

Huntsville Becomes a Gig City

Huntsville Utilities in Alabama is pioneering a new model for community broadband. So far, all the signs look good.

By Masha Zager / *Broadband Communities*

Huntsville, Alabama, long called “Rocket City” for its association with the space program, is on its way to becoming “Gig City,” thanks to its municipal fiber network. With a population of about 195,000, Huntsville wasn’t overlooked by broadband providers, as some smaller towns and cities were. But private broadband offerings weren’t robust enough to support the city’s tech sector, which now includes a burgeoning biotech industry in addition to the traditional space industry. And with the highest concentration of engineers in the United States, Huntsville has a sophisticated and demanding broadband market.

Mayor Tommy Battle, announcing a Gig City initiative, said conversations with the city’s Economic Development Advisory Council convinced him of the increased need for ultra-high-speed connectivity and big data portals. He noted, “If Huntsville is to remain a technological leader in this hyperconnected global world, we must be able to offer broadband access that can accommodate the growing demands of business, research institutions, entrepreneurs, residents and public safety.”

At the same time, Huntsville’s municipal utility, which had maintained a fiber network since 1999, was planning a major network expansion to better manage its electric grid. The expanded network would support energy information services, real-time pricing, SCADA, substation control and other fiber-centric requirements. Adding extra fiber strands would not add significantly to its cost, so the city decided to leverage this asset for the benefit of residents and businesses.

According to a 2016 presentation by Jay Stowe, former president and CEO of Huntsville Utilities, the utility concluded that providing fiber to the home directly would be too expensive and, more important, too risky because “it was not a business that we are in.” So in December 2014, the city issued a request for information seeking one or more partners to provide high-speed internet services through the utility’s fiber network.

In February 2016, the city and Google Fiber announced that Google Fiber had signed a 20-year lease on Huntsville’s dark fiber and would offer triple-play services to all Huntsville residents and small businesses – about 105,000 addresses altogether. The news made a splash, not because Huntsville was the first city to use a wholesale model – at least 100 other municipal networks do – but because Google Fiber was the first high-profile provider to sign on with a municipal network.

Typically, retail providers that deliver services on municipal networks are small and have little or no infrastructure of their own. Large incumbent U.S. providers, which are vertically integrated, have declined to use networks they don’t own, expressing concern about being blamed for service glitches they can’t control. Google Fiber, a competitive provider that now offers services in parts of 18 metropolitan areas, has substantial fiber assets and began as a vertically integrated provider. (It does use existing fiber to deliver services to some MDUs in Atlanta and San Francisco.) Huntsville was the first city in which it committed to provide services over fiber owned by a public entity.

Huntsville, Alabama, has been the Rocket City for years. Now it's a Gig City.



A WIN-WIN FOR GOOGLE AND THE CITY

The deal enabled Google Fiber to start serving Huntsville faster and at a lower cost than if it had built out the network itself. At the **BROADBAND COMMUNITIES** Summit in April 2017, John Burchett, head of public policy for Google Access and Google Fiber, said, "It's a win-win for us and the city. There's less capital up front for us, and the builds are much faster because they already have access to poles and rights-of-way and can do the make-ready faster than we can. They have crews they can deploy. We've found they are able to build much faster than we can."

Burchett added that other communities could use the same or similar approaches to attract Google or other providers. He said, "The more that communities can put in dark fiber, the more it speeds the whole thing up. At this point it's almost all about time. The sooner you can light up a person, the more the numbers start making sense."

Recently, a Google Fiber spokesperson explained to **BROADBAND COMMUNITIES**, "By working with Huntsville Utilities and the city of Huntsville, we're able to bring more people access to ultra-high-speed internet, and we've been able to further the city's vision for a more connected

community. Huntsville and its leaders are building a community energized by gigabit speeds. We are now able to help make their vision a reality. This city-led, long-term investment will allow both Google Fiber and future providers to more easily deliver ultra-fast internet to Huntsville residents."

From the utility's point of view, locking in a 20-year revenue stream from the fiber asset enabled it to speed up its network deployment. The network will be built out in three years at a cost of about \$70 million; the build might have been slower if the network were used only for utility and government purposes. And, of course, the city gets gigabit service for all its residents.

THE HUNTSVILLE MODEL

Leasing excess fiber from a utility grid network has become common. However, Huntsville's model has several unique features.

Municipalities that lease fiber to third-party providers generally use one of two models: They own only the fiber ring, or they own the entire network. Even where a third party builds the connections to the premises (as in Rio Blanco County, Colorado, whose network was profiled in the November-December 2016 issue), the municipality usually ends up owning all the fiber.

Huntsville follows a third, middle-ground strategy: It builds fiber to the curb, installs a multiport service terminal (MST) that can serve several customers, and lets service providers build and own the final drops to the customer premises. This way, it can fund the network through electric rates without borrowing (all the infrastructure is used to operate the electric distribution system), it controls the buildout schedule to the various neighborhoods, but it does not have to get involved in customer connections.

Google Fiber – or another provider – markets services to customers, secures permission for drops and installations, plugs its cables into the MSTs and gets customers connected.

Daniel Kaufmann, a lawyer from Bradley Arant Boult Cummings who helped the city negotiate the lease, explains that the utility sets rate structures that apply to all lessees (its only other legal option would be to open the network to competitive bidding, which would be impractical). Thus, Google Fiber pays the same rate as any other retail service provider offering the same type of service. A point-to-point fiber lease, such as a provider might want to serve a financial or research institution, would fall under a different category and pay a different rate, as would a low-volume lease.

Huntsville Utilities invested in its network primarily so it could manage its grid better. A small additional investment makes possible gigabit services for all residents and businesses.

Exclusive contracts are illegal – “You can’t give a special privilege to any one citizen,” Kaufmann says – which means that, as the city is not the ISP, multiple ISPs must be allowed on the network.

As of now, no other providers have leased fiber from the utility. However, the city is eager to attract additional providers, and it took account of the potential for multiple providers both in the contract with Google Fiber and in the network design. Tom Reiman, CEO of The Broadband Group, which helped the utility plan the network and negotiate the contract, says that Google Fiber’s control over drop cables does not equate to control over customers. A customer unhappy with Google Fiber could switch to a competing provider, if there were one; the utility could easily install another terminal, and the competing provider could easily install a drop cable.

However, Reiman adds, although the network can support a second high-volume provider from a technical standpoint, the chance that a second provider would want to serve the whole city is “economically remote.” He expects to see additional providers carve out niche markets – multiple-dwelling-unit properties or enterprises or schools – but would be surprised if Google Fiber had a competitor for general residential service.

According to Stowe, in the future, the utility might lease fiber in other parts of its electric service territory, and other broadband providers might want to serve customers in those smaller cities.

CONTRACT PRICING

Huntsville’s pricing model also has unique aspects. Variable revenue, rather than being based on route distance (dollars per foot of fiber), is based on the number of terminal ports available

– in other words, on the number of potential customers. Kaufmann explains that the value of a network for service providers depends not on route miles but on how many customers they can connect. The cost to the utility, however, depends largely on the number of route miles, so to develop a price per port, it had to calculate the number of ports it was likely to install per mile of fiber. (The provider also pays for space in fiber huts and for miles of backbone fiber, costs that will change little over the years.)

Yet another difference is this: Although most fiber owners employ indefeasible rights of use (IRUs) for long-term fiber leases, Huntsville chose not to use that method. Kaufmann says, “An IRU gives an ownership interest to the tenant. Under our state statute, the better course of action is for the utility to own the network. As it’s operating an electric system, it needs to be in sole control of the network. ... The utility’s customers are going to be dependent on the network’s working, so it didn’t want multiple owners.”

GOING LIVE

Huntsville Utilities started its fiber expansion shortly after signing the contract with Google Fiber. According to Stacy Cantrell, vice president of engineering, it is already building out the second of its six phases, with a goal of completing the final phase by October 2019. To allow Google Fiber to market and install drops continuously, Huntsville is turning over the network in small segments as they are ready rather than waiting for the completion of each phase.

In May 2017, Google Fiber announced that residents and small business owners in North Huntsville could sign up for internet, video

and phone services, with a choice of 100 Mbps or 1 Gbps speeds. It announced a second neighborhood in September. Customers began signing up immediately, and many are already receiving services. A Google Fiber spokesperson told **BROADBAND COMMUNITIES**, “We have been extremely pleased with the response in Huntsville. The service has been well-received, and we are encouraged as we consider other service areas in the market.”

Eschewing the “fiberhood” approach that Google Fiber made famous, Huntsville Utilities decided to prioritize its build based on construction needs rather than customer demand. It started in North Huntsville because that area needed the least make-ready work on its poles. This enabled Google Fiber to start delivering services as soon as possible. However, Cantrell notes, the city was excited to be able to bring gigabit service to North Huntsville, an area that would benefit economically from those services.

Google Fiber is also bringing fiber to a number of community organizations in Huntsville. The Google spokesperson told us, “In Huntsville, our community impact efforts are focused on three priority areas: digital inclusion, STEM education, and supporting entrepreneurs and nonprofits. We pursue partnerships that support these three efforts – giving nonprofits the tools they need to increase their digital presence and create more efficient workstreams so they can focus on their missions. Each organization and its needs are different. In certain cases, we will provide tools and services – such as a free computer lab for the kids at Harris Homes for Children.”

LESSONS LEARNED

Building out fiber to an entire city in three years is an ambitious undertaking, and Huntsville Utilities faces several challenges – among other things, at the time it started the project, it had no separate fiber department and had fallen behind on pole maintenance. Six major contractors (some of whom have subcontractors) are performing

various design and installation tasks, overseen by TBG Network Services, a subsidiary of The Broadband Group. TBG Network Services leads all aspects of the construction oversight, build metrics and turnover to Google Fiber.

Based on her experiences during the first year of the project, Cantrell offers some thoughts for other municipalities to keep in mind:

- The quality of GIS data is crucial because that data forms the basis for the design. Clean up the GIS data well before you get started on a fiber project.
- Be prepared for the incumbents to jump into action as soon as a municipal project is announced, and don't be surprised if they get started faster than you can. Make sure you have well-defined processes and enough personnel to handle the locates, pole attachments and other events that create work for your

utility. Sometimes there's no way to escape doing the same work twice – for example, if you move facilities on a pole to make room for two new attachments and a third one puts in a request a month later, you may have to replace the pole and waste the first make-ready.

- Encourage the locating team to develop good relationships with contractors so contractors will call the team to answer any questions. Some utility lines will inevitably be cut, but good working relationships can minimize these problems.
- Continual field inspection is necessary to train contractors about building to standards. Don't wait until the job is complete and then hand them a long list of problems to fix. Having inspectors in the field also helps validate invoices and construction progress, and inspectors can interact with

homeowners to make sure any damages are noted and repaired.

From his perspective as project adviser and overseer, Reiman offers an optimistic assessment of the Huntsville model and its future: "The Huntsville or utility lease model completely changes the metrics of competitive broadband investments. Unlinking terrestrial infrastructure funding from the delivery of world-class, high-speed internet access addresses the challenges that have failed so many important initiatives. Investing in more 'single industry use' fiber is perhaps not solving the universal access objectives of municipal broadband. We believe this model is both replicable and relevant in many future markets." ❖

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