



FACT SHEET: First Steps During a Sewage Back-up Into Your Home

1. Call DPW– Customer Service (864-7428) to report the back up. Your call will be logged in our tracking system. The City will dispatch crews to check the public sewer line. Although the City is not usually responsible for the back-up into private property, the City will provide emergency pumping of basement on a first come first serve basis. However, the City does not provide clean-up services. Our goal is to respond to all calls within 24 hours.
2. Because of the health and safety concern, the affected areas should be cleaned as soon as possible. You may want to consider hiring a professional clean up company to assist you in cleaning up the area where the back up occurred. Check the yellow pages under "Fire and Water Damage Restoration". The City cannot recommend contractors. Additionally, please consult our Fact Sheet "Cleaning up after floods/sewer back ups or the Vermont Department of Health's guidance at http://healthvermont.gov/news/2011/060111_flood_contaminated_water.aspx
3. Contact your insurance agent to report the back up and to determine whether this back up may be covered under your homeowners policy. If it is not covered, you may want to consider asking about sewage back-up insurance coverage for the future.
4. Submit a claim to the City (865-7000). The City's insurance agent will evaluate the claim and determine whether your claim will be covered. In most cases, sewer back-ups due to extreme precipitation events are not covered by the City's insurance, but you should take this step to determine if you are eligible for coverage.
5. Because many sewage backups are related to extreme storm events that impact our combined sewer system, it is both required by City Ordinance and imperative for your own protection that you ensure that basement plumbing fixtures (and any fixtures subject to backflow) are compliant with City Code (Chapter 25) and the International Plumbing Code. Such fixtures must be protected by properly installed, permitted, and maintained backwater protection systems. (see Backwater Protection Fact Sheet and Code Citation sheet)
 - Contact a licensed plumber to evaluate your plumbing system and to install a backwater valve if none exists. A City plumbing permit must be obtained and an inspection by a City Trades Inspector performed as part of this process. The City cannot recommend plumbers.
 - If you have a backwater valve, contact a licensed plumber to evaluate whether your backwater valve is compliant with our code, working properly and whether you may be a candidate for a different type of backwater protection (see Sewage Back-Ups FAQs). A City plumbing permit is required for any changes to your plumbing system.
 - When the City Trades Inspector inspects the installation of the backwater valve the Inspector may identify that there are fixtures or uses in the basement that have not been permitted or do not meet our ordinance/codes. It is the Inspector's job to evaluate this when performing an inspection. Therefore, please be prepared to work with our Trades Inspectors, and in some cases Zoning, to rectify any non-compliance while you are addressing the backwater valve issue.
6. Sewage back-ups into a private dwelling are not usually the City's responsibility. There are a range of options to protect your home (see Sewage Back-Up FAQs).



FACT SHEET: Cleaning Up After Floods/Sewer Back Ups

Proper responses to sewer backups can greatly minimize losses from negative health effects and property damage. Every backup is unique and will require different responses but there are some universal principles that can be applied to all situations. Prompt cleanup of affected property can help minimize the inconvenience and damage. The City recommends that you immediately arrange for a thorough, professional, sanitized clean up of your affected property. Check the yellow pages under "Fire and Water Damage Restoration". The City cannot recommend contractors.

If you choose to clean up your property yourself, the following information is provided as a recommendation to assist you with your clean up efforts. The City does not assume any liability for actions taken during the clean-up process.

Additionally you may want to review the Vermont Department of Health's guidance on this issue http://healthvermont.gov/news/2011/060111_flood_contaminated_water.aspx

Health and Safety Issues

Please be aware and keep in mind the risk of potential health and safety problems when addressing the cleanup of your home. If the flooding in your property was the result of flow that came out of any of pipe or plumbing fixture in your home, it will contain some amount of sanitary sewage, likely mixed with the stormwater which caused it to back flow through un-protected fixtures. Even if you are relatively certain that your basement flooding was the result of surface water, you should still follow these cautionary guidelines when cleaning up. Sewage and floodwaters contains bacteria, fecal material, viruses and other hazardous microorganisms, which can cause disease. These "germs" can be transmitted by touching contaminated items or by tracking them into uncontaminated areas on shoes. Children and pets are especially vulnerable. Odors from sewage backups are unpleasant but not harmful. The speedy removal and cleanup of sewer water is very important and necessary.

- Avoid skin contact with sewer water, especially cuts and sores. Keep them clean and covered.
- If you should suffer a cut while working in flood or sewer water, contact your physician about receiving a tetanus shot.
- Do not allow children to play in areas contaminated by sewage backup.
- Do not eat or drink anything exposed to sewer water.
- Keep contaminated objects, water, and hands away from mucous membranes (mouth, eyes, and nose).
- Wash hands frequently, before eating, and immediately following contact with sewer water or contaminated objects/surfaces.
- Disinfect all areas and equipment that came into floodwater contact with a solution of 8 tablespoons of liquid chlorine bleach to a gallon of water. This is a very effective method of removing odors and bacteria. Bleach solutions are the most effective disinfectants, but may cause discoloration of many materials.



Do not mix cleaning products together or add bleach to other chemicals. Certain combinations can produce poisonous gas.



FACT SHEET: Cleaning Up **After** Floods/Sewer Back Ups (Cont'd)

Some Do's and Don'ts of Clean Up

- Keep receipts, lists of discarded items and if possible, photographs for any possible insurance claim.
- Generally small household items that are affected or exposed to the sewage should be discarded.
- Potential health and safety hazards must be identified and eliminated prior to implementing cleaning or restoration procedures. Before entering the affected area the potential for electrical shock hazards and gas leaks must be assessed.
- The cleanup and drying of the basement should occur as quickly as possible to minimize mold and risk of problems.
- Wear protective clothing such as rubber boots, gloves, N-95 respirator/mask (for protection against mold) and eye protection during cleanup and removal. To remove gloves turn them inside out, without touching the contaminated exterior. Dispose of them properly.
- Treat all water soaked surfaces, furnishings and items as contaminated until properly cleaned & sanitized.
- Do not use any electrical equipment while standing in water.
- Wet-vacuum to remove spillage. Operate wet vacuums only when plugged into a ground fault circuit interrupter or ground fault equipped outlet.
- Remove and discard upholstered furniture and porous wood furniture stained by sewage.
- Discard or properly wash and disinfect toys, clothing and other contaminated objects.
- Sanitize and clean hardwood furniture, then thoroughly wipe, dry and apply an oil-based wood polish.
- Ventilate the affected area with floor fans and a dehumidifier, if available, to properly dry the area. If it has not been directly contacted by water, activate the building's heating, ventilation and doors when conditions are favorable.
- Clean appliances and/or ductwork. If electric motors, wiring or insulation have been saturated, have a qualified service technician remove the motor, dry it, and inspect for damage before plugging it back in and turning it on.
- Do not use heat to dry closed building interiors; mildew and expanded water damage may result.
- If your basement walls are finished with drywall, all the areas contacted by water must be removed and disposed of within 24 hours. Once these items get wet, they retain moisture long enough to grow mold. Removing the wallboard also allows air to circulate around the wood studs so that they dry completely and will not need to be replaced.
- Sanitize and repair, or remove and discard, paneling, wallboard or wall coverings.
- Unplug all electrical appliances, small electrical devices on wet floor covering or other wet areas and turn off the circuit breakers supplying the electricity to affected areas.
- Turn off the gas (or other fuel source) to your furnace or heater and hot water heater.
- After the waters have receded, flush out and disinfect plumbing fixtures before resuming normal use.
- Do not track sewage from the basement into living areas of the house.
- Keep children and animals out of the affected area.
- Move any uncontaminated property away from the affected areas.

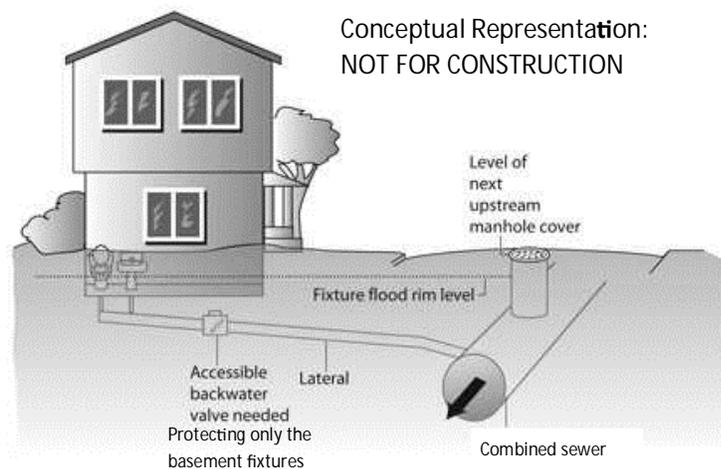


FACT SHEET: BACKWATER PROTECTION

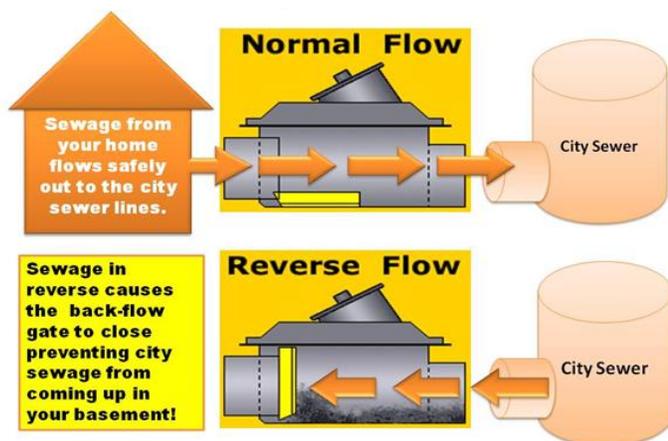
Preventing Storm Related Sewage Backups

Why might we need a backwater protection?

If you have a basement or other low lying floor with plumbing fixtures (toilet, shower, washing machine, floor drain etc.) at elevations that are lower than the elevation of the top of the manhole in the street and/or you have experienced sewer back ups during storm events, backwater/backflow protection is required.



Protective Plumbing: Backwater Valves



What is a backwater valve?

A backwater valve sits inside a home's sewer service. Its job is to prevent sewage and stormwater from returning up a sanitary sewer line and entering the home (typically the basement) when the street line is running full (as occurs during extreme storm events). It is an effective last line of defense and is required for all homes with basement plumbing fixtures.

Is a backwater valve right for my property?

A plumber must evaluate your property and recommend whether a backwater valve is appropriate, and if so, where and what type to install. It is important that an experienced plumber determine which is right for your particular situation. There are three primary types of backwater valves. (See Fact Sheet: Types of Backwater Protection). Backwater protection must be installed by a licensed plumber. A City plumbing permit and inspections are required.

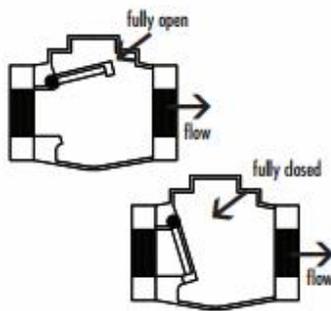
Do I need to maintain my backwater valve?

Yes! Maintenance must be performed on a regular schedule in accordance with the manufacturer's recommendation. A properly operating backwater valve allows flow to only go in one direction (out), preventing sewage and stormwater from entering your home.



FACT SHEET: Types of Backwater Protection

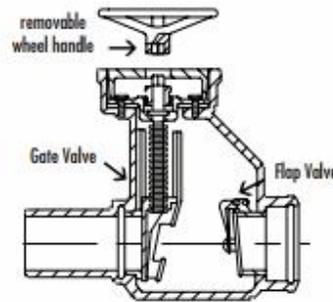
MOST COMMON BACKWATER VALVES: CHECK, DUAL, AND KNIFE.



CHECK VALVE: The Check valve is used principally to prevent backwater in pipes automatically. The valves are entirely automatic.

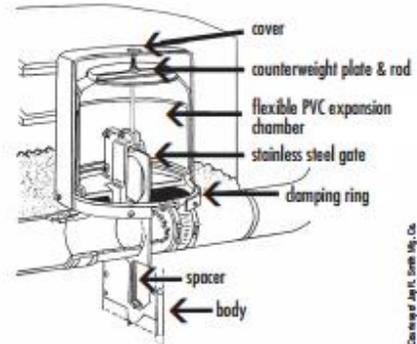
Check valves fall into two main primary types – a “flap valve” and a “ball valve.” The flap valve is the most commonly used type of valve in residential service. It is the simplest device, consisting of a “flap” that swings open to allow flow in the desired direction but seals closed by flow in the opposite direction. A ball valve has a ball that is pushed up out of the way by flow in the desired direction but seals in the pipe to prevent flow in the opposite direction.

Check valves are the least costly type of valve to install, but debris can block them open and they may not close properly when a back-up occurs. These valves do not provide any notification alarm when they are in operation.



DUAL VALVE: This type of valve incorporates both a flap valve and a manually operated gate valve. The flap valve stops the backwater until the gate valve is closed. Dual valves are usually installed outside the house in a valve pit.

Dual valves are generally more expensive than check valves and do not have a notification alarm when in use. It may be difficult to determine when to open and close the gate and debris can block the gate and cause it to malfunction



KNIFE VALVE: A Knife valve closes automatically to prevent backwater from entering the home. As sewage backflow occurs, the trapped air in the house lateral is forced into an expansion chamber. As the expansion chamber fills with air and expands, a knife gate rises until the house lateral opening is completely sealed off. Once the backflow condition subsides and the water level returns to normal in the house lateral, the counterweight atop the expansion chamber forces the trapped air out of the chamber and into the house lateral, allowing the knife gate to return to a fully open position.

The Knife valve is fully automatic and does not require electricity to activate the valve or to reset the gate after operation. The valve is less likely to trap debris that can obstruct the flow or operation of the valve. It is generally more expensive than the other valves mentioned but can include a notification alarm when in use.

COMPARE			
Name	Type	Cost	Alarm
Check	automatic	\$	no
Dual	both	\$\$\$	no
Knife	automatic	\$\$\$	yes

Additionally, for maximum protection, homeowners may want to consider a sewage ejector pump or residential lifting station. Those systems offer added protection via both the check valve in the pump and through elevating the connection above the backwater susceptibility elevation.

Back Water Valves

BACK WATER VALVE ORDINANCE AND PLUMBING CODE REQUIREMENTS

City Code of Ordinances Chapter 25 section 25-41(b) governs the need of a back water valves...

(ORD. of 10-24-88; ORD of 9-26-94)

“Location in sleeping or eating rooms and basements restricted. No water closet shall be located in any sleeping room or any room used for preparing food. No plumbing fixtures shall be located in a cellar, basement, or any location that will be subject to backflow from the public sewer without proper backflow protection and approval from the plumbing inspector.”

International Plumbing Code Sewage backflow protection specific:

“Where flood rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, such fixtures shall be protected by a backwater valve installed in the building drain, branch of the building drain or horizontal branch serving such fixture. Plumbing fixtures having a flood level rim above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a back water valve.”



FAQs Sewage Back-Ups

Q1. Is it the City's responsibility if I have a sewer back up into my home?

A: Sewage back-ups into a private dwelling are not usually the City's responsibility. There are a range of options to protect your home including the backwater protection required by City Code and possibly sewer back up insurance. However, in the event of a back-up please do contact DPW Customer Service so that we are aware of the issue, can provide emergency assistance and can check our system. You can also submit a claim to the City (865-7000). The City's insurance agent will evaluate the claim and determine whether your claim will be covered. In most cases, sewer back-ups due to extreme precipitation events are not covered by the City's insurance, but you should take this step to determine if you are eligible for coverage.

Q2. I have heard that backwater valves are not a good idea—that if it fails it will cause a back-up of my entire home. Is that true?

A: City code of ordinances requires that backwater protection only be installed on fixtures that are subject to back flow and not on the lateral that serves the entire home. Therefore, the concern of a failed/stuck backwater valve affecting other areas of the home is not valid if the backwater valve has been installed in accordance with City Code

Q3. I have heard that it is not worth installing a backwater valve, that it can fail and I will not be protected. Is this true?

A: As with anything that we buy to protect our homes, backwater valves *can* be subject to mechanical failure, particularly if it is not installed by a licensed professional and maintained regularly. There are different levels of backwater *protection* (See "Are there different types of backwater protection"). Unfortunately, during extreme storm events, without backwater protection, it is likely that your home may experience a back-up in the future. Installing some type of backwater protection will reduce that risk and is required by City Code. It is important that you hire a plumber who is familiar with the range of options that may be appropriate for your particular property.

Q4. Are there different types of backwater protection, or are they all the same?

A. Selection of the type of valve or system depends on the level of protection and your willingness to perform the required maintenance to ensure the system is function correctly. Protection ranges from check valves, to a dual valve which has a check/flap valve and a manually operated gate valve, to perhaps the most protective (but most expensive) knife valve which can also include a notification alarm. Residential sewage ejector pumps are also an option. (See "Types of Backwater Protection")

Q5. I have a backwater valve; Why am I still getting back-ups into my home?

A. It is possible that your backwater system needs servicing or replacement. As with any mechanical equipment there are parts and pieces of the valve that may become worn and thus not function as well. Additionally, it is possible that your particular location may warrant a more protective type of backwater protection (See "Types of Backwater Protection"). It is important that you hire a plumber who is familiar with the range of options that may be appropriate for your particular property.



FAQs Sewage Back-Ups

Q6. What is a combined sewer?

- A. Combined sewers are common in many older cities. It means that instead of two separate waste collection pipes (one for sanitary waste and one for stormwater), there is only one pipe. Both private homes' sewer laterals as well as the storm drains in the street are connected to the same pipe. During dry weather and during typical storm events, the pipe has capacity to carry both the sanitary sewage from homes as well as the stormwater from the street. Unfortunately, when we get really intense rain events (large amounts of rain in a short duration) and especially when this happens after our ground is saturated, the volume of stormwater may exceed the capacity of the pipes (every pipe has a certain amount of water it can carry based on its size, slope and type). When this happens, the water can back up and the pressure can allow it to pop man-hole covers and also back up into homes with fixtures that are below the elevation of the sewer and which are not protected with some type of backwater protection.

Q7. I heard the City separated the stormwater and sanitary pipes in the 1980s. Why is this still happening? Why are storm events affecting my private sanitary connection?

- A. In the late 1980s the City did undertake a substantial \$52 million dollar sewer separation project. During this project, the City separated as much of the City as was financially possible and feasible. This was primarily done to eliminate the majority of the City's worst combined sewer overflow points (CSOs), where a mixture of sewer and stormwater was being discharged during large storm events directly to our nearby water-bodies. Additionally, the City pursued significant upgrades to the Main Wastewater Sewage Treatment Plant to ensure that the combined sewage (stormwater and sanitary sewage) that reached the plant was being treated to the maximum extent practicable and in compliance with our WWTP permits. However, approximately 60% of the City is still served by the combined sewer. While City Code requires anyone with fixtures that are subject to backflow to have appropriate backwater protection, homes that are in the combined sewer area are more susceptible to sewer backup as the result of the extreme precipitation events that we are now seeing.

Q8. How can I find out if my home is on the combined sewer?

- A. The City is working on making the collection system maps available on-line as soon as possible and will let people know of its availability via our website, FaceBook, Front Porch Forum and Twitter. However, at this moment a draft copy of our mapping with a guide on using it is available at DPW which you may review. Again, please note, that ANY homes which have fixtures which are susceptible to backwater must, by City Code, protect those fixtures with backwater protection. Additionally, if you or any of your neighbors have experienced a sewer backup during an intense precipitation event, it is likely that your neighborhood is served by the combined sewer system. Do not delay, please make sure any basement or other low-lying fixtures are protected immediately.

Q9. Why can't we fix the collection system right now?

- A. "Fixing" the collection system is a very complex and costly issue. It is not as simple as just changing the collection system on any one street. Rather we would have lay new pipes all the way to a surface water body to



FAQs Sewage Back-Ups

truly separate the system. Additionally, we've come to realize that urban stormwater needs to be treated before discharge into our water bodies, so in addition to those miles and miles of new storm pipe, we would also need to find locations to place treatment systems. The volume of stormwater discharged into our street network would be greatly reduced if everyone could prevent runoff from leaving their properties, but in many cases this is not feasible. The cost to separate our entire collection system Citywide would be in the order of hundreds of millions of dollars. We are, however, taking steps to begin this process of determining where and when separation could occur or at a minimum, where detention/retention of stormwater in the combined system could be installed to mitigate the impact. (See "What is the City doing to evaluate...?")

- Q8. Okay—I understand there are steps that I can take to protect my home. What is the City doing to evaluate if there are changes that can/should be made to the collection system to reduce the risk of combined sewer related back-ups.
- A. We're in the final stage of a mapping/inventory update of our collection system infrastructure. From here we need to construct a computer model of the entire pipe network to see where and how to make cost effective modifications and to ensure that a "fix" in one location does not cause problems elsewhere. We will be initiating the model development and calibration before the end of 2013. Whether basement flooding is occurring or not, the City's goal is to reduce/mitigate stormwater inputs to our combined sewer system (and to our surface water bodies) since the stormwater does present challenges with the operation of the wastewater treatment plants.
- Q9. My insurance policy doesn't currently cover sewage back-ups. Is there any type of insurance specifically for this type of event?
- A. Based on our discussions with our own insurance broker, it does appear that some insurance companies offer "sewage back-up" endorsements for an added cost. The City's insurance company is working on an overview of what those options are and we will make this information available as soon as we have it on our website. For now, you should speak with your insurance carrier. In some cases, you may need to install a backwater valve prior to the company underwriting this endorsement if you have had previous backups.