WATER INFRASTRUCTURE EFFICIENCY PILOT

Advanced Leak Detection and System Monitoring

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Date: April 2026

1. The Problem

Water utilities lose significant volumes of treated water through leaks and distribution inefficiencies. These losses, known as Non-Revenue Water (NRW), increase operating costs, waste treated water, and accelerate wear on aging infrastructure. Many utilities are also dealing with the challenge of identifying and replacing lead service lines under growing public health and regulatory pressure.

2. Proposed Solution

This pilot uses acoustic sensors, pressure monitoring, and data analytics to detect leaks earlier and give utilities clearer visibility into system conditions. It is built to work with existing utility operations and support—not replace—current engineering, maintenance, and asset management practices.

3. Focus Areas

- Real-time and near-real-time leak detection using acoustic and pressure data
- District Metered Area (DMA) analysis for more targeted response
- Better prioritization of repair crews and field work
- Data support for lead service line replacement planning
- Integration with existing SCADA, GIS, and maintenance systems

4. Pilot Objectives

- Reduce the time between leak occurrence, detection, and repair
- Lower NRW within the pilot area
- Improve visibility into hidden system losses
- Demonstrate measurable improvements in operational efficiency
- Evaluate technical fit and day-to-day usability

5. Pilot Structure

The pilot starts with a baseline assessment of a defined service area, followed by sensor deployment, system integration, performance monitoring, and field validation. It is scoped to produce clear operational results while staying practical for utility staff to manage.

6. Evaluation Criteria

- Time to detect and respond to likely leaks
- Number of validated actionable detections
- Estimated reduction in avoidable water loss
- Improvement in maintenance prioritization
- Practical value for infrastructure planning and lead service line replacement

7. Next Steps

A phased 12-month pilot is recommended. If the pilot performs well, it could support broader deployment across additional service areas and offer a practical model for improving water efficiency and infrastructure planning.