



Municipal Technical Advisory Service  
INSTITUTE *for* PUBLIC SERVICE

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## Managing Infiltration Inflow

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Dear Reader:

The following document was created from the MTAS website ([mtas.tennessee.edu](http://www.mtas.tennessee.edu)). This website is maintained daily by MTAS staff and seeks to represent the most current information regarding issues relative to Tennessee municipal government.

We hope this information will be useful to you; reference to it will assist you with many of the questions that will arise in your tenure with municipal government. However, the *Tennessee Code Annotated* and other relevant laws or regulations should always be consulted before any action is taken based upon the contents of this document.

Please feel free to contact us if you have questions or comments regarding this information or any other MTAS website material.

Sincerely,

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## Managing Infiltration Inflow

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There are two ways to manage infiltration and inflow problems — the outside expert way or the operator's way. The first way is usually an expensive and slow approach that may or may not prove effective. The operator's way is generally less expensive and often produces quicker results. However, like the traditional way, it may or may not prove effective. The best approach may be a combination of the two.

### ***The Traditional Way: Bring in the Outside Experts***

Bring in the Outside Experts to conduct a Sanitary Sewer Evaluation Study.

### ***The Operator's Way: Use In-House Resources***

Use In-House Resources

- Map the sewage collection system.
- Get flowcharts from the treatment plant and pump station capacities. Also get run times. (*Note: this requires run time meters at all pump stations.*) Pump capacities can be obtained from the manufacturer's literature or the wastewater system's equipment specifications.
- Install long-term flow monitors at key location throughout the system.
- Staff members who know the collection system best should study the map and list the most likely areas for I/I. Use pump run times (*you will need data through a wet and dry season*), records of overflows, rainfall records and knowledge of the collection system.
- Locate and document all overflows at pump stations, including complaints of sewage backups, surcharging manholes and so forth.
- Start with the worst areas (*based on information from Steps 3 and 4 above*) and physically walk the sewer lines to look for problems.
- Do nighttime flow isolations. If there is water in the line at night, it is probably coming from an I/I source.
- Check maintenance practices: Clean the lines, manholes, forced mains, siphons.
- Investigate the system repeatedly in all seasons and differing weather conditions. Use visual, smoke, dye, temperature, and CCTV techniques.
- If the line is lower than the ground water table, televise it. If it is above the ground water table, smoke test.
- Fix the inflow points, and bundle the infiltration location information for use by consulting engineers.

If the problem is mostly system-wide infiltration, the traditional way may be the best approach. If the problem is mostly inflow, the operator's way may be the best approach. A study of the outside expert way and the operator's way shows that they have many elements in common. Therefore, it is easy to switch to the traditional way if the operator's way does not yield results.

To help decide whether you should use the traditional way or the operator's way to solve I/I problems, you must first define the problem.

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