

# Information Item: Inflow & Infiltration Program History, Results, and Continued Efforts

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Committee of the Whole: July 17, 2019



# Inflow and Infiltration (I&I) Program



Long-term strategy that works

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Simple solutions, unique strategies

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Key milestones and success indicators

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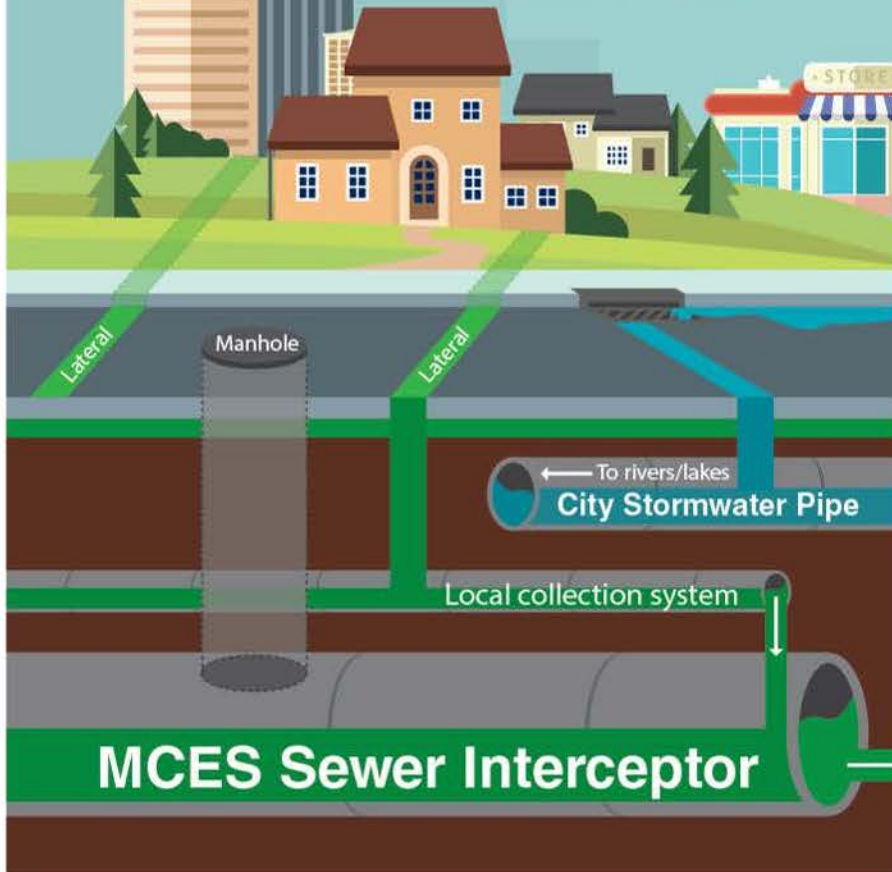


Continued investment

# Wastewater System



We treat wastewater from bathing, laundry, toilets, kitchens, commercial and industrial uses.



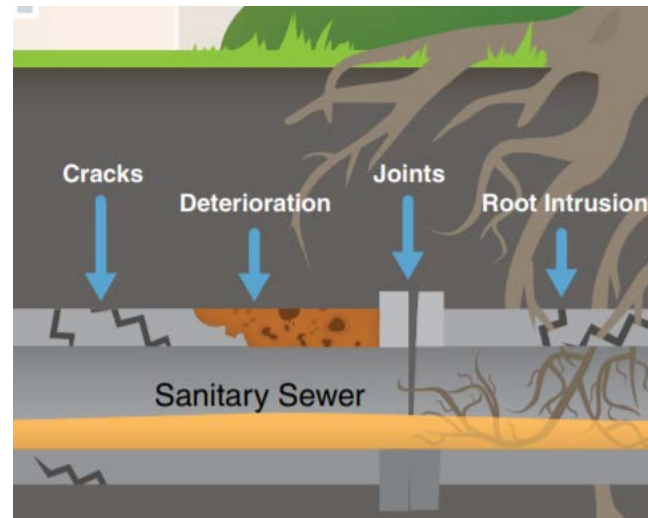
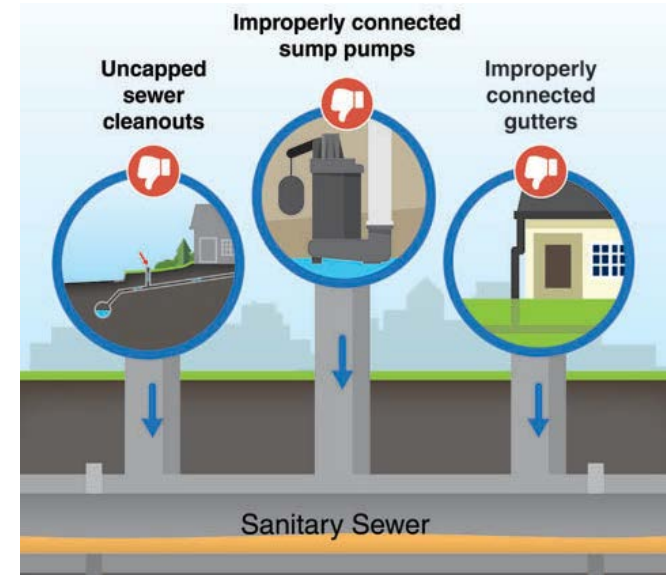
Our treatment process removes pollutants by converting them to small volume of organic solids, and returns clean water to the environment.



To wastewater treatment plants

# A clear issue: I&I

- Backups to homes and overflows to waterways
- Increased costs to convey and treat
- Reduced capacity for growth
- Wasted resource

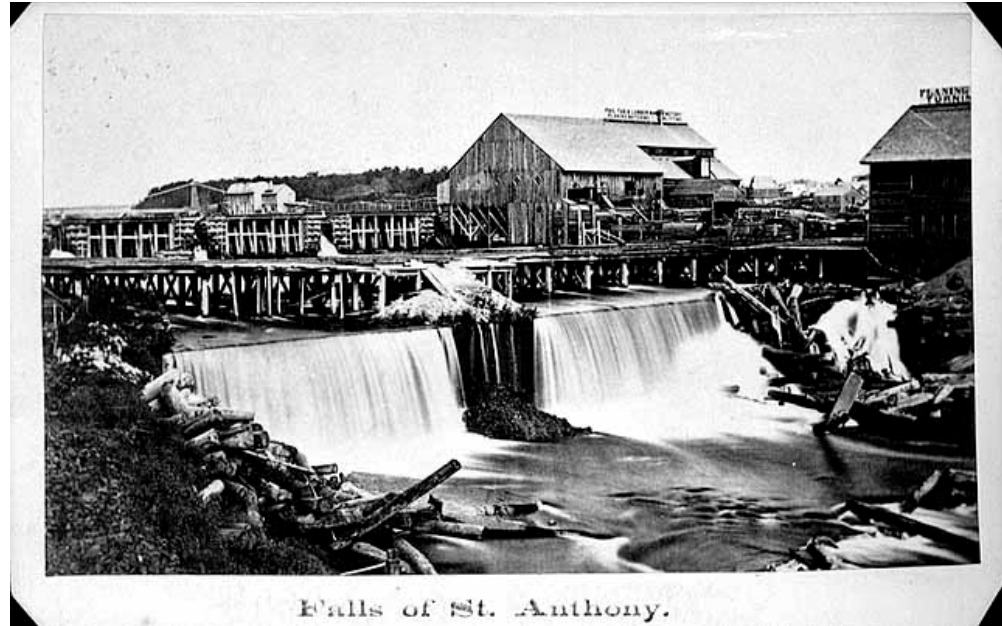


# Mississippi River

**1870:** Begin discharging all sewage to river

**1938:** Metro Plant begins treating combined sewage

**2010:** Last recorded overflow to river (due to stormwater pipe failure)



St. Anthony Falls, 1860

# Timeline



**July 1987  
Superstorm**

- **16" of rainfall** over one week in region
- Agreement to study I/I; no EPA consent decree



**1990  
System  
Evaluation**

- **~20% of annual flow** from I/I
- Identified approaches for mitigation incentive vs disincentive programs



**2002  
Interceptor  
Master Plan**

- Projected peak flow **exceeds capacity with future growth projections**
- More cost effective to address sources of I/I vs increasing system capacity



**2004 I/I  
Task  
Force**

- Reaffirms approach to address I/I mitigation at source
- Identifies implementation of demand charges in 2013 if peak flow is not reduced

# Timeline



## I/I Program Begins

- Monitoring starts in 2004
- 55 communities assigned work plans in 2007



## 2009-2010: I/I Task Force 2

- Deferred 2013 Demand Charge
- Policy Amended, On-Going I/I Mitigation Program adopted



## April –June 2014: Extreme Wet Weather

- 42 Communities exceed I/I goals
- Communities experience back up of sewage into homes and release wastewater to lakes and streams.



## 2016 I/I Task Force 3

- Identify need to continue program
- Develop community tools and public education
- Help communities advocate for funding

# Steady Progress



The region's population increased 10% from 2005-2016

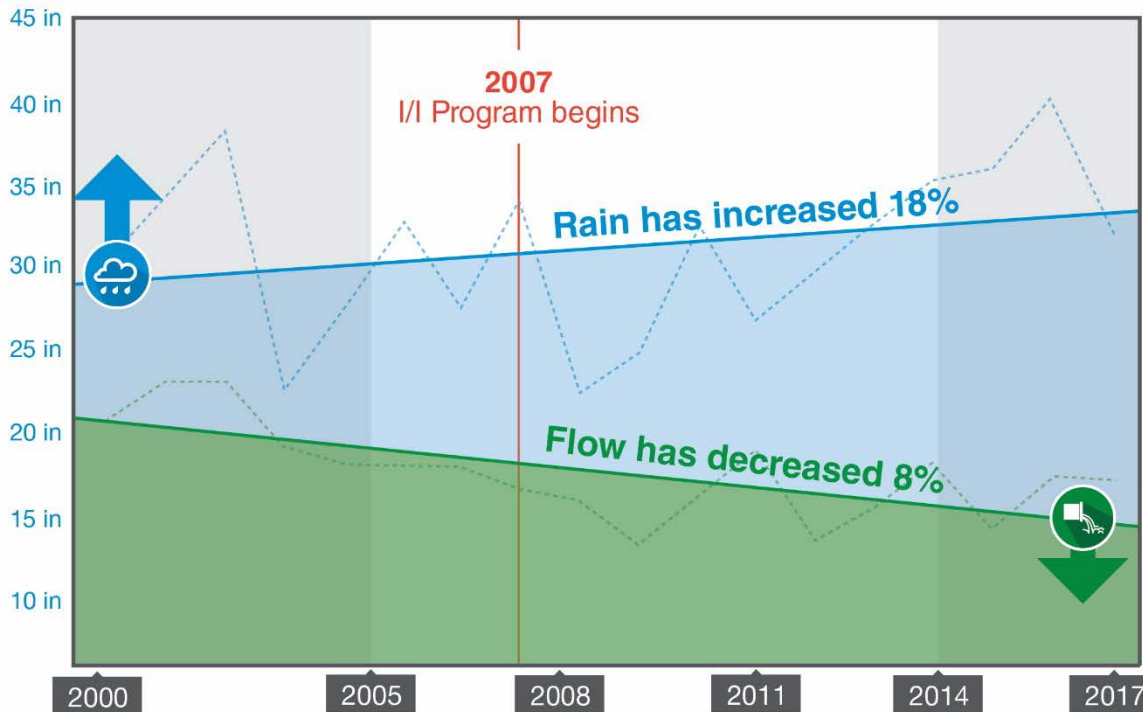


Average precipitation increased 18% from 2005-2014

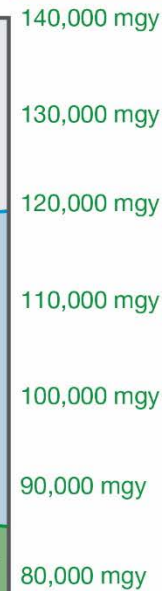


Average flow decreased by 8% 2005-2014

## RAIN



## FLOW



METROPOLITAN  
COUNCIL



# Inflow & Infiltration program

**2005:** Policy adopted; program begins.

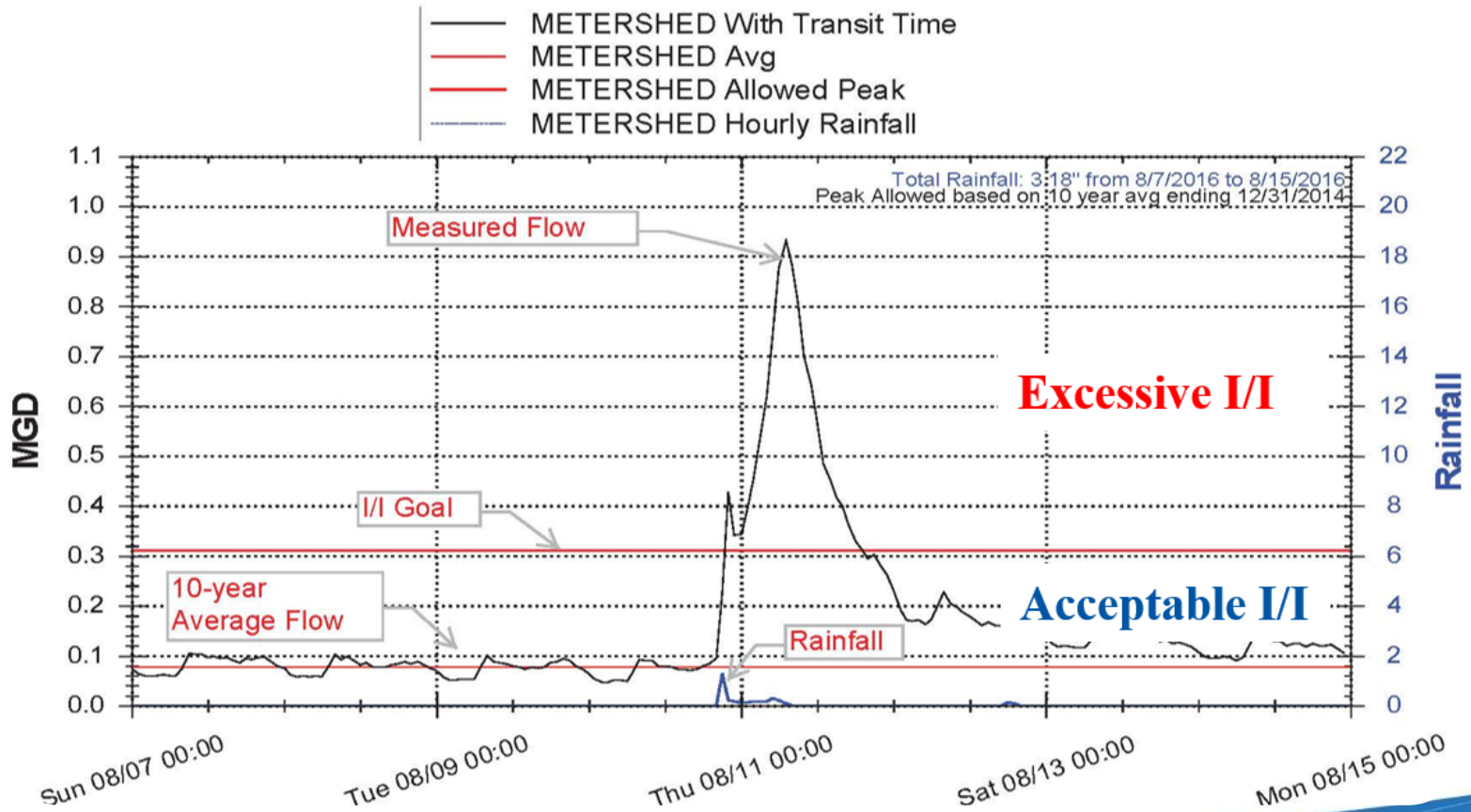
**2014:** Greater rainfall event than 2005, less wastewater flow

**2016:** Most regional rainfall in a year, lower annual wastewater than 2005



# Excessive I/I

## II Report for METERSHED

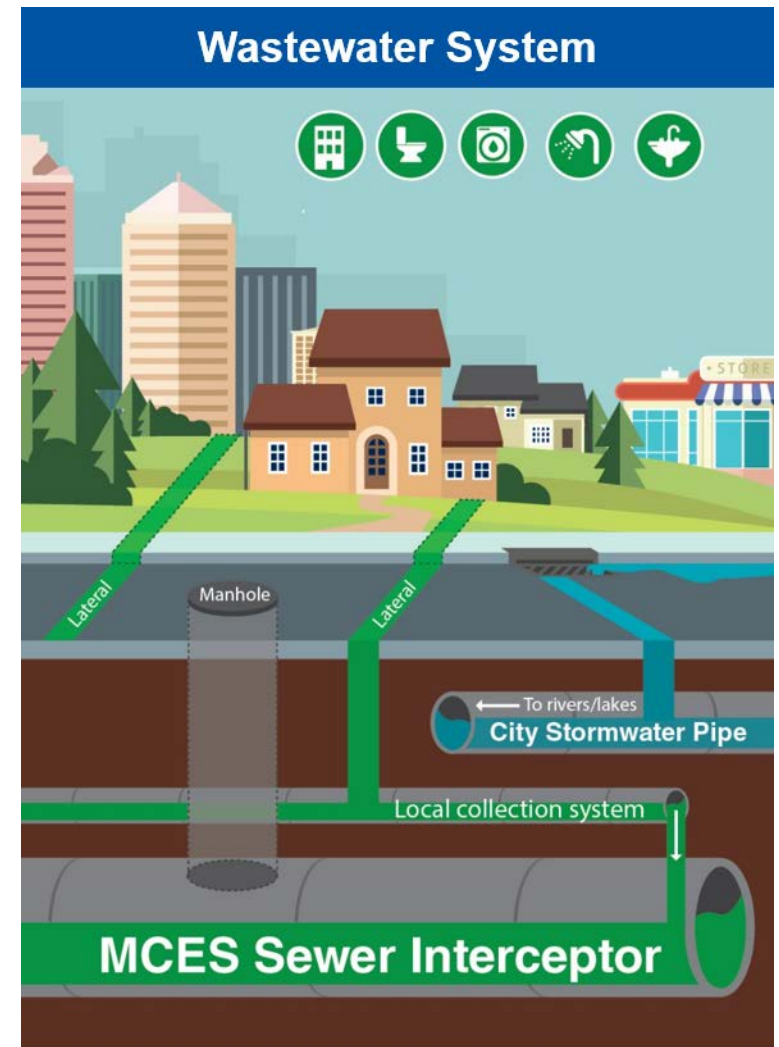


# Sewer Separation

**1960s:** Sewer separation begins by Minneapolis, Saint Paul, South St. Paul

**1986:** Accelerated sewer separation- over \$330M invested

**1995:** Sewers are considered separated, I&I remains in some areas

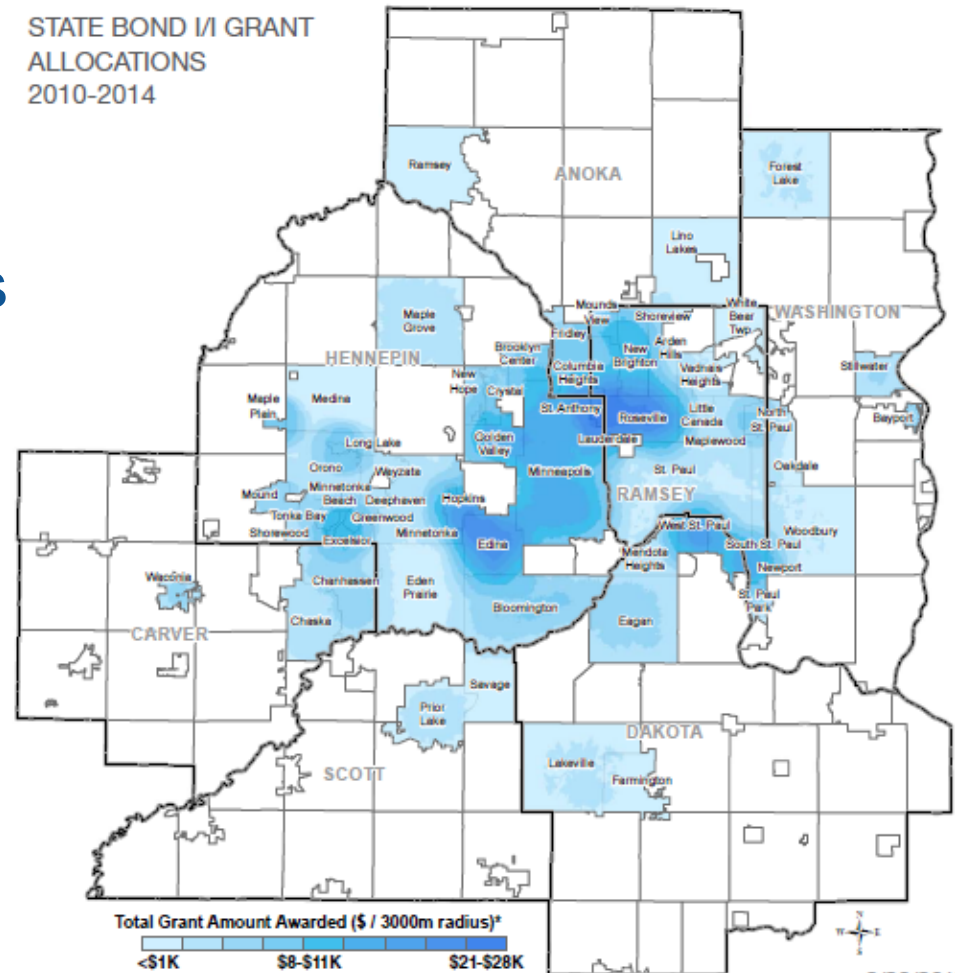


# Partnership

- \$175M work plan credits
  - Portion of investment
- \$22M private repairs
  - \$46M with rain leaders
- Unique programs
- <4% budget increase
- MCES ~ \$100M

## Grants invested across the region

STATE BOND / I/ GRANT  
ALLOCATIONS  
2010-2014



8/29/2018

# Minneapolis

**2003:** Rain leader disconnection program

**2013:** Peak I&I flows reduced by 75%

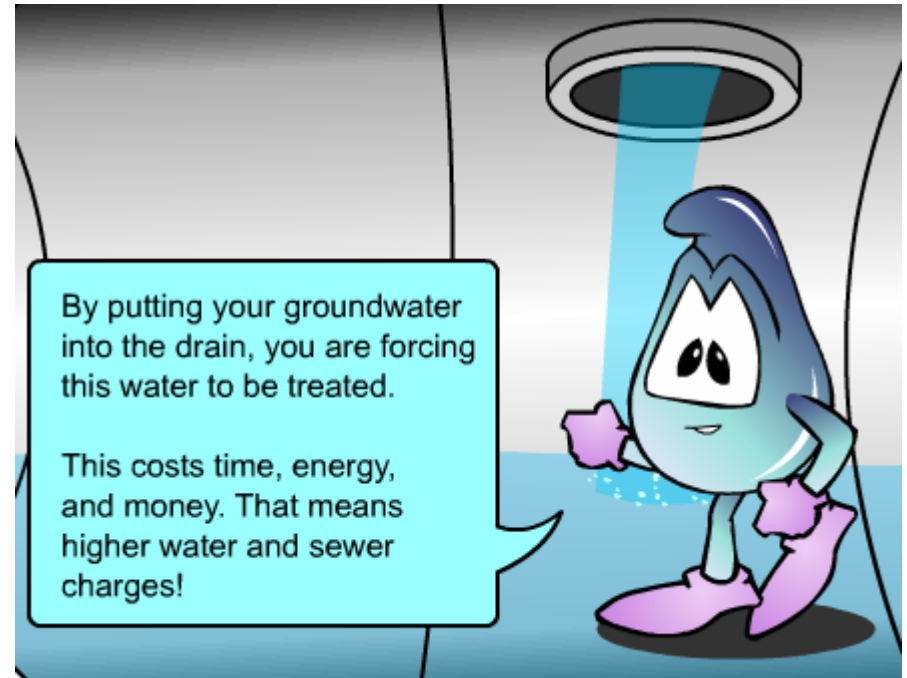
**2018:** Joint study with MCES to identify remaining I&I



# Golden Valley

**2007:** Point-of-sale (POS) inspection and repair program

**2014:** Peak I&I flows reduced by 28%

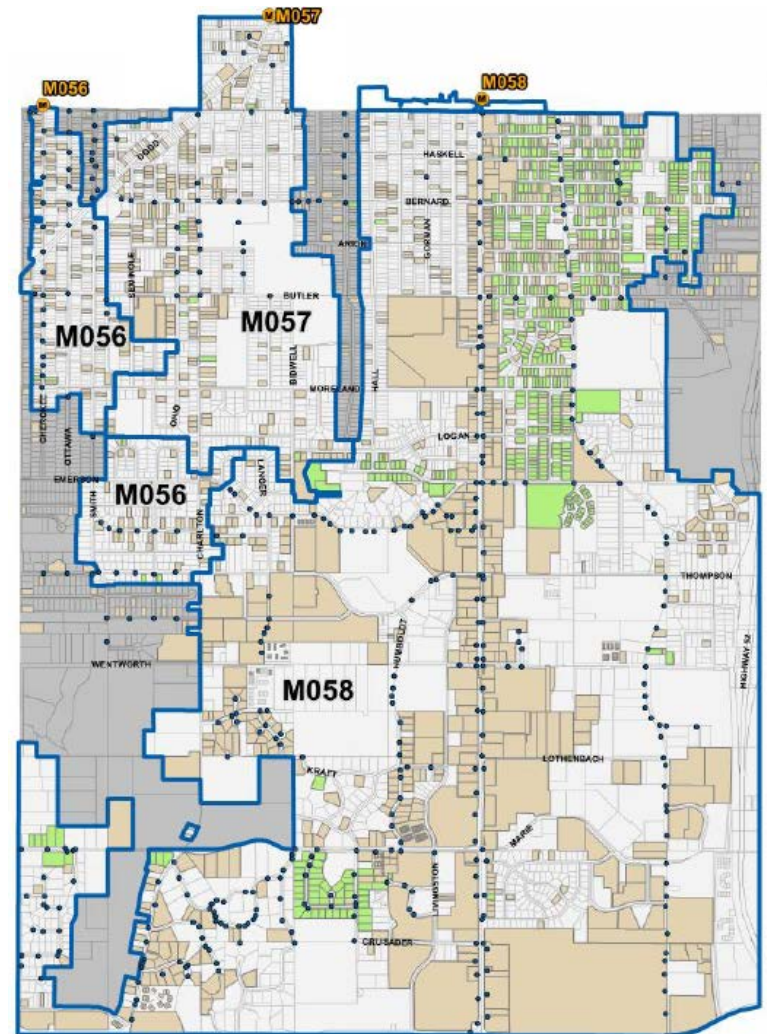


# West St Paul

**2008:** Inspection and repair program for service laterals

**2013:** Peak I&I flows reduced by 33% with high return on investment

**2017:** Revised ordinance for point-of-sale, continues investments



# Capital Improvements in the Region





# Rainy Days Ahead

- “The 18 years from 2000-2017 have seen nearly three times as many mega-rains as the 27 years spanning 1973-99.”
  - State Climatology Office
- “This tendency towards more intense precipitation events is projected to continue in the future.”
  - National Climate Assessment

# 2016 Task Force



**Mitigating  
I&I in the  
regional  
system**



**Advocating  
for funds for  
communities**



**Developing a  
robust public  
outreach  
program**



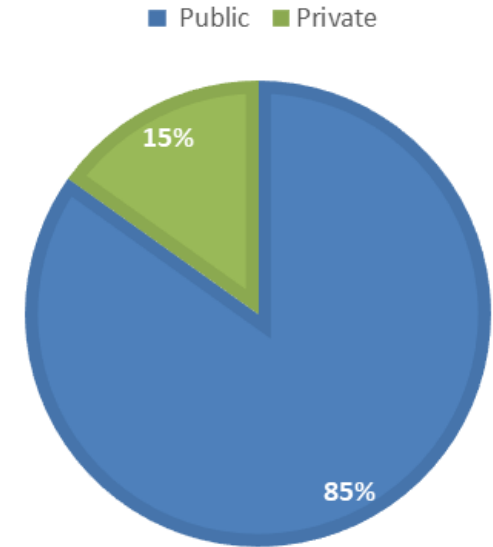
**Developing  
best practices  
for private  
property  
inspections**



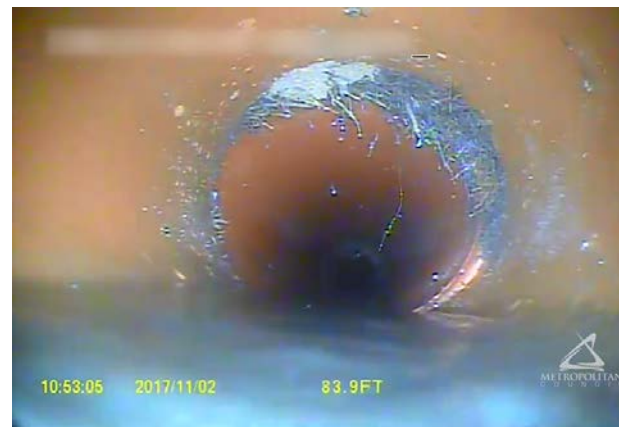
**Engaging  
stakeholders in  
the  
comprehensive  
planning process**

# Unresolved I&I

- Up to 80% of I&I volume
  - EPA I&I Research, 2008
- Less than 15% of investments
  - MCES I&I Program
- Unique communities, programs
  - [West St Paul](#)
  - [Golden Valley](#)
  - [Roseville](#)
  - [Saint Paul](#)
  - [Minneapolis](#)



Credits reported 2007-2018



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## TOOLS FOR PROPERTY OWNERS



Don't let clear water into the wastewater system. It costs you in many ways:

- Causes sewer backups into homes
- Causes sewer overflows into rivers and lakes
- Increases sewers and utility fees
- Increases the need for larger and more expensive sewer pipes and treatment facilities



[REDUCE I/I ON YOUR PROPERTY](#)

# Next Steps to Ensure Compliance



Continued investment in regional wastewater assets

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I&I Program tailored to address challenges in each community

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Financial support for both public and private infrastructure investments

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Joint studies with Minneapolis and Saint Paul to understand system response to wet weather

# Questions

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