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# iTracking: The Advent Of 'Smart' Wastewater Infrastructure Management

## Introduction

The 700,000 miles of pipe and 20 million manholes that comprise America's wastewater infrastructure network are aging and crumbling. Many of these systems were installed in the first half of the previous century. Utilities and municipalities are facing huge requirements for replacement and maintenance of these underground assets, consequently straining their resources and diminishing overall system sustainability. As government agency regulations and compliance become increasingly burdensome, so does the management of this aging infrastructure become increasingly challenging and costly.

iTracking by Eastech provides municipalities and utilities with the assurance that not only is regulatory compliance strictly adhered to, but that operations, maintenance, engineering and planning groups within the wastewater management realm receive timely information and alerts in order to proactively react to any conditions adversely affecting the system.

## Managing Wastewater Infrastructure Networks

One of the main issues with current wastewater infrastructure networks is the inability to detect anomalies as they happen. Inflow, infiltration, overflows, blockages, surcharges, back-ups and other issues are usually not evident until it is too late to prevent the environmental and economic damage created by these events.

The current approach to managing these problems requires a considerable amount of money, effort and time on the part of both municipalities and utilities. Attempts to solve the current problems have included:

- Human and Capital-Intensive Sewer Evaluation Studies
- Labor-Intensive Nighttime Flow Isolations
- Reliance on Local Residents to Alert and Identify Overflows and Back-Ups
- Forced Diversion of Sewage into Oceans, Rivers and Waterways

Traditionally, wastewater infrastructure monitoring provides raw-processed data from a

minimal amount of flow measurement devices. Municipal and utility engineering and maintenance personnel are left to puzzle over this sparse information strictly relying for support on some reactively generated alerts or historic rules of thumb.

### **What Is iTracking?**

Wireless Location-Based Sensors coupled with Automated Analytics offer multiple solutions applicable to proactively managing wastewater infrastructure networks based on real-time data not previously available within this context. iTracking technology provides a smart algorithmic approach for dynamically managing wastewater conveyance networks. Low-cost wireless sensors continually feed operating performance data to an analytical software program for immediate alerting and transference to applicable management personnel within the utility group.

iTracking utilizes data collected from strategically placed sensors located within various manholes throughout the conveyance network. Advanced analytics are initiated for determining the “routine” performance of the conveyance system in order to compare the current state of the network to the determined “routine” baseline thereby providing the ability for producing real-time maintenance alerts while giving engineers, hydraulic model developers and planners access to a “round-the-clock” window into wastewater infrastructure condition and behavior.

Cities and utilities are now able to have in place an intelligent infrastructure management system functioning purely as a Managed Service without the up-front capital expense for hardware purchase, installation, and associated software.

### **The Managed Services Solution**

iTracking from Eastech is an “INTELLIGENCE ON-DEMAND” solution. All data collection and information processing is performed remotely utilizing a Cloud-based platform. Neither the municipality or the utility are required to purchase, install, maintain or manage any hardware or software componentry. Alarming and viewing of data by the municipality/utility is easily accomplished through a safe and secure Cloud-based web portal costing as little as \$3 per day per site.

Data, collected by location-based sensors, is wirelessly transferred to a Real-Time Operations Center (ROC) where proprietary algorithms quickly detect anomalous events for immediate maintenance alarming purposes (CSO's, SSO's, Blockages, Potential Residential Back-Ups, etc.). The ROC also has the ability to provide “RealTime” viewing of storm events along with automated Infrastructure Performance Reports for later analysis of inflow and infiltration conditions, hydraulic model development and collection network conveyance capacity.

### **The Future Is Now**

Just as the electric grid is evolving into a “Smart” electric grid, wastewater conveyance networks are set to evolve into “Smart” collection systems capable of intelligently breaking away from the reactive and inefficient methods presently in use. With the ability for Eastech to inexpensively provide a constant stream of dynamic data either delivered “On-Demand” or in “Real-Time”, Smart Wastewater Infrastructure Management is ready to become a technological and economic reality.

*SOURCE: Eastech Flow Controls*