Rock Hill, South Carolina
Innovation Improves Efficiency and Quality of Municipal Services

Photo credit: Chris Yunker

Customer Highlights

Challenges
- Inefficient manual utility meter reading and inaccuracies due to human error
- High-speed access to critical data by mobile public safety workers

Solution
- Reliable, secure and cost-effective citywide network used for multiple applications
- Public safety has high-speed access to critical information in the field improving efficiencies
- Free public Internet access at community parks

Results
- Fast installation: 15 square miles of Tropos network deployed and operational in one week
- Each police officer spends 2 hours more in the field daily with ability to file reports from their vehicles
- Fire personnel have access to critical data in minutes, enabling them to be more responsive and effective in fighting fires
- Power and water AMI is expected to reduce mobile meter reader staff and increase accuracies; application payback, 7-8 years

Systems and Services
- Tropos 5210 and Tropos 4210 mesh routers
- Landis + Gyr Focus AL power meters with Aclara MTU
- Neptune water meters
- CSG Data Networks: System integration

Rock Hill, South Carolina has evolved from its industrial roots in textile manufacturing to a diverse and modern city with a population of over 67,000 residents. The City's vision for the future is well underway and has already lead to improvements in mobile public safety worker efficiencies. A part of the city's ambitious plan is to automate its meter reading; the project is in process.

The Challenge
The city-owned utility of Rock Hill employs meter readers who inspect water and electric meters at homes and business to track usage for billing purposes. Rock Hill had been investigating automated meter reading (AMR) systems as a means to control meter reading costs, improve billing accuracy, and reduce employee injuries. However, the city found it difficult to justify an AMR project without a cost-effective network infrastructure to connect meters to the city's central billing and management systems.

Another challenge faced by the city was difficulty in providing mobile police and fire workers high-speed access to critical data in the field. An existing radio system was already in use to download mug shots onto police laptops, but the aging system was very slow and typically it took several minutes to download a single image. City officials believed public safety workers could improve efficiencies as well as provide better service to the community if they were given mobile access to the same applications and databases that were available in the office.

**Power and productivity
for a better world™**

ABB

Results

According to Rock Hill City Manager Carey Smith, the City had incorporated the creation of a citywide wireless broadband network as part of its Strategic Plan. "We knew that the wireless broadband concept had many practical uses in terms of maximizing manpower by utilizing the latest technology," said Smith. The city wanted a citywide network that could provide plenty of bandwidth for AMR, public safety, and other municipal applications. The initial rollout was for public safety (police and fire) since those applications could be up and running quickly. James G. Bagley Jr. CIO for the City of Rock Hill, was a key champion for deploying the wireless broadband infrastructure in 2006. "We wanted to build a foundation for the city's future rather than just an AMR system," said Bagley. "With our high-speed broadband network, we have the capacity to deliver many different kinds of city services — all on the same low cost, reliable network."

> "With our high-speed wireless broadband network, we now have the capacity to deliver many different kinds of city services — all on the same low cost, reliable network."
>
> **James G. Bagley Jr.**
> **CIO, City of Rock Hil**

"We deployed 15 square miles of the network in a single week," said Peter Friedman, Partner, CSG Data Networks. "The network is self-organizing and self-healing. It was simply a matter of plugging in power and letting each router configure itself into the network." With Tropos routers mounted in police vehicles, officers have high-speed access to criminal records, including mug shots, right in their vehicles. Within seconds they can perform a background search from a laptop computer or pull up mug shots and fingerprint profiles to help identify a suspect quickly. With the ability to create and file reports from their laptops, each officer spends an average of two additional hours each day in the field protecting the community.

Fire department vehicles are equipped with mobile routers enabling firefighters to download documentation such as building blueprints and hazmat data on their way to an emergency call so they are better prepared upon arrival. Before the department would have to wait for this information to be researched in paper logs which lead to delays. "We're really pleased with the fact that Rock Hill is not just staying abreast, but is actually on the cutting edge of the latest technology, and that the implementation of this technology provides a direct benefit to our citizens," said Rock Hill Mayor, Doug Echols. The city also offers free Wi-Fi access in all community parks, including Cherry Park, a large softball park where Rock Hill hosts some of the region's largest softball tournaments.

The second phase of the project is being rolled out and includes automatic meter reading for water and electricity. Centralized, automated utility meter reading eliminates manual readings which are sometimes inaccurate and enables centralized remote turn off and turn on services replacing a truck roll each time. The meters include two-way communications so they can be read on demand, giving the city and the community immediate access to individual customer usage statistics as well as making it easier to detect water leaks and water theft.

Tropos Solution

The city of Rock Hill awarded the contract to CSG Data Networks and Tropos Networks. The Tropos MetroMesh solution offered the best fit for Rock Hill's requirements for performance, coverage, mobile access, and the ability to manage and get statistics from one central location. The initial implementation consisted of a wireless broadband mesh network covering 32 square miles of the city as well as a mobile infrastructure that utilized routers mounted in city-owned vehicles. Tropos 5210 routers were mounted on light poles across the city and Tropos 4210 routers were used inside city vehicles for easy and reliable roaming access by police officers and firefighters. The Tropos 5210 routers include battery backup to enable service to continue in the event of a city power outage.

Application Highlights

Examples of key citywide applications for which the wireless-broadband network is used.

– **Automated Utility Meter Reading** – Reduced operational costs, improved meter reading accuracy and overall customer service.
– **Streaming video** – Cameras mounted in police vehicles enable police officers to stream video backto a centralized monitoring center when investigating or responding to an incident. The video can be used as court evidence
– **Document management** - City records such as building permits and plans for housing subdivisions are accessible electronically from a centralized database, allowing building inspectors and other city workers to quickly and easily find the information they need when in the field as well as allow them to file reports.
– **Real time work-orders** – Work-orders can be downloaded and completed real time in the field. Routing of work and priorities can be based on location of crews with AVL or GPS in the vehicles and dispatched based on the nearest crew,improving field worker efficiencies.

For more information please contact:

ABB Inc
Tropos Wireless Research Center
555 Del Rey Avenue
Sunnyvale, CA 94085
Phone: +1 408.331.6800
E-Mail: sales@tropos.com

www.abb.com/tropos

Power and productivity
for a better world™

ABB