

CITY OF ROCHESTER SANITARY SEWER INFILTRATION AND INFLOW STUDIES

NEWSLETTER | WINTER 2010

The historic rain event in August of 2007 has prompted a more detailed analysis regarding the sanitary sewer system in a few specific areas of Rochester. As a result of this record rain event, an unusual number of sanitary sewer backups occurred in area basements.

The Rochester Public Works Department has been conducting a Pilot Inflow and Infiltration (I&I) Study in the Kutzky Park and Slatterly Park areas focused on identifying the sources of inflow and infiltration into the sanitary sewer. I&I is extraneous water that enters the sanitary sewer system through public and private system defects and overloads the system.

This newsletter has been prepared to provide a recap of the Study progress to date, to summarize key findings, and to identify the next steps in the Study.

The goal of this effort is to develop alternatives to mitigate the wet weather sanitary sewer backups in the Study areas and maintain the capacity of the wastewater collection system by reducing wet weather flow into both the private and public portions of the system. The public facilities include manholes and sewer mains.

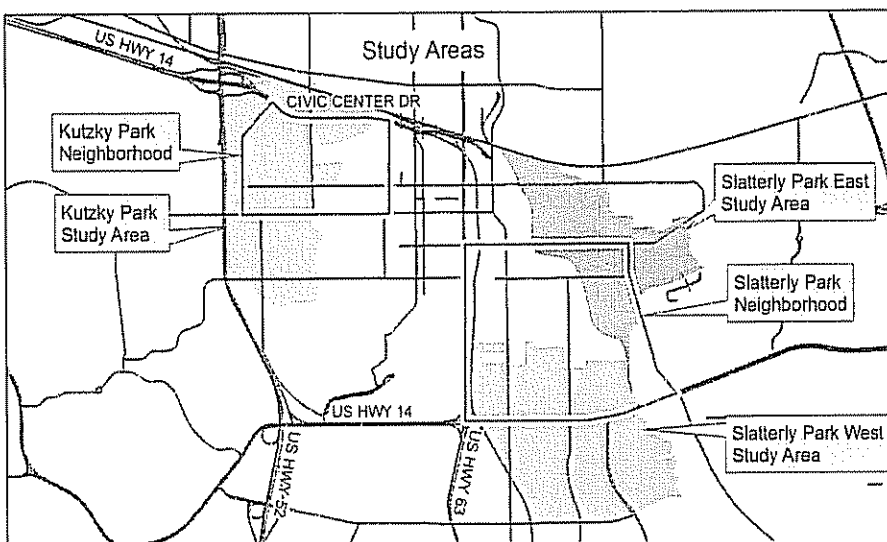
The privately owned facilities include building connections and the service connection laterals extending from the building to the sewer main.

The Pilot I&I Study will result in the development of an improvement plan for the Study areas.

RECAP OF STUDY PROGRESS

Various field investigations and analyses of the public and private sanitary and storm sewer systems and private homes and businesses have been conducted over the past 2 years. Work completed to date is summarized below.

- All sanitary sewer manholes and sewer mains within the Kutzky and Slatterly Park study areas have been inspected, the conditions assessed, and defects identified.
- With the cooperation of property owners, over 1,000 buildings within the study area were inspected for non-compliant sump pump or sewer connections.
- Smoke testing and/or dyed water testing has been conducted for all sanitary sewers in the study areas.
- Flows in the public sanitary sewer system were monitored continuously between March and November of 2008 & 2009.
- Special investigations and flow monitoring have been conducted in partnership with several industries.



- A comprehensive sanitary sewer system model was developed to identify portions of the public sewer system that are most susceptible to overload during wet weather and identify areas where I&I remediation or sewermain capacity improvements are needed.

KEY FINDINGS

The study has led to several key findings, including the following:

- I/I found in the sanitary sewer system comes from defects in both the public and private portions of the system.
- Approximately 10% of the inspected homes and businesses in the study area have sump pumps or beaver drains connected to the sanitary sewer system.
- Roots and sediment deposits in mains and laterals also contribute to poor sanitary sewer system performance and may contribute to sewer backups into basements.
- Several Industries cooperated and initiated site improvements to reduce potential I/I based on our study findings.
- Rehabilitation methods have been identified and evaluated that can result in effective I&I reduction solutions and improvements to public infrastructure facilities.
- Sanitary sewer system flows observed during and after rainfall events have been as high as 5 times the average flow. However, below-normal rainfall conditions during the Study period have not been conducive to measuring the maximum potential amount of I/I that may enter the sanitary sewer system.
- Lack of maintenance of private facilities is evident and may be a contributing factor to past and future sewer backups at some locations.

NEXT STEPS

- The Open House will provide an opportunity for property owners to provide input and feedback regarding the Study findings.
- Study findings and Open House feedback will be used to develop recommendations for the cost-effective reduction of the I&I contributions from public sector facilities.
- The recommendations will then be carried forward into a detailed I/I rehabilitation and capacity assurance improvement plan. Improvements will be implemented over a number of years beginning in 2010.
- Recommendations will be brought forward to the City Council later this year for discussion and action regarding strategies, programs and policies for reduction of the I&I contributions from privately owned facilities.
- Additional flow monitoring will be performed in 2010 in an attempt to capture a large rain event to provide a higher confidence level for the recommended corrective actions.