

STORMWATER MANAGEMENT AND FLOOD RESILIENCY

Arlington and the Washington region experienced repeated intense rainstorms in 2018 and an historic storm on July 8, 2019. These storms impacted numerous properties and businesses in Arlington, highlighting the need for increased investment in the County's stormwater management system. If the County continues to experience increasingly intense storms—as predicted by climate change models—investments in stormwater infrastructure will be even more critical. Arlington's strategy for stormwater, as laid out in the 2014 [Stormwater Master Plan](#), seeks to strike the right investment balance between water quality, stream repair, education, and capacity improvements.

To increase resilience in response to intense rain events and flooding, the County is undertaking a comprehensive review of ways to mitigate flood risks. Design work is already underway for significant investments in watershed scale solutions in critical areas that have experienced flooding and are identified in the Stormwater Master Plan. In addition, County staff is reviewing County policies and regulations, industry best practices, and innovative approaches to flood risk mitigation.

Stormwater Infrastructure Improvements

Recognizing the significance of the stormwater investment that is needed, the County Manager will be proposing a November 2020 bond referendum for stormwater and watershed infrastructure. This would be a substantial, long-term investment in the County's stormwater management system, with multiple generations of taxpayers benefitting.

Engineering design is complex and time-intensive, but the current schedule of ongoing engineering studies, surveys, pre-design, and design work would align with the availability of bond funding for construction, if approved by voters.

Staff continues to prepare options for the Capital Investment Plan (CIP) and will work with the community on the options that may be proposed in May.

More than 100 projects were identified and prioritized in the 2014 Stormwater Master Plan, adding to projects that were already in progress. To date, the County has constructed six of the 10 high priority projects:

1. John Marshall Drive
2. Williamsburg Boulevard at Harrison Street
3. Sycamore Street at 24th Street
4. West Little Pimmit Run
5. 9th Street and Liberty Street
6. Woodmont Swale

Interdepartmental Working Groups

Arlington County's interdepartmental workgroups for stormwater management are focused on the following areas:

- Emergency Response and Life Safety Notification
- Strategic Improvements and Policy Changes
- Development/Regulations
- Communications/Engagement Plan

The workgroups will have initial recommendations completed by May 2020, which will be shared with the community for input. Based on the Emergency Response and Life Safety subgroup's review of sensor warning and technology deployments, as well as best practices in the industry, the County Manager's Proposed FY 2021 Budget includes:

- \$120,000 in one-time funding for a pilot project to implement flood sensors at two priority intersections in the County.
- \$9,000 in one-time funding to pilot a program that provides low-cost flood sensors to high-risk homes with below grade bedrooms and living areas.
- Improved access to more real-time weather data reporting tools.

The goal of these enhancements is to reduce the potential for loss of life during flash floods by warning people before water rises to unsafe levels.

Land Disturbance Activity (LDA) Permit Requirements

Since early 2019, the County has been working to update stormwater management requirements for development projects. This update to the Land Disturbance Activity (LDA) Permit will incorporate design approaches and tools that can handle higher rainfall intensities and incrementally manage more overall runoff volume. We are also simplifying the design and plan review process to reduce the time and cost associated with preparing plans and obtaining an LDA permit.

To provide sufficient oversight of LDA permits, the Manager's proposed budget includes the addition of two LDA inspectors. These new positions will ensure construction impacts are properly managed, projects are built according to approved plans, and MS4 obligations and state mandates are met.

Review of the StormwaterWise Program

As part of budget guidance, the County Board directed the Manager to submit a review of the StormwaterWise Landscape program and any recommended changes.

The StormwaterWise Program was launched as a pilot in 2012 for residential applicants. In 2014, it was formalized as part of the stormwater program, along with the addition of a Homeowner Association/business element. To date, the program has incentivized 300 projects focused on on-site green infrastructure and water quality projects.

This chart summarizes the practices and incentives:

Practices, Baseline Requirements and Flat Incentive Option

Practice	Residential Minimum Size	Maximum Residential Reimbursement	Average project cost	HOA Minimum Size	Maximum HOA Reimbursement
Conservation Landscape	150 square feet	\$1,000	\$3,000	300 square feet	\$2,000
Permeable Pavement	150 square feet	\$2,500	\$3,000	300 square feet	\$4,000
Rain Garden	100 square feet	\$1,500	\$9,500	150 square feet	\$3,000
Pavement Removal	150 square feet	\$1,500	\$4,000	300 square feet	\$3,000

Use of the Stormwater Program

- During the previous MS4 permit cycles, the County has included the StormwaterWise program as an element of our overall permit efforts. As a locally unregulated program, it does not receive formal nutrient credits, but it is recognized by the Commonwealth’s Department of Environmental Quality (DEQ) for programmatic credit. In the current negotiations for the next MS4 permit, the County has continued to include this program as part of our application.
- StormwaterWise serves at least 60 private homeowners and 10 HOAs and/or businesses annually, with a project budget of up to \$120,000 per year (exclusive of County staff resources). EcoAction Arlington serves as the fiscal agent of the program.
- An annual application period opens in February, and projects are completed/certified by Q4 of each year.

Role of StormwaterWise in County Strategies

In a fully developed urban area such as Arlington County, a critical part of addressing stormwater runoff will be improvements to and enhancements of the entire stormwater infrastructure system, including large scale detention and overland relief. One available tool to reduce the risk of flooding is to retrofit water detention facilities into existing residential neighborhoods.

The current program addresses water quality, and to some extent, localized flooding on individual properties, but does not significantly address capacity needs for intense rainfall events. The following policy issues should be evaluated before a final decision is made on how to either continue, revise, or eliminate the program:

1. What are the measurable improvements to overall system effectiveness by these investments in individual parcels?

2. Is the expenditure of public funds appropriate to benefit individual property owners given the benefits received to the adjacent property owners and the overall stormwater program?
3. Even if the expenditure of public funds to benefit individual property owners is appropriate, should the increased value to individual parcels be recaptured (on a proportional basis) by the County upon sale of a property?
4. Should the program be focused only on areas of the County that are at risk for stormwater related flooding?
5. Who benefits, who is burdened, who is missing, and how do we know? Should the program be means tested?
6. Should the practices promoted by the program be expanded to add incentives or modified for water detention options that manage on-site stormwater runoff?
7. Should current practices be eliminated, and all funding redirected to water detention options on County-owned property?
8. What are the impacts of potential program changes on the County's MS4 permit?

The current program is popular with residents with high evaluation marks and it leverages private investments of \$3.60 for every \$1 provided by the County. The program has also encouraged good practices by residents and is a feature in many other jurisdictions.

Now is a good time to review the underlying philosophy of the program. Accordingly, the FY 2021 Proposed Budget suggests continuing the program while this discussion occurs. During the upcoming budget work sessions, staff will provide details on the options to expand the program or to focus it in different areas.

Stormwater Utility Review and Evaluation

When the Sanitary District Tax was enacted in 2008, it originated as a water quality improvement program focused on sediment, nitrogen, and phosphorus pollutant removal to meet the Commonwealth's Chesapeake Bay water quality improvements, which are framed under the MS4 permit requirements. The current regulatory framework is organized across three five-year permit cycles. The County satisfied the pollutant-improvement target of the first MS4 permit (5%) and has a plan in place to meet the requirements of the second MS4 permit (an additional 35% improvement). The goal for the final five-year permit is for an overall 60 percent pollutant-reduction.

Meanwhile, patterns of regional rain events demonstrate increased frequency and/or intensity. As we look to expand infrastructure capacity and to build an adaptive, resilient, and performance-based system, investments will be substantial and must often be executed on a watershed-scale basis. To fund these projects, we are looking at using the current ad valorem tax or moving to a utility rate structure.

Basics of Utility Rate Structure

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. A stormwater utility offers a sustainable funding mechanism for recovery of the costs related to stormwater infrastructure, regulatory compliance, planning, administration, maintenance, capital improvements, and repair and replacement.

Under a utility, stormwater fees are charged to both taxpaying and tax-exempt properties and are typically based on property area. There are several methods used to calculate stormwater utility service fees. The most common one is the Equivalent Residential Unit (ERU) method, which is used by roughly 80 percent of the more than 500 stormwater utilities nationwide. Parcels are billed on the measure of impervious area, regardless of the total area of the parcel. The ERU measures the impact of a typical single-family residence's impervious area footprint. In the interests of equity, a jurisdiction may tier rates.

Policy Issues Associated with Moving to a Utility Rate Structure

Considerable analysis is needed to address the many policy issues raised by a utility. These issues include:

- A stormwater utility would base payments on the impact on runoff by a property. This better incentivizes behavior than the current payment system based on property value
- While payments are currently tax deductible, a utility would not be
- Properties currently exempt from paying taxes potentially would be covered by a fee
- A utility has higher administrative costs
- A utility could affect some property owners (single family residential, non-profits/churches with large parking lots) more significantly. These impacts are dependent on the design of a utility

Further analysis will take place over the coming months.

The County will be hiring a consultant to execute a Stormwater Utility Feasibility Study to explore in more detail the benefits, concerns, and process for moving to a different funding model. An analysis of the impact on residents and commercial customers, potential rate structures, and implementation and operating costs will be completed for consideration during the FY 2022 budget process. If a utility is adopted, time will be required for full implementation.