Why rainwater should be kept out of the sanitary sewer system

In our region, sanitary sewers are designed to be separate from the stormwater drainage system. This helps ensure the safety of residents and the environment.

Sanitary Sewer System

Sanitary sewer pipes receive wastewater from fixtures within buildings, such as toilets, showers, sinks, washing machines and floor drains. These pipes move wastewater to treatment plants prior to discharge through marine outfalls.

Stormwater Drainage System

The stormwater drainage system is designed to move rainwater and groundwater. The system may include underground pipes, ditches, streams and creeks. Flows enter the system from a variety of inputs including roof drains, foundation drains, lawn drains, and street drains (also known as catch basins). The flows are discharged into nearby water bodies such as streams and the ocean.

How does rainwater and groundwater end up in the sanitary sewer system?

During storms, rain and groundwater can mistakenly end up in the sanitary sewer, taking up valuable sewer capacity and sometimes causing problematic overflows.

The amount of Inflow and Infiltration (I&I) varies in the sewer system. In some areas of our region there is very little I&I while in other areas, I&I can be significant. Generally, I&I tends to increase as the sewer infrastructure ages.

To ensure the safety of residents and the environment, our stormwater drainage system must be kept separate from our sanitary system.

How municipalities find sources of Inflow and Infiltration

There are a number of ways your municipality can identify problem areas.

Flow Monitoring

The CRD and Core Area municipalities monitor sewer flows at various locations in the sewer system. The flow data is analyzed, along with rainfall data, to see if there is excessive I&I within the study areas.

Camera Inspections

Closed circuit television inspections (CCTV) use a video camera to record the condition of a sewer pipe. The camera "tractor" is remote controlled from the surface; video footage is reviewed to identify any defects such as cracks, root intrusions or leaky joints.

Dye Testing

Dye testing may be conducted to confirm connections to the sewer. The test involves adding a special non-toxic dye to the suspect connection and monitoring a downstream sewer manhole for the dye.

Smoke Testing

Smoke testing involves injecting smoke into a sewer manhole and noting where the smoke comes to the surface. The goal of the test is to identify direct stormwater connections to the sewer system, also known as cross-connections. The smoke is non-toxic, stainless, odorless and vegetable based.

Help prevent Inflow and Infiltration from your property

Studies show that approximately 50% of I&I comes from private property. Sources of this I&I can include roof and foundation drains that are connected to the sanitary sewer, leaky pipes or improper plumbing connections between your house and the sewer system.

As a property owner, you own and are responsible for maintaining the sewer lateral (pipe) that connects your house to the sanitary sewer system. You can help reduce I&I in a number of ways.

- Avoid planting trees and shrubs over sewer laterals, as roots can damage sewer pipes
- Check your gutters and drains to ensure they are not connected to the sanitary sewer system
- Replace any known broken, leaky or problem sections of your property's sewer lateral

If you need help, contact your local plumber or municipality for assistance.

Protecting our region from sanitary sewer overflows is everyone's responsibility.

Making a difference...together

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Wastewater Management

Inflow & Infiltration

CRD | Environmental Sustainability

The Impact of Rainwater Entering the Sewer System

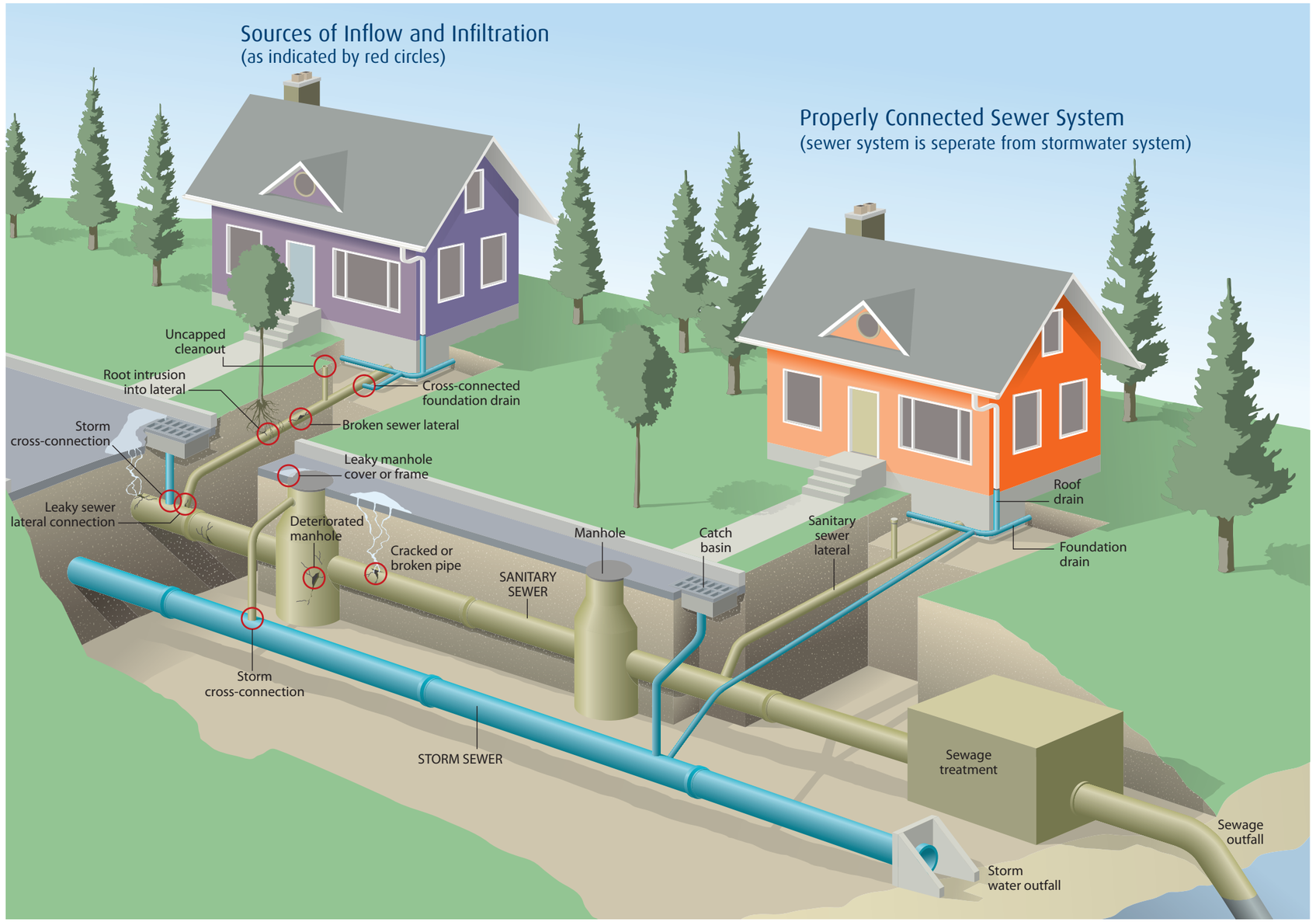
What is Inflow and Infiltration, and why is it a problem?

Inflow, rainwater that enters the sanitary sewer, and Infiltration, groundwater that seeps into the sanitary sewer can be a particular problem in areas with older sewer infrastructure. Problems may result from improper plumbing connections, cracked sewer pipes, outdated piping materials, or the construction practices of the day.

Inflow and Infiltration (I&I) increases wastewater flows in the sanitary sewer during storms. Although sewers are designed to accommodate some I&I, too much can cause overflows and other significant problems.

Problems Caused by Inflow and Infiltration

- Overflows back up into homes and businesses, damaging personal belongings, which can result in costly cleanup.
- Overflows spill into roads, creeks and beaches, which can harm the environment and pose a health hazard to residents as well as marine and wildlife.
- I&I increases wastewater pumping and treatment volumes, resulting in increased operational costs.
- I&I consumes valuable sewage capacity, resulting in potential costly upgrades to the system.
- I&I is associated with sewer deterioration, which can lead to pipe collapses and sinkholes.



Last updated November 2010