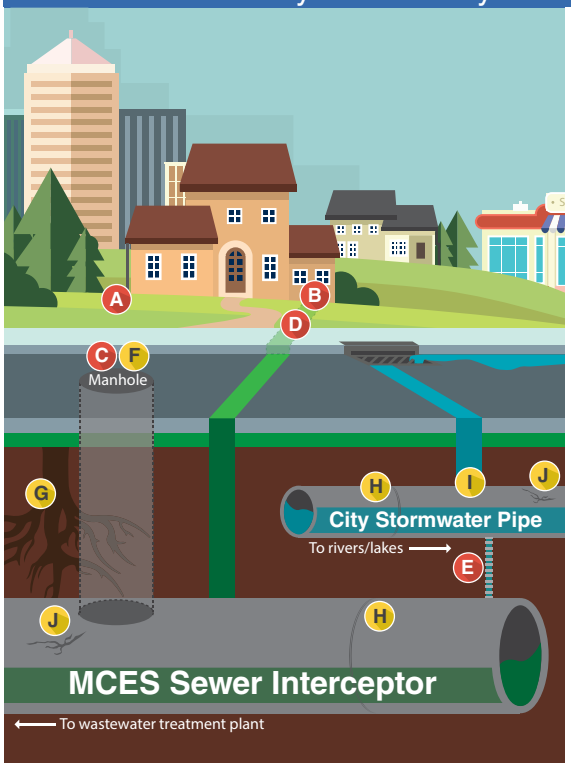
METROPOLITAN COUNCIL

INFLOW & INFILTRATION (I/I)

What is Inflow and Infiltration?

Inflow and infiltration are the ways that clear water makes its way into sanitary sewer pipes.



INFLOW

- A Roof Drain Connection
- B Sump Pump or Foundation Drain Connection
- C Deteriorated Manhole
- D Uncapped or Broken Clean-Out
- E Storm Cross Connection

INFILTRATION

- F Faulty Manhole Cover/Frame
- G Root Intrusion
- H Open Joints
- I Faulty Service Connection
- J Broken of Cracked Pipe

Why Is I/I a Problem?

I/I can result in public and environmental health concerns

When the combined amount of wastewater and clear water exceed the system capacity, untreated wastewater can back up into the basements of buildings or discharge into lakes, streams, wetlands, or other areas. Often these outcomes are a result of limited system capacity at the local level.

I/I is costly to communities and utility ratepayers

The large regional pipes (interceptors) and wastewater treatment plants are designed for the wastewater needs of the region. Excessive I/I limits the available system capacity intended to accommodate the growth of the region and increases the wastewater treatment costs, charged to local communities.

I/I wastes the region's valuable water resource

Clear water discharged to the wastewater system is removed from the natural hydrologic cycle and reduces groundwater recharge potential.

IMPLEMENTATION STRATEGIES

For Reducing Inflow & Infiltration in Communities Served by the Regional Wastewater System

- **Maintain and rehabilitate Council interceptors.**
- **Develop inflow & infiltration goals for communities.**
- **Require communities to include inflow & infiltration mitigation in comprehensive sewer plans, including private sources.**
- **Limit service expansion where excessive inflow & infiltration risks overflow & backups.**
- **Institute a rate demand charge for communities who don't meet their inflow & infiltration goals.**
- **Include cost of the wastewater storage or improvements required to avoid overloading system in demand charge.**
- **Work with the State to make funds available for inflow & infiltration mitigation.**
- **Work with the State to promote statutes, rules, and regulation to encourage inflow & infiltration mitigation.**
- **Develop program to help communities reduce inflow & infiltration from private sources.**

MCES POLICY

On Inflow and Infiltration

The Council **will not provide additional capacity** within its interceptor system to serve excessive inflow and infiltration.

The Council **will establish inflow and infiltration goals** for all communities discharging wastewater to the regional wastewater system.

Communities that have excessive inflow and infiltration in their sanitary sewer systems will be required to **eliminate the excessive inflow and infiltration** within a reasonable time period.

Inflow & Infiltration (I/I) Glossary

I/I

Inflow and infiltration is that component of sanitary sewage flow that originates from clear water connections, e.g., sump pumps and foundation drains, stormwater entering manholes and groundwater entering through pipe joints and cracks. It is water that would normally not require any type of treatment. However, once it is co-mingled with sanitary wastewater it cannot be separated, and must be treated with the sanitary wastewater.

INFILTRATION

The seepage of groundwater into sewer pipes through cracks or joints in the pipes.

INFLOW

Inflow is typically flow from a single point, such as discharge from sump pumps, foundation drains, and rain leaders or storm water entering openings in the sewer access covers.

I/I GOAL

The I/I goal is the maximum allowed peak hourly flow limit for each metershed; product of the previous ten-year growth adjusted average daily flow and the standard peaking factor adopted by the Metropolitan Council.

DEMAND CHARGE

A demand charge is the amount that MCES may charge a community for the cost of excess capacity needed in the MDS for those communities that have not met their inflow and infiltration goals(s), if the community has not been implementing an effective I/I reduction program in the determination of the Council, or if regulations and/or regulatory permits require MCES action to ensure regulatory compliance. The charge is not a penalty; it will include the cost of wastewater storage facilities and/or other improvements necessary to avoid overloading MCES conveyance and treatment facilities (plus the appropriate service availability charges for use of MCES conveyance and treatment facilities).

EXCESS I/I

I/I that results in wet weather flows that exceed MCES' established I/I goal for the metershed, adjusted, where appropriate, for I/I into MCES interceptors.

EXCESSIVE I/I EVENT

A wet weather time period when excessive I/I occurs within the MDS.

EXCEEDANCE PEAK HOUR FLOW (PHF)

A meter's peak hour flow that exceeds the metershed's I/I goal, adjusted, if applicable, for I/I into MCES interceptors.

EXCEEDANCE RATE

The charge per mgd of excessive I/I.

STANDARD PEAKING FACTOR

A factor which is multiplied by the average daily flow for a metershed to determine the maximum allowable I/I.

MDS

Metropolitan Disposal System; wastewater facilities owned and operated by the Metropolitan Council.

MGD

Million gallons per day

METERSHED

The area tributary to an MCES flow meter. Some communities have multiple metersheds.

MWC

Municipal Wastewater Charge