Oldcastle Infrastructure™
A **CRH** COMPANY

CASE STUDY

CivilSense™: Predicting Water Pipe Failure

| **Project Type:**
Non-revenue water, leak detection
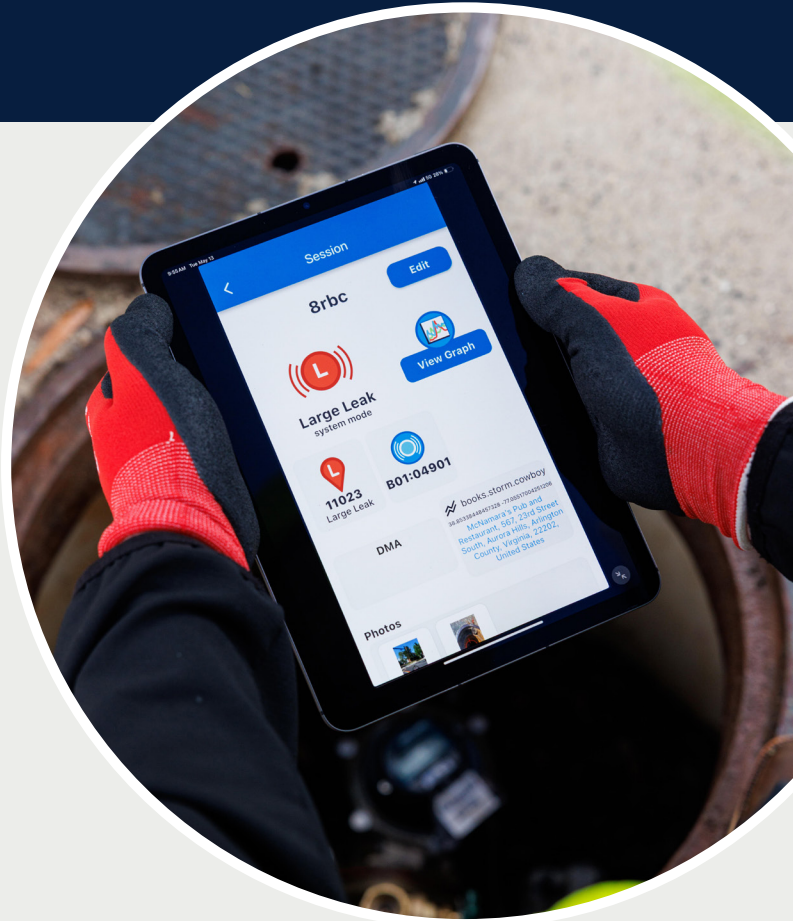
| **Contractor**
Municipal Leaders

| **Proposed Pipe Length**
20 Miles

| **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

For more than two years, a municipal utility in the mid-west, along with its staff and private contractors, confronted a persistent and challenging issue: locating and sizing a suspected leak in their water infrastructure.

Despite the utility's knowledge of the leak, its elusive nature presented a significant obstacle to conducting the necessary repairs.

Conventional leak detection methods were insufficient in resolving this complex problem. In response, the utility engaged with Oldcastle Infrastructure's CivilSense™ to aid with detection, location, and sizing of the leak.

SOLUTION

Eight sensors were placed strategically for overnight recordings. Sensor data was then sent to the cloud for AI analysis, confirming a significant leak.

Following confirmation, the team conducted data validation and correlation analysis. With actionable insights, sensors were repositioned to pinpoint the leak accurately. The correlation identified a point of interest 334 feet from one sensor. Further confirmation was provided by a distinct sound, leading the team to a driveway apron where the leak sound was strongest.

The area was further explored and prioritized for excavation and repair.

The utility was able to address the suspected leak, which had been causing a daily loss of 349,517 gallons of treated water, translating to an annual cost of $213,048. By implementing CivilSense™ as part of the water infrastructure management strategy, the organization achieved significant cost savings and operational efficiency.

A proposed 20-mile pilot project from Oldcastle Infrastructure—an investment of $23,500—demonstrated a remarkable ROI by paying for itself within just 38 days, based solely on the cost savings from a single leak. Additionally, with the water plant pumping 5 million gallons per day and previously suffering a 25% water loss, addressing this leak reduced the losses to 18%—showcasing a substantial improvement in resource conservation and financial performance.

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.

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