Stoneridge Apartments: Promoting Digital Equity by Providing Free Internet to Low-Income Residents

Stoneridge Apartments in a suburb of Austin, Texas, is leveling the broadband playing field for low-income residents by offering free Wi-Fi service courtesy of PCs for People. **Broadband Communities** thanks Brittany Hustad, senior project manager, Dominium; Maria Christinia, community manager, Stoneridge Apartments; Tom Esselman, executive director, PCs for People Kansas City; Jim Crammond, president, MoCA; and Andreas Bergman, head of sales and channel account management, InCoax Networks AB for contributing information for this profile.

By Sean Buckley / *Broadband Communities*

Pflugerville, a suburb of Austin, Texas, has a rich history. The community was named after the original German settlers who farmed the area; *pfluger* means "plowman."

Real-estate developer Dominium is carrying that spirit forward. It's plowing a new broadband path for Stoneridge Apartments, an affordable housing complex located in the heart of Pflugerville with 256 apartments spanning 13 buildings. Dominium realized that to stand out from the competition, it needed to practice digital inclusion by making internet accessible for families eligible for leases at Stoneridge. According to Dominium, 60 percent of residents are eligible for affordable housing.

The Stoneridge Apartments complex is close to a wide array of dining, shopping and entertainment options and is a 30-minute drive to downtown Austin and the Austin-Bergstrom International Airport. It offers two-, three- and four-bedroom apartment homes and boasts an outdoor swimming pool, a playground and an on-site fitness center.

Through a collaboration between PCs for People and InCoax Networks, the complex also provides free communitywide and in-home Wi-Fi to residents.

Brittany Hustad, senior project manager of corporate services for Dominium, who works on many acquisitions, says the company made broadband services a priority when it started refurbishing Stoneridge after purchasing the property. "It was during the rehab that we had communitywide Wi-Fi installed by PCs for People," she says.

PCs for People is a national nonprofit organization working to provide low-cost, quality computers and internet for people, families and nonprofit organizations with low income. It recycles and refurbishes computers, providing a valuable service to businesses, families and the planet by keeping computers out of landfills and repurposing them to advance digital inclusion.

A collaboration between the property developer, PCs for People and InCoax Networks has resulted in free communitywide and in-home Wi-Fi to residents at the affordable housing complex.

PCs for People serves as the ISP for the Stoneridge project, which it views as an opportunity to advance digital equity by offering broadband access to low-income residents.

Stoneridge's commitment to providing communitywide Wi-Fi came at a critical time during the COVID-19 pandemic. "When COVID-19 hit, and a lot of students attended school from home, the [free internet] service allowed parents to not rely on the school district to supply Wi-Fi so their kids could attend school regularly via the internet," says Maria Christinia, community manager at Stoneridge Apartments.

Tom Esselman, the executive director of PCs for People Kansas City, says that just as his organization treats low-income housing residents with dignity by providing refurbished computers, Dominium tries to offer excellent amenities to attract residents who need affordable housing.

"One of PCs for People's board members felt that providing free broadband for residents is something he wanted to pilot as an amenity a developer would provide to its residents," he says. "He felt it was no different than having running water and electricity and asked us to consider Stoneridge."

LEVERAGE, EXTEND EXISTING INFRASTRUCTURE

Tasked with delivering communitywide and in-home wireless high-speed broadband to Stoneridge Apartments with a limited budget, PCs for People needed to look beyond traditional fiber-to-the-home (FTTH) deployments to solve the problem. It partnered with InCoax Networks.

When PCs for People started surveying the property, it quickly found two things: existing fiber and coax.

The fiber was present from an existing DISH network that AT&T had purchased. However, the fiber was no longer operational. It was run underground from a central location in a laundry room closet to each of the 13 buildings on the property and connected through an exterior box with coax to every apartment.

Esselman found that the condition of the existing coax was still sound. "As we were exploring our options on how to get these units connected with reliable service, fiber over coax became an option." PCs for People now uses InCoax Multimedia over Coax Alliance (MoCA) adapters to deliver service to each unit.

However, getting the coax and the fiber operational was a long process. To make the fiber usable, PCs for People finally "had to have a local electric contractor re-terminate every one of the fiber cables," Esselman says. "We also re-terminated every piece of coax for 260 apartments at the exterior box and where it terminated in the apartment."

A fiber switch connected the incoming trunk fiber to the 13 main buildings with individual fiber cables.

PROPERTY OF THE MONTH HIGHLIGHTS
~ Stoneridge Apartments in Pflugerville, Texas ~

- Communitywide Wi-Fi and in-home broadband
- 256 two-, three- and four-bedroom apartment homes
- Outdoor swimming pool and playground area
- On-site fitness center

PCs for People re-terminated every piece of coax for 260 apartments at the exterior box and where it terminated in apartments.

Control units (DPU) at each building facility connect fiber to the apartments using the existing coaxial network to provide high-speed broadband to the tenants.

"It was very labor-intensive but a great learning experience for us because it showed how little regard there was for efficiency when the property was originally built," Esselman says.

PCs for People did not cut corners. By deploying fiber to each building and utilizing the existing and fully functional coaxial network, previously used for satellite TV, it now provides fiber-like broadband service to tenants.

The company designed a network with sufficient capacity for years to come: It includes 2.5 Gbps to each building on the property and 40 Gbps of routing capacity. By building out a fiber network that can initially support 1 Gbps, every apartment will be able to access up to 100 Mbps speeds and the ability to stream on more than 10 devices.

Hustad says being able to leverage the existing coax infrastructure was beneficial for a number of reasons. It reduced installation time in each apartment by 10 to 15 minutes, and "it was a great cost savings for us," she says. Preliminary calculations showed an average in-building total installation cost dropped from $440 per apartment with fiber to $125 per apartment by reusing the existing coaxial cabling infrastructure.

PCs for People's ability to leverage and extend the existing infrastructure resulted in a less disruptive installation process. "We were able to notify residents when the work was going to be done," Christinia says. "Communications is key, so that made things go much more smoothly."

EVOLVING MOCA

The Stoneridge deployment leverages MoCA specifications that allow providers to deliver broadband over existing coax.

MoCA continues to evolve its specifications, including MoCA Link, a point-to-point coax connectivity bridge for managed services to work, learn and stream. MoCA Link provides a symmetrical, multi-gigabit, sub-millisecond latency, point-to-point coax link for broadband services. It is now looking to develop a 10 Gbps specification.

Jim Crammond, president of MoCA, says that a provider's ability to reuse existing coax wiring in a multiple-dwelling-unit (MDU) property provides two key benefits: lower cost and minimal impact on residents.

Because all coax feeds in MDU properties generally go down to a basement or central location, it's possible to bring fiber to a building and use MoCA to distribute the fiber network to each apartment.

"By doing this, you don't have to run fiber to each apartment, and you're reusing existing coax," Crammond says. "This provides less disruption, and it reduces the installation cost."

But providing a platform for connectivity is just one element that MoCA can account for in an existing MDU setting. Its collaboration with the Broadband Forum can provide network management tools to providers such as PCs for People.

"Through our work with the Broadband Forum, we can standardize data models to make it easier for service providers to manage the network," Crammond says. "We are also working on technical reports TR-181 and TR-419, which will enable a fiber access extension over copper."

REPLICATING THE MODEL

The Stoneridge project is now complete, and Dominium hopes to replicate the model for broadband in other parts of Austin and other markets. With much of its focus on affordable housing, Husted says the company is focused on providing broadband access to residents in other parts of the city.

Dominium has already signed another deal with PCs for People to wire another existing building in the city for broadband.

"The internet-for-all concept is taking off, and we want to be a part of that," Christinia says. "As the nation entered the COVID-19 pandemic, we asked what we can do for our residents to provide them an amenity that other apartments nearby don't have."

The answer, she says, was communitywide Wi-Fi. "It was a service our residents would not be able to find elsewhere."

Though a new Wi-Fi option is undoubtedly compelling, low-income residents are often not immediately willing to access a new service, even if it's free.

"We know low-income households are accustomed to deals being thrown at them, but they lack a lot of trust because typically those things get

pulled away from them, or after two years, they then are required to pay $50 a month," Esselman says. "There's a lot of skepticism with a free deal."

He adds that PCs for People will tell residents it will offer broadband for $15 a month, but the cost to residents will be $0 because the development company will pick up the tab.

"It makes the conversation more believable for them and easier for them to understand because they still have to enroll," Esselman says. "They have to agree to the terms, and many people are unwilling to do it unless they feel trust with the provider."

DRIVING UP OCCUPANCY

Christinia says the Wi-Fi service has become a new essential amenity to attract and retain residents. As of March 2022, 230 units were occupied, up from 128 units in 2019 before PCs for People began to plan the free-service offering.

When Dominium acquired Stoneridge, occupancy was at 90 percent, but it quickly dropped to 50 percent when the COVID-19 pandemic hit.

"After we acquired Stoneridge, we wanted to increase rental pricing, so Dominium offered everyone $1,000 to move out pre-COVID-19," Christiana says. "When COVID-19 hit, we weren't leasing as quickly, so we had to come up with other ways to create value for our community and set ourselves apart from our competition."

Dominium found that offering free Wi-Fi was an amenity that could increase value to its community. The free Wi-Fi offering drove Stoneridge's occupancy rate back into the 90 percent range. "Going to free Wi-Fi was the icing on the cake," Christiana says.

VITAL STATISTICS

Property Description: Conveniently located in the heart of Pflugerville, Texas, a suburb of Austin, the Stoneridge Apartments community is a 256-unit housing complex across a 13-building site with an outdoor swimming pool, a playground area, and an on-site fitness center. It offers free communitywide and in-home Wi-Fi provided by PCs for People.

Demographics: Low-income residents

Greenfield or retrofit? Retrofit. The installation connected the newly laid underground fiber trunk fiber to a fiber switch at the 13 apartment buildings, pool house and learning center.

Number of units: 256

Style: Mid-rise

Time to deploy: 20 months: Stoneridge began to define its network requirements in September 2019, and the Wi-Fi service went fully live in May 2021.

Date services started being delivered: Service began on Feb. 13, 2021, and went 100 percent live in May 2021.

Special property requirements: There were zero-touch provisioning, self-install and self-maintenance requirements because of COVID-19 precautions.

LESSONS LEARNED

What was the biggest challenge? The fiber cable for each building ran underground to a laundry building. The initial objective was to replace the coax portion of the network and have GPON in each apartment. Deploying fiber from the wall cabinet to each unit was too expensive. The consensus was to use InCoax MoCA Access nodes in each outdoor wall cabinet. A 10G fiber switch was installed in the laundry room and ensured the 13 buildings were connected through the existing fiber network. Fiber performance was extended from the wall cabinet to the TV outlet, reaching symmetrical internet speeds of up to 1 Gbps without pulling new cables or fiber to the respective apartments.

What were the most significant successes? PCs for People's solution resulted in free Wi-Fi for all residents and guests in each unit and a common area. A complete network teardown and rebuild was avoided. Installation of FTTB and products with MoCA Access technology while using existing coax wires for network connectivity and access was cost-effective. Gigabit and multi-gigabit broadband networking are now available. The installation of MoCA Access nodes was completed in a minimal amount of time. The home modem installation was self-installed by each apartment owner, so installation costs and subsequent building and tenant disruption were kept at a minimum by using existing coaxial cable infrastructure.

Stoneridge Apartments now has symmetrical, high-speed, 1 Gbps broadband internet and can be upgraded to 2.5 Gbps thanks to PCs for People's application of InCoax Networks products based on the MoCA Access 2.5 standard and the Broadband Forum's TR-419 standard.

What was done to limit disruption during deployment? PCs for People minimized resident disruption by leveraging the existing coax and fiber infrastructure. The coax cable network originated and connected the fiber to the coax network that extends to each apartment's coaxial cable outlet. In-home access modems were connected to the existing coax outlets the tenants installed themselves. Because the coax outlet is near each apartment's media hub, additional apartment wiring was unnecessary. Reusing the existing coax and self-installing InCoax's MoCA Access 2.5 platform to Ethernet bridges connected to a wireless router eliminated the need for additional installation visits. Self-installations also decreased installation costs and kept tenants safe during the COVID-19 shutdown.

What feedback does the leasing/sales office get from residents/guests? Feedback has been positive. Residents report they can now work

Leveraging the exisiting coax infrastructure reduces installation time, costs and disruption to residents. It also delivers higher flexibility and multi-gigabit speeds.

from home thanks to the high-speed network. At least 10 families with kids use Wi-Fi for schoolwork.

What should other owners consider before they get started on a similar deployment? Four networking necessities should be considered before any build:

1. Installation at gigabit and future multi-gigabit network speeds without rip and replace in-unit requirements
2. Low per-unit installation costs that do not exceed existing networking subsidy programs, including the Affordable Connectivity Plan, which provides a one-time subsidy of $100 for a device and up to $30 per month to pay for internet services
3. Limited to no congestion with existing wireless networks
4. Self-install at the unit-tenant or subscriber level for cost reductions at installation and ongoing network maintenance.

By reusing existing copper or coax infrastructure to extend fiber gigabit services with minimal construction work, fiber-to-the-extension-point (FTTep) no longer requires new infrastructure installation, saves costs and time, and delivers higher flexibility and multi-gigabit speeds. Reusing coaxial networks can provide gigabit or multi-gigabit speeds, reducing the ISP's deployment costs and increasing fiber deployment rollouts. The cost-benefit of installing a MoCA Access DPU and modems significantly reduces capex and offers a viable alternative to FTTH installations in MDUs.

SERVICES

Services offered or planned on the network: High-speed internet access. Leveraging the existing fiber and coax infrastructure, PCs for People built a network that can support two main speeds: 2.5 Gbps to each building on Stoneridge Apartments' property and 40 Gbps routing capacity. A 1 Gbps fiber network was deployed to each of the 256 apartment homes. PCs for People also offers free Wi-Fi in the common area.

Is there a marketing agreement with the property owner? Yes. PCs for People has an exclusive contract with Dominium.

Does the agreement include an incentive such as a door fee or revenue share? Dominium fully pays the monthly subscription fee for each resident who enrolls in the PCs for People network. There are no other incentives.

How do the service provider and owner work together to market the services? PCs for People has been on-site regularly, following an in-person launch in May 2021. Dominium supports the creation of posters, flyers and resident notices. Regular service visits from the PCs for People tech team to the property help build word-of-mouth awareness.

Is there a bulk-service agreement? If so, what services are included? Can residents upgrade from the bulk services? The only service provided is in-home Wi-Fi. There is no upgrade option.

Can residents choose among multiple service providers? Residents can purchase separate services from Consolidated and Comcast.

Is the point of contact for resident technical support the property manager, the service provider, or a third party? The service provider, PCs for People, has a service number for residents to call.

BUSINESS

Who owns the network? The property owner owns the wiring and PCs for People manages network maintenance for the residents.

Is there evidence that the network helps attract residents, retain residents, increase property values, etc.? Yes. As of March 2022, 230 units were occupied, up from 128 units when Stoneridge Apartments began to define its network requirements in September 2019.

TECHNOLOGY

Broadband architecture: PCs for People built a network that includes two main elements to support broadband: home run coax to each apartment unit and fiber to the edge of the building.

Where is the fiber terminated? The fiber is terminated at the edge of each building. Fiber to each building is connected to the laundry room core network.

Methods for running cables between buildings: PCs for People installed fiber to the edge of each building, then installed an InCoax Networks fiber to coax converter. The fiber is joined in the laundry room core network.

Vendors/products

- InCoax Networks (coax gateways)
- PCs for People (internet services) ❖

Sean Buckley is the editor-in-chief of ***Broadband Communities****. You can contact him at sean@bbcmag.com.*