

Action Plan

Category 4. – Sewer Line Backups and Backwater Valve Installation

Action 4.1 – Expand Backwater Valve Installation Program



Overview and Implementation Strategy:

The long-term goal of this Action, known as the “Backwater Valve Program” is to ensure that residences within the District of Columbia who are subject to flooding via reverse flow from sewers in a storm are equipped with Backwater Valves (BWV). After the 2012 Bloomingdale flood, BWV’s were provided at no cost to homeowners in a limited area within the combined sewershed that flooded in 2012 and had historically flooded in the past. This provision was in effect until the construction of water quality related combined sewer overflow (CSO) tunnel extended to provide relief for Bloomingdale and adjacent areas of the city was complete and fully operational. This is an ongoing effort with a stated completion date of mid-2023 which marks completion of the Anacostia section of the Clean Rivers tunnel. The completion of this section of the tunnel marks the end of the BWV program in the Bloomingdale area.

After the Sept 10, 2020, storm when separate sewer areas of the city flooded, DC Water’s Board of Directors approved emergency funding up to \$1.5M to install BWV in the combined and separate sewer areas of the city that had documented flooding related to reverse flow from the sewers related to the September 10, 2020 storm.

Over the years, there were many residents who applied for free BWV but did not qualify under either the Bloomingdale Flood or September 10, 2020 Flood programs. In view of the demand for BWVs and limitation on the criteria for accessing the funds for the existing programs, DC Water working with HSEMA applied for a FEMA grant to expand the BWV installations.

Funding in the current request is not anticipated to cover all homes within the District and prioritization criteria will be applied to ensure equity in this effort. The requirement to install BWV in homes whose plumbing fixtures were below the rim of the upstream manhole (almost all basements) was instituted in 2003. Homes built or upgraded prior to 2003 did not have this provision as a requirement. This current program is designed to equip these homes with BWV. Since the request may not cover all homes, Equity indices developed for the Lead-Free DC Program will be adopted here to prioritize installation.

Impacted City Ward/ANC:

- All Wards in the City

Lead Agency:

- DC Water

Supporting Agencies, Roles/Commitments:

- HSEMA – Funding
- DOEE – Continued Public Education on role of Backwater Valves in Flooding
- DCRA – Continued support to ensure BWV requirements are carried through code updates
- DISB – Continued Public Education on the role of Backwater Valves in minimizing Flood Damage



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Background:

Impact of this Effort on Task Force Goal:

- During a major storm, streets and neighborhoods flood, and flood water can enter manholes resulting in surcharging them to street level. The effort is designed to prevent homes with plumbing fixtures below the upstream manhole rims from being flooded as a result of reverse flow through the sewers in storms. In particular, the effort is designed to provide backwater valves where plumbing fixtures in these homes were installed prior to 2003 when it was not mandated by code.

Historical Context:

- The basement plumbing fixtures in majority of the homes in the combined and separate sewer areas of the District are below the top of the manhole and subject to flooding in a storm related to reverse flow when sewers are surcharged. In recognition of this potential, the building code starting in 2003 required that any fixture installed below the rim of the upstream manhole should have a backwater valve in the line.
- Sewers in the city were not sized for the storm intensities that have been seen recently and are projected to get more intense over time. As a result, the sewers are surcharged frequently. If a home is connected to a surcharged sewer at an elevation below the surcharged water surface, and without the protection of a backwater valve, the contents of the surcharged sewer will flow backwards into the home and flood it.
- The September 10, 2020, storm showed that separate sewers under high storm conditions and flooded streets, have inflow into the sewers that create surcharge conditions with implications similar to a combined sewer system when a backwater valve is not installed as required.

Equity

How does this action assist vulnerable communities?

- The Equity approach being developed for Lead Free DC Program will be applied here for consistency in approach.
- Typically, this will prioritize homes occupied by residents with limited income and in areas of the District with high Area Deprivation Index as defined by the Health Resources and Service Administration.
- Even if a resident qualifies for a free BWV, plumbers require payment in advance, and there is a population who cannot front the payment and wait on reimbursement from DC Water. The Program will include an option where in exchange for being listed on the web site and guarantee of payment from DC Water, the plumber installs the BWV without charging the homeowner and directly bills DC Water on completion of work.

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Timeline:

Fiscal Year	Responsible Agency	Action
2022	DCWATER	Select contractors to join the program to install the BWV with guarantee of payment from DC Water and without charging the homeowner. Work with DSLBD on contractor outreach.
	HSEMA	Apply for grant funding for expanded program
2023	DCWATER	Analyze Databases on Homes and prior BWV requests to estimate number of homes that may require BWV. Apply Equity Indices to establish priorities. Develop required Benefit Cost Analysis (BCA) for FEMA funding request.
	HSEMA	
2024-2025		Execute BWV Installation Progress and apply for additional funding based on demand
2026+		Apply for additional funding to expand the Program

Budget:

Total Estimated Cost: \$3,162,600 for this Phase
\$2,213,820 requested Federal Share

Historical Average Cost of BWV Installation is \$5,613 in FY 2022

Long Term Budget Requirements: Anticipated funding request is to cover the next three years and develop data for future installation. Funding will be revisited in FY 26 based on this study.

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Fiscal Year	Responsible Agency	Funding Source	Amount to be Requested	Description
2023 thru 2026	FEMA/HSEMA	Federal (HMA)	\$2.2 million	Home resilience assessment and minor to moderate retrofits.

Public Outreach and Input:

Public outreach & engagement approach/actions:

- DC Water web site
- DC Flood Task Force Public Listening Sessions – March 2022
- Additional Outreach will be initiated within 2023 as part of Year 1 activities
 - Initial outreach will prioritize neighborhoods identified by equity indices
 - DC Water will develop plain language education materials to help homeowners identify if they have a backwater valve already.

What were the Public Comments of relevance to this Action?

DC Flood Task Force Public Listening Sessions

- “Have you done an assessment of (who has backwater valves) all the homes in the floodplain in Wards 7 and 8? As it relates to the backwater valve? I don’t think people generally know if they have a backwater valve. How do you define minimal cost to resident? “
- “Will any of these programs to help residents financially be retroactive to those that have previously experienced floods. Also, programs like the back flow prevention valve, need to be offered in a way that DC pays the contractor. We shouldn’t have to come out of pocket several thousand dollars in advance and then have to apply for reimbursement.”
- “I had a backwater valve installed last week by Jiffy Plumbing. I just submitted my backwater valve paperwork to Emanuel Briggs 5 minutes ago. I am a single mother and I hope that I won’t have to wait months in order to receive my reimbursement of \$5,450.”