

# A Rural Community Thinks Big

Businesses were threatening to leave Charles City County, a rural area in Virginia. Then county officials committed to improving broadband access – and the economic picture turned around.

By Andrew M. Cohill / *Design Nine Inc.* and Matt Rowe / *Charles City County*

**C**harles City County is a surprisingly rural community despite being located between Richmond, Va., just to the west, and historic Williamsburg to the northeast. Despite its name, the county has no cities, and its population of 7,256 is only 1,668 more than it was in 1790. Residents and businesses in the county have struggled with poor telephone and Internet service for years; in 2013, county officials resolved to do something about the problem.

The county's one business and industrial park, located in Roxbury in the northwestern corner of the county, had close to 50 businesses, which employed more than 500 workers. As those businesses increasingly had to compete in the regional and global marketplaces to survive, the importance of reliable, affordable telecommunications became more apparent to the business community and local government officials. Through one-on-one business meetings between company representatives and the county's director of economic development, local government officials were able to identify and document a regular occurrence of Internet and telecommunications outages that were ultimately linked to degraded, obsolete telecommunications infrastructure.

Worse yet, several businesses revealed that they were considering relocating because they were unsure whether the private telecommunications service providers would make the investment to upgrade needed

infrastructure and provide a higher level of service. Once this problem was identified, the county made a commitment to the business community that it would pursue all means to address the issue.

## PLANNING FOR THE FUTURE

The county's economic development department decided to create a telecommunications plan that prioritized infrastructure upgrades based upon economic development impact, number of residents and businesses served, and costs. To fund this plan, the county, along with its economic development authority (EDA), which provided a \$10,000 local match, applied for a telecommunications planning grant administered by the Virginia Department of Housing and Community Development (DHCD).

As part of its application submission process, the EDA created an online survey and solicited letters of support from government representatives and leaders, businesses and regional chambers of commerce, civic groups, churches, schools and residents. This effort resulted in more than 80 letters of support and the submission of more than 50 business and 200 residential surveys. Perhaps more important, the county gained noticeable momentum and buy-in from its businesses and residents.

DHCD awarded the grant in October 2013, and after a rigorous interview and selection process, the county hired Design Nine, a broadband planning firm well known for its work with smaller and rural communities.



The new Charles City County Courthouse is the seat of county government.

Over a seven-month period, Design Nine staff worked closely with Charles County staff to create a viable plan that focused on the county as a whole while prioritizing and identifying cost-effective methods of providing improved service to the businesses concentrated in the Roxbury area. The plan was completed on schedule and under budget in September 2014.

### SAVING JOBS

During this planning process, one of the county's largest existing employers, along with a new business planning to relocate to the county, approached the county's economic development director to say they were questioning their future in the county. With close to 175 total job positions at stake and the real potential of the loss of considerable tax revenue, the county and its EDA immediately worked with DHCD and applied for an Economic Development Community Improvement Grant to retain and attract those job positions and their associated investment.

Design Nine developed a long-term, multiyear strategy for the county that included high-performance wireless for areas of the county still on dial-up or on poor-quality DSL. The firm also designed a gigabit fiber infrastructure

for the Roxbury business park and fiber-to-the-home designs for several smaller communities in the county.

Work completed by Design Nine also included

- A comprehensive, 10-year financial pro forma that projected customer take rates, potential revenue, sources of funding, operational and administrative expenses, growth rates for revenue and costs over time and the cost of proposed fiber and wireless infrastructure.
- An open-access, local transport provider (LTP) business model that keeps the county out of the retail broadband business, leaving that to the private sector.
- A detailed network architecture design that included several fiber rings in the county, much improved broadband connectivity to county administrative offices and buildings, and increased bandwidth and connectivity to all county schools.
- Designs for several new wireless towers located strategically around the county for improved residential, work-from-home and small-business connectivity.
- A high-bandwidth wireless backbone design to support local wireless

access and serve as a fully redundant wireless backup capability for the fiber rings in the county.

In the LTP model, the broadband infrastructure is treated much like roads. Charles City County would build and maintain the digital fiber and wireless road system but lease capacity on that digital road system to private-sector service providers. The county administrator and the county board of supervisors appreciated this model because it meant the county had a limited, well-understood role with just a few long-term maintenance responsibilities.

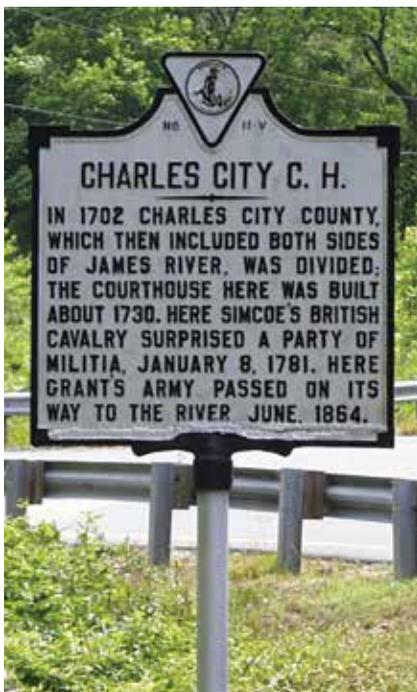
As part of its work, Design Nine located several service providers interested in using the proposed infrastructure, including a national Tier-1 Internet provider that was found to have fiber infrastructure just a few miles from Charles City County. Design Nine played a key role in attracting this firm by being able to converse knowledgeably with its technical staffers, who wanted to be sure the new network infrastructure would meet their carrier/business-class network requirements.

DHCD conducted a rigorous review of the broadband master plan

Getting results does not have to take years. The county started its planning process in March 2014, and first-phase funding was completed less than a year later.

for the county, and after three months of evaluation, Virginia's secretary of commerce and trade, Maurice Jones, along with DHCD's director, Bill Shelton, personally awarded a \$600,000 community development block grant to the county – the largest grant in county history – in a formal announcement ceremony on December 22, 2014.

Shortly thereafter, the county's EDA announced that it was committed to providing a \$55,000 local match. The funds were designated for the county to construct an open-access fiber network that would directly connect to businesses in the Roxbury business park and to construct two 120-foot-tall towers that would be utilized for wireless Internet services for other areas



Charles City County is rich in history.

in the county, including its courthouse village and school complex.

Since the December announcement, Design Nine has completed the engineering and procurement work needed to award a construction contract, and the first fiber and conduit work is expected to begin in late summer 2015. The wireless towers have already been purchased, and tower construction will begin at about the same time as the fiber construction. All work on the approximately 6 miles of the first phase of fiber construction is expected to be completed by October 2015. The wireless work will be completed in the same time frame.

The new network will give businesses located in the Roxbury area access to highly competitive pricing for any amount of bandwidth they need; two service providers are expected to be on the network on day one. The new wireless access will give about half the county's residents the opportunity to purchase reliable, affordable wireless broadband Internet.

## LESSONS LEARNED

There are several lessons learned from this effort.

- Even very small, rural communities can have world-class fiber and wireless with the right technical design and careful business and financial planning.
- Although backhaul is an issue in any rural community, building fiber locally can attract private-sector investment in fiber backhaul.
- In rural communities, fiber and wireless are complementary technologies. A well-designed hybrid network provides business-class resiliency, redundancy and reliability.

- The local transport (open-access) business model of leasing basic broadband infrastructure to the private sector is well-suited for small local governments with limited staff and financial resources.
- Getting results does not have to take years. The planning process started in March 2014, the complete plan was finished in just seven months, and the first-phase funding was completed just three months later.

## EARLY RESULTS

The county has already seen a substantial positive impact even before the first phase of the network is operational.

- More than 175 job positions and at least two companies have been retained in the county by the prospect of affordable, high-speed broadband services.
- The county has been selected for a major economic development project with an anticipated investment in excess of \$300 million. The project will represent the largest single private investment in the county's history and requires that the county have the highest level of telecommunications service and infrastructure available.

With this project's upcoming public announcement, along with additional prospects now eyeing the county and its future telecommunications network, county officials are optimistic that Charles City County will continue to be a place where businesses can thrive with the strong support of local government and the surrounding community. ❖

*Dr. Andrew Cobill is the president and CEO of Design Nine Inc., which has helped communities solve their broadband challenges since the early 1990s. More information is available at [www.designnine.com](http://www.designnine.com). Matthew Rowe, the director of planning and economic development for Charles City County, led the efforts to improve broadband in the county. He can be contacted at [MRowe@co.charles-city.va.us](mailto:MRowe@co.charles-city.va.us).*