

Inflow and Infiltration

For the Legislative Commission on Metropolitan Government
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INFLOW & INFILTRATION SOURCES

PRIVATE

INFLOW SOURCES

SUMP PUMP CONNECTION
CONNECTED FOUNDATION DRAIN
ROOF DRAIN CONNECTION
UNCAPPED OR BROKEN SEWER CLEAN-OUT
BREAKS, CRACKS & OPEN JOINTS IN SERVICE PIPE

INFILTRATION SOURCES

ROOT INTRUSION INTO SERVICE PIPE
BREAKS, CRACKS & OPEN JOINTS IN SERVICE PIPE

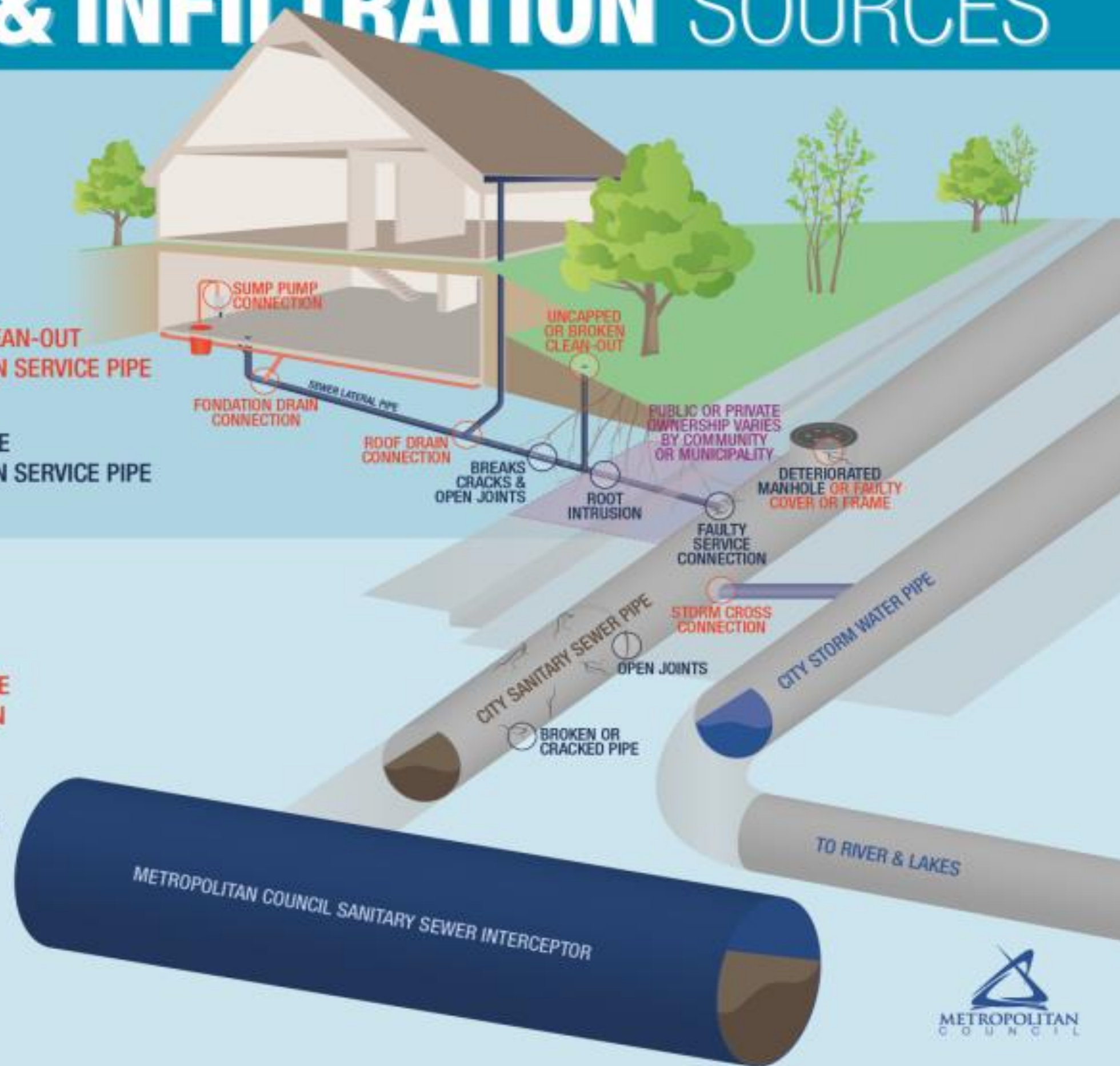
PUBLIC

INFLOW SOURCES

FAULTY MANHOLE COVER OR FRAME
STORM WATER CROSS CONNECTION

INFILTRATION SOURCES

DETERIORATED MANHOLE
FAULTY SERVICE PIPE CONNECTION
BROKEN OR CRACKED PIPE
OPEN JOINTS IN PIPE



I/I Mitigation Examples

Private Property

- Cross connection discovery and disconnection
- Sump pump/foundation drain disconnection
- Rain leader disconnection
- Service line inspection/repair/replacement

Public Infrastructure

- Investigative studies, system modeling and inspections
- Pipe line rehabilitation/replacement
- Manhole and lift station rehabilitation

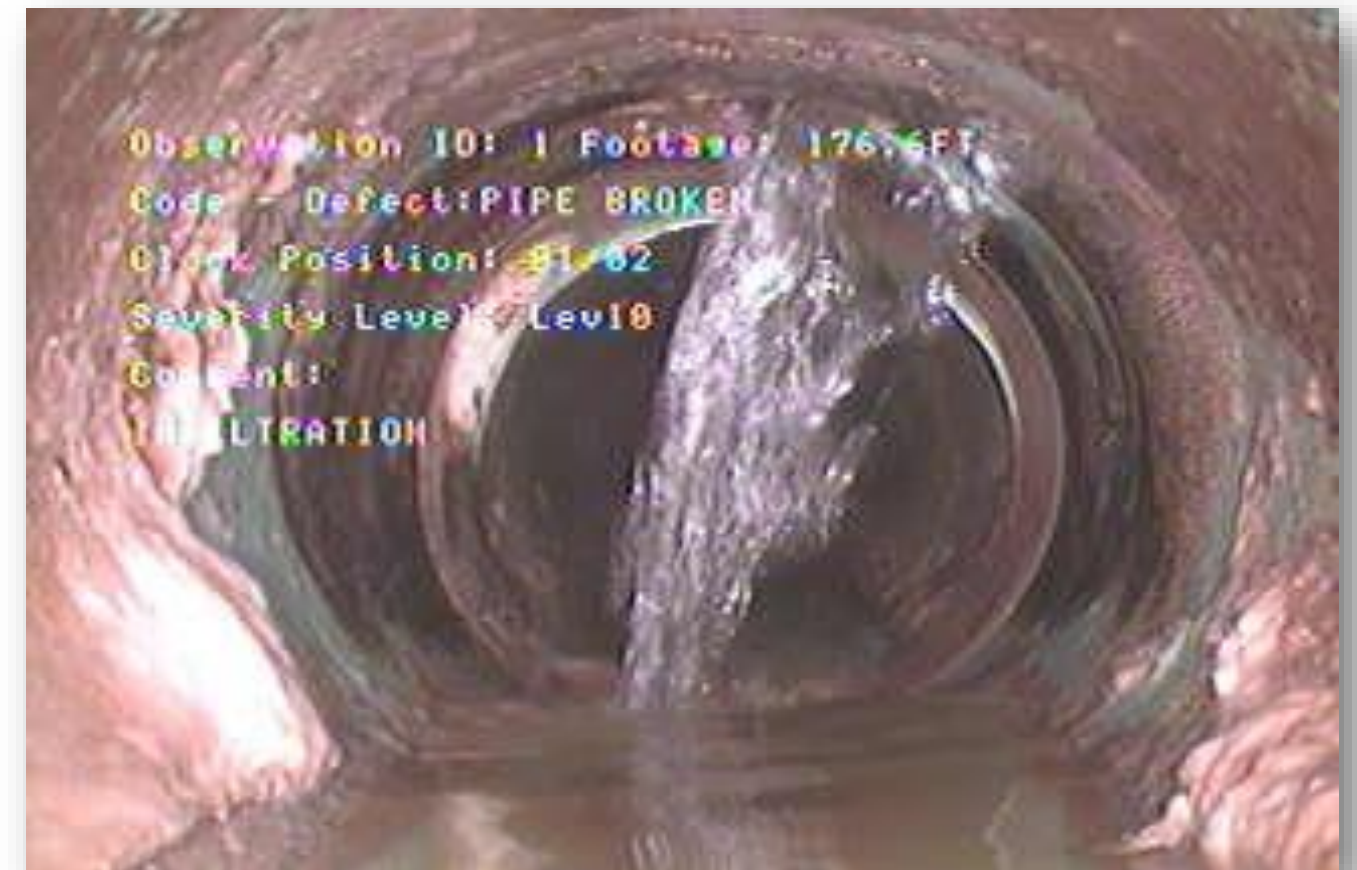
Impact of I/I



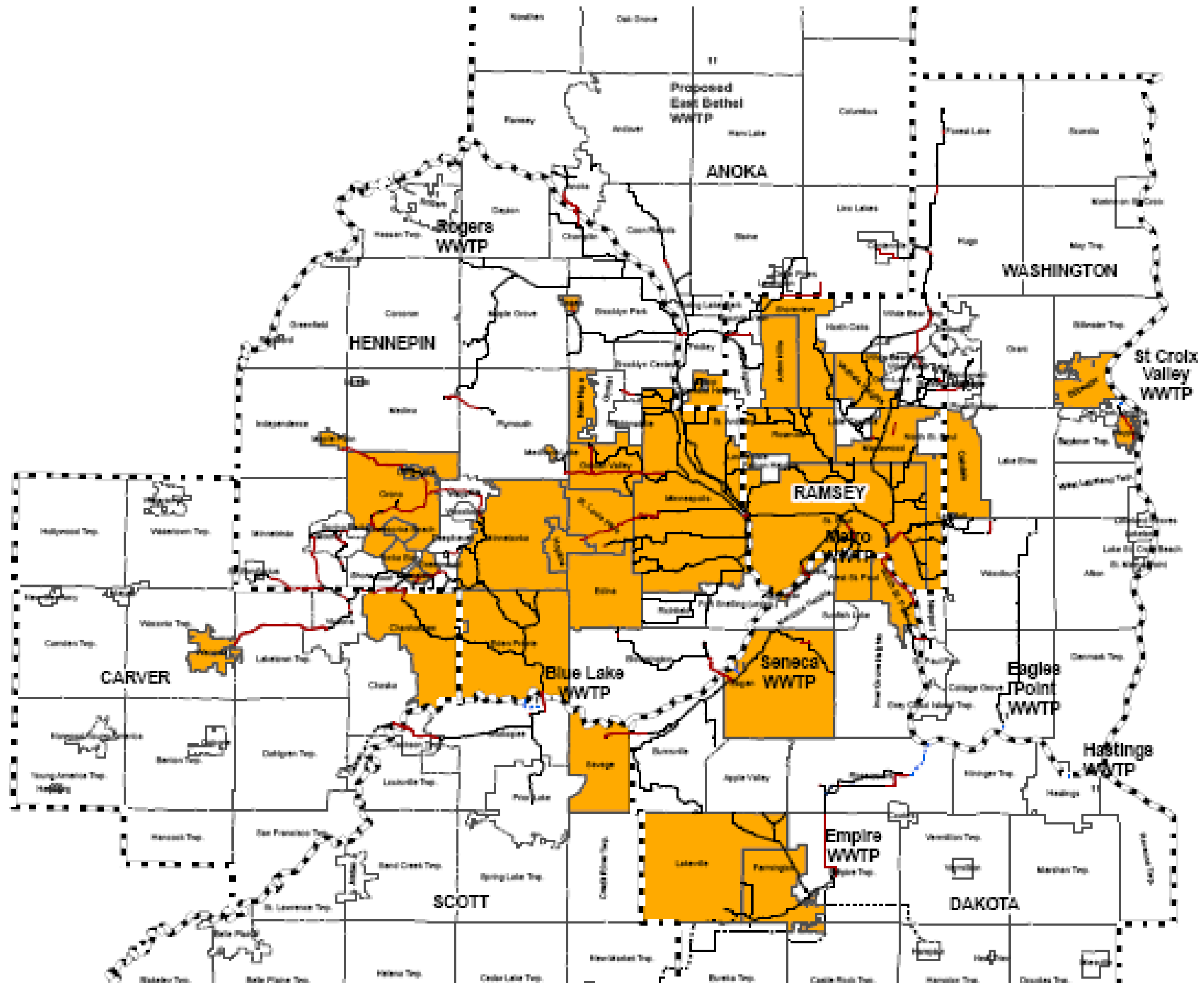
- Rate of flow may exceed available sewer system capacity (ex. In major rain events)
 - Results in overflows and spills to nearby waters
- Clean water unavailable to supplement ground water
- Impairs water quality of lakes and streams.
- Takes up fixed capacity in sewer pipes

Outflow

- Untreated wastewater sometimes exfiltrates out of broken service lines (Similar to septic system with no drain field)
- Impact: may impair ground water quality



Communities with excess I/I



Recent Headlines

Sewage discharges lead to swimming, boating restrictions in Mound

Article by: BILL MCAULIFFE and EMMA NELSON, Star Tribune | Updated: June 2, 2014 - 11:32 PM

Heavy rains over the weekend led to some contamination of waterways and beaches, as storm cleanup continues.

Rain causes sewage to spill into lakes, rivers

Liala Helal · St. Paul, Minn. · Jun 20, 2014

Excessive rain water caused sewage system overflows and backups Thursday — spilling some sewage into Lake Minnetonka bays, the Mississippi River, Medicine Lake and Bassett Creek in Plymouth, according to the Metropolitan Council. Sewage spilled into Maxwell and Carmen Bays in Lake Minnetonka. The sewage spill into the Mississippi River originated at

Excessive stormwater leads to sewage spillage in Lake Minnetonka

By Sun Sailor Editor
June 19, 2014 at 6:15 pm



The Metropolitan Council reports excessive amounts of rainwater flowing into the local and regional wastewater collection systems is causing overflows and sewer system backups.

Late this afternoon, officials at Metropolitan Council Environmental Services (MCES) reported to the Minnesota State Duty

Lake Minnetonka, at all-time high, still unsafe after sewage release

Staff and wire reports

POSTED: 06/02/2014 12:01:00 AM CDT
UPDATED: 06/03/2014 07:51:09 PM CDT

Excess I/I Surcharges

- 2004 - Recommended by Council's I/I task force
 - 15 representatives from cities
- Inflow/Infiltration Policy
 - The Council will not provide additional capacity to serve excessive infiltration/inflow
- Award: Operations and Environmental Performance award in 2009 from the National Association of Clean Water Agencies (NACWA).



Inflow/Infiltration Program & Surcharge



- 2009 – Council established Demand Charge Task Force
 - Recommended surcharge program
- Surcharge program refocused community attention on excess I/I
 - Dampening of peak flow rates
 - Saving hundreds of millions of dollars
- Additional Council actions:
 - Surcharges and working with communities to address excessive I/I
 - Fixing MCES pipes to reduce I/I in regional system
 - Municipal and private infrastructure grants
 - Engaging the public in workshops, videos, and other education

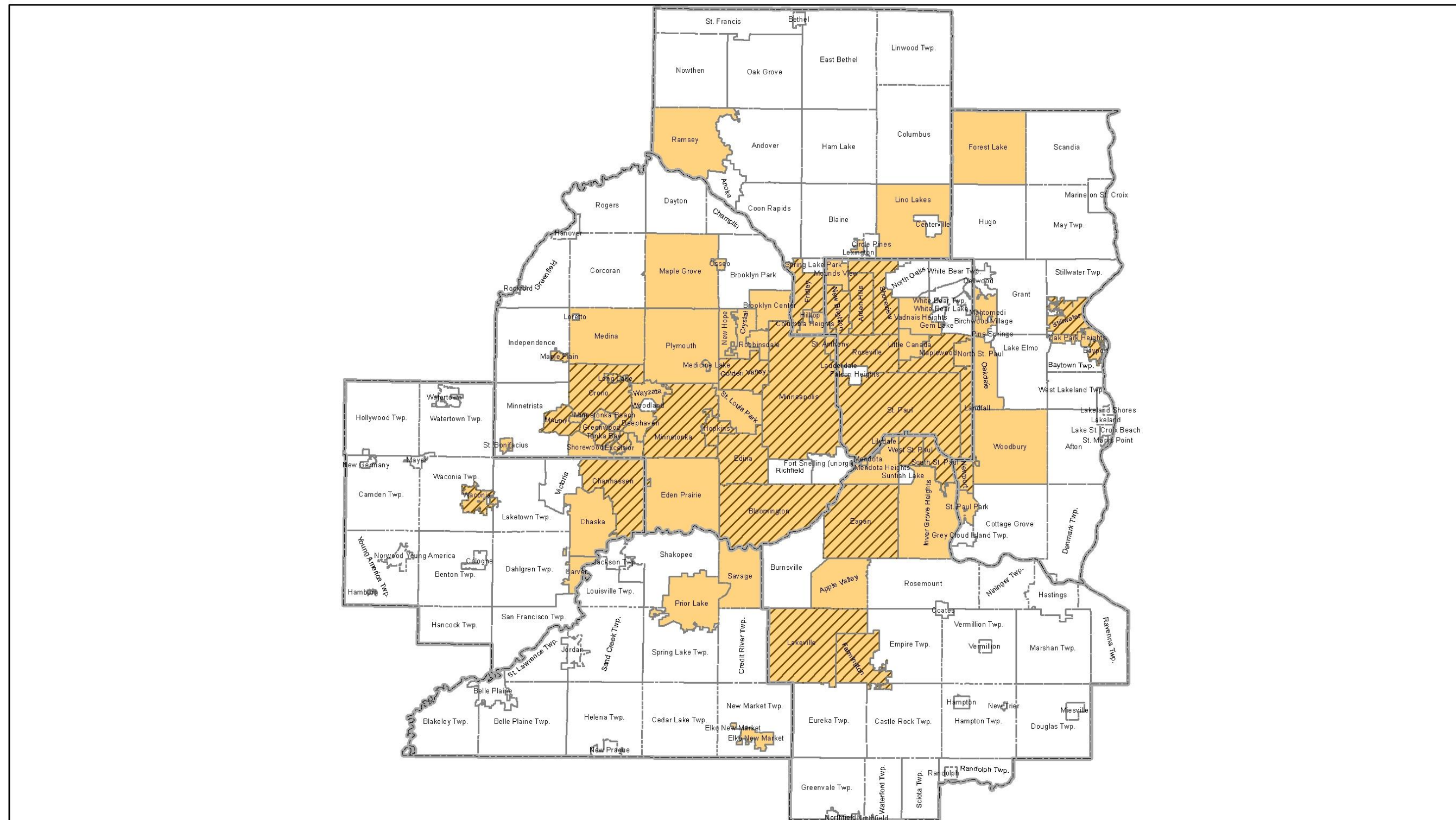
I/ Funding Sources





- 1) Regional wastewater rates fix regional pipes
- 2) Cities use the following for city pipes:
 - Wastewater surcharges
 - Stormwater utility fees
 - Property taxes to support some city costs
 - State grants
- 3) **Little effort** in private property mitigation
 - Private parties have little incentive to fix problems because consequences are on public infrastructure and environment

Council I/I Grant Programs

- Clean Water Fund Grant program
 - 2013 – Minnesota legislature approved \$1,000,000
 - Funds already committed due to oversubscription
- Municipal infrastructure grant program
 - 2012 – Minnesota legislature approved \$4,000,000
 - 2014 – Additional \$2,000,000
 - Providing grants to municipalities for capital improvements to public infrastructure to reduce I/I
 - 2014 program under way

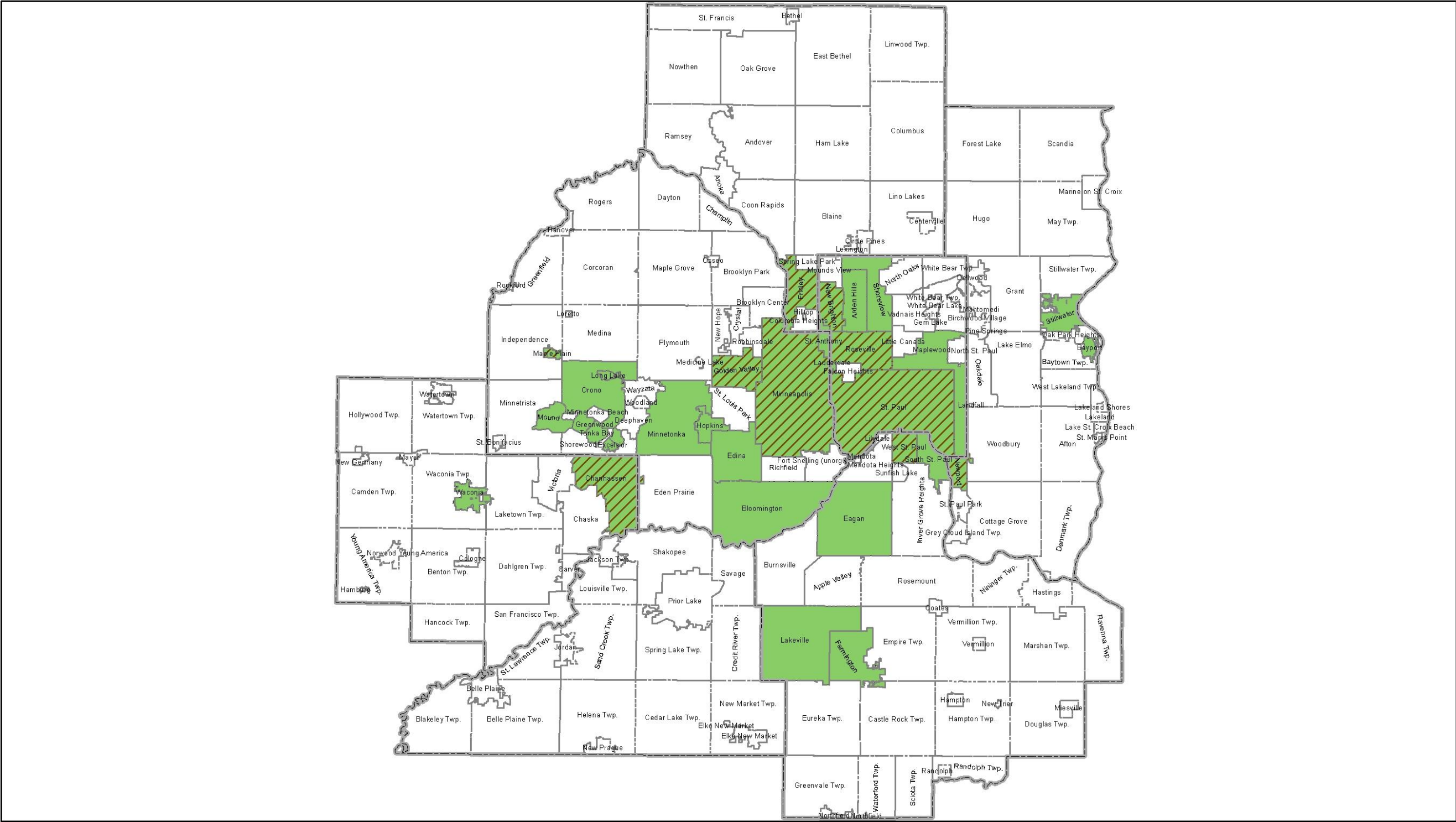
Grant-eligible cities qualifying (public and private)



-  County Boundaries
 Community Boundary
 Eligible for Public Infrastructure Grant
 Eligible for Private Property Grant



Grant-eligible cities participating (public and private)



- County Boundaries
- Community Boundary
- Public Infrastructure Grant Participant
- Private Property Grant Participant



Questions

