



City of North Bay

City Moves from Flat Rate Billing to Advanced Metering Infrastructure

TAPPING THE POWER OF FULL FIXED AMI WITH THE NEPTUNE® R450™ SYSTEM

Located about three and a half hours from major Ontario centres such as Toronto and Ottawa, North Bay is considered the Gateway to the North. A historic Canadian railway city, it also became a major military base for the North American Aerospace Defense Command (NORAD) during the Cold War. With nearly 54,000 residents, North Bay hosts a thriving artistic and cultural community, and serves as a popular location for film productions.

Even though it's nestled between Lake Nipissing and Trout Lake, the Corporation of the City of North Bay does not take its water for granted. After a new water treatment facility began operations in 2011, utilizing the pristine waters of Trout Lake, conservation of this important resource was one of the main reasons the City began looking into advanced metering infrastructure (AMI).

The City had a second major reason to pursue automatic metering. Of the 16,500 accounts receiving water services, its 15,000 residential customers paid a flat rate based on the number of water fixtures in their homes. Equity in billing was impossible because water consumption could not be measured – these residences had no meters in place at all. “It was an arbitrary method of billing the customers for the water they used,” said Lorraine Rochefort, Manager of Revenues and Taxation.

Rochefort added that the roughly 1,500 commercial, industrial, and institutional accounts are metered, but meeting the monthly billing cycle requires sending out a technician to manually read those meters nearly every day. “Many accounts are estimated because the meters aren't reading properly,” she said.



CUSTOMER

City of North Bay, Ontario

SERVICE TERRITORY

North Bay is a city in Northeastern Ontario, Canada with nearly 54,000 residents.

SOLUTION BENEFITS

Water conservation

From flat rate estimated billing to 100% actual usage billing

Equitable billing for water service



From left to right – Tom Geddes, Field Technician/Meter Reader; Alex McGregor, Project Manager; Susan Van Mierlo, Water/Sewer Billing Clerk; David Euler, Director of Engineering; Lorraine Rochefort, Manager of Revenues and Taxation; and Geoff Sargeant, Project Manager

TURNING THE CORNER WITH NEPTUNE'S TURNKEY APPROACH AND R450 AMI

The City saw other advantages to automating the meter reading system beyond reading and billing. “To us, an automatic solution also means leak detection and alarms for backflow,” said David Euler, Director of Engineering, “as well as monitoring for the public works department – such as looking for leaks in our infrastructure underground.”

A request-for-proposals process led to the selection of Neptune Technology Group (Canada), with full turnkey operations provided by the team led by Co-Project Managers Alex McGregor and Geoff Sargent. The project's scope of work included in-field installation of the meters, R450 transmitters and data collectors, professional call centre services, data management, and quality assurance, among other tasks.

In choosing which of Neptune's AMI systems, North Bay opted for the two-way communications fixed network of the R450 System. “We wanted the best product out there,” Rochefort said, “and the R450 System is state-of-the-art.” Euler added that from an operating cost standpoint, the

full fixed network collection approach made the most sense for North Bay, having no previous automated reading system in place.

FULL-ON FIXED NETWORK – 15,000 ACCOUNTS AND COUNTING

Neptune performed a propagation study that identified the locations and optimal number of R450™ Data Collectors. Using as many of the City's own buildings when possible, as well as existing towers and other sites, Neptune placed eight collectors throughout the City beginning in late 2013. At the same time, the team faced frigid temperatures and massive snowfalls to install 15,000 T-10® lead free, bronze-body water meters with E-CODER® solid state absolute encoder registers for residential accounts, along with 15,000 R450™ radio frequency meter interface units (RF MIUs) as of March 2014. The commercial, industrial, and institutional meters have been replaced and/or retrofitted with E-CODERs and R450 MIUs.

Before and during installation, Neptune implemented a comprehensive public communication program about the new AMI system. After receiving a letter from the City briefly explaining the project, customers across the

service area were given an information booklet by the Neptune team with more details – including how to schedule their own installation appointments through Neptune’s call centre or through Neptune’s North Bay project website which offers real-time on-line bookings. Customers who haven’t signed up after that could receive up to four reminder letters as well as door hang tags left by installation crews. As remaining homeowners comply, and the spring thaw makes the process easier, installation is expected to be complete by May 2014.

Rocheftort and Euler have been impressed with Neptune’s efficiency and customer service throughout the implementation. “We were anticipating a number of challenges with the process, but we experienced less than I was expecting,” said Euler.

NEXT STEPS: EQUALIZING RATES OF BILLING, LOWERING RATES OF CONSUMPTION

McGregor and Sargent’s team didn’t just install the latest technology – they utilized the latest technology to expedite the installation itself, including an electronic work order system to manage the process in the field. However, what impressed Rocheftort most was the personal touch Neptune offered. “We’re very fortunate to have Alex and Geoff on board,” she said. “They’ve been very quick to respond to our needs and have always acted very professionally.”

Now with nearly all the physical metering infrastructure complete, the next step in deploying the R450 System is training North Bay’s staff on how to leverage the data through N_SIGHT® PLUS host software. “Right now, we’re working on an interface to take the meter data collected in the field and have a seamless transition into their billing database,” said McGregor.

“Our goal is to be billing by January of 2015,” said Rocheftort, “after we’re finished working on a water rate study this year.” As North Bay looks forward to a much more equitable billing system for its water services, Euler is also eagerly awaiting other benefits to customers, including the R450 System’s priority alarms for reverse flow and continuous leaks.

The City expects big gains in conservation as well. Its brand-new, first-ever residential metered system will likely motivate those customers to be more aware of the water they use and adjust their consumption behavior. And by leveraging the advanced data from the meters across the system, North Bay should also be able to account for water that used to be lost. Rocheftort said, “In terms of conservation, we should see 25 percent saved in the first year.”



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neptunetg.com

Neptune Technology Group
1600 Alabama Highway 229
Tallasse, AL 36078
800-633-8754 f 334-283-7293