ARB® UTILITY MANAGEMENT SYSTEMS™

NEPTUNE TECHNOLOGY GROUP

TOWN OF BURLINGTON DEPARTMENT OF PUBLIC WORKS

CLIENT

BURLINGTON, MASSACHUSETTS

LOCATION

HIGHLIGHTS

- Number of services: 8,500
  - 6,800 residential
  - 880 C&I
  - 750 "second meter" (irrigation)"
  - 50 municipal customers
- Changed out eclectic mix of meters (some 80 years old)
- Revealed inaccuracies in some of the older meters
- Used an existing fiber optic network as backhaul for R450™ Data Collectors
- Doubled and even tripled consumption for some accounts
- Increased revenue by 30% in one year
- More proactive customer service
- Planned future use for AMI system to aid with infiltration/inflow elimination

An Amazing Economic Recovery: Recovering Lost Revenue with ARB® FixedBase™ AMI

Missed Reads Mean Missing Revenue

Once an agricultural area that supplied hops, rye, fruits, vegetables, and other goods to Boston twelve miles away, Burlington, Massachusetts has evolved to become part of the state's technology corridor. Located in the northeastern portion of the state and home to the 270-acre Landlocked Forest, the town of 24,000 is governed by a five-member Board of Selectmen as well as more than 100 representatives of the Town Meeting.

The Town of Burlington's Department of Public Works services approximately 8,500 water accounts, including 6,800 residential, 880 commercial, 750 "second meter" (irrigation), and 50 municipal customers. According to John G. Sanchez, DPW Superintendent, the water division had already started looking to recapture lost revenue when he joined the department nearly five years ago. "They'd discussed the need for an automatic meter reading system," Sanchez said. "My first year with the town, we produced 1.2 billion gallons of water but billed for only 929 million."

The crux of the trouble was an eclectic, antiquated meter population. With "all different brands of meters" ranging from new to 80 years old – and half or more of those 30 to 40 years and older – billing varied wildly from customer to customer. "We had revenue being lost with our older, inaccurate meters while the customers with new meters were paying more. We wanted a fair system." System-wide, even taking into consideration water used by the fire department and events such as main breaks, unaccounted-for water had risen above 20 percent.

Meanwhile, the department's meter reader walked each billing route, viewing reads from the meters and manually keying them into a handheld unit (itself a step up from the log-book method used previously). Access to meters was also a challenge. From December to March, snowfall prevented as many as a fifth of the Town's meters from being read at all, resulting in hundreds of missed reads. Considering that Burlington bills different sections of town at a time, with six months between bills for each section, such lapses posed a significant problem.

Fixing the Problems with a Fixed Network

Knowing that the town needed new meters, it made sense to go ahead and implement a new reading-and-collection system at the same time. "We knew we wanted a fixed network instead of a drive-by system," said Sanchez. Aside from not having to send a meter reader out, an AMI (advanced metering infrastructure) system would allow the DPW to collect the hourly consumption data it wanted as well as gain other customer service tools.

Sanchez assembled a committee to investigate AMI options, involving personnel in areas such as billing, distribution, meter reading, and management information systems. Together, with help from their consultant Weston and Sampson, they established goals for the water division's new metering

system. In addition to gathering daily reads, it would need to be a two-way communication system offering absolute meter reading accuracy as well as leak detection capability. The committee also wanted to keep the number of fixed network data collectors to a minimum, "not having one on every corner", as Sanchez put it.

With goals defined, the DPW began its due diligence in April 2009 looking at different manufacturers' products and systems, then visiting different communities to see those products and systems in operation in the field. Upon seeing Neptune's ARB® FixedBase™ AMI System in action, Sanchez' team was impressed not only with the extreme reading accuracy and the high measurement/registration resolution to help catch small leaks but also with other benefits that boosted savings, such as the ability to read two meters at once with the R450™ meter interface unit (MIU). "Neptune offered everything we were looking for," Sanchez said.

Installation – a Complete Changeout for the Better

After presentations to the Town Meeting, the funding for the project was approved. The DPW began informing customers about the coming changeout through local television announcements and newspaper stories, bill enclosures, and by manning a booth at "Truck Day" on the Town Common, where nearly 1,000 people attended so that children could see and climb in DPW trucks and emergency vehicles, excavators, and front end loaders. As installation neared, mailed notifications encouraged residents and facility owners to schedule appointments for Easton Winwater Works Company to perform on-site meter changeouts.

In January 2010, the Town started installation of its R450 Data Collectors along with E-Coder® Solid State Absolute Encoder registers. The AMI system collector infrastructure – which would operate in tandem with an existing fiber optic network – was put into place, while the previously mentioned meter changeouts were scheduled and performed. With just a few straggling customers by the end of the year, the effort to complete installation before 2011 was judged a success.

As Sanchez expected, once the new meters replaced the outdated ones, measured consumption for some accounts doubled and even tripled. The changeout revealed the huge discrepancies among meters. "Some weren't even actually reading, and some were totally off," said Sanchez. He'd anticipated large increases on the commercial and industrial side, but "there was a lot of water captured on the residential side as well, more than I'd expected."

Getting in Front of the Customer to Show What's Behind Their Bill

This greatly enhanced accuracy has captured the attention of customers as well – some of whom were understandably concerned about suddenly receiving much higher water bills. Thankfully, Neptune's advanced technology doesn't stop at accurate readings. "We have the tools to respond to those who dispute their bills," said Sanchez. "I can see when their sprinkler, or something like it, comes on at five in the morning and shuts off around seven or eight. We can give them proof of that consumption by time… so that *they* know what they're doing and now they know that *we* know."

Sanchez credits the "added bonuses" of the system, such as priority leak and reverse flow alerts, as well as reports and graphs that pinpoint continuous leaks and excessive water use, for helping provide a much more proactive approach to customer service. "Before, when customers got their bills, they couldn't remember their water usage from six months ago. Now we can notify them of possible leaks so they can fix problems long before the bill is sent – saving more water and helping lower their bill." Some business customers are even calling weekly to ask the water division to provide information on their consumption.

Next Steps After a Giant Leap in Revenue

Burlington is also planning to use its AMI system to aid with infiltration/inflow elimination in its sewers. Using meters on the sewer lines, the DPW will capture and analyze detailed flow information in specially created zones. By comparing data on potable water distributed through the main lines with data on sanitary sewer flows taken by the sewer meters, Sanchez will be able to pinpoint areas where large amounts of extraneous water are being collected so that the sewers can be fixed. In addition, because of its consent decree with the Department of Environmental Protection, the Town must also create sewage capacity for any new entry into the system – another task where the types of detailed flow data provided by Neptune will help.

The Burlington DPW has come a long way in just a year; and thanks to its ARB FixedBase AMI System, it will continue to expand its customer service capabilities – without even having to leave its offices. Even more, it has dramatically increased revenue by 30 percent.

"Neptune has been extremely responsive to our needs, and [Neptune Territory Manager] Steve Horn has been tremendous," said Sanchez, citing Horn's continuing support before, during, and after deployment. "It's been a good experience working with Neptune and we're very happy… I don't want to sound like a commercial, but that's the way we feel."

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallassee, AL 36078
USA
Tel: (800) 633-8754

Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

NEPTUNE TECHNOLOGY GROUP
neptunetg.com