EXECUTIVE SUMMARY

Houston County, Texas

September 2021

CONNECTED NATION

CELEBRATING 20 YEARS OF SERVICE

CONTENTS

OVERVIEW

01

CONNECTED NATION

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. This 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 Houston 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 January 2021 and May 2021, Houston County conducted a comprehensive survey of broadband technology access and adoption across the community that collected responses from 391 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.

HOUSTON COUNTY, TEXAS QUICK FACTS
Population **22,954**
Households **8,252**
Median Household Income **$37,904**
Poverty Rate **21.8%**
Adults with a Bachelor's Degree or Higher **15.2%**
Home Ownership Rate **70%**
Hispanic or Latino **11.1%**
Black or African American **25.7%**
Households with Broadband Access[1] **83.32%**

Source: United States Census Bureau 2015-2019 American Community Survey

[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/

CONNECTED
NATION™

83.3%
of households
in Houston County
have access
to broadband

The average internet speed reported by households in Houston County **(18.8 Mbps)** is well below the speeds that the FCC defines as "broadband" (25 Mbps download and 3 Mbps upload).

65.3% of households in Houston 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.

Houston County households **pay considerably more** on average for access to the internet **($82.74)** than other Connected communities ($71.05).

Nearly **two-thirds of households (65%), and 57.9% of businesses**, reported that they were dissatisfied with their current internet service. The top reasons for dissatisfaction were slow speeds and an unreliable connection.

Nearly nineteen out of twenty households **(94.9%)** said they would like to have improved or additional options for home internet service.

INFRASTRUCTURE
RESULTS

02

CONNECTED NATION

According to CN Texas broadband data initially released in July 2021, followed by additional public feedback, field validation, and provider input: most households in Houston County have access to broadband that is at least 25/3 Mbps – the current definition of broadband set forth by the Federal Communications Commission (FCC). Broadband service in Houston County is concentrated near Crockett, Lovelady, Kennard, and Grapeland, as well as the main travel corridors within the County.

BROADBAND INFRASTRUCTURE
QUICK FACTS

Unserved Households (25/3 Mbps) **1,444**
Households Served (10/1 Mbps) **92.53%**
Households Served (25/3 Mbps) **83.32%**
Households Served (50/5 Mbps) **76.94%**
Households Served (100/10 Mbps) **65.32%**

*Broadband data collected by CN Texas in 2021: https://connectednation.org/texas/mapping-analysis/*

Internet Service Providers in Houston County

PROVIDER	TECHNOLOGY	MAX DOWNLOAD SPEED (Mbps)	MAX UPLOAD SPEED (Mbps)
AirLink	Fixed Wireless	20	6
Consolidated Communications	DSL	10	1
Suddenlink Communications	Cable	15	2
Valor Telecommunications of Texas LP	Fiber / DSL	1000 / 300	1000 / 300

Below is Houston County's (25/3 Mbps) service area map. Access the full map here: https://connectednation.org/texas/county-maps/ and select Houston County from the drop-down list. Please note other portions of the county are served by internet service providers (ISPs) offering slower advertised speeds and are not shown on this map.
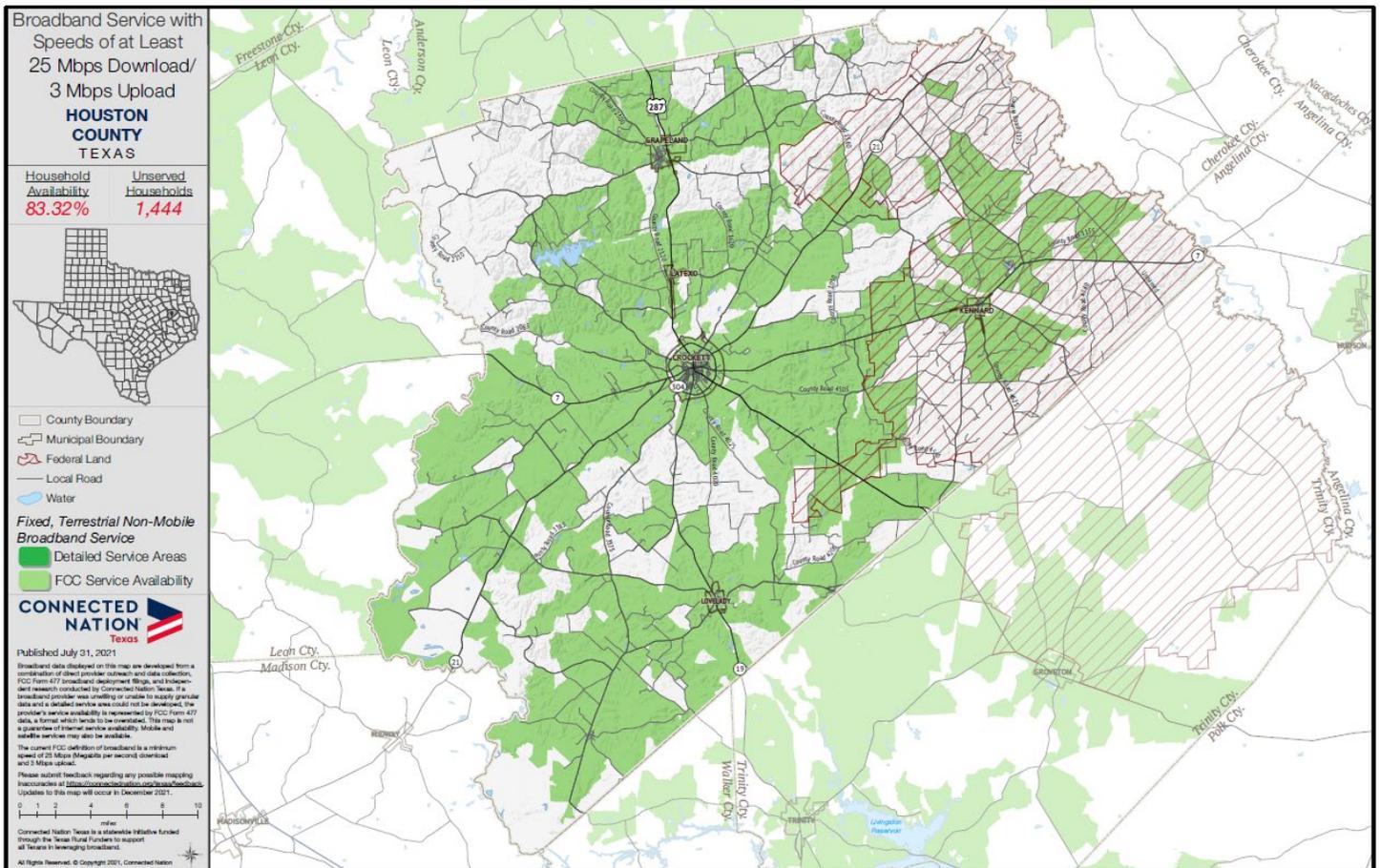
To understand the state of broadband infrastructure in Houston County and the rest of Texas, you first must have accurate maps, this begins with accurate data. Providers report their service areas to the FCC on Form 477 broadband deployment filings, this data tends to overstate the service territory. To remedy this, CN Texas works with providers to gather additional data and develop more in-depth broadband maps at the state and county level. Data shown on the map above comes from FCC Form 477, as well as direct provider outreach, data collection, and independent research conducted by CN Texas. When a provider is unable or unwilling to supply granular data, a detailed service area cannot be developed and the provider's service area is represented by FFC 477 data alone.

CONNECTED NATION

1,444

Houston 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 received 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.
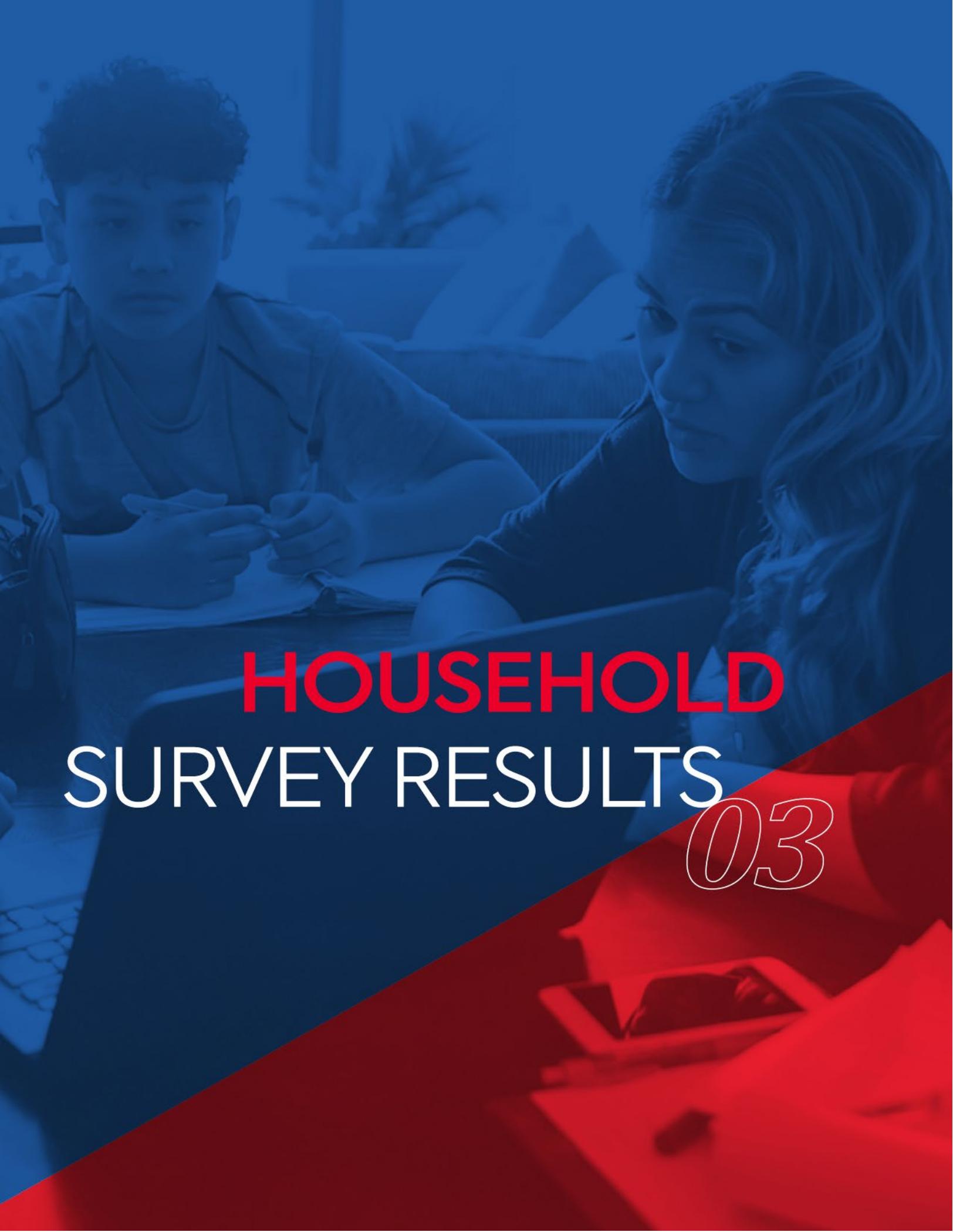
HOUSEHOLD
SURVEY RESULTS
03

HOUSEHOLD
QUICK FACTS

Fixed Home Broadband Adoption
46.5%

Average Monthly Internet Cost
$82.74

Average Download Speed
18.8 Mbps

Households Satisfied with Service
35%

The following section provides an overview of results from the Connected Nation Texas broadband survey conducted in Houston County between January 2021 and May 2021. Altogether, CN Texas received 391 completed surveys from households across the County, and respondents provided insights into their internet connectivity, or lack thereof. Data from Houston County are compared to data from dozens of rural Connected communities across Michigan, Ohio, Texas, and Pennsylvania to benchmark and identify areas for improvement.

Home Broadband Adoption

■ Fixed ■ Non–Fixed ■ No Connection

All Communities	61.8%	19.4%	18.7%
Houston County, Texas	46.5%	31.7%	21.8%

0% 20% 40% 60% 80% 100%
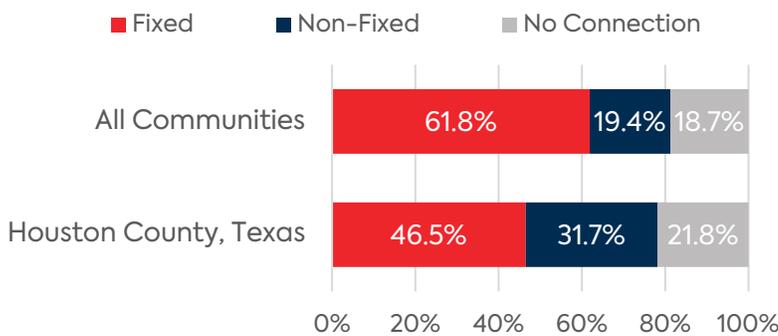
ADOPTION

In Houston County, 46.5 % of households that took the survey subscribe to fixed broadband service delivered via a cable, DSL, fiber, or fixed wireless technology. Almost one-third of respondents (31.7%) indicate they have internet service delivered via dial-up, satellite, or a mobile device.

Primary Barrier

All Communities	26.4%	53.5%	20.1%
Houston County, Texas	20.8%	54.2%	25.0%

0% 20% 40% 60% 80% 100%

■ Too Expensive ■ Not Available ■ Other
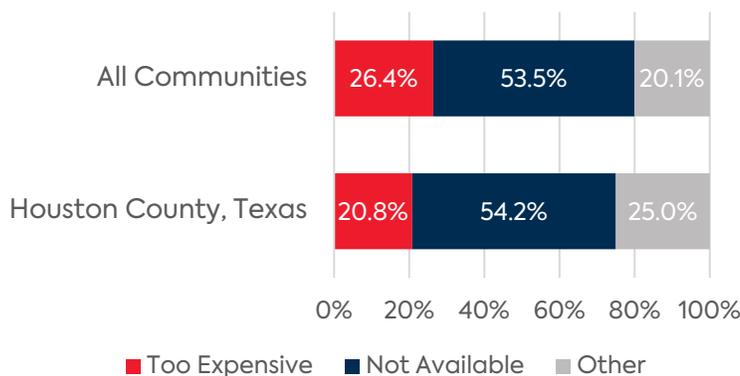
Among those without a home internet connection, 20.8% said they did not have broadband because it is too expensive for them, while more than one-half (54.2%) indicate that it was not available to them. Like in many communities, cost and availability are the two primary barriers to home broadband adoption.

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 $82.74 per month. This is higher than the monthly cost in other Connected communities ($71.05). Two percent of the median household income in Houston County is $63.17 per month. These results show that the average cost of service is unaffordable for many in the County.

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 18.84 Mbps, which is much lower than household connections in other Connected communities and well below the defined speed of broadband which is 25 Mbps.

Average Monthly Cost

Category	Cost
All Communities	$71.05
Houston County, Texas	$82.74
Houston County 2% Median Household Income	$63.17

Average Speeds (Mbps)

Category	Speed
All Communities	33.82
Houston County, Texas	18.84

Does Your Internet Meet Your Needs?

	Houston County, Texas	All Communities
No	65.0%	58.0%
Yes	35.0%	42.0%
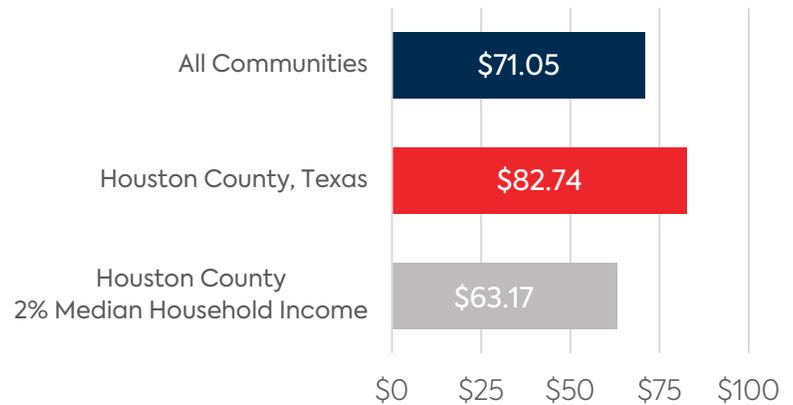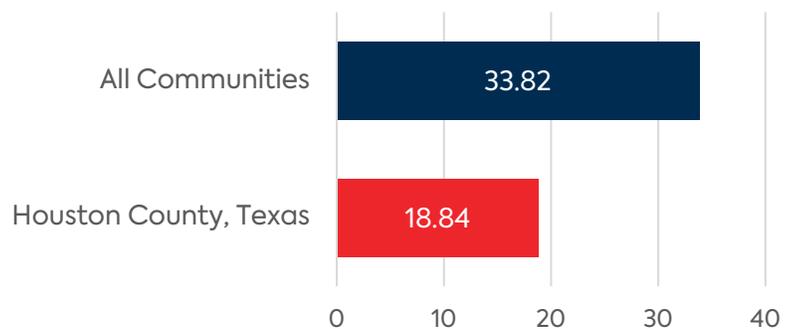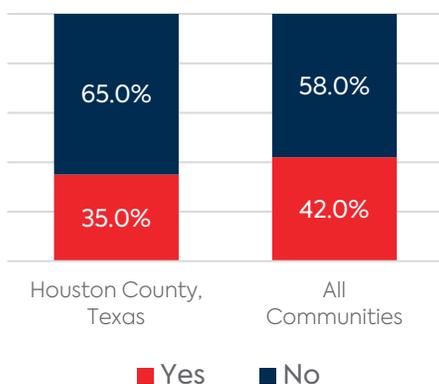
Why Doesn't Your Internet Meet Your Needs?

- Speeds are too slow: 90.4%
- The price is too high: 59.6%
- My connection is unreliable: 66.9%
- Customer service is poor: 30.9%
- Limited data caps: 42.1%
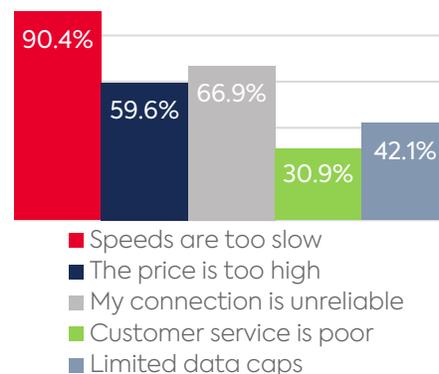
Are You Interested in More Choices at Home?

Houston County, Texas
- No: 5.1%
- Yes: 94.9%
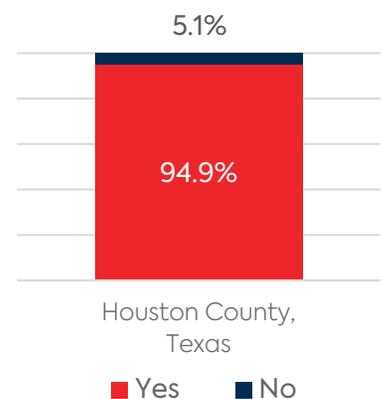
Competition provides residents with choices for service, allowing households the ability to switch providers if their current service does not meet their needs. Nearly two-thirds of respondents (65%) indicate that their internet connection does not meet their needs. This is a higher rate of dissatisfaction than among households in other communities (58%).

When asked why their connection does not meet their needs, 90.4% of dissatisfied households indicate that their speed is too slow. Nearly 60% say the price is too high, and nearly 70% indicate that the connection is unreliable; (respondents could choose more than one reason).

Finally, nearly every respondent (94.9%) indicates that they are interested in additional internet choices for their home.

MOBILE CONNECTIVITY

Over two-thirds of Houston County households (70%) 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 23.8% of all households report that they rely on their mobile connection at home as their primary source of internet connectivity or use their mobile service to connect other household devices to the internet.
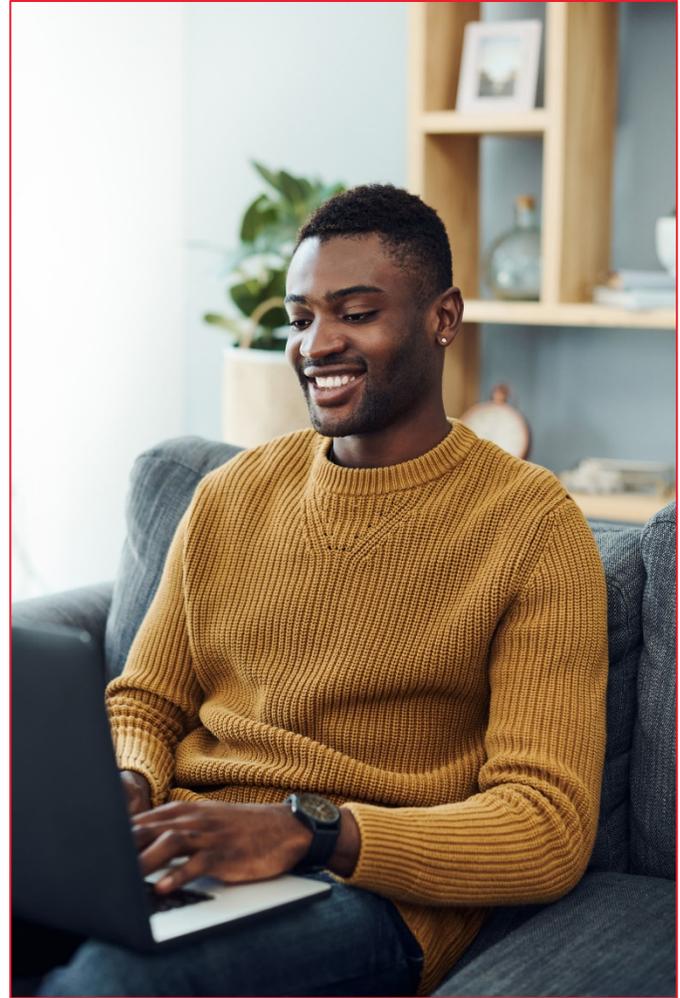
Households Subscribing to Mobile Internet Service

|	Houston County, Texas	All Communities
No	30.0%	27.0%
Yes	70.0%	73.0%

■ Yes ■ No
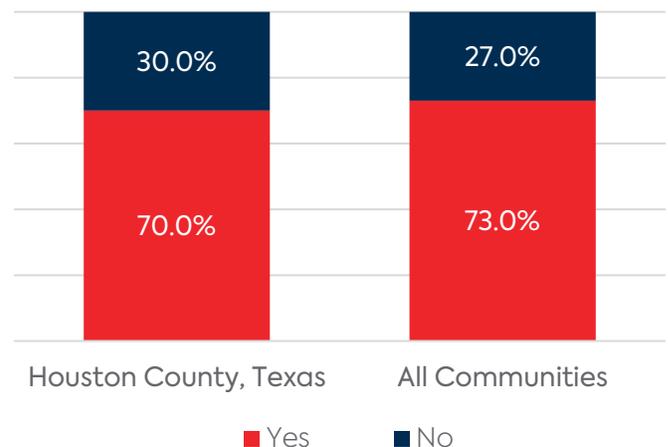
TELEWORK

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 Houston 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.

Approximately 69% of employed respondents in Houston County telework at least part of the time. This is more than residents in other communities, though teleworkers in Houston County work from home a little less often as teleworkers in other communities.

Do You Currently Telework?

	Yes	No	I own or operate a business from home	Other
All Communities	50%	38%	4%	9%
Houston County, Texas	69%	23%	7%	1%
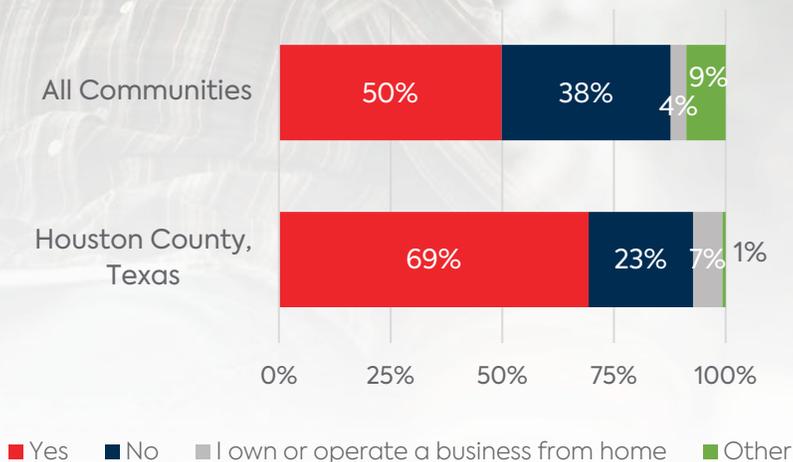
How Frequently Do You Telework?

	Every day	Several days per week	Once per week	Several days per month, but less than once per week	Once per month	Less than once per month
All Communities	35%	27%	10%	13%		10% (6%)
Houston County, Texas	31%	26%	10%	5%	5%	23%

■ Every day
■ Several days per week
■ Once per week
■ Several days per month, but less than once per week
■ Once per month
■ Less than once per month

13
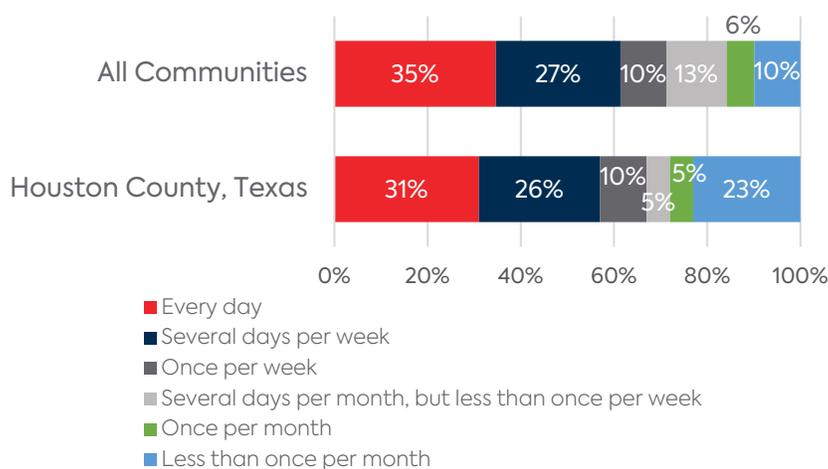
RECOMMENDATIONS

04

T he following recommendations are presented to assist Houston County in expanding broadband access and adoption throughout the community.

Goal 1: Ensure that every household in Houston County has access to high-speed internet by 2024

Houston County has expressed interest in building a broadband network for the county, using the data collected and other resources to create a build-out plan. This is a laudable goal and should be well researched to make sure this is the right path for Houston County.

Objective: To determine if this is the right path, there are three critical steps to be followed; 1) designate a broadband office and advocate; 2) assess the current state of broadband and ongoing/incoming deployments; and 3) develop a plan for building a network for the community if required. Below are some actions for the county to take:

Actions:

Action 1 – **Establish a Houston County Broadband Office and hire a broadband advocate.** This office can oversee RFPs/RFQs, grants, loans, subsidies, and other broadband resources coming into Houston County. It allows for all broadband information to be housed in one location. Although it is a county project, the office could work under the City of Crockett City Administrator, John Angerstein and County Judge Jim Lovell.

Action 2 – **Update Houston County broadband maps to reflect service. What kind of internet service is available and what infrastructure is needed is key to ensuring the County is well served.** Launching an RFP for this work would serve Houston County well. Although fiber is currently considered the future, other fixed broadband sources like cable and fixed wireless may be adequate for the community's needs in different parts of the County. Additionally, the County should monitor the progress of Low Earth Orbit Satellite services, such as Starlink, that has recently launched their services and are currently in the pilot phase. While these services are likely cost prohibitive at the writing of this report, it is expected that pricing will come down, and that these services will be available to the mass market in the next 12-18 months. They may offer a quality alternative to some fixed services in some of the most remote and difficult to serve locations in the county.

Action 3 – **Develop a relationship with internet service providers.** The broadband advocate needs to build relationships with providers in the area and future Rural Development Opportunity Fund (RDOF)

winners to make sure a network build-out is efficient and will meet the future needs of the community. RDOF winners in the area include Charter Communications and Windstream.

Action 4 - **Deploy an RFP for an experienced, knowledgeable company to design the build-out plan to the County's specifications.** Understanding how to write an adequate RFP and being able to understand and evaluate the responses are important. Connected Nation, or another organization of your choice, can offer consulting to guide the County through this process to make sure the plan is operational and makes sense for Houston County.

Responsible Parties:

Judge Lovell and Crockett City Manager, Jim Angerstein, should establish the broadband office and hire the advocate immediately. Buy-in from the cities of Crockett, Grapeland, Lovelady, Latexo, and Kennard are needed to make sure everyone has input.

Resources:

- Removing barriers to broadband expansion: http://www.connectmycommunity.org/wp-content/uploads/2016/09/Local-Policy-Guide.pdf
- An example of a county with online resources: https://onlinepermits.mcallen.net/Portal/default.aspx
- Becoming Broadband Ready: https://nextcenturycities.org/becoming-broadband-ready/
- Examining state broadband programs: https://www.pewtrusts.org/en/research-and-analysis/reports/2020/02/how-states-are-expanding-broadband-access

Goal 2: Increase Access to Broadband throughout Houston County

The immediate need in Houston County is to increase access to fixed broadband. Seventy-nine percent of surveyed residents subscribe to fixed or mobile internet. Businesses, Agriculture, and K-12 facilities participating in the survey are also using the internet at high rates.

Objective: To increase deployment of infrastructure, the county must remove barriers to deployment. Although 25/3 Mbps speed is the current definition of broadband by the FCC, many consider this speed too slow for their needs. In Houston County, 83.32% of residents have access to 25/3 Mbps, but if we look at 100/10 Mbps speeds, the percentage of households served drops to 65.32% for household availability.

Actions:

Action 1 – **The county broadband advocate can work with local providers and the Rural Opportunity Development Fund (RDOF) recipients to increase access to higher broadband speeds and increase access to broadband in underserved and unserved areas.** Charter Communications will potentially receive $9,667,778 and Windstream Services is in line to receive $28,536 from RDOF. This could be a game changer for Houston County if partnerships are developed to understand where and how the money will be spent. Understanding provider plans should be considered when implementing Goal 1 above – building out broadband in Houston County. Although the money will go to the providers, the Houston County broadband advocate can work with the providers to agree on how to best serve the County's broadband needs in the present and into the future.

Action 2 – **Release an RFP to inventory potential broadband assets in Houston County and identify potential broadband providers, service offerings, and respective rates.** Work with providers to decrease the cost of deploying internet in underserved and unserved areas. This RFP can be combined with the suggested RFP under Goal 1, Action 4.

- The asset inventory will provide the County a list of existing assets that the County has that they can offer to providers to diminish their build-out expenses, such as:
  o Anchor tenants
  o Antennas
  o Building rooftops
  o Light poles
  o Towers
- The RFP can determine why some areas are underserved/unserved and help create a business case for providers to offer broadband there.

Although RDOF money will significantly help build out a broadband network in Houston County, the providers have 3-10 years to complete their projects. This means some areas may not see internet service or increased speeds for many years. Working with local providers will be important for long-term solutions. Currently, Houston County is served by AirLink, Inc., Suddenlink Communications, and Windstream Communications. Windstream Communications does offer some fiber in Houston County with reported maximum speeds of 1000/1000 Mbps (1 Gbps), including 1 Gbps at the City of Crockett's facilities.

Discuss with local providers the need to expand broadband services and ask why they have not done so to date. If providers are unwillingly to offer more plans at faster speeds, new providers should be given the opportunity.

With increased financial resources and competition in Houston County, providers may be willing to discuss providing services to underserved/unserved areas.

Action 3 – **Provide resources to your community to help reduce the cost of internet service–.** The survey shows the average monthly cost for internet service for residents is $82.74. The is well over other Connected communities and exceeds the 2% median household income of $63.17 in Houston County. Make resources offered by the federal government and local providers available to your community.

Responsible Parties:

The broadband advocate should develop relationships with the local broadband providers, as well as establish contacts with the RDOF winners. Under guidance from the Commissioners Court, the advocate should launch approved RFPs, all responses should be reviewed and work monitored by this office. A list of questions should be asked of each provider to compare services, such as:

- Are you willing to share your network coverage map with the County?
- Is your company subject to any State/Federal regulations?

Connected Nation can provide a list of sample questions if needed.

- An updated list of loans, funding, subsidies, and grants should be maintained on the County website; http://www.co.houston.tx.us/, Crockett Area Chamber of Commerce website; https://www.crockettareachamber.org/ , and the public libraries websites; https://crockettlibrary.com and https://www.grapelandlib.org/ .

- In addition, local school districts of Crockett ISD, Grapeland ISD, Kennard ISD, Latexo ISD, and Lovelady ISD should make a list of grants available. See Goal 5 for additional resources.

Resources:

- Removing barriers to broadband expansion: http://www.connectmycommunity.org/wp-content/uploads/2016/09/Local-Policy-Guide.pdf

- Examining state broadband programs: https://www.pewtrusts.org/en/research-and-analysis/reports/2020/02/how-states-are-expanding-broadband-access

- Becoming Broadband Ready: https://nextcenturycities.org/becoming-broadband-ready/

- Example of a county with online resources: https://onlinepermits.mcallen.net/Portal/default.aspx

- Website of updated discount offers sorted by ZIP codes: https://www.everyoneon.org/find-offers

Goal 3: Increase opportunities for digital skills training for residents, businesses, and other sectors.

Survey results show that residents, businesses, agriculture, and other community sectors are somewhat comfortable with their digital skills. Businesses view training and having a digital competent workforce important.

Objective: Offering digital training skills to your community will increase adoption and use of the internet in Houston County.

Action:

Action 1 – **Partner with Crockett Public Library, Grapeland Public library, Crockett Area Chamber of Commerce, Crockett Economic & Industrial Development Corporation, and Houston County Career Women to host digital skills training.** Classes can cover topics such as:

- o Digital skill classes
- o Website building classes
- o Social media classes
- o Telehealth classes

This initiative can be designed and housed in the new broadband office and overseen by the broadband advocate and the Commissioners Court. The courses can be taught by local non-profits, for-profits, Crockett Area Chamber of Commerce, Houston County Career Women, Crockett Economic & Industrial Development Corporation, local experts, or sourced online.

Action 2– **Expand Wi-Fi and/or hotspots to offer training to the underserved/unserved population at a discounted rate or free of charge.**

Providing access to digital skills training provides more equity in the community, this can be done by providing enough free Wi-Fi and hotspots for the population to participate.

Expanding access to public Wi-Fi can be done by offering free Wi-Fi at:

- Libraries
- Public schools
- Coffee shops

- Higher education facilities
- Public Government buildings

Responsible Parties:

The local advocate for broadband can design a plan for the Commissioners Court to approve. Superintendents of Crockett ISD, Grapeland ISD, Kennard ISD, Latexo ISD, and Lovelady ISD can offer advice as to where underserved/unserved populations are located. The Crockett Chamber of Commerce should be consulted.

Resources:

- American Library Association: PLA, AT&T team up to bring digital literacy training to families: http://www.ala.org/news/press-releases/2021/05/pla-att-team-bring-digital-literacy-training-families
- AARP Joins with Nonprofit to Teach Tech to Older Adults: AARP
- Connected Nation Initiative: https://www.driveyourlearning.org/
- Telehealth information: https://connectednation.org/telehealth/
- Digital Learn Curriculum: Public Library Association:

Goal 4: Ensure that every K-12 student in Houston County has access to a computer and high-speed internet

Crockett ISD reports that 1:1 devices and hot spots are available for students, but surveys suggest other area school districts may not have 1:1 devices or hotspots available for their students.

Objective: Each Superintendent of Crockett ISD, Latexo ISD, Grapeland ISD, Kennard ISD, and Lovelady ISD should review funds they are currently using, and make sure they are applying for all the funds that are available.

Action:

Action 1 – **K-12 schools should review their funding programs and apply for all available grants and subsidies.** Resources such as E-Rate, Emergency Connectivity Fund, and TEACT should be utilized to its fullest availability for students in Houston County. Closing the digital divide for rural students allows for equity, access, and opportunity comparable to their counterparts in more urban school districts.

Responsible Parties:

Superintendents of each listed public school district. The IT department of each ISD, and the school librarians.

Resources:

- Explore E-Rate internet providers: https://connectk12.org/districts/140776

- Emergency Connectivity Fund: Although applications are closed, this information was sent out to County leaders when it opened.   Opened June 29, 2021, Closed August 13, 2022 https://www.pwbts.net/emergency-connectivity-fund/

- TEA Connect Texas (TEACT): TEACT will partner with districts and low-cost, high-speed internet providers to connect students to the internet who have access to existing broadband infrastructure. https://tea.texas.gov/sites/default/files/covid/Operation-Connectivity-LEA-Briefing-Webinar-PPT.pdf

- AT&T offers community investments to bring broadband to more Americans: https://about.att.com/story/2021/digital_divide.html

- Texas Grant Watch: https://texas.grantwatch.com/grant-search.php

Goal 5: Increase broadband adoption in Houston County.

With a poverty rate of over 20%, residents will benefit from learning more about services available to them. This includes programs offered by providers, such as the Emergency Broadband Benefit Program which was launched in response to the COVID-19 pandemic. These programs are currently available, so the county can begin promoting them as soon as possible.

Objective: Houston County should promote low-cost broadband offerings in the community to increase broadband adoption.

Actions:

Action 1 - **Research low-cost internet service offerings in the community.** The broadband advocate should gather necessary information about private or federal programs to subsidize internet access by reaching out to providers and researching options. Some resources are provided below:

- Visit https://www.everyoneon.org/ to find local low-cost, high-speed internet offers by ZIP code, or contact local providers listed in this plan to determine their offers.
- The FCC administers the Lifeline program that provides a $9.25 per month subsidy for the purchase of voice telephone service, including mobile, and broadband for low-income households; more information can be found at https://www.lifelinesupport.org/.

- The FCC recently launched the temporary Emergency Broadband Benefit Program which provides a discount on monthly internet bills ($50 per month or $75 per month on Tribal lands), plus $100 to purchase a device, for qualifying low-income households. To find out which providers are offering this service go to https://getemergencybroadband.org/companies-near-me/

Action 2 – **Distribute this information to local organizations to share with their constituents.** These organizations include school systems: Crockett ISD, Latexo ISD, Grapeland ISD, Kennard ISD, and Lovelady ISD, library systems, and other community anchor institutions that provide services to low-income residents.

Action 3 - **Promote these low-cost offerings via government and community organization websites.** The broadband advocate must ensure that information about these programs is widely promoted to the community via websites and in print.

Responsible Parties:

The broadband advocate should gather necessary information and coordinate with stakeholders across the county to promote low-cost services for vulnerable communities.

Resources:

- Broadband Benefit: https://www.usac.org/about/emergency-broadband-benefit-program/application-and-eligibility-resources/household-eligibility/in

- Lifeline – Low-Income Texas residents can qualify for help in paying their monthly cell phone: http://pdi.blogs.rice.edu/files/2018/07/cropped-PDI-Banner-1rbxcxj.png 2

- Website of updated discount offers sorted by ZIP code: https://www.everyoneon.org/find-offers