Gigabit From the Ground Up

Metro Development Group is creating a brand-new, high-tech community in Florida's Pasco County. Collaborations with the county government and with US Ignite are critical to the project's success.

By Masha Zager / *Broadband Communities*

Several years ago, the Florida-based developer Metro Development Group (MDG) made a commitment to provide six new residential communities with gigabit fiber-to-the-home services, delivered by Bright House Networks and branded as ULTRAFi. That story appeared in the May-June 2014 issue of this magazine – but it turned out to be only the first chapter of a longer, more interesting story.

Based on its experience developing the first ULTRAFi communities, MDG decided that advanced technology should be a critical component of all its new developments and began seeking more opportunities to incorporate technology into its planning. "We looked at what Google Fiber has done," says Greg Singleton, MDG's president, "and saw the impact it had in infill areas across the country. We saw that it really was an incubator, and that new businesses sprouted up around it. But it was expensive. In a greenfield development, putting fiber in is way less expensive than going under concrete."

THE CONNECTED-CITY CORRIDOR

MDG owned about 2,500 acres of undeveloped land in Florida's Pasco County, north of Tampa, in an area that the county government was eager to see developed, and it planned to create a mixed-use development there – a new town that would include residences, schools, health care facilities, offices and stores. This seemed like the perfect place for a technology-centered community.

Fiber to the premises was just a starting point for the new community. Then, Singleton says, "We broadened it to include electric vehicles, renewable energy, central amenities such as an ecofriendly crystal lagoon [a type of artificial lake] – we wanted to make it a cool place to live."

Pasco County officials hoped to attract technology jobs and embraced MDG's concept. Singleton explains, "When companies are looking to locate or relocate, they ask, 'Where can we get the speeds we need?' Then we've got a strong story to tell: They can get those speeds at the house and at the company – it's all right there. They don't have to wonder, 'Where are my employees going to live?' They won't have to pay them a million dollars a year to live there."

While brainstorming with Pasco County officials, MDG proposed the idea of creating a special planning district, now called a connected-city corridor. The county would designate a rectangle of 7,800 acres, about one-third of which was the land owned by MDG, as a potential high-technology innovation district and give it expedited permitting – no special rules or exemptions, just a fast track. As Singleton explains, "It gives us an allocation of resources from Pasco County to get the planning and approval process expedited. For example, if a hospital wanted to be in the district, it would have taken three years to go through the approvals, but we can get it done way faster. So it gives our area a competitive advantage. There's way more certainty of execution." Local regulations match state regulations, so there are no additional hurdles to jump after the county approvals.

The new master-planned community in Pasco County's connected city corridor will have intelligent traffic systems and electric vehicles for public use.

County officials were excited by the connected-city corridor concept, and they quickly got their state representatives on board. A bill that allowed local governments to create connected-city corridors was introduced in the state legislature and passed in less than 60 days – at a time when the legislature was having trouble passing its own budget. The law took effect in July 2015. The connected-city corridor provisions are proving to be a boon for MDG, and the owners of the other two-thirds of the corridor will also benefit once they begin developing their parcels.

A SMART GIGABIT COMMUNITY

About a year and a half ago, MDG met with the staff of US Ignite, a nonprofit that encourages the development and testing of next-generation applications, and continued to consult with the organization about how to develop the first planned "Smart Gigabit Community" in the United States. US Ignite has about 20 member communities, all of which have advanced communications networks and agree to serve as test beds for new applications. However, until recently, all the member communities were retrofitting existing infrastructures to accommodate new applications.

In December 2015, when Pasco County's connected-city corridor joined the group, it became the first member community to be conceived and designed with infrastructure to take advantage of new communications technology. William Wallace, executive director of US Ignite, says, "Good things happen when you place fiber in the ground and develop new applications to meet the needs of the community."

Wallace explains that the new community won't have just a fiber network from day one but also buildings equipped with advanced wiring, gigabit wireless routers and smart thermostats. "Just by planning up front, they're future proofing it," he says.

Even the 100-plus miles of trails and parks will have Wi-Fi hot spots and Ethernet connectivity. The community's electricity infrastructure will be built as a smart grid and derive a high proportion of its energy from renewable resources. Small electric vehicles will be available for public use within the community, reducing dependence on oil.

Private cars aren't going away any time soon, so MDG is working with county officials to design and install an intelligent traffic system based on in-ground sensors and Wi-Fi connectivity. Kartik Goyani, MDG's vice president of operations, who has been deeply involved in the connected-city corridor project from the outset, explains that the traffic system will be robust enough to handle the huge flow of data that autonomous vehicles will produce.

MDG wants to provide access to information that will allow residents and businesses to make better decisions. To this end, it is partnering with health and wellness providers to promote telehealth so that everyone throughout the new community will have access to tools for health and wellness. Residents and businesses will also have access to broadband-enabled irrigation systems and electric meters that will help them conserve water and energy. Goyani says, "Information in today's age is power. The more data is in the hands of homeowners, the more they can make informed decisions."

Creating an innovation district isn't only about wires and gadgets. The developer is also working with county officials to involve the region's educational and entrepreneurial communities. Wallace says, "It takes a combination of vision, will and blocking and tackling to get it done." In addition, the new community, as a

member of US Ignite, will have access to a host of application developers in 55 research universities and the other US Ignite member communities. "They'll be able to tap into research around the country to generate new companies and entrepreneurial activity," Wallace adds.

US Ignite will be able to support the new community in other ways, too – for example, by helping it identify new applications that are particularly well suited to its strengths and obtain grant funding to implement these new applications or train workers for high-tech businesses.

Goyani hopes to contribute to US Ignite as well by sharing best practices on how a smart gigabit community can evolve in a greenfield setting. He's even looking beyond US Ignite toward a worldwide coalition of built-from-the-ground-up smart communities that will all share their experiences and resources with one another.

A 'LIVING LAB' OF TEST BEDS

By joining US Ignite, Pasco County will have an opportunity to participate in an unusual experiment. In September 2015, the National Science Foundation awarded US Ignite a $6 million dollar grant to build a living lab of test beds for smart gigabit applications in 15 communities. These communities – along with others that may participate even without the benefit of NSF grant funds – will be able to shop in a "smart city app store" of interoperable, interconnected applications that address such national priorities as health care, education and public safety.

Multigigabit links will connect the cities, which will receive access to a low-latency, ultrafast network whose locavore (local cloud) computing and storage capabilities will support highly interactive, visually immersive experiences that are not possible on today's commercial Internet.

These local application infrastructures will allow entrepreneurs and academics in one city to write applications that can be replicated in the other cities and regions. The larger market size created by the the interconnected smart gigabit cities will put this project on a self-sustaining path attractive to entrepreneurs and established companies alike. US Ignite staff and partners will offer the communities technical assistance in designing and developing applications to take advantage of the new network connections and provide them with access to a variety of tools for collaboration.

The three-year, public-private project will knit together researchers, citizens, community organizations, technology companies, entrepreneurs, academics, and federal, state and local governments to begin to build the next generation of the Internet in the United States.

William Wallace, executive director of US Ignite, notes, "Building a critical mass of communities with next-generation Internet capabilities will have ripple effects: If networks are fast, reliable and widely available, companies produce more capable applications to run on those networks, which in turn brings new users online and increases use among those who already subscribe to broadband services."

As part of its participation, each city will fund and build two next-generation applications that will be shared among the larger, nationwide ecosystem of gigabit cities.

Lev Gonick, CEO of OneCommunity in Cleveland, one of the 15 cities, says, "We believe that one of the big bets for Cleveland, the Great Lakes region and the country as a whole is designing a robust data science ecosystem. We are focused on leveraging city partners in the US Ignite smart cities coalition to advance computation literacy education, collaboration and experiential learning in ways that would have been unimaginable without these next-generation network services."

PLANNING FOR THE FUTURE

A developer typically remains involved with a new community for only a short period, but MDG's vision will take many years to realize. How can it make sure the vision is fully implemented? "There's no point in doing this on paper and nobody implementing it," Goyani admits. "I'm a big fan of coming up with ideas and making the ideas happen."

To get others on board with the vision, he and his team have made more than 100 presentations to county officials, school and library administrators and others. The county is now writing new rules to require that all new infrastructure will be sensor-equipped, that fiber lines will be laid along with new water lines, that street lights will be smart. "Even if MDG won't be there, the vision lives on behind us and can get updated every few years," Goyani says.

To ensure the resources are in place to keep the vision going, MDG is providing for the future in a very concrete way. Goyani explains, "One thing we've seen is that people have ambitious ideas, and then the economy goes bad and they run out of money. So we're setting up a technology enterprise fund. For every home and for every square foot of nonresidential space, we're setting aside money for future technology improvement. There will be amazing things happening in the next five to 10 years. We want to make sure the efforts don't stop as technology evolves, so we're setting up a fund controlled by a third-party nonprofit organization to be used for technology advancement. Loans will be available to students and entreprenurs – it's a whole social ecosystem that we're designing. Otherwise it will all be a figment of our imagination. We want to make sure the legacy stays and is carried forward."

AN INCLUSIVE VISION

Goyani adds, "Over time, we hope the message spreads that this is a socially conscious community …

a multigenerational, ageless town. Initially, we'll give it a big marketing push, but once it starts rolling, I hope people will get attracted to what the area has to offer.

"In our minds, technology is the great equalizer. We're laying a foundation that people can improvise on and use technology for their own digital wealth. We want to give them access so that they can be the next Mark Zuckerberg. There will be homes ranging from micro apartments to million-dollar homes – something for everybody. Our goal is digital and physical inclusivity. We want to welcome everyone, regardless of income level, and we think technology can break all those barriers. … We're just trying to use technology for good."

GETTING STARTED

For MDG, the connected-city corridor includes a number of distinct projects. The first is well under construction ("I'm moving dirt," as Singleton puts it) and will result in the delivery of 2,000 finished lots to builders by the end of 2016, with occupancy planned for 2017. The second, with more than 4,000 lots, will begin construction in June 2016. Builders are "beyond thrilled" to be part of such an exciting project and have purchased hundreds of lots already, Singleton says.

The technology portion of the project is also underway. Tom Reiman, president of The Broadband Group, an adviser to MDG, notes that in a project of this sort, the developer needs to first determine its own technology vision and then choose a partner to implement it, rather than simply accepting whatever happens to be offered by the incumbents. "The next generation of technology has to be defined by those who use it," he says.

Accordingly, MDG issued an initial solicitation for communications infrastructure and selected Bright House Networks to install a fiber-to-the-premises network and deliver gigabit services, branded as ULTRAFi. (Charter Communications is expected to acquire Bright House Networks during 2016.) Whether Bright House Networks will be the only service provider in the development or one of several has not yet been determined. What is certain is that the infrastructure will serve the community well for a generation or more.

Singleton adds, "Residents won't even know how much they love us till 10 years down the line, when they realize that they're not constrained by the network." ❖

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