

I/I Study Yields Immediate Results for Collinsville

Development of cost effective solutions for found I/I

Located ten miles from the center of St. Louis, the City of Collinsville is experiencing rapid suburban growth. This growth has led the City to examine the condition and capacity of the existing collection system and also to project the capacity requirements for the future development of the area.



RJN was selected to perform a Sanitary Sewer Evaluation Study on the City's system. The goal of this study was to evaluate current conditions and recommend cost effective improvements which will extend the system life cycle and meet the needs of the growing community. In order to develop recommendations and costs associated with each improvement, RJN performed the following I/I evaluation services:

- **Flow Monitoring** – 10 flow meters were strategically placed throughout the system to collect system flow data and wet weather system characteristics
- **Rain Monitoring** – Two (2) rainfall event loggers were installed at opposite ends of the city
- **Manhole Inspections** – Over 2,500 manholes were inspected included full decent visual manhole
- **Dual Blower Smoke Testing** of over 650,000 ft and Dye Water Testing of numerous suspected illicit connections
- **Data Analysis and System Modeling** – System analysis also included a flow balancing technique which "balanced" the collected flow monitoring data with effects of all identified sources of I/I in the system
- **GPS Survey** – All found structures were surveyed using GPS to provide the City with a useful map of the sewer system for future asset management.



Recommendations resulting from the SSES provided immediate results. Within this study area deteriorated manholes, below grade manholes and main line defects were found, as well as private sources such as area drains and downspouts connected to the sanitary sewer, and lateral defects.

The RJN team has provided cost effective solutions for the found I/I. While the project is ongoing, to-date over 4.5

MGD of I/I has been detected. The approximate cost of recommended repairs for these defects is averaging about \$.14/gpd. The Engineering Cost of the project was approximately \$700,000