Alternative Approaches to Financing Stormwater Runoff Mitigation in Pennsylvania:

An examination of the adequacy and equity of MS4 financing (taxes vs fees) with application to Ferguson Township, PA

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Abstract

This paper aims to address stormwater financing at the local municipal level in Pennsylvania. It examines the ongoing Borough of West Chester v. PA State System of Higher Education court case and its debate over taxes vs fees in the context of stormwater financing. Through legal analysis, a comparison of other states, and a case study of Ferguson Township, Pennsylvania, this paper will show that stormwater fees act more like taxes than fees, that the Equivalent Residential Unit (ERU) is inequitable, and that current statutory law in Pennsylvania has left municipalities ill-equipped to fund stormwater systems. It closes by suggesting that the Pennsylvania legislature expand local taxing authority under Act 511, or give local governments the power to implement a stormwater tax based upon pervious and impervious area.

1.0 Introduction

The purpose of this study is to explore the current methods of financing Municipal Separate Storm Sewer Systems (MS4s) in Pennsylvania, and whether current court cases and cost burden equity considerations recommend a different system. At its most basic level, an MS4 system is one that transports stormwater (generally runoff from properties that are being rained on) to a final destination through a different set of pipes, ditches, culverts, etc. from what sewage is transported in.

With stormwater systems often coexisting alongside or underneath roads, the breadth of area they must cover can be expansive and therefore costly to maintain. Further, the inaccessibility of parts of the system that exist underground means replacement costs can be higher than other infrastructure projects. These factors combine to cause municipalities to spend a significant amount of their capital and operating budgets to maintain, or develop, their stormwater systems. And with the increase of severe storm events due to climate change, municipalities may need to increase the capacity of runoff that their stormwater systems can manage. As stormwater systems become more important and take up a larger share of municipal budgets, the question arises about how they should be financed: via taxes or fees? As this paper is being written, the Supreme Court of Pennsylvania is deliberating on whether a stormwater fee imposed by the Borough of West Chester on West Chester University is a fee for services rendered, or a property tax. If the latter is found to be true, then West Chester University, and all tax-exempt properties, would not be liable to contribute to any of the Borough of West Chester's stormwater costs. With at least 59 municipalities in Pennsylvania using some form of stormwater fee financing,[1] the implications for the state and its municipalities are high.

The outcome of the court decision has the potential to dictate stormwater policy in Pennsylvania for the foreseeable future. This paper will therefore seek to answer the following questions.

1.1 Research Questions

Q1: How significant are stormwater runoff charges to the budgets of Pennsylvania local governments in terms of financing the provision of stormwater infrastructure services?

Q2: How have other states enabled their local governments to establish and provide stormwater runoff services? Have such mechanisms been free of Pennsylvania's "fees" vs. "property tax" controversies, and/or resolved in local and state courts?

Q3: What are the equity considerations between different stormwater financing mechanisms?

[1] Warren Campbell, "Western Kentucky University Stormwater Utility Survey 2022," *SEAS Faculty Publications*, June 15, 2022, https://digitalcommons.wku.edu/seas_faculty_pubs/6.

1.2 Data Used

Questions regarding Pennsylvania and the equity methods for stormwater financing will be examined through a case study of Ferguson Township. Ferguson Township is in Centre County, Pennsylvania and was selected due to it having both an MS4 system and publicly available datasets that document the stormwater fees that were charged to each parcel. A review of other municipalities in Pennsylvania found that the majority do not provide a comprehensive list of all parcels broken down by parcel ID and assessed fee. The fee estimate data from Ferguson was combined with unpublished tabulations of Pennsylvania's assessed properties provided by the Rochester Center for Economic Research to add tax parcel information such as assessed property values. Statistical analysis was conducted using R studio to compare the burden that falls on different parcels to fund Ferguson Township's stormwater system.

For questions regarding stormwater fee actions taken by other states, research of court cases that addressed a similar question regarding fees vs taxes created a non-exhaustive list encompassing Indiana, Missouri, and Washington. The findings in each state's cases will be compared to provide insight on how Pennsylvania might address its own stormwater issue.

1.3 Paper Organization

This paper is organized as follows:

Section 1 – Introduction

Section 2 – History of stormwater regulation, and the statutory and legal setting of MS4s in Pennsylvania with a focus on The Borough of West Chester v. PA State System of Higher Ed. & West Chester Univ. of PA of the State System of Higher Ed. court case (hereinafter referred to as the West Chester case)

Section 3 – Review of selected states that have had similar court cases and the outcome of those decisions

Section 4 – Conceptual argument for fees vs taxes

Section 5 – Case study of Ferguson Township, PA, and the equity implications of different stormwater financing mechanisms.

Section 6 – Summary of findings, outstanding issues, and recommendations for further research

1.4 Abstract

This paper aims to address stormwater financing at the local municipal level in Pennsylvania. It examines the ongoing Borough of West Chester V. PA State System of Higher Education court case and its debate over taxes vs fees in the context of stormwater financing. Through legal analysis, a comparison of other states, and a case study of Ferguson Township, Pennsylvania, this paper will show that stormwater fees act more like taxes than fees, that the Equivalent Residential Unit (ERU) is inequitable, and that current statutory law in Pennsylvania has left municipalities ill-equipped to fund stormwater systems. It closes by suggesting that the Pennsylvania legislature expand local taxing authority under Act 511, or give local governments the power to implement a stormwater tax based upon pervious and impervious area.

2.0 MS4 statutory and legal setting in Pennsylvania

2.1 Background on MS4 systems

An MS4 system is defined by the Pennsylvania Department of Transportation as:

"a conveyance or system of conveyances that is:

- Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.
- Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.).
- Not a combined sewer.
- Not part of a publicly owned treatment works (sewage treatment plant)."[2]

An MS4 can most easily be understood as a system that collects stormwater runoff and transports it in a separate system from other sewage. Previously, many municipalities would have one sewage system that would collect sewage from residential, commercial, and industrial buildings along with stormwater runoff. While a combined system provided the benefit of only having one system to maintain, it resulted in effluents and other pollutants being diverted into waterways during large storm events.[3] When a storm occurred that overwhelmed the combined sewer system, the sewer system's flood controls would expel water and sewage directly into nearby waterways to prevent the sewer system from flooding. This resulted in untreated sewage and pollution being deposited directly into waterways which was an undesirable result for both environmental and health reasons. To address this issue, the MS4 system was created.

2.2 EPA Regulation and NPDES Permits

[2] "MS4 Information," Pennsylvania Department of Transportation, accessed November 19, 2024, https://www.penndot.gov:443/Doing-Business/LocalGovernment/StormWaterManagement/Pages/MS4-Information.aspx.

[3] Joel Tarr, "The Separate vs. Combined Sewer Problem," *Journal of Urban History* 5, no. 3 (1979): 308–39, https://doi.org/10.1177/009614427900500303.

In 1972, the Clean Water Act (CWA) created the National Pollutant Discharge Elimination System (NPDES) permit program to help address water pollution that occurs from discharge points. The Environmental Protection Agency was placed in charge of distributing the NPDES permits which came in two forms: an individual permit that was tailored to one facility that was discharging pollution into water; and a general permit which covers a group of dischargers with similar qualities within a certain geographical location.[4] The EPA authorizes the NPDES program to state, tribal, and territorial governments so that they are able to carry out much of the NPDES permit requirements with the EPA acting in an oversight role.[5] In 1999, the NPDES regulations were expanded to include small MS4 systems that serve 100,000 people or less which greatly increased the number of MS4 systems that would require an NPDES permit.[6]

In Pennsylvania, the Pennsylvania Department of Environmental Protection (DEP) has the role of designating areas that must apply for NPDES permits for their MS4 system. Besides the EPA designations, the DEP has its own criteria for designating MS4s that must be covered by the NPDES permitting system, and these generally must establish whether 1) pollutants are being discharged by the municipal storm system outside of urban areas, 2) the pollution is recurring, and 3) there are any protocols to address and prevent the pollution.[7]

In Pennsylvania there are currently 1059 small MS4s, one medium MS4, and one large MS4,[8] all of which either have an NPDES permit or have filed for a waiver. As part of the NPDES permit, six minimum control measures (MCMs) must be followed:

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post Construction Stormwater Runoff for New Development
6. Pollution Prevention and Good Housekeeping

The DEP oversees MS4 compliance within the state and ensures that each of the six MCMs are being followed.

While the designation and requirement for urban areas to adopt the MS4 system is enforced by the state and the EPA, there was no funding provided by the federal government to help areas that must become permitted comply with the NPDES permits. As an unfunded mandate, small municipalities have had to grapple with new regulations for multi-million-dollar

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[4] "About NPDES," US EPA, Overviews and Factsheets, https://www.epa.gov/npdes/about-npdes.
[5] "Urban Area Maps for NPDES MS4 Phase II Stormwater Permits," US EPA, accessed November 17, 2024, https://www.epa.gov/npdes/urban-area-maps-npdes-ms4-phase-ii-stormwater-permits
[6] "National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges," US EPA, *Federal Register* 64, No. 235 (1999): 68722-68851
[7] "Criteria for Designation of Regulated Small MS4s," PA Department of Environmental Protection, accessed November 17, 2024, https://files.dep.state.pa.us/Water/BPNPSM/StormwaterManagement/MunicipalStormwater/MS4_Designation_Criteria.pdf.
[8] "Municipal Stormwater," PA Department of Environmental Protection, accessed December 12, 2024, https://www.dep.pa.gov:443/Business/Water/CleanWater/StormwaterMgmt/Stormwater/pages/default.aspx.

infrastructure projects with little to no state or federal financial assistance. For many municipalities, even ones that do not have an MS4 and NPDES permit, a lack of investment in stormwater systems over the past several decades has resulted in infrastructure that is old and not equipped for modern regulations or increasing storms caused by climate change. Facing these new obstacles, municipalities have tried to get creative in how they fund their stormwater systems.

2.3 2013 Act 68: Enabling Municipal Authorities to manage stormwater

The increasing logistical and financial burden of stormwater systems caused many municipalities in Pennsylvania to try to turn away from directly managing and funding their stormwater systems via tax revenue from their general fund. In 2013, the Pennsylvania General Assembly passed Act 68 which gave municipal authorities in Pennsylvania the power to provide stormwater runoff services. Under Act 68 municipal authorities could engage in:

> *Stormwater planning, management and implementation as defined in the articles of incorporation by the governing body. Authorities, existing as of the effective date of this paragraph, already operating stormwater controls as part of a combined sewer system, sanitary sewer system or flood control project may continue to operate those projects.*

The advantage of a municipal authority was that it allowed the municipality to pass on management of the stormwater system, and the municipality could levy fees for the stormwater services it provided to fund itself, lessening the impact of running a stormwater system on the municipality's general fund. The most important distinction between the municipal authority and the municipality was the power to self-finance. As noted, a municipal authority utilizes user fees to fund its operations and improvements. Municipal authorities are prohibited from levying taxes to fund themselves since they are not legislative bodies that are directly responsible to the people of the tax jurisdiction they operate in.[9] Since taxes generally are collected without specific purposes required for their use (whereas fees are designated to a specific use), funding that was raised via taxes by a municipality could be transferred to the municipal authority to supplement the user fees the municipal authority generated from the services it rendered, but the taxes had to originate from the municipality.

Besides having a new entity in charge of managing the stormwater system, municipalities found municipal authorities advantageous for funding purposes. By charging fees to properties for their use of the stormwater system, a municipal authority was able to collect revenue from tax-exempt properties such as hospitals, schools, and churches. When a municipality funded its stormwater systems only from tax revenue from its general fund, tax-exempt properties would not pay due to their tax-exempt status, meaning any runoff that those tax-exempt properties contributed to the stormwater system was subsidized by non-exempt tax

[9] George G Lindsay, "The Municipal Authority in Pennsylvania," Dickinson Law Review 141 (1951)

payers. By using a municipal authority and its user fees, tax-exempt properties became a contributing source of revenue for the stormwater system.

The creation of stormwater municipal authorities and their user fees then raised the question: what should the fees be based on? What was the benefit that property owners were receiving when they paid the stormwater fee and how was that benefit measured? This question about measuring benefits provided was one of the central points in the currently pending West Chester court case.

2.4 West Chester v PA State System of Higher Ed. & West Chester Univ. of PA of the State System of Higher Ed.

The West Chester court case is what prompted this research paper. In 2016, the Borough Council of West Chester instituted a stormwater fee to raise revenue to maintain, operate, and contribute to construction projects for its stormwater management facilities. All raised funds would be deposited into a stormwater management fund which could only be used for:

1) Implementation and management of a program to manage stormwater within the Borough.
2) Constructing, operating, and maintaining the Borough's Stormwater System.
3) Debt service for financing stormwater capital projects.
4) Payment for other project costs and performance of other functions or duties authorized by law in conjunction with the maintenance, operation, repair, construction, design, planning and management of stormwater facilities, programs and operations.[10]

The stormwater fee would apply to all developed properties (properties that had some form of manmade changes that added impervious area) within the boundaries of the Borough and that made use of or benefited from the Borough's stormwater management system. The fee would be determined by the amount of the property's impervious surface (surfaces that do not absorb water such as roofs, driveways, cement).

Part of West Chester University's campus fell within the Borough's boundaries, and, as argued by the Borough, was served by its stormwater system. The calculated amount of impervious area on that portion of the campus came to be about 8% of the total impervious area within the Borough.[11] The Borough argued that the runoff generated by the significant amount of impervious area on the campus entered into and was managed by its stormwater system and was a source of pollution for nearby waterways that the Borough was responsible for monitoring and protecting. Invoices sent to the University to pay its stormwater fee were refused. The University's position was that the fees were taxes imposed for the general benefit of the Borough, and as a tax-exempt entity, it was not obligated to pay. Additionally, the University argued that a fee must be proportional to the benefits that are received, and since there was no

[10] The Borough of West Chester v. PA State System of Higher Ed. No. 260 M.D. 1-21 (Pa. Comwlth. 2023)
[11] The Borough of West Chester v. PA State System of Higher Ed.

benefit that could be clearly attributed to the University, there was no clear benefit that the University was paying for that would define it as a fee.

While there were additional details that were raised within the case, the most important issues that were raised can be broken down as follows:

1. Does the stormwater fee provide a benefit to those who paid it?
2. If a benefit is provided, is the stormwater fee proportionate to the benefit?[12] [13]
3. If a benefit is provided, is the benefit lost when the fee is no longer paid?[14]
4. Is the stormwater fee an assessment or a tax?

The Commonwealth court began its analysis by laying out the definitions of a tax and a fee:

> The classic tax is "imposed by a legislature upon many, or all citizens[. It]. . . raises money, [is] contributed to a general fund, and [is] spent for the benefit of the entire community." San Juan Cellular Tel[.] Co. v. Pub[.] Serv[.] Comm[']n of Puerto Rico, 967 F.2d 683 (1st Cir.1992). A tax is an "enforced contribution to provide for the support of government." United States v. La Franca, 282 U.S. 568. . .(1931). Where a charge is imposed by a state or municipality not in its capacity as a sovereign but rather under a voluntary, contractual relationship, it has been held not to be a tax. United States v. City of Columbia, M[o.],914 F.2d 151, 156 (8th Cir.1990). A "fee" is paid to a public agency for bestowing a benefit which is not shared by the general members of the community and is paid by choice. City of Vanceburg, K[y.] v. Fed[.] Energy Regul[.] Comm[']n,571 F.2d 630, 644 (D.C. Cir.1977) . . . . The Supreme Court distinguished taxes and fees in National Cable Television Association v. United States, 415 U.S. 336, 340, . . . (1974): Taxation is a legislative function, and [a legislature] . . . may act arbitrarily and disregard benefits bestowed by [a g]overnment on a taxpayer and go solely on ability to pay. . . . A fee, however, is incident to a voluntary act, e.g., a request that a public agency permit an applicant to practice law or medicine or construct a house or run a broadcast station.
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> City of Philadelphia v. Pa. Pub. Util. Comm'n, 676 A.2d 1298, 1307-08 (Pa. Cmwlth. 1996).

Further, the Commonwealth Court stressed that a fee must provide some benefit that is proportionate to the fee that is charged. While it may be accepted that impervious area leads to more runoff, the actual amount of runoff created by the University's campus was never measured, so there was no clear connection between the amount of the University's fee and the benefits it would be receiving, since the benefit was not direct. Based on this reasoning, the court found that issues 1 and 2 showed that the stormwater charge was a tax instead of a fee since it

[12] Manheim Twp. Superv'rs v. Workman, 350 Pa. 168. (Pa. 1944)
[13] City of Philadelphia v. Pennsylvania Public Utility Commission, 676 A.2d 1298, at 1307-08 (Pa. Cmwlth. 1996)
[14] City of Philadelphia v. Pennsylvania Pub. Util. Comm'n

did not clearly provide a direct benefit to the University and the fee was not proportionate to the amount of runoff caused by the University.

Considering issue 3, while there was a benefit that was provided from the Borough's stormwater system in reduced flooding and better water quality, that benefit was not exclusive to those who paid the fee since everyone within the Borough received them. Since the benefit was widespread and not lost once the fee was no longer paid, the stormwater charge was considered a tax.

For issue 4, the court found that the fee was a tax and not an assessment since assessments are generally charged for one-time improvements or projects. The stormwater charge was not an assessment since the funds were largely used for the ongoing maintenance and operation of the stormwater system.

With the stormwater charge failing on all four issues, the Commonwealth Court found West Chester's stormwater charge was not a fee but a tax, and the University was therefore immune from paying it.

The Borough of West Chester appealed the Commonwealth Court's decision to the Supreme Court. Oral arguments were heard, but a decision has not yet been issued. While the outcome of the case is unknown, we can look at similar court cases in other states to gain insight into possible outcomes and their impacts.

3.0 Review of Selected States Response to Stormwater Fees

While the outcome of the West Chester court case is unknown, we can turn to other states that have already litigated the stormwater tax vs fee question to get a sense of potential outcomes. By looking at Indiana, Missouri and Washington State we see three different results of the stormwater fee vs tax debate: one preempting the discussion by statutorily saying stormwater fees are not taxes, one ruling that stormwater fees are taxes, and one ruling that stormwater fees are fees.

3.1 Indiana – Statutory preemption

Indiana has not had similar court cases that have addressed the issue of whether a stormwater fee is a tax, however there have been decisions that have applied to the four issues in the West Chester court case.

In 2017, the Indiana Court of Appeals upheld a stormwater fee that was charged to all property owners within the boundaries of the city of Richmond.[15] The City of Richmond had created a stormwater management district in Richmond in 2007 which was funded by charging a

[15] Mint Management, LLC v. City of Richmond, 89A01-1603-PL-496 (IN 2017)

stormwater fee to all properties within the city that either directly or indirectly drained to the city's stormwater system. Several property owners sued because their properties did not drain into the city's stormwater system at all. Because of this, they argued that they should not have to pay the stormwater fee. The court of appeals ruled in favor of the city by pointing to the Stormwater Act under the Indiana Code (section 8-1.5-5-7) which gives stormwater management districts the power to collect user fees, without exception, from every property within the stormwater district.[16]

Interestingly, the court found that the stormwater system provided a general benefit to everyone within the city because all property owners' stormwater was directly or indirectly being managed by the stormwater system. While the case in Indiana was not answering the question of whether the fees were taxes, the court in Indiana appeared to have a different interpretation on what constitutes a benefit and how direct a benefit needs to be. State laws explicitly stating that all properties within the jurisdiction of the stormwater management district could be charged a fee, without exceptions, is further statutory basis that municipal authorities in Pennsylvania do not have. Looking more closely at Indiana's Section 8-1.5-5-7 Stormwater Act, it is clear that Indiana's legislature provided legal guidance not only on what properties are subject to fees, but on what methods of financing of stormwater systems are acceptable.

Section 8-1.5-5-7 of the Indiana Stormwater Act

Financing of facilities; user fees
Sec. 7. (a) The acquisition, construction, installation, operation, and maintenance of facilities and land for stormwater systems may be financed through:
(1) proceeds of special taxing district bonds of the stormwater district;
(2) the assumption of liability incurred to construct the stormwater system being acquired;
(3) service rates;
(4) revenue bonds; or
(5) any other available funds.
(b) Except as provided in IC 36-9-23-37, the board, after holding a public hearing with notice given under IC 5-3-1 and obtaining the approval of the fiscal body of the unit served by the department, may assess and collect user fees from all of the property of the stormwater district for the operation and maintenance of the stormwater system. The amount of the user fees must be the minimum amount necessary for the operation and maintenance of the stormwater system. The assessment and collection of user fees under this subsection by the board of a county must also be approved by the county executive.
(c) The collection of the fees authorized by this section may be effectuated through a periodic billing system or through a charge appearing on the semiannual property tax statement of the affected property owner. (d) The board shall use one (1) or more of the following factors to

[16] Parr Richey Frandsen Patterson Kruse LLP, "Indiana Stormwater Act: Municipalities May Assess Fee on Property Owners Even When Property Does Not Cause Runoff," Indiana Business Lawyer Blog, March 15, 2017, https://www.indianabusinesslawyerblog.com/indiana-stormwater-act-municipalities-may-assess-fee-property-owners-even-property-not-cause-runoff/.

establish the fees authorized by this section:
(1) A flat charge for each lot, parcel of property, or building.
(2) The amount of impervious surface on the property.
(3) The number and size of stormwater outlets on the property.
(4) The amount, strength, or character of stormwater discharged.
(5) The existence of improvements on the property that address stormwater quality and quantity issues.
(6) The degree to which stormwater discharged from the property affects water quality in the stormwater district.
(7) Any other factors the board considers necessary.
(e) The board may exercise reasonable discretion in adopting different schedules of fees or making classifications in schedules of fees based on:
(1) variations in the costs, including capital expenditures, of furnishing services to various classes of users or to various locations;
(2) variations in the number of users in various locations; and
(3) whether the property is used primarily for residential, commercial, or agricultural purposes.
As added by P.L.125-1987, SEC.1. Amended by P.L.176-2002, SEC.6; P.L.282-2003, SEC.10; P.L.114-2008, SEC.3.

While Indiana has clear laws for its municipal sewer districts to operate and fund themselves, it is not certain that a similar act instituted in Pennsylvania would be upheld. If the Supreme Court rules that stormwater fees are taxes, many of the approved fees in Indiana would likely still be considered taxes in Pennsylvania. Simply stating that a fee that operates as a tax is not a tax, does not actually mean that it will not be viewed by the courts as a tax.

3.2 Missouri – Fees are Taxes

In 2013, the Missouri Supreme Court decided in Zweig v. Metropolitan St. Louis Sewer District (MSD)[17] that stormwater fees implemented by the sewer district and based upon a property's impervious area were illegal taxes. Under Missouri law, a political subdivision may not levy taxes without voter approval, but it may charge a fee for service. Following similar analysis as the Commonwealth decision, the Missouri Supreme Court found that the impervious area basis for the fee was not proportional to the benefit received, and that the benefits were collective benefits meaning that the user who paid the fee was not receiving a direct service for their payment. Since the benefits were not direct benefits to the payee, were not exclusive to the payee, and the benefits applied to everyone within the district, the fee was actually a tax. Since the fee was a tax which had not been approved by voters, it violated Article X, section 22(a) of the Missouri Constitution.[18]

Since the Zweig court decision in 2013, municipal sewer districts still exist in Missouri and stormwater systems are still funded, but only through taxes. These taxes take the form of

[17] William Douglas Zweig, et al., v. The Metropolitan St. Louis Sewer District, No. SC92581 (2013)
[18] William Douglas Zweig, et al., v. The Metropolitan St. Louis Sewer District

sales taxes or they continue to base them on impervious surface area and levy them only against non-exempt properties.

Should the Pennsylvania Supreme Court decide that stormwater fees are taxes, then Pennsylvania would be in a similar situation to Missouri and will need to switch to funding its stormwater system through taxes. Where Pennsylvania differs from Missouri is that municipal authorities, unlike municipal sewer districts in Missouri, do not have the power to levy taxes. While stormwater municipal authorities could continue to operate and maintain the stormwater systems, they would be reliant upon their municipalities to levy taxes and transfer funds to them. This outcome would result in stormwater financing falling back on the general fund, which was one of the reasons why stormwater municipal authorities were created in the first place. It is therefore conceivable that some municipalities may decide to dissolve their stormwater municipal authorities and regain full management and operational control.

3.3 Washington – Fees are Fees

Washington state is an example of a state that has found stormwater fees to be fees and not taxes. The first case that posed the fees vs. tax question in Washington was Teter v. Clark County in 1985.[19] In the decision the court found that Clark County's storm and surface water utility was not a tax, but rather a regulatory fee. This interpretation was upheld in the 1997 case Smith v. Spokane County.[20] In Smith v. Spokane County, Spokane County had instituted a fee to fund "Aquifer Protection Areas." The court found that the fee was constitutional and not a tax because the fee was reasonable and only used to cover the costs of the program.

The facts and considerations in Washington touched on the same core issues as those in the West Chester case, but the Washington state supreme court found that the benefit conveyed by a stormwater system rose to the level of benefit required for a fee versus a tax. There did not seem to be statutory or other circumstances unique to Washington state that differentiated the analysis of the stormwater fee compared to those in Indiana, Missouri, or Pennsylvania. Questions regarding benefit, proportionality of stormwater fees, and voluntariness of the fee were raised in all four states, and three of those cases reached different conclusions. Indiana so far seems to have avoided the explicit argument surrounding fees vs taxes because of the state's strong statutory language, but that prescriptive strategy does not seem to be available to Pennsylvania since the courts are already considering the stormwater fee. The Missouri and Washington cases both analyzed the question of benefits and reached different conclusions, suggesting that there is no presently existing legal framework or strategy that will definitively determine whether a stormwater charge is a tax or a fee.

[19] Teter v. Clark County, 104 Wn.2d 227, 704 P.2d 1171 (1985)
[20] Smith v. Spokane County, 89 Wn. App. 340, 948 P.2d 1301 (1997)

4.0 Conceptual Arguments of Fee vs Tax

While the West Chester court case contrasts between taxes and fees, it does not sufficiently differentiate between different types of fees. Property and sales taxes both fall under the general term of tax, but they operate and are analyzed differently. So too are there different fees that, even though they fall under the general term of a fee, are quite distinct. For instance, a one-time fee to connect a new property development to the local sewer system is going to be different than a fee charged for a special assessment, a recurring water meter fee (commodity charge), or a fee levied against polluters (burden offset charge). While all fees, the reasons why they are implemented and used are different, and the West Chester court case fails to clarify what kind of fee a stormwater fee is.

A stormwater fee can be considered under two different fee frameworks: as a commodity charge (where the user is charged for the provision of a good or service that directly benefits them), or as a burden offset charge (where the fee is imposed to address the cost to society created by the user).[21]

4.1 Determining a Benefit Equation for Mitigating Stormwater Runoff

When determining a fee, the question of benefit and how to measure it is crucial. If benefits that depend upon usage could be measured and assessed to each parcel, could we devise a fee that would pass the Commonwealth Court's definition of a fee?

If we had perfect measurements and data, a commodity charge would be based on the equation:

Individual Benefit for property $i_t = (RO_i - URO_i)*B_i$ for time period t.

URO = Uncollected runoff (Runoff from property i that does not get managed by MS4 system)

B = Total benefit gained by property i for each unit of runoff that is managed by the MS4 for time t

Benefit can be broken down to B = FP + EB

FP = Flood Protection = Benefit gained from MS4 system protecting property due to reduced flooding chance, and reduced flooding damage when it does occur.

EB = Environmental Benefit = Benefit gained by reducing pollution generated by storm run-off (soil, chemicals, fertilizer, animal waste, leaves, oil and grease, trash, etc.) that enters surface water.

RO = Runoff from property i that is collected by MS4 system during specified time period

[21] Hugh D. Spitzer "Taxes vs. Fees: A Curious Confusion" Gonzaga Law Review 38, no. 2 (2002/03): 335-366

RO based on the curve method is $Q = (P-I_a)^2/(P-I_a) + S$

Q = Runoff (in) for time period

P = Rainfall (in) for time period

S = Potential maximum retention after runoff begins (in inches)

I_a = Initial abstractions (initial loss) which can be viewed as a percentage of S -- (0.2S)

Can therefore be more simplified to be $Q = (P-0.2S)^2/(P+0.8S)$

$S = (1000/CN) – 10$

CN = Curve Number, which can generally be interpreted as the absorption capability of the ground. CN is based on hydrologic soil group (A, B, C, D), land use, and pervious and impervious surface area (both type and percent of total study area). CN values generally range from 30 (good pervious soils) to 100 (impervious soils). Slope is generally not used in CN values since most cultivated land in the U.S. is on average 5% slope or less which doesn't greatly affect curve numbers. However, slope would be a factor if it exceeds 5%.

4.2 Considering Benefit and Damage

In our perfect world, the runoff would be calculated for each property that exists within a municipality. Similar to a water or electrical meter, we would know exactly how much water flowed off of each property and could assign a rate to the volume of runoff. However, not all runoff that falls on a property makes its way into the sewer system, some flows to neighboring properties where it is absorbed, or it flows to areas that do not lead to MS4 collection points. We therefore would also need to know the exact amount of runoff from each property that runs into the stormwater system. Runoff that did not get collected by the MS4 would not get included in the benefit calculation as it did not ever get handled by the MS4 system and would therefore not be providing any benefit to the property owner. Water that flowed to neighboring properties would be measured since that is the transferring of one property's burden onto another. After knowing the exact amount of runoff that a property generates for a given storm event, we would be able to multiply that amount by a benefit rate. The benefit rate would be made up of the environmental benefit provided to the property by the MS4 preventing surface pollution entering our water systems and the reduction in property damage due to the decreased likelihood and severity of flooding. Those benefits would differ for each property, as a house in a flood prone area will receive a greater flood benefit than a house on a hill, just as an auto dealer with more car fluids draining onto the ground would receive more environmental benefit than a residential homeowner. The sum of the benefits for each property could then be divided by the budget needs for the MS4 system to reach a fee that was directly proportional to the amount of benefit received by the property.

Moving back to reality, we must then consider how we could measure each aspect of our benefit equation. Flood insurance rates could be used as a proxy for how much benefit a property

receives from being located within an MS4 system. However, actual rates of flood insurance provided by FEMA can be scarce since many properties in Pennsylvania do not pay for flood insurance. Conceptually, however, the idea of flood insurance as a representation for flood benefit could work as an approximation.

Measuring environmental benefit would be difficult as we would be trying to value how much we benefit from clean water, erosion control, terrestrial and aquatic biodiversity, and other environmental benefits associated with flood prevention. Macro and global estimates have been made about the market value of providing every person with clean water, but a micro level value that could be tied to polluted runoff (taking into account different types of polluted runoff) does not exist. Not being able to measure environmental benefit would not prevent the benefit equation from continuing to be useful for some geographic areas, as the benefit equation could be based solely on the flooding benefit, but for areas that have MS4s primarily for environmental purposes due to there being no flood danger, it would no longer be a suitable equation.

Runoff is a quantifiable metric, as hydrological engineers are consulted and perform the calculations regularly. Generally, the runoff is not calculated on a per parcel basis, but it would be doable, albeit time consuming. Geographic Information Systems and on ground surveys could be used to determine topography, soil types, and land use types and percentages for the runoff number calculations. It must be noted that the runoff would be an estimate for each parcel. The runoff equation is simply a model that approximates runoff, but there are many assumptions built into the runoff models, so accuracy equivalent to a household's water meter charge would not be possible. Additionally, topography dictates where runoff flows, and each property's contours would change where runoff will end up. While the models can approximate total quantity of runoff generated by a property, they are less adept at determining where that runoff terminates, which would mean that some properties could be overcharged or undercharged due to inaccurate runoff estimates.

Courts could decide that an exact measurement of runoff was not necessary for determining the benefit so long as the fee was proportional to the runoff created (courts have done this before. See McCleod v. Columbia County, 599 S.E. 2d 152 (Ga. 2004) and Church of Peace v. City of Rock Island, 2005 Ill. App. LEXIS 448 (2005)). If we assume this, then our equation would seem to satisfy the benefit and proportionality issue laid out in the West Chester case. The next question would then be whether the benefits gained by the commodity charge were exclusive and dependent upon payment.

4.3 Considering Voluntariness

The question of voluntariness is relatively simple: if a property owner stopped paying a stormwater fee, would the property cease to receive benefits? The answer to this is no. Even if it were possible to remove the portion of the MS4 that served that property owner, it would be too expensive. Further, the municipality is required by the NPDES permit to handle the stormwater runoff within its boundaries, so it would have to continue to provide service and the non-paying property would continue to benefit from the MS4 system.

Even if we imagined that the non-paying property could get its portion of the MS4 system removed, it would still continue to benefit from the system. The chief benefits from an MS4 system are in reduced chance and severity of flooding (and the various benefits associated with that), and cleaner water. However, an MS4 does not protect a property from *its own* runoff. Instead, an MS4 protects a property from other properties' runoff. A property is most likely going to be flooded from upstream water, and the environmental impacts of pollution from runoff are going to be felt by properties downstream. Removing the MS4 service from our non-paying property would not reduce the benefit gained by the property and, if anything, it would increase the impacts that downstream properties experienced. It would thus seem that the benefit received is not dependent upon the fee paid, and therefore according to the definition, that the system seems to operate more as a tax.

This interpretation and division of benefit could be critiqued by arguing that the stormwater fee is not a commodity charge representing the benefit a property receives, but a burden offset charge for the damage it creates. Changing the benefit variables in our benefit equation to damage would then mean that a property is charged based on the amount of flooding and pollution that it creates, and that the MS4 must mitigate these negative externalities for its downstream neighbors. If a property ceased to pollute and create runoff, then it should no longer be charged a fee. Comparisons can be drawn to garbage disposal and tailpipe emission fees where a fee is levied against damage (pollution) that would be experienced by others if left unmanaged. In those cases, one would cease to be charged if she sold her car and stopped buying anything that had to be thrown away. The distinction that can be drawn between a stormwater fee and the garbage and tailpipe fees is the agency of the fee payer. The cause for the garbage or tailpipe fee is an action taken by the owner (to buy a car and drive, or to buy goods and throw them away). While it might be difficult, stopping these actions is not inconceivable or outside a person's power. For runoff, the origination of the damage is not an action that a person takes, but nature. A property owner has the power to increase the runoff on his property by developing it and increasing impervious surface area or decrease it by planting it with flood-controlling vegetation, but he has no power over the root cause of the problem: rain. It will rain regardless of the action that a property owner takes, so the actual ability for a property owner to control their runoff, and its resulting damage fee, is constrained by a natural force, which would suggest that the damage fee is not voluntary, as you cannot reasonably stop it.

This analysis argues that while a benefit or damage equation of varying accuracy may be achievable, it would still not solve the issue of the fee not being voluntary. Thus, again, unless the definition of a fee changes, it would seem that a stormwater fee actually performs more like a tax.

5.0 Case Study of Ferguson Township, Pennsylvania

A ruling in favor of West Chester would be the preferred outcome for municipalities in Pennsylvania as it is the status quo. As municipalities argue, there is an equity issue that arises when you make a stormwater fee a tax, which allows tax-exempt properties to avoid contributing to the system. While the extent of the benefit and degree of contribution to the problem can be argued, generally, tax-exempt properties do benefit to some degree from the stormwater management systems maintained by the municipalities within which they are located. For some municipalities, tax-exempt properties take up a significant amount of real estate, and losing the ability to charge those properties would impact the financing capabilities of the stormwater systems that serve them. A glimpse of the potential harm to municipalities can be seen below in Figure 1 which shows the number of tax-exempt parcels in each county in Pennsylvania, and the percentage of total assessed value in the county made up by tax-exempt parcels. While on the county rather than the municipal level, it shows that there are several counties where tax-exempt parcels account for more than 20% of total assessed value, signifying the large share of taxes that are not able to be collected for those counties.

Figure 1[22]

County	# of Tax Exempt Parcels	# of Taxable Parcels	% Tax Exempt to Total Parcels	% Weighted Tax Exempt Assessed Value to Total
ADAMS	1,971	46,756	4%	11%
ALLEGHENY	19,245	560,838	3%	15%
ARMSTRONG	1,851	41,216	4%	10%
BEAVER	1,414	91,984	2%	4%
BEDFORD	1,642	34,781	5%	9%
BERKS	3,619	159,175	2%	7%
BLAIR	2,357	63,485	4%	11%
BRADFORD	1,253	34,915	3%	9%
BUCKS	4,312	235,378	2%	0%
BUTLER	452	95,066	0%	3%
CAMBRIA	2,692	86,455	3%	9%
CAMERON	118	5,572	2%	10%
CARBON	1,037	46,810	2%	4%
CENTRE	1,241	58,982	2%	21%
CHESTER	4,384	193,609	2%	4%
CLARION	800	28,454	3%	23%
CLEARFIELD	296	66,524	0%	2%
CLINTON	1,267	22,187	5%	21%
COLUMBIA	1,460	32,780	4%	14%
CRAWFORD	2,495	58,771	4%	10%
CUMBERLAND	2,226	98,642	2%	14%
DAUPHIN	1,973	113,383	2%	8%
DELAWARE	5,826	197,034	3%	10%
ELK	798	23,834	3%	11%
ERIE	2,124	120,323	2%	5%
FAYETTE	1,556	84,535	2%	10%
FOREST	501	10,886	4%	30%
FRANKLIN	72	72,350	0%	0%
FULTON	517	9,504	5%	3%
GREENE	1,995	29,267	6%	28%
HUNTINGDON	506	29,290	2%	8%
INDIANA	153	44,934	0%	0%
JEFFERSON	811	32,262	2%	11%
JUNIATA	59	13,991	0%	1%
LACKAWANNA	3,323	98,503	3%	8%
LANCASTER	1,644	190,403	1%	3%
LAWRENCE	624	57,839	1%	9%
LEBANON	359	55,136	1%	1%
LEHIGH	709	131,916	1%	3%
LUZERNE	2,145	164,957	1%	5%
LYCOMING	1,222	52,728	2%	6%
MC KEAN	2,208	26,557	8%	29%
MERCER	1,545	58,785	3%	17%
MIFFLIN	650	23,570	3%	8%
MONROE	954	104,272	1%	0%
MONTGOMERY	9,186	294,381	3%	11%
MONTOUR	303	8,273	4%	34%
NORTHAMPTON	1,283	122,390	1%	2%
NORTHUMBERLAND	1,887	46,920	4%	15%
PERRY	150	23,336	1%	2%
PHILADELPHIA	2,047	579,287	0%	3%
PIKE	3,912	59,194	6%	3%
POTTER	567	16,686	3%	16%
SCHUYLKILL	1,429	88,195	2%	6%
SNYDER	333	19,190	2%	6%
SOMERSET	2,633	57,140	4%	12%
SULLIVAN	240	8,769	3%	14%
SUSQUEHANNA	483	29,014	2%	7%
TIOGA	426	27,750	2%	28%
UNION	404	17,000	2%	4%
VENANGO	650	37,529	2%	12%
WARREN	749	27,490	3%	5%
WASHINGTON	1,246	118,568	1%	4%
WAYNE	911	58,715	2%	7%
WESTMORELAND	3,990	189,377	2%	9%
WYOMING	112	17,402	1%	2%
YORK	2,082	186,164	1%	3%
PENNSYLVANIA	123,429	5,841,409	2%	7%

[22] Unpublished tabulations of Pennsylvania's assessed properties provided by the Rochester Center for Economic Research

To gain insight into what the impact would be at the municipal level of a decision ruling that the stormwater fee is a tax, we turn our attention to Ferguson Township, Pennsylvania. By studying how stormwater fees have been used in Ferguson, we can see what the loss of tax-exempt properties would do to the stormwater budget, and evaluate the equity of the current stormwater funding mechanism.

5.1 Ferguson Township Background

Ferguson Township is a township in Centre County, Pennsylvania, abutting State College. It has a population of just under 20,000 people and is a mix of agricultural, residential, and commercial properties. In 2021, the township decided to implement a stormwater fee to fund its MS4 system. This fee was determined using the Equivalent Residential Unit methodology (ERU), a method that has been adopted by local governments, municipal authorities, and their equivalents across the country due to its relative ease to implement.

Engineers who study runoff often look at how absorbent the surface material of the study area is. Different materials have different levels of absorption and the prevalence of more absorbent materials, most often natural surfaces such as meadows, forests, and well-kept grass, will decrease runoff. Conversely, areas covered with materials that do not absorb water well, typically man-made material such as concrete, buildings, and gravel, but also natural substrates such as clay and arid soil, create more runoff. In the ERU method, absorbent and non-absorbent materials are grouped into two general categories: pervious area (surface material that absorbs water) and impervious area (surface material that does not absorb water).

To calculate ERU, municipalities will take aerial photographs of all parcels within the jurisdictional boundaries. Using Geographic Information Systems or other methods, the imagery will be analyzed so that the total impervious area is calculated for each parcel. Most often, these are building roofs, driveways, gravel walkways, decks, and flagstones. Anything that is not identified as being impervious is considered pervious. Depending on the size, capabilities, and time constraints of the municipality or consultant who is doing the impervious area analysis, not all residential properties will be analyzed. Instead, a random sample will be chosen and their impervious areas measured. The average amount of impervious area across the sample will be what 1 ERU equals, and this will be applied to every residential property in the municipality. For any property that is not residential, its impervious area will be measured based on the aerial images and no averaging will occur. The burden on the stormwater system from that property will be its impervious area divided by the impervious area in one ERU. For example:

100 residential properties were randomly selected and their impervious area measured. The mean impervious area was 2000 sq. ft. therefore 1 ERU = 2000 sq. ft.

A commercial business has a total impervious area of 6000 sq. ft. therefore 6,000/2,000 = 3 ERUs.

The municipality will determine the needed budget for the stormwater system, either completely financed by user fees, or some combination of fees and general fund transfers. The total stormwater budget will be divided by the number of ERUs within the municipality's boundaries to arrive at the fee charged per ERU. Continuing the example from above, if the budget was $1,000,000 and there was a total of 10,000 ERUs spread across all parcels, the fee per ERU would be:

1,000,000/10,000 = $100.

Each residential property would be charged $100 in stormwater fees for the year, and the commercial business with 3 ERUs would be charged $300.

Ferguson used this system to arrive at an ERU of 3,097 square feet, and the fee for one ERU was $119.

5.2 Fee Differentiation: Growth and Non-Growth Zones

After determining its ERU, Ferguson went a step further by classifying properties into growth or non-growth zones. The growth zone (bounded by orange in the image below) is located towards the eastern end of the township and is where most developments, residences, and commercial buildings are located. The non-growth zone makes up the center and western parts of the township, which are dominated by farmland. The non-growth zone uses an ERU of $75 to represent the lesser MS4 services that those properties receive. The township also implemented a credit system which property owners could use to reduce their fee by implementing landscaping that reduced runoff.

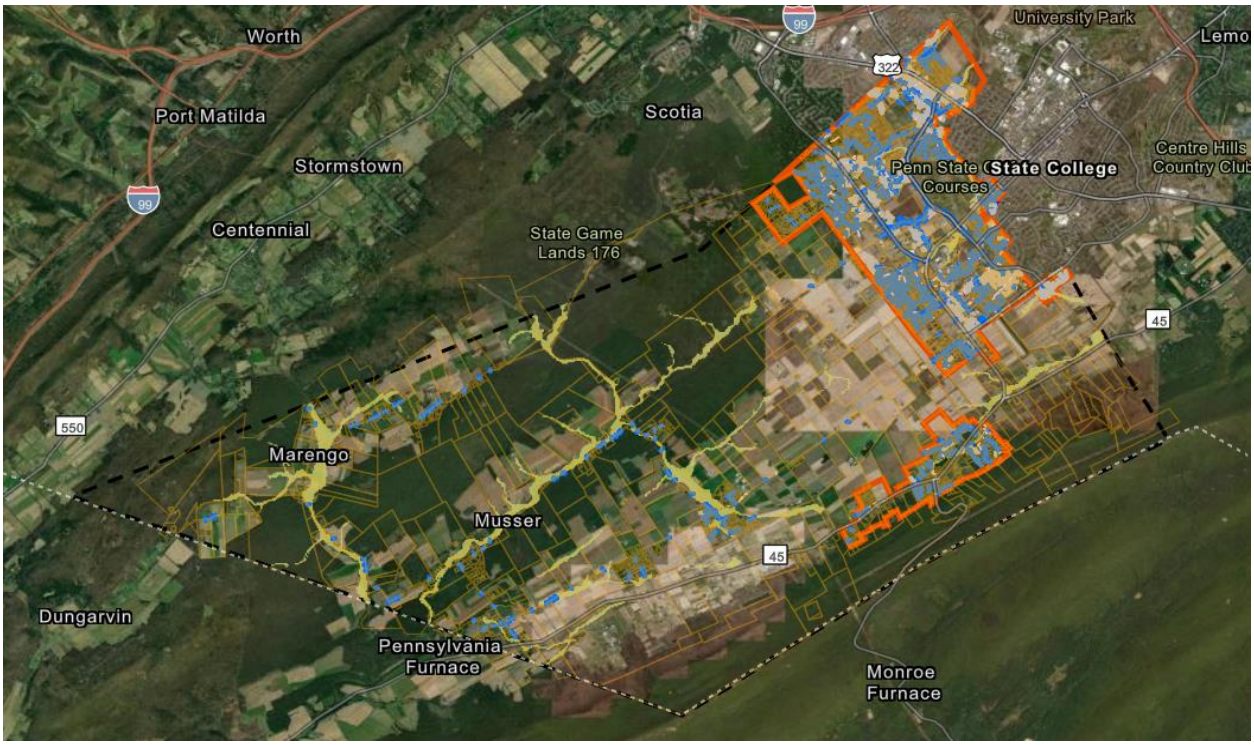


Figure 2: Image of Ferguson Township, PA stormwater system[23]

In Figure 2, bolded orange boundaries contain parcels that fall within the growth zone and are charged the higher $119 per ERU fee. Areas outside of the bolded orange lines are the non-growth zones that are charged the lower $75 per ERU fee. Blue indicates stormwater pipes, and yellow highlighting denotes floodplains. Light orange lines denote individual parcels.

From the image, it is immediately evident that stormwater services provided by Ferguson are not evenly dispersed across the township. The vast majority of stormwater pipes exist within the growth areas, and while the non-growth areas do have pipes, ditches, and headwalls installed to control the flow of water, the total number is far smaller, with some parcels not having any stormwater controls located near them at all. Evaluating the stormwater fee either as a commodity charge or a burden offset charge in the context of floodplains further complicates issues. Floodplains are those areas that have a higher propensity to flood when it rains. If a property falls within a floodplain, it follows that the benefit it receives from the stormwater system is higher than those properties that do not and it could be argued that it should therefore be charged a higher fee. In addition, it could be argued that properties closer to floodplains should pay higher fees since they are putting a greater burden on flood-prone areas compared to those that are located further away. While both arguments have valid reasoning, Ferguson, like most other municipalities, does not incorporate either when determining their fees.

[23] "Stormwater Web Map 2023," Ferguson Township, PA, accessed December 1, 2024, https://fergusontwp.maps.arcgis.com/apps/webappviewer/index.html?id=4c53f2fa9f6a4eebb7905a97337210d3.

5.3 Impacts of the West Chester Tax Decision

The data used for Ferguson is publicly available information that was on the township's website. The fee information is preliminary, and it does not account for any credits claimed by properties to reduce their fees, but it provides a base case for how the township planned to fund its stormwater system in 2022, and the before-credit rate that each parcel would be charged.[24] Another assumption that will be made here is that the budget for Ferguson's stormwater system is equivalent to the amount raised by the fee. In reality, Ferguson supplemented its stormwater budget with a portion of funds from its general fund, but the majority of the funding was from the stormwater fee. Further, equating the budget with the fees raised is acceptable since we are interested in the impacts on the ability to raise revenue from properties, so a reduction in fees raised will have an equivalent reduction on the stormwater budget.

2021 Stormwater budget: $1,428,085

Parcels assessed a fee: 6335 parcels

Number of tax-exempt parcels: 209

Fees raised from tax-exempt parcels: $220,098

Stormwater budget without tax-exempt properties: $1,207,987

Percentage of total stormwater budget from tax-exempt properties: 15.4%

Township Property Taxes in 2022: $1,474,072

Township Total Revenue: $12,974,106

A decision in favor of the University of West Chester would cause roughly 15% of Ferguson Township's stormwater fund being lost due to tax-exempt properties being immune. That $220,098 loss would need to be recouped by raising taxes, most likely the township's real estate taxes. For a township that brought in $1,474,072 in real estate taxes in 2022, the loss of the $220,098 in fees from tax-exempt properties would be about 15% of real estate tax revenue. Quantifying the impact of the change further, the total revenue in the general fund in 2022 was $12,974,106. The general fund would therefore need to add roughly 10% more revenue, or $1,207,987 through taxes to fund its stormwater budget if stormwater fees were removed and it was solely financed by real estate taxes.

[24] It should be noted that in 2024, Ferguson Township voted 3-2 to stop its stormwater fee and revert to funding its MS4 system via taxes. The main reason cited for this was the administrative costs required to implement the program. The change will take place in 2025. Geoff Rushton, "Ferguson Township Supervisors Repeal Stormwater Fee," StateCollege.com, (2024), https://www.statecollege.com/articles/local-news/ferguson-township-supervisors-repeal-stormwater-fee/

The implications of the West Chester case to stormwater management budgets are profound. Losing 15% of a stormwater budget is significant, and that number could increase for those municipalities that have a higher number of tax-exempt properties within their boundaries (such as those that have universities in them). For Ferguson, which has not raised real estate taxes since 2006, the increase could be absorbed, but for other towns that are close to their millage limits, they may have to turn to other methods. One might think municipalities do not necessarily have to abandon the ERU method if the assessment is determined to be a tax. Could municipalities continue to use the ERU as the basis for determining the stormwater tax and simply spread the loss of tax-exempt fees across taxable properties? The question then becomes, is an ERU basis for taxation appropriate?

5.4 Equity of ERUs

There are conceptual and technical inequities that arise from the ERU system. Conceptually, an ERU is based solely on a property's impervious area. Hydrological engineering confirms that impervious areas lead to far more runoff than pervious areas,[25] so it would make sense to charge properties with more impervious area more than properties that have less. However, it is not just the total impervious area that matters, but rather impervious *and* pervious area. Pervious surfaces have a wide range of absorption rates, with some being closer to the absorption rates of impervious surfaces. The ERU method therefore generally undercharges pervious areas, since, for instance, a completely undeveloped field will be considered pervious and charged no fee even though it would still produce runoff in heavier storm events that exceeded its absorptive capacity. The ERU system therefore does not properly consider that pervious area can also burden a stormwater system, albeit at a lower rate than impervious area, and should therefore be captured by a tax or fee model that seeks to proportion a stormwater fee or tax on a parcel's burden on a stormwater system. A justification for the use of the ERU system is that it is fair, or approximately fair, because it is based off impervious area. However, the preceding analysis shows that the ERU method oversimplifies burden by only considering impervious area, and that a more equitable system would incorporate pervious area.

The technical inequities with the ERU system are that it does not equally assess fees to every residential property. The ERU method is based on the average impervious area for residential properties. This means that regardless of their actual size or impervious area, all residential properties are charged 1 ERU. This is different than non-residential parcels, which pay a fee that is based on their actual impervious area. Since all parcel fees except for residential ones are based on actual impervious area, there exists an inequity within the residential properties. Turning to the Ferguson dataset, there were 5191 parcels that were classified as residential. Of those, 74 were missing an impervious area or had an impervious area of 0; they were removed from the dataset giving us 5117 total residential parcels. The summary statistics of the impervious area in the residential properties are as follows:

[25] "Urbanization - Stormwater Runoff," US EPA, (2024), https://www.epa.gov/npdes/about-npdes.

Minimum: 152

1st Quartile: 2282

Median: 2921

Mean: 3427[26]

3rd Quartile: 3953

Maximum: 40,412

Standard Deviation: 2371

Coefficient of Variation Impervious Area: 0.6919

Breaking down the residential properties further based upon those that are within the growth area and those that are not, we find:

	Growth	Non-growth
Minimum	461	152
Median	2,849	3,795
Mean	3,227	4,920
Maximum	40,412	36574
Standard Deviation	2,029.616	3,774.913
Coefficient of Variation	.6289	.7673
1 ERU Fee	$119	$75
Fees Raised	$545,377	$47,475
True ERU fees raised	$559,538.8	$72,077.37
Difference in money raised	$14,161.8	$24,602.37

Considering the growth residential properties first, the summary statistics for all residential properties show that over half have 2921 or fewer feet of impervious area. Compared to either the dataset's mean of 3427 or the 3097 average calculated by Ferguson, it means that at least half of the residential properties are paying more per square foot of impervious area than residential properties above the mean. The coefficient of variation figures of 0.6289 and 0.7673 further reinforce the inequity of Ferguson's fee as the higher coefficient of variations mean that impervious area for residential properties are not clustered close to the mean, but spread out. Assessing each residential property at one ERU results in an inequitable burden within residential properties, but also between residential and commercial properties. For residential properties within the growth area, each property is paying $119 regardless of impervious area.

[26] This mean impervious area differs from the 3097 impervious area determined by Ferguson Township by 330 square feet.

Any property that is below the mean size will be carrying the burden for properties with more impervious areas since those properties are being charged for less area than they actually have. Properties other than residential are further burdened due to lower fees being raised from large residential properties, meaning the ERU fee of $119 must be higher to meet the budget needs.

A more equitable formula for determining the fees could be created by taking the impervious area for each property and dividing by the average. In this way we can calculate the true number of ERUs that should be assessed to each property, and then calculate the difference in fees between the original and the revised methods. When measuring the impervious area on each residential property, the number of ERUs for all residential properties increases from 5,117 to 5,663, a roughly 11% increase. For growth areas, the fees raised increased by $14,162 while non-growth areas would see an increase of $24,602. It is important to highlight the significance of the change in these fees. Under the current ERU system, $38,764 was being left uncollected from residential properties. Since the budget would stay level, it means that the $38,764 previously was spread across all other non-residential properties in the township, meaning that residential properties were being subsidized. The impacts of not assigning a single flat-rate ERU, but using the above revised method for calculating fees for all residential properties are therefore: 1) It is more equitable for all property owners in the township, and 2) it is more equitable between residential property owners because each property is being assessed at its actual impervious level, so each property is charged a proportional fee.

There are other fee structures that municipalities have used besides the ERU method. Some charge a flat fee per foot of impervious surface area (similar in impact to the true ERU method just calculated), while others use a tier system where each tier represents an amount of impervious area and the fee is based upon which tier the property falls within. While both methods are more equitable than the ERU method, they still do not address the oversimplification issues highlighted earlier, namely, not accounting for pervious area.

An alternative method used by St. Clair Shores Michigan[27] would be to weight the pervious and impervious surfaces of a property differently, as shown in the equation below.

Property Runoff Potential (sq. ft.) = 0.9 * (impervious area) + 0.3 * (pervious area)[28]

Once the property runoff potential is determined for each property in a municipality, it is multiplied by the per square foot rate that is determined by the needs of the stormwater budget. Below is a table which gives examples of how the fee would function with properties of different impervious and pervious areas at fee rate of $0.04 per square foot.

[27] "FAQs - What Is My Stormwater Fee Based Upon?," City of St. Clair Shores. accessed November 12, 2024, https://scsmi.net/FAQ.aspx?QID=232.

[28] St. Clair Shores Michigan uses a multiplier of 0.9 for impervious area and 0.2 for pervious area. For the example I present, I adjusted the pervious multiplier to 0.3 to have it be closer to the lowest CN value for pervious areas.

	Impervious Sq. Ft. (.9)	Pervious Area Sq. Ft. (.3)	Property runoff potential	Fee with Sq. Ft. rate of .04
Property 1	3000	3000	3600	$144
Property 2	3000	6000	4600	$184
Property 3	6000	3000	6300	$252
Property 4	1000	8000	3300	$132
Property 5	10000	500	9150	$366
Property 6	500	20000	3450	$138

As can be seen from the table, impervious area is still the biggest contributor to determining the fee owed by a parcel. However, by including pervious area, more characteristics of properties are considered. Larger properties that do not have much impervious area still generate runoff, albeit at a lesser rate than impervious properties of the same size, but often times more than properties that are much smaller and have a higher percentage of imperviousness. By applying the 0.3 multiplier to pervious area, those larger properties, and the resulting burden that they cause, are more properly taken into account than any method that is solely based on impervious area. This method, like the ERU method, would incentivize property owners to reduce their impervious area in order to decrease the amount owed. And, since multipliers are used for each variable, municipalities could change the rate, similar to a millage rate for real estate, to lessen or increase the difference between impervious and pervious surfaces. While a generalization, the 0.9 and 0.3 selected for this equation are based on curve numbers used to calculate runoff. Impervious surfaces have curve numbers closer to 1, while very absorbent surfaces tend to be closer to 0.3. Municipalities could tailor the multipliers based on curve numbers that best apply to the soil types and most common land uses in their municipalities to better reflect the trade-off between perviousness and imperviousness in their areas.

To summarize, the advantage of this pervious/impervious equation compared to methods that only focus on impervious area is that it better captures the relationship between runoff on impervious and pervious surfaces, takes into account total property size in comparison to total property area, provides municipalities with the ability to tailor its multipliers to local land use conditions, and it still provides incentives to property owners to reduce impervious area.

6.0 Summary and Future Research

6.1 Stormwater fees do not act like fees

The previous analysis has argued that, according to the legal definition, a stormwater fee is more akin to a tax than a commodity or burden offset charge. While benefits and damages could theoretically be determined at a parcel level, the administrative costs incurred to determine such figures would far outweigh any revenue raised from a stormwater fee, and in practice, the benefits afforded by stormwater systems generally benefit the entire community, like a tax. More importantly though, this analysis argues that what differentiates stormwater from other utility or

offset charges is that the fee is not voluntary, and property owners are not able to control the rain which causes runoff. This, combined with the interdependence between properties in determining how much and where runoff ultimately flows, makes stormwater management a public problem that goes beyond the definition of a fee.

6.2 Stormwater taxes – funding implications

Should the Supreme Court uphold stormwater fees, then the status quo will be maintained. However, should the Supreme Court reach a similar conclusion as this paper and decide that stormwater fees are taxes, municipal authorities' role in stormwater management will change. Tax-exempt properties would no longer contribute to stormwater funding, but more importantly, the municipal authority would no longer be able to raise revenue since it lacks the power to tax. Municipal authorities could still issue bonds, but they would no longer have a revenue stream to pay off the bonds. Instead, the authority would be reliant upon the municipality to raise funds for operating and capital improvements via taxes and earmark them specifically for stormwater projects or transfer them from the general fund.

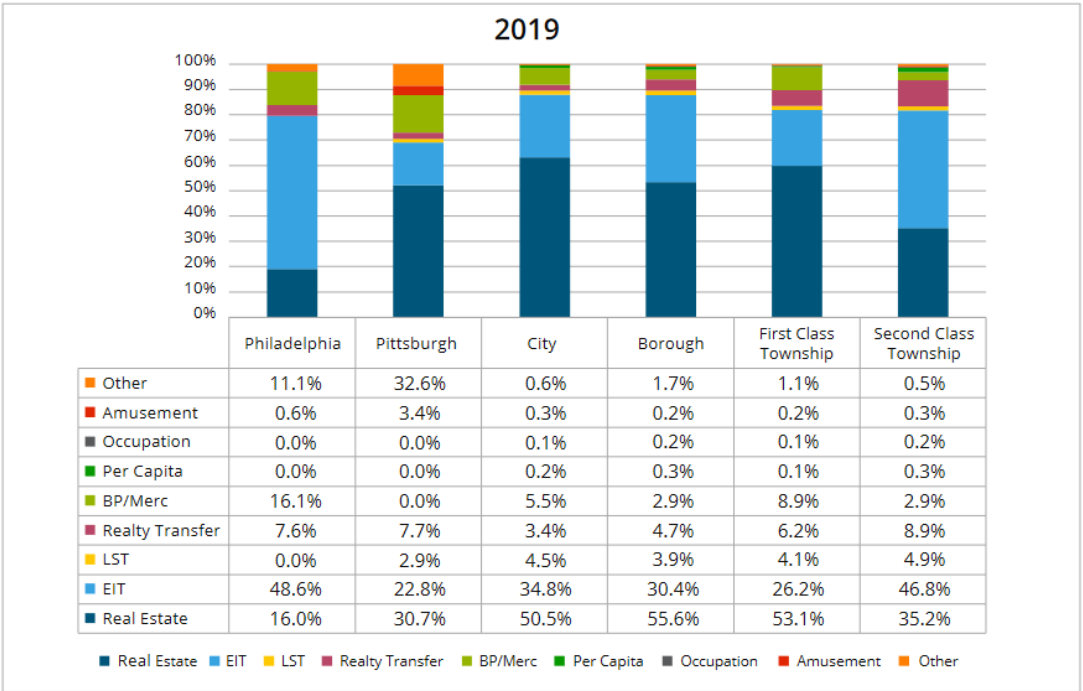
However, municipalities could run into obstacles in starting to implement a stormwater tax. Townships and Boroughs in Pennsylvania are governed by Act 511 – The Local Tax Enabling Act, which was passed in 1965. Act 511 lays out the tax sources that municipalities may use to fund themselves. They are as follows:[29]

> Property or real estate tax - tax levied on property within the municipality. Amount of tax can vary due to the municipality having power over the millage rate. Rate caps exist to prevent increases being too large, and the process depends upon the county for reassessing properties, which currently they are not required to do on a set schedule.
>
> Earned income tax – up to 1% may be collected on wages for residents within the municipality. Of the 1% raised, 50% is shared with school districts.
>
> Local services tax – flat tax of $52 per worker within the municipality, with $5 going to school districts.
>
> Per capita tax – flat head tax on residents that can range from $5 to $10.
>
> Occupation tax – flat rate up to $10 applied only to residents.
>
> Real estate transfer tax: up to 1% collected from the sale of real estate within the municipality. 50% is shared with school district.
>
> Business Privilege/Mercantile tax – tax that previously was levied on wholesale and retail gross business receipts within the municipality, but it is no longer available due to the 1988 Local Tax Reform which prevented local governments from implementing new

[29] "It's Not 1965 Anymore: State Tax Laws Fail to Meet Municipal Revenue Needs," Pennsylvania Economy League, (2022) accessed November 26, 2024, https://www.pml.org/?flowpaper-lite-plugin=get-pdf&pdf=https://www.pml.org/wp-content/uploads/2023/01/PEL-2022-PML-Report-1-9-23.pdf.

business privilege taxes. As of 2019, there were less than 300 municipalities with a business privilege tax.[30]

In Act 511, none of the flat taxes were tied to inflation, resulting in them falling out of favor as funding mechanisms as the administrative costs to administer and collect the tax outweighed the revenue raised. Since real estate taxes are within the power of the municipality to increase, more and more municipalities have become reliant upon their real estate taxes to raise revenue. As Figure 3 shows below, real estate taxes accounted for the largest share of revenue for all Pennsylvania cities, boroughs, and townships in 2019. The earned income tax (EIT) made up the next highest portion of tax revenue, but unlike real estate taxes, most municipalities are already at the rate limit cap and cannot increase EIT further.[31]



	Philadelphia	Pittsburgh	City	Borough	First Class Township	Second Class Township
Other	11.1%	32.6%	0.6%	1.7%	1.1%	0.5%
Amusement	0.6%	3.4%	0.3%	0.2%	0.2%	0.3%
Occupation	0.0%	0.0%	0.1%	0.2%	0.1%	0.2%
Per Capita	0.0%	0.0%	0.2%	0.3%	0.1%	0.3%
BP/Merc	16.1%	0.0%	5.5%	2.9%	8.9%	2.9%
Realty Transfer	7.6%	7.7%	3.4%	4.7%	6.2%	8.9%
LST	0.0%	2.9%	4.5%	3.9%	4.1%	4.9%
EIT	48.6%	22.8%	34.8%	30.4%	26.2%	46.8%
Real Estate	16.0%	30.7%	50.5%	55.6%	53.1%	35.2%

Figure 3: Tax Revenue Distribution by Municipal Class, 2019[32]

6.3 Statutory solutions and House Bills 31 and 32

This information, when viewed in the context of the West Chester case, leads to two important conclusions.

[30] "A Guide to Pennsylvania Business Privilege and Mercantile Taxes" Pennsylvania Institute of Certified Public Accountants, accessed December 1, 2024, https://webertax.com/wp-content/uploads/2019/06/Business-Privilege-Mercantile-Taxes.pdf.
[31] Pennsylvania Economy League
[32] Pennsylvania Economy League

1. Pennsylvania law does not give municipalities the power to create a stormwater tax. Municipalities in Pennsylvania would therefore have to turn to one of the taxing bases laid out in Act 511 to raise the funds required to operate a stormwater system.
2. Municipalities would likely have to turn to real estate taxes to fund their stormwater systems, increasing their reliance on these taxes. However, since counties conduct reassessments, and many are still operating on assessments dated before 2000, assessed housing values lag far behind market rate, dampening the amount of revenue that can be raised from real estate taxes. Also, municipalities that have a large share of tax-exempt properties would be faced with an even greater real estate tax burden since they would have a smaller tax base to raise funds from. Looking at Ferguson, its stormwater budget was approximately equal to the entire revenue raised from its current real estate taxes, which means that tax rates would have to be approximately doubled in order for real estate taxes to fill the funding gap.

To address the real estate tax dependency, the Pennsylvania Legislature could consider expanding the existing tax rates under Act 511 so that tax increases for stormwater funding could be sourced from more tax bases. While this would likely be the simplest solution due to it being an adjustment of current law, it would not be the most equitable solution as it would not differentiate between properties and the amount of runoff created. What the legislature could instead consider is the creation of a new stormwater tax. While this paper argues for a stormwater tax based upon impervious and pervious area, other taxes based upon percentage of total impervious area, a tiered system, or a flat fee per square foot of impervious area would all be better than relying on real estate taxes.

Representative James B. Struzzi, II introduced House Bills 31 and 32 (Formerly HB1287 and HB1288) in the regular 2023-2024 session which would amend The Third Class Cities Code, the Borough Code, The First Class Township Code, and the Incorporated Towns act to authorize municipalities to plan, manage, construct, and fund stormwater management systems. Regarding funding, HBs 31 and 32 state[33]:

> Section 2405-A. Fees.
>
> (a) Funding.--For the purposes of funding the construction, maintenance and operation of storm water management facilities, systems and plans authorized under this article, a township may assess reasonable and uniform fees based in whole or in part on the characteristics of the property benefited by the facilities, systems and plans. In establishing the fees, the township shall consider and provide appropriate exemptions or credits for properties which have installed and are maintaining storm water management facilities that meet best management practices and are approved or inspected by the township.

[33] Language is being provided from HB 32, however HB 31 uses the same structure with differences being the government body being discussed e.g. borough, incorporated town, city

(b) Fees.--A fee levied by the township can be assessed in one of the following methods:

(1) On all properties in the township.

(2) On all properties benefited by a specific storm water project.

(3) By establishing a storm water management district and assessing the fee on all property owners in the district.

(c) Authorization.--A fee collected for the purposes of storm water management may only be used for the purposes authorized by this article.

HBs 31 and 32 only deal with the power to implement fees, not taxes. If the West Chester case maintains stormwater fees, HBs 31 and 32 would be beneficial in solidifying the fee powers that municipalities have. Parallels could be drawn to Indiana's stormwater legislation which gave municipalities the power to assess fees to all properties in the municipality, regardless of whether they were served by the stormwater management system. In Indiana, as explained previously, legislation like HBs 31 and 32 preempted the question of fees vs taxes, but that strategy is no longer available in Pennsylvania due to the already pending West Chester court case. Further, unlike the stormwater laws in Indiana, HBs 31 and 32 do not state what acceptable measures to determine fees are. It explains that the fee may be assessed to all properties in a township, or to all properties benefited by a specific stormwater project, but it does not say whether that would be based on impervious area, an ERU, or any other method. Provided fees are upheld, adding additional language to HBs 31 and 32 that clarifies how fees are assessed and determined could ensure that more equitable systems are used instead of less equitable ones.

If the court determines that stormwater fees are taxes, the usefulness of HBs 31 and 32 comes into question. If fees are taxes, HBs 31 and 32 would not solve the problems that have been identified in this paper as the discussion would be about taxes and taxing power, which neither bill addresses.

6.4 Pennsylvania's Uniformity Clause

Article VIII, Section 1, of Pennsylvania's Constitution states that "all taxes shall be uniform, upon the same class of subjects, within the territorial limits of the authority levying the tax, and shall be levied and collected under general laws."

The Pennsylvania Supreme Court further explained Article VIII in *re Appeal of Brooks Building,* 137 A.2d 273 (Pa. 1958) that taxes must be applied uniformly upon similar types of property, with substantial equality of the tax burden to all members of the same class. And, any tax that intentionally favors or undervalues similar properties is not allowed.[34]

[34] Randy L. Varner and Paul R. Morcom, "Assessment Law & Procedure in Pennsylvania" McNees Wallace & Nurick LLC, (2018)

The uniformity clause must be satisfied when considering any change of taxing powers under Act 511 or the creation of a new stormwater tax. The uniformity clause would not allow a tax using the ERU system since the foundational idea behind that system is to classify properties based on their use (residential vs non-residential) and apply fees/taxes differently (residential being assessed at 1 ERU regardless of impervious area, and non-residential properties being assessed at their full impervious area). Therefore, a stormwater tax based on the ERU system would run afoul of Pennsylvania's uniformity clause.

Taxes based on impervious and pervious area like the Michigan model would not violate the uniformity clause because they would not be classifying properties variably. Instead, all properties within the municipality would have the same rate applied to them based upon their pervious and impervious makeup.

6.5 Limitations and further research

The analysis of municipal stormwater financing mechanisms in this paper is limited. While a conceptual analysis of fees vs taxes was carried out, the actual legal analysis was preliminary and entire papers on the topic have been written examining the issue in more detail (though few of these treat stormwater fees).

While this paper used Ferguson Township to examine the financial impact to a municipality, more can and should be done. Having the stormwater fee information for municipalities in Pennsylvania that have MS4s, along with the parcel level tax status, would allow for more in-depth, quantitative analysis of the financial challenges facing stormwater funding. With this data, further equity analysis could also be carried out to show where the fee/tax burdens would fall depending on the funding method used. Crucially, this paper has also not addressed the question of how future stormwater projects should be funded. Analysis was done considering current, fixed funding requirements of stormwater systems, but as mentioned at the outset, climate change will cause stormwater needs to change. As storms get more frequent and intense, some systems may need to be replaced due to age or inadequate flood-control capacity. Thus, the planning for future improvements and capital projects needs to be examined in depth, with consideration also given to the role that state and federal governments can play in ensuring stormwater needs are met.

Another limitation of this paper was the scope of legal analysis done for other states. Three states besides Pennsylvania were touched upon, but other states as well have dealt with the question of stormwater fees/taxes. While this paper's conclusion that there is no definitive interpretation that will allow a stormwater fee to not be considered a tax stands, more research should be directed at the statutory rules governing fees in other states, who can implement said fees, and how other states establish local taxing powers.

The feasibility of municipal authorities and intergovernmental management organizations should also be explored. Stormwater runoff financing is currently the responsibility of each municipality, but the runoff is often a county or regional issue. Floodplains and runoff do not

observe governmental boundaries, so the possibility of larger, cross-governmental authorities to manage stormwater should be examined. Ohio, for example, has district stormwater authorities that manage stormwater runoff for multiple towns and cities by implementing a stormwater fee. The feasibility of intergovernmental stormwater management organizations, such as the stormwater management district proposed in HBs 31 and 32, should be examined within Pennsylvania. However, if the Supreme Court rules that stormwater fees are taxes, the ability for such organizations to form and successfully function would be severely curtailed since taxes must be implemented by the legislative body for the area having the tax imposed upon it. This could mean that counties might be in a better position to manage stormwater than municipalities since they would be able to coordinate efforts across a larger geographic area, but further research would be needed.

Lastly, consideration should be given to how the state views tax-exempt properties. While stormwater fees act more like a tax than a fee, it is not equitable to allow tax-exempt properties to avoid contributing to the environmental harms that they cause simply because they are tax-exempt. At present, poor environmental stewardship by tax-exempt properties is subsidized by the public. This is not to say that all tax-exempt properties are bad actors when it comes to the environment, but all properties, regardless of tax status, contribute to the stormwater runoff equation. For tax-exempt properties, the burden of managing their stormwater gets passed on to the taxpayers surrounding them. In addition to the problem of equity created, in this situation the costs of pollution, runoff, etc. are not borne by the tax-exempt properties themselves, and there is thus no financial incentive for them to practice good stewardship. Tax-exemptions allow many institutions that conduct beneficial work for society to exist, but we should ask ourselves how far tax-exemption status should extend, and whether there are meaningful distinctions that should be made to include tax-exempt properties when it comes to taxes and fees that fix environmental problems. The answer to this last question is not easy or straightforward, but it is one that is worth considering.

6.6 Local government is boxed in

This paper has sought to show the potential liabilities that local governments could soon be facing depending on the outcome of the West Chester case. NPDES permits, MS4s, and stormwater management have been responsibilities placed upon local governments with no structured or consistent funding assistance from the state. This unfunded mandate will have severe repercussions for local government financing if stormwater fees are ruled to be taxes. In the wake of a ruling in favor of West Chester University, municipalities will have limited options to cover budget shortfalls due to the confines of Act 511. Even if there is a willingness in the state legislature to establish a stormwater tax, consideration must then be given to ensure that any new tax does not run afoul of Pennsylvania's uniformity clause. The statutory and logistical challenges are high, but inaction could very likely be worse; state legislatures themselves should enter into the effort to adopt new and more equitable mechanisms for funding the increasing stormwater management needs of the future.

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