

6 Regulatory

6.1 Backwater Valves (aka Backflow Preventers)

6.1.1 Backwater Valve Requirement

Backwater valves prevent the backward flow of water from the sewer system into a building's internal plumbing system. Pursuant to the District of Columbia Construction Codes, backwater valves must be installed in sewage lines when there are plumbing fixtures that have flood level rims located below the elevation of the next upstream manhole cover of the public sewer serving such fixtures. Under these conditions, backwater valve installation is mandatory in order to prevent backflow of sewage into the building. This requirement has been in place since the 1987 version of the District of Columbia Construction Codes (based on the 1984 BOCA codes).

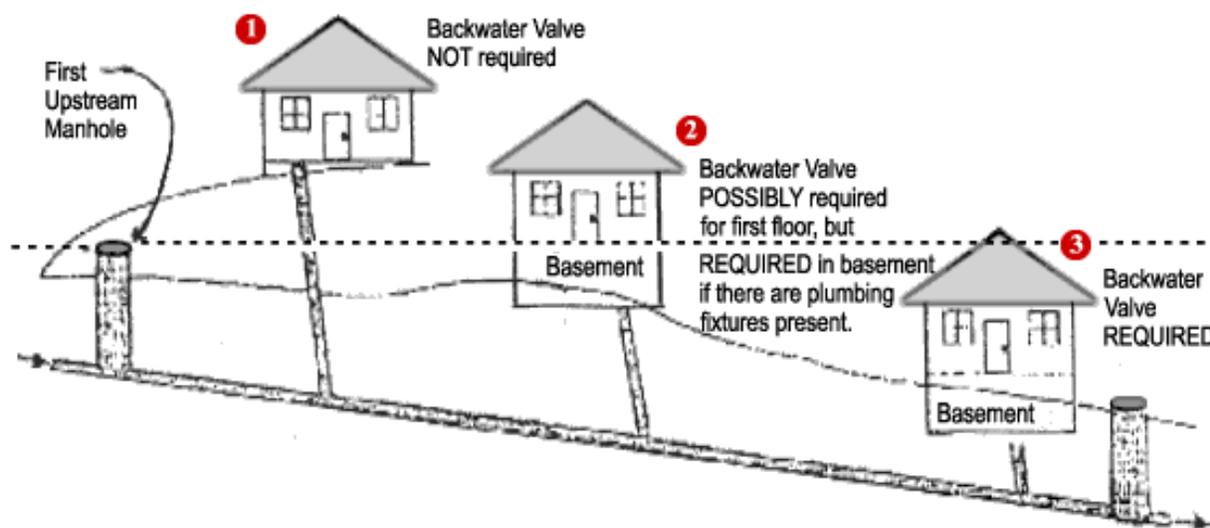


Figure 6-1: Diagram of Conditions Under Which Backwater Valve Installation is Required

In addition to new construction, changes in the occupancy classification of a basement in a private home trigger the requirement to comply with the current Construction Codes. When a private party converts a basement from a non-occupancy status (e.g. an unfinished basement or storage area) to a living space (e.g. a separate apartment or a new bedroom), building and/or plumbing permits are required. In these cases where a plumbing permit is required, the current version of the Construction Codes will apply and backwater valves will be required under the standards described in the prior paragraph above. However, DCRA does not have the legal authority to require retrofitting of backwater valves in existing homes.

6.1.2 Permit Review Process

When a permit application is made, construction documents must be submitted. One of these documents is a “Plumbing Riser Diagram.” This diagram illustrates the plumbing fixture’s flood level rim in relation to the manhole cover, and is used to determine whether backwater valves are required. Depicted in Figure 6-2, if basement fixtures are lower in elevation than the next upstream manhole, then backwater valves will be required.

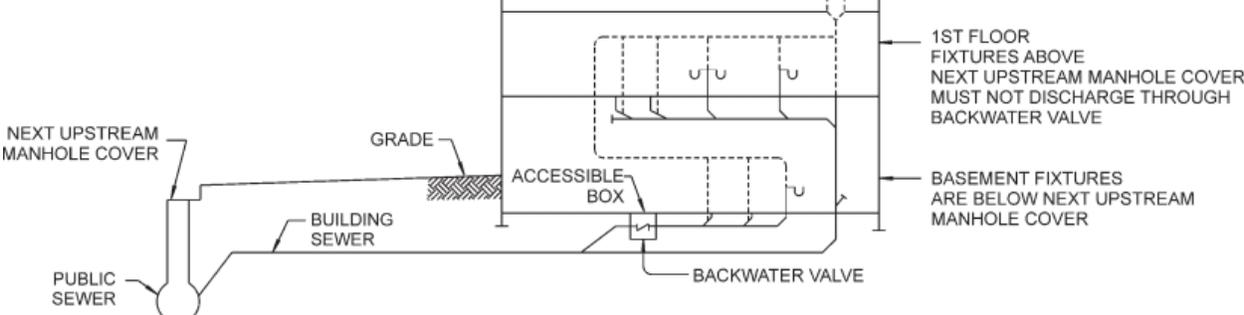


Figure 6-2: Example of a Plumbing Riser Diagram

When a permit application is made, the submitted plans are reviewed. On a residential alteration, if plumbing is included in the scope of work, plumbing plans are reviewed, as well as Structural/Nonstructural plans.

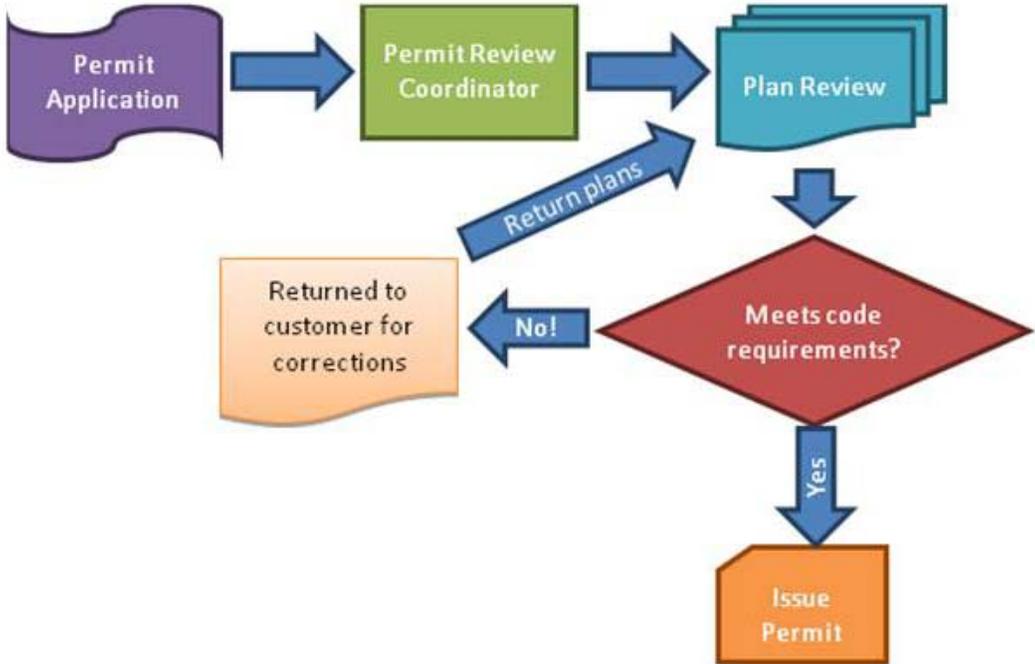


Figure 6-3: Plan Review Workflow for Permit Applications

6.1.3 Post-Permi t Inspections

After the permit is issued, the owner/agent/contractor must arrange for inspections of the various phases of construction through the Department of Consumer and Regulatory Affairs prior to any work being concealed through actions such as drywall or floor installation. The inspector verifies that the work performed corresponds with the approved construction documents. If the inspector finds deviations from the approved plans, or finds that the construction is not in compliance with the Construction Codes, the work does not pass inspection and the customer cannot proceed further until the problem is corrected.

An inspection will not occur unless DCRA or the authorized third party inspection agency is contacted by the owner/agent/contractor.

6.1.4 Reducing the Burden of Installing Backwater Valves

Although backwater valves provide significant protection against sewer backups, the costs and disruption of installation discourages some homeowners from installing backwater valves.

One way to reduce the burden of installing a backwater valve would be to amend the DC Water and the District's Plumbing Code requirement that a backwater valve be installed on a separate lateral serving only those fixtures whose flood rims are below the elevation of the next upstream manhole cover (with the remainder of building on a separate lateral or multiple separate laterals), at least in instances where the backwater valve is not being installed as part of new construction or a major renovation. Removing this requirement will significantly reduce the costs and disruptive impact of construction, because it would be much easier to put a backwater valve on the main building sewer.

However, this option has at least two drawbacks. First, such an installation would be inconsistent with the District Plumbing Code. Second, it would create a situation where upstairs fixtures could drain to lower levels and cause sewage overflows if the backwater valve is closed (this situation would likely occur in multi-unit buildings and in single-family dwellings where the basement is a separate unit from the main portion of the dwelling).

In weighing these drawbacks against the benefits of installing a backwater valve, the most prudent solution may be to amend the Plumbing Code to authorize the installation of a backwater valve on the main drain only if the code official and DC Water determine that the benefits of installing the backwater valve will offset potential negative consequences. It is likely that this approval would occur only in single-family homes (potentially including homes with converted basement units) and only where the added costs of installing a separate lateral would be a significant burden on the property owner. In order to implement this requirement, the District Plumbing Code would need to be amended. (The process for amending the Construction Code is described in Section 6.1.7.)

One other viable option to the homeowner could be a code modification request if the impact of installing the valves above the level of the manhole is determined to have no adverse impact and is generally in the best interest of the District of Columbia.

6.1.5 Requiring the Installation of Grinder Pumps/Sewage Ejectors Instead of Backwater Valves

An option to further protect homes from sewage backflow would be to require the installation of an ejector or grinder pump, instead of a backwater valve, in situations where backwater valves would otherwise be required under the current Plumbing Code. That is, the recommendation would be that the Plumbing Code be amended to require that new construction or substantial improvement or damage (where the cost of the renovation exceeds 50% of the assessed value of the property) must include an ejector or grinder pump system with a battery backup if the lowest floor elevation is lower than the elevation of the next upstream manhole cover. Under these circumstances, a backwater valve would not be allowed.

All fixtures below the level of the next upstream manhole rim elevation would be pumped out of the basement and up into the sanitary building drain at a higher elevation. This system would provide much greater protection from sewage system flooding, since sewage would not be able to back into the basement from the sewer.

This requirement has a significant potential downside: the pump needs electrical power in order to work. Even if the pump were equipped with a battery backup, in an extended power outage, the lower level fixtures would become unusable.

In order to implement this requirement, the District Plumbing Code would need to be amended. (The process for amending the Construction Code is described in Section 6.1.7.)

6.1.6 Requiring the Disconnection of Rain Leaders

Currently, the Plumbing Code allows rain leaders to tie to approved outfalls, which include the building drain. Unfortunately, if the rain leader is tied to the building drain, a cross-connection between the roof of the house (rain gutters) will be created with the lowest fixture flood rim elevation. If there is a backwater valve installed in the house, the rainwater will discharge to the low fixtures in the structure and cause flooding. (The rain leaders would be carrying water at the same time that the sewer in the street would be surcharging, and therefore the rain leaders would likely discharge against a closed backwater valve and flood the basement.)

The Plumbing Code should be amended to provide that where a backwater valve is installed; there must be a disconnection of the rain leaders in areas where the flood elevations are lower than the sewer manhole rim.

In order to implement this requirement, the District Plumbing Code would need to be amended. (The process for amending the Construction Code is described in Section 6.1.7.)

6.1.7 Process for Amending the Construction Codes

The process of modifying the District's Construction Code begins at the Construction Codes Coordinating Board (CCCB). Code change proposals are submitted to the CCCB and the CCCB chairperson refers them to the appropriate Technical Advisory Group (TAG) for its review. TAGs have been established for each construction trade (electrical, plumbing, structural, etc.), and each TAG is composed of a chairperson and several members with expertise or interest in that particular specialty. The TAG discusses and votes on each proposed modification. The TAG recommendation is forwarded to the full CCCB. Proposals not accepted at the TAG level may be re-proposed to the CCCB general meeting. The CCCB discusses and votes on each change proposal. Proposals that are approved by the CCCB are then published in the D.C. Register as proposed rulemaking for public comment. To become effective, the proposed rulemaking is submitted to the D.C. Council for passive review and is then published in the D.C. Register as final rulemaking.



It should be noted that although the CCCB generally approves proposals that are consistent with the ICC codes, non-ICC consistent modifications have been approved to reflect the unique conditions of the District's constructed, urban environment.

6.1.8 Requiring the Installation of Backwater Valves in Existing Buildings

Under the current Plumbing Code, backwater valves are required to be installed only for new construction and substantial renovations. One option to increase the prevalence of backwater valves is to require their installation in all existing buildings that have experienced flooding, irrespective of whether the building is currently undergoing any construction.

Imposing and enforcing this option on property owners would raise significant complications. First, the Task Force is not aware of any similar retroactive imposition of a Construction Codes provision, and mandating such a provision will likely result in significant public opposition and, potentially, D.C. Council action. Second, mandating this requirement will likely result in legal challenges, and it is unclear whether the requirement would survive court review.

6.2 Basement Conversions

6.2.1 General Requirements

If a homeowner seeks to rent his or her basement for occupancy, several legal requirements must be met. The specific requirements that will apply depend on whether the basement will be converted into a full dwelling unit with a kitchen and bathroom, or if the owner will rent the space in the basement without a kitchen. Both options involve many of the same minimum requirements for occupancy.

6.2.2 Renting Out Basement Space without a Kitchen (Renting a Room)

The District's zoning, housing, and construction codes allow the owner of a single-family dwelling to rent out living space within their dwelling, including the basement. This is allowed, as long as the owner first obtains a Basic Business License (BBL) as a single-family rental.

In order to receive a BBL, the building must meet certain requirements regarding space, ceiling height, lighting and ventilation, exits, and general conditions. The owner receives the license after completing the required paperwork, signing a sworn statement that the property meets these requirements, and paying the requisite fee. Within forty-five days, an inspector from DCRA will visit the property to verify the property meets the minimum requirements. If the property does not meet the requirements, the owner is given a Notice of Violation and time to comply. If the owner fails to comply, the BBL may be revoked and fines will be imposed.

If the basement is unfinished, and the owner intends to create a living space in the basement in order to rent it, the owner will need to obtain building permits before beginning work on the basement. Inspections are required at different stages of the construction process. A final inspection is performed when all of the construction is completed. After the work passes final inspection, the owner can apply for the BBL.

6.2.3 Renting Out Basement Space with a Kitchen (Two-Family Dwelling)

If the basement of a building features a separate entry from the main occupied space and has space for cooking facilities, it is considered a separate dwelling unit. If this is the case, the building would require a certificate of occupancy for a two-family dwelling. A two-family dwelling has more stringent fire-safety requirements than a single-family house.

In the past, many properties were converted to two-family dwellings without permits. To correct this, the owner should obtain a building permit to change the use of the property. Even if there was no construction work done by the current owner, this permit needs to be pulled to allow for the inspection of the space to confirm the required fire and life safety components are in place. After the building passes the final inspection, the owner may apply for the certificate of occupancy.

If the owner of a single family structure wants to add an apartment to their building, they may apply for the permit to do so. They will have to comply with the current code requirements for this addition and will need permits for all sub-trade work done, in addition to the building permit. Inspections and certificate of occupancy processes will need to be followed. After the certificate of occupancy is issued, the owner must apply for the BBL for a two-family dwelling. The process is very similar to the process for a single family rental.

Occasionally, there may be zoning or building code issues that would prevent the legal use of the property as a two-family dwelling. In this case, the owner could seek a hearing at the Board of Zoning Adjustment or a code modification from the Chief Building Official.

6.2.4 Inspection and Enforcement Authority

DCRA's authority to inspect a property to determine whether construction is in compliance with relevant law varies depending on the status of the project. If the owner obtained a construction permit, DCRA's authority is broad, as the permit gives DCRA the authority to perform inspections at any time during construction. Specifically, each permit generally states: "The District of Columbia has the right to enter upon the property and to inspect all work authorized by this permit and to require any change in construction which may be necessary to ensure compliance with the permit and with all the applicable regulations of the District of Columbia."

If the construction is taking place without a permit, DCRA's inspection authority is more limited. Section 114 of the District's Building Code (12A DCMR) authorizes DCRA to issue a stop work order if it "finds that any work on any building, structure or premises is being performed contrary to the provisions of the Construction Codes, or the Zoning Regulations or in an unsafe or dangerous manner". DCRA may also issue fines in these cases, although fines are subject to reduction or dismissal on appeal to the Office of Administrative Hearings. DCRA believes its enforcement authority would be enhanced if it had authority to cite contractors for illegal construction; currently the cited for a violation is the owner of the property. Additionally, criminal prosecution of repeat violators of stop work orders would be a useful disincentive to doing illegal construction.

However, complaints of illegal construction are often difficult to prove without the ability to enter the structure, and under District law, if DCRA inspectors do not receive consent to enter a structure, the only remedy is to seek an administrative search warrant from D.C. Superior Court.

Even with the current limits on DCRA's enforcement authority, however, a more proactive approach to identifying and fining illegal construction may help reduce the incidences of illegal construction.

6.2.5 Stairway Drain Connections

Currently, the Plumbing Code allows outside stairway drains to connect to the building drain, which creates a cross-connection between the drain and the lowest fixture flood rim elevation. If there is a backwater valve installed in the house, overland water from the drain can discharge to the low fixtures in the structure and cause flooding.

The Plumbing Code should be amended to require that outdoor stairway drains be connected to a sump pit and pump that discharges to an approved location that is not in the basement level of the house.

6.2.6 Basement Threshold Requirement

Another option to help prevent overland flooding of basements is to amend the Construction Codes to require that for new construction or substantial improvements, the threshold to the basement stairway must be at least 12 inches above the curb level (i.e. there must two steps up before a person can walk down the outdoor stairway to the basement entrance).

Currently, if overland water rises above the curb level, there may be nothing stopping it from flowing down the steps to a building's basement and flooding it. If a threshold were present, the overland water would need to rise significantly above the curb level before it would start flowing down the stairs to the basement level.

There are several potential drawbacks to such a requirement. If a raised threshold alone is installed, it would create a potential tripping hazard. Moreover, for existing buildings, it may not be physically possible to install a raised landing without encroaching onto public space. In addition, for new construction, the requirement for a raised threshold may require the portion of the building adjacent to the staircase to be constructed further back from the building restriction line.

In order to implement this requirement, the Construction Codes would need to be amended. The process for amending the Construction Code is described in Section 6.1.7.

6.3 FEMA Insurance Options

6.3.1 Flood Insurance

6.3.1.1 General Overview

The NFIP (<http://www.fema.gov/national-flood-insurance-program>) is a federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance, and meet the escalating costs of repairing damage to buildings and their contents caused by floods. Community participation in the NFIP is voluntary and is based on an agreement between local communities and the federal government that states. If a community will adopt and enforce floodplain management regulations

to reduce future flood risks, the federal government will make flood insurance available within the community as a financial protection against flood losses. The District of Columbia has joined the NFIP and continued to be a participating community since 1985. The effective Flood Insurance Rate Map (FIRM) and floodplain regulations were adopted on September 27, 2010.

Most homeowners' insurance does not cover damage from overland flooding. Also, private flood insurance is only available for typically high value (more than \$1 million) properties through specialty insurers. Federal disaster assistance is not always available for flooding; moreover, most federal assistance is usually a loan that must be repaid. However, because the District participates in the National Flood Program, NFIP coverage is available to all owners and renters of all residential and most commercial properties located in the District of Columbia. Under Mandatory Purchase Requirement (MPR), if an owner has a federally guaranteed mortgage (through Fannie Mae or Freddie Mac) and the property is located in a special flood hazard area, the owner is required to have flood insurance. However, flood insurance purchase is optional for properties within moderate-to-low risk areas, and is typically offered for lower premiums. Currently, 1,833 (87%) out of 2,104 NFIP policies in DC, as of July 31, 2012, are from moderate-to-low risk areas (Zones B, C, and X).

NFIP coverage is available through the homeowners or renter's insurance agent through its Write-Your-Own program. In the District of Columbia, there are about 30 insurance companies that sell or service NFIP flood insurance policies. The cost of NFIP insurance starts at \$129 per year for low-risk areas. Estimated premium and local agents' contact information are immediately available upon entering address at <http://www/floodsmart.gov>. Note that rates are set and do not differ from company to company, or agent to agent. Limited flood insurance coverage is available through specialty insurers typically for high value (> \$1 million) properties.

Currently, there are 2,104 NFIP policies in DC (July 31, 2012). Of those policies, 2,037 are residential and 67 are for commercial and other properties, totaling \$359,164,000 dollars-worth of coverage. Since 1977, there have been 174 insured losses in DC. Since everyone is eligible for NFIP coverage, everyone should have flood insurance.

It is important to note that for the purposes of NFIP insurance, the term "flood" is defined in part as an "*unusual* and rapid accumulation or runoff of surface waters" (emphasis added), making it possible, but unlikely, that if flooding occurs in a neighborhood every time it rains heavily, the flooding may not be considered unusual and may, therefore, not be covered by the NFIP insurance.

6.3.1.2 NFIP Policy Types and General Coverage

NFIP coverage insures both residential and commercial properties. For residential properties, NFIP insurance offers up to \$250,000 for building coverage and \$100,000 for contents coverage. For commercial properties, it offers up to \$500,000 for building coverage and \$500,000 for contents coverage.

A Preferred Risk Policy (PRP) is available for most homes outside of high-risk areas; PRP provides low-cost flood insurance with quality coverage. The chart below shows the dollar coverage and premium amounts for PRP insurance in the District.

Table 6-1: Preferred Risk Policy Premiums for the District of Columbia

Building and Contents			Contents only		
Coverage (building/contents)	Annual premium (without basement/enclosure)	Annual premium (with basement/enclosure)	Coverage	Contents above ground	All other locations
\$ 20,000/8,000	\$ 129	\$ 159	\$ 8,000	\$ 51	\$ 70
30,000/12,000	165	191	12,000	67	95
50,000/20,000	217	243	20,000	99	132
75,000/30,000	254	285	30,000	113	151
100,000/40,000	282	313	40,000	126	169
125,000/50,000	303	334	50,000	138	186
150,000/60,000	322	353	60,000	150	204
200,000/80,000	353	389	80,000	175	225
250,000/100,000	376	417	100,000	200	245

* Standard-rated policy both for moderate-to-low risk and high-risk areas charge higher rates: available at http://www.floodsmart.gov/floodsmart/pages/choose_your_policy/policy_rates.jsp

NFIP covers physical damage to a building and personal property directly caused by a flood. For example, damages caused by a sewer backup are covered if the backup is a direct result of flooding. However, if the backup is caused by some other problem, the damages are not covered.

The chart below describes what is and is not covered under NFIP insurance.

Table 6-2: National Flood Insurance Program (NFIP) Coverage Criteria

Insured under Building Property Coverage	Insured under Personal Property Coverage	Not Insured
The insured building and its foundation	Personal belongings such as clothing, furniture, and electronic equipment	Damage caused by moisture, mildew, or mold that could have been avoided by the property owner
The electrical and plumbing systems	Curtains	Currency, precious metals, and valuable papers such as stock certificates
Central air conditioning equipment, furnaces, and water heaters	Portable and window air conditioners	Property and belongings outside of a building such as trees, plants, wells, swimming pools, etc.
Refrigerators, cooking stoves, and built-in appliances such as dishwashers	Portable microwave ovens and portable dishwashers	Living expenses such as temporary housing

Permanently installed carpeting over an unfinished floor	Clothes washers and dryers	Financial losses caused by business interruption or loss of use of insured property
Detached garages (up to 10 percent of Building Property coverage)	Food freezers and the food in them	Most self-propelled vehicles such as cars, including their parts
Debris removal	Certain valuable items such as original artwork and furs (up to \$2,500)	

* If an owner does not have flood insurance, none of these losses are covered by the homeowners' insurance policy

6.3.1.3 Basement Coverage

NFIP defines a basement as any area of a building with a floor that is below ground level on all sides. NFIP flood insurance covers the basement, but with some limitations. For instance, flood insurance covers structural elements and essential equipment, but not basement improvements (such as finished walls, floors, or ceilings), or personal belongings kept in a basement (such as furniture and other contents). The chart below describes the scope of NFIP coverage insurance for basements.

Table 6-3: National Flood Insurance Program (NFIP) Coverage for Basements

Covered under building coverage if connected to a power source, if required, and installed in their functioning location	Contents Not Covered
<ul style="list-style-type: none"> • Sump pumps • Well water tanks and pumps, cisterns, and the water in them • Oil tanks and the oil in them, natural gas tanks and the gas in them • Pumps and/or tanks used in conjunction with solar energy • Furnaces, water heaters, air conditioners, and heat pumps • Electrical junction and circuit breaker boxes and required utility connections • Foundation elements • Stairways, staircases, elevator, and dumbwaiters • Unpainted drywall walls and ceilings, including nonflammable insulation • Cleanup 	<ul style="list-style-type: none"> • Clothes washers and dryers • Food freezers and the food in them

6.3.1.4 NFIP Coverage of Sewage Backups

The NFIP policy only covers loss caused by water or waterborne material that backs up through sewers or drains if the backup is directly caused by a flood.

6.3.2 Mandatory Flood Insurance

In order to increase flood insurance coverage, the District could require property owners whose property is located within defined flood-prone areas (such as special flood hazard areas and known flooding areas) to purchase flood insurance for their buildings and contents coverage. Federal law currently requires the purchase of flood insurance for federally guaranteed mortgages in special flood hazard areas. Although mandating insurance coverage would reduce the financial risk to homeowners, there are likely to be significant barriers to imposing such a requirement. The Task Force is not aware of any other U.S. jurisdiction with a similar requirement, and there is likely to be substantial opposition to the imposition of a mandatory insurance requirement.

6.3.3 Private Supplemental Flood Insurance

The federal government flood insurance program is a good start, but residents *may* need more coverage. Under the NFIP, residents are limited to \$250,000 in coverage for their home dwelling and \$100,000 for their possessions. Federal insurance also does not pay for living expenses if residents must move temporarily as a result of flood damage. To supplement the costs associated with flood damage, people can obtain supplemental flood insurance through private insurers, such as Chubb and Fireman's Fund. These policies increase coverage limits to the same level as the homeowner's policy, cover expenses from temporary housing, provide more extensive coverage for items damaged in the basement, and will insure personal possessions up to their replacement value (whereas federal coverage is limited to depreciated value).

6.3.4 District-Funded Supplemental Insurance Program

One suggestion the Task Force considered was the establishment of a District-coordinated supplemental insurance program that would pay individual claims resulting from sewer backup and overland flooding damage to homes and personal property that NFIP flood insurance and federal assistance do not cover.

Given the size of the market and the demand for this very limited form of coverage, however, it is unlikely that a commercially viable true "insurance" program would be feasible. If such a program were considered, a number of factors would need to be considered, including:

- actuarial loss projections;
- premium and revenue calculations;
- capitalization;
- accounting;
- actuarial soundness;
- coordination of coverage with federal flood insurance and existing sewer back-up coverage;
- whether reinsurance should be purchased, if so the type of reinsurance, the attachment point(s) and limits;
- preparation of financial pro-forma;
- who will investigate claims and how claims will be processed; and
- development of a scope of coverage document (policy).

Therefore, developing such a program would require analysis and recommendations by a team of fiscal and insurance experts to explore in-depth and identify the risks, options, and issues outlined in the bullets above.

If a program were developed, the standards for participating in the program (such as geographical restrictions and premium requirements) and the standards for approving claims (such as whether participants be required to purchase of flood and sewer backup insurance to full available limits in order to make a claim under this program) would need to be considered.

6.3.5 NFIP Flood Insurance Discount (CRS Program)

The cost for District homeowners to receive flood insurance through the NFIP can be reduced if the District participates in the Community Rating System (CRS) under the NFIP. The CRS is a voluntary program for NFIP participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. Additionally, jurisdictions are given “credit” for taking specific actions to achieve these goals.

The CRS has been developed to provide incentives in the form of premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures that provide protection from flooding. If the District joins the CRS, the District’s NFIP flood insurance policy holders will receive a flood insurance premium discount in accordance with the NFIP’s classification criteria. The community classification is based on the level of recognized activities that the District engages in. The CRS classes, and the associated insurance discounts, are set forth below:

Table 6-4: CRS Premium Discounts

CLASS	Discount	
	Structure within Special Flood Hazard Area (High Risk)	Structure within Non Special Flood Hazard Area (Moderate-to-Low Risk)
1	45%	10%
2	40%	10%
3	35%	10%
4	30%	10%
5	25%	10%
6	20%	10%
7	15%	5%
8	10%	5%
9	5%	5%
10	-	-

Although the District is not currently a CRS community, several surrounding jurisdictions participate in the program. Prince George’s County joined CRS in 1991; and is a Class 5 CRS community; Alexandria

joined CRS in 1992 and is a Class 7 community; and Arlington County joined CRS in 1992 and is a Class 8 community.

6.3.6 Sewer Backup Insurance

Standard homeowners insurance policies generally do not cover damage caused by sewer backups. However, most insurance companies market sewer backup endorsements or riders as an amendment to their base homeowners insurance coverage.

The rider typically provides limited coverage for structural damage to the dwelling and specified contents of the dwelling that are damaged as the result of a sewer backup. The rider does not replace NFIP flood insurance and specifically excludes damage resulting from a flood.

The cost and scope of coverage of the rider varies by insurance company, and consumers should be sure to understand the specific coverage and limitations provided by their insurance company. Some general cost, coverage, and limitation standards are as follows:

- The premium per year can range from \$50 to \$75 depending upon the location of the home and coverage amounts selected by the homeowner.
- Coverage generally will be capped at a set limit per occurrence (for example, \$5,000 or \$10,000).
- A deductible applies to the coverage which may require the consumer to share a significant portion of the risk in an area prone to sewer backup (for example, \$1,000 per claim).
- The endorsement will typically provide limited or named peril coverage to contents specified in the policy and located in the immediate area of the loss (for example freezer and food, dehumidifier, washers and dryers). The endorsement is designed to cover only those items specified in the endorsement, and generally will not cover items such as flat screen televisions, couches, and area rugs.
- Structural damage is limited to the insured limit selected by the consumer.
- Reoccurring losses are typically an excluded event and the endorsement treats coverage on a per occurrence basis.

6.3.7 Increasing Homeowner Purchases of Sewer Backup Insurance

The following steps could be taken to increase the percentage of homeowners in affected areas who purchase sewer backup insurance:

- Require insurance companies to provide a statement to individuals who purchase homeowner's insurance (and renters who purchase renter's insurance) that flood insurance and sewer backup riders are available. Both Maryland and Virginia require such notice for flood insurance. The notice would be required when the policy is issued and could also be required when the policy is renewed (or annually for a multi-year policy).
- Require insurance companies writing policies in the District to offer sewer backup riders. Although most insurers providing homeowner's insurance in the District offer sewer backup riders, there is not currently a requirement that this coverage be offered. By requiring through legislation that insurers offer sewer backup riders, the District can ensure that homeowners have broader access to this coverage. At the same time, however, requiring all insurers to offer sewer

backup riders might actually reduce the number of insurers offering homeowners insurance in the District, especially if other jurisdictions do not impose a similar requirement and the affordability of insurance offered in the District could ultimately be affected.

- Require that a homeowner carry sewer backup insurance in order to be eligible for participation in the backwater valve rebate program.

Claimants and NFIP policy holders who have received two or more claim payments of more than \$1,000 from the NFIP within any rolling 10-year period for his/her home or business would not be eligible for program participation. Under the NFIP's definition, these properties are considered Repetitive Loss (RL) structures, which are excluded from coverage. Residents whose affected properties are within Special Flood Hazard Areas, and have experienced Substantial Damage as defined by the NFIP and Flood Hazard Rules (DCMR 20) also would not be eligible for District-funded supplemental insurance.

6.4 Legislative Proposals to Address Flooding

6.4.1 Bloomingdale and LeDroit Park Backflow Preventer and Sandbag Act of 2012

The Bloomingdale and LeDroit Park Backflow Preventer and Sandbag Act of 2012 was introduced by Councilmembers Vincent Orange, Kenyan McDuffie, Jim Graham, and Michael Brown on September 19, 2012. The proposed legislation would create a backwater valve program where officials from DC Water and the Department of Public Works (DPW) would receive written applications for the purchase and installation of backwater valve (aka backflow preventer) devices. Applications would be judged upon the number of times the property has experienced flooding or sewer backups, and the probability of future flooding or backups at the specific property. Income cannot be a criteria used to determine if an application should be accepted. The bill mandates that DC Water pay for 75% of the program's cost, with DPW funding the remaining 25%.

The proposed legislation also requires that DPW and DC Water determine how many sandbags will be needed at each property that has experienced flooding. DC Water and DPW would also be required to distribute the sandbags and contact residents on a monthly basis to determine if additional sandbags are needed. The funding for this requirement would be shared evenly between DC Water and DPW.

Further, the bill would require that the District Department of Transportation (DDOT) conduct an analysis of Rhode Island Avenue, between 7th Street NW and 12th Street NE, to determine if structural changes can mitigate flooding. Finally, the bill mandates that DDOT and DPW determine whether sections of the road should be closed when heavy rain is forecast.

An amended version of the proposed legislation was passed unanimously by the DC Council at first reading on December 4, 2012. The amended version of the bill requires that the Mayor establish a backwater valve program, rather than specifically making DPW and DC Water responsible. In addition, the amended bill requires that DPW administer the sandbag distribution process and no longer tasks DC Water with this responsibility. The amended legislation has been deemed subject to appropriations and will only take effect if funds are identified to comply with the mandates in the bill. The Office of the Chief Financial Officer has estimated that administering the programs envisioned in the bill would cost approximate \$4.5 million in FY13.

6.4.2 District of Columbia Flood Assistance Fund Amendment Act of 2012

The District of Columbia Flood Assistance Fund Amendment Act of 2012 was introduced by Councilmembers Kenyan McDuffie, Vincent Orange, Michael Brown, and Jim Graham on September 19, 2012. The bill would establish a relief fund to be used to pay for damages related to overland flooding and sewer backups. Claims paid from the fund would be restricted to flood events occurring after July 2012 and households with applicable insurance coverage would not be eligible. Funding would not be made available if a Presidential disaster is declared for the flooding event. After July 2013, claims would not be eligible unless a backwater valve has been installed on the affected property. The legislation also requires that DC Water extend the existing backwater valve rebate program to defray costs for low-income residents.

The fund would be administered by the District Department of Environment (DDOE) who would determine the specific eligibility requirements. Moreover, the relief fund would be paid for through an additional fee collected by DC Water on its water and sewer bills. The specific fee amount is not specified in the legislation.

An amended version of this legislation was approved at first reading by the DC Council on December 4, 2012. The amended legislation would compensate residential and commercial property owners and renters for damage to property caused directly by a sewer-line backup. Specifically, this bill would require the Mayor to establish a Flood Assistance Fund Program. The bill would give the Mayor 45 days from its effective date to create the Program.

The bill would limit compensation to sewer-line backups as defined in the bill. Property owners and renters seeking compensation for damage would have to have experienced damage between June 1, 2012 and the effective date, and those seeking compensation would have to provide proof of the damage. The program would have the authority to set many of the eligibility requirements, including proof of damage if the damage occurred between June 1, 2012 and the effective date. In addition, the program is mandated to be administered by a third party and has no geographical eligibility requirements.

The funds used to pay claims would be collected by DC Water on behalf of the District through an additional fee on water and sewer bills. The assessment is calculated as an Equivalent Residential Unit or ERU. ERUs are used to calculate impervious area charges. If there are any funds remaining in the Fund once the bill sunsets at the end of FY14, the bill would require DC Water to rebate every ratepayer who paid into the Fund. The amended legislation has been deemed subject to appropriations and will only take effect if additional budget authority is identified to comply with the mandates in the bill.

6.4.3 District of Columbia Fire and Casualty Amendment Act of 2012

The District of Columbia Fire and Casualty Amendment Act of 2012 was introduced by Councilmember Kenyan McDuffie on September 19, 2012. The bill amends title 31 of the D.C. Code to require that insurance companies provide a statement of additional optional coverage available for flooding and sewer backup damage, a notice that basic homeowners insurance doesn't cover flood losses, and that flood insurance is available through the National Flood Insurance Program.

The Council is moving forward in the legislative process and the bill is subject to future amendments.

6.4.4 Home Inspection Requirements

Requiring a home inspector to inspect any existing backwater valve or grinder pump may help ensure that such equipment is in working condition and/or provide useful information to a potential purchaser that such equipment is not installed.

However, the District does not require that a home inspector be professionally licensed, nor does it have a minimum standard of practice for home inspections. (Most other jurisdictions require that home inspectors be licensed. In addition, other jurisdictions, such as Maryland, have implemented minimum scopes of work which require inspection of specified elements of the plumbing system. See *COMAR 09.36.07.07.*)

Legislation would be required to institute a licensing requirement for home inspectors or to require home inspectors to inspect existing backwater valves and grinder pumps. Additionally, implementing regulations would be needed to define the specific scope of the inspection and reporting requirements.

It should be noted, however, that even if a minimum scope of work for home inspections is established by statute, a home inspection is not required before the sale of a home in the District.

6.4.5 Home Seller Disclosure Requirements

The District currently requires disclosure by home sellers of the condition of certain home systems. For example, District regulations require the disclosure of information regarding the home's plumbing system and the seller's knowledge of any defects in the plumbing system. (See 17 DCMR 2708).

The existing disclosure requirement could be enhanced by specifically requiring that the seller disclose whether: (A) there is either a backwater valve or grinder pump installed; (B) there are any known defects; (C) there have been any known prior sewer backups; and (D) there have been any known prior incidents of flooding (whether or not damage was deemed to have occurred, which is the current trigger for flooding disclosures).

Modification of the current disclosure requirements could be achieved through agency proposed rulemaking.

6.5 Historic Preservation Guidelines

6.5.1 Construction on Private Property

The Bloomingdale neighborhood is not currently listed in the District of Columbia Inventory of Historic Sites as an historic district. Therefore, private construction activity (e.g. modifications of exterior building walls, installation of flood gates around window and door openings, other types of alterations) requiring a building permit is not subject to historic preservation review.

The LeDroit Park neighborhood is listed on the Inventory of Historic Sites as an historic district. The district is bounded by Florida Avenue on the south, Second Street NW, on the east, Elm Street NW, on the north, and Bohrer Street NW (just west of Sixth Street NW) on the west. Exterior work in this area requiring a building permit is subject to review by the Historic Preservation Office (HPO) (and Historic

Preservation Review Board, if constituting major exterior alterations or new construction) to ensure that alterations are compatible with the character of historic buildings.

The HPO anticipates that projects involving the installation of temporary floodgates around windows and doors (albeit perhaps with permanent tracks or infrastructure around openings) could be implemented in a manner that would have little visual or physical impact on historic property, and could be reviewed and approved administratively by HPO staff.

6.5.2 Private Construction Funded or Sponsored by the District Government

The District's historic preservation law establishes that District government projects (construction projects funded or sponsored by a District agency) shall consult with the HPO on whether the projects will impact properties that are listed *or are eligible for listing* on the Inventory of Historic Sites. The HPO assists District agencies in: (1) identifying if a property is eligible to be considered an historic resource; (2) identifying whether the proposed project would have any impacts on historic property; and (3) working to avoid or mitigate any adverse impacts the project might have on historic property.

It is anticipated that a government-funded program for flood protection on private property (e.g. a grant or loan program) could be administered either through the development of a programmatic agreement to ensure that any adverse effects on historic property are minimized, or through review of individual projects. This review process could be conducted by the HPO staff, without referral to the Historic Preservation Review Board.

6.5.3 Construction within Street Rights-of-Way

In 2008, the Historic Preservation Office, Federal Highway Administration, and DDOT entered into a programmatic agreement that exempted historic preservation review for *in-kind* replacement of roadways, curbs and public sidewalks. These types of projects throughout the city, whether in historic districts or not, are not forwarded to HPO for review.

As a practical matter, DDOT projects that do involve alterations (e.g. not in-kind replacement) to roadways, curbs and public sidewalks are typically not forwarded to HPO for review unless a specific historic preservation issue is identified through interagency consultation. These instances are relatively rare, such as those projects affecting specialty paving in alleys, the recent project in Georgetown affecting the exposed trolley lines on O and N Streets, and projects affecting bluestone curbing that is typical in Georgetown.

The DDOT Design and Engineering Manual establishes the following standard for the LeDroit Park Historic District:

31.6 Historical District Sidewalks, Curbs, Gutters, Crosswalks, Bicycle and Handicapped Ramps, Roadway Surfaces, Alleys and Other Special Districts

For the following districts, the standards should consist of brick sidewalks, stone curbs, Washington globe lights, and concrete handicapped ramps. The concrete for the handicapped ramps does not need to be tinted to match the brick. Ideally, all alleys in these districts that are brick or asphalt block should be repaired or replaced in-kind rather

than paved over. Where blue stone curbing exists (typically in Georgetown and Capitol Hill), care should be given to preserving and reusing the blue stones where possible. Construction of sidewalks with brick on sand type of design may be hazardous to the visually impaired and blind persons. When the bricks become loose they can cause these persons to trip and lose their balance and fall. Most non-mechanical wheelchair users do not like bricks laid in sand either, as the bricks can become dislodged and become obstacles for them to maneuver around. When the community requests modification to the standard design in the Historic areas, an approval from the SHPO must be requested.

It is anticipated that alterations to paving could be designed to have little or no visual impact on the character of listed or eligible historic properties, and could be reviewed and approved administratively by HPO staff.

6.5.4 Construction on McMillan Reservoir Site

The District-owned portion of McMillan Reservoir (the sand filtration site bounded by First Street NW, Michigan Avenue NW, North Capitol Street, and Chapin Street NW) is listed as a District landmark. Any above or below-grade construction activity on the site is subject to review by the HPRB to ensure that new construction or alterations retain the site's important features and are compatible with the character of the site. For projects resulting in substantial demolition or alterations that the HPRB finds are not compatible with a site, a hearing can be requested by the Mayor's Agent for Historic Preservation. The Mayor's Agent can determine a project to be of "special merit" if it is "necessary in the public interest."

Any construction activity on the McMillan Reservoir site would likely involve review by the HPRB. Applications for HPRB review are due one month prior to the HPRB meetings (which take place monthly). The HPO is required to provide public notice to Advisory Neighborhood Commissions and community organizations of upcoming reviews by the HPRB.

6.6 Water and Sewer Availability Permitting Process

6.6.1 General

If proposed new construction or a renovation requires new service connections or modifications to existing connections to the public water and sewer system, plans need to be submitted to DC Water for review and approval. Approval is provided in the form of a Water and Sewer Availability Certificate (WSAC). The plans are reviewed by DC Water Permit Operations staff for conformance with DC Water standards, and the water and sewer needs are evaluated to see if there is available capacity in the public system. Upon successful completion of the review, signed plans and a WSAC are issued to the applicant. DCRA and DDOT typically will not complete their review and approval of a plan without a copy of the WSAC. The WSAC signifies that the plans have been approved, that there appears to be available capacity in the public system, and that all fees have been paid and administrative requirements have been met.

6.6.2 Definition of "Available"

The term "available" is defined in the District of Columbia Municipal Regulations (DCMR). Specifically, Section P-301.8 of Title 12F of the DCMR states:

A public water main or public sewer shall be considered available to a building when the premises are located within the distances specified below:

- 1. One and two-family dwellings: The lot is within 100 feet (30,480 mm) of the public water main or sewer measured along the center line of the street or public way abutting the lot.*
- 2. Other occupancies: The lot is within 250 feet (76,200 mm) of the public water main or sewer measured along the center line of a street or public way abutting the lot.*

If the system is considered available, a building must tie its wastewater system to the sewer system. Specifically, Section P-301.3.1 of Title 12F of the DCMR states:

Every improved lot in which plumbing fixtures are installed shall have its own independent sanitary or combined sewer connection to discharge liquid wastes and sewage to the available public system installed from the public way at a right angle to the street lot line or as approved by the administrative authority.

6.6.3 Capacity Review

General Standard

DC Water reviews plans to determine whether proposed work is in compliance with the agency's standards and whether there appears to be adequate capacity in the public system (water and sewer) to service the development. If capacity is inadequate, then the property owner either must reduce its demand or improve the public system.

Available Water System Capacity

The current available water supply from Washington Aqueduct and the pumping capacity in the system exceeds the projected future water demands through to at least 2030.¹ Therefore, water system capacity is available and the District typically approves connections unless there are distribution issues. Local distribution issues are evaluated during permit review using hydrant flow test information and modeling. Local system insufficiencies are remediated by the applicant.

Available Sewage Treatment Capacity

The Blue Plains Advanced Wastewater Treatment Plant (Plant) has an average capacity of 370 mgd and currently operates at approximately 300 mgd on average. Of the 370 mgd average daily capacity, the District is allocated 148 mgd but uses only 130 mgd. Based on population projections, the current allocation should be adequate to meet demand through 2030 (at which time demand is estimated to equal capacity). Therefore, an application to connect to the sewer system would not be rejected based on overall sanitary sewer system capacity.

¹ Capacity was computed using the work force and resident population forecasts presented in the Metropolitan Washington Council of Government's Comprehensive Plan for the period 2005-2030. Future projections from the DC Water 2008 Water System facility plan are: 2015, 135 million gallons per day (mgd); 2020, 142 mgd; 2025, 149 mgd; and 2030 = 151 mgd. The historic average annual water delivery rates were as high as 150-170 mgd in 1970.

Available Combined Sewer Capacity

In general, the combined sewer system is designed for the 15-year storm event. There are, however, locations in the collection system known to be undersized for that storm. The 2009 Sewer System Facilities Plan identifies the approximate locations of the major sewers that are surcharged and provides the hydraulic grade line (HGL) at those locations. DC Water is actively working to remediate this condition through the DC Clean Rivers transmission and storage tunnel project.

Current DDOE regulations require any large projects (5,000 square feet of land disturbance or change in zoning) to institute stormwater measures to limit post development 2-year and 15-year discharge to the pre-development rates. Thus, the typical impact to the sewer system from significant new development and re-development should only be the increase in sanitary load, since most areas already drain to a separate storm sewer system. This may not be the case for large tract development. Development of large properties that were not previously sewered or where stormwater stayed on site may add additional drainage area to the combined sewage collection system and may have notable impact on the system.

The combined sewage collection system in its present form can accommodate the low flow or sanitary portion of the sewage and transmit it to the Plant for treatment. It is only during a rainfall event that there is potential for surcharging. New development and re-development for the most part is piecemeal and small in scale and, therefore, negligible when considering the impact to the overall collection system. Thus, for most proposed development/re-development the system is considered to have available capacity. This has been found to be the case for most residential projects and commercial projects with the exception noted above for large tract developments. Large tract developments of note would include the Nationals ballpark area, NoMA, Old Soldiers Home, St. Elizabeths, Southwest Waterfront, Southeast Federal Center, etc. Availability of the system to service these sites needs to be considered by DC Water on a case-by-case basis.

If there is not local capacity, then the applicant is required to reduce or detain runoff commensurate with the capacity of the local system or to remediate the problem. If the project is in an area of known surcharge, then the applicant performs hydraulic routing and modeling of the sewer system to provide evidence that the property being developed will not be impacted or is protected from the surcharge and that the project will not increase the potential for surcharge elsewhere in the system. The HGL must not increase due to the project. If it is a particularly large project, then DC Water will evaluate the project and will model the impact(s).

Available Sanitary Sewer Capacity

Local sanitary sewers were historically designed for peaking factors ranging up to 6 times the average daily flow and to flow at full barrel capacity. This peaking rate is still appropriate for design. Thus the assumption is made that the adjacent (local) sanitary sewer is adequate for the sanitary sewer to that point and it is also adequate downstream. Local capacity is evaluated during permit review and any insufficiencies are remediated by the applicant.

During the permit review process, the local collection system is evaluated for capacity to convey the storm sewerage from the proposed development in the local piping system assuming ultimate development. If there is capacity locally, then it is assumed that there is commensurate downstream capacity and connection is approved. Local system insufficiencies are remediated by the applicant. The

submitting engineer has the responsibility to compute and plot the HGL and to ensure that it stays within the pipe and does not affect the system.

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