

At times, the Authority's sewer system doesn't have the capacity to handle the extra volume of rain water during heavy storms that enters our system through inflow and infiltration (I&I), which leads to sanitary sewer overflows. Rainwater leaks into the system through broken pipes or manholes and can also drain into the sewer system from sump pumps or downspouts that are connected to the sanitary sewer.

FTMSA has started the groundwork on a multi-pronged, multiple year plan to fix the sanitary sewer system, thus resulting in the Authority borrowing \$10,000,000. Effectiveness, cost and impacts (e.g., digging up roads or yards) all need to be considered and balanced in developing the plan, which may involve increasing pipe sizes, fixing defective pipes, disconnecting sump pumps and downspouts, pump station and wastewater treatment plant upgrades, and building wet weather storage tanks.

There are six procedural steps involved in a comprehensive analysis on sewer system I&I and currently, FTMSA and Gibson-Thomas Engineering employees are performing the collection of basic data and the development of mapping data.

The following is a description of the six procedural steps:

1. Collection of Basic Data
2. Development of Mapping Data
3. Monitoring and Gauging of Sewer System Flows
4. Field Investigations
5. Analysis of Data
6. Drafting of the Analysis Report

#### Step 1: Collection of Basic Data

Analysis of inflow and infiltration conditions in a sewer system must be based on a level of data accumulation appropriate to the analysis phase. If the system is shown to be possibly excessive, more detailed study will be done in a sewer system evaluation study.

#### Step 2: Development of Mapping Data

System sewer lines must be mapped and divided into sub-basins in order to be analyzed.

#### Step 3: Monitoring and Gauging of Sewer System Flows

Dependable monitoring of flows at proper locations is essential. Monitoring must be carried out during times when the data can allow differentiation between normal expected sanitary and I&I flows (dry and wet weather events).

#### Step 4: Field Investigations

All sewer analyses should include field investigative procedures that will support or expand the data on the systems obtained from maps, meterings and gauging records, and observations.

### Step 5: Analysis of Data

The data developed during the analysis procedures must be interpreted to determine whether the I&I problem is excessive or non-excessive.

### Step 6: Drafting of the Analysis Report

Requires drafting a report of the findings and conclusions on the presence of excessive I&I. The report must recommend the performance of an evaluation survey, outline a plan of action and estimate the cost of a Sanitary Sewer Evaluation Survey.

The Authority needs to identify where and what the problems are in the other areas of our collection system before we can put a priority on them. That is why Hydraulic Modeling and Sanitary Sewer System Evaluation are important tools in the identification of issues in the collection system and the development of a rehabilitation plan. By modeling our system, we can gain a full understanding of its hydraulic behavior. We can use this model as a tool to plan and prioritize infrastructure improvements and budgeting, identify “low hanging fruit” improvements, develop operational maintenance strategies and proactively manage our system. It also identifies high priority problems that need to be addressed immediately or within the next couple years.

As stated above, FTMSA and Gibson-Thomas Engineering employees are performing Steps 1 & 2. During this time, you may see these employees on the street, front, side and back yards locating and collecting data on manholes. Employees will be wearing high visibility safety shirts and have identification cards displayed with vehicles displaying an FTMSA or Gibson-Thomas Engineering logos. At all times, our employees are expected to be professional and courteous. Contact us if you have any questions on the identity of a person(s) representing the Authority or its Engineers.

