

## Economic Mobility Catalog: Case Study

# Subsidized broadband internet access: Chattanooga, TN



MORE ABOUT THE STRATEGY USED IN THIS CASE STUDY: [Broadband access and digital skills](#)

## At-a-Glance



### Summary

- In 2012, Chattanooga's municipally-owned electrical and telecommunications utility, EPB of Chattanooga, completed construction of one of the highest-performing fiber optic internet networks in the United States. EPB began offering high-speed internet access at relatively low cost, but it remained unaffordable and inaccessible for low-income and rural residents. When COVID-19 necessitated online schooling in March of 2020, nearly 45,000 students -about a third of Hamilton County Schools' enrollment -lacked internet access and could not attend virtual classes.
- In July of 2020, The Enterprise Center, a local nonprofit, coordinated the efforts of EPB, local government leaders, and private funders to launch HCS EdConnect. The program offers free high-speed internet installation and service to low-income Hamilton County Schools students and their families. HCS EdConnect has committed to providing families with internet service for ten years, with the intention to offer it permanently.
- Keys to HCS EdConnect's success included Chattanooga's past investments in municipal broadband infrastructure, which reduced the cost of enrolling families in the program; local leaders' long-standing commitment to increasing internet access; and strong customer service and a commitment to provide internet for at least ten years, which built trust with eligible families.
- Obstacles HCD EdConnect faced included challenges communicating with families during the COVID-19 pandemic, difficulty scaling customer service and installation teams fast enough to meet demand, and efforts by the state legislature to limit EPB's service area.

## Results and Accomplishments

<p><b>15,368</b></p> <p>As part of its collaboration with Hamilton County Schools, EPB has delivered free high-speed internet to 15,368 students in 8,522 households through November 2021. Over 25,000 residents have gained access to WiFi as a result.</p>	<p><b>98%</b></p> <p>According to a Boston College analysis, 98% of enrolled families used HCS EdConnect to interact with their child's school; 83% used the service to get information on their child's academic progress; and 82% used it to interact with their doctor.</p>	<p><b>10</b></p> <p>HCS EdConnect will provide all eligible families with broadband access at no cost for a minimum of the next decade, with the intention to extend the program beyond that timeframe.</p>
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- **Connecting 8,000+ families to the internet — for the next decade:** Without EdConnect, thousands of families would not have been able to provide a stable enough internet connection for their children to participate in virtual learning during the pandemic. EdConnect looks beyond the pandemic, too, making a 10-year commitment to families in need (as long as a student is enrolled in the district). Through November 2021, 15,368 students in 8,522 households had received in-home internet connections at no cost through EdConnect.
- **Demonstrating the value of municipally owned broadband:** Chattanooga was uniquely prepared to connect students in need to the internet because it had made a major investment in fiber optic infrastructure a decade earlier. As a result, EPB could work in partnership with the city and county governments, the school district, and private funders to quickly mitigate an educational crisis (connecting students to remote learning and eliminating the homework gap) that continues to plague cities across the country.
- **Rapidly expanding Quick Connect hot spots:** In addition to home installations, HCS EdConnect facilitated the rapid expansion of Quick Connect hotspots, ensuring more residents than ever before would have some form of internet access. Between March and August 2020, EdConnect facilitated the launch of 98 new hot spots across Hamilton County, raising the total to 162 in the region.
- **Recognized as a national leader in increasing digital access:** Given their close collaboration, the City of Chattanooga and Hamilton County were together named a “Digital Inclusion Trailblazer” by the National Digital Inclusion Alliance in both 2020 and 2021. The award recognizes the area’s leadership in promoting digital literacy and broadband access. It is the latest in a series of such awards for Chattanooga and Hamilton County from national organizations.



## What was the challenge?

- **The nation's best internet, for some:** Chattanooga became a national leader in broadband infrastructure following the global financial crisis in 2008. Using a combination of local bonds and American Recovery and Reinvestment Act funds, Chattanooga's municipally owned utility, EPB, began delivering fiber optic internet at a relatively low cost to thousands of residents in the area. However, many low-income and/or rural residents still could not afford access.
- **COVID-19 exacerbates costs of the digital divide:** In the Hamilton County Schools district (which includes Chattanooga), roughly a third of the district's 45,000 students did not have home access to stable internet. When COVID forced schools online, one in three students could not attend virtual class.
- **State law preempts free municipal broadband:** Tennessee state law prohibited EPB from delivering fully subsidized internet service to Chattanooga residents. Before COVID, in an effort to expand internet access in the area while complying with the law, EPB ran a discounted internet program called NetBridge for some low-income families. Still, cost remained a barrier, and the program reached less than 10 percent of eligible households.
- **Building on a temporary solution:** Within days of COVID pushing schools to remote learning, Chattanooga leaders implemented an emergency solution: installing 98 Quick Connect hotspots providing residents with free high-speed internet. The hotspots were located in church and restaurant parking lots, outside community centers, laundromats, public housing courtyards, and other public gathering spots. While the hotspot solution provided students with the opportunity to download assignments — and offered broader community access — it was not a viable method for sustaining full-day, interactive learning.

## What was the solution?

- **Connecting students to the internet at no cost:** HCS EdConnect is a program that delivers high-speed internet to low-income public school students across Hamilton County at no cost to their families. This is done primarily by installing new routers and wiring in eligible families' homes and then waiving all fees for ongoing service.
- **Local leaders collaborate to leverage existing community assets:** The program is a partnership between EPB of Chattanooga (the municipally owned internet provider), the City of Chattanooga, Hamilton County, Hamilton County Schools, local innovation nonprofit The Enterprise Center, and several private funders. Together, the partners leveraged Chattanooga's municipally owned fiber optic network to provide broadband to families in need. Doing so allows students to connect to virtual learning, enables educators to expand learning opportunities outside of the classroom, and provides parents with access to the internet to support their professional and personal needs.

- **Committing to long-term broadband service:** While a product of Chattanooga's COVID response, HCS EdConnect provides families with a minimum of ten years of high-speed internet at no cost (as long as a student remains in the district). EdConnect partners intend to extend this service permanently.
- **Reaching as many eligible families as possible:** To maximize program impact, Chattanooga uses a range of criteria to determine eligibility. These include free/reduced price lunch recipients, those defined as “economically disadvantaged” by the State of Tennessee, and those receiving SNAP or TANF benefits. EPB clears the balances of enrolled families who already had internet access and ensures they are not charged for internet service moving forward.
- **Raising awareness in schools:** To ensure families are aware of their eligibility for EdConnect, which is in an opt-in service, Hamilton County Schools staff proactively share information on how to sign up. In some schools, counselors call each eligible family to inform them of the program.
- **Investing in customer support capacity:** EPB dedicates a significant portion of its customer service capacity to scheduling installations and troubleshooting start-up problems for EdConnect customers. Shortly after the program launched, EPB hired six new technicians and customer service representatives to ensure each family could gain access stable internet in a short timeframe.

## What factors drove success?

- **Leveraging municipal broadband:** By investing in fiber optic infrastructure a decade earlier, Chattanooga had the capacity to rapidly deliver high-speed internet to eligible families with minimal friction. For instance, the cost of delivering internet service to newly enrolled families was relatively low because little new construction was necessary. This allowed for a clear fundraising target to be set and reached quickly. Instead of a major construction project, the majority of the physical work necessary was the installation of a router in each eligible family's home, which could be completed in under an hour.
- **Building on a culture of investing in tech to promote opportunity for all:** Chattanooga's public, private, and nonprofit leaders have a well-established history of reducing digital disparities. This dynamic helped pave the way to rapidly mobilize funders and secure commitments from key partners. For instance, since 2018, through its One to One Initiative, Hamilton County Schools has covered the cost of a laptop for any student in need in second grade or above. Similarly, through the Tech Goes Home program, The Enterprise Center has provided free digital literacy classes to 5,900 residents since its launch in 2015.
- **Making a 10-year commitment:** Some HCS EdConnect-eligible families had never before been able to access high-speed broadband due to cost, leading to skepticism and registration hesitancy. To demonstrate their commitment to reducing digital disparities during the pandemic and beyond, HCS EdConnect partners ensured internet service would be delivered at no cost to eligible families for at least 10 years (as long as a student is enrolled in the district), with the intent to have it extended permanently. As a result of the long-term commitment, more families have signed up for HCS EdConnect.

- **Deep stakeholder collaboration and frequent communication:** A range of HCS EdConnect stakeholders convened frequently to identify pain points and next steps. These included The Enterprise Center, which operated as a convener and fundraiser; the Hamilton County Schools district, which identified eligible families and recruited them to the service; EPB, which provided families with internet service and customer support; representatives from the Mayors' Offices of Chattanooga and Hamilton County, which provided funding and helped coordinate the partners' work; and private funders, who ensured the project remained financially sustainable throughout the pandemic and beyond.
- **Prioritizing customer service:** Given both the urgency and complexity of EdConnect, EPB and the Hamilton County Schools district worked together to develop a clear customer service plan. All parent-facing school staff members were provided with key information (such as eligibility criteria and points of contact for technical problems), while EPB expanded its customer service team to schedule more installation appointments and answer questions from new customers. This dual effort ensured families could gain reliable internet access quickly.

## What were the major obstacles?

- **Communicating and coordinating with families:** In the midst of a series of major crises created by the COVID pandemic, clearly communicating the value of HCS EdConnect to eligible families proved challenging in some schools. For instance, some families expressed concerns about hidden fees, while others questioned whether service could be cut off suddenly. This type of hesitancy required a significant uptick in community outreach and engagement, such as providing school staff with fact sheets about the program.
- **Meeting a sudden rush of demand:** With thousands of families suddenly eligible for EdConnect, EPB's customer service and installation teams were extended beyond capacity as they worked to provide internet connections as quickly as possible. While EPB hired new technicians to help meet customer demand, some families experienced delays lasting several weeks before installation could occur.
- **State limits EPB footprint:** In coordination with private providers, the Tennessee state legislature passed a series of preemption measures limiting EPB's ability to expand its footprint to certain areas of Hamilton County, including several large apartment complexes. As a result, EPB was restricted to serving residents within a strict geographic boundary that did not match that of the school district. This forced HCS EdConnect to deploy lower-quality hotspots (at a higher cost to the program) to a small group of families instead of the high-speed service.



**2008**

## **EPB secures bond, begins construction of Chattanooga Smart Grid**

In Chattanooga, severe storms had regularly caused major service disruptions to the electric grid for decades. To address this, local government leaders sought to upgrade the system with advanced technology. Recognizing the unique opportunity to make major infrastructure investments, Chattanooga builds a fiber optic internet network that helps to support the grid. The investment also secures Chattanooga's position as a national leader in internet speed. A capital-intensive project, EPB begins construction with \$169 million raised in local bond revenue.

**2009**

## **EPB awarded \$111-million grant for Smart Grid from U.S. Department of Energy**

With fiber optic infrastructure construction already underway, the U.S. Department of Energy provides \$111 million in American Recovery and Reinvestment Act funds to accelerate development of the network. The infusion of funding cuts seven years off the expected timeline for the Smart Grid to become fully operational — 2012, instead of the original target of 2019. Today, EPB provides internet to more than 120,000 customers, far exceeding its original breakeven target of 30,000.

**MARCH 2013**

## **Local government leaders leverage fiber optic infrastructure to spark economic growth**

Andy Berke, a vocal champion of expanding internet access to all residents, is elected Mayor of Chattanooga. He seeks to build on the fiber optic infrastructure spearheaded by the city's previous mayor, Ron Littlefield, to bring new jobs and economic growth to the city. As the nation's fastest internet becomes widely available to residents, local leaders explore ways to close the digital divide and increase internet access.

**2015**

## **Digital access initiative replicated in Chattanooga**

Mayor Berke and his Hamilton County counterpart, Mayor Jim Copping, work with Chattanooga's leading nonprofit innovation organization, The Enterprise Center, to increase internet access. They work together to replicate Boston's evidence-based Tech Goes Home initiative. The program, which has now served more than 5,900 children and adults, provides 15 hours of free digital skills training and connects residents to subsidized internet service (\$10-15/month) and devices (Chromebooks and iPads, for instance, cost \$50).



**MARCH 2020****COVID-19 crisis hits, Quick Connect access points deployed**

As the COVID crisis forces Hamilton County Schools to switch to remote learning, EPB quickly installs 98 new WiFi hotspots across the region, in addition to the 64 already in service. Located primarily in COVID-safe public spaces like church parking lots and outside community centers, the hotspots provide students with a connection to their schools, allowing them to upload and download assignments and other materials. However, Chattanooga leaders continue to search for a more sustainable solution so that children can learn from home.

**JULY 2020****HCS EdConnect, powered by EPB, launches**

With The Enterprise Center coordinating a partnership between the county, city, school district, public utility, and funders, EPB begins installing routers in homes and delivering free WiFi within months of the COVID crisis. Within a year, HCS EdConnect provides high-speed internet to more than 15,000 students and their families (roughly 25,000 people total) for at least the next decade. “The impact of HCS EdConnect goes far beyond the benefits it provides for students,” said Hamilton County Mayor Jim Coppinger. “The whole family can use the internet to access online services, work remotely, seek employment, and access entertainment.”

**AUGUST 2020****Economic impact report on fiber optic infrastructure published**

The University of Tennessee at Chattanooga conducts an independent evaluation of the Smart Grid’s economic impact on the region in its first decade. The results underscore the investment’s impact: researchers estimate that the fiber optic network can be directly tied to \$2.69 billion in community benefit, including 9,516 new jobs and lower local unemployment (effectively keeping in place nearly 500 jobs per year).

**APRIL 2021****Tim Kelly elected Mayor of Chattanooga**

Local entrepreneur Tim Kelly is elected Mayor of Chattanooga, and he quickly pledges to continue ramping up HCS EdConnect alongside Hamilton County Mayor Coppinger, who has held office since 2011. “We are showing the rest of the country what it looks like to close the digital divide in education,” Mayor Kelly said in June 2021. “HCS EdConnect is a comprehensive solution, and since the partners have made a 10-year commitment to the program, this will be a lasting solution.”

JULY 2021

### Preliminary EdConnect user survey results published

Boston College researchers release preliminary findings from a randomized survey of households eligible for EdConnect. Initial results indicate that 98 percent of enrolled HCS EdConnect families used the service to interact with their child's school; 83 percent used it to get information on their child's academic progress; and 82 percent used it to schedule medical appointments or access medical test results.

## Implementation Process



### How did leaders confront the problem?

- **Working to close the digital divide:** Since fiber optic network construction began in 2008, Chattanooga leaders sought ways to steadily expand the impact of the utility. Given the significance and size of the public investment, civic and local government leaders sought interventions and programs to increase internet access to all residents.
- **Using municipal broadband to support economic mobility:** Before the COVID pandemic, Chattanooga leaders increasingly discussed how they could support initiatives to improve upward economic mobility. To do so, they began evaluating solutions to ensure low-income residents could take advantage of the city's uniquely powerful broadband infrastructure. While civic leaders began to address the digital divide through programs like Tech Goes Home, thousands of families remained without stable internet access.
- **COVID-19 creates an urgent crisis for families without internet access:** Within days of COVID shifting learning to a remote format, then-Hamilton County Schools Superintendent Dr. Bryan Johnson recognized that connecting students in need to the internet was a top priority. Quickly, civic leaders convened to discuss solutions.
- **Developing a long-term solution:** In the immediate aftermath of schools switching to remote learning, EPB launched 98 new Quick Connect WiFi hotspots, which would allow students to download files and end reliance on hard copies of school materials. However, the hotspots were not conducive to video chats or full-day learning. Chattanooga leaders zeroed in on a public service they had long discussed: providing internet at no cost to families in need.

### How was the strategy designed?

- **Free high-speed internet for families:** To allow as many students as possible to connect to remote learning, HCS EdConnect provides free internet router installation, fiber optic wiring, and ongoing service to low-income families with a child enrolled in Hamilton County Schools. The internet is delivered through the City of Chattanooga's publicly owned utility, EPB. The typical connection speed (300Mbps) is roughly ten times faster than those of comparable subsidized educational services from private providers. For eligible families who already have EPB internet service, charges are waived. Families remain eligible as long as their child remains in the district.



- **A 10-year commitment to build trust:** To build trust among eligible families, Chattanooga leaders designed HCS EdConnect as a 10-year program at minimum. Doing so allows families to plan for the future knowing they have a reliable internet connection for school, work, health care, and other needs.
- **Customer support at school:** To ensure families were aware of the program and understood eligibility, designated points of contact at each HCS school are equipped with fact sheets and other informational resources. They then distribute the resources to help families enroll in HCS EdConnect, answer questions, and connect them to EPB's customer service team.
- **Expanding EPB's intake capacity:** To expedite scheduling and installing internet routers, EPB hired 6 new technicians and customer service representatives. Doing so helped to facilitate more students participating in online learning sooner.
- **A workaround to reach everyone:** Because of state laws preventing EPB from serving all parts of Hamilton County, roughly 2 percent of HCS EdConnect-eligible families cannot receive EPB connections. Determined to ensure all students could participate in remote learning, EdConnect partners worked with private providers to deliver temporary WiFi hotspots that could support virtual learning.

## How was the approach funded?

- **Funding upfront infrastructure investments:** HCS EdConnect costs are split into two major buckets: upfront infrastructure (such as new routers) and ongoing operational costs (primarily offsetting the cost of internet delivery). As of December 2021, HCS EdConnect has raised roughly \$9 million in upfront infrastructure, including \$1.5 million each from Hamilton County and the City of Chattanooga, as well as \$3 million through the CARES Act and a grant contract with the State of Tennessee; and \$1 million each from Hamilton County Schools, BlueCross BlueShield of Tennessee, and the Smart City Venture Fund (which includes several community and family foundations, such as the Benwood Foundation, Community Foundation of Greater Chattanooga, Footprint Foundation, and Robert L. And Katherine Maclellan Foundation).
- **Operational costs for the next decade:** A pillar of HCS EdConnect is its 10-year commitment to delivering WiFi at no cost to families. EPB estimated this cost at \$7.1 million over 10 years, the entirety of which the organization is committed to funding alongside Hamilton County Schools. In addition to WiFi access, this covers the costs of expanded customer service capacity.
- **Constructing the fiber optic network:** To build the Smart Grid and fiber optic network, the City of Chattanooga raised roughly \$280 million. This included \$169 million in municipal revenue bonds in 2008 and a \$111-million grant from the U.S. Department of Energy using funds from the American Recovery and Reinvestment Act in 2009.

## How was the plan implemented?

- **Raising the funds:** To launch HCS EdConnect, EPB first set a concrete fundraising target that would allow the company (which was prohibited by state law from delivering internet home service below the cost of delivery) to serve all low-income students. With a target of \$8.2 million in upfront costs, The Enterprise Center convened and rapidly secured commitments from Hamilton County, the City of Chattanooga, BlueCross BlueShield of Tennessee, and the Smart City Venture Fund. With \$6 million already in place by July 2020, EPB was financially prepared to install high-speed internet to families across the county.
- **Enrolling eligible families:** With funding secured, Hamilton County Schools staff launched a large-scale enrollment campaign to more than 8,000 eligible families. Outreach was primarily conducted by teachers and school counselors, who contacted eligible families directly. Hamilton County Schools also administered surveys via email to determine interest and identify any common questions. School staff members were provided with detailed fact sheets they could use to help families answer questions and schedule installation appointments. Many eligible families had already been identified for the NetBridge program, which provided subsidized internet service prior to COVID.
- **Expanding EPB's staff:** To meet the sudden rise in demand, EPB hired and trained 6 additional customer service representatives and technicians (who were responsible for laying new wire to connect certain properties and for installing routers in new customers' homes).
- **Connecting families to WiFi:** To connect families to the internet, an EPB technician conducts a home visit to install a router and any necessary wiring to support the fiber optic connection. Because Chattanooga had such an expansive fiber optic network already in place, most eligible families only required the new router, which can be installed and completely operational in under an hour.

## How was the approach measured and refined?

- **Ongoing program evaluation:** HCS EdConnect partners, led by The Enterprise Center, regularly evaluate the impact of no-cost broadband for families as remote learning and work needs continue to evolve. A top priority is demonstrating the impact of the service as part of the effort to extend the program beyond the original 10-year horizon. As a first step, The Enterprise Center commissioned Boston College researchers to conduct a survey of HCS EdConnect families in July 2021; the evaluation team expanded to include researchers at the University of Tennessee at Chattanooga and a local steering committee of community stakeholders in September 2021.
- **Benchmarking against other public internet models:** Staff from several HCS EdConnect partners continue to engage with other education-focused municipal broadband programs, such as in Chicago and Detroit, to share best practices and collaboratively solve challenges. Chattanooga's 10-year commitment, along with the high speed of the service, are uniquely strong among the models to date.

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## Learn more

- [HCS EdConnect overview](#)
- [The Enterprise Center overview](#)
- [Connected Nation EdConnect report](#)
- [Benton Society: Future of Broadband report](#)
- [Harvard Business Review: How to Close the Digital Divide in the U.S.](#)