

# Itron Technology Helps Town of Olds Recover Lost Water Revenue and Achieve Conservation Goals

Town of Olds, Alberta Canada

## BACKGROUND

The Public Works and Utilities department for the Town of Olds, Alberta, is responsible for looking after the maintenance of the town's infrastructure, including roads, the water distribution system and the Wastewater Treatment Plant. The town of just over 8,000 people located in the south central area of the Province of Alberta, Canada formally endorsed a policy to develop and implement a water conservation strategy to ensure a reduction in daily usage and consumption by all water users in October 2007.

Among the initiatives included in their water conservation strategy was a goal to decrease the town's total water usage by 10 percent by January 2017, as compared to the total municipal water usage in 2006. An additional initiative included a review of existing studies of water and wastewater systems and a complete analysis of current residential and commercial water use and leak detection, followed by a report of the findings.

Worldwide, more than 32 billion cubic meters of treated water physically leak from urban water supply systems, which is equivalent to over \$18 billion of non-revenue water. An increasing number of water providers are realizing that deploying acoustic leak sensing technology across their distribution systems makes economic and environmental sense.

To help accomplish Town of Olds' water conservation goals, Itron acoustic leak sensors were installed on the Town of Olds' service lines to detect leaks beginning in 2010.

## OPPORTUNITY

The ambitious goals established by the Town of Olds were embraced by Shaun Fox, infrastructure technician for The Town of Olds Public Works Department.

Shaun understood that fixing existing water infrastructure would make sense both environmentally and financially compared to the costs associated with seeking new sources of supply. He also determined that the town's non-revenue water, or the loss in the water distribution system's treated drinking water, averaged nearly 40 percent, a startlingly high percentage with significant financial and resource management implications.



### CUSTOMER

Town of Olds, Public Works & Utilities  
Province of Alberta, Canada

### ITRON DISTRIBUTOR

Metercor  
Calgary, Alberta Canada

### CHALLENGE

Efficiently manage water supply by identifying system leaks.

### SOLUTION

Itron automated remote acoustic leak detection solution to enable pro-active leak analysis and repair.

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**Scott Chant**

Manager of Utilities & Public Works

Town of Olds, Public Works & Utilities

Province of Alberta, Canada

Additionally, the town’s regional water supply line is nearing its maximum capacity. Shaun participated in serious discussions regarding how best to meet the future water needs of the community including the possibility of merging various water distribution lines. Merging disparate systems represents a significant capital expense. As the pressing need for infrastructure expenditures became clearer and understood, less obvious was agreeing to where the requisite funding would come from.

It was determined that by reducing its water loss, the Town of Olds may be able to defray the capital intense expenditures needed by perhaps a few years. Every cubic meter of water not lost, is a cubic meter the Town of Olds would not have to buy from its regional water supplier.

**SOLUTION**

In addition to Shaun’s work to mitigate non-revenue water losses, he was also managing the town’s water meter replacement project. After it was completed, he conducted a thorough analysis of comparative consumption data to assess the extent of water loss over time. The data led Shaun to realize that at 39% their non-revenue water losses could no longer be ignored. He decided to find a solution to the town’s problem.

While attending the Banff Water and Wastewater Operators Conference in 2008, Shaun met a sales representative from Metercor, Itron’s Authorized Water Loss Distributor, who described how Itron’s acoustic leak sensors operate.

Leak sensors are installed permanently either indoors or outdoors on the water service pipe, usually near a water meter. The strategically placed acoustic sensors analyze sound patterns every day, detecting new, evolving and pre-existing leaks automatically. An Itron web interface — mlogonline Network Leak Monitoring System — interprets the data and analyzes the recordings and graphically displays all leak sensor locations using GIS and satellite mapping images, highlighting the status and location of leak locations using colored flags. Each “leak flag” prioritizes leaks as either probable, possible, no leak likely or sensor out of status. Over time, an expanding database of historical sensor information provides comprehensive condition assessment of the entire water distribution system.

In July 2010, the town implemented a “Proof of Concept” leak sensor deployment that soon validated itself as a leak was discovered using the Itron system on August 7th, 2010.

**BENEFITS**

Most leaks in the Town of Olds are service line leaks. The leak data analysis available through the Itron system has helped the utility to target leak locations much more accurately. This is due to the sensor’s ability to record changes in the sound patterns in distribution pipes that indicate the probability of an actual leak. The result is detection becomes much more targeted and efficient. Leaks identified by mlogonline pinpoint the precise location. Targeted leak probabilities are linked to the GIS mapping interface providing Town of Olds with a convenient visual representation of the parts of town where most of the leaks are occurring, along with details. This level of leak investigation translates into efficiencies, saving the Town of Olds repair expenses that not only validate their return on investment but also effectively advances their conservation objectives.

Using the leak technology, the town’s success has been both tangible and dramatic. In the first six months alone, 21 leaks were repaired recovering 287,691 cubic meters of water at a revenue savings of \$177,336.00.

In 2010, while the project was underway, the Town of Olds repaired 11 leaks bringing their total municipal water usage to within 32,000 cubic meters of total water usage in 2006 while maintaining a growth rate of just over 2.5% per year. Since the completion of the Itron system deployment, non-revenue water losses have been reduced from 39% to 29%.

The Utility has systematically integrated the pro-active leak detection methodology into its daily operations since the completion of the leak system's installation. The ability to remotely monitor daily data from the sensors has helped identify loss patterns within the town's distribution system at specific locations, as well as analyze seasonal water use anomalies. To be able to identify changes in these patterns early enables the utility to be pro-active in fixing leaks. An expanding database of historical information generated from the sensors provides the Town of Olds with a comprehensive condition assessment of the entire water distribution system.

Shaun said, "We chose Itron's acoustic leak detection system because they are ahead of the pack in offering a service that provides a proven, 24X7 monitoring of our distribution system's integrity. Their solution allows us to operate more efficiently by flagging areas of change within the system that indicates the probability that a leak has formed. This targeted analysis has already saved us money and has also helped us as we aspire to reach our 2017 water conservation goals."

John Cherewko, Itron's Authorized Water Loss Distributor in Alberta said, "At Metercor, we are proud to align ourselves with Itron because it positioned us to help the Town of Olds implement Itron's advanced leak detection system. Their results demonstrate that a proactive community like the Town of Olds can demonstrate environmental leadership and generate very favorable results, both in cost savings but also in their ability to achieve measurable water conservation results."

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At Itron, we're dedicated to delivering end-to-end smart grid and smart distribution solutions to electric, gas and water utilities around the globe. Our company is the world's leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

To realize your smarter energy and water future, start here: [www.itron.com](http://www.itron.com)

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