ARLINGTON COUNTY

Stormwater Utility Feasibility Study

Interim Deliverable / May 22, 2020

RAFTELIS

ARLINGTON
VIRGINIA

Table of Contents

List of Tables

List of Figures

Introduction

Arlington County Department of Environmental Services (Arlington County or County) has engaged Raftelis to perform a Stormwater utility feasibility study. As part of this study, Raftelis has compiled this interim deliverable that gives a snapshot of the current stormwater funding methods and levels and introduces inputs that influence and inform the feasibility of a stormwater user fee funding model. These inputs include:

1. Policy considerations that inform the approach to how customers are charged for stormwater services. They are outlined in the next section.
2. Benchmarking Arlington County against regional peer utilities.
3. Analysis of customer impacts using a range of rate structures employed by peer utilities.

This report summarizes these findings and sets out the next steps in Phase 1 of the utility feasibility study.

KEY POLICY CONSIDERATIONS

The following policy considerations will inform the County's approach to creating a more robust revenue source for the stormwater program:

1. **Arlington County will need to determine cost distribution among customers.** The County will need to determine how it recovers costs of its Stormwater program. Under a utility model, charges for each customer class should be proportional to that group's relative demand upon the municipal stormwater system and the resulting cost of service borne by the stormwater program. In contrast, the current tax structure is based on property assessments.
2. **Incentivizing behavior.** The utility funding model would enable the availability of stormwater credits. Credits would be available to individual customers who reduce their properties' contribution to the municipal stormwater system which would increase fairness. However, the cost of administration and ability to easily communicate the rate structure to the public must be weighed.
3. **Financial impacts and affordability to customer groups under each funding approach.** The County must consider that some property classes are currently tax-exempt under the current funding model. The funding approach selected by the County would determine which types of properties it covers. The County would want to consider the impact of the recommended funding approach upon some special groups like federal and local government, churches, schools, and low-income housing that would likely incur higher costs under a utility model. The funding approach should balance the fairness of charges with the impact upon customers. It is important to note the total revenue requirements will influence the overall affordability of the program under any funding mechanism
4. **Impact to the homeowner of changing to a utility**. If the County switched to a user fee from a tax-based funding model, there could be additional impacts to homeowners. Tax payments are currently tax-deductible whereas a user fee would not be. Additionally, tax relief and/or tax deferral programs would not apply to a user fee program.
5. **Ease of increasing funding when required.** Funding requirements include increasing operating costs and Chesapeake Bay compliance costs, stabilizing state of good repair, and supporting a needs-based CIP. The selected funding rate, whether through a tax or utility, will need to be increased periodically to provide a sufficient and predictable level of revenue to cover ongoing program costs, maintain compliance with financial policies, maintain a state-of-good repair, and to support repayment of bonds over time. The CIP is best approached through a systematic and predictable program to execute projects, which will be funded at least in part through bond issuances.

6. **Ease of administration.** The County should consider the implementation and ongoing costs and burdens of a user fee compared to increasing the Sanitary District Tax add-on that is already in place. Additional staff and resources would be needed across the organization for the ongoing administration of the utility, including billing, Geographic Information Systems (GIS), credit program administration, customer support, dispute/billing appeals, and public engagement.

These policy considerations are discussed in this interim deliverable but will continue to be evaluated throughout the Feasibility Study.

Current Funding Methods, Needs, and Levels

According to the County Manager Message that preceded the Stormwater Management Fund Statement for FY 2021 proposed budget, the County and its Department of Environmental Services (DES) are seeking more funding to build "adaptive, resilient, and performance-based system" for the residents' public benefit. Arlington County funds its stormwater program via a Sanitary District Tax add-on to the base real estate tax. The stormwater program's total revenues in Fiscal Year (FY) 2019, derived from the Sanitary District tax revenues, fines, and fees, were about $10.7M and are accounted for in a separate special revenue fund dedicated to stormwater management. Revenues are used to fund operating and maintenance (O&M) expenses, as well as execution of the CIP. O&M expenses for FY 2019 totaled $7.7M (70%), while the Capital Improvement Plan expenditures in FY 2019 were about $4M (29%). At the close of FY 2019, the 90-day required O&M reserve was $1.9M and the capital balance was about $12.4M, for a total fund balance of $14.3M.

Stormwater capital improvement program (CIP) needs are projected at over $185 million in the next 10 years and include:

1. **Infrastructure** – The County needs to improve and expand the stormwater system facilities to mitigate flooding during increasingly severe rain storms. For several years, the region has experienced repetitive storms of high intensity, culminating in the historic storm on July 8, 2019 that closed streets, damaged homes and buildings, and posed public health threats. Additional funding for the stormwater program would enable continued progress on these planned capital improvements for watershed-scale and multi-phase improvements.
2. **Maintenance Capital** – The County's system assets are currently on a 900- to 1,000-year replacement cycle for assets with a useful life of roughly 125 years. Proactive maintenance of drainage infrastructure requires sufficient funds to support that effort.
3. **Stream and water quality** – More stringent regulatory requirements in the second permit cycle (projected 2020-2025) of the Municipal Separate Storm Sewer System (MS4) permit require compliance projects, retrofits, and programs to reach required milestone levels.

Current options to fund needed capital improvements for capacity infrastructure stormwater projects, capital maintenance, and the Municipal Separate Storm Sewer System (MS4) permit compliance projects and programs include a tax rate increase and/or debt financing through loans or General Obligation (GO) bonds. The County is considering a near-term, future bond referendum; if the referendum passes, the potentially large tax increase needed to meet the program needs would be reduced. However, there would be additional fiscal obligations to service the debt, which would require an additional tax increase or establishment of a stormwater user fee.

Considerations for Stormwater Funding Mechanisms

A major consideration in developing a funding model for stormwater programs is whether the methodology proportionately recognizes who is placing demand upon the stormwater system and recover revenues accordingly. Stormwater programs can be funded through a tax (in this case, a tax increase since a tax is already in place) or through user (or utility) fees. A user fee-funded program ties costs to their causal factors. The industry standard for stormwater user fee rate structures is to calculate the fee for each property based on impervious surface area of the parcel. The most common stormwater rate structure is based on impervious area, with the units of charge being equivalent residential units, or ERUs. An ERU is a unit of measuring impervious area that is representative of a "typical" single family residence within the stormwater program's service area.

The sections below discuss the factors that the County should consider when comparing a potential tax increase and a stormwater fee based on impervious area.

AD VALOREM TAX INCREASE

The current Sanitary District tax add-on is $0.013 per $100 of assessed real estate value. It would need to increase to meet the desired funding levels of the stormwater program, as outlined above.

During the feasibility study, one critical point of consideration will be that tax value does not relate particularly well to stormwater demand because the assessed value of a tax parcel does not correspond to how much stormwater runoff it generates. Stormwater runoff from impervious areas places demand on existing infrastructure, creates a need for system upgrades, and degrades water quality. These demands reflect most of the cost drivers for the stormwater program. While there are cases where small impervious area and small property value are correlated, there are also cases where there is no clear relationship between property value, which is the basis of a tax, and demand placed on the stormwater system. For example, warehouses, retail stores, and parking lots may have large expanses of property and hard surfaces that prevent or impede infiltration but have low tax valuation. The impervious surface on these properties places a significant demand on the County's drainage system since all or most of the rain that falls on these properties needs to enter the drainage system, causing infrastructure wear and tear, transporting pollutants, and increasing the potential for flooding and infrastructure damage. Conversely, dense, small-footprint properties may have small impervious areas, but have comparatively high property tax valuations. Examples of this situation are High Rise Apartment and High-Rise Commercial example properties shown below in Customer Impacts, Table 3.

In addition, under a tax funding approach, tax exempt properties do not pay toward the costs of the stormwater program. Approximately 2% of the County's parcels (by parcel count, not total area or value) are tax-exempt, e.g. churches, government, and public schools, excluding rights-of-way. These properties are contributing runoff but not contributing to the tax revenues that pay for needed maintenance and improvements of the storm drainage system now and in the future. This increases the financial burden on other properties. During Phase 1 of the feasibility study, Raftelis will assess whether an ad valorem tax increase would burden one class of properties more than another.

As we describe in Stormwater User Fee Based on Impervious Area section, a stormwater fee provides the County with the ability to recognize private investment in stormwater management through reduced fees under a credit program. A tax funding approach is not well suited for credit programs. Because taxes are not related to the amount of runoff generated from a parcel, properties with higher tax valuations will pay more toward stormwater management regardless of the actual demand they place on the stormwater system. For that reason, tax funding does not provide a mechanism for payers to reduce their costs by undertaking various green practices to reduce

impervious area or runoff from their properties, or to incentivize and drive behavioral changes that integrate the public into the solution.

Despite the drawbacks, implementing a tax increase is less administratively intensive than creating a new user fee. The County already has a tax collection system in place. Additionally, the County residents are already familiar with taxes while they may not be familiar with the concept of a stormwater user fee. Moreover, the current tax payments are tax-deductible while a stormwater user fee would not be. The County also has the ability to provide tax relief or deferrals to qualified taxpayers, such as the elderly, disabled veterans, and surviving spouses of members of the armed forces killed in action. If the tax increase is implemented, it would initially require additional public engagement with the County residents, but administrative needs for ongoing support would likely remain at the current level.

STORMWATER USER FEE BASED ON IMPERVIOUS AREA

Our benchmarking survey of 10 peer jurisdictions, 8 of which are in Virginia, shows that all surveyed stormwater utilities charge their customers based on parcel impervious area, as described in Basis of Fee section below. A stormwater fee would be charged to every property with impervious surface in the County irrespective of tax status. This is different from the tax-based approach, under which tax-exempt properties would not contribute toward the County's stormwater needs.

The user fee model is better suited to supporting a credit program than a tax-based fee because it is based on the amount of impervious area, which directly correlates with runoff. Customers who reduce runoff from their properties by implementing stormwater best management practices (BMPs) can reduce their stormwater user fee by obtaining a credit, as discussed further below. The availability of ongoing stormwater fee credits may incentivize more implementation of BMPs that treat impervious area to meet or exceed the jurisdiction's development requirements. Treatment that exceeds these requirements could also create one-time treatment credit (separate from an on-going fee credit) that could be purchased by a developer to offset their own treatment requirement. Careful consideration should be given to the relationship between one-time treatment credits that are available to developers and ongoing fee credits that are available to stormwater customers to ensure that desired incentive structure is being maintained. For example, continuing stormwater treatment through BMPs can count toward the County's MS4 compliance. Implementing a credit program would allow the County to double-purpose its existing Land Disturbing Activity (LDA) Program and to offer developers an increased menu of options.

If the County decides to go forward with a stormwater user fee, it would continue to have a stable source of funding for the stormwater program dedicated only to stormwater system maintenance, repair and remediation efforts, and other program activities. Importantly, shifting the stormwater program from an ad valorem tax on real estate to a user fee would strengthen the County's intention to exclude bonds issued for the stormwater program from the County's General Fund (General Obligation) bonding capacity. This predictable bonding capacity, subject to new debt policies and coverage limitations specific to the Stormwater Management Fund, would allow the County to plan in the mid- and long-term and provide the means to execute the projects laid out in its capital plan. With the user fee funding source in place, the stormwater program will not have to directly compete with as many other priorities as it does currently and allow the County to increase its infrastructure capacity and comply with more stringent regulatory requirements from its MS4 permit.

Unlike the tax funding, a stormwater user fee would be similar to the County's water and wastewater utilities in that fees would be charged based on the demand that each ratepayer (in this case, each property) places on the drainage system. Impervious area on the property translates to demand on the stormwater system since it is highly correlated with the peak and total volume of runoff. Thus, a fee based on impervious area is generally considered

fairer and legally defensible as it is directly proportional to cost drivers. (More information on stormwater rate structures can be found below in Implications of Potential Rate Structures).

Moreover, impervious area-based fees have a strong precedent in the State of Virginia. As stated in the County Manager's Message preceding the FY 2021 budget: "Many Virginia communities have transitioned to a stormwater utility as a mechanism for planning and managing a comprehensive stormwater program. There are 21 Virginia Municipal Stormwater Association jurisdictions (VAMSA), 19 of which have created formal stormwater utilities, leaving only Fairfax and Arlington Counties as districts." Many jurisdictions have recognized the relative advantages of funding their stormwater program through a user fee. However, despite being the last two programs funded strictly through tax revenues, Fairfax County's and Arlington County have quite different program funding circumstances. Fairfax County's tax base is much larger due to its larger area compared to Arlington County. In addition, Fairfax County does not have to maintain as much drainage infrastructure as Arlington County, since Virginia Department of Transportation (VDOT) owns and maintains the vast majority of roads within that jurisdiction. Also, Fairfax County does not share the geographic size and density constraints of Arlington, giving it the ability to adopt and enforce stormwater and overland flow remedies that are not available to Arlington County, e.g., stormwater basins as a condition of development. Thus contrasted with the situation in Fairfax County, conditions on the ground in Arlington County may provide cause to consider the stormwater user fee as a viable alternative to tax-based funding.

As part of evaluating the feasibility of a stormwater utility, Arlington County will also consider the ease and/or burden of implementation of a new utility and its ongoing administration. In advance of any changes to the funding mechanism for stormwater, Arlington County anticipates extensive civic engagement to communicate new concepts – such as "impervious area" and the "ERU" – to its customers and solicit input and feedback. Significant effort will need to be applied to the initial setup of the utility, including making policy decisions and hiring new staff to administer the program. Assuming a utility moves forward, a number of administrative decisions and creation of a new administrative unit and processes must be undertaken, including but not limited to:

1. Establishing a billing format and methodology; choices include:
    - independent billing;
    - as an addition to existing water/sewer utility bill; or
    - as a separate line item on property tax bills.
2. Ongoing operational needs could include the addition of staff necessary for:
    - billing and administration;
    - customer support and inquiries;
    - resolution of disputes and handling of appeals;
    - increased GIS analysis and administration; and
    - approving, tracking, and administering credits.

Based on our experience, we estimate is that the utility could be implemented in about 18 months and could be in effect as early as mid-FY 2022. The County could choose to align the user fee start date with the beginning of FY 2023.

A final consideration is that achieving increases for a user fee would be viewed independently from any tax rate increase. While a new utility charge is still part of the overall impact to the homeowner, there is a different type of political and public scrutiny on utility rates rather than tax rates. However, both utility and tax rates are part of the same process for advertisement and approvals.

HYBRID FUNDING MODEL

The County could also consider a hybrid funding model that would add a stormwater user fee to the existing tax add-on. Under this model, existing components of the stormwater program could be covered through revenues from the existing tax add-on while revenues from the new user fee could cover new program elements, such as bond repayment that is associated with the planned capital program. A similar approach is employed by the City of Alexandria to fund its stormwater program. This hybrid approach could allow the County to continue to exempt the tax-exempt properties from the tax add-on and would reduce the burden imposed by the stormwater user fee on such properties.

One drawback of the hybrid approach is the administrative burden it would place on the County. The stormwater program staff would need to implement the user fee following all the considerations outlined above. The staff would need to continue to maintain accurate impervious area records to preserve the accuracy of the fee. Communicating the hybrid approach to customers may also prove challenging. Lastly, allocating cost of service of specific new projects or program elements to tax revenue source to user fee revenue source could introduce additional complications in the future.

Implications of Potential Rate Structures

RATE STRUCTURE COMPONENTS

A stormwater rate structure may have several components. Every component should be considered from the standpoint of fairness and proportionality to cost drivers in order to ensure the rate structure's legal defensibility and appropriateness for the costs of the stormwater program. The following three components are often found in stormwater rate structures, with the first being by far the most common:

1. **Impervious area (IA) charge** – Customer is charged on the basis of impervious surface on the property. By definition, impervious surfaces do not allow stormwater to infiltrate. Greater amounts of IA contribute to runoff and increase the burden on the municipal stormwater system. As mentioned in Benchmarking of Regional Peer Jurisdictions section below, all stormwater utilities across the Country use IA as a basis for their fees.
2. **Gross area (GA) charge** – A customer's fee could also be based in part on the overall size of the parcel. By itself, GA doesn't directly correlate with all stormwater cost drivers like IA does, but it does correspond to some of them. It should be noted that a rate structure that considers both GA and IA tends to shift program costs to customers who own larger parcels.
3. **Fixed or minimum charge** – Every customer could be required to pay a fixed or minimum charge to cover the costs of stormwater utility administration, which are distributed evenly among all customers regardless of customer class or property size. For example, it costs the same amount to generate a bill for a commercial customer as it does for a residential customer. However, while this fixed charge can fairly recover some costs, adding this type of charge tends to shift program costs to smaller customers.

As mentioned above in our discussion of stormwater funding mechanisms, the most common stormwater rate structure is an impervious area rate structure, with the units of charge for non-residential customers being **equivalent residential units, or ERUs**. An ERU is a unit of measures that it tailored to a specific utility and is typically determined as the median size of impervious area on residential parcels within the utility's service area. Alternatively, the utility may use a preset unit of measurement as its standard unit, such as an increment of 1,000 SF of IA. The ERU is considered the best practice in the industry as it establishes parity between the residential and non-residential customer classes and accurately represents the proportionately related burden on the stormwater conveyance system.

SINGLE-FAMILY RESIDENTIAL RATE STRUCTURE CONSIDERATIONS

Residential stormwater rate structures can vary widely from utility to utility. Single-family residential customers typically represent the largest segment of customer for a stormwater utility by number of parcels (though not necessarily by gross or impervious area). There are several alternatives to designing the single-family residential component of the rate structure, as outlined below. It is also important to define the term "single-family residential customer" as it can be limited to single-family detached homes only or it can include duplexes, triplexes, or condominiums up to a certain unit count.

1. **Flat residential rate** – All single-family residential customers are charged the same unit fee, whether that is the fee per ERU or per another pre-determined unit. This approach to residential billing is the easiest to implement, explain to ratepayers, and maintain data for billing. However, it is potentially less fair than other approaches if the utility's service area includes many different types of residential properties.
2. **Tiered residential rate** – Single-family residential customer class is segmented into several sub-classes defined by common characteristics, which, for stormwater, is typically the amount of IA. Usually, tiered rate structures have between 2 and 6 tiers. Each single-family residential customer is assigned to a tier. All

customers in the same tier are billed the same increment of the unit fee. For example, Baltimore uses 3 tiers to bill Tier 1 as 0.6 ERU, Tier 2 as 1 ERU, and Tier 3 as 2 ERU. This approach balances the financial burden for stormwater runoff between different classes of residential properties. However, it also greatly increases the data maintenance requirement for utility administration. For example, each single-family residential property needs to be assigned to its proper tier.

3. **Create a ceiling for residential properties** – In some cases, the utility may choose to cap the size of the largest residential tier at a preset ceiling of IA. Single-family residential customers who have more IA on their properties than this preset value will be billed as if they are non-residential customers, i.e., in increments of billing units that more closely reflect their measured IA than the residential rate structure does. This approach is fair from the standpoint of shifting the burden of payment to the properties that contribute the most runoff to the stormwater system. This approach imposes some additional administrative burdens, including data acquisition and maintenance requirements. Impacts to large impervious area customers also need to be considered.

CREDIT AND INCENTIVE PROGRAMS

A stormwater credit is typically a reduction in customer's stormwater service fee. Credit programs are designed by stormwater utilities to encourage, stimulate, and recognize investments in private stormwater management and to drive desired behavior by property owners. Ongoing or one-time credits are granted to customers for reducing demand upon the stormwater drainage system and reducing the cost for stormwater management for the municipality. Some credit programs feature one-time credits, commonly called incentives, which are intended to incentivize a specific one-time action, such as purchasing a rain barrel or participating in a stream clean-up event. Though the effect of each individual stormwater management practice may be small, in aggregate, the practices reduce the cost of managing and treating stormwater over time. Therefore, the credit allows the utility to recognize the reduced systemic burden by its customers and offer a discount to customers who employ these stormwater management practices.

In addition to incentivizing customers to employ best management practices, a credit system is an unbiased policy that allows customers who place a lower demand upon the public stormwater system to pay less towards its operation, maintenance, and growth. Credits are a common price break type, are widely accepted, and are fairly intuitive for customers to understand. Credits' impact on revenues tend to be low to moderate (typically 1-5% of revenues). Credits are conditioned on the customer's active participation and investment of time and/or money.

Types of credits can include:

1. Water quantity (volume reduction, peak flow attenuation)
2. Water quality
3. Low Impact Development (LID) / Green Infrastructure
4. Permeable surfaces / Green roofs
5. Stormwater education
6. Participation in large organized events that positively contribute to stormwater quality (stream clean-ups, removal of paved surfaces, or tree plantings)
7. Self-maintenance of private stormwater system
8. Drainage system bypass
9. National Pollutant Discharge Elimination System (NPDES) permit

Benchmarking of Regional Peer Jurisdictions

The Raftelis team and Arlington County initially identified 11 peer communities for comparison of stormwater rate structures and rates. These peer communities include several jurisdictions in eastern Virginia, the City of Charlottesville in western Virginia, and other systems outside of Virginia located in the Mid-Atlantic. The peer jurisdictions surveyed represent a variety of programs with a range of stormwater rates, populations served, and affordability programs, among other stormwater program components.

Table 1: Populations of Surveyed Municipalities

Municipality	Population
Washington, DC (DOEE)	705,749
Baltimore, MD	602,495
Chesterfield County, VA	327,745
Prince William County, VA	280,813
Norfolk, VA	248,853
Arlington County, VA	**236,842**
Chesapeake, VA	222,209
Richmond, VA	197,790
Alexandria, VA*	153,511
Stafford County, VA**	128,961
Charlottesville, VA	43,511
Falls Church, VA	12,332

* Note that Alexandria, VA supplements revenues from the stormwater user fee with revenues from an ad valorem tax to fund its stormwater program.

**Note that even though Stafford County, VA has an active stormwater management program, stormwater utility and rate information was not available online, and County employees could not be reached due to the COVID-19 shutdown. For these reasons, Raftelis focused on the remaining 10 communities for this survey.

BASIS OF FEE

Most stormwater utilities in the U.S. use measured or estimated impervious area as the basis of stormwater fees. The industry best practice is a rate structure based on measured impervious area. Most utilities have a uniform flat rate for single-family residential (SFR) parcels. One-third of utilities employ a tiered residential rate structure.[1]

Following national trends, utilities surveyed for this effort all used impervious area as basis for their stormwater user fee for both residential and non-residential customer classes.

RATE STRUCTURE: RESIDENTIAL

Among the surveyed utilities, residential rate structures include flat fees, tiered rates, and preset units of impervious area.

[1] Black & Veatch Management Consulting, 2018 Stormwater Utility Study.
https://www.bv.com/sites/default/files/18%20Stormwater%20Utility%20Survey%20Report%20WEB.pdf

A frequently used rate structure is a flat fee applied to every single-family residential (SFR) property. For surveyed utilities, all flat rate structures charge single-family residential properties the same rate that is set for one ERU. The following three communities use a **flat fee structure** for SFR properties:

1. Chesterfield County, VA
2. Norfolk, VA
3. Chesapeake, VA

The **tiered fee structure** uses multiple pre-determined levels of fees that are applied to each tier. Residential tiers allow the utility to categorize their customers based on different factors, such segments of impervious area. This structure is used to bill SFR properties in the following five communities. Note that in Alexandria, VA and Prince William County, VA each residential tier is also associated with a property type and is billed for the fraction of the ERU assumed to exist on each of those property types.

1. Washington, DC (6 tiers)
2. Richmond, VA (5 tiers)
3. Alexandria, VA (4 tiers: Condominium; Townhouse; Typical SFR; Large SFR)
4. Baltimore, MD (3 tiers)
5. Prince William County, VA (2 tiers: Condominium/Townhouse/Mobile Home; SFR)

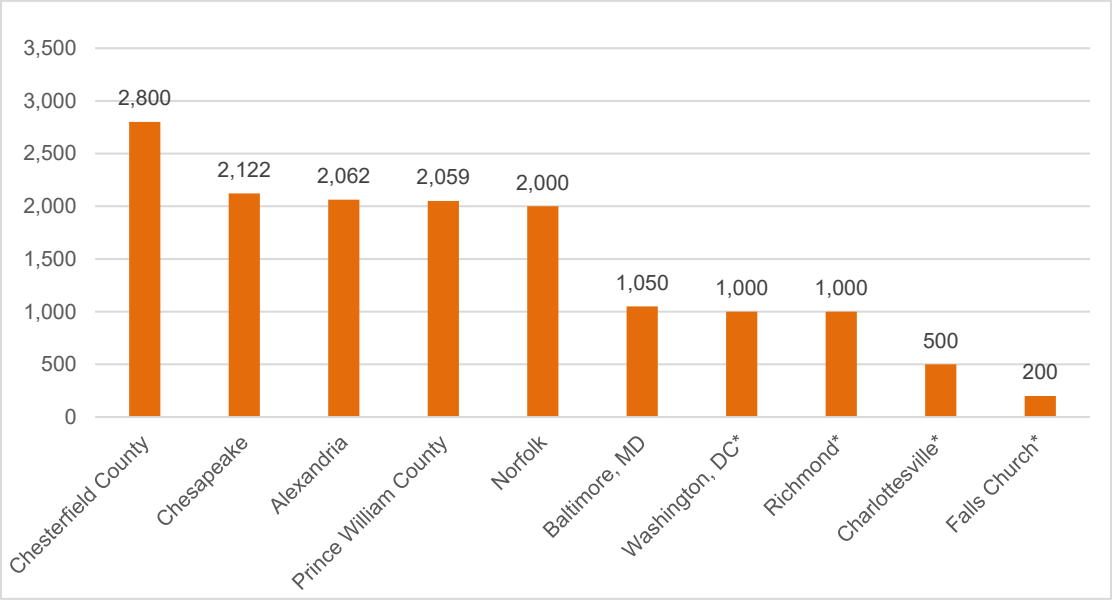
Rate structures based on preset **units of impervious area** measure actual impervious area on each residential property in predetermined units. This type of structure is used by the following two communities:

1. Charlottesville, VA (unit of 500 SF)
2. Falls Church, VA (unit of 200 SF)

RATE STRUCTURE: NON SINGLE-FAMILY RESIDENTIAL

All 10 surveyed systems rely on a parcel's impervious area as the basis for their non single-family residential fees. Non-residential parcels are charged for impervious area using billing units: by a number of impervious square feet or by ERU.

Figure 1: Billing Units (SF) for Non-Residential Stormwater Fees of Surveyed Municipalities



**Billed in non-ERU incremental billing units. All others billed based on ERUs.*

The table below summarizes residential and non-residential stormwater rate structures for the surveyed communities.

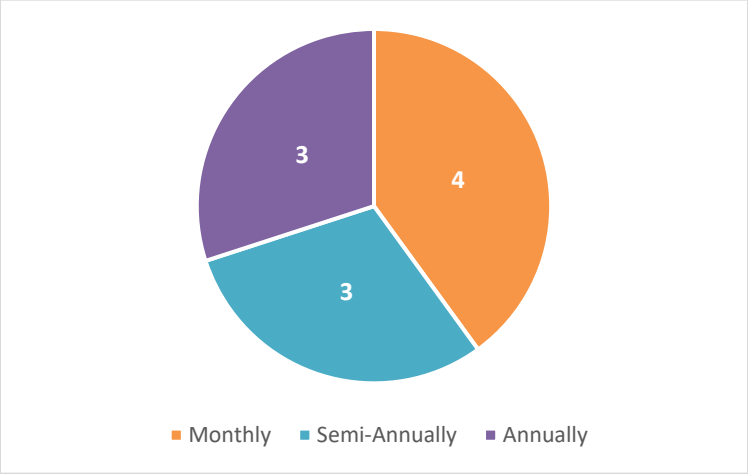
Table 2: Stormwater Rate Structures for Peer Municipalities

Municipality	Residential Rate Structure	Residential Billing Unit	Non-Residential Rate Structure
Chesterfield County, VA	Flat fee based on IA	ERU = 2,800 SF of IA	Per ERU of IA
Chesapeake, VA	Flat fee based on IA	ERU = 2,112 SF of IA	Per ERU of IA
Alexandria, VA	Tiered fee based on IA (4 tiers)	ERU = 2,062 SF of IA	Per ERU of IA
Prince William County, VA	Tiered fee based on IA (2 tiers)	ERU = 2,059 SF of IA	Per ERU of IA
Norfolk, VA	Flat fee based on IA	ERU = 2,000 SF of IA	Per ERU of IA
Baltimore, MD	Tiered fee based on IA (3 tiers)	ERU = 1,050 SF of IA	Per ERU of IA
Washington, DC (DOEE)	Tiered fee based on IA (6 tiers)	ERU = 2,000 SF of IA	Per billing unit of IA (1,000 SF), reduced to nearest 100 SF
Richmond, VA	Tiered fee based on IA (5 tiers)	1,000 SF	Per billing unit of IA (1,000 SF)
Charlottesville, VA	Per billing unit of IA	500 SF of IA	Per billing unit of IA (500 SF)
Falls Church, VA	Per billing unit of IA	200 SF of IA	Per billing unit of IA (200 SF)

BILL FREQUENCY

Of the 10 communities surveyed, the most common bill frequency is monthly.

Figure 2: Stormwater Bill Frequency for Surveyed Municipalities



Four communities bill monthly for stormwater on their utility bill:

1. Washington, DC
2. Baltimore, MD
3. Norfolk, VA
4. Richmond, VA

Three communities bill semi-annually for stormwater on the real estate tax bill:

1. Charlottesville, VA
2. Chesapeake, VA
3. Prince William County, VA

Three communities bill annually for stormwater on the real estate tax bill:

1. Chesterfield County, VA
2. Alexandria, VA
3. Falls Church, VA

EXEMPTIONS

Three of the surveyed systems have exemptions from stormwater fees for at least one type of property. Any exemptions for Arlington County would need to be reviewed by County Attorney's Office to be in compliance with Virginia State law.

Baltimore, MD charges religious non-profits a reduced stormwater fee of $1/ERU/month compared to the normal commercial rate of $5.45/ERU/month. In addition, local and state government properties, customers in the hardship program, and selected non-profit organizations are exempt, as directed by Maryland state law.

Chesterfield County, VA exempts federal, state, local, and public entities that hold a permit to discharge stormwater.

Prince William County, VA exempts agricultural croplands and undeveloped properties from being charged a stormwater fee.

CREDITS PROGRAMS

All 10 of the surveyed systems offer stormwater fee credit programs. A credit is an ongoing reduction in the stormwater fee granted to a customer for decreasing demand on the utility's stormwater system by implementing stormwater best management practices (BMPs), thereby reducing the costs of stormwater management by the utility. The utility can recognize the reduced burden on the municipal stormwater system by offering credits to customers who reduce their runoff.

A credit system is designed to:

1. Create a nexus of cost drivers and cost recovery mechanism in the rate structure through appropriate fee reduction opportunities.
2. Reduce public expenditures on stormwater management by fulfilling stormwater management requirements and meeting other program goals indirectly.
3. Decentralize stormwater management by promoting private sector implementation.

Of the 10 systems with stormwater credit programs, seven credit programs have fee reduction opportunities available for both residential and non-residential properties. Three of the stormwater credit programs have fee reduction opportunities available only for non-residential properties. Often, ongoing credit offered by the surveyed utility is contingent on providing proof of BMP maintenance and functionality.

The systems surveyed offered fee credits for a variety of reasons. The basis for credits included:

1. Green infrastructure (Alexandria, VA; Washington, D.C.; Richmond, VA; Falls Church, VA)
    - Examples: reducing runoff, improving the quality of water runoff, etc.
2. Implementation of stormwater best management practices, or BMPs (Baltimore, MD; Washington, D.C.; Chesapeake, VA; Richmond, VA; Alexandria, VA; Falls Church, VA)
    - Examples: Rain gardens, permeable pavement, etc.
3. Reduction impervious surface (Baltimore, MD)
4. Stormwater management systems already in place (Prince William County, VA)
5. Pollution reduction programs (Chesterfield County; Norfolk, VA; Falls Church, VA)
6. Commercial properties that drain to stormwater management facilities (Chesterfield County, VA)
7. Installation of a stormwater management facility (Norfolk, VA)

CUSTOMER ASSISTANCE / AFFORDABILITY PROGRAMS

In addition to credits programs, 3 communities either currently have customer assistance or affordability programs or are in the process of developing the program. Any proposed programs for Arlington County would need to be reviewed by County Attorney's Office to be in compliance with Virginia State law.

In Charlottesville, VA, there is a fee waiver for all Real Estate Relief and Charlottesville Housing Affordability Program (CHAP) recipients, as qualified by the Commissioner of the Revenue's Office. Recipients earning tax relief at 60% or higher will receive the same relief percentage amount on their stormwater bill. For recipients with an income no greater than $25,000, a stormwater relief grant of 25% will be applied to their second half bill in the year they qualify. Charlottesville funds this grant from the General Fund. The City Council has authority to fund assistance programs and allocates this funding as part of the annual budget approval process.

In Washington, D.C., the Department of Energy and Environment (DOEE) is currently developing a stormwater fee discount program to assist all District residents and property owners.

In Baltimore, MD, customers already approved for senior citizen or low-income discounts for water/wastewater bills will automatically receive a discount on their stormwater fees. Customers who qualify for a hardship exemption under state law are also exempt from the fee.

TRENDS

Trends regarding residential and non-residential rates, credit programs, and bill frequency emerged from the data collected in this benchmarking survey.

1. All surveyed communities calculated residential and non-residential rates using impervious area.
2. Half of surveyed communities (5) used tiered rates for billing residential customers.
3. All 10 communities have credit programs. Seven of 10 communities have credit programs applicable to all properties. The other 3 communities limit credit programs to non-residential properties.
4. While credit programs are common, only three communities have stormwater affordability programs.
5. Further, only three stormwater utilities offer fee exemptions for certain types of properties.

LESSONS LEARNED

Implementing a stormwater utility, deciding on the optimal rate structure, and switching to fee funding the stormwater program can be a daunting task. A number of the peer municipalities were contacted regarding lessons learned from implementation, including Alexandria, Baltimore, Chesterfield County, Falls Church, Manassas, Norfolk Park, and Washington, D.C. Key themes across surveyed organizations are:

1. Civic engagement is necessary throughout the process of utility consideration, implementation, and ongoing utility administration with all levels of the community. Stakeholder groups include residential, commercial, faith-based organizations, environmental organizations, and other tax-exempt organizations.
    - Providing access to a tool or platform to allow calculation of fees is helpful during the engagement process.
2. Utilizing proven technology and methodology for measuring imperviousness will significantly reduce complaints and appeals.
3. Fee structures should be easy for the community to understand.
4. Program policies should align with community goals.

Several of the surveyed communities offered some specific lessons they learned during the process.

Alexandria, VA

Alexandria staff believes public engagement and education is critical to the development of a stormwater utility. Before charging stormwater fees, Alexandria did an extensive outreach and education campaign that included public workshops, a series of informative letters, and had an online viewer map where residents and businesses could estimate their stormwater utility bills.

Additionally, Alexandria implemented a tiered rate structure where each tier is tied to a residential land use type. Thus, every residential parcel of the same type (e.g., condominium, townhouse, SFR) is charged the same fee. This rate structure is easy to communicate to the public, easy for the public to understand, and avoids administration costs associated with more complicated residential rates.

Chesterfield County, VA
Chesterfield County staff acknowledge the difficulties of developing a stormwater utility and advises Arlington County to develop policies and practices that reduce administrative burden. Chesterfield County chose to charge residential customers a flat fee, which reduces administrative burden and limits the amount of residential customer complaints the County receives. Fees are billed on the County real estate bill, which allows the County to more easily charge all properties.

To encourage customers to manage stormwater on site, Chesterfield County offers credits up to 100% and has a comprehensive process for customers to contest their stormwater fee.

Lastly, Chesterfield County advised Arlington County to implement policies that work best for their community. For example, gravel is not counted as impervious surface in Chesterfield County because a disproportionate number of properties with gravel parking lots house non-profit organizations. Chesterfield County staff made the decision to not count gravel as impervious because they believed it was the best policy for their community.

Washington, DC
Washington, DC Department of Energy and Environment (DoEE) first started charging a stormwater user fee in in the 2000s as a result of an MS4 permit from the EPA. Since its inception, the utility has grown and changed to meet new iterations of the MS4 permit and to fund pollution control efforts. Speaking from several decades of experience, DoEE staff has two pieces of advice for Arlington County.

Firstly, DoEE advises to be able to clearly and simply explain the purpose of the fee to help gain public acceptance. The County should communicate to the public when a decision is made in accordance with a compliance obligation. This approach helps the public understand why stormwater maintenance is necessary and how revenues generated from stormwater fees are used.

Secondly, revenue collected from the County's stormwater fees should be managed in an enterprise fund used to fund only stormwater program needs. The enterprise fund ensures stormwater fees are exclusively used to fulfil stormwater compliance needs and cannot be diverted to other municipal projects or programs.

Baltimore
According to Baltimore City staff, a sustainable funding source for stormwater has been positive for Baltimore. The City is now able to implement long-term stormwater plans and invest in capital work that relates to flood mitigation. However, the City acknowledges the difficulties associated with developing a stormwater utility. Baltimore's advice to Arlington centers on incorporating feedback from diverse stakeholders and the importance of public perception of stormwater while implementing a fee.

While developing Baltimore's Stormwater Utility, the City obtained guidance from a Credit Task Force. Members of the task force actively participated in discussions which helped shape the current credit program. However, Baltimore stresses the importance of diversity among task force members. The City missed getting input from small and medium sized commercial and industrial businesses, for whom the stormwater fee had a relatively large impact compared to the businesses' tax, water, and sewer bill. Since these businesses weren't included in the discussion sooner, these businesses appealed to Council members and the program ended up with a legislated reduction that limits the stormwater fee based on the businesses' tax value. Additionally, religious leaders were not included in the Credit Task Force. When they presented their case to Council, they also received a new legislated stormwater reduction. Credits offered through legislated reduction were not a part of the City's original credit program and result in a significant revenue reduction.

Baltimore contends that public messaging and public understanding of stormwater is important. The City defended the stormwater utility by asserting that the State and Federal government were requiring the City develop a utility to comply with the MS4 permit. However, City staff wishes messaging had been positive, affirming that the development of a stormwater utility was the right thing to do for the City, for water quality, and other elements of the water system. Additionally, Baltimore experienced the unpredictability of public perception. In 2012, Baltimore experienced a sink hole from a large, collapsed stormwater pipe that shut down a city block for six months. The City anticipated the event would be a good example of why investment in infrastructure was needed. Rather, businesses decided that since the sink hole already happened, an event of its kind was unlikely to occur again.

Baltimore's utility was implemented in the context of a state law that, among other requirements, mandated state and local government properties' stormwater exemptions.

Customer Impacts

One of the goals of this Interim Deliverable was to provide insight into potential stormwater fee impacts upon different types of properties in Arlington County. Raftelis worked with County staff to select a wide variety of properties and apply the fee structures and rates from the communities that we surveyed to those properties. This exercise was for illustrative purposes only and is not an actual calculation of fees for any particular property.

Raftelis digitized the following properties with direction from the County:

1. Three single-family detached homes of different sizes and one attached townhouse,
2. Three apartment complexes (including a high-rise complex),
3. Seven commercial properties varying in size and use, and
4. Seven tax-exempt properties including government, educational, and religious properties.

These properties appear in Table 3 below. The table also includes the measured impervious area for each property. For each sample property, projected fees were calculated as if the properties were located within the peer jurisdictions rather than in Arlington County and were billed annually. (Note, however, that 5 out of the 10 jurisdictions actually bill on a monthly basis, as described in the Bill Frequency section above.) In addition, we provided the current Sanitary District tax bills ("Current Arlington Sanitary District Tax Amount" column in Table 3) for sample properties. This allows the County to compare the magnitude of these properties' current contributions to defraying stormwater costs to their potential contributions under stormwater user fee rate structures from surveyed jurisdictions.

The City of Alexandria is the County's nearest neighbor and is of particular interest for this study. Alexandria implemented their impervious area-based stormwater fee in May of 2017. As noted in Table 2 above, Alexandria's rate structure contains 4 residential tiers – condos, townhomes, typical single-family homes, and large single-family homes – while non-residential parcels are billed based on impervious area per ERU of 2,062 square feet. The City charges $140 annually for 1 ERU of impervious area. Because of Alexandria's proximity, Table 3 below includes specific fees for the County's sample properties as if they were located in Alexandria.

To show the range of what the County's stormwater fee may look like beyond the example of Alexandria, we computed the projected fee as if the County's example properties were located in other 9 benchmarked jurisdictions. However, Table 3 shows these projected fees from 2 jurisdictions that resulted in the **lowest and highest fees**. This range comparison illustrates the variety of outcomes different rate structures can generate. For example, Chesterfield County resulted in the lowest fee for the sample properties due to the combination of its ERU being the largest billing unit (2,800 SF) and its rate being one of the lowest among the utilities included in the study. On the other hand, Falls Church's rate structure produced the highest projected fees for the County's sample properties due to its small billing unit (200 SF) and its rate. This comparison illustrates how a rate structure can be adapted to suit a utility's needs, while increasing fairness and allowing for community-specific modifications and units.

Properties with larger impervious areas have larger stormwater user fees in this sample, demonstrating that charges are based on the demand each property places on the municipal stormwater system. Note that this relationship is often lost when fees are tax-based because building values are not always proportional to building footprints. Moreover, properties that are tax-exempt do not pay for stormwater under the existing approach. This is shown in the "Current Arlington Sanitary District Tax Amount" column of Table 3 below. Government-owned properties, schools, universities, churches, and parks included in this sample are all tax-exempt in Arlington County. It is worth noting that the sample federal property (Arlington Hall, the National Guard's Readiness Center) has significantly more impervious area than the other sample properties – over 1.5 million square feet – and is tax-exempt.

The table shows the wide range of rate structures that peer jurisdictions are using and how the resulting stormwater user fees vary widely among jurisdictions. This is valuable information for the County as it considers modifying its stormwater funding mechanism. It also shows that fees vary widely among municipalities in Virginia, reflecting that every utility's different needs determine its units of service and rate structure.

Table 3: Sanitary District Annual Tax (estimated) and Projected Annual IA-based Fees for Sample Properties in Arlington County, VA (rounded to nearest dollar)

Property	2020 Assessed Value	Current Arlington Sanitary District Tax Amount	Impervious Area (SF)	Alexandria, VA	Chesterfield County, VA (Lowest Fee)	Falls Church, VA (Highest Fee)
Single-Family Residential						
Small House	$419,700	$55	1,419	$140	$25	$147
Typical House	$686,900	$89	2,129	$140	$25	$202
Large House	$2,076,100	$270	5,870	$234	$25	$551
Townhouse	$686,600	$89	988	$59	$8	$92
Multi-Family Residential						
Apartments (assumed 100 units)	$26,061,800	$3,388	93,198	$3,920	$833	$8,556
Apartments (2) (assumed 100 units)	$29,366,200	$3,818	148,510	$3,920	$1,325	$13,641
High Rise Apartments (400 units)	$45,881,500	$5,965	237,309	$15,680	$2,120	$21,793
Commercial						
High Rise Commercial	$97,136,000	$12,628	62,198	$4,228	$555	$5,710
Hotel	$28,800,400	$3,744	74,152	$5,040	$663	$6,812
Hotel 2	$61,828,900	$8,038	23,335	$1,582	$208	$2,148
Small Commercial	$1,205,000	$157	13,658	$924	$123	$1,267
Medium Commercial	$37,896,300	$4,927	130,951	$8,890	$1,170	$12,026
Mall	$625,290,100	$81,288	918,604	$62,370	$8,203	$84,346
Transportation	$128,364,400	$16,687	52,786	$3,584	$473	$4,847
Tax-Exempt						
Local Government	$100	$0	67,313	$4,564	$600	$6,187

Property	2020 Assessed Value	Current Arlington Sanitary District Tax Amount	Impervious Area (SF)	Alexandria, VA	Chesterfield County, VA (Lowest Fee)	Falls Church, VA (Highest Fee)
Federal Government	$203,234,800	$0	1,517,456	$103,026	$13,548	$139,316
Park	$95,382,400	$0	330,229	$22,428	$2,948	$30,331
Church	$21,994,100	$0	88,652	$6,020	$793	$8,152
Public School	$54,056,900	$0	242,261	$16,450	$2,163	$22,252
Private School	$45,435,600	$0	402,297	$27,314	$3,593	$36,940
University	$33,460,700	$0	353,182	$23,982	$3,153	$32,424

Next Steps

Following the delivery of this Interim Deliverable report, Raftelis will continue with its scope of work — conducting a stormwater needs assessment, evaluating rate structure options, and providing other related recommendations that will inform the feasibility of the stormwater utility fee. Some specific steps include:

1. Compile and identify stormwater needs over a 10-year utility rate planning horizon (April – May 2020).
2. Develop draft financial plan model (May – September 2020).
3. Conduct a detailed evaluation of 3 potential rate structures and customer impacts in each scenario (May – July 2020).
4. Determine billing and customer service options (May – July 2020).
5. Provide staffing and resource recommendations (June – August 2020).
6. Estimate implementation costs (August – September 2020).
7. Deliver draft report for review (September 2020).

Additional topics that the Feasibility Study will cover in detail include affordability considerations and the treatment of government entities and MS4 permit holders.

This stormwater utility feasibility study should be completed by September 24, 2020, which is six months from the date of the purchase order for this effort.

Upon completion of this stormwater utility feasibility study, Arlington County will be in a position to decide whether to proceed with a user fee implementation or to pursue the ad valorem tax increase.