EXECUTIVE SUMMARY
Technology Plan

Refugio County, Texas

September 2021

CONNECTED NATION®

CELEBRATING 20 YEARS OF SERVICE

CONTENTS

OVERVIEW
01

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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 Refugio 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, Refugio County conducted a comprehensive survey of broadband technology access and adoption across the community that collected responses from 189 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.

REFUGIO COUNTY, TEXAS QUICK FACTS
Population **6,948**
Households **2,841**
Median Household Income **$50,076**
Poverty Rate **18%**
Adults with a Bachelor's Degree or Higher **11.5%**
Home Ownership Rate **72.8%**
Hispanic or Latino **50.6%**
Households with Broadband Access **91.38%**

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

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91.4%
of households in Refugio County have access to broadband

For households that said they do not subscribe to home internet service, the top barrier is the **cost of internet service** followed by **the lack of available service**.

Only **69.05%** of households in Refugio 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.

Refugio County households **pay a little more** on average for access to the internet (**$74.36**) than other Connected communities ($71.05).

Over **two out of five households (45%), and 27.3% of businesses**, reported that they were dissatisfied with their current internet service. The top reasons for dissatisfaction were slow speeds and an unreliable connection.

More than nine out of ten households **(92.7%)** said they would like to have improved or additional options for home internet service.

INFRASTRUCTURE
RESULTS

02

A ccording to CN Texas broadband data initially released in July 2021, followed by additional public feedback, field validation, and provider input: most households in Refugio County do have access to broadband of at least 25/3 Mbps – the current definition of broadband set forth by the Federal Communications Commission (FCC). Broadband service in Refugio County is concentrated south around Bayside, Refugio and Woodsboro, as well as in the northeast near Victoria and Calhoun Counties.

Below is the list of providers in Refugio County.

BROADBAND INFRASTRUCTURE
QUICK FACTS

| |
|---|
| Unserved Households (25/3 Mbps) **245** |
| Households Served (10/1 Mbps) **96.88%** |
| Households Served (25/3 Mbps) **91.38%** |
| Households Served (50/5 Mbps) **82.43%** |
| Households Served (100/10 Mbps) **69.05%** |

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

PROVIDER	TECHNOLOGY	MAX DOWNLOAD SPEED (Mbps)	MAX UPLOAD SPEED (Mbps)
AT&T Southwest	DSL	25	2
	Fixed Wireless	10	1
Charter Communications Inc	Cable	940	35
GTEK Communications	Fixed Wireless	50	10
TISD, Inc.	Fixed Wireless	25	5
VTXC	Fixed Wireless	25	4

Below is Refugio County's (25/3 Mbps) broadband availability map. You can access this and other broadband availability maps here. Portions of the county are served by internet service providers (ISPs) offering slower advertised speeds and are not shown on this map.
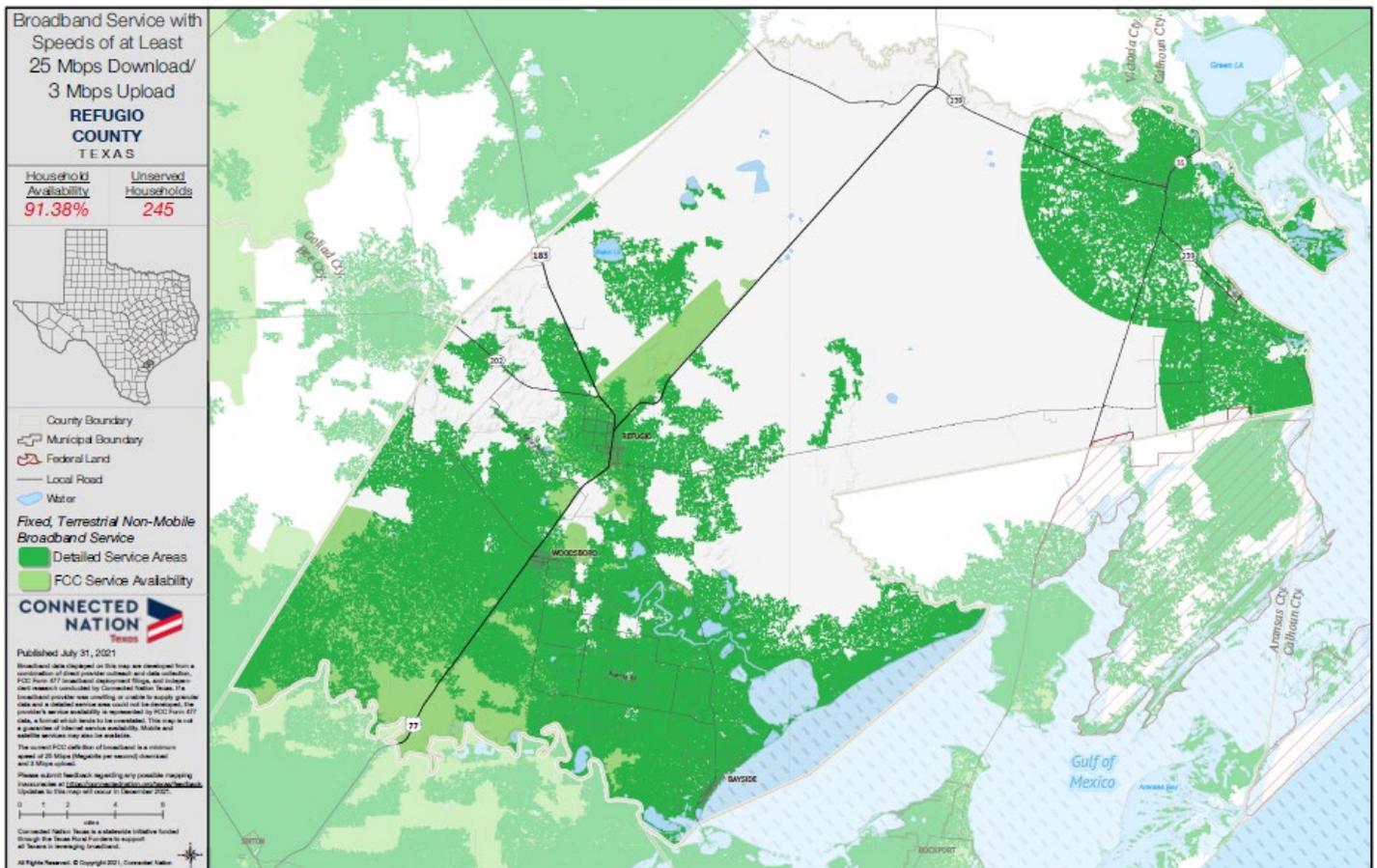

The first step in understanding the state of broadband infrastructure in Refugio County and the rest of Texas is having accurate maps. Accordingly, CN Texas works with providers to develop a variety of broadband maps at a state and county level. Data shown on this map is derived from a combination of direct provider outreach and data collection, FCC Form 477 broadband deployment filings, and independent research conducted by CN Texas. If a provider were unable or unwilling to supply granular data and a detailed service area could not be developed, the provider's service is represented by Form 477 data alone, a format that tends to overstate the service territory.

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245
Refugio 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.
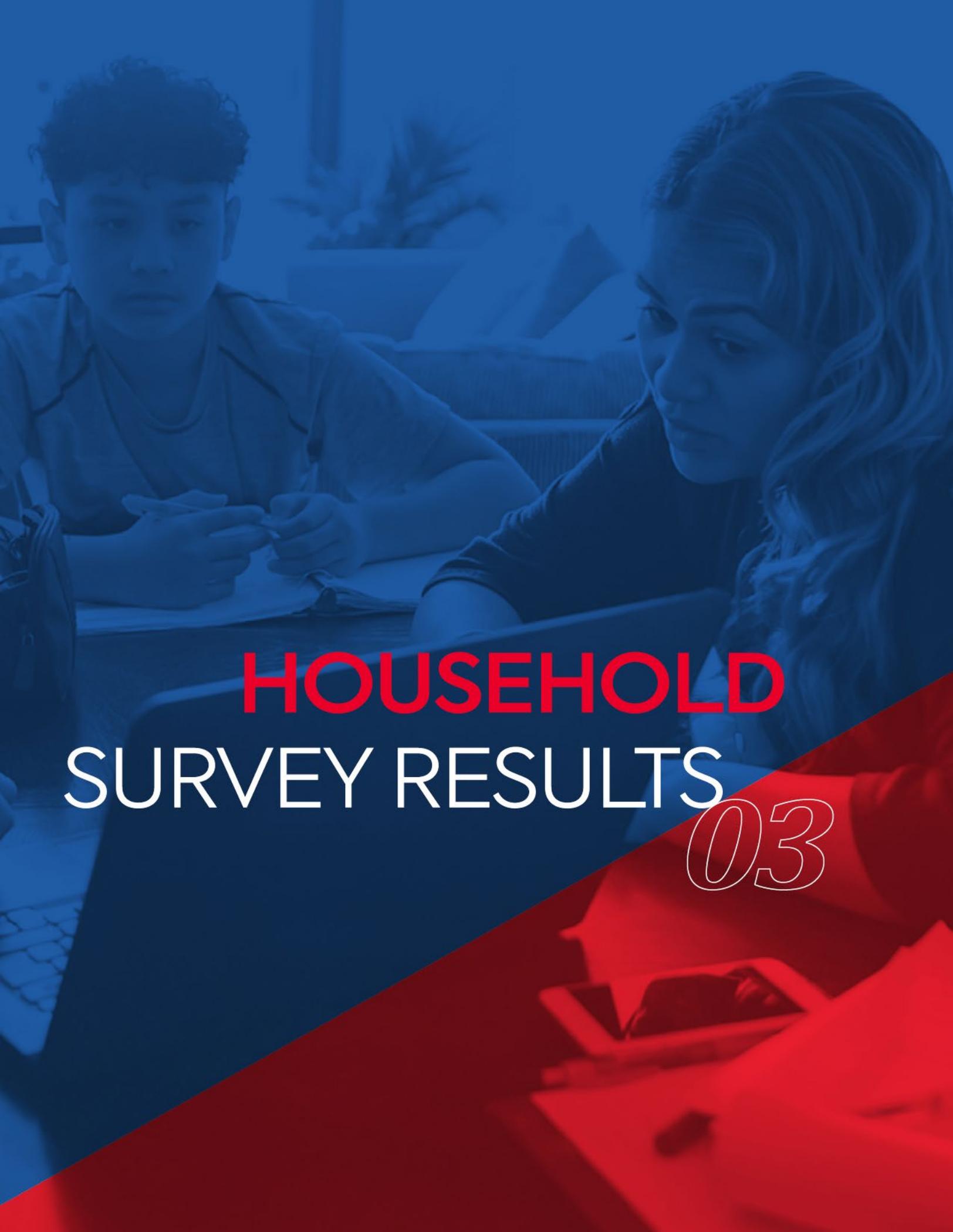
HOUSEHOLD
SURVEY RESULTS
03

HOUSEHOLD
QUICK FACTS

| |
|---|
| Fixed Home Broadband Adoption **65%** |
| Average Monthly Internet Cost **$74.36** |
| Average Download Speed **26.6 Mbps** |
| Households Satisfied with Service **55%** |

The following section provides an overview of results from a broadband survey conducted in Refugio County between January 2021 and May 2021. Altogether, CN Texas received 189 completed surveys from households across the county, and respondents provided insights into their internet connectivity, or lack thereof. Data from Refugio County are compared to data from hundreds of rural Connected communities across Michigan, Ohio, Texas, and Pennsylvania to benchmark and identify areas for improvement.

Home Broadband Adoption

Legend: ■ Fixed   ■ Non-Fixed   ■ No Connection

	Fixed	Non-Fixed	No Connection
All Communities	61.8%	19.4%	18.7%
Refugio County, Texas	65.0%	19.0%	16.0%

Primary Barrier to Broadband Adoption

	Too Expensive	Not Available	Other
All Communities	26.4%	53.5%	20.1%
Refugio County, Texas	40.9%	27.3%	31.8%

Legend: ■ Too Expensive   ■ Not Available   ■ Other
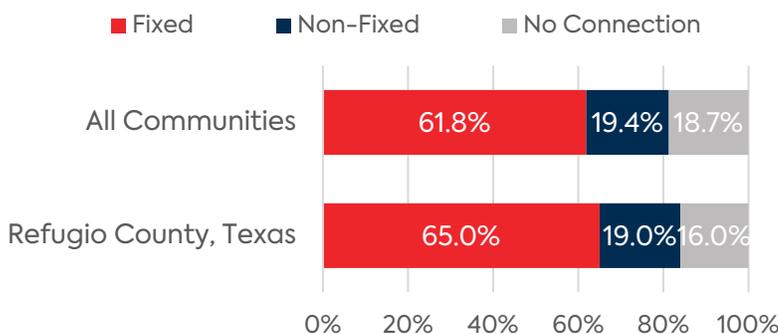
ADOPTION

In Refugio County, 65% of households that took the survey subscribe to fixed broadband service delivered via a cable, DSL, fiber, or fixed wireless technology. Nearly one-fifth of respondents (19%) indicate they have internet service delivered via dial-up, satellite, or mobile.

Among those without a home internet connection, 27.3% said they did not have broadband because it was not available to them, while more than two-fifths (40.9%) indicate that it was too expensive. Like in many Connected communities, cost and availability are the two primary barriers to home broadband adoption. This leaves 16% of survey respondents without internet access at home.

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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 $74.36 per month. This is slightly higher than monthly cost in other communities ($71.05). Two percent of the median household income in Refugio County is $83.46 per month. These results show that the average cost of service is slightly higher than other Connected communities.

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 26.60 Mbps, which just exceeds the minimum defined speed of broadband – 25 Mbps.

Average Monthly Cost

All Communities	$71.05
Refugio County, Texas	$74.36
Refugio County 2% Median Household Income	$83.46

$0 $25 $50 $75 $100

Average Speeds (Mbps)

All Communities	33.82
Refugio County, Texas	26.6

0 10 20 30 40

Does Your Internet Meet Your Needs?

Refugio County, Texas: No 45.0%, Yes 55.0%
All Communities: No 58.0%, Yes 42.0%

■ Yes ■ No
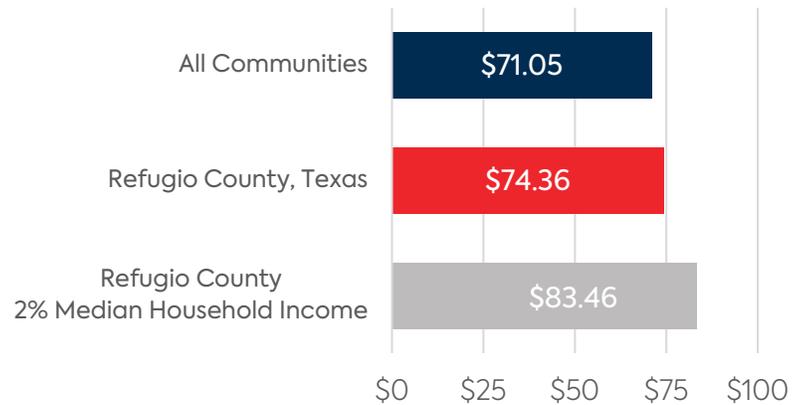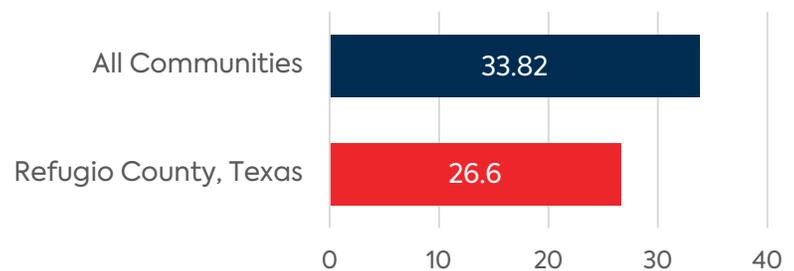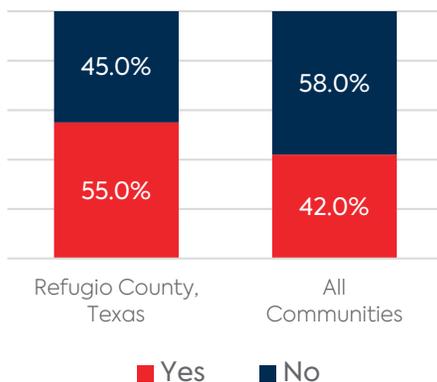
Why Doesn't Your Internet Meet Your Needs?

Speeds are too slow 79.0%
The price is too high 43.5%
My connection is unreliable 76.2%
Customer service is poor 22.6%
Limited data caps 16.1%

■ Speeds are too slow
■ The price is too high
■ My connection is unreliable
■ Customer service is poor
■ Limited data caps
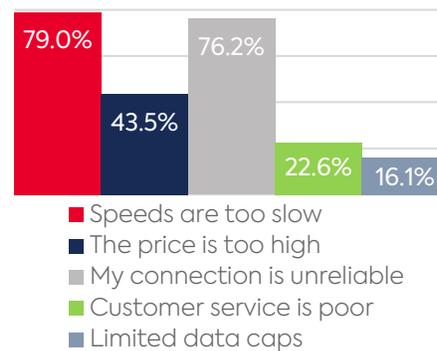
Are You Interested in More Choices at Home?

Refugio County, Texas: No 7.3%, Yes 92.7%

■ Yes ■ No
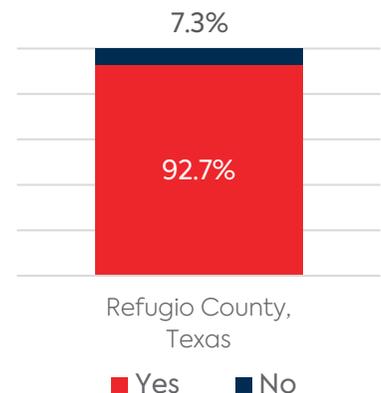
Competition provides residents with choices for service, allowing households the ability to switch providers if their current service does not meet their needs. Over two out of five respondents (45%) indicate that their internet connection does not meet their needs. This is a lower rate of dissatisfaction than among households in other Connected communities (58%).

When asked why their connection does not meet their needs, 79% of dissatisfied households indicate that their speed is too slow. Nearly 44% say the price is too high, and nearly three-quarters (72.6%) indicate that the connection is unreliable (respondents could choose more than one reason).

Finally, nearly all respondents (92.7%) indicates that they are interested in additional internet choices for their home.

MOBILE CONNECTIVITY

Nearly three-quarters of Refugio County households (71.5%) report that they subscribe to mobile internet service which they access via a smartphone or similar mobile device. This is slightly lower than reported in other Connected communities (73.0%).

Additionally, about 31% of households that subscribe to mobile service report that they rely on that mobile connection as their primary source of internet connectivity at home or use their mobile service to connect other household devices to the internet.
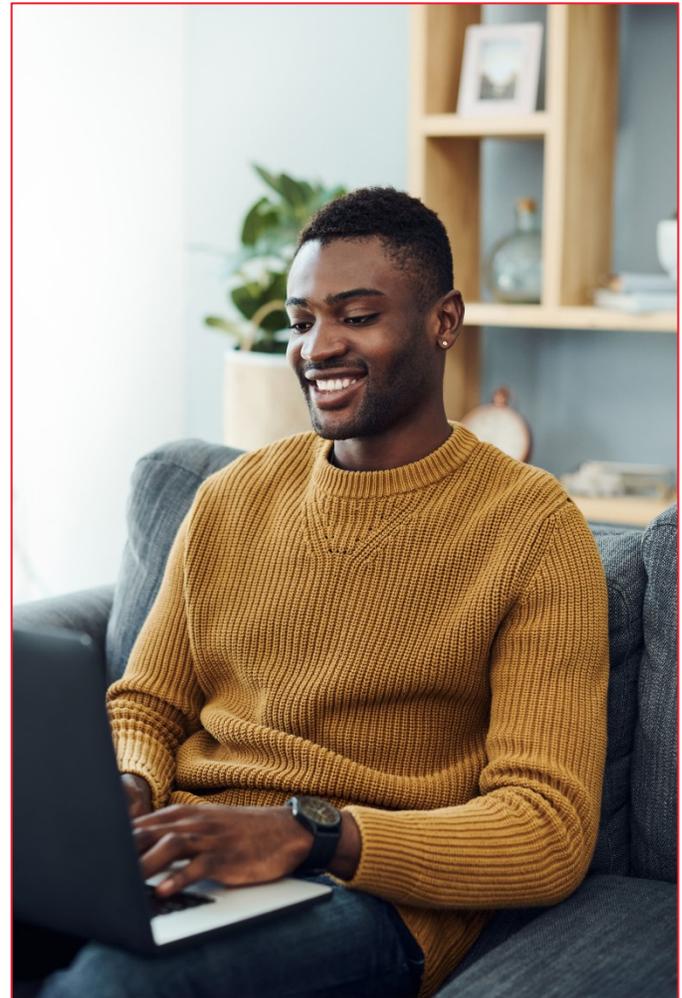
Households Subscribing to Mobile Internet Service

|	Refugio County, Texas	All Communities
No	28.5%	27.0%
Yes	71.5%	73.0%

■ Yes ■ No
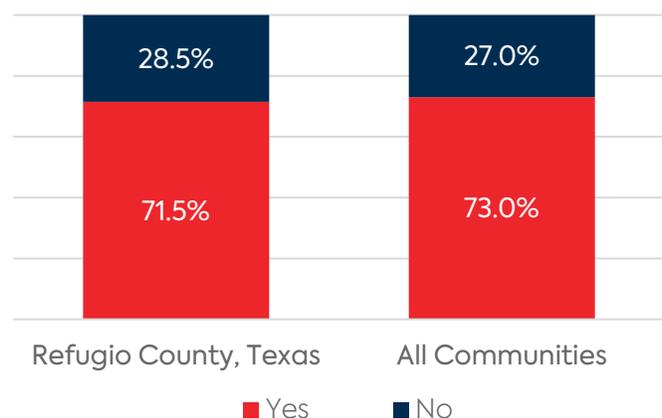
TELEWORK

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 Refugio 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 64% of employed respondents in Refugio County telework at least part of the time. This is more than residents in other communities, though teleworkers in Refugio County work from home just about as often as teleworkers in other communities.
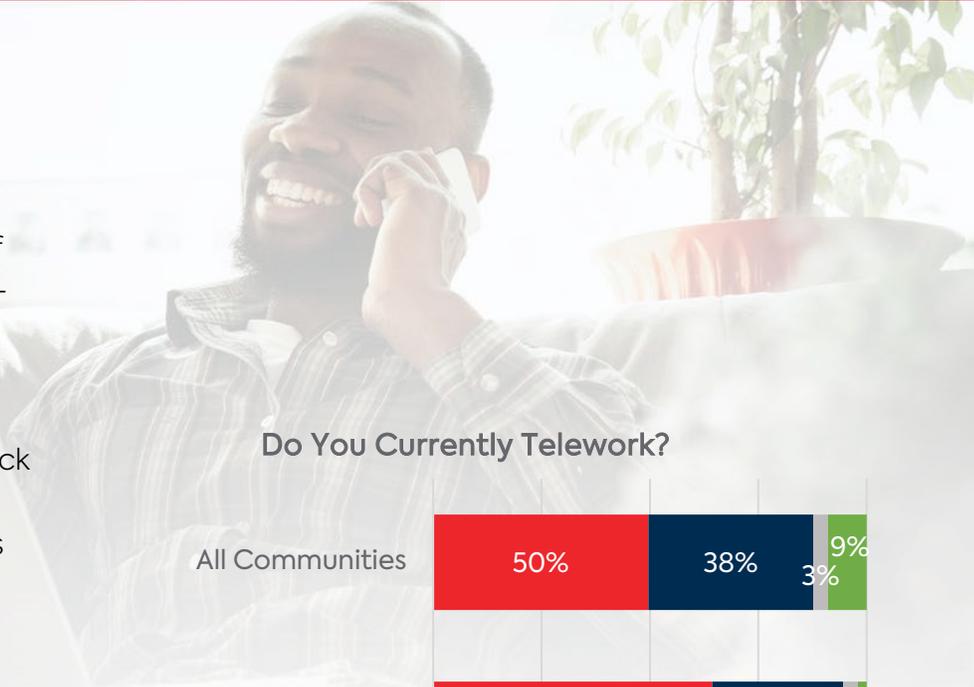
Do You Currently Telework?

	Yes	No	I own or operate a business from home	Other
All Communities	50%	38%	3%	9%
Refugio County, Texas	64%	30%	3%	2%
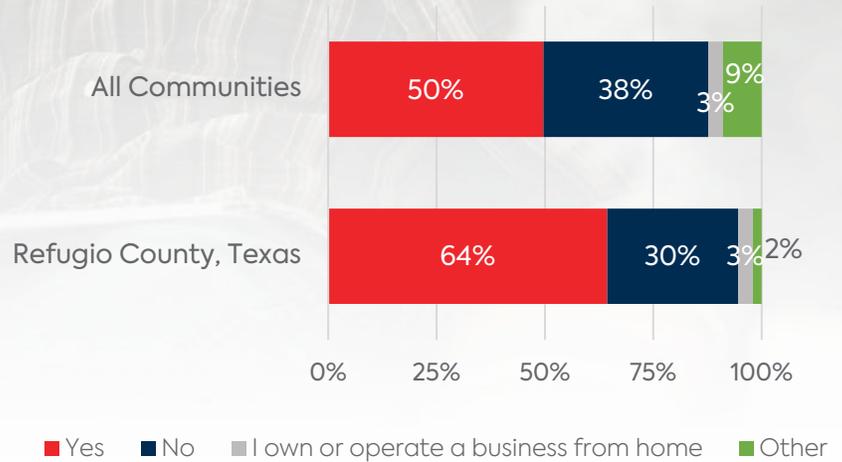
How Frequently Do You Telework?

	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%	6%	10%
Refugio County, Texas	27%	13%	13%	9%	16%	23%
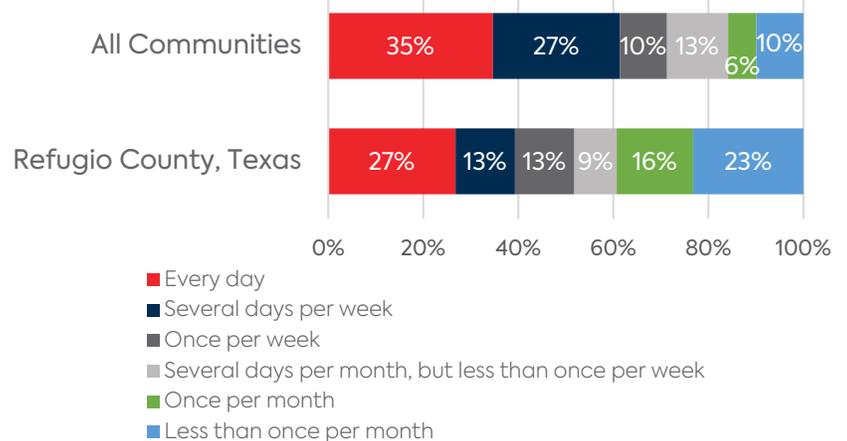
RECOMMENDATIONS
04

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

Goal 1: Develop a long-term strategy for continuous improvement and advancement of broadband speeds in Refugio County

Objective:

About 91.38% of Refugio County households have access to 25 Mbps download and 3 Mbps upload speeds, which is considered high-speed internet by the FCC. However, when analyzing broadband data for speeds of 100 Mbps download and 10 Mbps upload, Refugio County coverage is just over 69%. When charting a path forward for connectivity in Refugio County, leadership should target increasing broadband availability to 100 Mbps download and 10 Mbps upload for all residents – the optimal speed needed to run many modern applications today. Through the Rural Digital Opportunity Fund (RDOF) commitments, Refugio County has the opportunity for nearly all of the county to have access to at least 25/3 Mbps in the coming years. However, the community should still develop a long-term strategy for continuous improvement and advancement of broadband speeds in Refugio County.

Actions:

Action 1 – Establish a county broadband manager position to handle the business of broadband in Refugio County. Currently, there is no office or person to call, other than Judge Blaschke, if one needs to discuss broadband in Refugio County. Since broadband has become part of a community's critical infrastructure and with funding potentially coming in via the America Rescue Plan and the Rural Digital Opportunity Fund and other opportunities, it is imperative that there is an assigned leader to handle the necessary engagement, planning, and execution of broadband-related activities. Providers and the public will need to understand the County's processes to do business and relationships will need to be established. This is especially important given the Fiber Optic Loop Feasibility Study conducted by CobbFendley, which may have dramatic implications for the region. Information about the study can be found here: https://www.aransascounty.org/harvey/aransas-county-fiber-optic-feasibility-study/ .

Duties of the Broadband point of contact can include:
- Developing and managing provider relationships. Additionally, establishing relationships with RDOF winners, Resound Networks and NexTier Consortium. Between the two, 1,234 new locations will be receiving broadband with minimum speeds of 25/3, and Resound is promising Gigabit speeds.

- Creating partnerships with local community organizations around broadband access, adoption and use of broadband.
- Establishing contact with Representative Michael Cloud's office. James Baker is his Director of Public Policy, e-mail: james.baker@mail.house.gov, Tel. 361-884-2222. He is very knowledgeable about broadband in rural communities and can offer help on federal grants and programs.
- Distributing public information on affordable broadband services and training.
- Deploying RFQs for services needed regarding broadband.
- Reporting updates about broadband activity to county leadership. This includes activity generated from RDOF money and other grants, loans, and subsidies the County may seek.

Action 2 – With RDOF funds committed to covering unserved areas, Refugio County may consider completing an audit (field validation) of currently served areas of the county.

- This should focus on areas where the surveys indicate that service is not available. Also focus on areas where FCC 477 broadband data is the main source of data, as this data could misrepresent services in these areas, particularly at the outer edges of these service areas.

Develop and release an RFQ for an evaluation to better understand Refugio County's assets and barriers to service.

- Assets include anchor tenants, antennas, building rooftops, light poles, and towers that Refugio County owns.
- Barriers include road easements, pole owner leases, polices and regulations that Refugio County controls.

It is important that the broadband manager negotiate with the providers for the benefit of the residents. Understanding and negotiating your broadband assets is the beginning of establishing public/private partnerships with providers. Counties have assets, providers need to deploy their services. This is an opportunity to work together.

Action 3 – The broadband manager should develop relationships with their counterparts in the region and meet regularly as funding opportunities become available to implement the plan. Refugio County needs to understand the Regional Fiber Optic Infrastructure Study (RFOIS) that has been released for the entire region by CobbFendley. The County needs to be an active stakeholder and participate where it benefits Refugio County. Understanding how this plan may or may not overlap with RDOF plans is important in order not to duplicate work.

Understanding the goal of the RFOIS and the goal of Refugio County is important. The goal of RFOIS is to determine the feasibility of designing a network for emergency management that can withstand natural disasters. Secondary benefits will be economic development and better communication. RDOF funding goals are to improve internet access for residents and businesses in Refugio County with secondary benefits being economic development.

Responsible Parties:

The broadband manager should be established immediately by leadership. Although details of the job have been discussed above, it can be modified to fit the specific needs of Refugio County. Finding a regional solution is desired by Judge Blaschke and this should be considered, and discussion should be centered on how a regional approach can work across county lines and how each entity receives the attention it needs.

Depending on the final decision, this position may be housed under a regional entity or locally under Refugio County leadership and if agreed, cost may be shared with surrounding cities and counties needing the same dedicated attention to broadband. It should also be noted there are philanthropy grants for broadband and this option can be explored for additional funding.

Resources:

- Connected Nation – advising on network build-out, mapping, RFP consulting: www.connectednation.org
- Governors Start 2021 by Expanding Access to broadband: https://www.nga.org/news/commentary/governors-expanding-access-broadband-2021/
- Broadband grants and funding opportunities: https://rendernetworks.com/broadband-grants-funding/
- Fiber Broadband Association State Resources: https://www.fiberbroadband.org/page/texas-156
- Broadband Expansion in Texas: https://comptroller.texas.gov/economy/fiscal-notes/2021/feb/broadband.php

Goal 2: Increase broadband adoption by promoting and advancing digital literacy and jobs skill training in Refugio County

Objective:

While over 90% of households in Refugio have broadband service (25/3 Mbps), only 65% have adopted fixed broadband and 19% are using non-fixed connections to connect to the internet. Research over the years shows that lack of digital literacy – particularly in low-income households – is a barrier to broadband adoption. To overcome this barrier to adoption and increase opportunities for the community to learn basic digital skills and job skills, the county should partner with local community organizations to deploy digital skills training programs. Digital skills training is not only important because it drives broadband adoption, but businesses view training and having a digital competent workforce as important. Therefore, offering digital training skills in the community will increase adoption and use of the internet in Refugio County.

Actions:

Action 1 – Facilitate and deploy basic digital skills and job training programs in Refugio County. The current and the future job market will require employees to understand how to use the internet. Residents who need to fill out government forms, bank loans, and other documents only available on the internet, will also need basic digital skills.

- Create a partnership between Refugio County and local community influencers such as:
  - Dennis M O'Connor library
  - Refugio ISD, Austwell-Tivoli ISD, and Woodsboro ISD
  - Local broadband providers and RDOF recipients
  - Refugio County Chamber of Commerce
  - Local churches
- The Refugio County Community Development Foundation led by Hailey Satterwhite of Santos McBain, can implement a digital literacy program, as well as a digital job skills training program as part of the economic development plan for Refugio County.

These training resources consist of computer labs where in-person training can be provided along with online courses. Additionally, the training programs can leverage free content widely available online for deriving curriculum or self-paced training. Many of these online courses are free of charge such as: *Drive Your Learning* offered by Connected Nation, details can be found at https://connectednation.org/. Each facility needs a sufficient number of computers, software, and broadband connectivity. The facility should have hours of operation that are conducive for the target audience, and engage in sufficient outreach and awareness efforts to reach them. It is very important to understand the target population because failure to reach them with appropriate

messaging about the training may result in minimal interest and low attendance at the training sessions.

The County should also consider a digital literacy training effort hosted at the library to provide digital skills training in English and Spanish. Some organizations that provide free training resources in English and Spanish include:

- Goodwill Foundation: English and Spanish
- DigitalLearn.org
- Grow with Google: https://grow.google/intl/es-419_us/

Action 2 – **Classes should be offered to the business community to increase their knowledge of the internet and help with the growth of their businesses.** Surveys show over 70% of residents interact with local businesses via the internet, but only 42% of business have a presence online. Partner with local community business organizations such as Refugio County Career Women, Refugio County Chamber of Commerce, and Refugio County Community Development Foundation to host digital skills training.

Subjects can include:

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

Responsible Parties:

Organization of these initiatives can be done by the broadband manager or regional advocate under the guidance of county leadership and the Commissioners Court.

Classes can be hosted by:

- Local area internet experts
- Nonprofit organization volunteers (i.e., Chambers)
- For-profit organization volunteers
- Librarian Tina McGuill and staff

- Internet providers in the areas
- Private-sector technology companies (e.g., web developers, device repair, etc.)

Resources:

- The Drive digital learning hub provides ready access to a variety of digital literacy training programs: http://driveyourlearning.org/.
- 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:
- Internet Safety: http://www.gcflearnfree.org/internetsafety/

Goal 3: Increase broadband adoption in Refugio County

Objectives:

Refugio County should promote low-cost broadband offerings in the community to increase broadband adoption. With a poverty rate of over 18%, residents will benefit from learning about affordable services available to them, including some programs offered by providers including the Emergency Broadband Benefit Program which was launched in response to the COVID-19 pandemic. These programs are available now, the county can begin promoting them as soon as possible.

Actions:

Action 1 – **Research low-cost offering in the community.** The broadband manager or regional advocate should gather necessary information about private or federal programs by reaching out to providers and from the resources 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 offerings.

- 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, https://www.lifelinesupport.org/.
- The FCC also recently launched a temporary Emergency Broadband Benefit Program which provides a discount on monthly bills ($50 per month or $75 on Tribal lands), plus $100 for 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 information to local organizations for them to share with their constituents. These organizations include Woodsboro ISD, Austwell-Tivoli ISD, and Refugio ISD.

Action 3 - Promote low-cost offerings via government and other community organizations websites. The broadband manager or regional advocate should ensure that information about these programs is available to the community via websites and in print.

Responsible Parties:

The broadband manager or regional advocate should gather necessary information and coordinate with stakeholders across the country 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

- Representative Michael Cloud - Rep. Cloud is very interested in broadband and can be a vital resource to helping Refugio County – Contact James Baker, Director of Public Policy: james.baker@mail.house.gov or Tel. 361-884-2222.

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