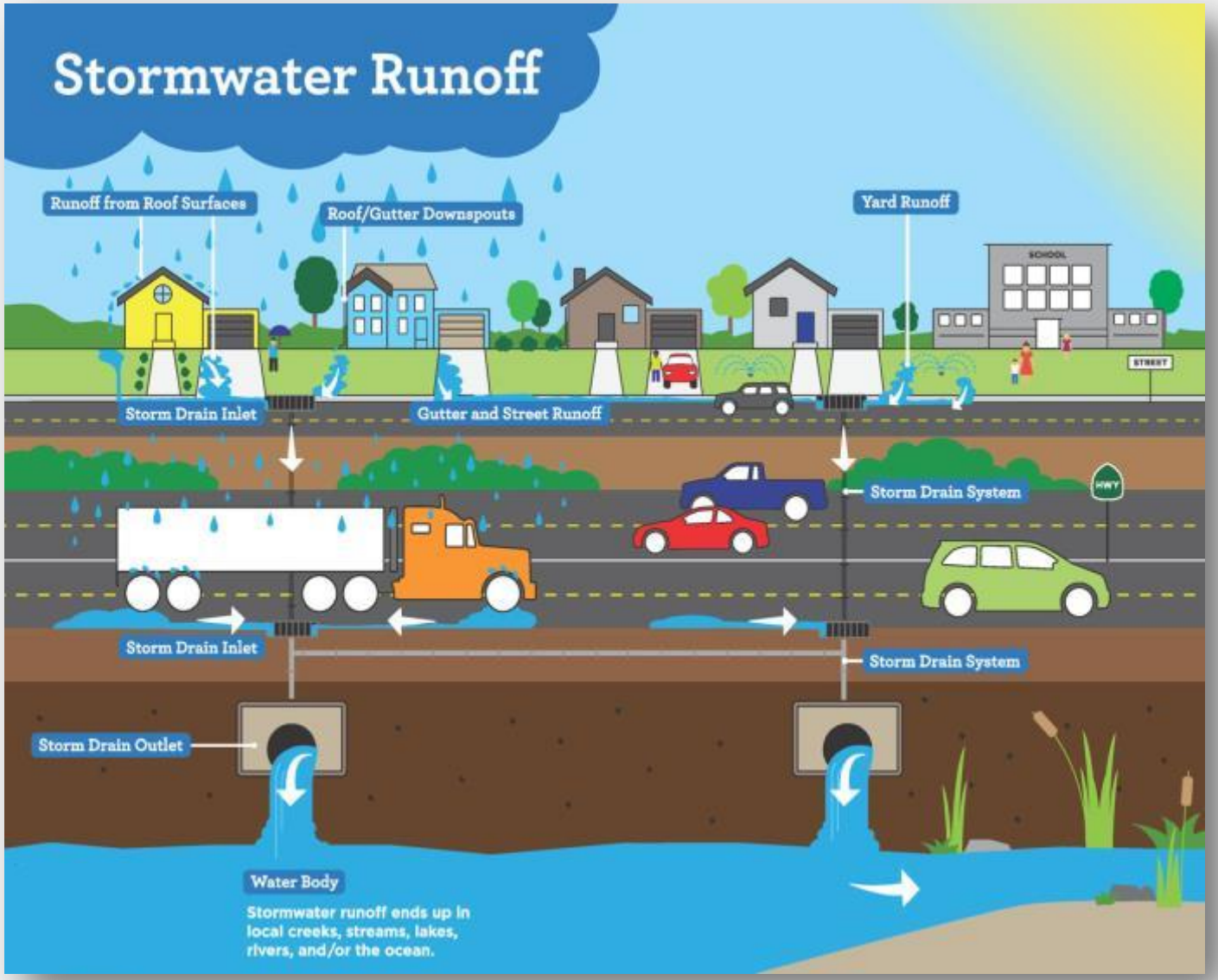
Introduction & Background

What is Stormwater Runoff?

Stormwater is runoff from rain or snow that falls and either flows directly into nearby streams or travels there through drainage systems such as:

- curbs and gutters;
- Inlets;
- storm sewers; and
- detention ponds and channels.

The flows then are discharged, untreated, into open channels that lead to larger streams and rivers.

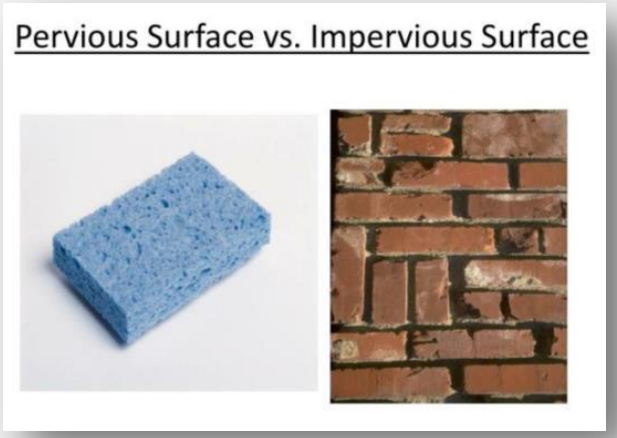


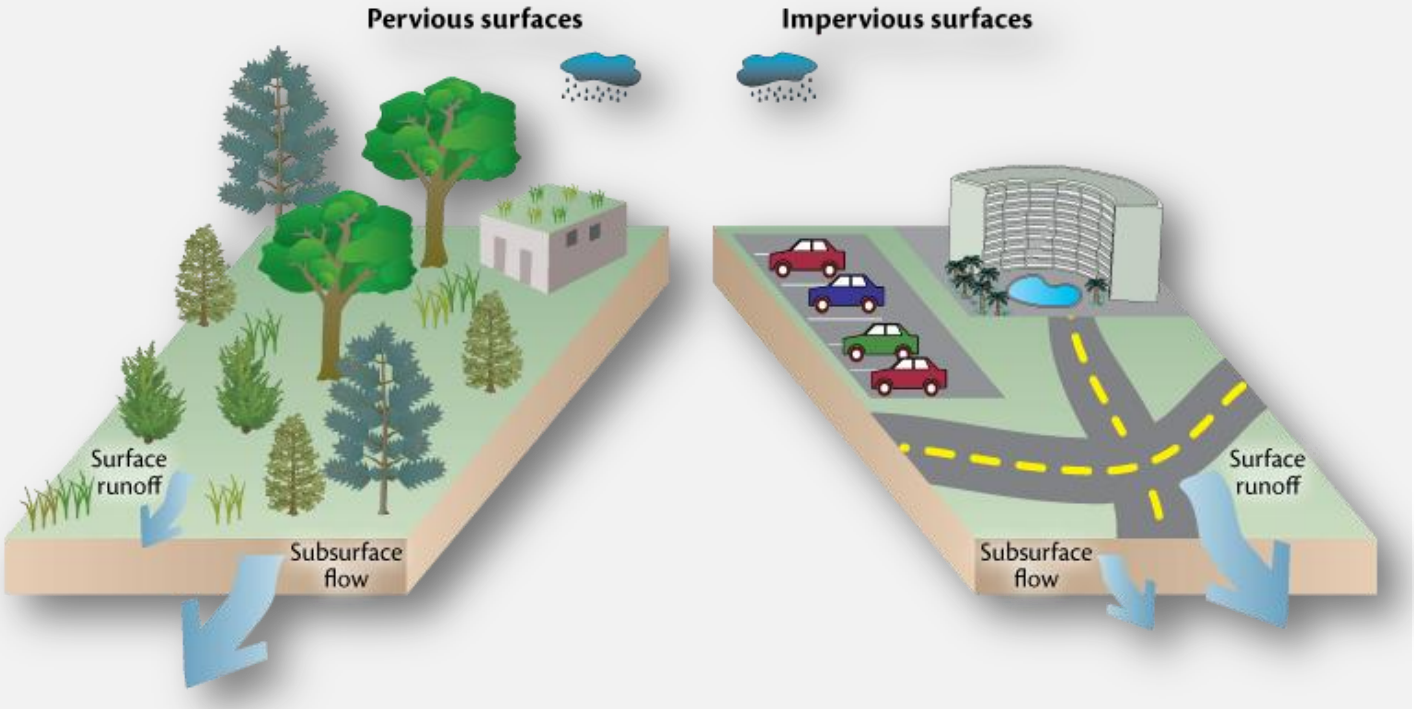
Impervious Surface

Impervious surfaces are hard surfaces that do not allow rain or snowmelt to infiltrate at the same rate as natural surfaces such as grass or dirt.

They include:

- Rooftops;
- Driveways;
- Patios;
- parking lots; and
- other man-made structures.





Why is Stormwater Runoff a Problem?

Pollution

Stormwater is a leading cause of water pollution. This runoff can kill aquatic life, and make our waterways an unhealthy place to live, work, and play.

Flooding

Flooding increases as solid surfaces replace natural vegetation, because water is unable to slowly filter into the landscape.

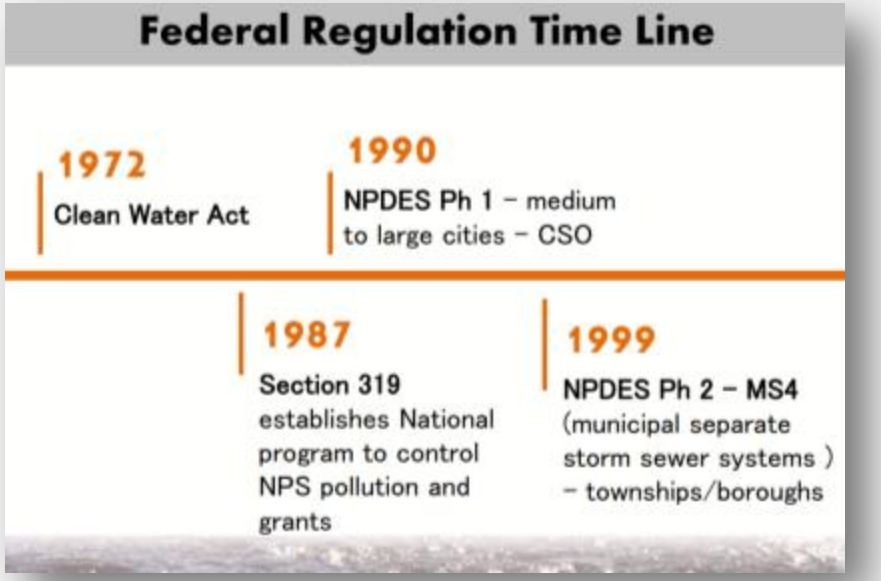
Stormwater deposits sediment that decreases the depth of waterways, further increasing flooding.

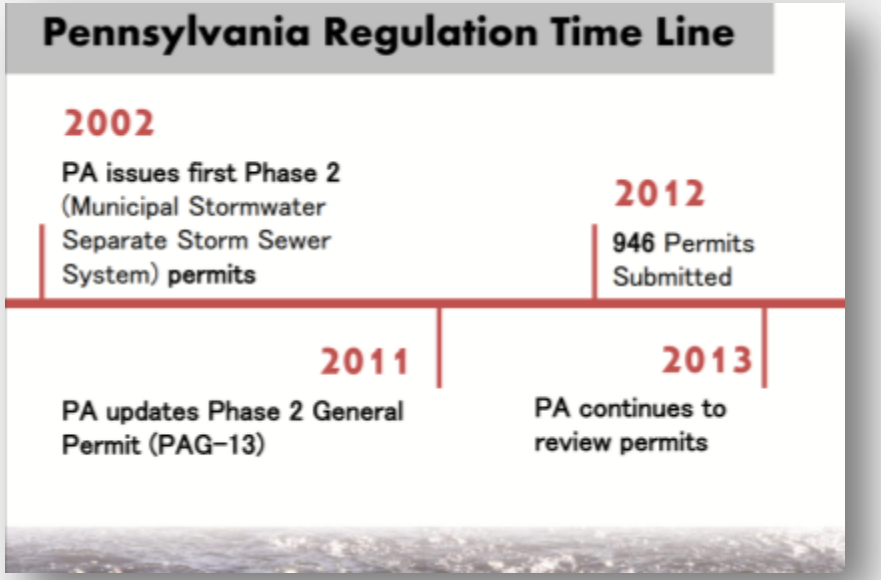
Permitting

- Federal Regulation→ Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES)Phase II Stormwater Program (1999)
- State Regulation → PA DEP MS4 Stormwater Permit (2003)
- Overall Requirements
  - Implement a stormwater management program
  - Track progress toward measureable goals
  - Annual reports on progress
  - Pollutant Reduction Plan

- Section 2.g.:

  "The permittee shall maintain adequate funding and staffing to implement and manage all provisions of the … Stormwater Management Program"





Municipal Separate Storm Sewer System (MS4)

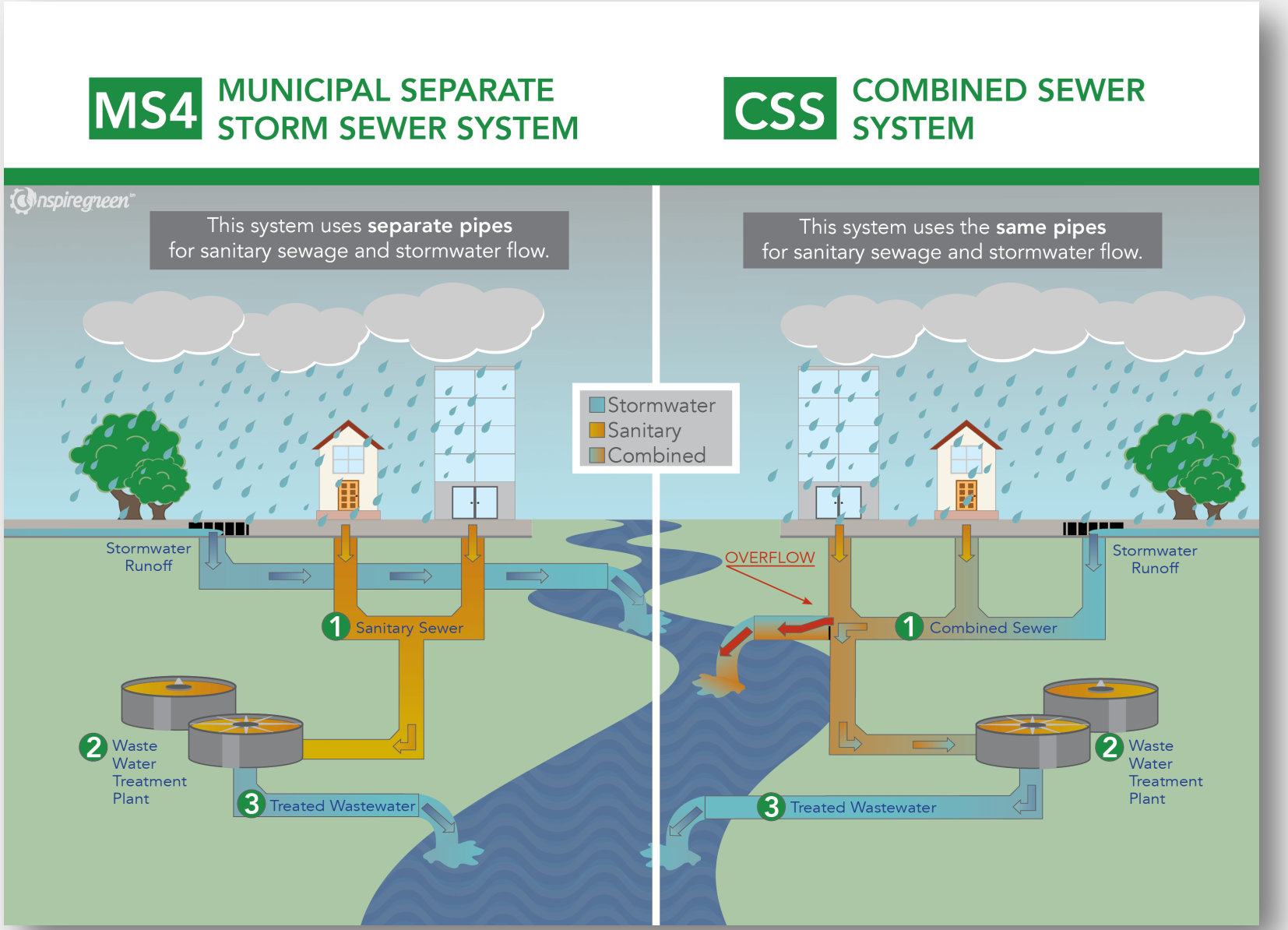
What is MS4?

Municipal Separate Storm Sewer System

- An MS4 is a conveyance or system of conveyances that is:
  - Owned by a state, city, town, village, or other public entity that discharges stormwater runoff to waters of the Commonwealth;
  - Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.);
  - Not a combined sewer; and
  - Not part of a sewage treatment plant.

- MS4 is comprised of numerous stormwater conveyances that drain into receiving waters

Municipal **Separate** Storm Sewer System



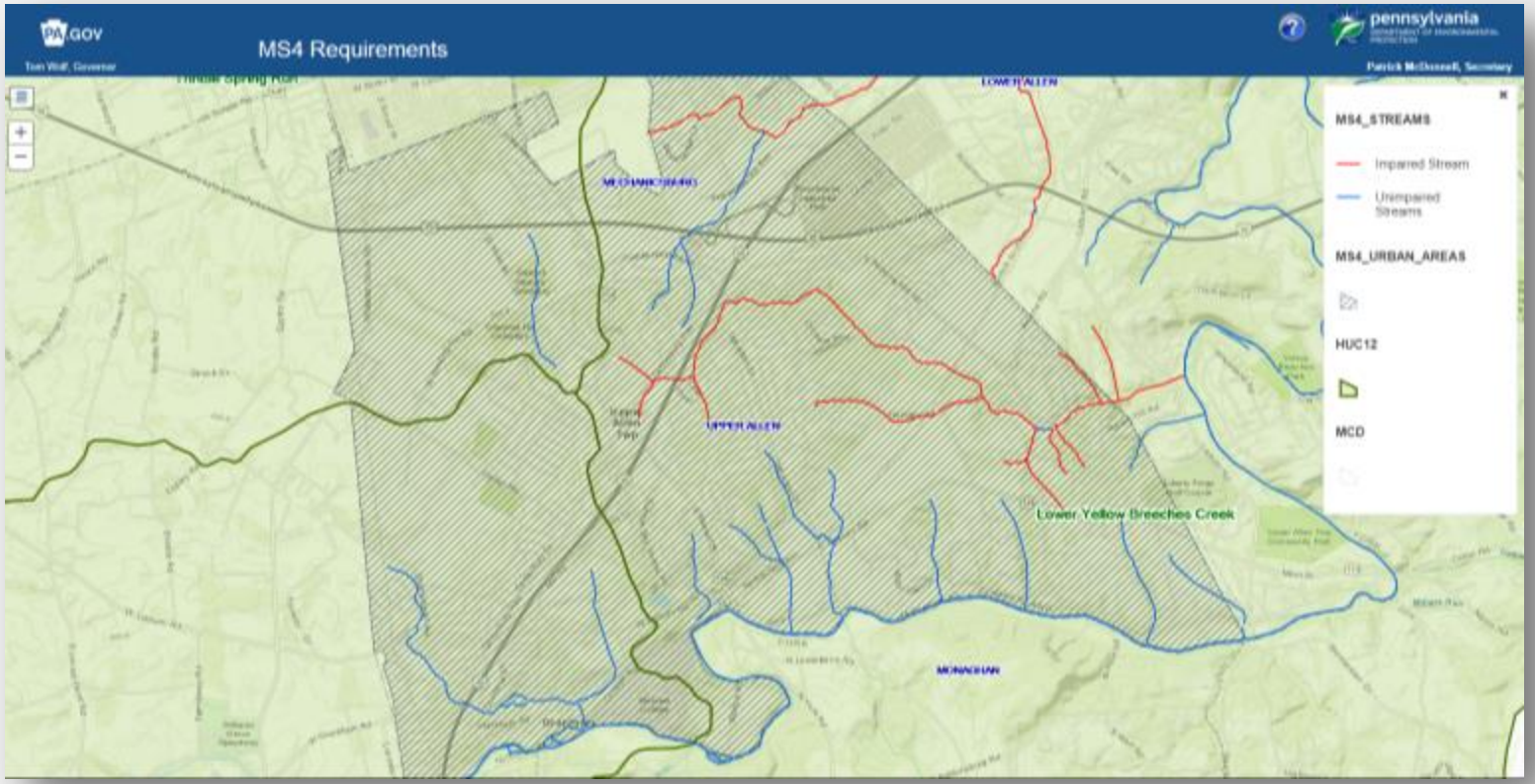
Stormwater Management Program

The six **Minimum Control Measures (MCMs)** Required under the State's General NPDES permit for MS4 communities include:

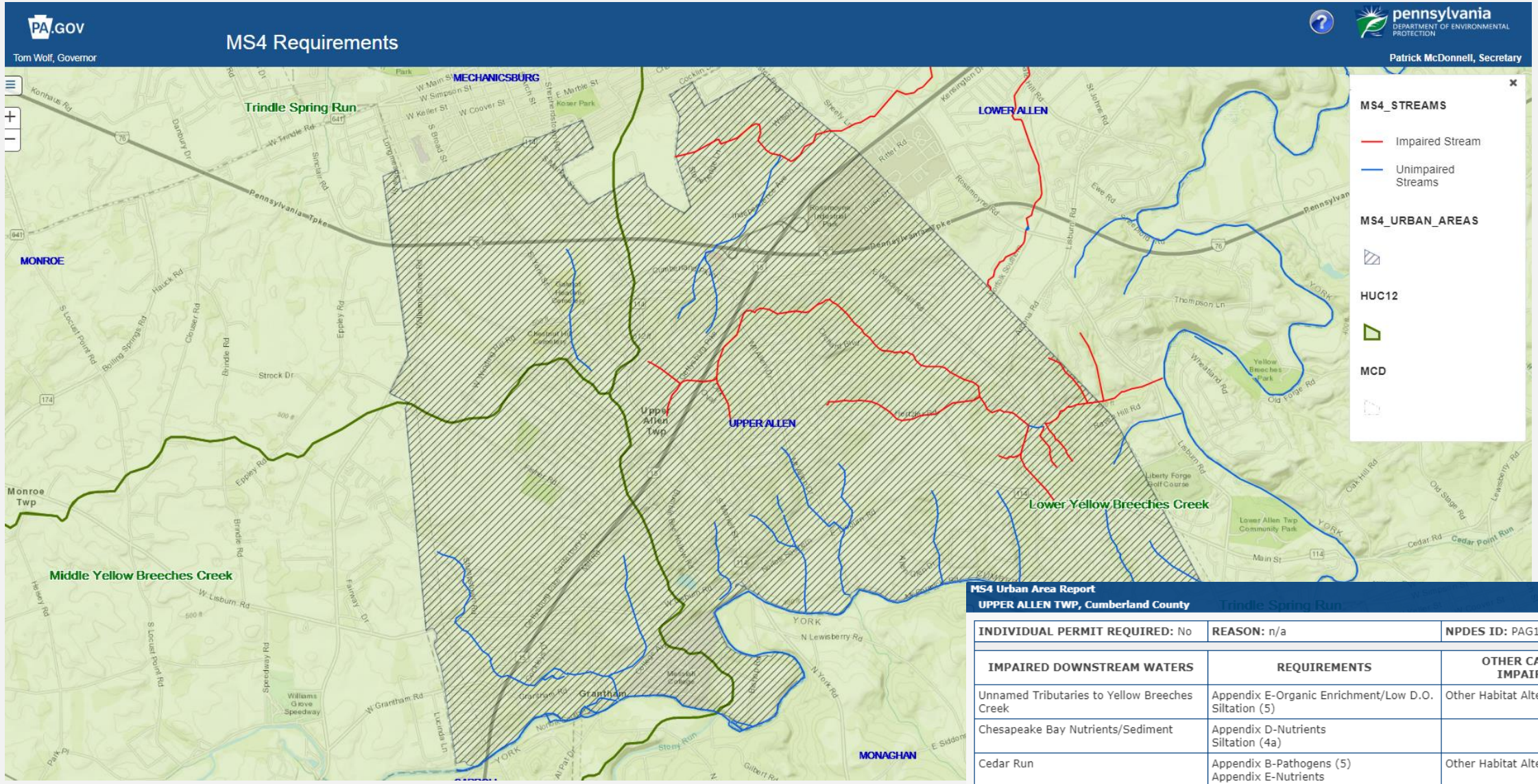
Each MCM has a number of required elements that must be met every permit year.

Upper Allen Township's MS4

- MS4 System consists of public and private infrastructure
- 247,000 LF of Storm Pipe
- 158 Storm Manholes
- 131 Outfalls
- 2,539 Inlets
- 100 Best Management Practices (BMPs) -built after 2003
- ~78 miles of Township Roads



Upper Allen Township's MS4



MS4 Urban Area Report
UPPER ALLEN TWP, Cumberland County

INDIVIDUAL PERMIT REQUIRED: No	**REASON:** n/a	**NPDES ID:** PAG133708

IMPAIRED DOWNSTREAM WATERS	REQUIREMENTS	OTHER CAUSES OF IMPAIRMENT
Unnamed Tributaries to Yellow Breeches Creek	Appendix E-Organic Enrichment/Low D.O. Siltation (5)	Other Habitat Alterations (4c)
Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients Siltation (4a)	
Cedar Run	Appendix B-Pathogens (5) Appendix E-Nutrients Siltation (5)	Other Habitat Alterations (4c)
Yellow Breeches Creek	Appendix B-Pathogens (5)	
Unnamed Tributaries to Cedar Run		Flow Alterations (4c)

Stormwater BMP Examples

Best Management Practices (BMPs) are structural, vegetative or managerial practices used to treat, prevent or reduce water pollution.

Dry Detention Basins

Also called dry ponds, dry detention basins are designed to confine stormwater for a short allotment of time (for example, 72 hours).

Retention Basins

By capturing and retaining stormwater runoff, wet retention ponds control stormwater quantity and quality. A drainage facility designed to hold water for a considerable length of time and then release it by evaporation, plant transpiration, and/or infiltration into the ground

Vegetated Swale

Vegetated or grassed swales are shallow, open channels that are specifically engineered to slow stormwater runoff while also removing pollutants. The sides and bottoms of the channel are lush with vegetation, as you may have guessed from the name.

Stormwater Services

- Operations & Maintenance
  - Stormwater/drainage system and BMP maintenance
  - MS4 Permit and water quality compliance
  - Review and inspection services
- Capital
  - Stormwater compliance projects
  - Drainage and watershed projects

Benefits of an Effective Stormwater Program

- Reduce local flooding damage/basement backups
- Cleaner/healthier streams & improved water quality
- Improved recreational and aesthetic values
- Protect property values
- Compliance with regulatory (unfunded) mandates

MS4 Audits

- PA DEP Inspection Completed November 16, 2017
  - Mandatory inspection all MS4s before new permit cycle *(2018)*
- EPA Audit
  - Random audits across the state

What's happened so far?

Why Are We Here?

Up until now, funds for repairing and maintaining the stormwater system came from the General Fund of the operating budget.

The Stormwater Authority Board has made the decision that the funding mechanism is no longer feasible because of the severity of the stormwater problems:

- steadily increasing flooding and water pollution;
- unfunded state and federal mandates to control these problems and meet standards;
- an aging, deteriorating, and undersized conveyance system for stormwater; and
- competition for dollars with other municipal needs.

Funding by Property Taxes is Considered to be Inequitable

- Tax exempt properties generate stormwater, but do not currently contribute revenue toward stormwater management.
- The assessed value of a property, which determines its property tax, is not related to the property's relative use of the Township's stormwater management system

Funding should be based on contribution to stormwater and not tax status.

What is a Stormwater Fee?

A stormwater utility fee is similar to a water or sewer utility fee. In essence, customers pay a fee to convey stormwater from their properties.

- A stormwater utility is the **fairest** and **most equitable** method of obtaining revenue for the management of a stormwater program.
- This method charges all parcels a fee based upon their relative contribution to stormwater runoff to the drainage system, expressed as **Equivalent Residential Units [ERU].**
- The stormwater fee, like other utility fees such as water and sanitary sewer, will be based on the amount of demand a user places upon the system.
- All property owners will pay a stormwater fee. There will be a reduced rate for properties with very little to no impervious surfaces.

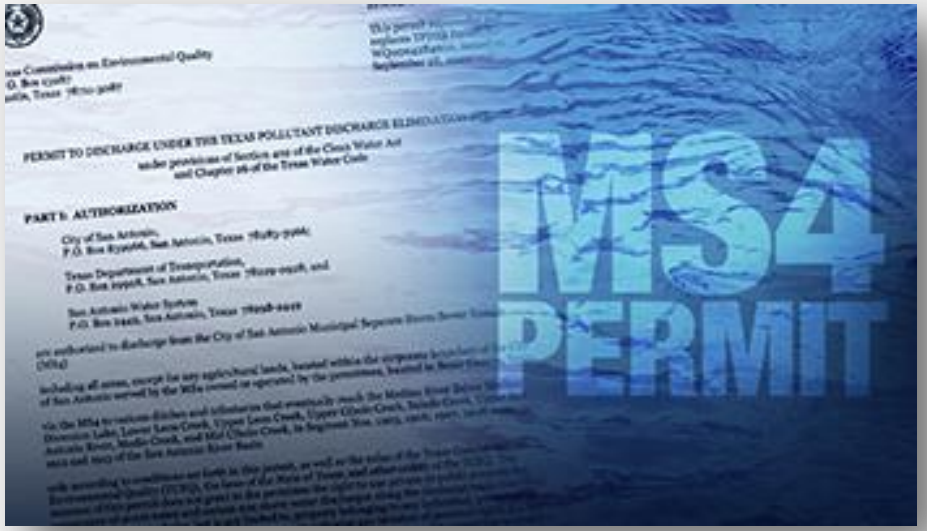
All money collected can only be used for stormwater management.

2018 Permit

2018 Permit

Municipalities and other entities such as universities and prisons that meet certain standards must obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of stormwater from their municipal separate storm sewer systems (MS4s).

- Municipalities are required to submit a Notice of Intent (NOI) every five-years
- **NOI includes**
  - Application/Final Progress Report
  - Permit Fee
  - Comprehensive Map
  - Pollutant Reduction Plan
  - Memorandum of Understanding
  - Stormwater Management Ordinance



2018 Permit (Cont.)

APPENDIX E – POLLUTANT REDUCTION PLAN(PRP)

MS4s that discharge to surface waters considered impaired for nutrients (nitrogen and phosphorus) and/or sediment or that discharge to waters in the Chesapeake Bay watershed are required to develop Pollutant Reduction Plans (PRPS).

- Permittee shall achieve Pollutant Load Reductions (lbs/year) proposed in its PRP within 5 years
- Minimum percent reduction for pollutant loadings is 10% for sediment and 5% for Nitrogen and Phosphorus
- The permittee shall submit a report demonstrating implementation of the PRP that is due following completion of the 5th year

PRP Pollutant Loading Requirements

Required Sediment Reduction	Chesapeake Bay Watershed	Local Impaired Waters
Baseline Sediment Total	4,721,857	2,792,078
Sediment Total after Parsing	3,963,478	2,479,305
Existing Structural BMP Credits	172,661	140,558
Adjusted Totals	3,790,817	2,338,747
Required Reduction (10%)	**379,082 lbs/yr**	**233,875 lbs/yr**

Land Loading Rates for Cumberland County, PA

	Sediment (lbs./Acre/Year)	Nitrogen (lbs./Acre/Year)	Phosphorus (lbs./Acre/Year)
Pervious	306.95	23.29	0.34
Impervious	2,065.10	28.93	1.11

PRP Projects: Load Reductions

Project No.	Project Name	BMP Type	Estimated Sediment Load Reduction (lbs. of sediment per year)	
			Impaired Local Surface Waters	Chesapeake Bay Watershed
1	Simpson Park Stream Bank Restoration and Tree Planting	Stream Bank Restoration & Tree Planting	33,614	
2	Center Square Park Riparian Buffer Improvements	Forest Buffer	N/A	2,455
3	McCormick Park Stream Bank Improvements	Stream Bank Restoration	76,969	
4	Friendship Park Basin Conversion	Bioretention / Rain Garden	N/A	15,402
5	Winding Hills Park Basin Conversion	Bioretention / Rain Garden	3,647	
6	Country Square Basin Conversion	Bioretention / Rain Garden	N/A	18,310
7	Spring Run Acres Park Stream Restoration	Stream Bank Restoration	17,952	
8	Meadowview Detention Basin Conversion	Bioretention / Rain Garden	N/A	100,507
9	Township Building Detention Basin Conversion	Bioretention / Rain Garden	11,184	
10	Hemlock Road Culvert Replacement and Rain Garden	Bioretention / Rain Garden	N/A	31,105
11	Spring Run Drive Bio-swale	Bioswale	90,511	
		Total Reductions Achieved:	233,877	405,544

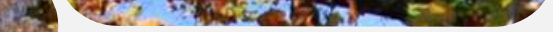
PRP Projects: Load Reductions

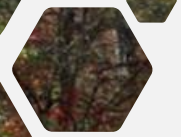
Local Impaired Surface Waters

233,877 pounds *(proposed reduction)* > 233,875 pounds *(required reduction)*

Chesapeake Bay Watershed

405,544 pounds *(proposed reduction)* > 379,082 pounds *(required reduction)*





Infrastructure & Capital Costs

PRP Projects: Estimated Cost

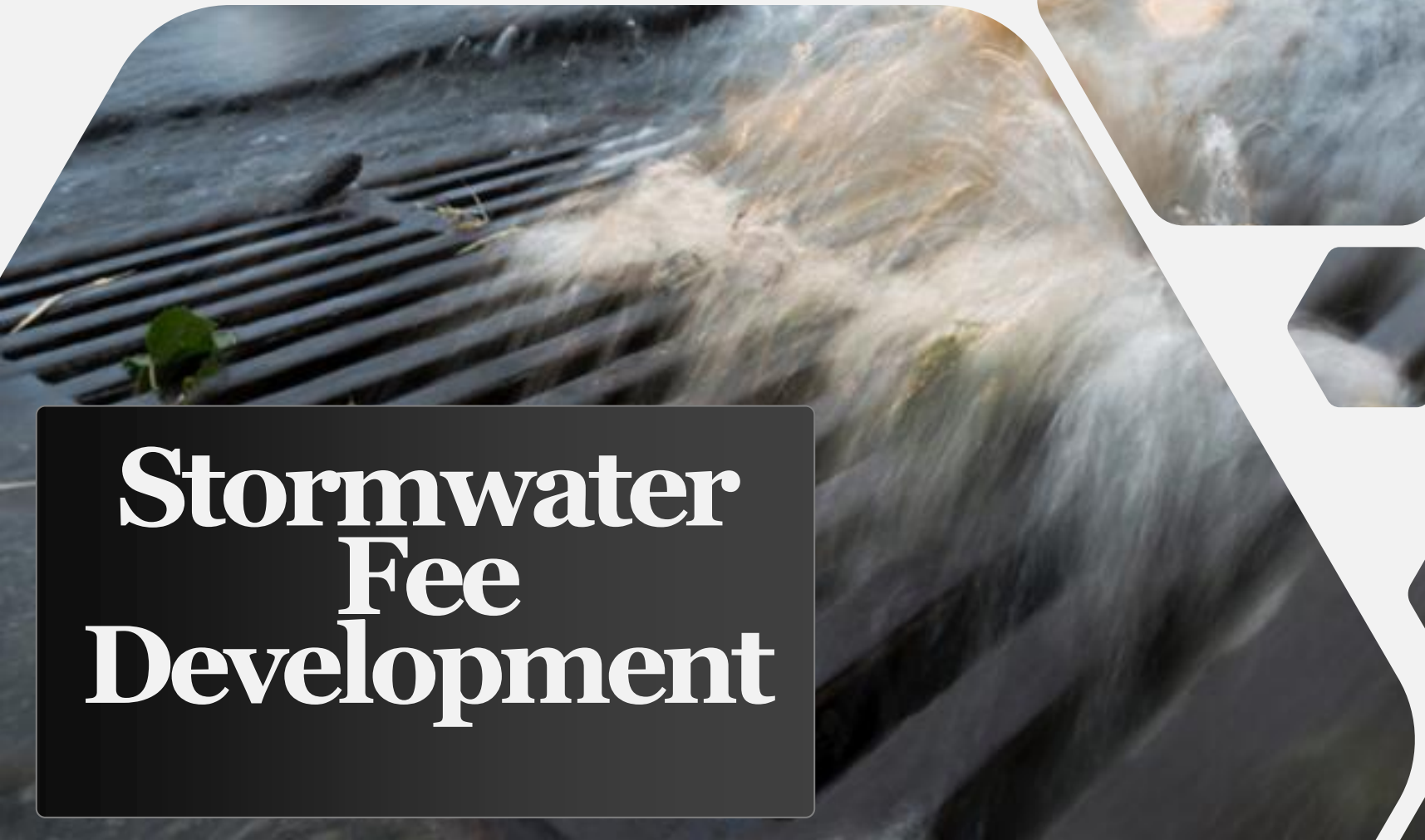
Project No.	Project Name	Estimated Cost	Percent of Required Reduction	
			Impaired Local Surface Waters	Chesapeake Bay Watershed
1	Simpson Park Stream Bank Restoration and Tree Planting	$375,000	14%	9%
2	Center Square Park Riparian Buffer Improvements	$75,700	N/A	1%
3	McCormick Park Stream Bank Improvements	$857,500	33%	20%
4	Friendship Park Basin Conversion	$106,080	N/A	4%
5	Winding Hills Park Basin Conversion	$26,700	2%	1%
6	Country Square Basin Conversion	$38,280	N/A	5%
7	Spring Run Acres Park Stream Restoration	$100,000	8%	5%
8	Meadowview Detention Basin Conversion	$358,388	N/A	27%
9	Township Building Detention Basin Conversion	$27,225	5%	3%
10	Hemlock Road Culvert Replacement and Rain Garden	$39,500	N/A	8%
11	Spring Run Drive Bio-swale	$59,850	38%	24%
	Estimated Construction Cost:	$2,064,223	100%	107%
	Construction Contingency (20%):	$412,845		
	Total Estimated Construction Cost:	$2,477,068		
	Engineering and Permitting (15%):	$371,560		
	Total Estimated Cost:	$2,848,627		
	Annual Estimated Cost:	**$569,726**		

Avg. Cost during 5-year NPDES Permit

Annual Operating Expenses (Approximate)

MS4 Projects (Pollutant Reduction Plan)	$ 575,000.00
Stormwater Infrastructure Improvements	$ 150,000.00
MS4 and Public Outreach	$ 15,000.00
Maintenance of BMPs	$ 15,000.00
Administrative Expenses	
• Salaries, Wages and Benefits	$ 85,000.00
• Materials, Postage and Printing	$ 10,000.00
• Computer Expenses	$ 10,000.00
• Miscellaneous Operating Expenses	$ 10,000.00
Professional Services	$ 15,000.00
Equipment and Supplies	$ 15,000.00
Total Annual Stormwater Operating Expenses	**$ 900,000.00**
Fund Balance (Reserve Funds)	$ 100,000.00
Total	**$ 1,000,000.00**

All fee revenue is restricted to stormwater use only



Stormwater Fee Development

Resources

Information sourced from Pennsylvania's official public access geospatial clearinghouse, Pennsylvania Spatial Data Access (PASDA), and Cumberland County's Geographic Information Systems Office

- Tax Parcel Information, 2017
- Township Boundary, 2017
- Land Cover Data, 2013

Sampled approximately 7,350 Township parcels to determine impervious and pervious surface coverage for each lot.

Removed "Roads" to present more accurate representation of impervious area per parcel.

ERU/Total ERU Calculation Methodology

Isolated residential parcels to determine average impervious area for one single family lot.

- 1 ERU = 3,800 sq.ft. of total impervious area for the lot

The original calculation for the total number of ERUs was determined by dividing the total impervious area within the Township by the square footage assigned to a single ERU.

Total Impervious Area/3,800 s.f = 16,513 ERUs

Cost per ERU

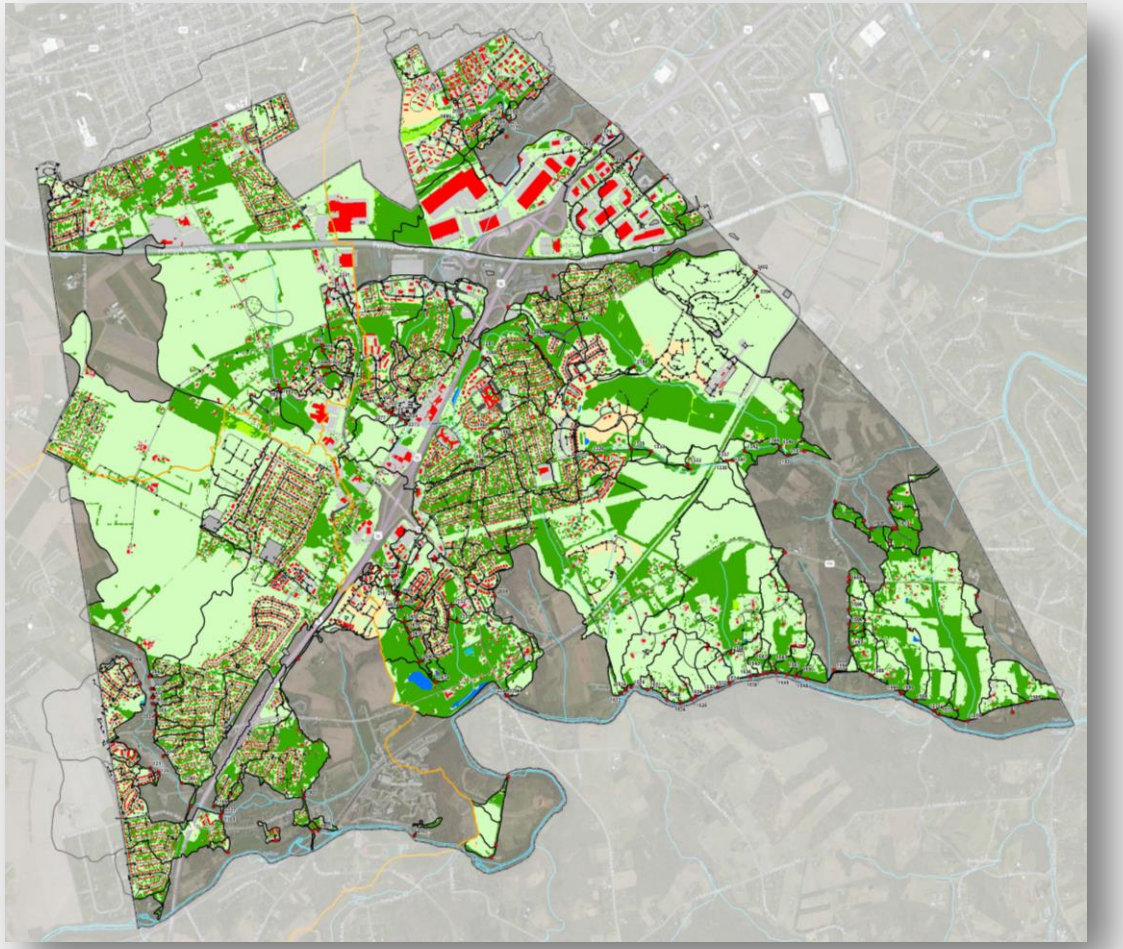
The Cost per ERU was determined by dividing the total annual stormwater operating expense by the total number of ERUs in the Township

1 ERU = 3,800 sq.ft. of total impervious area for the lot

$$\textit{Cost per ERU} = \frac{\textit{\$ 1,000,000.00}}{\textit{16,513 ERUs}}$$

1 ERU = $60.56/year

1 ERU = $5.05/month



ERU Fee Structure

Total Impervious Area Coverage Per Lot	Number of ERUs	Estimated No. of Parcels In ERU Range	Annual Fee (1 ERU = $60.56)
Less than 1,800 sf	0.5	998	$30.28
1,801 sf to 3,800 sf	1	4,067	$60.56
3,801 sf to 7,600 sf	2	1,636	$121.12
7,600 sf to 0.25 ac	3	256	$181.68
0.25 ac to 0.50 ac	3 – 6	146	$181.68 – $363.36
0.50 ac – 1 ac	6 – 12	119	$363.36 – $726.72
1 ac – 2 ac	12 – 24	59	$726.72 – $1,453.44
2 ac – 5 ac	24 – 58	37	$1,453.44 – $3,512.48
5 ac – 10 ac	58 – 115	17	$3,512.48 – $6,964.40
10 ac – 15 ac	115 – 172	7	$6,964.40 – $10,416.32
15 ac – 20 ac	172 – 230	2	$10,416.32 – $13,928.80
20 ac – 30 ac	230 – 344	2	$13,928.80 – $20,832.64
30 ac – 40 ac	344 – 459	1	$20,832.64 – $27,797.04

ERU Fee Example #1

21 Wineberry Drive

Impervious Area = 3,788 sq.ft.

Pervious Area = 7,538 sq.ft.

1 ERU = 3,800 sq.ft.

Calculate No. of ERUs:

3,788 sq.ft. = 0.99, round up, **1 ERUs**
3,800 sq.ft.

Stormwater Fee = $5.05/month, $60.56/year

ERU Fee Example #2

1520 Fisher Road

Impervious Area = 7,527 sq.ft.

Pervious Area = 218,985sq.ft.

1 ERU = 3,800 sq.ft.

Calculate No. of ERUs:

7,527 sq.ft. = 1.9, round up, **2 ERUs**
3,800 sq.ft.

Stormwater Fee = $10.10/month, $121.12/year

ERU Fee Example #3

2140 Fisher Road

Impervious Area = 36,793 sq.ft. (0.9 ac.)

Pervious Area = 70,364 sq.ft. (1.6 ac.)

1 ERU = 3,800 sq.ft.

Calculate No. of ERUs:

36,793 sq.ft. = 9.7, round up, **10 ERUs**
3,800 sq.ft.

Stormwater Fee = $50.47/month, $605.60/year

ERU Fee Example #4

360 Independence Avenue

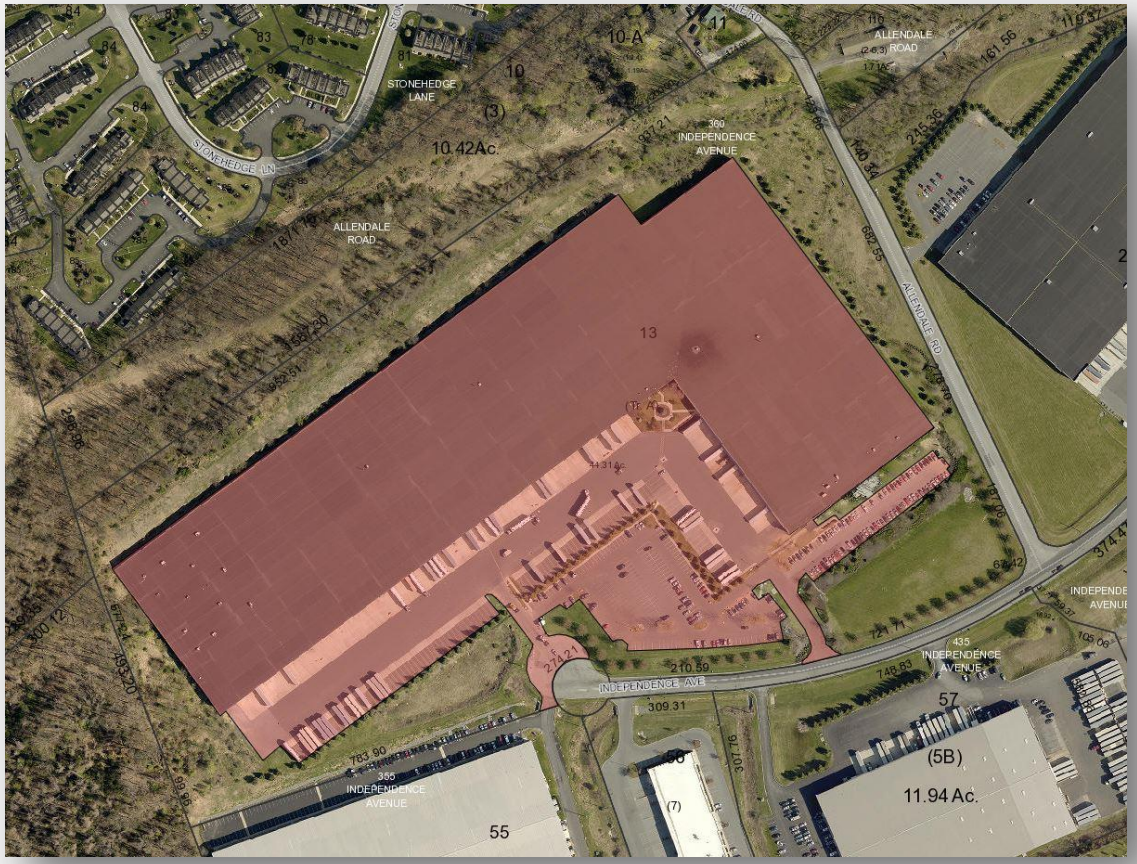
Impervious Area = 1,288,604 sq.ft. (0.9 ac.)

Pervious Area = 641,104 sq.ft. (14.7 ac.)

1 ERU = 3,800 sq.ft.

Calculate No. of ERUs:

1,288,604 sq.ft. = 339.1, round up, **340 ERUs**
3,800 sq.ft.



Stormwater Fee = $1,715.87/month, $20,590.40/year

Thank You

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