



**WEST HANOVER
TOWNSHIP**

Authority Stormwater Program Overview



June 17, 2020

Agenda

- 1) Stormwater Program Overview (HRG) & Budget Summary (West Hanover)
- 2) Laws Affecting Stormwater & Authorities (Salzmann Hughes)
- 3) Property Analysis (Light-Heigel)
- 4) Neighboring Stormwater Programs (Light-Heigel)
- 5) Board Discussion of Residential Fee Options
- 6) Questions & Discussion



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Stormwater Program Overview & Budget Summary

HRG & West Hanover

HRG Role

- 1) Developed 5 Year Stormwater Program Budget
 - 1) Considered Capital Needs
 - 2) Operation & Maintenance of Infrastructure & Swales
 - 3) MS4 Requirements
 - 4) Administrative/General/Customer Costs
- 2) Support Township with MS4 Permit Requirements
- 3) Review Credit Applications based upon Credit Policy developed by separate Township consultant
- 4) Supporting Township with tonight's meeting based upon broad SW Fee & Credit experience throughout Pennsylvania.



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Township Stormwater Challenges

- **Challenge #1: Aging infrastructure**
 - Roughly 115,000 LF of pipe & 1,550 inlets
 - Significant portion of pipe and facilities anticipated to reach its useful life in next 10-20 years.
- **Challenge #2: Polluted streams**
 - Manada Creek and other local waterways are considered impaired. Goal to improve local water quality throughout Township.
- **Challenge #3: Tightening regulations**
 - MS4 Permit requires implementation of a Pollutant Reduction Plan over next 5 years.
 - 2018 MS4 Permit requires Township to have **funding and staffing necessary to fully comply with increased regulations**, including BMP installation.
 - Growing number of communities fined for non-compliance.
- **Challenge #4: Increased development = more stormwater, flooding**
- **Challenge #5: Level funding**
 - Historically, the Township has funded stormwater costs through tax revenues which have remained relatively stable despite growing costs



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Common Stormwater Problem: Failed Infrastructure



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Common Stormwater Problem: Stream Bank Stability



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Common Stormwater Problem: Debris/Pollution



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Common Stormwater Problem: Flooding



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West Hanover Stormwater Ordinance

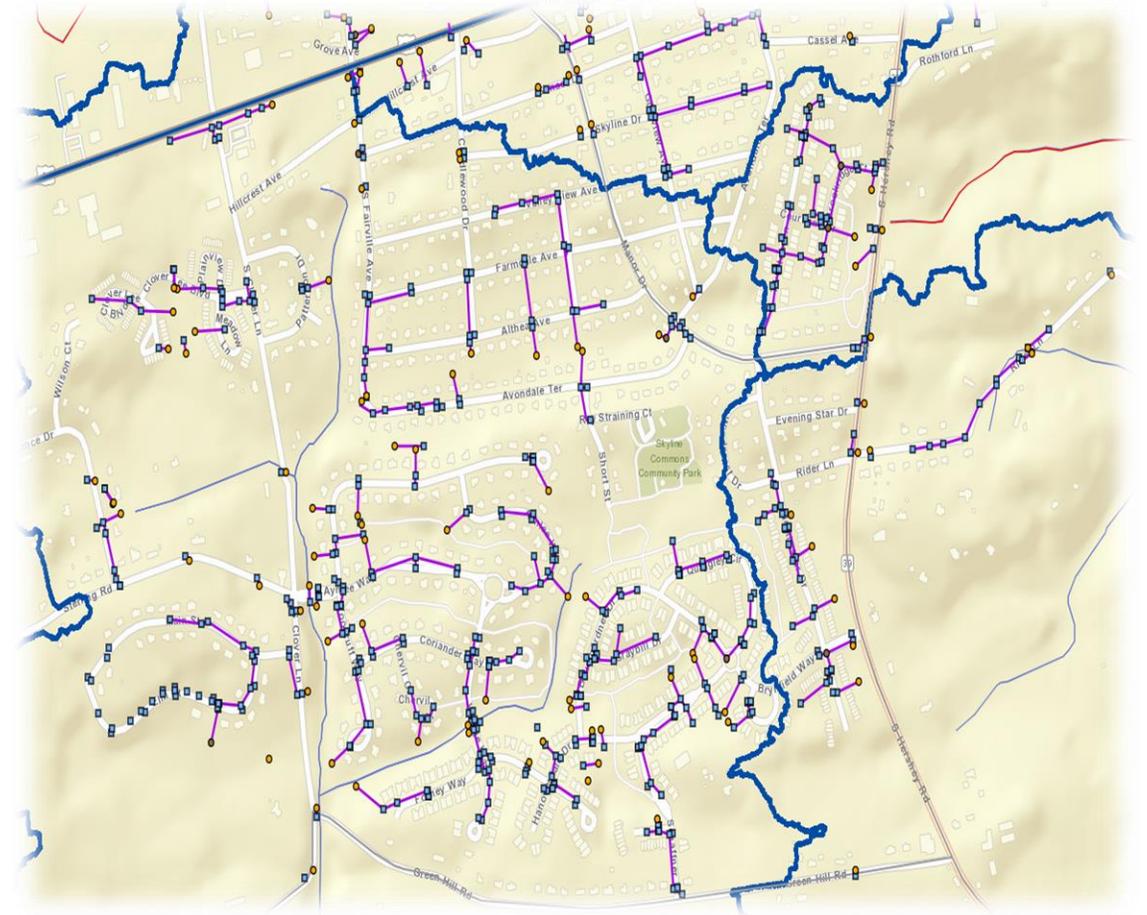
- In Place Since 2010
- DEP Mandates It Be Updated by 2022
- Applies to All Properties in Entire Township
- New Single/Multi-Family Developments **Must** Control **100%** of SW On-site
- Control Measures Can Include:
 - Infiltration & Detention Ponds
 - Rain Gardens
 - Porous Pavement
 - Underground Detention Basins



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West Hanover's Existing Stormwater System

- 72.65 Centerline miles of Roadway
- 1,554 Inlets
- 114,856 Linear Feet of Storm Pipe
- 428 Outfalls
- 3 Township Structural BMPs
- 200+ Private BMPs



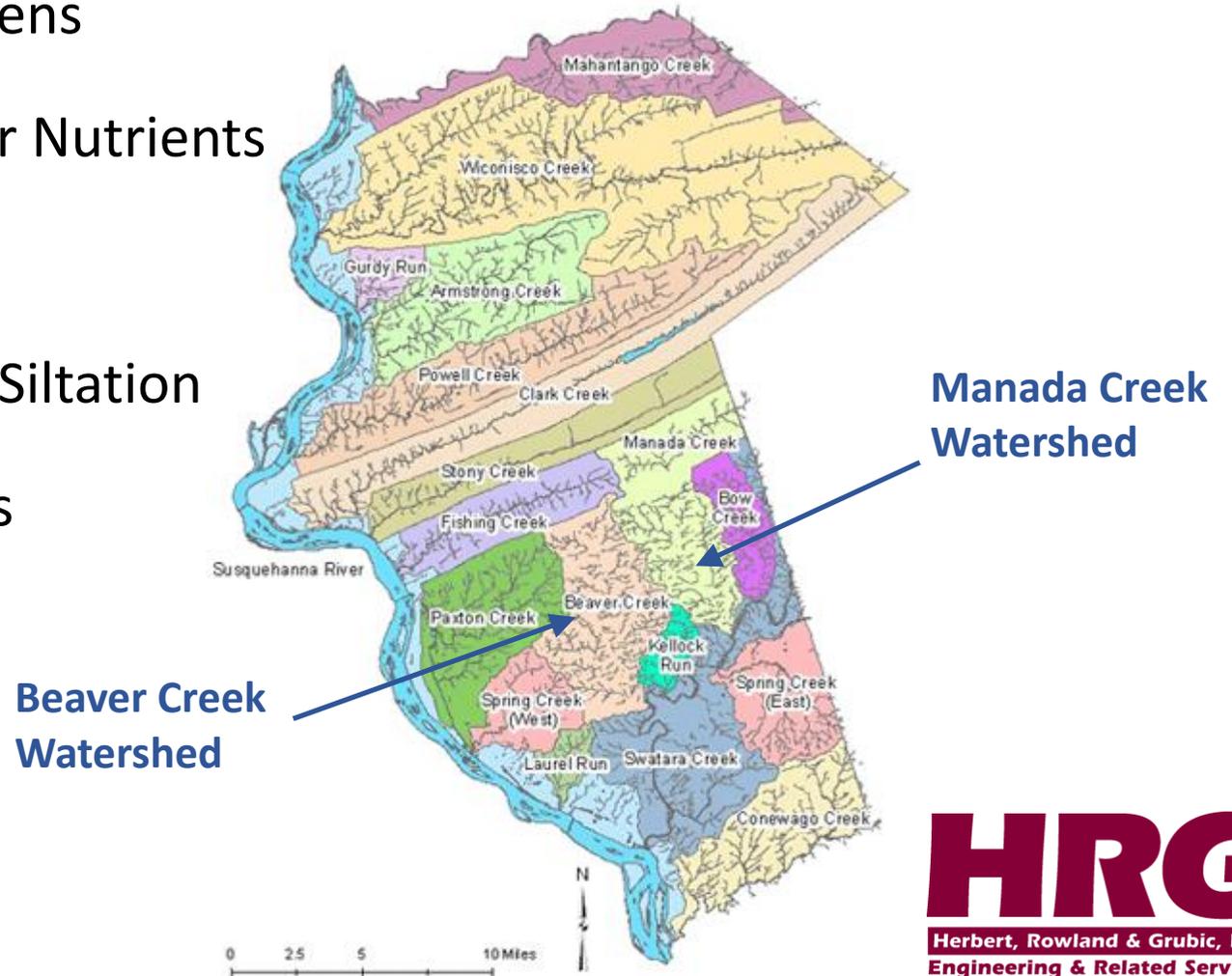
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Township Watersheds Covered by MS4 Permit

- Manada Creek – Impaired for Pathogens
- UNTs to Manada Creek – Impaired for Nutrients
- Beaver Creek – Impaired for Siltation
- UNTs to Beaver Creek – Impaired for Siltation
- Walnut Run – Impaired for Pathogens

Dauphin County Watersheds



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MS4 (Municipal Separate Storm Sewer Systems)

Chesapeake Bay Agreement:

- Executed in 1983
- Signed:
 - Governors - Maryland, Virginia, Pennsylvania
 - Mayor of D.C.
 - Administrator of E.P.A.
- 2000 set new goals
 - Delaware, New York and West Virginia joined
- 2023 set goal to reduce sediment pollution by 10%**
 - Municipalities required to meet goals



**Federal
Unfunded
Mandate**



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MS4 Permit Requirements

Stormwater Management Programs (SWMP)

- 6 Minimum Control Measures (MCMs)
- **Complete full system mapping**

Pollutant Reduction Plans (PRPs)

- Develop PRP
- ~~Show Incremental Progress~~
- **Plan, design and implement BMPs to reduce pollutants:**
 - **10% Sediment**
 - **5% Phosphorus**
 - **3% Nitrogen**

Pollutant Control Measure (PCMs)

- **Mapping, testing, analysis related to:**
 - **AMD**
 - **Priority organic compounds**
 - **PCBs**
- **Funding and staffing to fully comply**

(Bolded text are new requirements of the 2018 Permit)



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MS4 Minimum Control Measures (MCMs)

- Public education (MCM 1)
 - Raise awareness about Best Management Practices (BMPs) via advertising, municipalities and website
 - Passive education
- Public outreach (MCM 2)
 - Promotional events and advertising materials
 - Active education
- Illicit discharge (MCM 3)
 - Mapping
 - Outfall inspections (wet/dry)
 - Illicit discharge reporting
- Construction (MCM 4)
 - Stormwater management /constructed properties
 - E & S concerns, etc.
- Post-construction (MCM 5)
 - BMP maintenance and inspection
- Good housekeeping (MCM 6)
 - Document completion and retention
 - In-house issues



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BMPs for Improving Local Stormwater Quality

Highest
Permit Credit

- **Stream Restoration Projects**

- Reduce streambank erosion
- Floodplain reconnection
- Improve habitat
- Cost per linear foot = ~ \$250-\$500

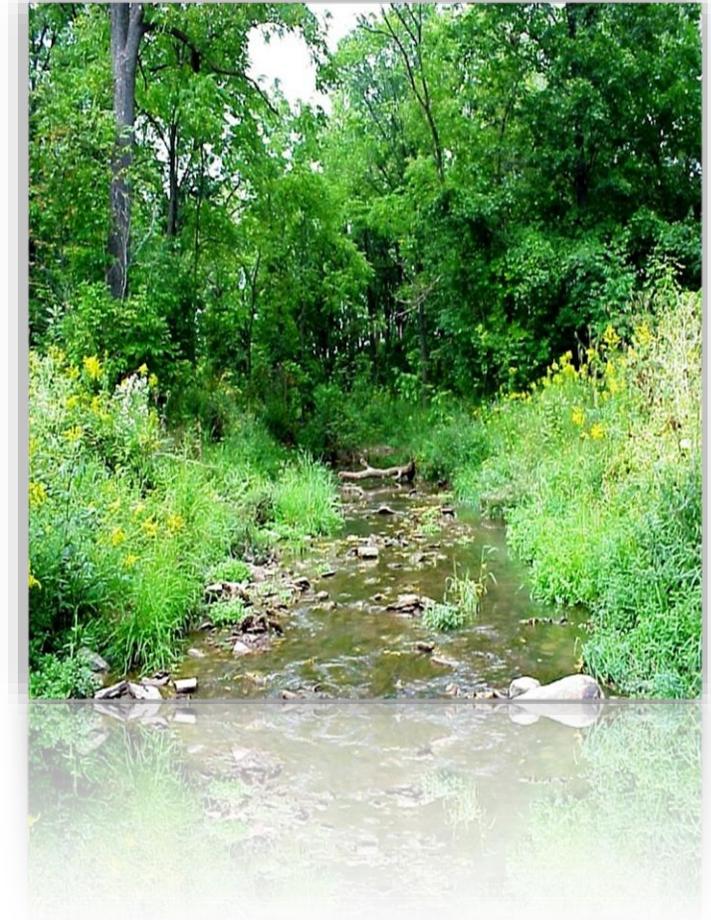
Lowest
Permit Credit

- **Riparian Buffer Projects**

- Reduce rate of runoff
- Provide plant uptake of pollutants
- Capture sediment before entering streams
- Reduce thermal impacts
- Improve habitat
- Cost per acre = ~ \$2,000- \$3,000

- **Infiltration BMPs/Basin Retrofits**

- Reduce volume of runoff
- Groundwater recharge
- Natural filtration of pollutants
- Reduce thermal impacts
- Reduce flood impacts
- Cost per acre = ~ \$170,000



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Authority Stormwater Budget

- Revised Year 2020 annual budget

Function	Annual Cost	% of Budget
Operation & Maintenance	\$186,537	18%
MS4 Compliance	\$379,000	37%
Capital Improvements	\$174,000	17%
Administrative	\$115,000	11%
General (incl. Reserve)	\$177,316	17%
Total Annual Budget	\$1,031,853	100%



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Stormwater Authorities (SWA)...

A Growing Trend

- Over 1,800 stormwater utilities in the U.S.
- First utility formed in 1974
- Continued growth over past 5 decades due to:
 - Increased regulation
 - Significant precipitation events
- Enabling legislation in PA passed in 2013
- Currently there are over 130 municipalities in PA who are at some level of SWA formation or regional collaboration



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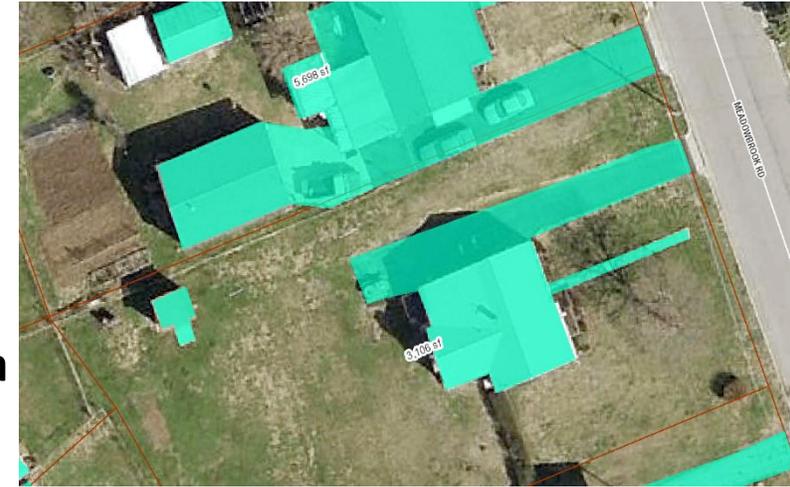
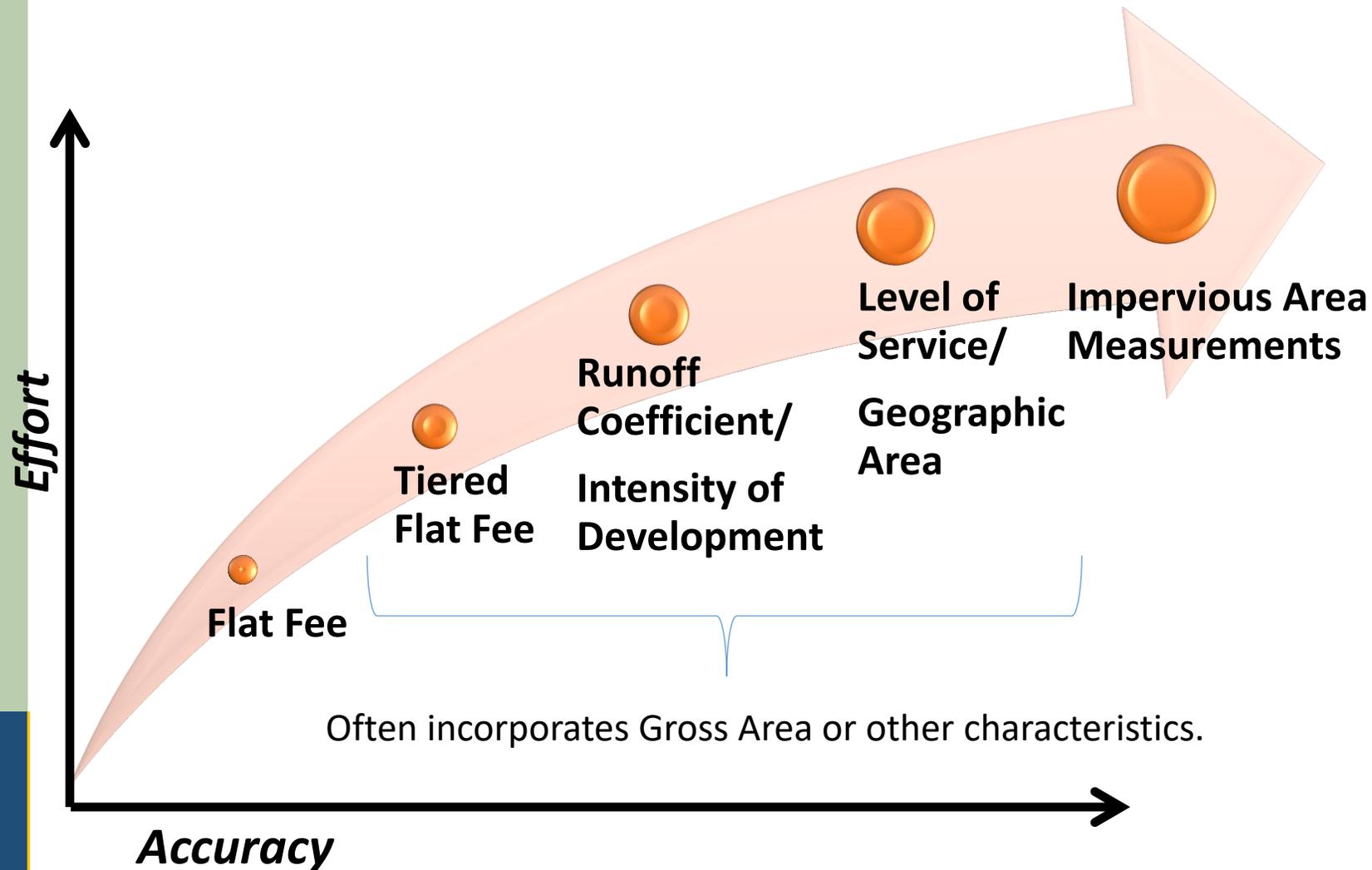
Why Implement a Stormwater Program Fee?

- Provides a dedicated source of funds
- Funds directed solely to stormwater management
- Fairly apportions costs to the burden each property contributes to the system
 - Based upon impervious area = “contribution to the problem” Users pays based upon level of service received
- **In 40 municipalities surveyed, an avg. residential property owner saves between 50% - 70% by paying a fee vs. through taxes.**
- Fees can be collected from tax exempt users
- Credits provided based on level of service received
- Provides an incentive to reduce impervious area



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How Are Stormwater Fees Assessed?



92% of Stormwater Fees based on **Impervious Area**

18% are based upon **Gross Area**

Source: Black & Veatch 2018 Stormwater Utility Survey

Funding SW through Tax vs. Fee

TAX

- Tax exempt users do not help fund SW
- Property's assessed value not linked to SW runoff
- Residential property owners pay more
- Property Owner can not control magnitude of their charge
- Counts towards muni borrowing limits

FEE

- All property owners pay
- Impervious Area is best link to runoff generation
- Saves residents money
- Incentivizes property owners to partner with muni to meet SW needs of community
- Can self liquidate debt



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Laws Affecting Stormwater & Authorities

Salzmann Hughes

Clean Water Act, 33 U.S.C. §1251 et seq

- The Clean Water Act, originally known as the Federal Water Pollution Control Act, is a federal law that regulates discharge of pollutants into surface waters, including lakes, rivers, streams, wetlands, and coastal areas.
- Initially, the goal was to eliminate discharge of untreated waste from municipal and industrial sources. Beginning in the late 1990s, EPA changed the focus to emphasize elimination of nonpoint source pollution, including stormwater.



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PA Clean Streams Law, 1937, as amended 1980

- The Clean Streams Law sets forth the legal framework intended to preserve Pennsylvania's waterways from various forms of pollution.
- The Department of Environmental Protection ("DEP"), pursuant to the Clean Streams Law, is charged with regulating the discharge of stormwater associated with construction activities related to an earth disturbance.
- The PA Clean Streams Law is also implicated by the MS4 minimum control measures requiring management of construction site runoff and post-construction stormwater management in new development and redevelopment.



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PA Stormwater Management Act (“Act 167”), 1978

- The Stormwater Management Act was enacted in response to the impacts of accelerated stormwater runoff from land development throughout Pennsylvania.
- Pursuant to Act 167, municipalities are required to adopt and implement ordinances to regulate development consistent with a county-wide stormwater management plan.
- Similar to the Clean Streams Law, the requirements of Act 167 are directly related to minimum control measures required under the Township’s MS4 Permit.



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Act 62 of 2016

- Authorizes Second Class Townships to enact SW management ordinances to govern planning, management, implementation, construction & maintenance of SW facilities;
- Permits townships to assess reasonable and uniform fees based in whole or in part on the characteristics of property benefited by the facilities, systems & management plans;
- Fees may not exceed the amount necessary to meet the minimum requirements of the Federal Water Pollution Control Act and Federal or State laws governing its implementation;
- In establishing fees, consideration will be given to provide appropriate exemptions or credits;
- Any fee levied can be assessed on all properties in the township;
- Any fee collected for the purpose of storm water management may only be used for such purposes.



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Municipalities Authorities Act Of 1945

- In July 9, 2013, Act 68 amended the purposes and powers of municipal authorities to expressly authorize the planning, management, and implementation of stormwater controls.
- Intent of the act was to provide a dedicated funding source, other than taxes, for stormwater management programs.
- Later, Act 123 expressly authorized authorities undertaking stormwater planning, management, and implementation of stormwater controls to implement reasonable and uniform rates to fund the stormwater management program.



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Legal Test for Stormwater Fees

- Pursuant to the MAA, user rates and fees must be reasonable and uniform.
 - Is the fee rationally related to the level of service received? This need not be determined with exactness.
- Authorities are granted deference in setting its rates and fees, but should avoid acting arbitrarily.
- In challenging a fee, ratepayer is required to carry the burden to demonstrate that the rate is unreasonable, not uniform, and not rationally related to the level of service.
- Courts have held that impervious area is a proxy for level of service.



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Legal Test for Stormwater Fees

- When reviewing legality of stormwater fees, federal courts have considered various factors:
 - Who sets the charge? Legislative body or administrative entity?
 - Is the primary purpose of the fee and the use of funds designed to meet regulatory obligations?
 - Here, the fee forms a part of a comprehensive regulatory scheme under both federal and state law
 - Are services rationally related to the fees charged?
 - Courts have typically asked whether credits were available to allow a ratepayer to “modulate” its use of the system



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Property Analysis & Neighboring Stormwater Programs

Light-Heigel

THREE BASIC METHODS USED TO CALCULATE STORMWATER FEES

- **Equivalent Residential Unit (ERU)**

- Used by more than 80 percent of all SW utilities
- # of billable ERUs are determined by limiting review to impervious area only
- Approach requires least amount of time to determine total number of billing units

- **Intensity of Development (ID)**

- Based on the percentage of impervious area to an entire parcel's size
- All parcels are charged a fee
- Developed parcel fees are based on their intensity of development
- Undeveloped parcels contribute to SW runoff and assigned a lower fee
- Rates are calculated for several ID categories & billed at a sliding scale



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THREE BASIC METHODS USED TO CALCULATE STORMWATER FEES (Cont'd)

- **Equivalent Hydraulic Area**

- Parcels billed on basis of SW runoff generated by impervious & pervious areas
- Impervious area charged at a much higher rate than pervious area
- Method accounts for flow from pervious portion of parcel

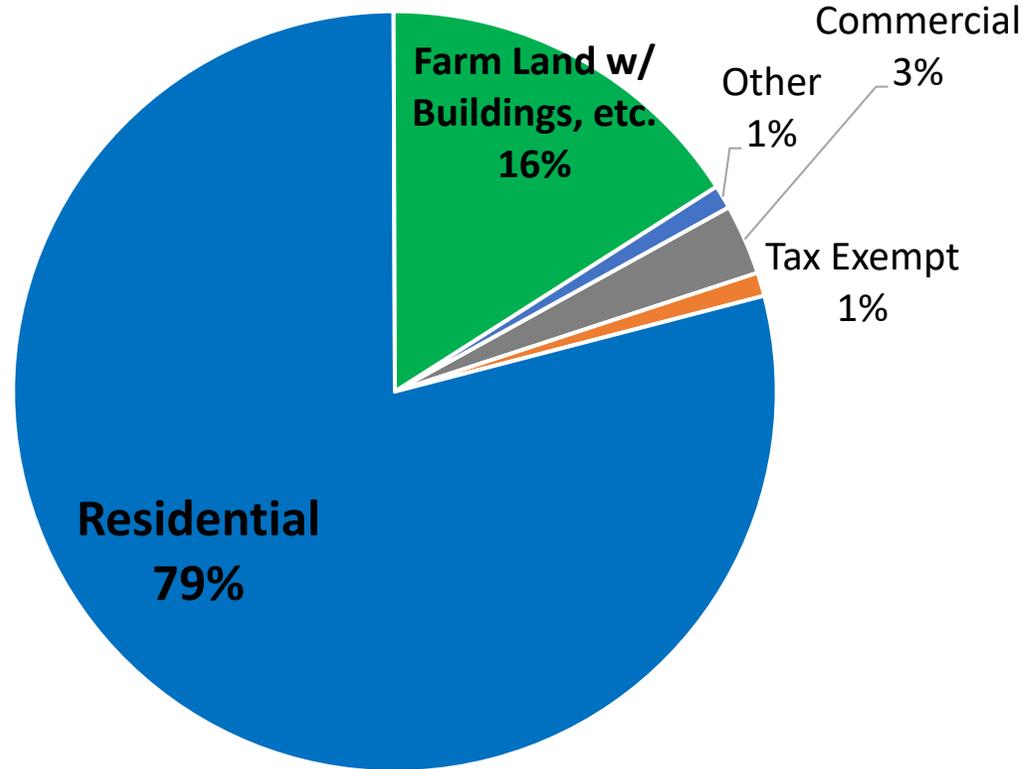


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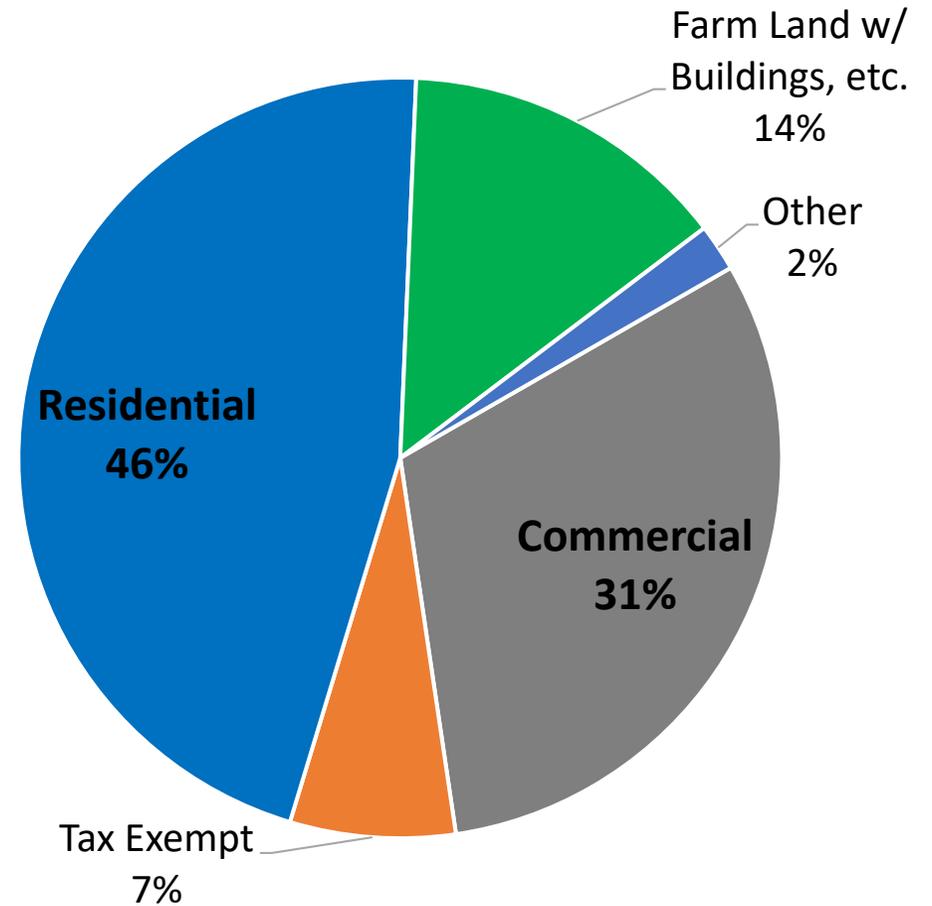
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Properties and IA in West Hanover Twp

Number of Properties



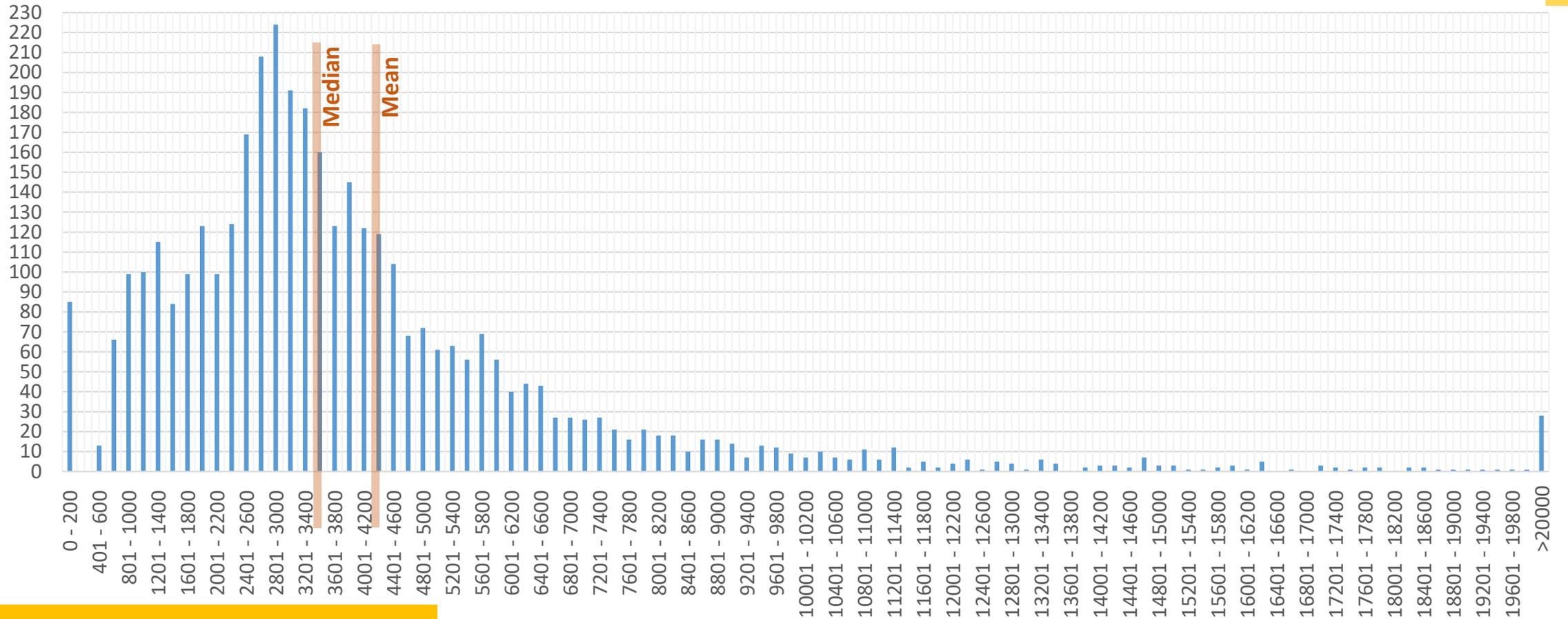
IA by Property Type



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Count of Residential Properties by Impervious Area



- Median = 3,300 Sq. Ft.
- Mean = 4,100 Sq. Ft.



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CURRENT WHTA METHOD FOR SFR

- Parcels Billed Based on Actual Impervious Area (IA)
- IA is the Most Important Factor Influencing Stormwater Runoff (EPA)
- Average SFR = 3,300 SF (1 ERU)
- Fee Per ERU = \$104
- Fee is Billed in $\frac{1}{4}$ ERUs
- SFR Parcels Range from 0 sf of IA to 20,000+ sf of IA
- Credit Maximum of 50% is the Most Generous in County
- Credit Policy Encourages SW Mitigation and/or IA Reduction



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PRELIMINARY FLAT FEE ESTIMATE

- 3,889 SFR Parcels in Township; 3,810 SFR Parcels received bills
- Total Billings Provided to Keystone \$1,103,726
- Total SFR Billings Provided to Keystone \$516,958
- Flat Fee Necessary to Produce SFR Revenue = \$136
- \$136 Flat Fee Equates to 1.31 ERUs
- 70.7% parcel **negatively** impacted; 29.3% parcels **positively** impacted
- Bottom 7% of Parcels (1,237 sf of IA) Pay **5.2 Times** More
- Flat Fee Provides **No** Incentive for Owners to Reduce or Control SW



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Credit Opportunities

SYSTEM OF CREDITS AND INCENTIVES TO REDUCE FEES BY REDUCTION OF THE CONTRIBUTION OF STORMWATER & POLLUTANTS TO THE STORMWATER SYSTEM AND/OR TO AID THE AUTHORITY IN MEETING ITS MS4 PERMIT OBLIGATIONS.

Credit Examples

- Rain Barrel Credit (Residential Only)
- Adopt a Creek and/or Storm Drain
- Public Participation Credit
- Stormwater Management (Volume and/or Rate Control)
- Impervious Area Reductions



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Credit Opportunities

CREDIT DESCRIPTION	ELIGIBLE PROPERTY		MAXIMUM CREDIT AMOUNT
	SFR	Non SFR	
Rain Barrel w/ Downspout Disconnection	X		40%
Rain Garden	X		40%
Adopt a Creek Credit	X	X	20%
Adopt an Inlet Credit	X	X	\$20.00
Public Participation Credit	X	X	15%
Porous Pavement		X	40%
Urban Tree Canopy		X	30%
Low Impact Parcel	X	X	40%
Water Quality Stormwater Credit		X	40%
Peak Flow Attenuation Stormwater Credit		X	40%
Education Program		X	15%
Stormwater Partnership Credit		X	
Donation Credit		X ¹	30%
Separate MS4 Permit Credit		X	50%
Riparian Buffer Area Preservation Credit	X	X	50%
Fertilizer Management Credit	X	X	15%

1 Applicable for Non-profit Organizations only



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Board Discussion of Residential Fee Options

Derry Township Method

- Assesses a Tiered Fee for SFR Based on SqFt IA
- 40% Maximum of Credits

Residential Tiers

1 ERU = 3,500 sq ft. IA

- Tier 1: IA < 500 sq. ft. = No Fee
- Tier 2: IA of 500 - 2,999 sq. ft. = 0.5 ERU
- Tier 3: IA of 3,000 - 4,999 sq. ft. = 1.0 ERU
- Tier 4: IA of 5,000 - 7,599 sq. ft. = 1.5 ERUs
- Tier 5: IA > 7,600 sq. ft. = multiples of ERU



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Lower Paxton Method

- **All** Properties with 340 sf Impervious Coverage Assessed a Fee
- An ERU is Equal to 3,400 sf - Annual User Fee per ERU is \$128
- LPT Uses Same Definition of Impervious Area as WHT
- All Single-Family Detached Residential Assessed at 1 ERU
- All Other Single-Family & Non-Residential Assessed at Total ERUs x Rate
- Currently No Credits Offered – Now Drafting a Credit & Incentives Policy
- LP Borrowed Over \$10 Million Rather Than Paying Cash for Projects



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Susquehanna Township Method

- Assesses a Tiered Fee for SFR Based on Square Feet of IA
- 35% Maximum for Credits
- Fee to be Implemented on July 1, 2020
- All Developed Parcels are Assessed a Fee

Class	Tier	Tier IA Range (sq ft)	% of Total Properties	Monthly Charge
All Customer Classes	1	0-499	7.2%	\$1.60
	2	500-1999	26.1%	\$5.70
	3	2000-4499	47.3%	\$11.60
	4	4500-6999	10.4%	\$19.10
	5	Over 7000	9%	1.60+ \$3.20/1,000



Board Options for 2020

- Modify or Maintain Existing Method
 - Place Cap on ERUs for SFR
 - Add Automatic Non-Urbanized Parcel Credit for SFR
- Change Fee Method
 - Fixed Fee with Credits – Lower Paxton
 - Tiered Fee – Derry or Susquehanna
- Modification/Change Requires Further Analysis
 - Cap
 - Legal
 - ERU rate impact analysis
 - Identify billing/rebate issues



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Board Options for 2020 (cont.)

- Modification/Change Requires Further Analysis (cont)
 - Addition of Non-Urbanized Credit
 - Select credit amount (LP Proposing 20%)
 - Identify affected parcels
 - Analyze budget impact
 - Fixed Fee
 - Legal
 - Define qualifying parcels – [LP is Single Family Detached (1 house/1 family/1 parcel)]
 - Calculation of the required fixed fee
 - Identify billing/rebate issues
 - Tiered Fee
 - Defining the tiers
 - Revenue impact
 - Identifying billing/rebate issues



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