

City of Aurora

BROWN-KEIDEL SERVICE CENTER

Service Department
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How to Reduce Basement Sewer Back-Ups

One of the most frustrating experiences for homeowners is basement flooding due to sewer back-ups during major rain events. What most homeowners do not realize is that they and their neighbors could be contributing to the cause of the back-ups. The major cause of wet weather sewer back-ups is from storm water that finds its way into the sanitary sewer system. This is commonly referred to as Infiltration and Inflow (I/I) and occurs when groundwater and storm water enter the sanitary sewer system.

Inflow is water that is dumped into the sanitary sewer system through improper connections, such as downspouts, foundation drainage systems, sump pumps and area drains.

Infiltration is ground water that seeps into cracks in underground pipes caused by shifted joints, age or tree roots that have grown into the pipe, and storm water that enters through sump pumps or house foundation drains that are connected to the sanitary sewer.

Storm water is usually collected and transported through a separate **storm sewer** system; the **sanitary sewer** is meant for waste discharge only. During rain events storm water will find its way into the sanitary sewer system through any opening it can find, including cracks in the pipes and direct connections from plumbing in the home.

The Environmental Protection Agency (EPA) recognized the health problems caused by sewer back-ups when it outlawed storm water connections into sanitary sewer systems in the early 1970's. Many homes built prior to 1970 routinely had downspouts, sump pumps, area or patio drains, and foundation drains tied into the sanitary sewer system. On a street with an eight inch (8") sanitary sewer, it would generally take only four (4) 900 square foot roof tops tied into the sanitary sewer to cause a surcharge of the system. New building codes now prohibit such connections. The City has continued to find and require disconnection of illegal storm connections through inspections or at the time a homeowner or contractor applies for a permit for basement waterproofing. At that time the City requires that the foundation drains be disconnected from the sanitary sewer system and tied into a storm sewer outlet.

The City has done its part to address the I/I problem by replacing older cracked or deteriorated sanitary sewers and manholes as part of reconstruction projects. The City identifies defects in its sanitary sewer system through regular televising and inspections. In spite of these efforts, a recent engineering study of sanitary sewers has concluded that many I/I sources remain. **It further concluded that a majority of the I/I sources are in Aurora due to private property storm water connections.** These are the connections that were either undetected during previous inspections or re-connected some time after City inspections. Unless more of these storm connections are detected and removed, wet weather sewer back-ups and surcharged sanitary sewers will continue to be a major problem.

Residents are urged to do their part by having an inspection of their inside plumbing to see if there are any improper connections to the sanitary sewer system. Downspouts that are piped underground may be connected to the sanitary sewer. The storm sump should discharge through a pipe in the foundation wall to the outside of the home. Area and patio drains should exit to a storm sewer. If in doubt, contact the Service/Engineering Department at (330) 995-9116 to schedule an inspection and run a dye test to determine where the drain discharges. If an improper connection is discovered, you must contact a licensed plumber to correct the situation.

Finding and removing storm water connections from the sanitary sewer is an ongoing effort. This information is provided to help residents realize that reducing basement back-ups is a collective effort which will take time. With a little knowledge and effort, residents may help reduce the risk of basement flooding and take important steps to protect their home, property, and possessions.

Ohio Flood Fact Sheet



SPRING & SUMMER FLOODS

Fast melting snow combined with severe storms and heavy rainfall has the potential to cause extensive flooding this spring—particularly in Ohio. With bodies of water throughout the state such as the Great Miami and Ohio Rivers, Ohio is at a heightened flood risk in the spring and summer months. Property owners and renters need to be aware of these risks, and financially prepare for the damage floods can cause.

Now is the time for home and business owners to be reminded of the dangers of flooding and the importance of protecting their homes, businesses and assets with flood insurance – before the spring flooding season begins and it's too late.

OHIO FLOOD RISKS

Snow Melt. Spring thaw can produce large amounts of runoff in a short period of time, as each cubic foot of compacted snow contains gallons of water. Because the ground is hard and frozen, water cannot penetrate and be reabsorbed. The water then runs off the surface and flows into lakes, streams and rivers, causing excess water to spill over their banks.

Flash Flooding. A flash flood is a rapid flooding of low-lying areas in less than six hours, which is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam.

OHIO FLOOD FACTS

In the past 10 years, Ohio experienced 10 federally declared disasters. For example, in August 2007, severe storms and flooding caused more than \$240 million in damages in just over a week to numerous Ohio counties, including Allen, Crawford, Hancock, Hardin, Putnam, Richland, Seneca and Wyandot. In 2007 alone, insured flood losses totaled more than \$40.6 million.

Currently there are about 40,000 flood insurance policies in force in Ohio, approximately 26,000 of which are in high-risk areas. **However, many state residents remain at risk as less than one percent of households are covered by a flood insurance policy.**

Residents need to be reminded that **most homeowners' policies do not cover flood damage** - only flood insurance policies provide financial protection from flooding. Flood insurance policies typically take 30 days to become effective, so the time to get protected is now!

BE FLOODSMART – REDUCE YOUR RISK

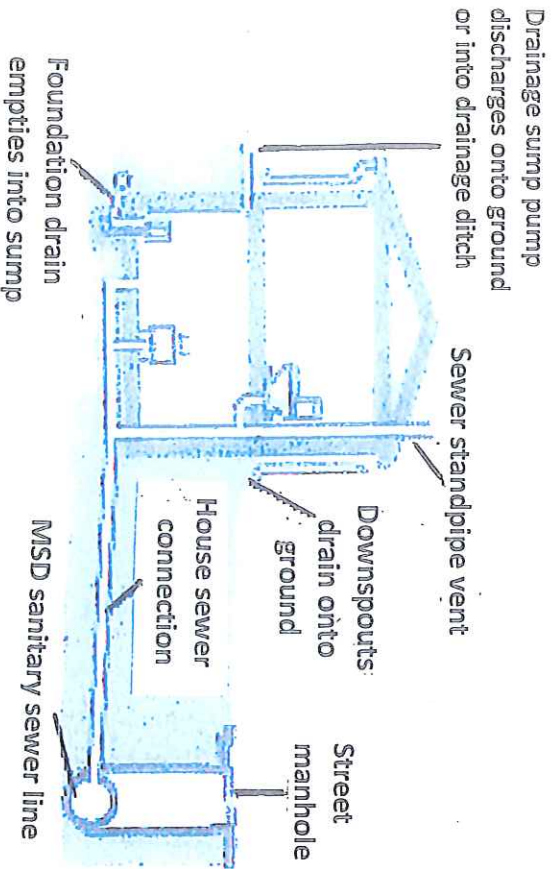
A flood does not have to be a catastrophic event to bring high out-of-pocket costs, and you do not have to live in a high-risk flood area to suffer flood damage. Ohio property owners should remember to:

- Purchase a flood insurance policy if you do not already have one or review your current insurance policy to ensure your home and contents are adequately covered.
- Not rely on disaster assistance. This is usually provided in the form of a loan, which must be paid back with interest.
- Make a flood plan. Plan evacuation routes. Keep important papers in a safe, waterproof place. Conduct a home inventory; itemize and take pictures of possessions.
- Visit FloodSmart.gov (or call 1-800-427-2419) to learn more about individual flood risk, explore coverage options and to find an agent in your area. Flood insurance may be more affordable than you think. An average flood policy costs around \$570 a year, and rates start as low as \$129 a year for homes in moderate-to-low risk areas.



All water from rainstorms and underground seepage should be discharged onto the ground or into a drainage ditch.

Correct Connections



Improper Connections
Some of the common improper connections are indicated below:

