

# District Inflow and Infiltration (I&I) Reduction Program

Keep clear water out of our sewers

## What is inflow and infiltration (I&I)?

Sewer pipes are designed to keep surface water and groundwater out of the system. This extra water, also called “clear water,” is an unnecessary burden on the wastewater collection system and treatment plant.

Clear water can enter the wastewater collection system in two ways:

- **Inflow:** Rainwater or other surface water that enters the sewer system, often through manholes or, in homes and businesses, connecting sump pumps or downspouts to sanitary sewer drains. (This practice is strongly discouraged.)
- **Infiltration:** Groundwater that enters the sewer system through damaged areas in underground sewer pipes and laterals.

Inflow and infiltration (I&I) is experienced by District and municipal-owned systems, as well as pipes from private residences and businesses. The graphic below show various sources of I&I.

## Why does I&I matter to the District?

I&I reduces the sewer system’s capacity during heavy rains, which could lead to overflows or backups.

Wisconsin Department of Natural Resources (WDNR) rules recognize this problem. State administrative code (NR 210.23) requires that all owners of collection systems have a Capacity, Management, Operation and Maintenance (CMOM) Program. A CMOM program requires system operation and maintenance to handle peak flows and that “all feasible steps are taken to eliminate excessive infiltration and inflow from the system.” The District’s I&I reduction program supports our CMOM by working to eliminate excessive I&I.

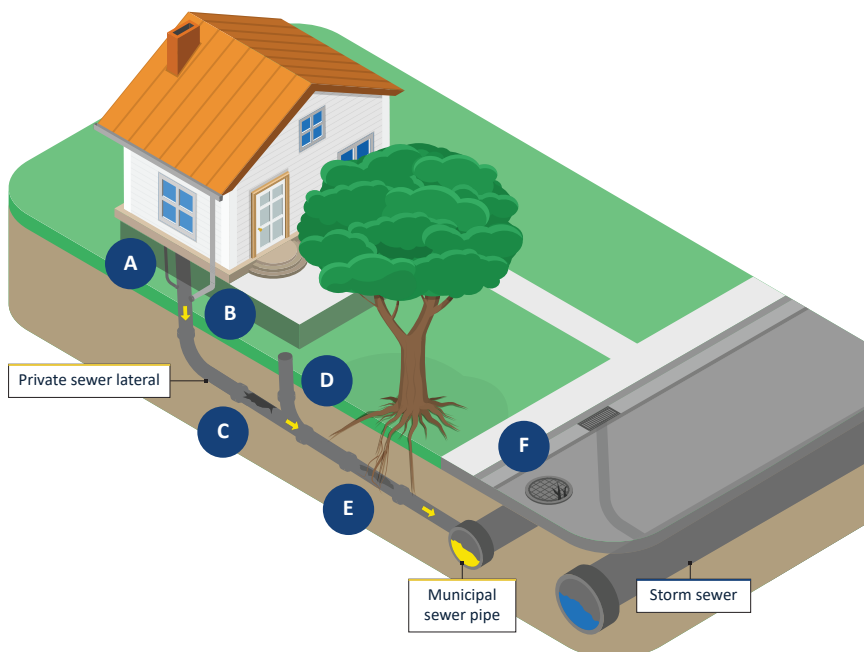


**Find the District’s CMOM  
at [madsewer.org/cmom](https://madsewer.org/cmom)**

The District’s I&I reduction program also serves a maintenance function that allows for fiscally responsible long-range capital planning. By maintaining I&I levels within allowable limits, the District can forgo spending money to build infrastructure to accommodate I&I and instead invest in capital projects necessary to address community growth.

### Sources of inflow and infiltration

- A** Improper sump pump connection
- B** Improper gutter connection
- C** Pipes with cracks or breaks
- D** Uncapped cleanout pipe
- E** Root intrusions from tree or shrub
- F** Open holes in sewer access lids



## What is the District doing to monitor I&I?

The amount of I&I to the collection system varies considerably across the region and within municipalities and individual neighborhoods. The first step in eliminating excessive I&I is identifying where the problem is most severe. Because of variation in rainfall, it typically requires at least three years of monitoring to quantify I&I in an area.

The District is developing a monitoring program utilizing additional flow meters placed at key points of the collection system. These meters supplement existing meters and data from pumping stations. The program will grow gradually, allowing staff to learn valuable lessons about monitoring and data analysis.

This data will also support the District's capital planning program. It will also be available to communities to assist in their planning efforts.

## What is the District doing to educate the public on I&I?

Education and raising awareness of this issue are key to reducing I&I. It is particularly important because private laterals, which are the pipes that connect homes and businesses to the sewer system, are a significant source of I&I.

To support municipalities in educating property owners about the issue, the District developed the DRIIPS, or *Disconnect and Reduce Inflow and Infiltration to Private Sewers*, program. Through DRIIPS, the District has developed a suite of educational materials, which are available at [madsewer.org/driips](http://madsewer.org/driips).

# DRIIPS



Find I&I educational materials  
at [madsewer.org/driips](http://madsewer.org/driips)

## What are potential options for future I&I work?

There are several options that the District may consider in future years. These may be necessary if the District is unable to comply with WDNR rules. Importantly, no actions are being taken on these at this time.

- **Sewer Use Ordinance:** It may be necessary to amend the District's Sewer Use Ordinance to provide greater clarity and stronger restrictions on peak flows or similar factors.
- **Community work plans:** It may be necessary to require I&I control work by individual communities, including specific work plans and enforcement provisions.

The District does not expect to address private laterals directly. The District has no plans to fund private lateral repairs, either through existing District revenues or through a separate charge to communities.

