



# Case Study

## ACLARA STAR<sup>®</sup> Network System

### STAR Network System Stands Up to Hurricane Sandy

#### Challenge

The New York City Department of Environmental Protection (DEP) is the largest public water utility in North America, serving more than 800,000 customers and nine million residents.

Beginning in 2009, DEP installed Aclara's STAR Network technology across New York City's five boroughs, providing a wireless meter reading solution for the city. By March 2012, installation was 95% complete.

When Hurricane Sandy struck in October 2012, the system was under pressure to perform effectively.

#### Solution

The DEP system uses a combination of STAR Network meter transmission units (MTUs) and data collector units (DCUs) to read meters and transmit the data back to the utility.

Aclara's STAR Network MTUs are small, permanently sealed modules that are connected to the DEP's water meters. The MTUs read the meter and forward the meter data on an FCC-licensed wireless channel at customer-specified intervals. These messages are received by several of the DCUs that cover the service area.

The DCUs are placed in strategic locations throughout the five boroughs to provide a complete and redundant network for reliable operation. The DCUs receive, process, and store meter reading information transmitted from the MTUs, and forward the information directly to the utility through Ethernet connections to the city's NYCWiN wireless system.

#### Results

Once the storm passed, DEP assessed how the STAR Network system had weathered the storm. Of the 350 DCUs in the NYC system, only 12 were damaged primarily due to the loss of power to the DCU. Even with the loss of the DCU, redundancies designed in the STAR Network system meant that even if a DCU was out of service, the MTU signal could be picked up by another functioning unit.

#### About New York City

##### Utility Type

Water

##### Deployed

STAR Network

##### Service Territory

New York, N.Y.

“The primary benefit is that, as some homes were badly damaged to the point of being lifted off their foundations, we were able to quickly identify major leaks and both dispatch repair crews and provide billing ‘leak forgiveness’ to those customers.”

- Warren Liebold, Director of Metering and Conservation for DEP

“The fact that the DCU design was aimed at almost all MTUs being heard by at least two DCUs resulted in a resilient system that helped us weather the storm,” said Warren Liebold, director of metering and conservation for DEP.

As a result of the storm, there was significant personal property damage throughout the city. Some older meters and meters on buildings that were flooded with seawater were impacted, but the MTU remained intact and functioning, helped by the factory water-sealed, remote wire connections.

When the situation was assessed, DEP lost contact with approximately 2,000 of its 820,000 MTUs. Many of these were attached to dwellings and properties that were no longer standing. Also, most of the DCUs that lost both electric and backup battery power were overlapping DCUs in the storm area. Some DCUs on the Rockaway peninsula in Queens and in the south shore of Brooklyn experienced these power issues.

### Unexpected Benefits

The STAR Network system not only weathered the storm, serving its primary design function of reading meters, but also helped provide vital information to residents and other city agencies.

DCUs transmit on the NYCWiN citywide wireless system for NYC agencies and first responders. The data is sent when there is no emergency communications traffic.

STAR Network system data allowed the DEP and other agencies to track approximate evacuation rates from neighborhoods during the storm. The data was analyzed to see areas of zero water usage over a period of time, indicating that the area was evacuated. The DEP also used the data after the storm to help identify apartment buildings without water by again looking at the consumption of water to make these determinations.

The ability to identify large leaks in the system caused by the storm was another major advantage. DEP was able to look at the data and find residences that had an abnormally high rate of water consumption after the storm. That indicated there might be damage to a specific property.

“The primary benefit is that, as some homes were badly damaged to the point of being lifted off their foundations, we were able to quickly identify major leaks and both dispatch repair crews and provide billing ‘leak forgiveness’ to those customers,” Liebold said.

### The STAR Network MTUs feature

- Long-lasting performance with a 20-year lithium ion battery
- Reliable technology to ensure data and system security
- A watertight design able to stand up to harsh basement and pit installations
- Dual-port operation that handles compound meters or multiple-meter installations, including gas and water combinations



**Aclara**  
945 Hornet Drive, Hazelwood, MO 63042 | P: 800.297.2728 | F: 314.895.6543  
info@aclara.com | www.Aclara.com