

# Infiltration and Inflow (I/I)

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## What is Infiltration and Inflow and Where Does It Come From?

Infiltration and Inflow (I/I) is the collective name given to the unpermitted discharge of stormwater, surface water, ground water, roof runoff, condensate, or subsurface drainage that enters the Public Sanitary Sewer System.

**Infiltration** is groundwater that enters the sewer system through sanitary sewer defects such as cracks, lateral defects, leaky connections/joints, deteriorated manholes, root intrusion, and any other location where groundwater can seep into the system.

**Inflow** is stormwater that enters the sewer system through a direct connection. Direct connections include missing cleanout caps, foundation drains, sump pumps, missing manhole lids, driveway drains, downspouts, and other unpermitted connections.

## The Impact of I/I

Excessive I/I entering the Public Sewer System can cause a variety of issues that impact public health and safety, customer use rates, and wastewater treatments costs.

**Sanitary Sewer Overflow (SSO)** – Excessive I/I can overwhelm a sanitary sewer system, especially during severe weather events. This can lead to sanitary sewer overflows which can negatively impact both the environment and public health. Wastewater discharges may contain pathogenic microorganisms, toxic pollutants, pharmaceutical products, oil, grease, and other dangerous contaminants.

**Sewer Backups** – I/I contributed by private properties can lead to sanitary sewer backups at private residences and cause the same health concerns as sanitary sewer overflows. Sewer backups can also lead to high costs in maintenance and cleanup for owners. Sewer backups may also be a result of sanitary sewer lateral defects that restrict the flow of wastewater such as root intrusion.

**Increased Treatment Costs and Sewer Rates** - Infiltration and Inflow result in a greatly increased sanitary sewer flow which must be treated by the County Wastewater Treatment Plants. This increased flow results in higher treatment costs, increased system maintenance, expansion of the collection and treatment system, and subsequent increases in sanitary sewer rates for users.

## How can I help?

**Check Your Cleanout Cap** – Missing or damaged cleanout caps are one of the most common sources of private property I/I, but are luckily one of the cheapest and easiest to correct. Cleanouts sit near ground level and are generally damaged when hit by lawn mowers. Owners should replace any damaged or missing cleanout caps and may mark the location by painting the cap a bright color or placing a flag nearby.

**Remove Direct Connections** - Disconnecting unpermitted connections like sump pumps, downspouts, and foundation drains from the sanitary sewer system greatly reduces the stormwater entering the

sanitary sewer system. A licensed plumber will be able to properly disconnect and redirect these connections.

**Investigate and Repair Laterals** – Hiring a licensed plumber to investigate your sanitary sewer lateral can reveal serious issues including root intrusion and pipe collapse. These issues may lead to serious problems including sanitary sewer backups. Although repairing or replacing laterals can be expensive, the cost of a sanitary sewer backup can be even more damaging.