FLOODING IN THE REGION

Flooding is a common climate hazard in the District and Prince George's County, Maryland. In late summer 2020, heavy rainfall caused flash flooding that damaged homes and overwhelmed wastewater treatment plants, activating emergency response. At least two similar flooding events have occurred in the area since 2020, serving as a reminder that many neighborhoods, including those with high-density public housing, are within elevated flood risk[1] and regulatory flood-hazard zones. D.C. and Prince George's County are proactively responding to combat the impacts of stormwater, riverine, and coastal flooding.

Urban drainage systems in cities and urban areas are designed to manage rainfall runoff, especially where development has created hard surfaces like roads and buildings that prevent water from naturally infiltrating the ground. During storms, water flows from one neighborhood to the next through storm drains and streets, often leading to flooding when the system's capacity is exceeded. The combination of heavier rainfall due to climate change and the increased runoff from urbanization significantly raises the flood risk. However, this risk is not evenly distributed.

Flooding impacts some communities more severely than others, largely due to historic planning practices that have resulted in racial and economic disparities. The region is proactively undertaking flood resilience efforts with these considerations. Tools including the District Department of Energy and Environment's (DOEE) Resilience Focus Area Strategy, COG's Equity Emphasis Areas, and the Maryland Department of Environment's (MDE) Environmental Justice Screening Tool are instrumental in identifying areas in need. Moreover, D.C. and Prince George's County are actively involving community leaders and CBOs, to support strong community-to-community relationships and cleaner environments for residents.

BGI not only helps reduce flooding but also provides additional benefits like improved air quality and recreational spaces. BGI helps capture and store runoff where it starts, directing it away from homes and other infrastructure. As a longstanding partner to D.C., Maryland, and the region, COG worked with the D.C. Homeland Security and Emergency Management Agency (HSEMA), DOEE, and Prince George's County to obtain funding for the **Regional Blue-Green Infrastructure Community Engagement and Planning Study** to advance community-driven, adaptive, and environmentally-friendly flood resilience efforts.

BGI is the combination of 'blue' water-related functions with 'green' nature-based solutions such as vegetation and parks. This flooding resilience strategy addresses critical urban challenges including flooding and climate change by leveraging natural solutions, enhancing urban biodiversity, improving air quality, and creating recreational spaces that make cities healthier and more resilient.

D.C. and Maryland recognize that the root causes of flooding span multiple neighborhoods crossing jurisdictional boundaries. Consequently, COG, HSEMA, DOEE, and Prince George's County formed a Stakeholder Advisory Group (SAG) including multiple public agencies and planning bodies from both D.C. and Maryland. The SAG played a crucial role in this initiative, bringing together representatives

[1] *In this report, "flood risk" refers to areas with documented or modeled flood hazard—such as FEMA Special Flood Hazard Areas (SFHAs), Blue Spot analysis, or HEC-based flood modeling. This usage is consistent with FEMA and regional planning conventions. It does not imply a full actuarial risk assessment that includes asset vulnerability or damage probability.*

from various jurisdictions to collaborate on flood risk management, helping to ensure actionable outcomes for communities.

The purpose of the study is to engage traditionally disadvantaged communities in flood-prone areas to identify BGI projects that can assist in the mitigation of flood impacts. Expected outcomes include the development of a regional framework to reduce flood risk, enhance stormwater management capabilities, and increase recreational green spaces. This framework will be designed to be replicable throughout metropolitan Washington. Communities along the jurisdictional line that are most impacted by flooding—yet often left out of planning—were at the core of the conversation. Through community-driven efforts, the project seeks to ensure that the voices of these communities are heard, and that actionable, equitable solutions are implemented.

The Watersheds

The study focused on three watersheds that cross the jurisdictional boundary between D.C. and Prince George's County (Figure 2): Arundel Canal, Watts Branch, and Oxon Run.

These watersheds are a part of D.C.'s Resilience Focus Area Strategy and COG's Equity Emphasis Areas and rank high in MDE's Environmental Justice Screening Tool. They include historically underserved communities—spanning Wards 5, 7, and 8 in D.C. and Councilman Districts 2 and 7 in Prince George's County, MD. The neighborhoods in these areas face persistent flood risk, infrastructure gaps, and environmental burdens. Most of the residents in the project areas identify as Black or African American (on average 50%-92% of total population by watershed).[2] This reflects a rich, multi-generational history of African American communities in Prince George County and Wards 7 and 8, which have been historically marginalized through practices such as racially restrictive housing covenants and urban renewal programs. Centering these watersheds allowed the project to prioritize equity and community-centered experience in shaping BGI.

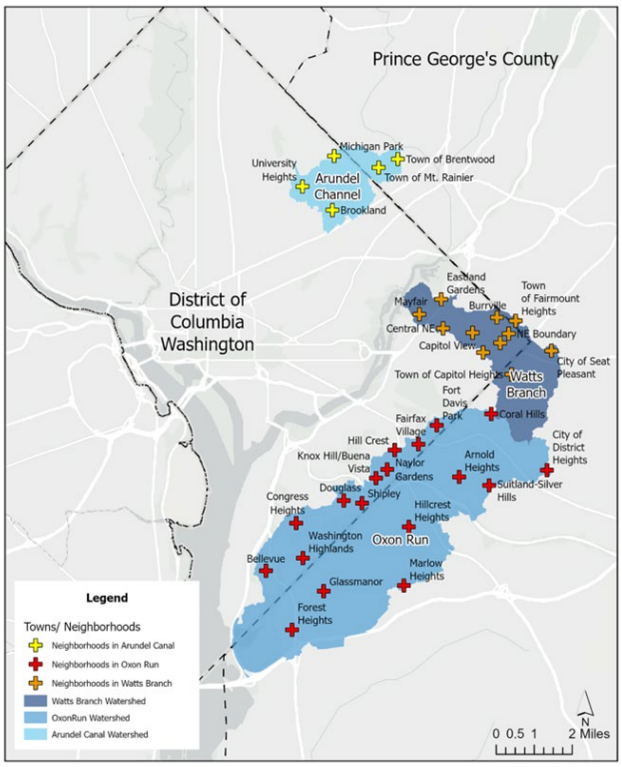


Figure 2: Map of neighborhoods in the study area's three watersheds.

ARUNDEL CANAL

Arundel Canal is a tributary of the Northwest Branch of the Anacostia River, located within central Ward 5 in D.C., and northeast Prince George's County. Neighborhoods in this watershed include University Heights, Brookland and Michigan Park in D.C. and Brentwood, and Mount Ranier in Prince

[2] United States Census Bureau. (n.d.). 2020 Census Demographic Data Map Viewer. Retrieved from https://maps.geo.census.gov/ddmv/map.html.

George's County. The watershed features a mix of residential, commercial, and industrial areas, contributing to varied sources of pollution and runoff. The northwest portion of the watershed is within the FEMA Special Flood Hazard Areas with 1% and 0.2% annual chances of recurrence. Many of these areas are listed as protected by levees along the Northwest Branch of the Anacostia River but still suffer flood risk from interior drainage challenges.

WATTS BRANCH

The Watts Branch watershed spans the northeast corner of Ward 7 in D.C. and east Prince George's County, draining into the Anacostia River. The area includes several large historically overburdened communities including Grant Park, Capitol View, Lincoln Heights, Eastland Gardens in D.C. and Fairmount Heights, Capitol Heights, and Seat Pleasant in Prince George's County. Areas along the Watts Branch are located within the FEMA Special Flood Hazard Area with a 1% annual chance of recurrence. Additionally, there is concern for more frequent stormwater or surface flooding outside the regulatory floodplain due to short duration, intense rainfall events. The DOEE Resilience Focus Area Strategy identified the area along Watts Branch as the 2nd highest priority within the District due to severe flood risk, high concentration of vulnerable populations, and a high number of community assets.[3]

OXON RUN

The Oxon Run watershed spans the southeast corner of Ward 7 and Ward 8 in D.C. and east Prince George's County and drains into the Potomac River. The area includes Oxon Run Park and several large, historically overburdened communities such as Congress Heights, Bellevue, and Washington Highlands in D.C. and Hillcrest Heights, Suitland-Silver Hills, Forest Heights, District Heights in Prince George's County. While the flood risk in this area is primarily riverine, the watershed also experiences significant stormwater flooding due to urbanization and inadequate drainage infrastructure. The DOEE Resilience Focus Area Strategy identified the area along Oxon Run as the 3rd highest priority within the District due to the high concentration of vulnerable populations and high number of assets serving them.[4]

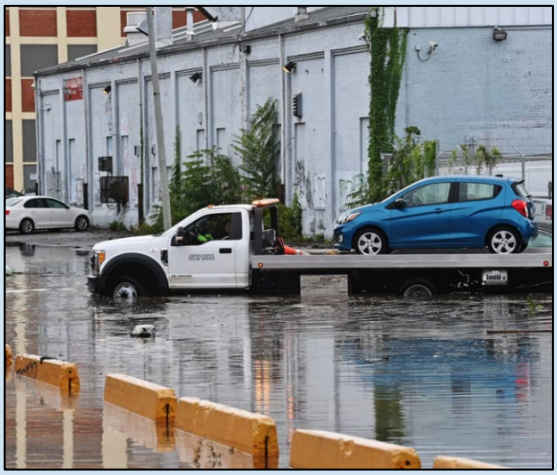
This report summarizes the two central elements of the BGI Planning Study – **meaningful community engagement** within and across the three watersheds, and **evidence-driven BGI project development**.

[3] DC Department of Energy and Environment. (2023). Resilience Focus Area Strategy. Retrieved from https://doee.dc.gov/sites/default/files/dc/sites/doee/service_content/attachments/Resilience%20Focus%20Area%20Strategy_FINAL.pdf.

[4] Ibid.

Recent Flood Events in the Watersheds

In the Arundel Canal area, intense rainfall in 2020 overwhelmed local drainage systems, causing street and basement flooding that remains a defining event for many residents. In Brentwood, chronic interior drainage issues persist in levee-protected neighborhoods, where low-lying areas often have limited outlets for stormwater to escape.[5]



Flash flooding at Rhode Island Avenue NE (Arundel Canal) on Sept. 10, 2020 (Washington Post)

Along Watts Branch, hundreds of homes lie within the 100-year floodplain, and flood risk is expected to grow as urban runoff increases. Due to the watershed's steep slopes and dense development, flood events tend to occur rapidly with little warning—posing acute safety risks for residents. The September 2020 storm demonstrated this vividly, as more than three inches of rain in under two hours caused widespread street and basement flooding, particularly in neighborhoods along Hayes Street and Nannie Helen Burroughs Avenue.[6]

Flash flooding at Clay St. NE (Watts Branch) in 2020. (Washington Post)

In Oxon Run, while recent events are less frequently reported, many homes and community facilities remain within mapped floodplains. The existing concrete channel, constructed by the U.S. Army Corps of Engineers in the 1980s, was intended to reduce flood extent but now limits opportunities for more natural floodplain function. These conditions helped catalyze the ongoing Oxon Run Stream Restoration project[7], which aims to reduce flood risk on both sides of the jurisdictional boundary. Together, these examples demonstrate that while the drivers and frequency of flooding may differ, the risks are tangible—and the solutions must be responsive to each community's specific needs.

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[5] Charles P. Johnson & Associates. (2025). Flooding and Stormwater Hazard and Risk Management Analysis for the Towns of Brentwood and North Brentwood, Maryland. Retrieved from https://www.pgplanning.org/wp-content/uploads/2025/05/Brentwood-North-Brentwood-Flood-Hazard-Study-Presentation-050125.pdf.

[6] District of Columbia Silver Jackets. (2021). Watts Branch Flood Risk Management Study: Final Report. Washington, DC: U.S. Army Corps of Engineers and DOEE. Retrieved from https://www.dropbox.com/scl/fi/b0sanqutmp9rfhova4bz7/Watts-Branch-FRM-Study-Final-Report_-April-2021.pdf?rlkey=hemiqpvxoemjcdlwdxnpllgam&e=3&dl=0.

[7] D.C. Department of Energy and Environment. (n.d.). Oxon Run Stream Restoration Project. Retrieved from https://doee.dc.gov/service/oxon-run-stream-restoration.