



## Sylacauga Utilities Board Deploys Wireless Broadband for Distribution Automation and Rural Connectivity

For the past four years, the Sylacauga Utilities Board has seen its reliance on Motorola wireless broadband products increase, not only in terms of numbers of nodes but also in applications over the network. The network, which had its beginnings in rural connectivity applications, now includes Supervisory Control and Data Acquisition (SCADA), and 9-1-1 non-emergency data backhaul. Future plans include incorporating Advanced Metering Infrastructure (AMI) applications.

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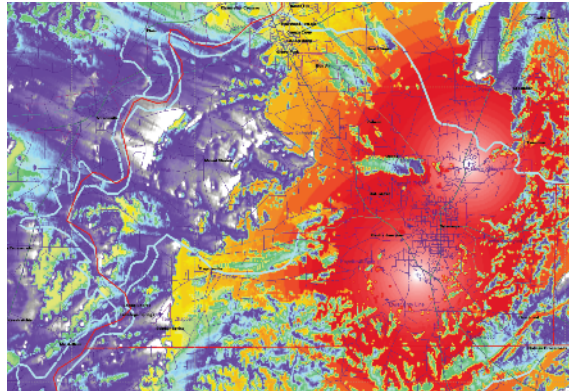
- Reay Culp,  
Telecommunications  
Department manager,  
Sylacauga Utilities Board

Nestled in the heavily wooded southern edge of the Appalachian Mountains 50 miles southeast of Birmingham, AL, Sylacauga is most noted for the “world’s whitest marble” and the late Jim Nabors, the hometown celebrity who played Gomer Pyle in the “Andy Griffith Show.” But Sylacauga is also known for its beautiful above ground surroundings as it serves as an entrance to the 600-square-mile Talladega National Forest.

That natural beauty can provide natural challenges in providing residents high-speed Internet services. More than three years ago, the Sylacauga Utilities Board saw an opportunity to provide its customers with a cost-effective high-speed wireless broadband network. With quickly emerging wireless broadband technology, the Utilities Board recognized an alternative to its current dial-up Internet service offerings. “We were still leery of line of sight issues with our towering pine forests and 400-foot high rolling hills,” said Reay Culp, Telecommunications Department manager for the Sylacauga Utilities Board. “But

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The Utilities Board first considered the unlicensed 2.4 GHz band, however, it could not establish a consistent link at this frequency because of the dense foliage and non-line-of-sight issues. Motorola offered a pair of 900 MHz Access Points, which are designed to maintain links over shorter distances despite environmental interference. The utility deployed the 900 MHz radios on its Springhill and Buena Vista towers, both of which were connected to a 100 Megabit per second fiber connection to the Sylacauga Network Operations Center (NOC) about three miles away. The Motorola wireless broadband solution performed as advertised, sustaining 3 Megabits per second data speeds over a non-interrupted wireless broadband link. The utility added five additional 900 MHz Access Points at each tower to provide 360-degree wireless broadband coverage.



^ Broadband coverage in the Sylacauga, AL, region in 2006 is shown in red. Today, with Motorola's wireless broadband network, coverage has been extended throughout the region.

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As the "buzz" of this new high-speed service began spreading around the community of about 13,000 and the surrounding rural areas, customers began opting for wireless broadband over the slower dial-up service the utility offered. And although Sylacauga did have private Digital Subscriber Line (DSL) and cable services, hundreds of utility subscribers lived in unserved or underserved areas for those offerings. "Our goal was not to compete with the private sector," said Culp. "We felt we had an obligation to provide cost-effective, high-speed Internet services to our customers who live in rural areas throughout Talladega County and don't have affordable access to cable or DSL. Today, we have expanded the network to 44 Access Points on nine towers serving 730 business and residential customers — some as far as 7 miles from the tower."

Each tower is equipped with Motorola's Cluster Management Module (CMM). The module is the heart of the system's Global Positioning System (GPS) synchronization capability that allows Sylacauga Utilities Board to re-use frequencies and add capacity while ensuring consistent service to its customers. As a result, subscribers can experience consistently reliable service — even those at the outer edge of the network.

#### Network Expanded for Additional Applications

In addition to supplying high-speed Internet services, the Utilities Board benefits from other applications run over Motorola's wireless broadband network, including gas and water SCADA, licensed and license-exempt backhaul and video security.

High resolution surveillance cameras, integrated with Motorola 900 MHz Subscriber Modules with connectorized antennas, monitor the Network

Operations Center. A Point-to-Point 49400 AES (Advanced Encryption Standard) secured backhaul is used for transmitting non-emergency data from the county's 9-1-1 system.

"As we expanded our network, which now covers about 200 square miles, we saw the opportunities to run SCADA applications over the network," said Culp. SCADA data is regularly transmitted from four remote water tank and three natural gas sites. Construction of a 1,500 gallon-per-minute water well is nearing completion and the utility will remotely be able to monitor the well's pumping level, flow, turbidity, chlorine residual, variable pump speed, three-phase volts and amps.

"The appeal of deploying Motorola's wireless solutions includes ease-of-deployment, low maintenance needs, reasonable cost, high capacity and proven reliability," said Culp. "And I am able to remotely update firmware and monitor signal strengths on the system with Motorola's Element Management System." The EMS can reduce time and dollars spent on network management by providing centralized control including provisioning, fault management, performance monitoring, configuration management, firmware management and security.

Looking ahead, the Sylacauga Utilities Board is planning to take advantage of more wireless broadband technology for AMI and other Smart Grid applications. "We expect to have an AMI pilot study under way later this year to collect detailed energy usage data from our electric, gas and water networks," said Culp. "We are committed to providing state-of-the-art utility services — electrical, natural gas, Internet, water and waste water — to our more than 12,000 customers. Motorola has been an integral part of that commitment."

#### WIRELESS AGILITY FOR NETWORK OPERATORS

Broadband networks need to provide reliable data, video and voice connectivity wherever it is needed. Motorola's Wireless Broadband and our WLAN solutions provide and extend coverage both indoors and outdoors. The Motorola Wireless Broadband portfolio offers high-speed Point-to-Point, Point-to-Multipoint, Mesh Wide Area Networks, WiFi and WiMAX networks that support data, voice and video communications, enabling fixed and mobile applications for public and private systems.



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