CITY OF Welland

Inflow and Infiltration Reduction Initiative

Open House

April 16th and April 30th
Welland City Hall – Community Room

Welcome!

Welcome to the City of Welland's Inflow and Infiltration Reduction Initiative Open House! Thank you for taking time to meet with us.

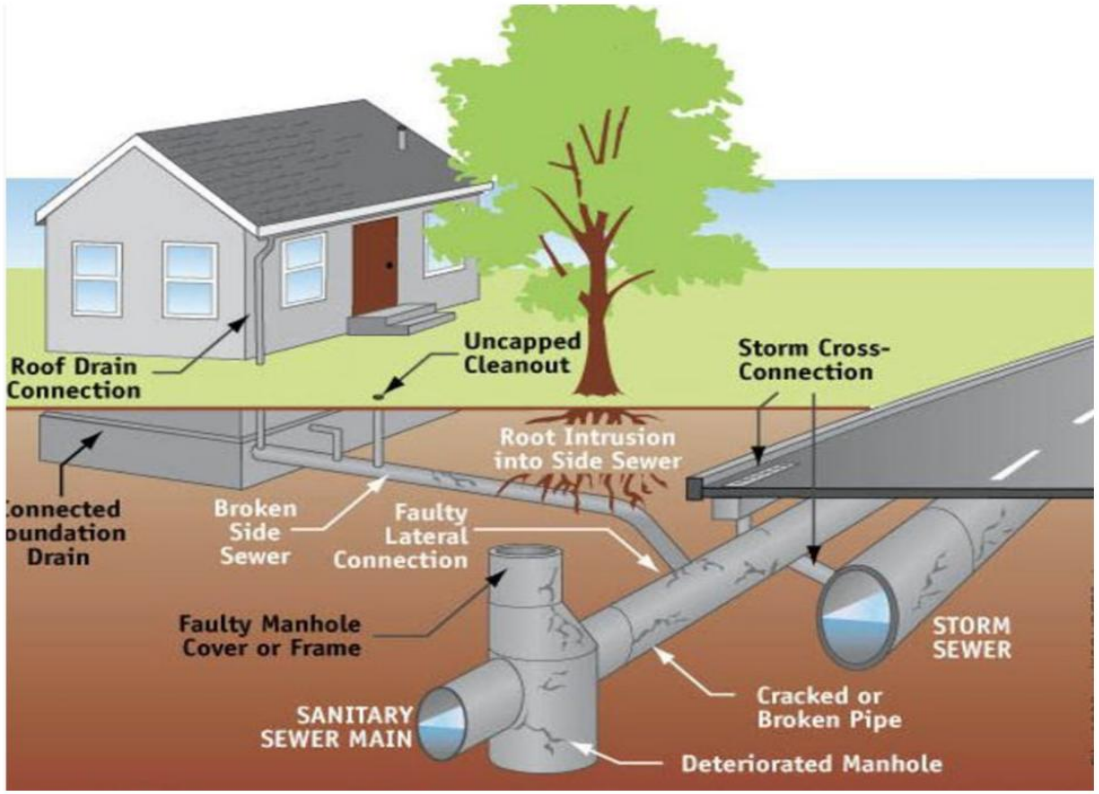
The City of Welland is making efforts to reduce this "inflow and infiltration" of storm water into sanitary sewers. Removing storm flows from the sanitary system helps to free up sanitary system capacity, reduce wastewater treatment costs, and reduce the risk of basement flooding.

We have completed studies in several areas across the City with known inflow & infiltration challenges. Through these studies, we identified **more than 2,300 point-sources** of inflow and infiltration.

Over 85% of these sources are on private-side infrastructure, and most of them are residential properties.

Today's Open House provides an opportunity for you to discuss the City's initiative with staff and learn more about how you can identify and remove any sources of inflow and infiltration that may be present on your property.

What is Inflow and Infiltration?



Inflow and infiltration refers to groundwater and stormwater that enters the wastewater sewer system that causes problems such as basement flooding, overflows into the environment, reduced system capacities, reduced treatment plant efficiencies, and increased costs to residents. Some potential sources of inflow and infiltration can include:

- Roof drain connections.
- Uncapped sewer cleanouts.
- Storm sewer cross connections.
- Faulty wastewater sewer lateral connections from buildings.
- Faulty manhole covers or frames.

Why do we need to remove inflow and infiltration from sanitary sewers?

System Overwhelm

Sanitary sewers are designed to carry sanitary sewage flows only. **They have limited capacity.** When stormwater makes its way into a sanitary sewer, it uses up some of that sewer's capacity. If the rainfall is heavy enough, it can overwhelm that sanitary sewer and cause backups and overflows.

Sewer Overflows

Sewage alone does not overwhelm the sanitary system. However, stormwater inflows can push a sanitary sewer beyond its limits. For this reason, protective overflows are installed at strategic locations in the City's sewage collection system. These overflows prevent sewer backups by discharging some of the flow to the environment.

However, these do not come without environmental impact, as **discharges from these overflows contain sewage**. Overflows are heavily regulated by the Ministry of the Environment, Conservation, and Parks, whose aim is to eliminate all untreated sanitary waste discharges.

Sewer Backups

The City has a limited number of sewer overflows in the system. What happens when a sewer becomes overwhelmed in an area where an overflow is not available? Often, these situations lead to sewer backups and flooded basements.

What is the City doing to reduce inflow and infiltration?

Cracks, breaks, and loose connections provide paths of entry for **infiltration** into the sanitary system, and lingering connections to stormwater sources generate **inflow**.

The City is taking steps to reduce these sources of inflow and infiltration.

- **We inspect City sewers.** Each year, we flush and inspect a portion of the City's sewers to review their condition and identify structural issues. These inspections provide us with valuable information about where time and money should be invested in repairs.

- **We perform system repairs.** Our Public Works team works diligently to seal up leaky manholes, fix faulty service connections, and complete open-cut sewer repairs.

- **We disconnect known sources of inflow.** The City has removed over 100 point sources of inflow into the sanitary system, mostly by disconnecting storm catchbasins from sanitary sewers, replacing or repairing manhole lids, and sealing sanitary sewer lateral cleanouts.

- **We run an annual sewer lining program.** Each year, selected sewers are fitted with a cured-in-place liner that seals cracks and provides structural support. A structural liner extends the life of a sewer by up to 50 years.

- **We complete capital replacements.** We replace aging sewers when lining is not a suitable solution. We prioritize replacements in areas where water, storm, or road infrastructure also need attention, as this maximizes the impact of the construction spending.

How can Welland residents get involved?

The City recently completed a series of studies to identify sources of inflow and infiltration in twelve areas with higher instances of basement flooding:

- Broadway
- Clare Ave and Fitch St
- Dain City
- Feeder Road
- Ontario Road
- Prince Charles Drive South
- Plymouth
- Seaway Heights
- Woodlawn Road

Through these studies, the City identified over 2,300 sources of inflow. Almost 2,000 of these sources are located on private properties.

We are asking owners of these properties to disconnect the point sources.

Most of these point sources are:

- **Private downspouts and roof leaders** that are connected to the sanitary collection system via underground piping. The average house can discharge 360 litres of water per second into a sewer via a connected downspout.

- **Foundation drains** that are connected to the sanitary collection system. Like downspouts, these are often connected via underground piping.

The City has eliminated over 100 inflow sources on public property and continues to undertake this critical work.

What is SWAP?

Through the **Sewage Water Alleviation Program (SWAP)**, the City offers grants of up to $7,500 to assist homeowners with improvements that reduce sanitary system inflow and protect against basement flooding.

These include:

- **Disconnection of pipes connecting foundation drains or weeping tiles** to the sanitary collection system.
- **Installation of a sump pump** to collect stormwater from around your home's foundation and pump it out at grade.
- **Installation of a backwater valve** inside your residence to prevent sewage flows from backing up into the basement.

The grant can also cover additional plumbing improvements, however, **all three of the above items must be completed to obtain grant funding** unless the item is not applicable at your property.

Grant money may also cover selected **excavation, reinstatement, and reasonable property restoration costs** associated with plumbing work.

The City has a limited budget for these grants.
Applying early will increase your chance of receiving the funding!

How can you get involved?

Comments and Questions

Comment sheets are available today and can be completed and left with City staff to review.

Questions and comments can be emailed to the Project Manager:

Rachel Whyte, P.Eng
Infrastructure and Asset Project Manager
City of Welland
60 East Main Street
Welland, ON L3B 3X4
905-735-1700 ext. 2205
rachel.whyte@welland.ca

Questions can also be posted on our Engage Welland project page:

https://engagewelland.ca/inflow-and-infiltration-reduction-initiative

Disconnecting Private Downspouts / Roof Leaders

The City is asking residents to ensure that their roof leaders discharge at grade within their property.

If they discharge underground and connect to the sanitary sewer, disconnect them and redirect them to discharge at grade.

Identify Connection

Identify the potential connection to sanitary. Follow the downspout/roof leader to the underground connection at the standpipe.



Disconnect

Use a hacksaw to remove a portion of the downspout and create a gap between the downspout and the standpipe. A gap of 9 inches should be adequate, though this may vary by property.



Cap Standpipe

Cap the standpipe to prevent storm water from entering the sanitary sewer.



Redirect Runoff

Connect an elbow and extension to the downspout. Redirect the runoff to discharge at grade at least 3 feet away from the building. You can bury the discharge line provided that it discharges at grade no closer to 2 feet away from property line.



Seek advice and assistance from a knowledgeable professional if required.

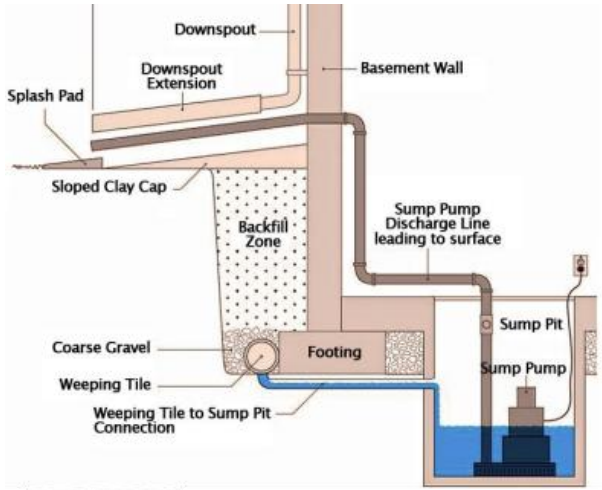
Disconnecting Foundation Drains

Foundation drains are installed below your foundation's wall.
They drain excess groundwater away from your foundation to protect against leaks or shifting.

The City is asking residents to ensure that their foundation drains are not connected to the sanitary sewer. If they are connected, disconnect them and redirect the discharge to grade using a sump pump. Install a backwater valve to protect against backups.

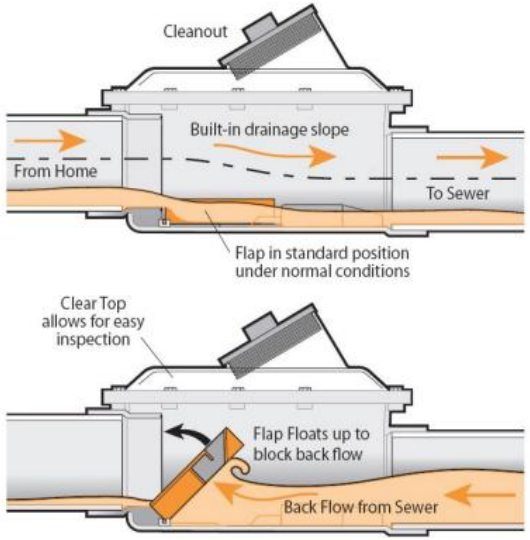
Sump Pumps and Pits

When a foundation drain is disconnected from the sanitary sewer, a sump pump and pit must be installed. The sump pump discharges storm water at grade on your property. Redirect the runoff to discharge at grade at least 3 feet away from the building. You can bury the discharge line provided that it discharges at grade no closer to 2 feet away from property line.



Backwater Valve

Backwater valves can prevent sewage flows from backing up into a basement. A backwater valve only allows flow in one direction: your sewage can discharge to the sanitary system but cannot travel back up into your home. A flap within the valve will close to prevent "backward" flow through the line.



The City strongly recommends that you seek advice and assistance from a certified plumber to complete this work.