

EXECUTIVE SUMMARY

Hall County, Texas

October 2021



PAGE 2	Overview – Chapter 01
PAGE 5	Infrastructure – Chapter 02
PAGE 9	Household Survey Results – Chapter 03
PAGE 14	Recommendations – Chapter 04



OVERVIEW *01*

Today, technology plays a pivotal role in how businesses operate, how institutions provide services, and where consumers choose to live, work, and play. The success of a community has become dependent on how broadly and deeply the community adopts technology resources, which includes access to reliable, high-speed networks; the digital literacy of residents; and the use of online resources locally for business, government, and leisure.

The Connected Nation Texas (CN Texas) Connected Program partnered with the Hall County Broadband Team to conduct a study designed to determine the availability of broadband infrastructure; how its residents are adopting and using broadband services; and what steps would have the greatest impact toward improving broadband access, adoption, and use across every sector locally.

Pursuant of this goal, between April 2021 and June 2021, Hall County conducted a comprehensive survey of broadband technology access and adoption across the community that collected responses from 147 households. CN Texas staff also met with community officials to determine community needs and to gather qualitative data for consideration in the study. Overall, the assessment was designed to identify issues and opportunities to close the local Digital Divide.

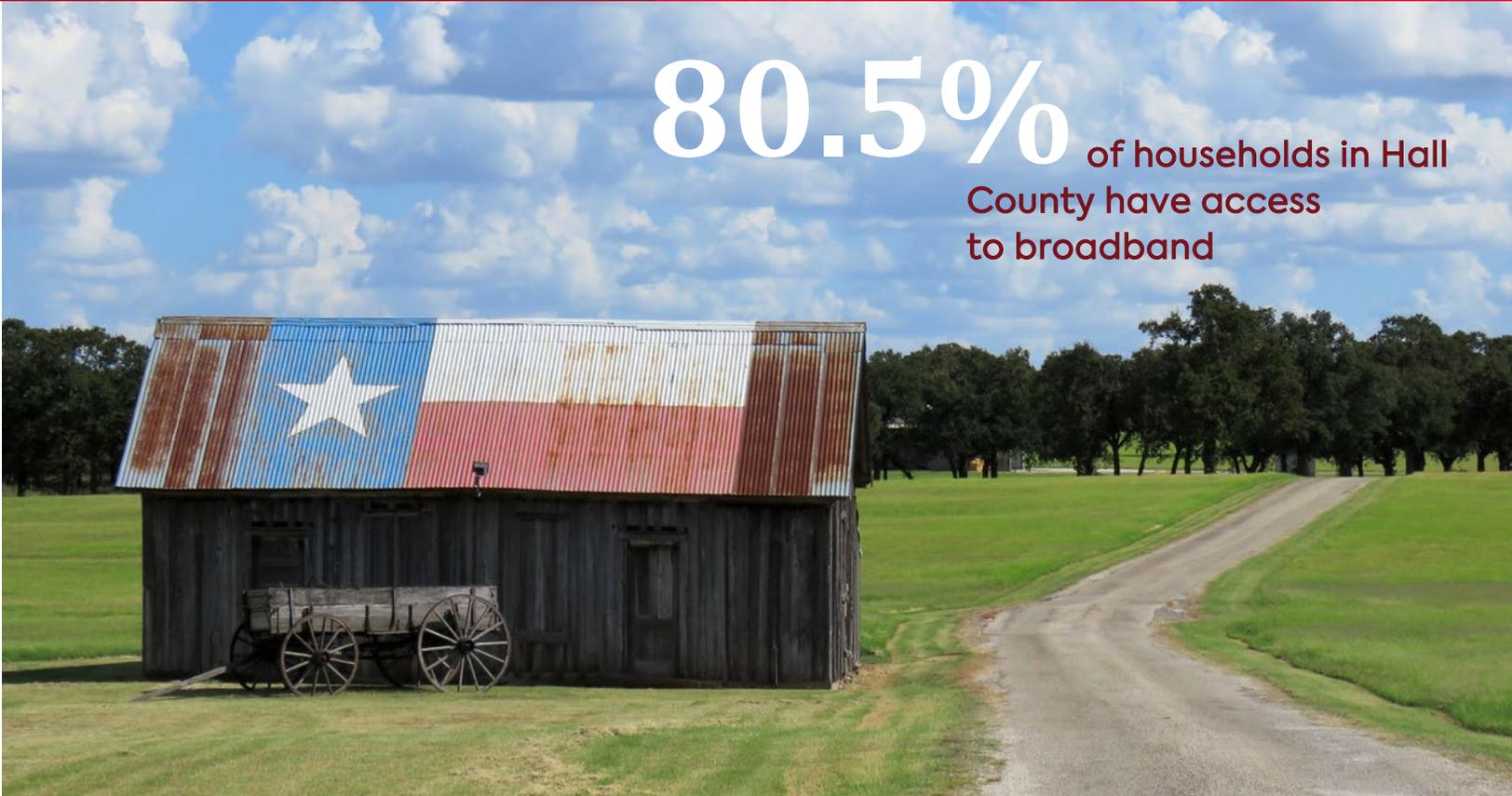
The following provides a summary of that assessment, as well as recommendations for improving broadband and technology access, adoption, and use.

To highlight key findings, CN Texas created an interactive map. It provides data on broadband availability in the community overlaid with survey data from the recent broadband assessment. To access the map, click [HERE](#).

HALL COUNTY, TEXAS QUICK FACTS	
Population	2,825
Households	1,744
Median Household Income	\$34,673
Poverty Rate	22.9%
Adults with a Bachelor’s Degree or Higher	15.9%
Homeownership Rate	65.3%
Hispanic or Latino	33.6%
Households with Broadband Access ¹	80.54%

Source: United States Census Bureau 2015–2019 American Community Survey and 2020 Decennial Census <https://data.census.gov/cedsci/profile?q=05000000US48191>

¹ The current FCC definition of broadband is a minimum of 25 Mbps download and 3 Mbps upload. This data is derived from Connected Nation Texas, July 2021. <https://connectednation.org/texas/planning/>



80.5% of households in Hall County have access to broadband

The average internet speed reported by households in Hall County (**13.7 Mbps**) is well below the speeds that the FCC defines as “broadband” (25 Mbps download and 3 Mbps upload).

Only **55%** of households in Hall County have access to internet service at speeds needed to run many modern applications (100 Mbps downstream and 10 Mbps upstream). Statewide, **92.05%** of households have internet access at this speed.

Hall County households **pay more** on average for access to the internet (**\$86.86**) than other Connected communities (\$71.15).

More than three out of five households and businesses (61% each), reported that they were dissatisfied with their current internet service. The top reasons for dissatisfaction were slow speeds, unreliable connections, and high prices.

More than nine out of ten households (**93.5%**) said they would like to have improved or additional options for home internet service.



INFRASTRUCTURE
RESULTS *02*

According to CN Texas broadband data initially released in July 2021, followed by additional public feedback, field validation, and provider input, nearly one in five households in Hall County does not have access to broadband at least 25/3 Mbps, the current definition of broadband set forth by the Federal Communications Commission (FCC). Broadband service in Hall County is concentrated around the communities of Lakeview, Memphis, and Turkey.

BROADBAND INFRASTRUCTURE QUICK FACTS

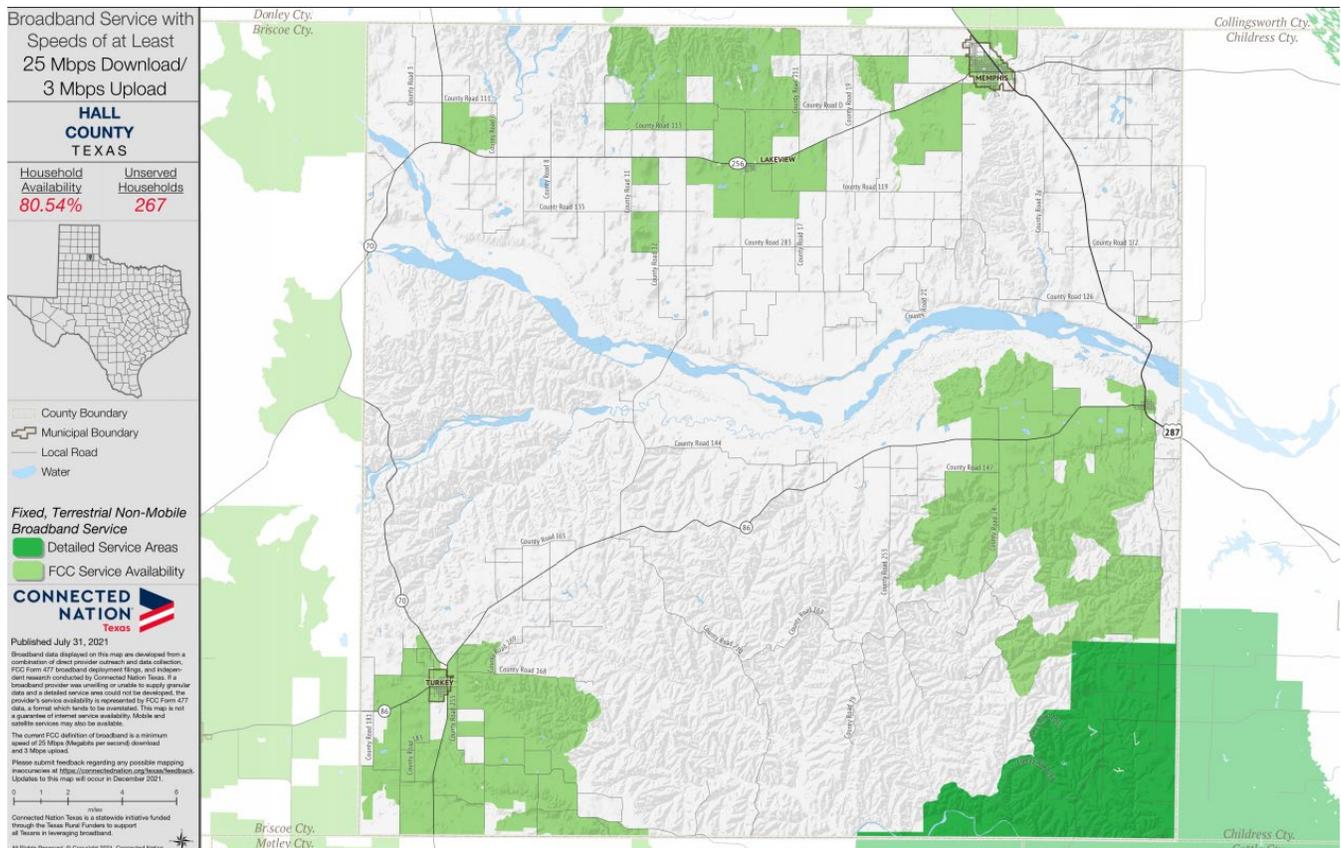
Unserved Households (25/3 Mbps)
267

Households Served (10/1 Mbps)
98.83%

Households Served (25/3 Mbps)
80.54%

Households Served (50/5 Mbps)
69.09%

Households Served (100/10 Mbps)
55.03%



You can access the full map as a PDF [here](#). Other portions of the county are served by internet service providers (ISPs) offering slower advertised speeds.

PROVIDER	TECHNOLOGY	MAXIMUM DOWNLOAD SPEED (Mbps)	MAXIMUM UPLOAD SPEED (Mbps)
AMA TechTel Communications	Fixed Wireless	25	3
Cap Rock Telephone Cooperative	Fiber	100	25
	DSL	10	1
Mid-Plains Communications	Fiber	200	100
Santa Rosa Telephone Cooperative, Inc.	DSL	25	5
TRANSWORLD NETWORK CORP	Fixed Wireless	15	5
Valor Telecommunications of Texas LP	DSL	200	100



267

Hall County households can't access broadband

What Is Broadband?

Mobile Broadband

High-speed internet designed for use on-the-go with seamless connectivity from one location to another.

Fixed Wireless

Broadband service provided between towers and customers using radio waves. Primarily found in rural areas.

Satellite

Broadband service provided by satellites orbiting the earth. Satellite service can be impacted by line-of-sight and latency.

Cable

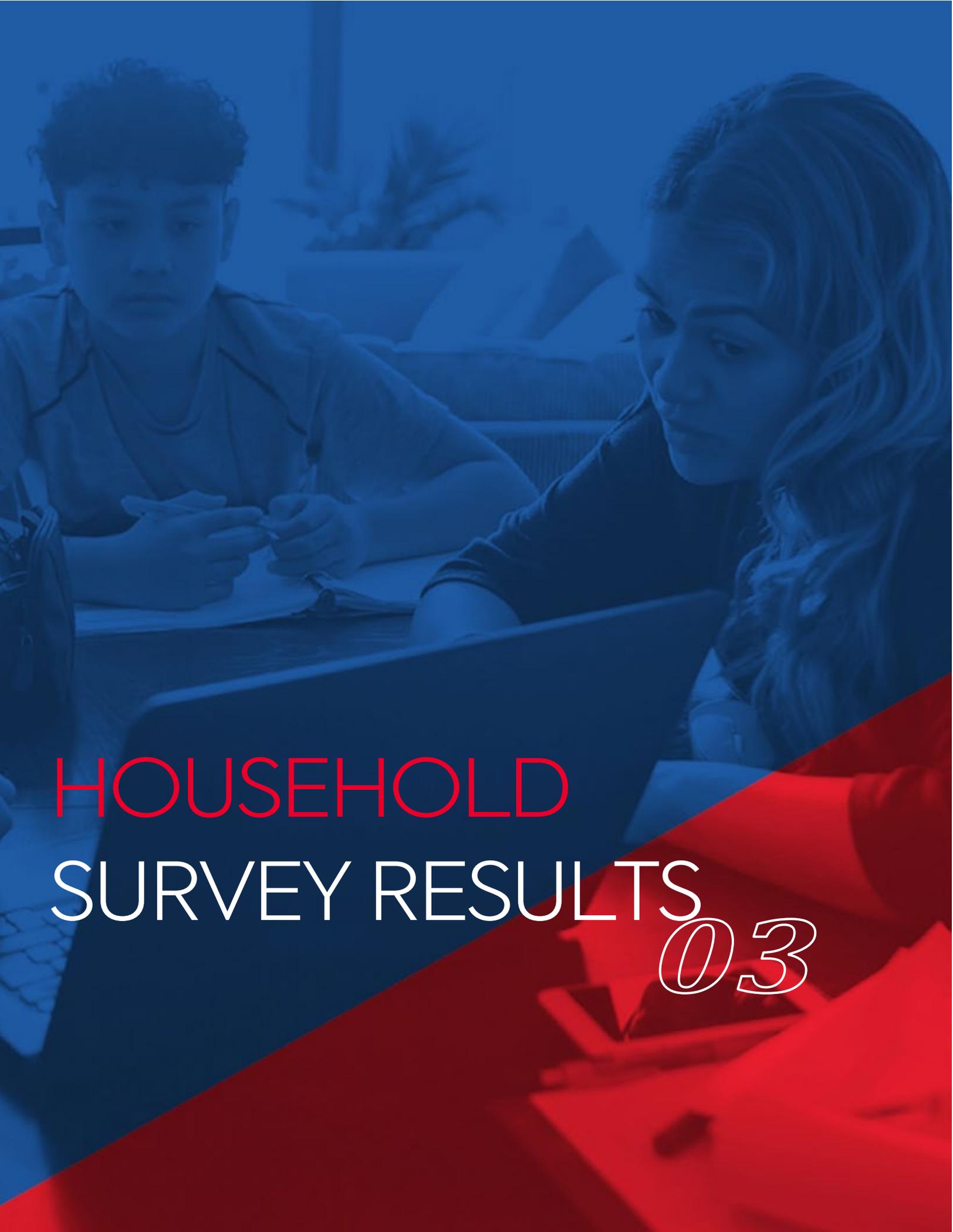
Internet provided by a cable television company over a mixed coaxial and fiber-optic network.

Fiber

Fiber-optic service uses transparent glass fibers to carry data across distances. Some customers can receive fiber connections directly to their home, but fiber is also used to transport data from communities to the broader internet.

DSL

Digital-subscriber line (DSL) is broadband delivered over a mixed network of fiber and traditional copper phone lines.



HOUSEHOLD
SURVEY RESULTS
03

HOUSEHOLD QUICK FACTS

Fixed Home Broadband Adoption
79%

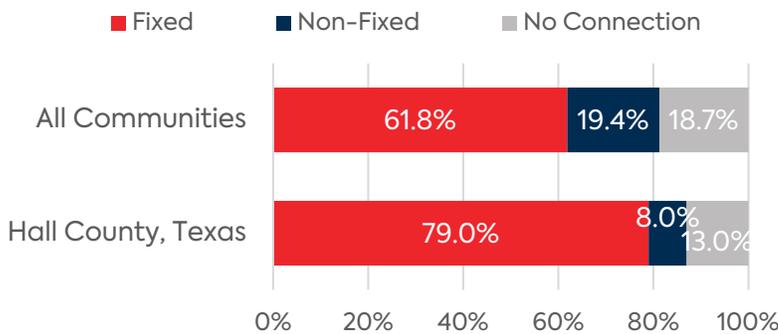
Average Monthly Internet Cost
\$86.86

Average Download Speed
13.7 Mbps

Households Satisfied with Service
39%

The following provides an overview of results from a broadband survey conducted in Hall County between April 2021 and June 2021. Altogether, CN Texas received 141 completed surveys from households across the county, and respondents provided insights into their internet connectivity, or lack thereof. Data from Hall County are compared to data from other rural Connected participating communities across Michigan, Ohio, Texas, and Pennsylvania to benchmark and identify areas for improvement.

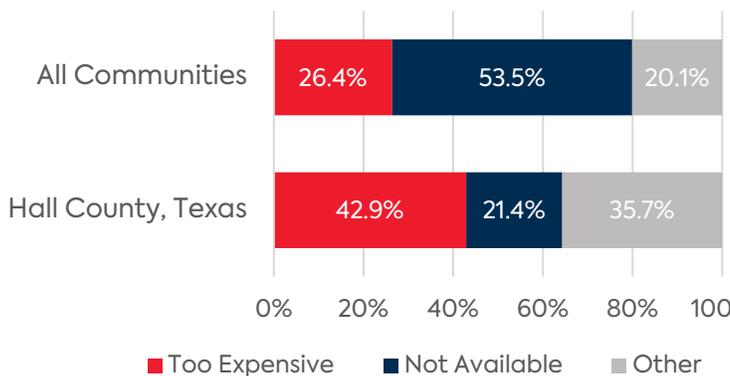
Home Broadband Adoption



ADOPTION

In Hall County, 79% of households that took the survey subscribe to fixed broadband service delivered via a cable, DSL, fiber, or fixed wireless technology. Only 8% indicate they have internet service delivered via dial-up, satellite, or a mobile device. This leaves 13% of residents without an internet connection at home.

Primary Barrier

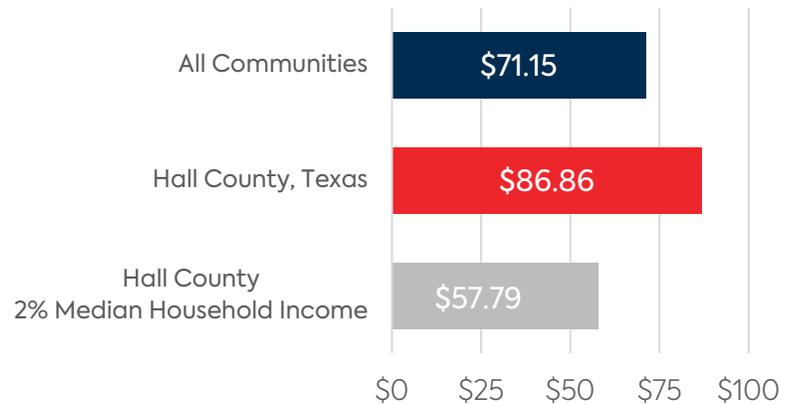


Among those without a home internet connection, 21.4% said they did not subscribe because broadband was not available to them, while more than four out of ten (42.9%) indicate that it was too expensive. In the “other” category, 28.6% indicated they have access to internet elsewhere.

CONNECTION DETAILS

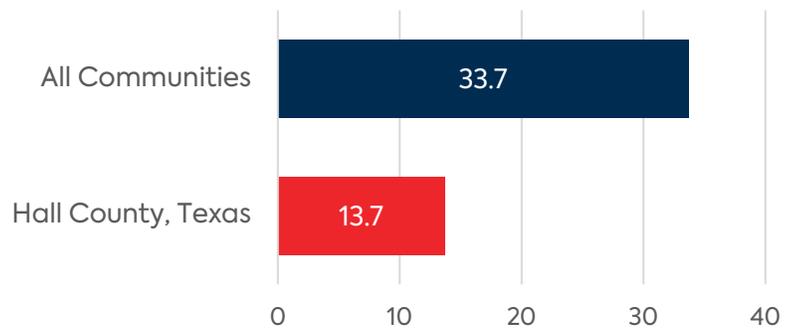
Two percent of monthly income is a recognized standard for measuring the affordability of a home internet connection. Respondents indicate that, on average, their internet connection costs about \$86.86 per month. This is higher than monthly cost in other communities (\$71.15). Two percent of the median household income in Hall County is \$57.79 per month. These results show that the average cost of service is unaffordable for many in the county.

Average Monthly Cost

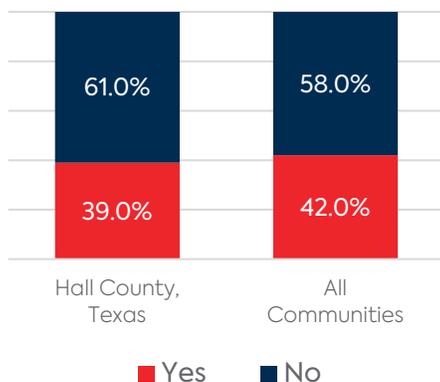


The FCC currently defines broadband as an internet connection with a download speed of at least 25 Mbps and upload speed of at least 3 Mbps. On average, respondents indicate that their connection's download speed is 13.70 Mbps, which is 20 Mbps slower than household connections in other communities and less than half the defined speed of broadband which is 25 Mbps.

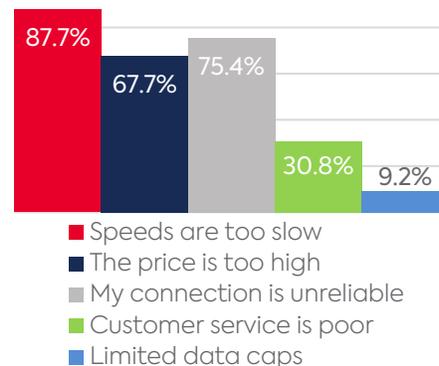
Average Speeds (Mbps)



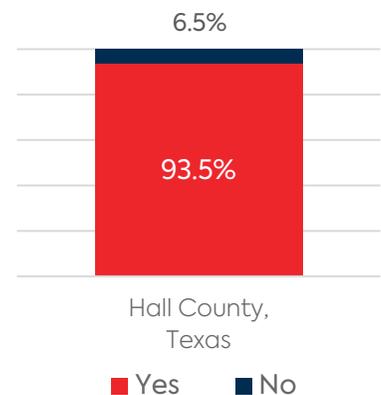
Does Your Internet Meet Your Needs?



Why Doesn't Your Internet Meet Your Needs?



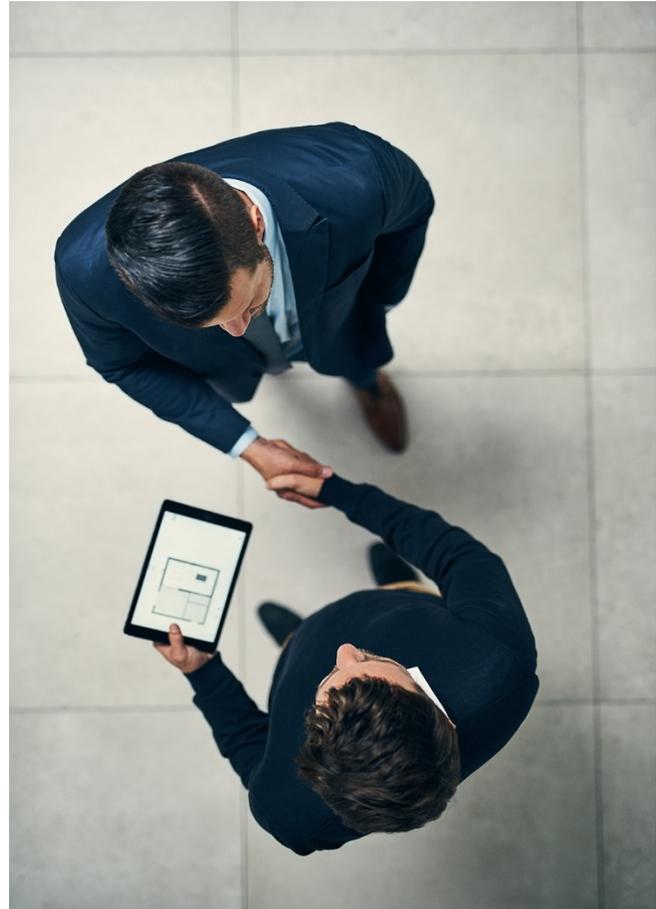
Are You Interested in More Choices at Home?



Competition provides residents with choices for service, allowing households the ability to switch providers if their current service does not meet their needs. Three out of five respondents (61%) indicate that their internet connection does not meet their needs. This is a higher rate of dissatisfaction than among households in other communities (58%).

When asked why their connection does not meet their needs, 87.7% of dissatisfied households indicate that their speed is too slow. Nearly 68% say the price is too high, and 75.4% indicate that their connection is unreliable (respondents could choose more than one reason).

Finally, 93.5% of respondents indicate that they are interested in additional internet choices for their home.

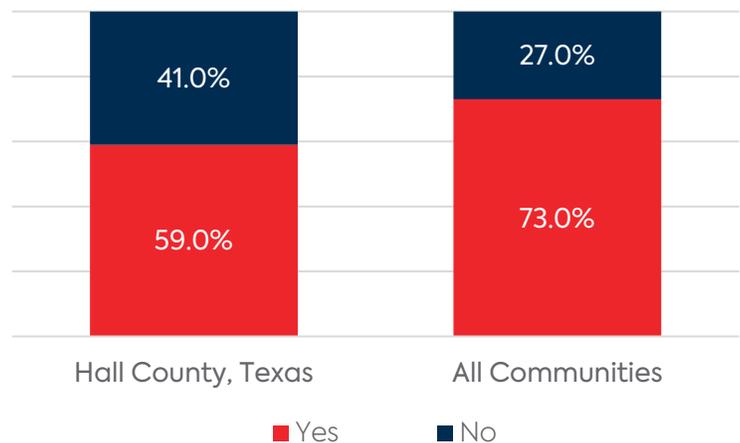


MOBILE CONNECTIVITY

Nearly 60% of Hall County households report that they subscribe to mobile internet service which they access via a smartphone or similar mobile device. This is lower than reported in other Connected communities (73.0%).

Additionally, about 22% of mobile-connected households report that they rely on their mobile connections as their primary source of internet connectivity at home or use mobile service to connect other household devices to the internet.

Households Subscribing to Mobile Internet Service



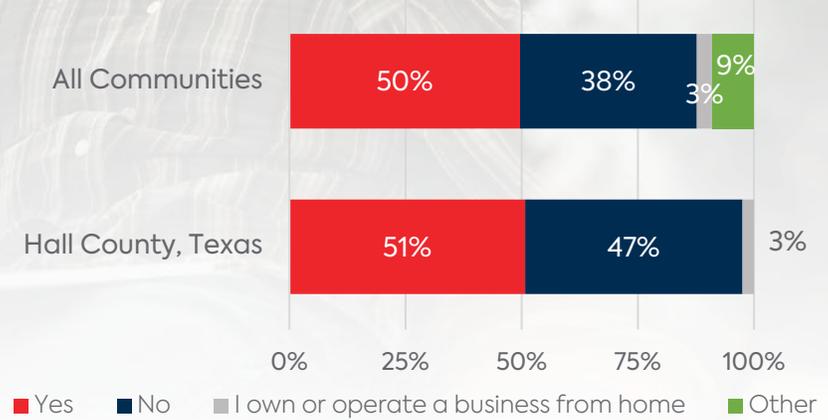
TELEWORK

Teleworking, or telecommuting, refers to working outside of the conventional workplace by way of telecommunications or computer-based technology. The COVID-19 pandemic forced many organizations to allow staff to telework. In Hall County, the lack of broadband access was a significant barrier to organizations being able to operate virtually if needed.

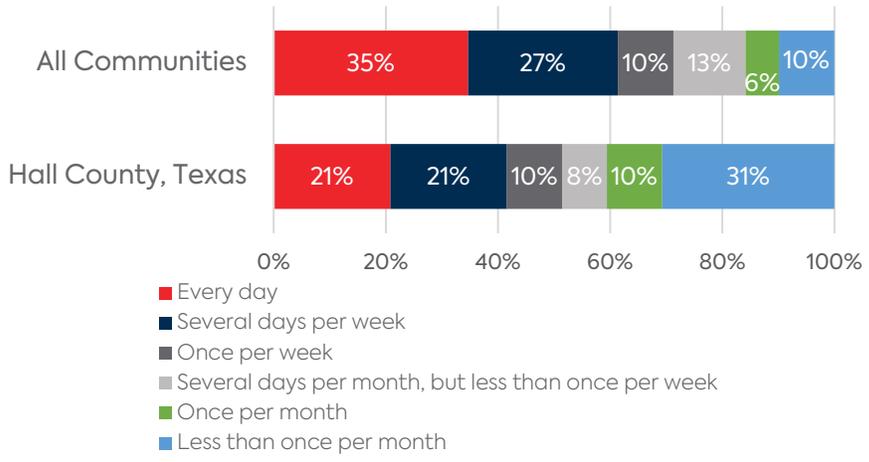
Teleworking is quickly becoming a critical part of growing a local economy because it represents an opportunity to attract or retain employees even though their employer may not be located within the community. However, this only works if those employees have access to advanced broadband infrastructure.

More than one-half of employed respondents in Hall County (51%) telework at least part of the time. This is more than residents in other communities, though teleworkers in Hall County work from home just about as often as teleworkers in other communities.

Do You Currently Telework?



How Frequently Do You Telework?





RECOMMENDATIONS

04

The following recommendations are presented to assist Hall County in expanding broadband access and adoption throughout the community.

Goal 1: Promote broadband as an economic and community development gateway.

Broadband connects people to the world and opens the door to opportunity. Where there is broadband, there is development, achievement, and innovation. In rural Texas, broadband looks like economic development, greater scholastic achievement, workforce expansion, connection to telehealth services, infrastructure improvement, and general technological advancements. When embraced as an integral part of life, broadband contributes to a thriving community and promotes greater quality of life for residents. In Hall County, it is important to embrace broadband for how it can both contribute to and improve the current way of life. The survey results reflect that community sectors are not currently engaged online beyond email, Facebook, and the occasional website update. If businesses, government institutions, healthcare providers, and schools increased their online engagement and presence, the general community could experience economic growth and development.

Objective:

Increase broadband adoption among residents, businesses, and community institutions to facilitate economic and community growth.

Actions:

Action 1 – Hall County leaders should identify key advocates in each of the following areas to educate the general community about the short and long-term benefits of broadband adoption.

- Economy → Economic Development, Memphis Chamber of Commerce, Hall County Commissioners Court, Panhandle Regional Planning Commission
- Telehealth → Memphis Drug, Turkey EMS
- Telework → Memphis Chamber of Commerce, Workforce Solutions, School Superintendents (William Alexander, Jackie Jenkins)
- Communication → Broadband Providers

Promote e-commerce as the gateway to the global economy: As businesses and community organizations expand their online presence, they expand their customer pool and ultimately increase profit. By utilizing websites and social media to market services and sell products, businesses can take part in a larger digital economy. As Hall County businesses succeed in the global market, the benefit will be sown directly in the community through increased employment, increased wages, and greater economic success.

Showcase physical health- and time-saving benefits of telehealth services: The future of medicine is online. For communities who lack large hospitals, general practitioners, surgical attendees, and medical specialists, telehealth is a natural substitute. Online medical services allow communities to speak with top-of-the-line doctors, dentists, surgeons, dermatologists, and veterinarians through a click of a button. These online services are not only important in times of emergency, but they allow residents flexibility when meeting with medical professionals. No longer do you have to take off work to drive to the clinic, but rather you can step outside your office building and speak to your physician through your phone and then return to your desk.

Highlight economic and practical advantages of telework: Americans have long valued flexible work schedules including work from home and part-time shifts. The COVID-19 pandemic further showcased just how important it is for homeowners and renters alike to be able to reliably connect to the internet to fulfill their professional obligations. By teleworking, an employee can reside in rural Hall County but be employed by a company in Dallas, Houston, Lubbock, or another state entirely. Ultimately, this can be used as a marketing tool by the community: live here, enjoy a lower cost of living, but don't give up your online job! Telework expands employee and employer options which in turn can lead to greater economic success. The key to telework is adequate digital skills to engage online and a reliable internet connection.

Expand use of digital communication for personal and professional networking: Broadband is what allows a grandmother to FaceTime her grandchildren who live seven states away in the middle of a global pandemic. Broadband is what empowers communication today; it is what connects people and allows them to stay engaged, informed, and close despite time and space. As technology and society continues to evolve, broadband will continue to be the common thread in all things communication. Broadband will be how companies communicate (be it Zoom calls, Microsoft Teams Conferences) or how families stay connected.

Action 2- Community leaders should partner with local and regional organizations to facilitate free digital literacy and digital skills workshops. Workshop curricula should be curated using material created by the County and publicly available programs, such as those designed by AARP and Digital Learn (resources linked below). Classes should be offered at local facilities, such as the school gym or the community center, and be advertised through the local media. The intention is for residents and community leaders to understand the importance of digital engagement and to feel comfortable using online platforms. The more the community engages online, the more they will reap the benefits

of a digital lifestyle. According to survey results, only 28% of businesses require employees to participate in continuing education, yet 78% said technology training was very or moderately important to them when considering their workforce. If employees improve their digital skills, they not only contribute more to local businesses, but they expand their quality of life at home through online banking, entertainment, and general digital device use.

Community partners can include:

- The High Ground of Texas
- Panhandle Regional Planning Commission
- Memphis Chamber of Commerce
- Schools: Memphis ISD and Turkey-Quitaque ISD
- Institutions and businesses who would directly benefit from greater digital adoption (i.e., banks, telehealth providers, online schools)

Workshop topics can include:

- How to teleconference
- Cybersecurity 101
- Microsoft Office skills
- Intro to social media

Action 2A – Community workshops should focus on increasing the online presence of community institutions. This includes creating websites and social media accounts for businesses, government officials, healthcare providers, schools, etc. Fewer than one in three businesses (32%) indicate they have a website, while only 29% of government entities said they currently have a website. Websites are a key marketing tool for businesses and an important resource for emergency preparedness in the government sector. Websites serve an important purpose when residents are seeking updates or need emergency information.

Website creation can be a stand-alone workshop topic or it can be integrated into a larger discussion about online safety. Business owners who currently have a website, or County/school IT directors could be a great resource to lead this workshop as they have experience working with websites.

Action 2B – Community workshop resources and curricula should be made publicly available at the library in the form of printed packets. Workshops are a great opportunity to connect directly with residents, but not all residents are able to attend at the designated time. As such, it is important that the material from the workshops be made available for interested residents to pick up and review on their own time.

Action 3 – Discussing the benefits of broadband should become commonplace in Hall County. County commissioners, city council members, school board members, and the like should include broadband

as a regular agenda item at community meetings. It is important for all residents, far and wide in Hall County, to understand the importance of broadband and to feel empowered to adopt and use it. For broadband to be accessible, it needs to be presented in a way that everyone understands. It is important to consider that 33.6% of the Hall County population is Hispanic or Latino, and 29.6% of residents speak a language other than English at home, according to the US Census. Therefore, all materials pertaining to broadband workshops, affordability, and accessibility should be available in English and Spanish.

Responsible Parties:

Community institutions: businesses, schools, libraries, organizations; Local government leaders and elected officials; Broadband providers; Community residents

Timeline:

Digital literacy and digital skills workshops should be available throughout Hall County by early 2022. The community should routinely assess the curriculum to determine if updates are needed.

Resources:

The complete guide to digital skills

<https://www.futurelearn.com/info/blog/the-complete-guide-to-digital-skills>

AARP Joins with Nonprofit to Teach Tech to Older Adults

<https://www.aarp.org/about-aarp/info-2021/oats-senior-planet.html>

Digital Learn: Use a computer to do almost anything!

<https://www.digitalllearn.org/>

Census: Hall County

<https://data.census.gov/cedsci/profile?g=0500000US48191>

Improving the Quality of Life in Rural America With Broadband Internet

<https://bonfire-ec.com/improving-the-quality-of-life-in-rural-america-with-broadband-internet/>

Implementing Productive Teleworking with Business-Quality Mobile Communications

<https://tango-networks.com/wp-content/uploads/2021/01/Tango-Networks-Trend-Advisor-Productive-Teleworking-with-Mobile-Communications-v15May2020.pdf>

How Better Broadband Access Will Help Telemedicine Reach Its Full Potential

<https://intouchhealth.com/how-broadband-will-help-telemedicine-reach-its-full-potential/>

Texas Broadband Providers by County

The Benefit that Broadband Internet Offers for Ecommerce

<https://www.newsanyway.com/2020/02/26/the-benefits-that-broadband-internet-offers-for-ecommerce/>

Goal 2: Promote low-cost broadband offerings for vulnerable populations.

According to the US Census, the poverty rate in Hall County is 22.9%. More specifically, 34.7% of children under the age of 18 live in poverty. This is almost double the national average (18.5%). These statistics paint a realistic need in Hall County for free and reduced-cost digital services. For children under the age of 18, this need is especially prevalent as it relates to online educational opportunities. It's important to recognize the broadband access is two-fold. First, a resident needs access to an internet device, such as a laptop or tablet. Second, the resident needs access to broadband to use it. A laptop or tablet is only as good as the internet connection that it can access,

Objective:

Increase access, availability, and use of broadband by addressing the cost barrier and providing additional public services.

Actions:

Action 1 – In the broadband survey, 43% of households who do not have internet stated cost was their main barrier. Of those who do have broadband at their home, 68% said cost was a reason for their current dissatisfaction. Furthermore, according to the US Census, the median household income in Hall County is \$34,673. This is almost half of the median household income in the United States (\$62,843). These statistics boldly present a need for affordable broadband options in Hall County. As such, it is important for qualifying residents to know there are options that exist to make broadband more affordable. Using online resources, Hall County residents can identify local and national providers who offer special low-cost services for vulnerable populations, older adults, and low-income families with children. Such resources include [EducationSuperHighway](#) and [EveryoneOn](#).

Using the above resources, households in the following ZIP codes may be eligible for multiple broadband assistance programs:

- 79239
- 79245
- 79259

- 79261
- 79233

Action 2 – Community leaders and institutions should publicly promote programs and opportunities designed to reduce the cost of broadband service. Notices can be sent out in the water bill, posted in the newspaper, circulated in monthly school newsletters, discussed at Commissioners Court and City Council meetings, or advertised at frequently visited community buildings and businesses.

Community leaders and institutions to consider:

- Memphis and Turkey-Quitaque ISDs
- Local and county government: Memphis, Turkey, Estelline,
- Local media: KLSR 105 Radio, The Sun Newspaper
- Memphis Chamber of Commerce and local businesses
- Other: Convention Center, Memphis Public Library

Programs to promote:

- Lifeline
- Emergency Broadband Benefit (EBB)
- PCs for People

Action 3 – Reduced-cost broadband at home is but part of the solution. To ensure all residents have access to the internet, Hall County should increase the number of publicly available computers in frequently-accessed locations. This can include increasing the number of devices in locations that currently serve the public or the addition of computers, laptops, and tablets in locations that currently have none. The County, schools, and library can use funds or grant money to acquire new devices or partner with community organizations and internet service providers to outfit buildings with computing devices.

Locations to consider:

- Memphis ISD and Turkey-Quitaque Schools
- Memphis Chamber of Commerce
- Memphis Public Library
- Government Buildings: City Hall, Courthouse

Responsible Parties:

Community institutions: businesses, schools, libraries, organizations; Local government leaders and elected officials; Broadband providers; Community residents

Timeline:

Hall County community organizations and leaders should immediately market low-cost broadband programs and resources. New or improved computing devices should be available around the community by end the end of Q1 2022.

Resources:

Lifeline Support for Affordable Communications

<https://www.fcc.gov/lifeline-consumers>

Companies Near Me: USAC

<https://data.usac.org/publicreports/CompaniesNearMe/Download/Report>

Emergency Broadband Benefit

<https://www.fcc.gov/broadbandbenefit>

Texas Broadband Providers by County

<https://connectednation.org/texas/planning/>

Census: Hall County

<https://data.census.gov/cedsci/profile?g=0500000US48191>

The Sun Newspaper

<https://www.redriversun.com/>

EveryoneOn

<https://www.everyoneon.org/>

K-12 Bridge to Broadband

<https://www.educationsuperhighway.org/bridge-to-broadband/>

Goal 3: Leverage community assets and partnerships to increase broadband speeds in Hall County.

According to the broadband survey conducted in Hall County in partnership with Connected Nation Texas, the average download speed reported by residential survey respondents was 13.7 Mbps. This is significantly lower than the FCC's definition of broadband at 25/3 Mbps. An average download speed of 13.7 Mbps would barely support one to two devices at any given time - a standard that is not

sustainable in an increasingly digital society. Couple this slow download speed with the fact that 51% of survey respondents indicated they telework in some capacity. Teleworkers cannot be successful or competitive in their job fields without reliable and fast internet connections. Beyond telework, it is important to recognize how slow internet speeds negatively impact and deter digital engagement.

Objective:

Increase broadband speeds in Hall County through infrastructure development and improvement projects.

Actions:

Action 1 – To begin addressing slow internet speeds, Hall County leaders need to meet with internet service providers (ISPs) in the community. This includes meeting with those providers who have been allocated funding through the Rural Digital Opportunity Fund (RDOF) and Connect America Fund (CAF). Community leaders should assess the status and viability of ongoing or upcoming infrastructure improvement and expansion projects. It will be important to know and understand where new or improved infrastructure is being built around the County and how it will affect broadband speeds and delivery to residents. Furthermore, when meeting with providers, community leaders should address the survey results, highlighting the need for affordable, reliable, and fast service. It is important for providers to understand the consumer base in Hall County to provide the best customer service experience.

RDOF Phase I Auction Winning Bids:

- Resound Networks awarded \$260,038.20 to serve 403 locations

CAF Phase II Auction Winning Bids:

- Nextlink awarded \$241,065 to serve 25 Locations

Action 2 – During meetings with providers, the community should discuss how they could be a project partner, be it financial or strategic in nature. Hall County should consider if there are resources at their disposal that could speed up project completion or incentivize a new one altogether. For example, how could Hall County speed-up the local permitting process or open dialogue about local lands/infrastructure that would speed up project completion. Ultimately, Hall County should play a strategic role in ongoing or planned projects that will widely benefit the most residents.

Hall County has been allocated \$575,722.00 in Coronavirus State and Local Fiscal Recovery Funds. Should Hall County choose to spend any of the federal funds on broadband, it is important that they are prepared, informed, and readily equipped to begin working with reliable partners.

Action 3 – Expanding and improving broadband infrastructure is a team effort that requires organization, time, and funding. Having regional and community partners who can advocate and help move the needle forward is important in any large project. Hall County should engage as many interested parties as possible in broadband planning efforts with the express intent of improving broadband access, adoption, and use among Hall County residents.

Regional Organizations and elected officials to partner with:

- Panhandle Regional Planning Commission
- Memphis Chamber of Commerce
- Other “Connected Communities:” Donley, Wheeler, Fisher, Throckmorton, Shackelford Counties in Texas, others to come
- State Rep. David Spiller’s Office

Responsible Parties:

Local units of government; Broadband providers; Community and regional organizations

Timeline:

Community leaders should begin meeting with ISPs within three months of receiving this plan. While Hall County does not have to allocate funding or spend federal dollars within that same three months, the community should outline the scope of broadband infrastructure projects (ongoing and planned) within that timeline.

Resources:

Texas Broadband Providers by County

<https://connectednation.org/texas/planning/>

Auction 904: Rural Digital Opportunity Fund

<https://www.fcc.gov/auction/904>

Connect America Fund Phase II FAQs

<https://www.fcc.gov/consumers/guides/connect-america-fund-phase-ii-faqs>

Coronavirus State and Local Fiscal Recovery Funds

<https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribal-governments/state-and-local-fiscal-recovery-funds>

Coronavirus State and Local Fiscal Recovery Funds, County Allocation

https://home.treasury.gov/system/files/136/fiscalrecoveryfunds_countyfunding_2021.05.10-1a-508A.pdf

Guide to Federal Broadband Funding Opportunities in the U.S.

<https://www.internetsociety.org/resources/doc/2021/guide-to-broadband-funding-opportunities-in-us/>

Current Broadband Funding

<https://connectednation.org/current-broadband-funding>

BroadbandUSA: Federal Funding Guide

<https://broadbandusa.ntia.doc.gov/resources/federal>