# ADDENDUM II

# BLOOMINGTON CITY COUNCIL AGENDA

# DECEMBER 15, 2014

## CORRECTION TO CONSENT AGENDA

Item 6K. Agreement for Scheduled Replacement of Trucks for Parks, Recreation and Cultural Arts Department's Parks Division. (Recommend that the purchase of one (1) Ford F250 Pickup Truck and one (1) Ford F450 Chassis with Dump Bed be approved utilizing the State of IL Joint Purchasing Contract #4017340, from Bob Ridings Ford, Taylorville, IL in the amount of ~~$74,440~~ $74,444 and the Procurement Manager be authorized to issue a Purchase Order for same.) (*Change due to a $165 increase in the dump bed for one (1) truck*)

## ADDITION TO REGULAR AGENDA

Item 7B. Analysis of Bids and Approval of the FY 2015 Sewer Rehabilitation Contract, (Bid #2015 – 46). *PowerPoint presentation by Kevin Kothe, City Engineer.*

# SEWER REHABILITATION

## FIXING OLD MAINS FROM THE INSIDE

PRESENTATION BY CITY ENGINEER KEVIN KOTHE, PE

FOR THE BLOOMINGTON IL CITY COUNCIL

DECEMBER 15, 2014

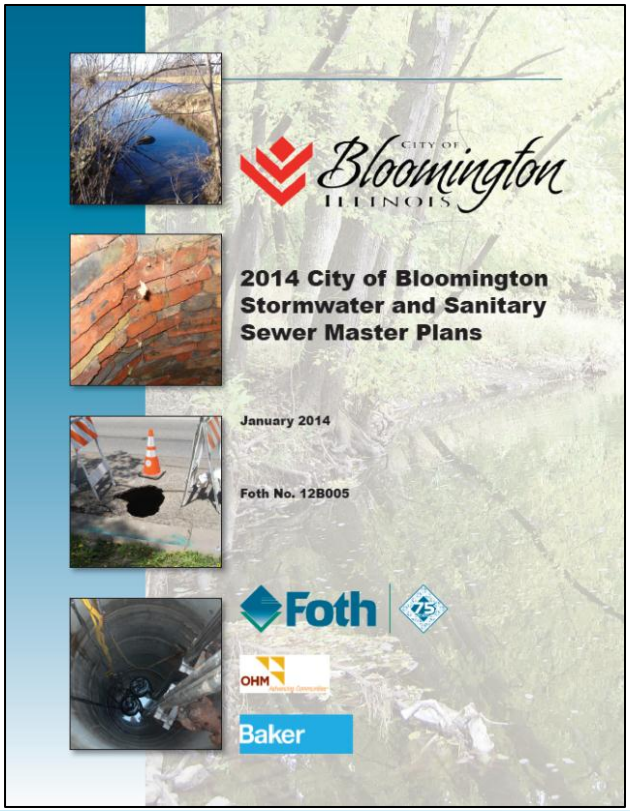
# RECOMMENDED TONIGHT:

## $1.6 MILLION CONTRACT, HOERR CONSTRUCTION INC.

Projects in contract resulted from:

- ❑ Study of overall sewer and stormwater systems.
  *(2014 City of Bloomington Stormwater and Sanitary Sewer Master Plan)*
- ❑ Identification of specific problem areas.

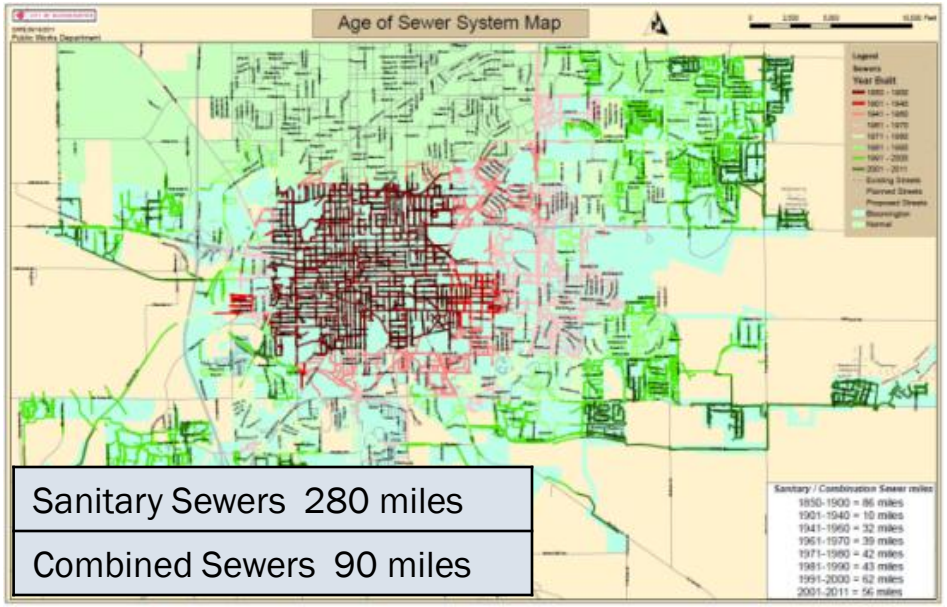
*This project marks a step forward for Bloomington in addressing long-standing problems with sewers.*



# Scope of Sanitary System:

## 370 miles of Sanitary and Combined Sewers

Sewer Size Range: 4 inches to 96 inches in Diameter




*Maroon color shows sewers likely built before 1900*

Sanitary sewers: Carry wastewater

Storm sewers: Carry water from precipitation

Combined sewers: Carry both.

# CONTRACT ADDRESSES 2 ISSUES

- **Structural Defects:** Aging sewers are failing. Chunks of brick fall off. Pipes Crack. Holes form. Cave-ins occur. Connections dislodge. Mortar joints deteriorate…

- **Inflow and Infiltration:** Even in some newer sanitary sewers, stormwater and groundwater get into the sewer.
  I/I, usually said as “I and I,” is inflow and infiltration.

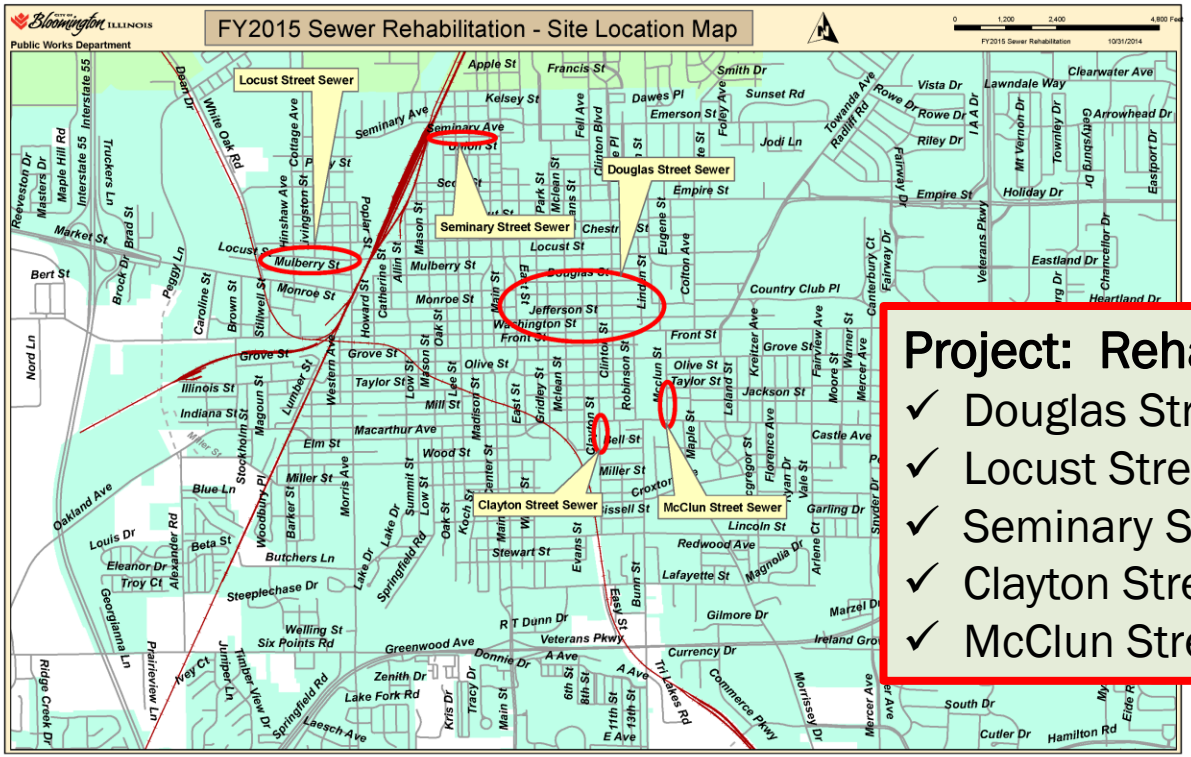
# ISSUE 1: AGING SEWERS

Sewer replacement cost is enormous and disruptive.

Cities look to rehabilitation instead.

# AGING SEWERS

## FIX EXISTING SEWERS



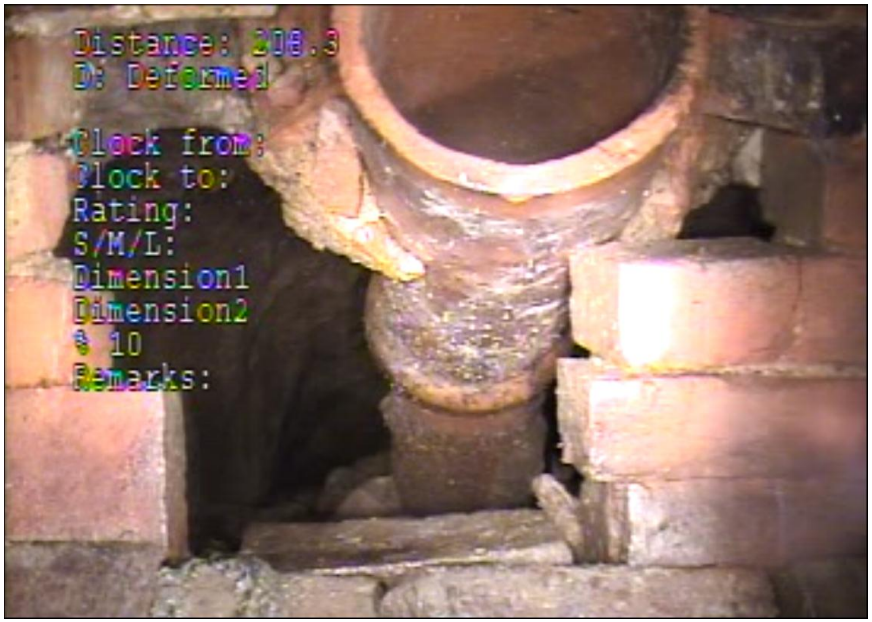

**Project: Rehab Old Sewers**

- ✓ Douglas Street Sewer
- ✓ Locust Street Sewer
- ✓ Seminary Street Sewer
- ✓ Clayton Street Sewer
- ✓ McClun Street Sewer

# INSIDE OUR BRICK SEWERS

## OUTSTANDING CRAFTSMANSHIP – IN THE 19TH CENTURY

# THEY ARE FALLING APART IN PLACES





Holes in the Douglas Street Sewers filmed by CCTV

Clayton Street Sewer: Hinge cracking in clay sewer


Hinge cracking is causing the structure to begin to fail along the McClun Street Sewer.


The structure devolves into an oblong shape in a process called “egging.”


This side angle on a CCTV video of the Locust Street Sewer helps us visualize extreme egging.

# HOW WILL WE FIX THESE PROBLEMS?

1. Repair serious problems prior to lining. Some repairs can be done from inside the pipe. Some may require digging to the pipe.

2. Lining:

- Inserting a fabric sock saturated with resin to line the sewer walls.
- Restores structural integrity.


# What will happen to the old sewer?

Top left: The interior of the Clayton Street Sewer.

Top center: A liner being stretched through a sewer.

Top right: Interior of sewer, Roosevelt Avenue, Bloomington, after grouting and lining in 2007.

Right: Workers in Boston pulling liner into a sewer.

Notes

- The lining will conform to the shape of the existing sewer mains.
- Manhole lining also will be performed.

# ISSUE 2: I/I ("I AND I")

## INFLOW AND INFILTRATION

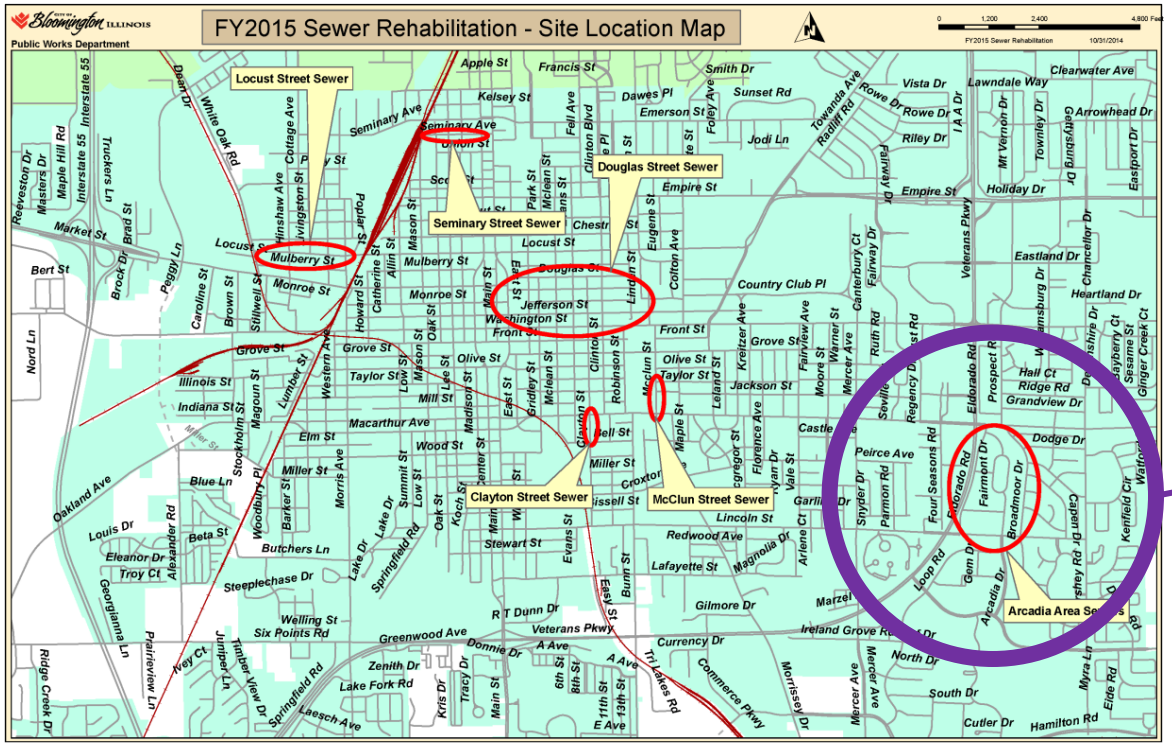
Problem: Stormwater can enter a sanitary sewer in various ways. Examples: A cracked manhole lid. A downspout empties near a sewer clean-out. This is **inflow**.

Problem: Groundwater seeps into the sewer. This is **infiltration**.

Problem: *The east-side sewer treatment plant isn't designed to handle stormwater. I/I taxes its capacity and hampers effectiveness of treatment. I/I is a big problem for the east side.*

# I/I REMEDIES UNDER INVESTIGATION

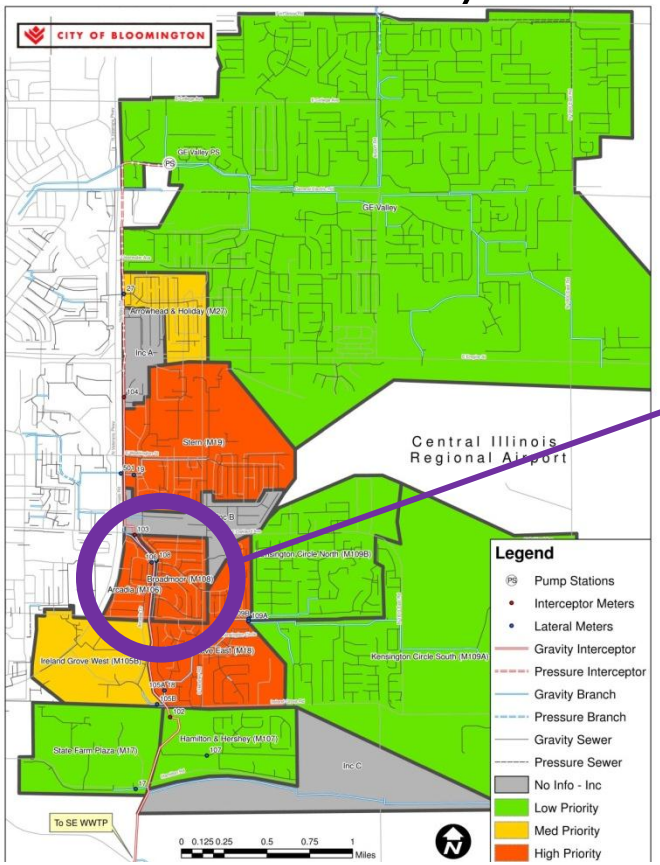
## PHASE I: A PILOT PROGRAM




Determine Cost Effective Solutions for the Future

Arcadia Area Sewers

# Q. WILL LINING EAST-SIDE SEWERS SUBSTANTIALLY REDUCE THE I/I PROBLEM?




## Why Test Arcadia?

- ❑ Has high I/I flow.
- ❑ Can be easily monitored.
- ❑ Strong prior data for analysis.
- ❑ Small size of area keeps cost of pilot project down.

# NEXT STEPS FOR EAST-SIDE I/I

Data/Cost analysis of pilot project

Conclusions/ Decisions on options

More east-side sewer lining

Build wastewater storage facility

Combination of options

Wastewater storage facility, Knoxville, Tenn.

# NEXT STEPS FOR SEWERS IN CITY CORE

- The Master Plan recommends rehabilitation of about 1% of the sewer system per year.
- In Bloomington 1% = 4 miles of sewer.
- This year's program rehabilitates approximately 2 miles of sewer.
- Continued condition evaluation and inventory of sewer system.
- Work on Combined Sewer Overflow elimination continues. A topic for another night.