

Recommendation #20

Implement Climate-Resilient Stormwater Management and Expand Flood Mitigation Programs

Description

Improving and expanding the County's existing flood mitigation programs must be a top priority. From 2018-2021, there were 4,362 complaints to the County's 311 hotline, which were water-related: Flooded basements, backyards, streets, and even sinkholes¹. Flooding is front-and-center as one of the primary concerns of County residents. With the number of properties at risk of flooding expected to increase by 4.4% over the next 30 years, the County will experience an estimated \$15.8 million of annual flood damage, an 18% increase from today². Reevaluation of the County's stormwater standards, guides, and code to include climate resiliency factors will be vital to creating community-wide climate resiliency.

Co-Benefits



● Within County Control

● Alignment with Existing Initiatives

● Technical Feasibility

● Cost-Effectiveness

Time Frame

0-3 years

Proposed Measurement & Tracking

Create publicly available and interactive GIS mapping by subwatershed with the following data located by address or permit and tracked on an annual basis:

- Development projects in planning, under construction, or completed(include permit number).
- Track location and number of 311 drainage and flooding complaints
- Track and locate by subwatershed, impervious surface area reductions and increases greater than 500 sq. ft.
- All flood insurance claims by address.
- Track and locate by subwatershed, all issued waivers, letters of revision, exemptions, variances for Stormwater Management regulations, FEMA floodplains, and County Floodplains. Overlaid with 311 drainage and flood complaints over last 3 years.

¹ Drainage and Flooding in Prince George's County', Prince George's County Department of Permitting, Inspections and Enforcement (DPIE) / Department of Public Works and Transportation (DPW&T) / Department of the Environment (DOE)

² Flood Factor (n.d.). Flood risk is increasing for Prince George's County. https://floodfactor.com/county/prince-george-s-county-maryland/24033_fsid#summary

Capacity and Funding:

What Capacity and funding is necessary to enact this recommendation?

1. Support and coordination of the County Executive and County Council Office to revise the County Code of Ordinance.
2. Allocate an ongoing annual budget for dedicated consultant support to aid in modeling efforts and revisions to design manual redesign/revision standards with climate-resilient criteria.
3. Allocate budget for consultant to perform study to inform and recommend climate-resilient code changes.
4. Allocate an ongoing annual budget to revise existing CIP projects under design to include climate-resilient flood and stormwater management practices. Revision should have a specific focus to adapt the following types of projects: Drainage improvements, roadways, bridges, culverts, SWM facilities, stream restoration, and flood mitigation.
5. Create a sustainable funding source for Climate Resilience Rebates to implement Net Zero Runoff practices and climate resilient practices for all residential properties(including multifamily complexes).
6. Professional development for county workers regarding new regulations, design guidelines, and enforcement of code.

Implementation Steps

Step 1: Refine current draft best management practice technical standard updates and pass County Council resolution to update County standards to limit residential flooding from stormwater and address drainage complaints.

- Implement recommendations compiled by DPIE, DoE, and DPW&T(see under Resources) in 2020 as actionable, practical, and wide-ranging mid-term and long-term recommendations to reduce residential and commercial flooding.
- Perform study to inform revisions of code and design guidelines referenced in County Code of Ordinance (Subtitle 32: Water Resources Protection and Grading) for greater climate resilience.: Water Resources Protection and Grading. The study will also explore solutions for high groundwater tables, inland flooding from extreme precipitation, benefits of using a higher range of runoff coefficient factors(for example, lawn), innovative flood and runoff storage solutions for extreme precipitation.

Step 2: Require County stormwater(SWM) standards meet projected climate change impacts by using approved downscaled and up-to-date climate impact information to reevaluate peak rainfall estimates and future design storm profiles. Evaluate SWM standards using this criterion at least every three (3) years. Require all upgrades of County storm drain systems and CIP roadway, bridge, culvert, and stormwater management repair or renovation projects to meet climate-adaptation design criteria.

Step 3: Revise Prince George's County Code of Ordinance to incorporate and require climate resiliency practices:

Revise Subtitle 32: Water Resources Protection and Grading and related Divisions:

- Define Maximum Extent Possible (MEP) based on adaptive subwatershed modeling criteria (EPA's SWMM or other comparable modeling) rather than existing code's allowance for discretionary review recommendations.
- Deter and discourage land disturbance activities or structures within floodplains. Strictly enforce the minimum standard requiring any proposed or existing structures and buildings under permit for renovation, including flood-prone locations (nonriverine flooding), to be raised three feet above the site's 100-year storm elevation to increase the structure's climate resilience.
- Eliminate exemptions from requirements, variances, or waivers that allow altering elevations to build in the floodplain.

Revise Subtitle 4: Building and related Divisions:

- Encourage residential greywater reuse as a Net Zero practice and as an accepted regulatory green infrastructure stormwater management practice.
- Require floodproofing, mechanical and electrical equipment above the base flood elevation, and backup electrical and water feeds.
- Add new drainage design criteria requiring flood and mold protections for building permits and/or licensing of rental housing. Inspection criteria should be updated accordingly.

Equity Considerations

Equity Concerns

Historical development practices placed low-income people and communities of color in flood-prone areas.

Recommendation Implemented Considerations To Lead To Equitable Outcomes.

- Require CIP or other processes to prioritize infrastructure maintenance and upgrades in Equity Focus Areas.
- Provide financial assistance for homeowners and landlords that demonstrate the need for floodproofing and mold abatement from high water tables or chronic drainage issues.
- Develop an educational campaign on the issue of basement flooding and mold in multiple languages.
- Prioritize providing residents of Equity Emphasis Areas priority access to clean-up assistance, dumpsters, and other necessary resources after a major flood or storm event.
- Prioritize and increase purchasing of flood-prone structures to help residents in floodplains relocate.

Helpful Resources

- **Resource: Flood Factor**-Find Your Home's Flood Factor. Uses past floods, current risks, and future projections based on peer-reviewed research from world's leading flood modelers.
<https://floodfactor.com/>
- **Resource: Residential Drainage: A Homeowner's Guide to Drainage Problems and Solutions**
 - **Organization:** Prince George's County Department of the Environment

<https://www.princegeorgescountymd.gov/DocumentCenter/View/83/Homeowners-Guide-to-Drainage-Problems-PDF>

- **Resource:** [Incorporating Climate Change into Stormwater Design Standards](#)
 - Organization: RAND Corporation, Cornell University, Carnegie Mellon University
 - Description: Presentation on developing Intensity Duration Frequency (IDF) curves for the Chesapeake Bay Watershed based on future projections.

- **Resource:** [Developing a Stormwater Quality Management Standard \(QMS\) in Light of a Changing Climate](#)
 - Organization: Engineers Canada
 - Description: Study on development of risk and quality management standard to assist municipalities and engineers in designing, operating, maintaining and improving stormwater management systems ready for a changing climate. Includes stormwater and flood management guidelines, select municipal stormwater design standards, existing international risk and quality management standards, and best practices to integrate climate change considerations into SW planning and management.

- **Resource:** [Community Solutions for Stormwater Management](#)
 - Organization: EPA
 - Description: Long-term planning guide. Includes components of a stormwater plan and progress checklists.

- **Resource:** [Stormwater Stewardship Grant Program](#)
 - Organization: Prince George's County DOE
 - Description: Funds on-the-ground restoration activities that improve neighborhoods, improve water quality, and engage Prince George's County residents in the water restoration and protection.

- **Resource:** Drainage and Flooding in Prince George's County', Prince George's County Department of Permitting, Inspections and Enforcement (DPIE) / Department of Public Works and Transportation (DPW&T) / Department of the Environment (DOE)