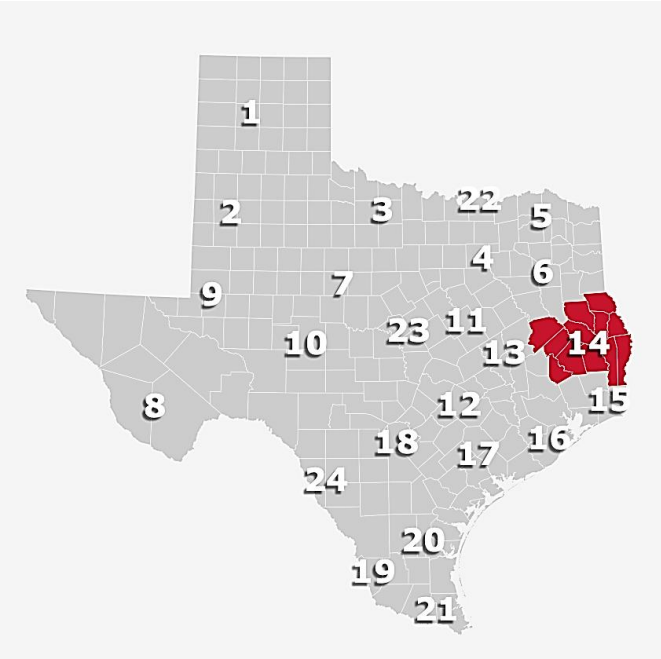
The Case for Broadband in Deep East Texas



DETCOG

Deep East Texas Council of Governments and Economic Development District

May 2020

About DETCOG

The Deep East Texas Council of Governments and Economic Development District (DETCOG) was organized in 1966 and is a voluntary association of Counties, Cities, Independent School Districts, River Authorities, Special Districts and sustaining private industry members in a 12-county region of Deep East Texas. The region encompasses an area of 10,383 square miles and is home to approximately 385,000 residents.

DETCOG envisions a Deep East Texas region where all people have the necessary skills and opportunities to achieve their individual dreams; a Deep East Texas where people enjoy good health, safety and security, and a high quality standard of living. DETCOG assists its members' efforts to increase jobs and strengthen their local economies. Regional cooperation leads to stronger communities and more efficient use of resources. DETCOG provides the opportunity for local jurisdictions to work together to accomplish more than any individual member could accomplish on its own.

DETCOG's Broadband Initiative

As broadband goes, Deep East Texas is one of the most underserved regions in the nation. Our goal is to change that. We believe that ***every*** home and business – not just the ones that are easy and profitable to serve -- should have access to reliable and affordable broadband.

Broadband is no longer a convenience or luxury. It is a necessity. A modern digital infrastructure with broadband service that is accessible and affordable for all is a critical component of a competitive and modern regional ecosystem for its enterprise and residential stakeholders.

We know there are many areas in our region that are difficult to serve, and frankly, impossible to serve under a traditional business model. Yet these rural residents and businesses deserve the same opportunities as their counterparts who live and work in urban and suburban areas.

We believe the only way to provide service for everyone in a region like ours is to leverage the population and resources of the entire region. And we believe the entire region will benefit from it.

DETCOG

Our First Step: The inCode Study

Aware of the enormous and costly challenge to provide broadband in rural areas like Deep East Texas, the DETCOG Board of Directors commissioned a regional study to determine the feasibility of such an undertaking, and develop a road map for success.

inCode Consulting, a division of Ericsson Inc., was commissioned to conduct a regional broadband market analysis and feasibility study as a first step in the development of a regional broadband network to provide high-speed internet and data services to all 12 counties of the region.

The study documented the shortcomings of existing broadband service in Deep East Texas and projected the positive economic and societal impact of broadband on the future of our region.

Much of the information contained in this report is from the inCode study.

Executive Summary of Findings and Recommendations from inCode Study for DETCOG

Minimal existing broadband infrastructure requires extensive network build

- Existing fiber constitutes **less than *15%* of the total needed fiber miles** in DETCOG
- Institutions such as schools, universities, and utility coops have fiber assets, but **access is limited due to legislative and regulatory requirements**
- Capital requirements and investment profile is outside of typical enterprise consideration. **A public-private-partnership (PPP) model is necessary to maximize resources available for the project**

High buildout costs require fiber alternatives & partnerships between ISP, utility Co-Ops, and government

- Fiber construction **ranges between $30,000 – $100,000 per mile** dependent on location geography
- **Alternative technologies** such as Fixed Wireless Access (FWA), 5G cellular and hybrid-fiber coax will serve to increase speeds with less capital intensity compared to fiber
- **Broadband's economic impact to DETCOG** has the potential for additional ~2.5K jobs and ~$300M in incremental GDP growth over next 10 years via investments in IT, education, and telehealth alone!

A phased selection of counties is required to keep network buildout realistic and manageable

- A simultaneous, full-scale all-fiber network buildout can cost upwards of $600 M
- **DETCOG can potentially address *60%* of households through a mix of fiber and cellular technology with a projected $143 M capital cost**
- DETCOG should work with on-ground ISPs and utility Co-ops to develop a target list of build areas to keep the initial project achievable, and potentially **reduce per mile build-cost down to $12,000 – $25,000 per mile**

Source: inCode analysis

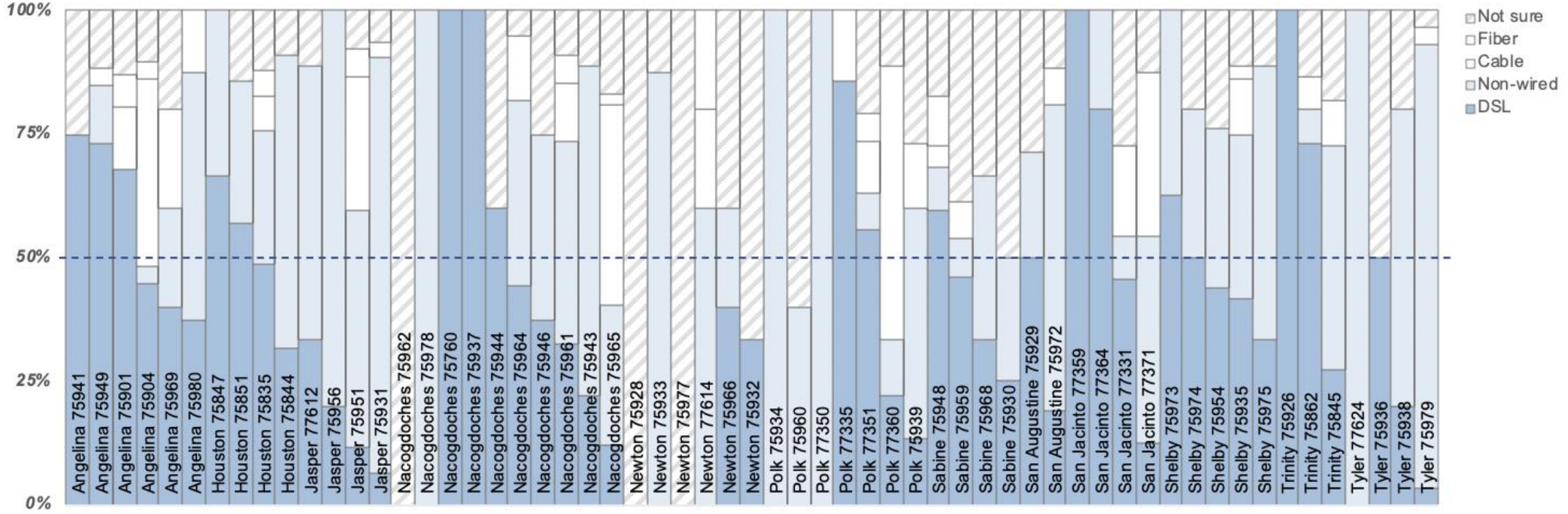
inCode

The majority of Deep East Texans do not have access to reliable, high speed, internet.

DSL is the most common internet service technology in DETCOG. Households without access to fixed line internet have to supplement with unreliable, slow, and costly alternatives such as satellite internet service

Home internet services technology breakout in DETCOG

Service areas defined and segmented by zip codes, 'Not listed here' consists of cellular and satellite technologies

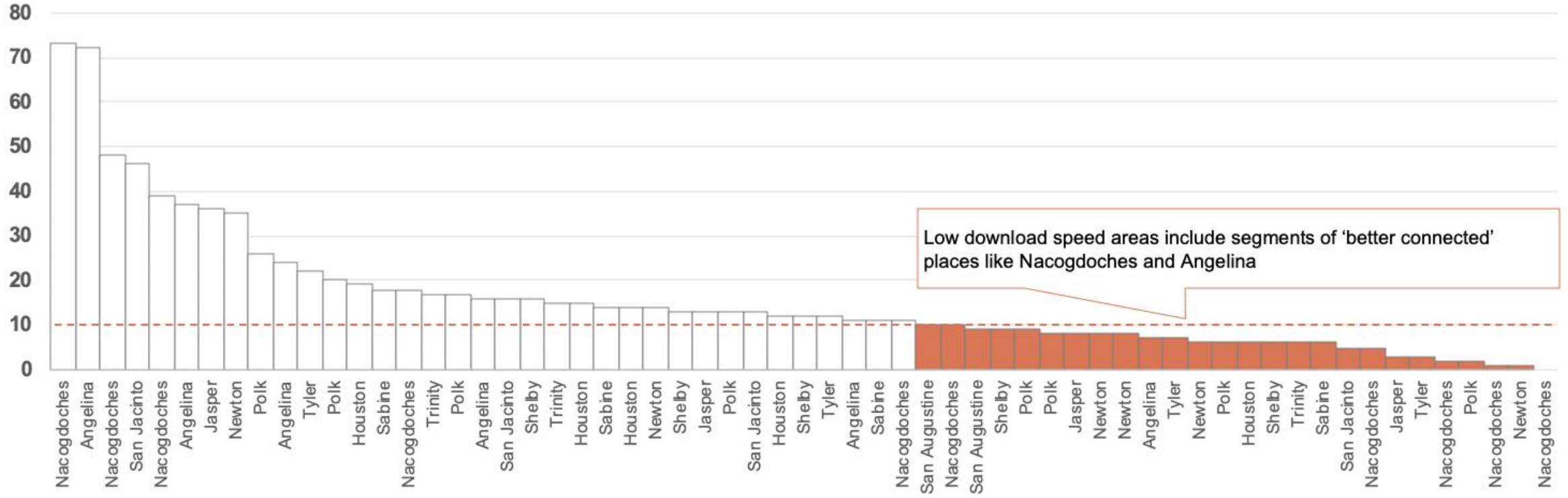


Source: DETCOG Internet Speed Test Survey, DETCOG stakeholder interviews, inCode analysis

Almost half of Deep East Texas experiences download speeds of 10 Mbps or less.

The predominance of DSL and Satellite internet service contribute to the low download performance measured

Average home internet download speed in DETCOG
In Mbps, service areas defined and segmented by zip codes



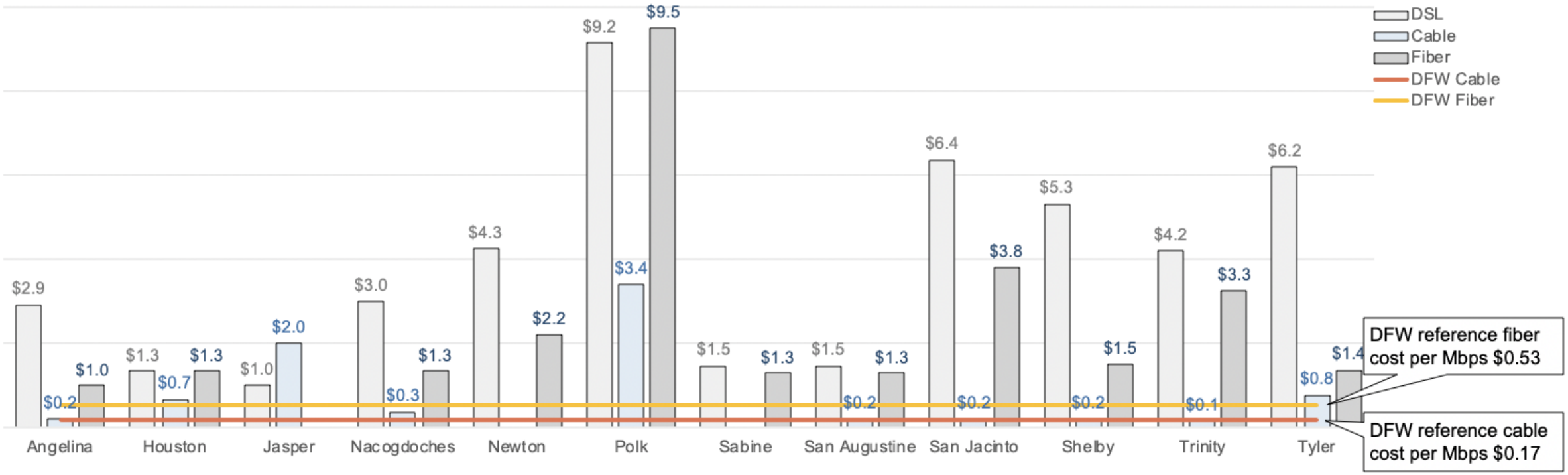
Source: DETCOG Internet Speed Test Survey, DETCOG stakeholder interviews, inCode analysis

Compared with the DFW metro area, the cost of fixed line internet service is much higher for residents of Deep East Texas when normalized for access speed.

On average, DETCOG residents pay *390% more for cable service* and *430% more for fiber service* based on cost per Mbps delivered to their home

Average cost per Mbps based on fixed line internet services

Cost per Mbps based on monthly service costs

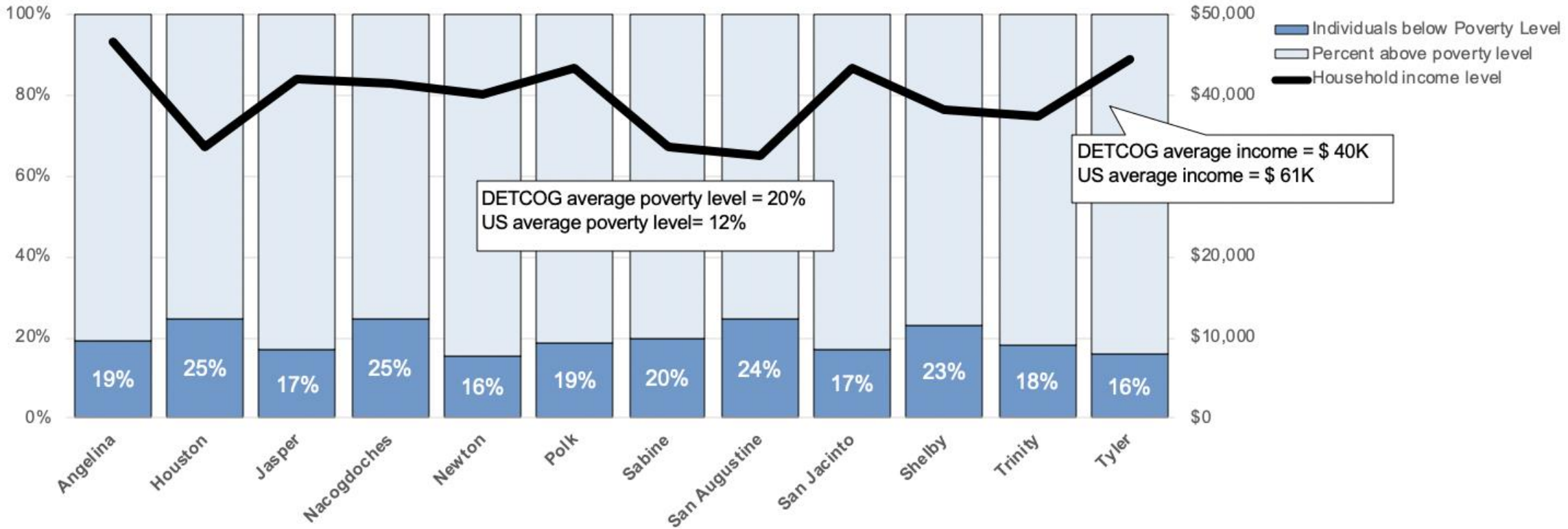


Source: NTCA, FCC, Broadband Now, inCode analysis

The DETCOG region's demographic profile limits the interest of service providers to invest and deploy broadband services…

Broadband deployment and services will need to account for the income characteristics in the DETCOG regions

Comparison of poverty levels and average income in DETCOG counties
Based on 2010 US Census data



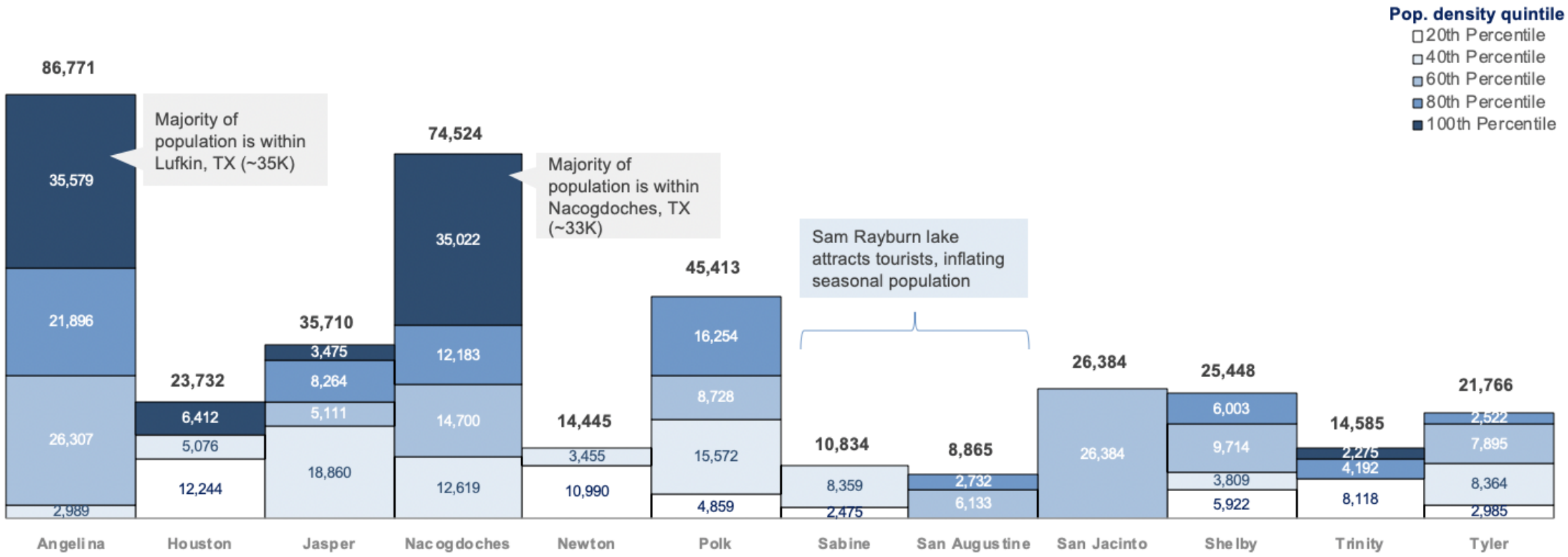
Source: US Census

…but demographic profile and data points recorded by US Census do not capture seasonality trends that could impact broadband investment decisions. This is an issue throughout our region, which is home to the three largest reservoirs in Texas *(Toledo Bend, Sam Rayburn, and Lake Livingston).*

Counties around Sam Rayburn Reservoir (e.g. Sabine) experience up to 3x population increase in summer due to vacationers, bass fishing competitions, and other seasonal leisure events

Population of DETCOG segmented by population density

Population density ranked by quintiles



1Based on 2010 Census Data

Source: US Census, inCode analysis

The Economic Impact of Broadband

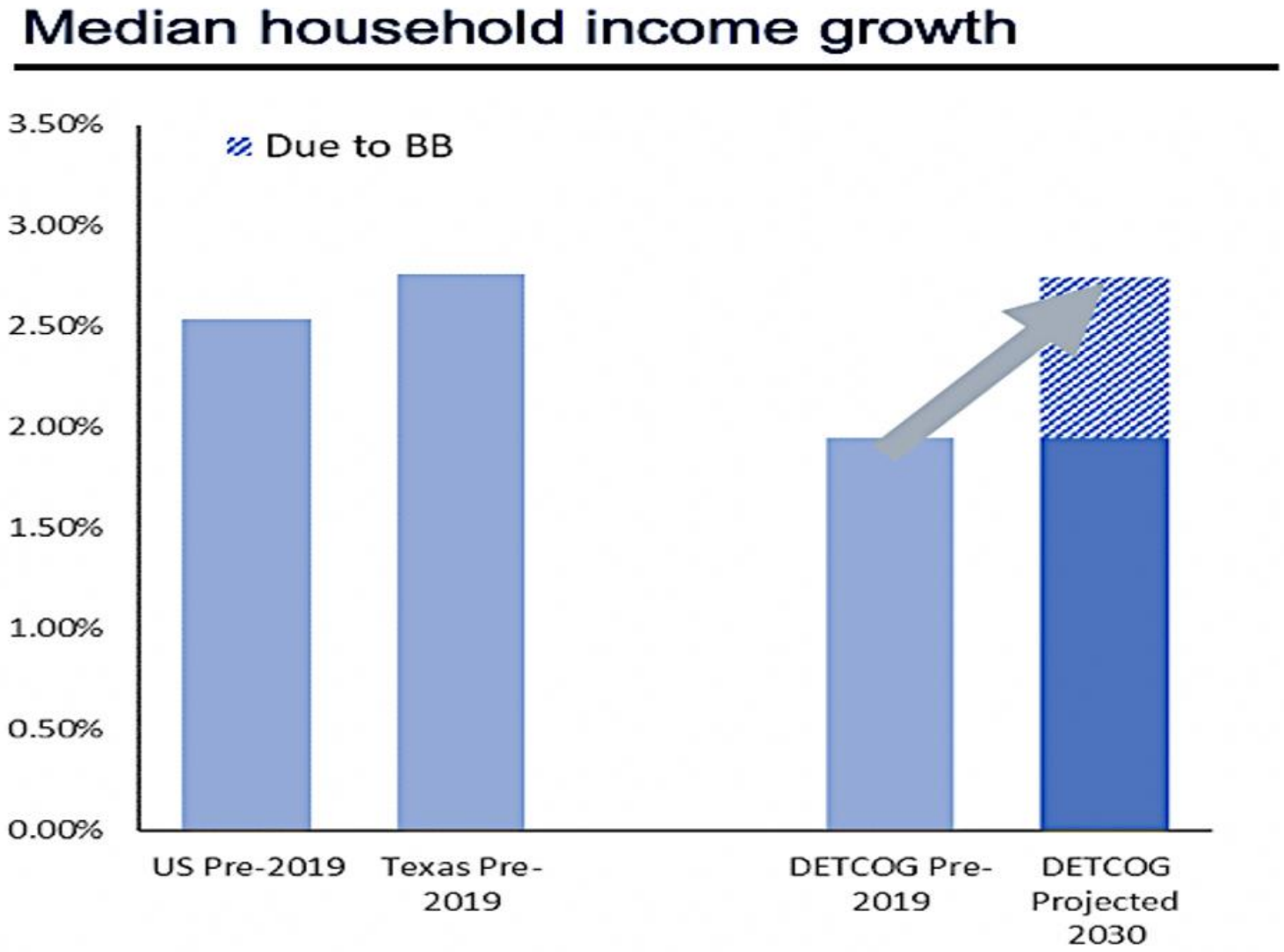
The inCode study projected the economic impact of broadband over a 10-year period. Broadband can provide an enormous boost to our economically distressed region. Despite the natural beauty and other positive aspects of life in Deep East Texas, our region historically suffers from high poverty, high unemployment, and low wages. This stymies new investments in our region and affects every aspect of life for our residents, including education and health outcomes. Broadband is the key to changing that!

Over 10-Year Period in Deep East Texas…

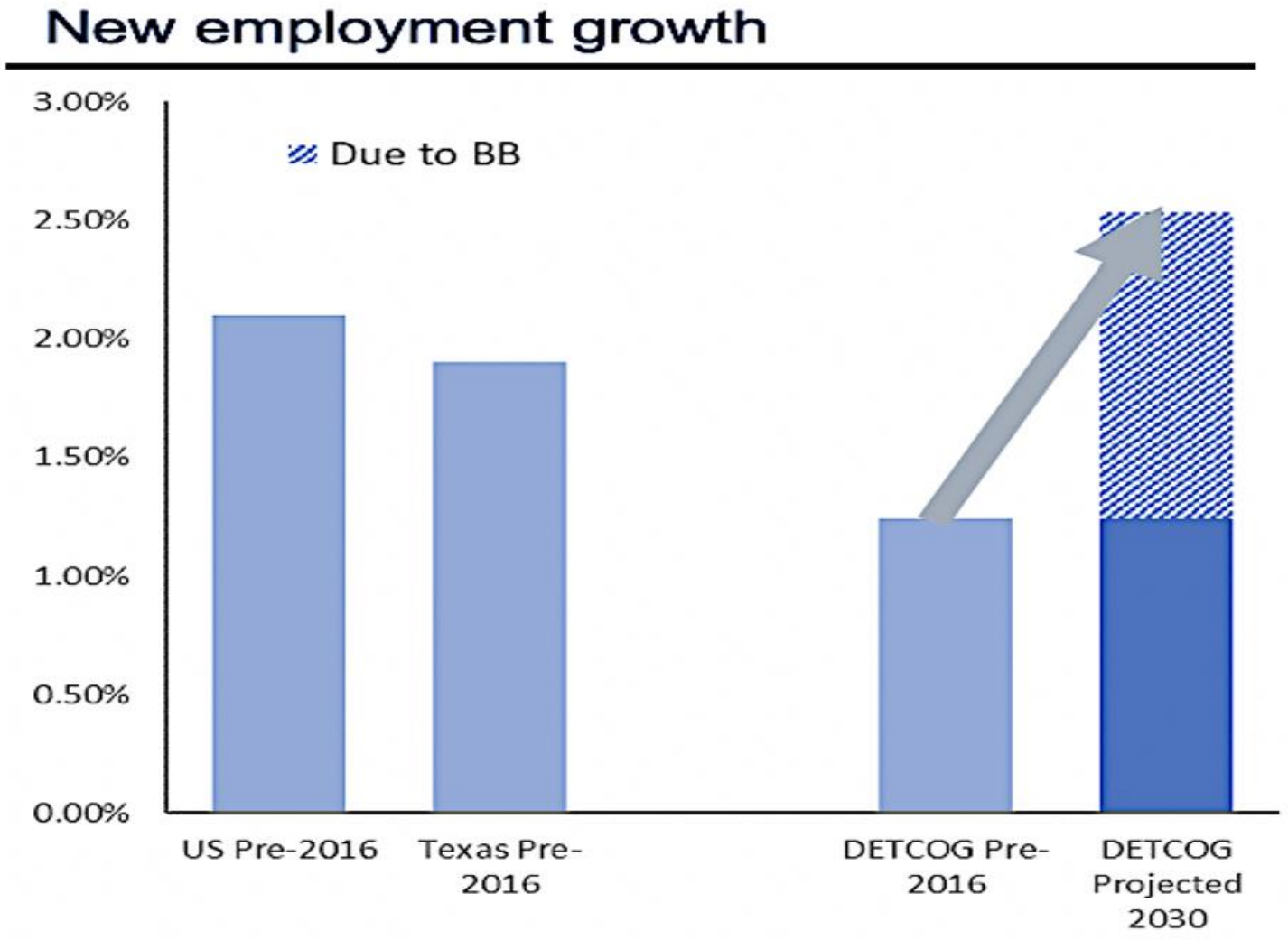
- **10,300 New Jobs**
- **$1.4 Billion in GDP Growth**

With affordable broadband for all, we can create an Economic Virtuous Cycle that will transform our economically distressed rural region and benefit every resident.

Without broadband, we can expect the household income of the average Deep East Texan to remain stagnant. Broadband is the catalyst for growth.

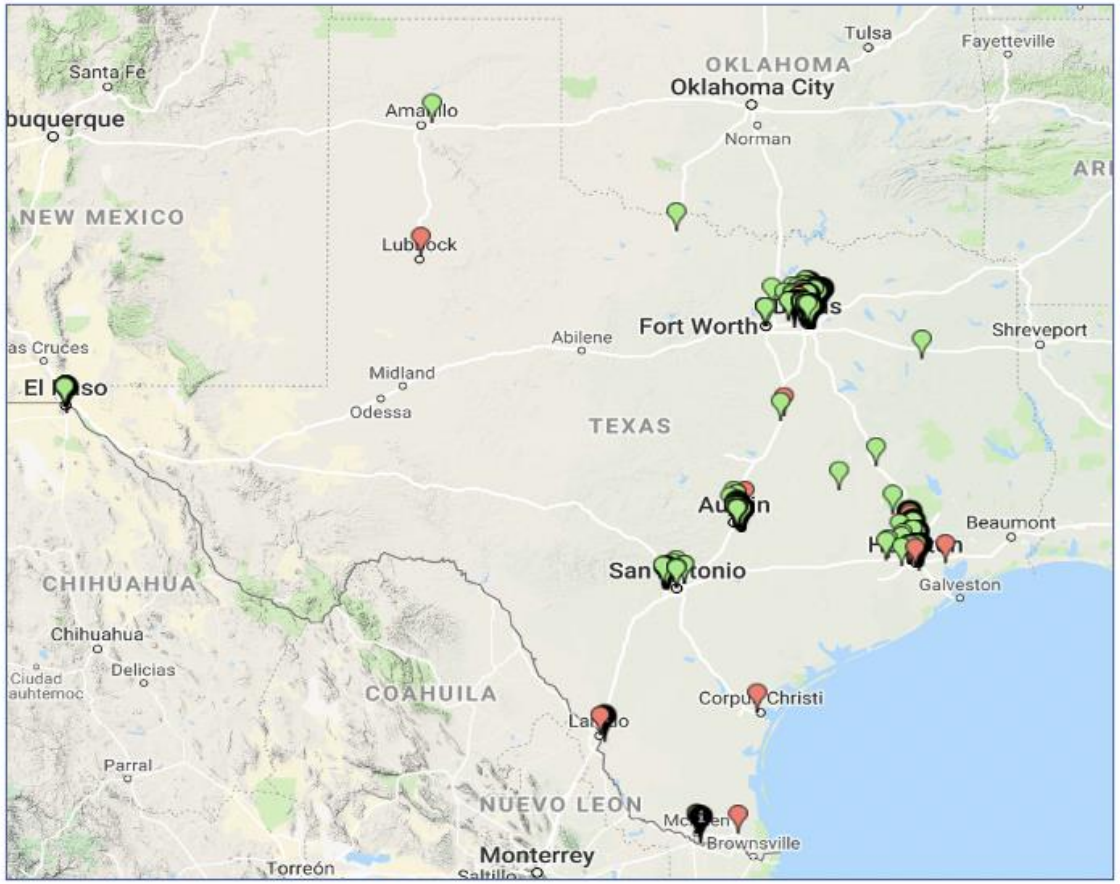


Without broadband, little growth in employment will occur in most of our region. Affordable broadband for the entire region will lead to significant growth.



Because of our location, natural resources including abundant water, and the availability of affordable land, Deep East Texas is an attractive area for business, including the technology sector.

IT Impact: Why not Deep East Texas?



Data Centers in Texas

- **Broadband infrastructure helps lower costs and allows practicality of data/IT centers**
- **Facilities like NacSpace (a new data center and IT service provider in Nacogdoches) require $5-10 million investments and employ 100-200 IT professionals**
- **Data centers will provide higher paying jobs and prevent regional graduates from leaving *(NacSpace's #1 source of professionals is the local university, SFA)***

Companies like Provalus see the potential for tech jobs in Deep East Texas. Provalus has expanded into the Jasper community with great success.

Why not Deep East Texas?

There's a tech talent shortage in the US, with companies outsourcing billions of dollars of work overseas ever year. Companies like Provalus, which recently expanded into Jasper TX, are training local talent in under-served communities to bring those funds into our economy and transform our rural communities in the process.

Software and support business to expand operations to Jasper

KFDM

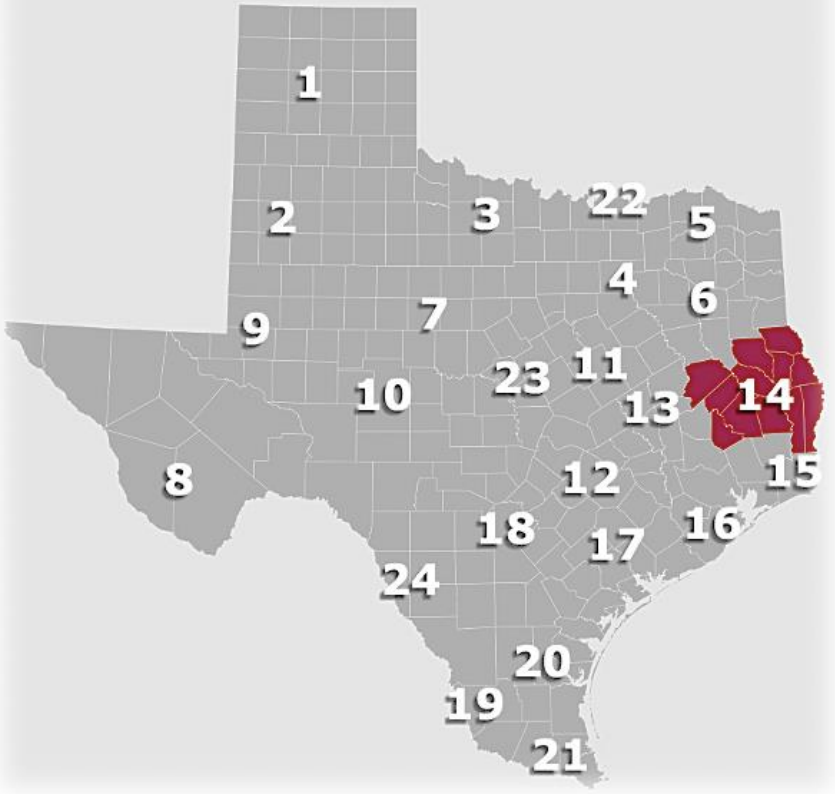
JASPER — Following months of discussion and negotiation, Provalus, a provider of software and support for the information technology industry, announced on Thursday that it will expand its operations to Jasper.

The decision wa… of
Provalus' parent… ia.

New business in Jasper already expanding

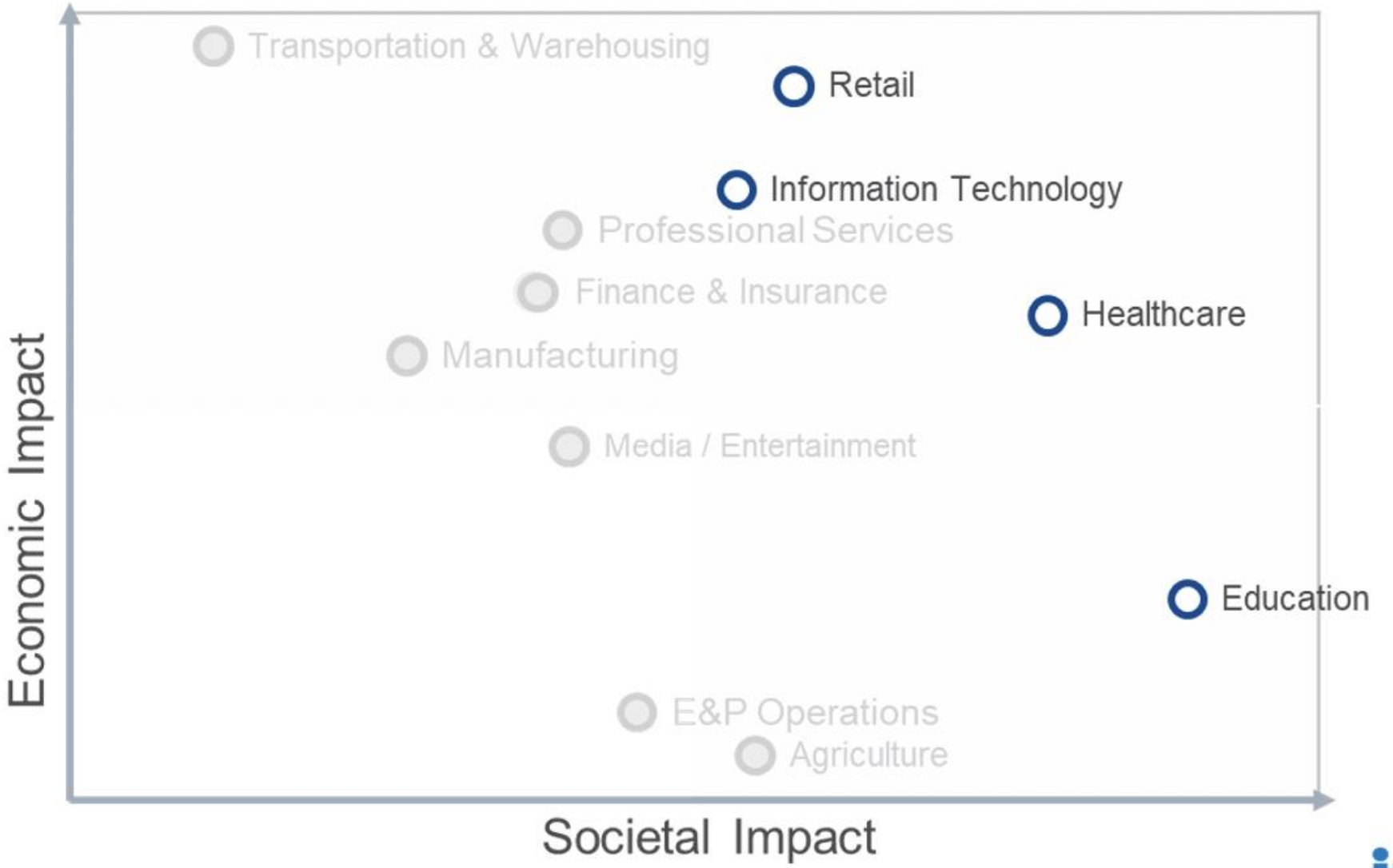
JASPER — Work is continuing on the new parking lot that is being built for Provalus, the Brewton, Alabama firm that recently expanded it's operations to Jasper.

COVID-19 has underscored the importance of technology for delivery of education and healthcare services. In addition to the obvious improvements in education and health outcomes, the economic impact would be significant for our region.

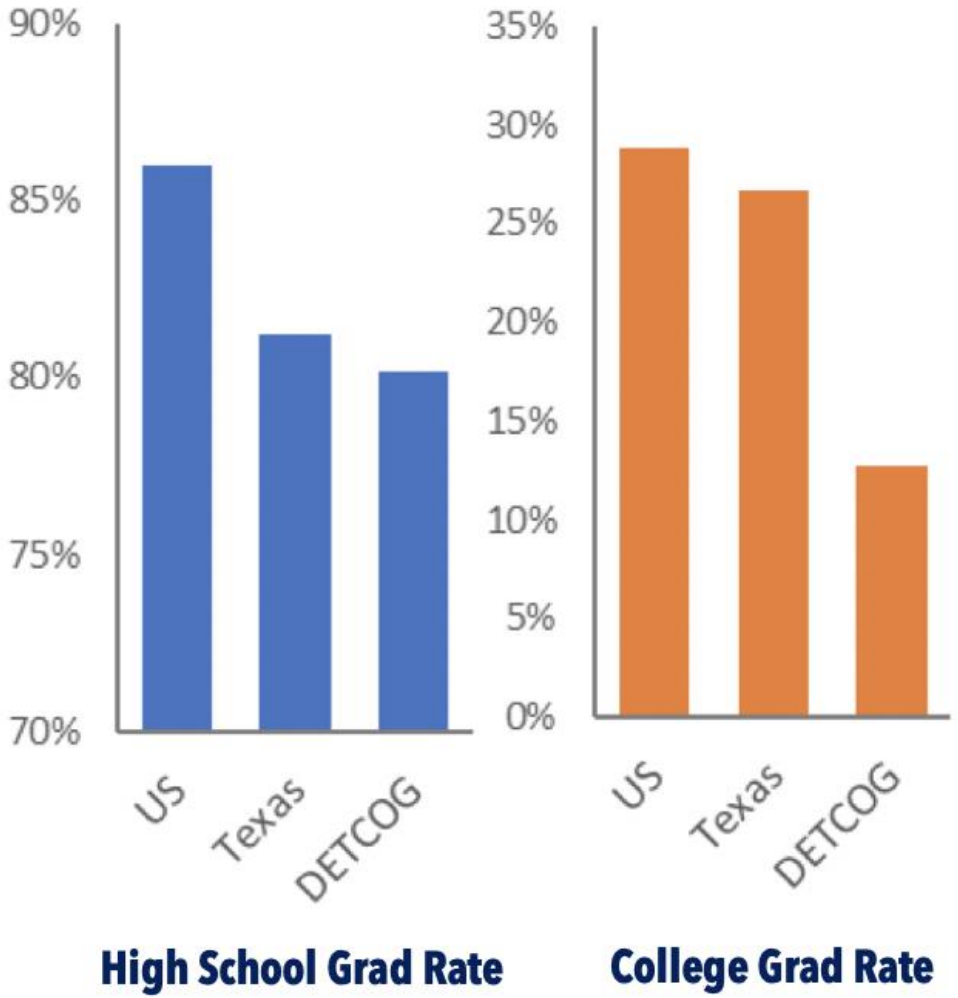


IT, Education, and Telehealth investments have the potential to impact DETCOG region by ~2,500 jobs and ~$300 million incremental GDP growth over next 10 years.

Every public service and every business benefits from broadband. This chart shows the sectors that would benefit most in Deep East Texas from both an economic and societal impact.

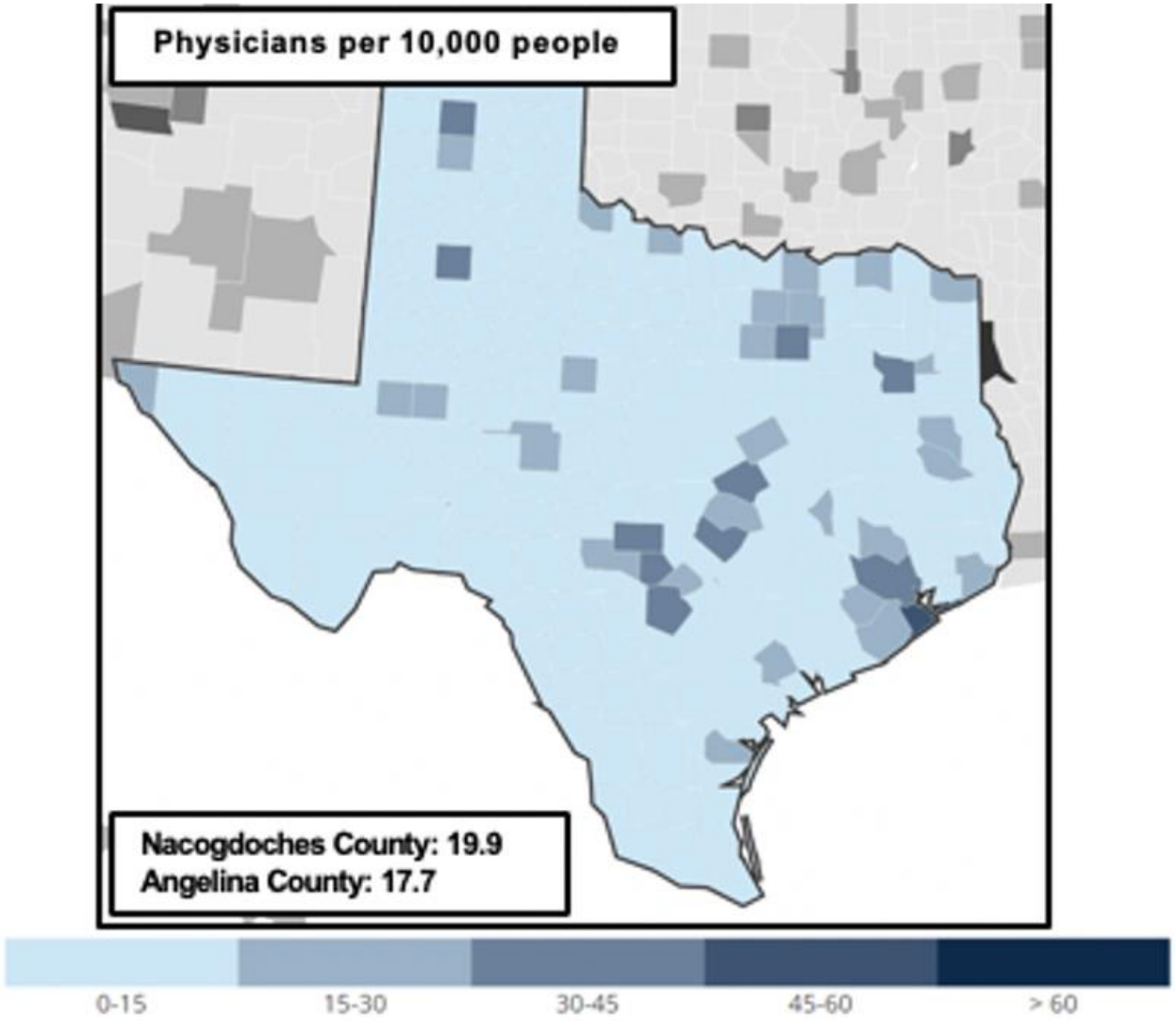


Students in Deep East Texas are at a disadvantage. Schools cannot offer online classes because most students, and many teachers, do not have access to reliable internet service at home.



- **Broadband will extend learning into the home**
- **High school students exposed to online learning are 2x as likely to attend college**
- **Distance learning provides a low cost method to attain necessary skills/education required for employment**
- **An effective 1:1 student/teacher ratio can be created which has been proven to be more effective (17:1 currently in DETCOG region)**

The importance of Tele-health services has been magnified by COVID-19. Sadly, this is not an option for most residents of Deep East Texas due to lack of affordable broadband.



- **Telehealth provides rural residents access to physicians & specialists**
- **Telehealth access increases hospital & pharmacy savings**
- **Telehealth reduces consumer costs in travel and lost wage hours**
- **Greatest impact seen in radiology, oncology & mental health services**
- **Investment in tele-equipment will lead to job and value growth**

It’s all about the future.

The vision of DETCOG is to facilitate development of a world-class telecommunications infrastructure for our region for the 21st century and beyond. Broadband is a critical service for health and safety, quality of life and economic development. Every home, business, nonprofit organization, government entity, and education institution should have the opportunity to connect affordably, easily and securely. DETCOG intends to empower its citizens, local businesses, governments and schools to be network economy ***producers***, not just *consumers* of network information and data services. DETCOG is looking for innovative solutions that will provide a cost-effective and rigorous path forward to present value to potential stakeholders, and to the region as a whole. We hope to become a model for other regions to follow. Because of the rural nature of our region, if it can be done here, it can be duplicated anywhere.

Where do we go from here?

We are moving into the Network Design phase of our rural broadband initiative. DETCOG has issued a Request for Proposals (RFP) for a qualified Engineer to complete this phase, which will provide us with a detailed, actionable Network Design plan. We anticipate awarding a contract for this work to begin July 1, 2020 and be completed later this year.

Once the Network Design is completed we will begin making applications for funding to construct the network.