

CASE STUDY

Oak Park, Illinois

THE CHALLENGE

The Village of Oak Park, IL, has a 105-mile network that delivers 1.7 billion gallons of treated Lake Michigan water to 54,000 residents yearly. However, as early as 2023, 20% of this water, or 350 million gallons, was lost annually. Regulatory requirements from the Illinois Department of Natural Resources mandate a water loss rate of less than 10%. The aging infrastructure, regional temperature extremes, and porous soil makes leak prevention and detection increasingly challenging.

Updated Assessment

The Village of Oak Park has now shifted from traditional, reactive leak detection to a continuous, AI-enabled system of acoustic data loggers. With more than 500 acoustic data loggers deployed across its 105-mile network, the utility created a persistent sensing network capable of capturing leak noise every night. AI-driven analytics then process this data to filter noise, validate leak probability, and prioritize high-confidence targets, significantly reducing false positives and unnecessary field investigations. Oak Park shows how combining large-scale acoustic monitoring with AI transforms leak detection into a proactive, intelligence-led process that delivers both immediate ROI and long-term system resilience.

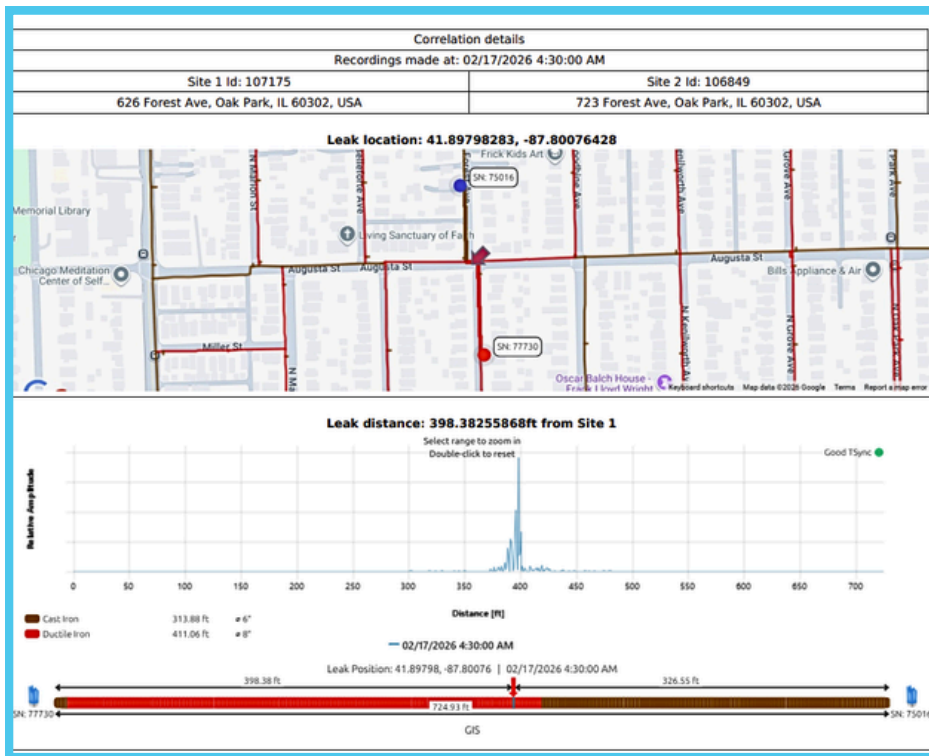


Results & Outcomes

Oak Park demonstrates that AI-enabled acoustic monitoring is most effective when combined with widespread sensor coverage, continuous analytics, and targeted field verification.

This shifts utilities from a reactive “find and fix” model to a proactive, intelligence-led maintenance approach, where leak detection becomes an ongoing, optimized process rather than a periodic activity.

Overall, this case study underscores how scalable logger deployment paired with AI analytics can unlock both immediate ROI and long-term infrastructure resilience, especially for utilities managing aging systems with limited staff.



Kevin Jack, Water Meter Supervisor

The Village of Oak Park has water conservation as one of our highest priorities. One way we have committed to improving our Non-Revenue Water Loss is through the widespread use of PermaNET SU acoustic data loggers across our network. These devices monitor our entire system of water main, acoustically listening for leaks in the dead of night so that we can identify leaks faster and swiftly act. This system not only improves our conservation of water, but it improves the overall quality of our Village’s water system as a whole

May 2026

Results Achieved

- 77 underground (non-surfacing) leaks identified over 21 months
- \$2.3 million in annual (non-surfacing) water savings
- 504 million gallons of (non-surfacing) water saved annually
- 3-month payback