

CASE STUDY

CivilSense™: Predicting Water Pipe Failure

| Project Type:

Non-revenue water, leak detection

| Contractor

Municipal Leaders

| Featured Product

CivilSense™

CivilSense™ is the most advanced and comprehensive AI-driven solution for municipal water infrastructure management, designed to help prioritize line repairs, cut non-revenue water, improve operational efficiency, and support sustainable, data-driven decision-making.



CHALLENGE

Aging water infrastructure has led to severe water main breaks, with hundreds reported in recent years. In one instance, dramatic breaks in main water pipes resulted in a municipal authority declaring a state of emergency that lasted for days. Many of the city's thousands of miles of underground pipes are more than 80 to 100 years old. These failures disrupt hospitals, homes, and businesses, cause flooding, and result in massive water loss. Traditional leak detection methods are inconsistent, expensive, and ineffective, while water loss across the U.S. is costing billions annually.

SOLUTION

Oldcastle Infrastructure partnered with this municipality to deploy CivilSense™, an advanced and comprehensive AI-driven solution for municipal water infrastructure management. This system uses compact surface-recording sensors and AI to detect pipe vibrations, analyze data in the cloud, and identify the size and location of underground leaks. The system then supports proactive maintenance planning and ongoing performance monitoring.

RESULTS

CivilSense™ identified numerous waypoints and marked dozens of leaks for repair, saving hundreds of thousands of gallons of water per day, resulting in significant annual water savings. This proactive, AI-driven approach reduces water loss and delivers substantial environmental and financial returns. The success of CivilSense™ has also been replicated in smaller municipalities that have engaged Oldcastle Infrastructure's more than 50 years of expertise to detect, locate, and prioritize leaks across their water networks, showcasing the potential for long-term sustainability gains across the country.



Advanced acoustic sensors are installed in targeted areas.



CivilSense™ acoustic sensors are compatible with any pipe material.



Crews catalog CivilSense™ acoustic sensors.



Acoustic waves are detected, graphed, and analyzed.



CivilSense™ – the only asset-management solution that delivers predictive and real-time AI leak detection with market-leading 93% accuracy. Backed by the expertise and scale of America's leading infrastructure business.