



San Antonio and Greater Bexar County Community Digital Equity Plan and Roadmap

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Disclaimer: The information found in this portal is intended for public use. It reflects work produced and provided by the SA Digital Connects team and community members starting in January 2021 to the present.

Some information will reflect the moment in time when the work was done. Data, funding, maps and assumptions may fluctuate in the everchanging digital ecosystem.

Scope of Work

SA Digital Connects is a **public/private/community investment** in a **San Antonio and Greater Bexar County Community Digital Equity Plan and Roadmap** that will lead to future action steps; including timelines, milestones, key stakeholder roles, and required investment for execution. At the end our community will be prepared to make effective use of local, state, and federal funding for key digital access and equity **initiatives impacting households, students, older adults, veterans, people living with disabilities, workforce, telemedicine and justice system.**

SA Digital Connects

SA Digital Connects is a public, private, and community partnership with the governance of a Texas registered Unincorporated Nonprofit. The fiscal agent for 501c3 donations and financial oversight is greater: SATX (formerly the Economic Development Foundation).

For more information, questions or to connect with us, please email connect@sadigitalconnects.com.

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1 Why invest in the digital divide?

The digital divide was thrust into the spotlight at the outset of COVID-19, garnering substantial public attention from leaders across all sectors. While digital access has been a longstanding challenge that pre-dates the pandemic, the importance of digital connectivity has never been more clear. Investment in the digital divide is critical to eradicating systemic inequities and accelerates investments across sectors including education, health, and workforce development, among others. Closing the digital divide provides returns to individuals, to community and society, and to the economy at large, and is vital to launching the U.S. into the next generation of more equitable and prosperous development.

1.1 To individuals

Investing in closing the digital divide helps bridge systemic inequities and promote social justice for individuals. Individuals that are digitally connected are more likely to experience educational, employment, and financial success, promoting their own well-being and that of their families.

Households

Households and families, especially those with children and working parents, need stable broadband that can meet the simultaneous needs of all members. When online, members of the household can look for information; find and apply to new jobs; connect with loved ones; share messages, pictures, and videos; participate in online forums and support groups; tend to personal finances; attend lectures, experiences, fitness classes; among other things. Reliable broadband enables parents to work from home while children take online classes or complete schoolwork. Stable broadband, at reliable and necessary speeds, minimize disruptions so that the needs of all members can be achieved simultaneously. Adequate devices and connectivity are a modern-day appliance, like a dishwasher or refrigerator, essential to building complete households in our communities.

Students

The pandemic abruptly shifted students and teachers to remote learning. Even as students return to in-person instruction, the ability to learn from digital platforms remains crucial. Internet is crucial in helping students do research, complete homework, and assignments, and communicate with teachers. The future of learning will increasingly rely on online platforms to enable interactive curriculum, individualized learning pathways and gamification of the learning experience. Even before the pandemic, students without access were shown to have 0.4 lower GPAs and up to \$2K lower annual income¹, a phenomenon historically referred to as the “homework gap”. Inversely, students with digital access were 7% more likely to graduate high school/college and are shown to make \$2M+ over their lifetimes². These disparities will only grow as learning shifts online and jobs increasingly rely on digital skills.

Workforce

Digital access and literacy are also critical for successful employment and workforce participation. Currently 78% of middle-skill (i.e., bachelor's degree) jobs require baseline digital skills (e.g.,

Excel, Word)³, and this is likely to grow as all learning and jobs begin to embed digital skills. Nationally there is a 21% labor force participation gap between those with and without a computer at home³, with the divide disproportionately impacting low-income households and

¹ [University of Miami](#)

² [Venture Beat](#)

³ [Urban Institute](#)

Black and Latinx communities. Estimates suggest that 76% of Black and 62% of Hispanic workers could get shut out or be under-prepared for 86% of jobs in the US by 2045⁴. Closing the digital divide is crucial to providing minority populations with baseline digital skills and ensuring all workers are prepared for future jobs and able to secure employment opportunities.

Older Adults

For older adults, home broadband access is an essential service. As many basic life activities have become increasingly mediated through technology, broadband provides seniors a critical link to social contacts, health information and services, commerce, financial management, and government and media.⁵ Equipping seniors with the digital tools and capabilities needed to be successful in the modern age is a key component in advancing digital equity.

Senior Planet and OATS have helped seniors address this with digital learning curriculum and training. In assessing the impact of their work, they found that almost half of their members reported losing weight, there was a 10 percentage point increase in the percent of individuals who said they now researched local or civic issues they cared about several times a week, and a more than 12 percentage point increase in the percent of individuals who said they rated their financial wellness as excellent or good.⁶

Veterans

Veterans can both benefit from additional support and services accessed through the internet. Veterans living in and returning to their hometown can access resources to support them in their civilian lives. For veterans returning home, internet access provides economic opportunity, engagement with other veterans, and connections to mental health resources. For example, Veterans can benefit from having access to the US Department of Veterans Affairs (VA) information online, removing the duplication of paperwork and making information access more readily assessable. With digital access, Veterans can tap into the VA health care systems regardless of where they live and engage in more holistic approaches – attending education courses, counseling or group meetings that are readily available to all veterans.

1.2 To community & society

In addition to driving returns to individual students and workers, closing the divide provides substantial returns to communities and society more broadly by establishing a digital backbone

across sectors. When planning government budgets, almost all large projects require digital inclusion to activate the community and unlock program success. Digital access supports small businesses, civic engagement, healthcare, and workforce development among others.

⁴ [Deutsche Bank](#)

⁵ [Senior Planet Aging Connected Report \(2020\)](#)

⁶ Oats & Senior Planet, “Measuring Impact Report”

In San Antonio and Bexar County, digital access is vital to the economy. In our survey of more than 100 businesses and organizations in the area, nearly 75% said that their organizations rely on their members and customers having access to broadband internet and connected devices. The internet was necessary so that individuals could access programming and information online and because it made it easier for households to engage and communicate, especially during the pandemic.

Small business

Connectivity is essential to all businesses, especially small businesses. The internet helps owners grow their businesses by tapping into wider markets and customer bases through e-commerce, digital marketing and advertising, social media, and virtual business operations. During times of hardship such as the pandemic, connectivity also enables small business owners to apply for financial support programs. Social Media has assisted in recruitment and engagement with members.

Civic engagement and justice system

Internet access also promotes civic engagement and access to government services. On average, citizens who interact regularly with government report more digital interaction than all other Americans, demonstrating the need to be digitally-literate to navigate these systems. For example, 75% of all unemployment claims are submitted online, indicating that claims may be higher where digital access is higher⁷. Digital access may also be a permanent staple in the justice system, with San Antonio lawyers expressing interest in keeping virtual courtrooms⁸. However, nearly a third of Americans don't use or know how to access any government digital service⁹. Closing the divide will enable the expansion of digital government and full citizen access and participation in these services.

Healthcare

Within healthcare, Internet access enables the use of telehealth options, which studies have found reduces U.S. hospital admission by 20% and the length of hospital stays by 59%¹⁰. As telehealth services remain and even expand post-COVID, there is a high risk that digital inequities will leave some susceptible to illness and lack of care. With digital access, individuals can choose from a broader range of healthcare providers – beyond the confines of their immediate vicinity – which can lead to great cultural matches, a critical factor in healthcare delivery.

Workforce development

⁷ [SA2020](#)

⁸ [San Antonio Business Journal](#)

⁹ [Accenture](#)

¹⁰ [Federal Reserve Bank of Dallas](#)

Large scale workforce development, often requiring digital access or teaching digital skills, can have profound impacts on economic prosperity. Nationally, workers with a computer at home have a 21% higher labor participation rate¹¹.

San Antonio recently launched a [\\$154 million dollar investment](#) in a workforce development plan, SA Ready to Work. This program builds on the momentum from the Train for Jobs SA program that launched during the pandemic. The effort will measure success training individuals to be high skilled workers and connected them to real-world economy jobs. As digital applications grow across these identified high need sectors – in [manufacturing, aerospace, healthcare, technology and cybersecurity, construction, among others](#) – the demand for labor with digital skills will also grow. Initial estimates of the city's Ready to Work plan, which would provide job training to 40,000 residents, shows a total of \$13.2 billion in community benefit, including \$5.7 billion in increased wages and \$7.4 billion in additional spending of increased wages¹².

1.3 To the economy

The economics of investment in digital access are clear. Each day that a person is not connected to the internet, America loses \$2.16 of potential economic activity, resulting in \$130 million of lost economic activity per day¹³.

Investments in digital equity have shown a positive return on investment with one study calculating a \$2.40 societal ROI, from increased earnings and taxes, for every \$1 invested in digital access¹⁴. In addition, each additional 10% of internet penetration can lead to a 1.2% increase in per capita GDP growth¹⁵, and an 11% increase in job growth.¹⁶

Closing the divide also has a strong return on investment for the economy, providing a flywheel of economic growth. Digital access drives growth across sectors, including agriculture, financial services, healthcare, and biotech, and attracts businesses that offer high quality, skilled jobs due to the presence of technically proficient workers. It also enables 'smart' operations (e.g., continuous remote monitoring, machine automation) across all San Antonio businesses and organizations. Studies have found that doubling of internet speed can create as much as 0.3% GDP growth; quadrupling speed can create 0.6%.¹⁷ Others have found that the presence of ultra-fast broadband leads to 3% average increase in new businesses formation.¹⁸

In short, investment in digital access is projected to generate a positive societal ROI within 1-2 years and continue to generate GDP benefit each year thereafter. Investing in digital access can put

¹¹ [Urban Institute](#)

¹² [San Antonio Report](#)

¹³ [Deloitte](#)

¹⁴ [Ecotone Analytics](#)

¹⁵ [World Economic Forum](#)

¹⁶ [Deloitte](#)

¹⁷ [Chalmers University of Technology](#)

¹⁸ [EconSto](#)

San Antonio on a meaningful and different trajectory for business and workforce development and economic growth than would otherwise happen without the investment.

2 Why us?

San Antonio and Bexar County are already recognized as leaders in digital inclusion with a track-record of success. The 2020 SpeakUpSA assessment established an understanding of the size and shape of the need in San Antonio and shed more light into how and why the community uses the internet today.

As part of ongoing efforts to mitigate access and affordability barriers for students pushed into remote learning during the COVID-19 pandemic, the city of San Antonio launched the Connected Beyond the Classroom initiative, a series of pilot programs that leveraged and supplemented existing broadband infrastructure to provide connectivity and holistic digital support to 13,000 students in 3 school districts. Although limited to serving students during the duration of the pandemic, Connected Beyond the Classroom offers a model to get households from no broadband access to some level of connectivity, extending coverage where none exists and offering services at an affordable rate compared with existing options.

For their efforts, the city has been recognized by NDIA's 2020 digital trailblazer. The city was also recognized in the 2021 Smart 50 awards and received \$110,000.00 in prize winnings from the Smart Community Networks Challenge for their innovative solar mesh Wi-Fi network for public housing residents. This leading digital equity work is recognized and referenced as other cities build out their digital inclusion agendas, as well.

3 Why now?

While the digital divide has been a persistent challenge, the pandemic has heightened the equity issues related to the digital divide and highlighted the importance of digital as a fundamental utility in today's society. The pandemic increased inequities between those with and without digital access and accelerated the rate of jobs that require digital skills. As jobs increasingly shift online and require digital skills, and digital applications (e.g., health, education, workforce development, healthcare, and the justice system) expand across sectors, the need for digital access is only expected to grow post-pandemic. It can no longer be considered or referred to as a luxury, but rather as an essential tool to ensure participation in education and employment systems. Therefore, it is a worthwhile investment in the future resilience of not only individuals, but also communities, societies, and economies.

The available funding proposed at the federal, state, and local levels also offers a unique opportunity to make capital investments that pay long-term dividends to sustainably close the divide. The American Rescue Plan Act (ARPA)¹⁹ provided over \$7B for the [Emergency Connectivity Fund](#) (ECF) to fund remote learning solutions for students and over \$3B for the

¹⁹ [Congress' American Rescue Plan](#)

[Emergency Broadband Benefit](#) (EBB) to provide high-speed internet to low-income households. Biden's proposed infrastructure plan may include up to another \$100B for high-speed broadband, with a focus on expanding service to rural areas. These monumental investments, if deployed properly, could be the catalytic resources needed to close the divide.

Locally, we estimate that over \$500M could be allocated to San Antonio/Bexar County broadband from ARPA alone. This funding is expected to come through the previously mentioned federal broadband programs (e.g., EBB, ECF) as well as state and local fiscal recovery funds and sector-specific funds across education, health, housing, and more^{20 21}. In addition, the increased urgency to act on digital equity makes potential public investments, including municipal bonds, public rebates, and open access projects, more feasible than ever.

Investing well aligns to many of the region's own strategic priorities. Locally in San Antonio/Greater Bexar County, leaders have made social equity, economic and workforce development, and digital inclusion key focus areas. Investing in digital access is part-and-parcel to investing across these priority issues; it is essential to ensuring that all residents can thrive economically, which improves the vitality of the region overall. Taken together, these investments can reduce systemic inequities, deliver strong ROI, and drive economic growth.

Conversely, if we do not act now, we could face significant delays due to resource constraints. On the people side, the market may be constrained for technical capabilities, including fiber splicers, regional municipality leads, network designers and engineers. We may also face shortages of raw materials, including fiber and other network equipment. We must act now to be ahead of any potential shortages or we risk slowing deployments by multiple years.

4 What do we hope to achieve?

To ensure the continued development of our local society & business community, as well as an effective and timely recovery from the pandemic, the City of San Antonio and Bexar County endeavor to bring broadband access to every corner of our community, focusing first and foremost on the areas with the greatest need. Our aspiration is for

“San Antonio/Greater Bexar County to be the standard for other cities in digital inclusion, becoming a nationwide leader in business/workforce development and economic growth.”

To achieve this aspiration, four access targets have been established. We will act with an equity-first mindset, focusing initially on the areas and population segments with the greatest need. We aim to achieve our goal within 4 years, by December 2024.

²⁰ [The National Law Review](#)

²¹ [National Association of Counties](#)

- Availability: Reliable access to internet at speeds of 100/100 Mbps with a committed information rate (CIR) of at least 80/80 Mbps 80% of the time and a minimum of 60/60 Mbps.²²
- Affordability: Internet options with adequate service quality at annual cost no more than 1% of household income.
- Device access: Connected devices that meet technical requirements for foundational applications (e.g., education, health, workforce training).
- Digital Literacy: The ability to comfortably access the internet and motivation to do so (e.g., digital education, language resources, trust).

To achieve our ambition requires a speed target with the bandwidth required to support nascent, future-oriented use cases (including 4/8K video for remote monitoring) and the potential to catalyze economic development and drives innovation. We assessed targets that were in line with best-in class global speed targets and aspirations. Based on this research, the speed target of 100/100 Mbps was required to achieve our goals

Household demand for faster internet is growing rapidly, due to factors including increased data consumption and growth in the number of applications and devices per home.²³ In 2016, less than 25% of households used speed packages over 100 Mbps, by 2020 this had risen to over 50%. Currently, a typical family of four today needs at least 85 Mbps to cover the breadth of their activities (e.g., the children's distance learning, video streaming, video calls, regular browsing).²⁴ The 100/100 speed aspiration is in line with global trends preparing for a future of currently unknown use cases and applications that will require significantly greater bandwidth than today's common internet-enabled activities. In 2021, the European Commission announced a vision for Europe's digital transformation, including 100 Mbps connectivity for all households and Gigabit network for major socioeconomic drivers by 2025.²⁵ Similarly, in 2018, South Korea's Ministry of Science and ICT announced a project to expand 10 Gbps internet coverage to 50% of the population by 2022 through partnerships with private players.²⁶

Furthermore, the Treasury Department's Interim Final Rule set forth speed requirements based on several factors including the need to meet a household's general needs (e.g. education, work & health applications), stating "eligible projects are expected to be designed to deliver, upon project completion, service that reliably meets or exceeds symmetrical upload and download speeds of 100 Mbps."²⁷

On affordability, the target of no more than 1% of household income is set based on estimates that annual household expenditure on broadband is between 1-2% of annual household income. According to a recent report, the average US households spends ~2% of their annual income on

²² Specifically, we require a Committed Information Rate (CIR) to guarantee service of 80/80/60, meaning a guaranteed service of at least 80% of target speed (80 / 80 mbps) is achieved at least 80% of the time and with a minimum of 60% of target speed (60 / 60 mbps) achieved at all times

²³ [Ovum](#); [IDC](#); [GSMA](#); [Ericsson](#)

²⁴ [BroadbandNow](#)

²⁵ [European Commission website](#)

²⁶ [Next Big Future website](#)

²⁷ <https://home.treasury.gov/system/files/136/FRF-Interim-Final-Rule.pdf> (page 71)

Cable & Internet.²⁸ City-level estimates ranged from as low as \$80-100 a month in cities like Salt Lake City and El Paso, to as high as \$140-160 a month in cities like Manchester and Poughkeepsie. In San Antonio, the report estimated the average monthly cost per household to be \$127.²⁶ Furthermore, average US broadband costs per month are estimated to be between ~\$60-70.²⁹ Using the national median household annual income of ~\$69,000³⁰, it can be estimated that US households spend on average ~1.1-1.3% of their annual income on broadband.

5 What is the size and nature of the digital divide today?

It is estimated that more than 130K households (more than 20% of all households) in San Antonio and Bexar County lack adequate broadband internet and more than 65K (more than 10% of all households) lack access to devices today.³¹ These finds are consistent across the US Census American Community Survey which asks if households have access to high-speed internet and devices (computer or laptop, excluding cell phones) at home today and the local SASpeakUp survey which asked if households use the internet at home today and if they have devices.

While the digital divide impacts many segments of society, lack of digital access most acutely impacts those that are low-income, lower-education, and not-English proficient. For example, 90% of those with households making over \$100k have Internet access, vs. just 66% of those under \$25k. Similarly, 78% of those with only a high school education are in households with Internet access, vs. 91% for those with an advanced degree. Among those that are English proficient, 83% have internet access while only 67% of those with limited English proficiency are connected. Among households without internet access, 70% are low-income or households with school-aged children; in total, there are over 30K disconnected households in Greater Bexar County with school-aged children³². The divide is also geographically concentrated, with the most pronounced gaps for those living in South and East areas of Greater Bexar County; in the county's most Southern census tract, 30% of people lack internet access³³. See appendix for detailed mapping on the size and nature of the digital divide in San Antonio and Greater Bexar County

In order to address the digital divide, it is important to understand the root causes. Across all barriers to broadband access, affordability poses the greatest obstacle to households lacking internet.

- **Affordability:** Out of the total 130K households without access, nearly 90K households report that internet costs beyond their economic means represent a substantial barrier to broadband adoption.

²⁸ [Doxo Insights \(2021\). U.S. Cable & Internet Market Size and Household Spending Report.](#)

²⁹ [Chao & Park \(2020\). Cost of Connectivity Report. Open Technology Institute.](#)

³⁰ [US Census Bureau \(2019\)](#)

³¹ ACS Data, SASpeakUp survey

³² ACS Data

³³ Digital Inclusion Survey and Assessment, ACS

- **Adoption:** In addition to affordability, other adoption barriers, including low levels of digital literacy and persistent privacy concerns, significantly limit adoption, affecting as many as the full 130K households who lack access across the region.
- **Availability:** Inadequate infrastructure also prevents at least 50K households from accessing quality internet. This represents the number of households who report in SASpeakUp having slow, unreliable, or unserviceable service quality. Despite current broadband maps showing 99% coverage across San Antonio and Bexar County at average speeds of 100+ Mbps, the lived experience of residents suggests internet is slower and less reliable. This is especially pronounced in the Southside, where some areas are served by few providers, and have average download speeds that are inadequate for basic internet usage. While most internet use cases require approximately 25 Mbps (or 100 Mbps for a family of four), much of the Southside has average download speeds below 10Mbps³⁴.

Moreover, an additional 160K or more households stand to benefit if we meet our digital equity aspiration. More than 160K households have access today but at speeds less than the aspiration of 100 mbps / 100 mbps³⁵ and more than 140K households prioritize broadband although it accounts for more than 1% of their household income³⁶. As jobs increasingly shift to digital, households may also lack the digital skills needed to keep pace with the current and future applications.

6 How was this plan developed?

In order to address the San Antonio and Greater Bexar County digital divide, a broad coalition of public, private, and community partners came together and invested in the development of a comprehensive digital equity plan and roadmap. You can find the full list of organization and stakeholders who invested to the plan in appendix.

The coalition put together a set of recommended future action steps which include timelines, milestones, key stakeholder roles, and required investment for execution. These plans make San Antonio/Greater Bexar County “shovel ready” to effectively use local, state, and federal funding to implement key digital access and equity initiatives across households, students, older adults, veterans, people living with disabilities, workforce, telemedicine, and the justice system.

Several sources were leveraged to inform the recommendations. We engaged more than 140 stakeholders across the public sector, private sector, education, non-profit and philanthropic

³⁴ BroadbandNow

³⁵ Calculated based on number of households (210K) lacking access to 1 Gbps (a proxy for reliable access to 100/100 Mbps and able to meet committed information rates) beyond those facing availability barriers today (50K); BroadbandNow

³⁶ . Calculated based on number of households beyond those facing affordability barriers today (90K) who have a household annual income below \$72K, the upper bound of households for which annual internet costs represent 1% or more of household income at average internet plan prices of \$60/month or \$720/year; American Community Survey

communities to understand priorities and needs and pressure-test proposed strategies. This includes:

- 100+ responses to a survey of businesses and organizations on their digital inclusion efforts and future needs
- 30 one-on-one meetings to understand efforts underway and future priorities and needs
- 17 stakeholders involved in focus groups for each of the following stakeholder groups: healthcare/telemedicine, veterans / military affairs, business, civic engagement/justice system, individuals with disabilities, older adults, philanthropies & corporate foundations
- 15 organizations engaged in weekly Community Advisory meetings
- 25 ISDs, Charter and Private schools included in a K-12 focus group and 8 responses to a K-12 Digital Inclusion Questionnaire

You can find the full list of stakeholders engaged in the development of this plan in the appendix. In addition, we note that this strategy is a living and breathing document. It reflects work produced and provided by the SA Digital Connects team and community members starting in January 2021 to the present.

To develop the strategy, we identified and developed a fact base of the size and nature of the problem, learnings, and pain points from efforts underway, researched comparable city and municipality benchmarks and best practices, and identified go-forward priorities. We then developed the strategy around a set of key initiatives and an implementation roadmap and activation plan including owners, timelines, milestones, and expected costs.

We have codified this strategy in this document to make the plan available to the public. We welcome continued input and engagement as we activate, evolve, and maintain our digital equity strategy going forward.

7 What is our community's starting point for execution?

Our digital inclusion strategy builds upon momentum currently underway from the **work of 80+ organizations who responded to our survey of businesses and organizations that they are already investing in digital inclusion in San Antonio and Grater Bexar County**. These organizations make this investment in digital inclusion because they see it as foundational to quality of life; to access to education, services, and the workforce; and to the productivity of society and economy more broadly. Specifically, organizations underscored:

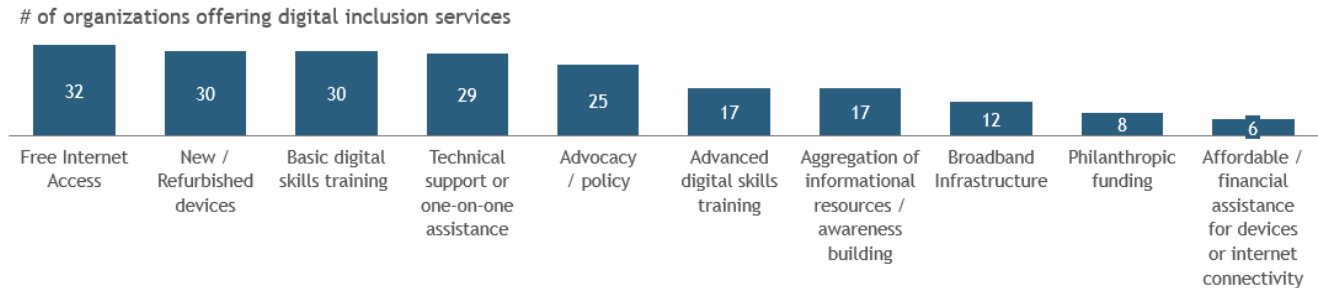
- *It improves **quality of life** for San Antonio area residents and contributes positively to the business climate –San Antonio Chamber of Commerce*
- *Consistent digital connectivity is critical to **help youth and their families access services, education, employment**. –Girls Inc. of San Antonio*
- *Our students & prospective students need technology to put them on an even playing field... **There is no "productivity" without "connectivity"** - Alamo Colleges District*

The 80 businesses and organizations support different aspects of digital inclusion for key population segments, with a strong focus on Hispanic and low-income populations as well as populations with disabilities. More than 70% of these organization started or expanded their

digital inclusion efforts during the pandemic, yet more than 90% of these organizations plan to continue their efforts in at least partial capacity post-pandemic. These statistics underscore that digital matters more than ever now and that COVID-19 accelerated a shift to digital and that momentum to support digital inclusion persist in the future.

As a result, many organizations were providing digital inclusion services, with the top four services provided being free internet access, new/refurbished devices, basic digital skills training, and technical support or 1:1 assistance.

Figure X: Digital inclusion services offered



More than 30 organizations offer free internet. Many schools and universities, including Alamo Colleges District and Trinity University, offer hotspots or subsidize broadband internet to their students. Others, like the San Antonio Housing Authority, the Public Library, and VIA offered free Wi-Fi access at locations and specified access points. The city of San Antonio launched the Connected Beyond the Classroom initiative, a series of pilot programs that leveraged and supplemented existing broadband infrastructure to provide connectivity and holistic digital support to 13K students in 3 school districts. BiblioTech and City Education Partners also invested in similar programs to expand broadband infrastructure, each working closely with a school district on deployment.

There are 30 organizations who offer new or refurbished devices. Many schools and universities offer loaner laptops; several have 1:1 device programs. Rise Recovery, THRU Project, Goodwill, and SAMSAT are among the many organizations who bought iPads and laptops for their community members and customers. Others had programs for specific populations: for example, Soldier’s Angels provides voice-controlled/adaptive laptop computers and other necessary technology to support veterans recovering from hand wounds and other severe injuries.

Another 30 organizations offer basic digital skills training. For example, San Antonio Clubhouse teaches computer basics and offer hands-on training on usage, the Microsoft-SAMSAT Digital Academy offers digital literacy with a focus on basic digital skills for both older high school students and adults, and OATS/Senior planet offers a variety of skills training programs and topic-focused classrooms for individuals over the age of 60.

Many businesses and organizations also offer technical support and 1:1 assistance, most often tailored to the populations they serve. For example, MICRO:SA provides resources and serves as an extended resource that executes functional responsibilities to aid small businesses in

performing tasks necessary to be more sustainable and/or productive. Project SEARCH allows students with disability to participate without loss of information. The speech to text allows the student to search, complete and participate. Texas A&M SA stood-up a help desk and digital scholars program to train high school and college students in digital skills and to answer technical questions for the student community in need.

The examples listed here are just a small snippet of the organizations supporting digital inclusion. And yet, while there is much underway, many factors keep these organizations from reaching their full potential. Historically, efforts have happened in silos, with limited coordination, creating duplicative work and gaps of unmet need. As one leader said, “For a long time, everyone has been trying to do everything on their own. That's not going to be how we solve this problem. It's going to take collaboration, coordination, and partnership to get the job done”

For those who launched efforts during the pandemic, many of these organization (~45%) are using funds from their existing budgets to provide these services, and when asked why they invested in such services, many emphasized their importance to inclusion and quality of life. Other primary funding sources included philanthropic donations (34%) and federal funding (21%). Insufficient funding was the number one challenge that businesses and organizations faced in offering their services. Technology has historically been underfunded in organizations and this pattern has the potential to continue unless the full scope of digital inclusion needs are priorities.

Organizations also faced challenges with outreach to the community, effective resourcing of programs (both number of individuals and the relevant capabilities) and understanding what other related resources existed to support their efforts. In addition, organizations noted that their services were underutilized because community members and customers lacked awareness of their services, lacked internet and the device to access their services, or lacked the digital literacy skills to fully engage.

8 What is our digital equity plan?

Our plan seeks to build from the momentum of the efforts underway today, offering support to accelerate and expand efforts that are working well, establishing new programs and initiatives to fill gaps, and creating the coordination and information sharing needed to ensure we can effectively do the work and achieve our goals. When asked what is needed to effectively expand digital inclusion efforts, organizations highlighted the need for better infrastructure, expanded low-cost service and device options, digital skills and technical support, a stronger understanding of what households lack access and why, aggregated resources and better communication forums. Our plan seeks to address all of these needs.

- *“Some neighborhoods are still dealing with copper wire, meaning that if it rains they lose internet. Inadequate housing compounds access problems. Some roofs are too short to even add a signal booster. Others are covered by tree canopies that block signals”*
- *“To even qualify for many assistance programs, participants are required to present ID, Social Security, credit checks... it's almost as if the intent is to prevent people from signing up”*

- *"A lot of kids are being raised by their grandparents, who often don't speak much or any English and have limited digital knowledge"*
- *"We need a clearing house of data to make sure everyone involved is looking at the same facts; ideally, it would be online for the larger public to access"*
- *"Our plan and messaging has to be inclusive of all the diverse sections of our community... we need to leverage 'trust messengers' – organizations that already have a high degree of trust in communities"*
- *"The goal is long term adoption; successfully building the puzzles requires stronger coordination across city, county, and philanthropy"*

Our plan proposes eight key initiatives to address all barriers to access – availability, affordability, and adoption barriers – for all population segments, grounded in learnings from efforts underway locally and nationwide. Some initiatives address a specific barrier for the whole population (e.g., infrastructure deployment, low-income solutions) while others address multiple barriers for a single population (e.g., affordable housing, education sponsored programs). All will be implemented with an eye towards equity, prioritizing connectivity of highest need groups like minority, low-income, and student populations first. Ultimately, our initiatives will close the digital divide for all key population segments including households, students, older adults, veterans, people living with disabilities, the workforce, telemedicine, and the justice system.

8.1 Expand infrastructure access: Encourage deployment of residential fiber where feasible and of other tech (e.g., fixed wireless, mesh) to fill gaps to achieve the speed target of 100/100 mbps with the committed information rate³⁷

Effective infrastructure deployments begin with effective data collection, specifically around 1) household need and 2) existing broadband infrastructure, such as fiber and cable lines (see “7.7 Collect data & track KPIs” for more details.) In order to target deployments where need is greatest, it is imperative to have robust asset mapping in place to identify areas without adequate broadband infrastructure today, primarily focused on fiber lines. Mapping should be done at either the neighborhood or household level—the more granular the better. At a minimum, the maps should identify areas where fiber availability is insufficient, sufficient and affordable, or sufficient but unaffordable. In addition to fiber lines, the mapping should also identify other 'hard' assets that could be leveraged to extend broadband infrastructure, such as vertical assets (e.g., light poles, exteriors of public buildings) and cell or radio towers service quality should also be assessed through household-level speed tests.

After all relevant data is gathered, next comes developing a network design and deployment strategy. This should be done in tandem with internet service providers to leverage their expertise and find mutual areas of alignment where both the private sector and city & county can collaborate in a win-win arrangement. This can be done through financial and policy levers that incentivize ISPs to participate in deployment (e.g., grants, dig once, cost sharing, demand aggregation). By aligning incentives between the public and private sectors, both sides can

³⁷ Specifically, we require a Committed Information Rate (CIR) to guarantee service of 80/80/60, meaning a guaranteed service of at least 80% of target speed (80 / 80 mbps) is achieved at least 80% of the time and with a minimum of 60% of target speed (60 / 60 mbps) achieved at all times

effectively partner to remove barriers to deployment in unserved and underserved areas (e.g., the city or county pays for cost of upgrading outdated copper DSL to deliver higher service quality to underserved residents). As part of the deployment strategy, it will be necessary to work with service providers to define standards for adequate service quality to meet the needs of households across a variety of common uses. (e.g., education, telehealth, online job applications).

Service providers will be able to offer a wealth of specialized knowledge and expertise when it comes to selecting an appropriate network design for the necessary infrastructure deployments. In addition to know-how, providers have thousands of miles of existing fiber that could be put to use towards expanding access. Where it is not economical for providers to serve, the city or county could step in as a provider-of-last-resort through some type of municipal open-access network that service providers could lease in order to provide services directly to customers. For example, in the town of [Danville, Virginia](#), the municipal government took an incremental approach to the deployment of an open access network that began with serving local businesses and eventually extended to households.

Various models of open access exist on a spectrum from wholesaler to middle-mile or last mile delivery. In addition, the city and county and ISPs can partner with local businesses to identify opportunities where local businesses can leverage their fiber infrastructure to serve as middle mile ‘nodes’ for residential last mile delivery. The local market context and discussions with service providers should determine which specific approach is used. [Seattle’s initial attempt at city-wide fiber deployment](#) back in 2014, for instance, failed because its local fiber market could not support municipal last mile delivery. Therefore, it is critical to let local circumstances inform the overall network design and deployment strategy.

Although any network design should primarily rely on fiber to offer the highest service quality possible to households, fiber deployment is not always the most feasible option to extend broadband infrastructure. In areas where it might be cost-prohibitive or otherwise unduly burdensome to deploy fiber, a mix of alternative technologies, including fixed wireless, mesh networks and satellite, could be leveraged to offer critical last mile connection.

8.2 Enable access in affordable housing: Retrofit or install adequate connectivity in housing complexes (e.g., SAHA), coupled with devices / literacy offers

Affordable housing properties are already taking steps to get their residents connected through the deployment of public access networks and upgrades to buildings. In light of the progress made, it is imperative to accelerate efforts already underway to facilitate the deployment of necessary infrastructure upgrades, including an expanded rollout of public Wi-Fi to additional public housing properties and retrofitting older buildings with structural deficiencies (e.g., outdated electrical wiring).

In addition to infrastructure, targeted solutions addressing affordability and adoption barriers are also critical. Mechanisms, such as subsidies or bulk device procurement, should be established to offer lower cost internet to individual households. The [city of Los Angeles](#), for

example, partnered with service provider Starry Connect and Microsoft, who promised 6 months of free internet for four prominent public housing developments and then moved to a discounted pricing plans thereafter. In addition to deeper provider engagement supporting low-cost access, it is crucial to identify sources of federal funding, both current and ongoing, available to support affordable public housing deployments.

In order to assist residents most effectively across their various needs, partnership with other organizations is required. [In Tulsa, Oklahoma](#), public housing internet initiatives have been coupled with public school remote learning programs. Organizations like Bibliotech, ConnectHome, and Goodwill are already deeply involved in providing residents with devices and digital literacy skills in San Antonio and Greater Bexar County. By working together, these organizations and affordable housing institutions would be able to create a shared pool of community resources that can drive adoption and increase digital literacy and skills support. [In Chicago](#), for instance, the city partnered with Comcast to hold digital literacy lessons at public libraries in addition to providing affordable internet to public housing residents. Furthermore, such collaborations with other organizations would be well positioned to leverage the unique position affordable housing institutions occupy as lynchpins of the community to facilitate information sharing among organizations and device procurement for residents.

8.3 Support school-sponsored access programs: Expand school-centric connectivity/device programs and integrate tech education into the backbone of learning

School districts must work to standup connectivity and device programs such as sponsored service programs and 1:1 device models to connect all students. Programs like E-Rate should be maximized to ensure high quality, reliable internet in schools while additional funds (e.g., the Emergency Connectivity Fund) should be leveraged to support remote learning. In addition, 1:1 device and hotspot programs can be made possible through bulk purchasing, an initiative that is available to Greater Bexar County schools through the [TEA Operation Connectivity Program](#). In addition, service contracts should be established with providers, extending upon existing relationships where possible, to cover the cost of technology replacements, maintenance, and repairs.

Schools can also be elevated as a locus for adoption support of available low-cost programs. After conducting a student needs assessment, information and adoption support should be provided around available low-income programs (e.g., [Emergency Broadband Benefit, Lifeline](#)), with schools covering the cost of service if possible. Help desks should also be stood up through school IT departments to troubleshoot software issues, support program enrollment, and help families navigate once connected to the internet.

Digital skills leveling should be built into the backbone of learning in order to boost digital literacy across grade levels. This trend has been occurring across the nation as schools re-design learning spaces to be more digitally interactive, shift towards digital materials and modules, and

experiment with hybrid learning programs. Embedding digital standards into the curriculum and providing training to properly upskill teachers allows students to obtain expanded digital instruction. Support resources including online digital literacy courses and digital resource centers have also been found to be successful in helping students learn from home.

Additional benefits can be unlocked through cross-school and cross-district efforts as aggregated hiring and bulk procurement can expand the capacity of services provided. For example, district-wide help desks to troubleshoot software issues and consortium purchasing to maximize volume discounts and reduce execution burden should be considered to ease the work required from individual schools.

8.4 Expand low-income internet offerings: Connect residents to available low-income solutions and create new mechanisms to make service affordable

The first step to bridging the affordability barrier is connecting households to existing low-income internet programs. Awareness campaigns should be conducted in partnership with trusted community organizations to enroll residents in low-income broadband programs (e.g., Lifeline, EBB, Internet Essentials). Once connected to internet, these supporting organizations should direct residents to existing digital skills building resources like OATS or other public library programs.

In addition, free, public internet should be expanded to create a holistic "safety net" of access. Public networks should be extended and existing Wi-Fi hotspots should be opened to the public through community nodes like libraries, parking lots, and public transportation, ensuring adequate security measures. Examples of free internet expansion can be found all over the nation, especially in larger cities like [Portland](#), [Seattle](#), [New York City](#), and [San Francisco](#). Public computer labs should also be stood up in the community so that residents can connect to internet to access information and build digital skills if it is not available at home.

New programs should also be considered to subsidize internet for low-income families. Voucher program and public broadband rebates can be used to discount service costs for eligible households. Municipal bulk procurement can be leveraged to achieve lower rates, building on the price negotiation already in progress through Operation Connectivity. Municipal bonds are another mechanism to increase public access to low-cost internet options. [TechBloc CEO, David Heard](#), has pushed for the inclusion of digital infrastructure in San Antonio's 2022 bond program and municipal bonds have been successful in [Salt Lake City](#) and multiple [New Hampshire towns](#).

Affordability targets and funding requirements should be discussed when engaging other stakeholders on digital equity. Grants should require affordability minimums and ISPs should be held to service standards when using municipal fiber. Transparent affordability targets, benchmarked across other municipal services, can be leveraged when negotiating pricing with ISPs. In addition, advocacy at the state level can unlock additional support and funding for local affordable broadband initiatives.

8.5 Distribute devices: Create systems to supply low-cost devices (e.g., employer programs, refurbished donations, sponsored provider plans)

Getting the right devices into the hands of the right individuals and families begins with developing comprehensive understanding of need and the technical requirements of the devices intended for distribution. This should be done through in-depth community outreach, whether through surveys or door-to-door visits that will help to determine household need and how it breaks down by sub-group (e.g., seniors, students, veterans). Once the level of need is assessed, technical specifications must be decided upon for both hardware and software, considering security protections and enabled use for cross-sector applications, such as education and health.

The next step after the relevant data is gathered is establishing mechanisms to sustainably supply devices to residents and identifying available funding streams that can support device procurement. Collaboration should be encouraged with community groups and local businesses to partner on device donation drives that recycle unneeded devices to those without devices. For example, [the non-profit PCsforPeople](#) donates refurbished items to low-income individuals and has connected over 165,000 families and recycled over 8 million pounds of recycled hardware to date. To catalyze community procurement, financial incentives, such as subsidies and tax rebates, should be established to encourage the private sector to supply needed devices through innovative solutions. For instance, service providers might offer free or low-cost device programs (e.g., service contracts covering device costs, replacements, and repairs; device bundling that includes free Wi-Fi)

Lastly, it is necessary to identify the appropriate distribution channels to support expanded device access. [Maryland's EduCycle program](#) utilizes schools and public libraries as distribution nodes for free device distribution. Many community organizations are already engaged in device procurement for low-income residents, including SAHA, BiblioTech, and school districts. By partnering with these organizations and others, it would be possible to explore opportunities to connect device support with other relevant aspects of digital equity strategy, such as low-cost programs, adoption support, and digital literacy.

8.6 Stand-up adoption support programs: Conduct multi-channel campaigns to enroll residents in digital programs & invest in digital literacy and technical support

Adoption support programs should start with multi-channel activation campaigns to spread awareness across population segments. This messaging should come from trusted grassroots organizations like community-based organizations, philanthropies, schools, and libraries. Materials should also be multilingual and be spread through various channels, including media outlets, in-person outreach, government websites, and flyers in frequently visited (e.g., grocery stores, doctor's offices) in order to reach families in their normal day to day.

Help desks and other forums for personalized technical support should be stood up to help households enroll in programs and connect to the internet. Existing hotlines like the City or County call center and Texas A&M help desk can be leveraged to support residents with the proper training for employees. CBOs should be engaged to ensure culturally relevant assistance as

well as other organizations that are already in touch with specific populations (e.g., veterans, older adults, public housing).

Widespread digital skills leveling through 1:1 digital training programs and expanded digital literacy and learning across sectors is needed once residents have internet access. Digital Navigator programs provide 1:1 digital training to newly connected individuals in the community and can build on the successful [OATS model](#). Education entities (e.g., K-12, higher ed, job training, libraries) should be partnered with to establish standardized digital competencies (e.g., defined digital skill credentials) in school curriculums and workforce programs. Other cities including [Baltimore](#), [Austin](#), and [San Jose](#) have established digital literacy programs and offer certificates as participants achieve digital competencies.

Coordination is required to ensure adoption initiatives and strategy are synced across stakeholders. Key organizations should align on adoption plans and aggregate existing efforts ahead of the launch of each digital equity initiative. A coordinating body is also able to aggregate resources and best practices, unlocking information sharing and collaboration across stakeholders. In addition, feedback channels and data collection should be created to improve existing program and inform what future digital initiatives are needed.

8.7 Collect data & track KPIs: Establish mechanisms for ongoing assessment of household need and available assets to track progress and inform solutions

Effective data collection and management is an enabler of every initiative to close the digital divide. Proper data collection and management will help keep track of the progress made on each initiative to increase digital inclusion, stay current on household need and existing assets that can be leveraged to meet it, and define parameters for success in achieving digital equity. Establishing the proper data infrastructure begins with accurately determining household need through surveys and direct usage data. For example, [New York's Digital Equity Survey](#) asked teachers and student questions on internet access and device usage, collecting data by grade level and by location of use.

Partnering with Texas A&M San Antonio on their ongoing data evaluation of the current Connected Beyond the Classroom pilots is one of the critical first steps in understanding household need. In the future, it may be possible to explore opportunities to scale their current data collection and analysis beyond students to other high need populations (e.g., low-income, limited English proficiency). Once gathered, data on household need should be regularly updated and refreshed through continuous household surveying, possibly including a speed test component, to stay current on the evolving needs of residents. Creating feedback channels to continually improve data collection mechanisms will also prove highly useful.

In addition to household need, data on both 'hard' and soft' assets must be collected and maintained. In order to build a comprehensive database of hard assets, it is critical to leverage current city and county data collection, especially around the mapping of broadband infrastructure (both fiber and other) as well as other available assets (e.g., light poles, public

building exteriors). [In Los Angeles](#), the city tracks hard assets like building infrastructure using small cell nodes to identify and monitor various assets. As an additional guarantee of accuracy, the plan recommends partnership with companies specializing in mapping and asset assessment to verify and refresh data on hard assets.

Regarding ‘soft’ assets, developing a comprehensive inventory of community resources for digital inclusion is needed to offer residents and decisionmakers critical information about what resources are at the disposal of individuals in need of digital support and where they can go to get it. Such a solution will require continuous community inventory surveying and crowdsourcing a community directory of existing resources via grant applications and the encouragement of community members to self-report data. Ultimately, data on household need and existing hard and soft assets can be compiled into one comprehensive database. In [North Carolina](#), the state government has developed detailed mapping that displays various data points, including hard assets, soft assets and unmet digital needs in the community.

The entire data management process will depend on the establishment of a single source of truth to manage the data collection process and coordinate activity and information sharing among involved stakeholders. This will include the creation of aggregated data outputs such as publicly available online portals, dashboards, and equity maps that will help to inform targeted solutions, track progress over time, and rally external support for the overall plan. [In Portland, Oregon](#), the city government developed an online portal that allows users to share on-the-ground information and provides a community directory with links to digital inclusion resources for residents.

The entity that ultimately ‘owns’ the data must also continuously engage community stakeholders through key events, such as town halls and awareness campaigns, as well as facilitate information sharing by establishing a regular cadence of touchpoints to coordinate activity across involved stakeholders. As an executive entity, the data owner should delegate smaller responsibilities and areas of ownerships around specific data pieces (e.g., maps) and constantly track key metrics. The specific data collected will evolve from proxies to direct inputs over time.

8.8 Implement an effective operation model: Establish the cross-sector resourcing, accountability, and coordination structures to get the work done – SA Digital Connects

A clear governance structure is needed to drive the program forward across public and private entities. A governance, accountability, and operating model must be defined to best leverage public assets and funding and unlock private sector capabilities around community-based efforts. The model should organize around the public sector and focus on maximizing near-term opportunities like ARPA, while pursuing the more durable structure of a utility. The cross-sector coalition should continue to build momentum behind digital initiatives and carries work forward through close public sector partnership. Across the nation, cities have made investments to expand municipal broadband offerings, normally alongside other education or infrastructure initiatives, as seen in [Pittsburgh](#), [Las Vegas](#), and [Philadelphia](#).

This digital equity team will require sufficient resourcing in order to activate and execute on the strategic plan. A clear resourcing plan that highlights the roles and responsibilities required is needed to ramp up initiatives, drive towards peak activation, and provide ongoing steady state support. Once hired and assigned, teams should be lined up across initiatives and create detailed workplans with define owners, timelines, milestones, and associated costs to launch their respective programs.

Endorsement and funding are key enablers to make the plan a reality. Endorsement for the digital inclusion plan should be obtained from stakeholders across the public, private and non-profit sectors through the sharing of the digital inclusion narrative. In addition, funding from federal, state, local, and philanthropic sources can be unlocked through advocacy around the need and cross-sector benefit of digital equity.

Once a program is established, mechanisms are needed to track progress and measure success. An effective data strategy can enable both internal improvement through the identification of digital gaps and external transparency through an improved understanding of broadband impact. A defined set of performance measures should be tracked on a public dashboard to ensure digital divide barriers are successfully overcome. In addition, reports can commission social ROI studies and usage analyses to understand the impact of ongoing programs and build the case for additional digital investment.

Community activation is key to ensuring buy-in and successful execution of programs. Community stakeholders must be ready to advocate for the plan, invest in initiatives, support program execution, and offer ongoing input. Activation of digital equity plans generally requires a highly publicized call to action across stakeholders as seen in [Chicago](#), [San Francisco](#), and [Washington D.C.](#) Reoccurring meetings and town halls should be used to engage San Antonio digital leaders and funders. Partnership with key local partners through joint programming and activation campaigns can complement existing efforts and a live community portal with a directory of digital inclusion organizations should be created for public use. Successful programs should also push for continued feedback through surveys and focus groups to ensure solutions reflect the needs of the community.

9 What is the investment required?

An estimated investment of \$600 million over the next 3 years³⁸ and \$90 million annually thereafter is needed to close the digital divide.

To ensure universal broadband connectivity requires \$600 million over the next 3 years and \$90 million annually thereafter. These will cover the costs to expand infrastructure access, deploying middle mile fiber and running reverse auctions to enable residential at the necessary service speeds and support the maintenance of the networks over time. The funds will also support the expansion of broadband access in affordable housing campuses through public Wi-Fi offerings or

³⁸ 3-year frame used as it follows the timeline of the American Rescue Plan Act (ARPA), which will expire in December 2024

bulk procurement contracts. In addition, these funds will support education entities to expand sponsored programs to cover connectivity costs for their students. Finally, these funds support cost-support programs for low-income housing, including running activation campaigns for existing programs like the Emergency Broadband Benefit and Lifeline, developing and expanding sponsored service programs for population segments and managing a local San Antonio and Bexar County-specific voucher program as needed.

To ensure universal device access requires \$30 million over the next 3 years and \$4 million annually thereafter. This will help to establish grants for philanthropies to refurbish and distribute devices, create and expand device donation programs through private sector/philanthropy and cover repair and maintenance of devices on an ongoing basis. This can also support the expansion of 1:1 device programs for schools and universities.

To ensure community-wide digital literacy requires \$45 million over the next 3 years and \$6 million annually thereafter. These funds will support adoption campaigns to enroll households in available programs, set up and expand digital literacy programs through trusted community organizations and continue to support and expand digital literacy and skilling programs offered across organizations.

We are in a unique moment, given the given the large influx of emergency relief funds from the federal government. To secure the funding need in the near-term and on an ongoing basis to achieve our goals, we will pursue all of the available funding sources, as relevant.

10 How will we implement and activate this plan?

Over the next five years, we will work to finalize, activate, and execute this strategy in order to close the digital divide and ensure that all households have the digital access necessary to participate in society and the economy. We have defined a set of milestones to ensure that we stay focused and on-track to implement our strategy, prioritizing highest need populations first.

- **We are currently at the eight-month mark.** We have reached our first milestone, having invested in the creation of a digital equity plan that reflects the needs of the community and input of key stakeholders
- **By year one,** we aim to obtain the endorsement and funding required to activate the plan and to establish a clear scorecard to track progress and define success; stand up a resourcing and operating model that defines how the public and private entities collaborate with each other to drive projects forward – SA Digital Connects and its Executive Director
- **By month 18,** the goal is to activate all initiatives to begin closing the digital divide, prioritizing highest need populations like students, minorities, and low-income families; partnerships and forums for engagement across key stakeholders in the community should also be solidified

- **By year four**, the aim is to achieve universal digital access in which the needed internet service quality and digital skills support is available and affordable for all households
- **By year five**, universal access should be maintained and additional work should be conducted to increase service quality and implement smart city technologies; an additional milestone will be to achieve digital skills leveling across populations and ensure proper support structures are in place to keep all households connected
- **Each year**, an annual report should be published to provide an update on the state of digital inclusiveness in San Antonio/Greater Bexar County and detail key success and areas for improvement moving forward

To drive this work forward, a cross-sector coalition comprised of both city and county leadership and philanthropic and private sector leaders and supported by stakeholders, a public-private-community partnership to champion the SA/Greater Bexar digital equity plan and drive this work forward. The plan is a strategy that is jointly owned across all parties. Together, we aim to collaboratively implement initiatives and optimize funds for the best possible outcomes.



City & County leadership will make use of funding to organize and act on initiatives, partnering with key stakeholders on ownership and execution.

The philanthropic and private sector leaders of SA Digital Connects will galvanize support and funding for the plan and coordinate engagement across the community, doing so with greater: SATX/SA Talent as our fiscal agent.

Our work will leverage the existing capabilities and expertise of all stakeholder – local, state, and federal policymakers; school districts, education institutions, and libraries; internet service providers, private sector, and corporate foundations; community organizations; philanthropies and NGOs; and the residents and households of San Antonio and Greater Bexar County – to support and drive execution across stakeholders.

We have developed a roadmap to implement and activate our strategy, with a focus on 10 near-term priorities. These first-year activities and actions will help promote long-term success of the effort.

1. **Obtain endorsement for the digital inclusion plan from key stakeholders.** Building on the momentum of the efforts today, we will solicit input and continue to align on the strategy with private and philanthropic funders and community advisors. We will also continue to engage city and county leadership to ensure that digital equity remains a prioritized area for public investment and resourcing.

2. **Coordinate the advocacy and action needed to secure required funding from federal, state, local, and philanthropic sources:** We will advocate for city and state funding, maximizing federal emergency dollars, and soliciting additional private philanthropic funds, grounding in the drive the economic and societal ROI for investing in the digital divide.
3. **Finalize strategy for public investment, including engaging with stakeholders:** City and County leaders will need to align on potential public investments, for example, to invest in open access model or pursue a public rebate. These models should be finalized through partnership and engagement with all of the relevant stakeholders, including ISPs and community organizations. Once finalized, public leaders must vote on the projects to implement and prepare to launch the approved investment projects.
4. **Define the operating model between public and private entities and develop a resourcing plan:** Together we will align on governance and accountability between public and private entities and determine the requisite resourcing (both number of resources and relevant capabilities) to support execution of the plan. – SA Digital Connects
5. **Line up execution teams and build-out detailed workplans with defined owners, timelines, milestones, and associated costs:** We must identify the leaders and teams to execute each initiative and work with the leads and other relevant stakeholders detail workplans with owners, timelines, milestones, and associated costs.
6. **Create mechanisms for ongoing community engagement, coordination, and activation:** Expanding the current engagement models, we establish deep partnership and engagement with community organizations to support awareness campaigns and program execution. We will establish touchpoints for ongoing engagement (e.g., meetings, town halls), and build-out centralized digital resources and information directory on a community portal to support both households and organization.
7. **Pursue the durable structure of a utility to carry broadband accessibility forward:** to complete this, stakeholders will need to decide if the utility model should be pursued, engage ISPs to discuss implications for the future around costs and regulations, and stand up durable broadband utility.
8. **Codify detailed fiber and asset maps to inform infrastructure deployment strategy:** Leveraging existing city fiber, hard, and soft asset maps as a starting point, leaders can engage third parties (for example, from BroadbandNow) to verify the data and then update maps to inform infrastructure strategy.
9. **Fully cement the goals and targets of the plan, including codifying key performance metrics and establishing mechanisms to track them:** We will collaborate with the community to establish the key performance metrics needed to ensure we are on track to both hit interim milestones and achieve our goals. We must then develop the mechanisms

to measure each KPI, aggregating the information into a single source of truth for critical metrics, including a public dashboard to track progress.

- 10. Align on ISP engagement approach and conversations to build the collaboration and partnership model:** Public and private sector leaders in San Antonio and Greater Bexar County will partner and collaborate with ISPs to development to workshop potential options and determine the most effective implementation approach

11 What actions are needed from each stakeholder?

Making the plan a reality will require substantial cross-stakeholder support and engagement. Each of the following stakeholder groups has an important role to play in driving the success of this effort.

City, county, state, and federal policymakers should prioritize and unlock sustainable funding for digital equity through enabling regulation and policy. In the short-term, substantial portions of emergency relief funds from ARPA should be dedicated towards broadband at the city, county, and state levels. The City and Greater Bexar County should launch dedicated programs to make San Antonio and other municipalities smart cities of the future while the State should continue to push digital equity through Operation Connectivity and the new State Broadband Office. The federal government can work to expand programs like Lifeline, EBB, and E-Rate to ensure all households can connect to affordable internet.

Private sector should champion the need for digital investment and support digital applications across sectors. Their advocacy for government support, provider engagement, and community partnership is critical to stimulate investment in future digital equity. Sectors across areas like government, healthcare, and the justice system should push for digital equity as it will continue to become the future of their businesses.

Service providers should ensure solutions can be provided affordably and reliably to customers. They can serve as partners in the broader solution by conducting infrastructure buildout, unlocking affordable internet and device programs, and supporting family adoption. In the long-run, providers should also support repair and maintenance of ongoing solutions.

Community organizations should elevate the needs of the community and serve as key points of contact to drive adoption and support digital skills. They should serve as liaisons of the plan, building trust with families around our digital initiatives and supporting feedback loops with households to ensure programs reflect the needs of the community.

Education entities (K-12, higher education, libraries, workforce dev) should expand digital and tech curriculum to support digital skills leveling and certification across populations. They should invest in education platform innovation to build digital content and literacy to support student and community engagement for digital programs. These groups can also serve as focal points for data collection and execution given their frequent touchpoints with residents.

Philanthropies should catalyze investment and support ongoing research, data collection, and execution towards closing the digital divide, conducting digital equity efforts where gaps exist today. They should plug in where their capabilities fit best (e.g., OATS supporting digital literacy, Texas A&M supporting data & analytics) in the digital roadmap.

All stakeholders must come together and leverage their unique expertise to sustainably close the divide. Execution of initiatives should breakdown silos to engage all groups to collectively drive successful initiatives.

12 Conclusion

A broad coalition of public, private, and community partners came together and invested to develop this comprehensive digital equity plan and roadmap. More than 140 businesses, organizations, schools, and institutions of higher education provided input on the creation of this plan. Through our work, we have outlined recommended future action steps and a roadmap for execution including timelines, milestones, key stakeholder roles, and required investment. This plan prepares San Antonio and Greater Bexar County to effectively use local, state, and federal funding to implement key digital access and equity initiatives that impact households, students, older adults, veterans, people living with disabilities, workforce, telemedicine, and the justice system.

Our ambition is to ensure is that every household in San Antonio and Greater Bexar County have the digital access necessary to participate in society and the economy. Doing so is foundational to reducing systemic inequities and driving the next generation of societal and economic development.

This plan is just the beginning. We, a cross-sector coalition with leaders from the City, the County, and from philanthropic organizations and private sector entities will champion this digital equity plan and work collaboratively with all stakeholders in the community to drive this work forward. Together we aim to implement the strategic initiatives and optimize funds for the best outcomes

Ultimately, this strategic digital equity plan is a living and breathing document. We continue to solicit input and welcome engagement from all stakeholders – local, state, and federal policymakers; school districts, education institutions, and libraries; internet service providers, private sector, and corporate foundations; community organizations; philanthropies and NGOs; and the residents and households of San Antonio and Greater Bexar County. Together, we can achieve our goals.

13 Appendix

13.1 Percentage of Greater Bexar County without internet access by zip code

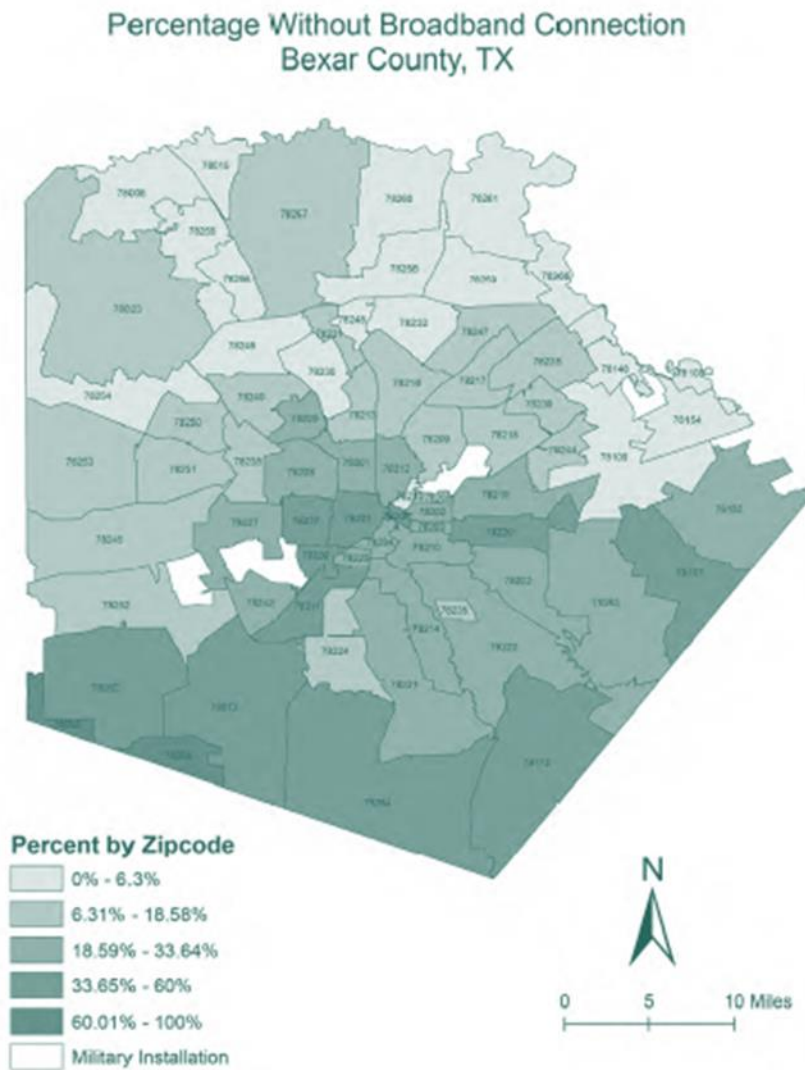


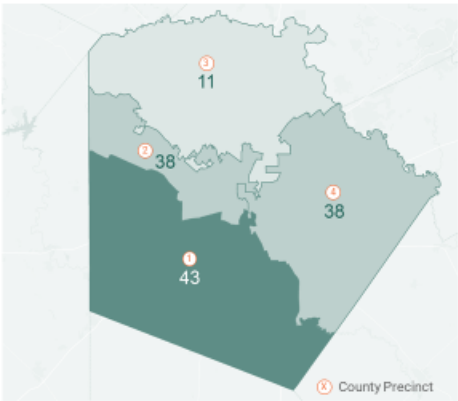
Figure 5: Percentage of Households without Broadband by Zip Code

13.2 Number of households without internet access by county precinct (households per Precinct in 000s, Based on Census ACS and SASpeakUp responses of residents reporting that they lack access to the internet)

Preliminary

Access | Households without adequate digital access by Precinct

Households per precinct in 000s¹



1. Based on Census ACS and SASpeakUp responses of residents reporting that they lack access to the internet
Source: SASpeakUp (2019); US Census (2020); BCG analysis

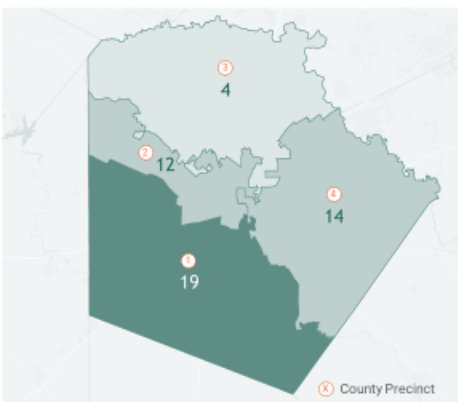
	Households without internet	% of total households	Households without devices	% of total households without devices
Precinct 1	43K	26%	21K	13%
Precinct 2	38K	23%	17K	10%
Precinct 3	11K	17%	7K	5%
Precinct 4	38K	23%	20K	12%
County Total (SA+Bexar)	130K	20%	65K	10%

13.3 Number of households with limited broadband availability by county precinct (households per Precinct in 000s, Based on SASpeakUp responses reporting slow or unavailable service residents' primary reason for not using the internet and BroadbandNow data on average speed per zip code)

Preliminary

Availability | Households with limited broadband availability by Precinct

Households per precinct in 000s¹



	Households with limited broadband availability	Households without internet	% of disconnected household limited by availability
Precinct 1	19K	43K	44%
Precinct 2	12K	38K	31%
Precinct 3	4K	16K	33%
Precinct 4	14K	38K	38%
County Total (SA+Bexar)	50K	130K	38%

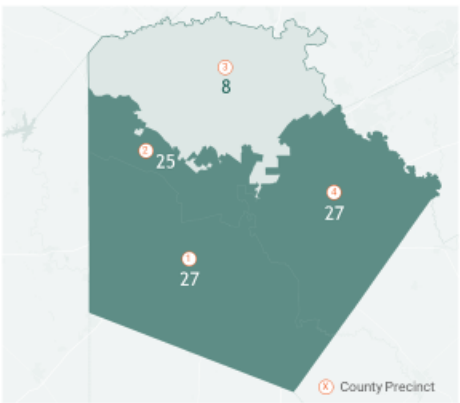
1. Based on SASpeakUp responses reporting slow or unavailable service as residents' primary reason for not using the internet and BroadbandNow data on average speed per zip code
Source: SASpeakUp (2019); BroadbandNow; BCG analysts

13.4 Number of households with limited broadband affordability by county precinct (households per precinct in 000s, Based on SASpeakUp responses of residents reporting that high internet plan pricing is their primary reason for not using the internet)

Preliminary

Affordability | Households with limited broadband affordability by Precinct

Households per precinct in 000s¹



	Households without affordable internet	Households without internet	% of disconnected household limited by affordability
Precinct 1	27K	43K	64%
Precinct 2	25K	38K	66%
Precinct 3	8K	16K	75%
Precinct 4	27K	38K	72%
County Total (SA+Bexar)	90K	130K	68%



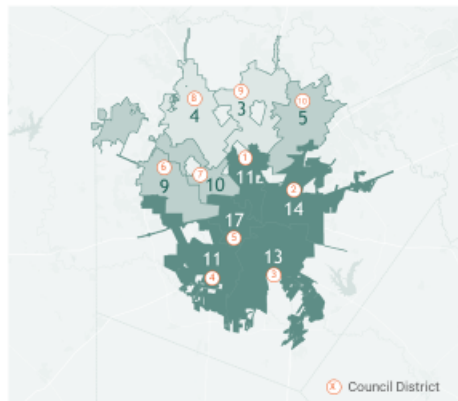
1. Based on SASpeakUp responses of residents reporting that high internet plan pricing is their primary reason for not using the internet
Source: SASpeakUp (2019); BCG analysis

13.5 Number of households without internet access by council district (households per council in 000s, Based on Census ACS and SASpeakUp responses of residents reporting that they lack access to the internet)

Preliminary

Access | Households without adequate digital access by District

Households per district in 000s¹



1. Based on Census ACS and SASpeakUp responses of residents reporting that they lack access to the internet
Source: SASpeakUp (2019); US Census (2020); BCG analysis



	Households without internet	% of total households	Households without devices	% of total households without devices
District 1	11K	25%	6K	14%
District 2	14K	27%	6K	12%
District 3	13K	25%	7K	14%
District 4	11K	23%	6K	12%
District 5	17K	38%	11K	23%
District 6	9K	17%	4K	7%
District 7	10K	18%	4K	7%
District 8	4K	7%	2K	4%
District 9	3K	6%	3K	6%
District 10	5K	9%	2K	6%
City total	100K	20%	53K	10%
County Total (SA+Bexar)	130K	20%	65K	10%

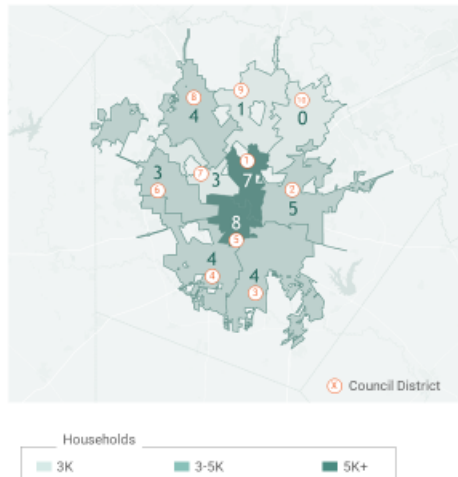
319

13.6 Number of households with limited broadband availability by council district (households per council in 000s, Based on SASpeakUp responses reporting slow or unavailable service residents' primary reason for not using the internet and BroadbandNow data on average speed per zip code)

Preliminary

Availability | Households with limited broadband availability by District

Households per district in 000s¹



	Households with limited broadband availability	Households without internet	% of disconnected household limited by availability
District 1	7K	11K	64%
District 2	5K	14K	36%
District 3	4K	13K	32%
District 4	4K	11K	39%
District 5	8K	17k	44%
District 6	3K	9K	32%
District 7	3K	10K	29%
District 8	4K	4K	100%
District 9	1K	3K	50%
District 10	<1K	5K	<1%
City total	40K	100K	41%
County Total (SA+Bexar)	50K	130K	38%

1. Based on SASpeakUp responses reporting slow or unavailable service as residents' primary reason for not using the internet and BroadbandNow data on average speed per zip code
Source: SASpeakUp (2019); BroadbandNow; BCG analysis

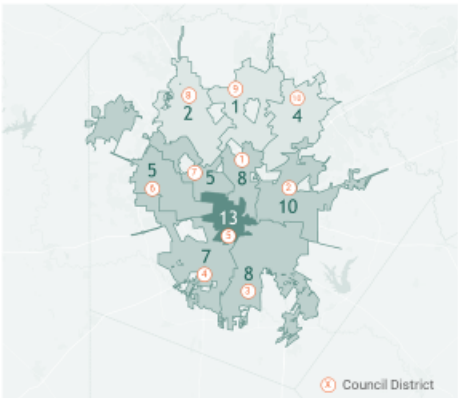
320

13.7 Number of households with limited broadband affordability by council district (households per council in 000s, Based on SASpeakUp responses of residents reporting that high internet plan pricing is their primary reason for not using the internet)

Preliminary

Affordability | Households with limited broadband affordability by District

Households per district in 000s¹



1. Based on SASpeakUp responses of residents reporting that high internet plan pricing is their primary reason for not using the internet
Source: SASpeakUp (2019); BCG analysis

	Households without affordable internet	Households without internet	% of disconnected household limited by affordability
District 1	8K	11K	75%
District 2	10K	14K	69%
District 3	8K	13K	65%
District 4	7K	11K	59%
District 5	12K	17K	73%
District 6	5K	9K	52%
District 7	5K	10K	53%
District 8	2K	4K	50%
District 9	1K	3K	50%
District 10	5K	5K	80%
City total	64K	100K	65%
County Total (SA+Bexar)	90K	130K	69%

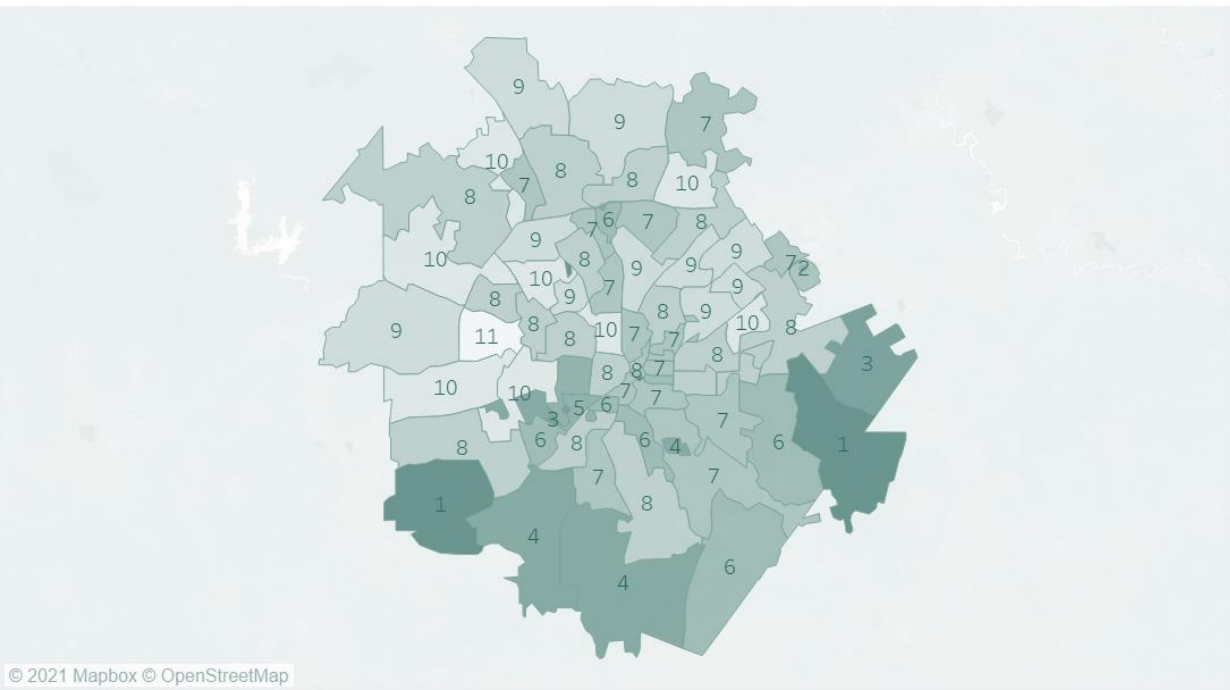
321

13.8 Number of ISPs offering minimum speeds of 100/3 Mbps per zip code

Number of ISPs present offering speeds of at least 100 Mbps Download / 3 Mbps Upload

Number of ISPs

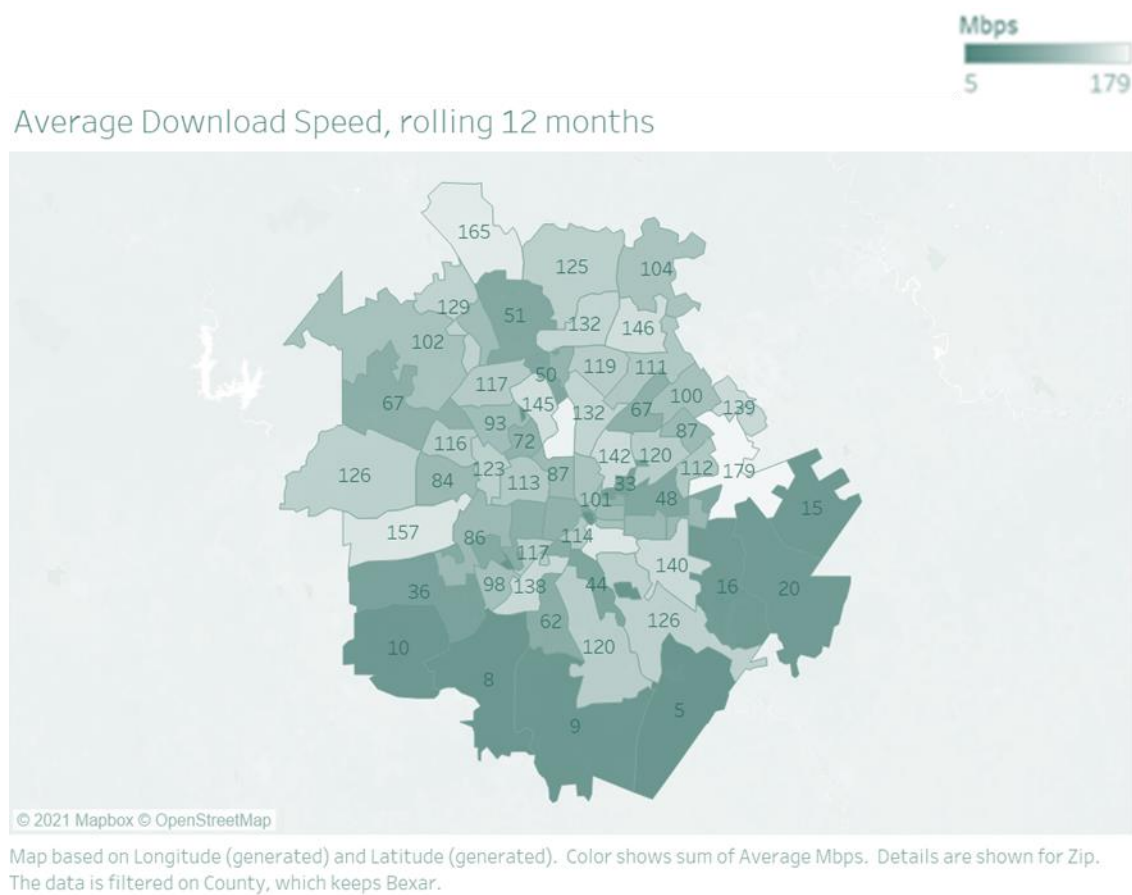
1 11



© 2021 Mapbox © OpenStreetMap

Map based on Longitude (generated) and Latitude (generated). Color shows sum of All100 3. Details are shown for Zip. The data is filtered on County, which keeps Bexar.

13.9 Average download speed per zip code



13.10 Access to 100/3 Mbps by zip code



13.11 Full list of stakeholders who invested in the plan to date

City of San Antonio
Bexar County
Toyota Manufacturing
Toyota USA Foundation
Charles Butt Foundation
HEB

Spurs Give
Texas Mutual
HOLT Family Foundation
SMARMA
USAA

13.12 Full list of businesses and organizations who contributed to the plan to date

 Progress update

Community Outreach | Participation

	Organization Name	Survey	One-on-One	Focus Group	Advisory
1	Adult Years Program	Yes			
2	Adult Youth Vocational Program	Yes			
3	Alamo Colleges District	Yes	Yes		
4	American GI Forum	Yes			
5	American Indians in Texas at the Spanish Colonial Missions	Yes		Yes	
6	Any Baby Can of San Antonio	Yes			
7	Archdiocese of San Antonio		Yes		
8	Artpace San Antonio	Yes			
9	Autism Treatment Center	Yes			
10	Avance	Yes			
11	Avenida Guadalupe Association	Yes			
12	AYVP	Yes			
13	Bexar County		Yes		
14	Bexar County Commissioners Court (Community Outreach & Engagement)	Yes			
15	Bexar County Department of Behavioral Health	Yes			
16	Bexar County Education Coalition		Yes		
17	Bexar County Health Collaborative			Yes	
18	Bibliotech		Yes		
19	Big Brothers Big Sisters of South Texas	Yes			
20	Bridges to Care - San Antonio	Yes			
21	Brooks Development Authority		Yes		Yes
22	Centro Cultural Aztlan, Inc.	Yes			
23	Cesar E. Chavez Foundation	Yes		Yes	
24	ChildSafe	Yes			
25	City Education Partners	Yes	Yes		Yes
26	City of San Antonio		Yes		Yes
27	City of San Antonio Economic Development Department	Yes			
28	Classical Music Institute	Yes			
29	Community First Health Plans	Yes			
30	Conjunto Heritage Taller	Yes			

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Community Outreach | Participation

	Organization Name	Survey	One-on-One	Focus Group	Advisory
31	COPS/Metro	Yes	Yes		
32	COSA Office of Veteran Affairs		Yes	Yes	Yes
33	disABILITYsa	Yes	Yes	Yes	
34	Ella Austin Community Center	Yes			
35	ESC 20*		Yes		Yes
36	Esperanza Peace and Justice Center	Yes			
37	Essence Prep	Yes	Yes		
38	Family Service Association of San Antonio, Inc.	Yes			
39	Family Violence Prevention Services, Inc./The Battered Women and Children's Shelter	Yes			
40	Geekdom		Yes		
41	Girls Inc. of San Antonio	Yes			
42	Good Samaritan Community Services	Yes			
43	Goodwill				Yes
44	Habitat for Humanity of SA	Yes			
45	Healthy Futures of Texas	Yes			
46	Hemisfair	Yes			
47	House of Neighborly Service	Yes			
48	Individuals and Families Impact Council, United Way of Bexar County	Yes			
49	Intercultural Development Research Association	Yes	Yes		Yes
50	Jewish Family Service of San Antonio	Yes			
51	Launch SA	Yes			
52	Libraries Without Borders US	Yes			
53	Lift Fund - Women's Business Center WBC-SA			Yes	
54	Lit Communities		Yes		
55	LISC San Antonio	Yes			
56	Louis Escareno Attorney at Law			Yes	
57	Madonna Center, Inc.	Yes			
58	Martinez Street Women's Shelter	Yes			Yes
59	Meals on Wheels San Antonio	Yes			
60	Methodist Healthcare Ministries	Yes	Yes	Yes	Yes

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Community Outreach | Participation

	Organization Name	Survey	One-on-One	Focus Group	Advisory
61	Mexican American Civil Rights Institute	Yes			
62	MICRO:SA	Yes			
63	MY Charity	Yes			
64	National Hispanic Institute San Antonio	Yes			
65	North San Antonio Chamber of Commerce	Yes			
66	OATS/Senior Planet		Yes	Yes	Yes
67	Orangetheory Fitness Huebner	Yes			
68	Presa Community Center	Yes			
69	Project QUEST, Inc.	Yes			
70	Project Search/Children's Hospital of San Antonio	Yes			
71	Project Transformation Rio Texas	Yes			
72	Prosper West San Antonio	Yes		Yes	
73	Respite Care of San Antonio	Yes			
74	Restore Education	Yes			
75	Rise Recovery	Yes		Yes	
76	Roy Maas Youth Alternatives	Yes			
77	SA Youth	Yes			
78	SAGE		Yes	Yes	
79	San Antonio Independent School District*	Yes	Yes		Yes
80	SAISD Adult Years Vocational Program	Yes			
81	SAISD/AYVP/ Project SEARCH	Yes			
82	SAMSAT -- San Antonio Museum of Science and Technology	Yes			
83	San Anto Cultural Arts	Yes			
84	San Antonio Clubhouse	Yes			
85	San Antonio Economic Development Foundation		Yes		Yes
86	San Antonio Housing Authority		Yes		
87	San Antonio Library Foundation		Yes		
88	San Antonio Public Library		Yes		
89	SAY SI	Yes			

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Community Outreach | Participation

	Organization Name	Survey	One-on-One	Focus Group	Advisory
90	Social and Health Research Center, Inc.	Yes			
91	Soldiers' Angels	Yes		Yes	
92	Southside First Economic Development Council	Yes	Yes		
93	Southwind Fields	Yes			
94	St. Mary's University Upward Bound Grant	Yes			
95	Steven A. Cohen Military Family Clinic at Endeavors in San Antonio	Yes		Yes	
96	Students of Service (SOS)	Yes			
97	Successful Aging and Living in San Antonio (SAAF)	Yes			
98	TechBloc		Yes		
99	Texas A&M San Antonio		Yes		Yes
100	Texas Veterans Network (AACOG)	Yes		Yes	
101	The Arc of San Antonio	Yes			
102	The Children's Bereavement Center Of South Texas	Yes			
103	THRU Project	Yes			
104	Toyota Motor North America	Yes	Yes		Yes
105	Trinity University - Center for Innovation and Entrepreneurship	Yes	Yes		
106	TRIO Upward Bound- Palo Alto College	Yes			
107	University Health	Yes		Yes	Yes
108	UP Partnership	Yes			
109	Upward Bound, Trinity University, Harlandale and Edgewood ISD	Yes			
110	UT Health San Antonio	Yes			
111	UTSA Small Business Development Center			Yes	
112	VIA Metropolitan Transit	Yes	Yes		
113	Voices for Children of San Antonio	Yes			
114	Webhead	Yes			
115	WellMed	Yes			
116	YWCA of Greater San Antonio	Yes			
117	Youth Code Jam	Yes			
118	YWCA San Antonio	Yes			

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Community Outreach | Participation

	School District/Charter/Organization Name (K-12)	Questionnaire	Focus Group
119	Alamo Heights ISD	Yes	Yes
120	Boerne ISD		Yes
121	Brooks Academy of Science and Engineering	Yes	Yes
122	East Central ISD		Yes
123	Edgewood ISD		Yes
124	Eleanor Kolitz Hebrew Lang. Academy	Yes	
125	Fl. Sam Houston	Yes	Yes
126	Grow Associates, LLC		Yes
127	Harlandale ISD	Yes	Yes
128	Jubilee Academy		Yes
129	Judson ISD		Yes
130	Lackland ISD		Yes
131	Lighthouse Charter School		Yes
132	New Frontiers		Yes
133	Northeast ISD	Yes	Yes
134	Northside ISD		Yes
135	Promesa Academy	Yes	
136	Responsive Ed		Yes
137	SA Prep		Yes
138	San Antonio ISD		Yes
139	Schertz Cibola Universal City ISD		Yes
140	School of Science and Technology		Yes
141	Seguin ISD		Yes
142	Southside	Yes	
143	Somerset ISD		Yes
144	South San Antonio ISD		Yes
145	Southwest ISD		Yes
146	TEA		Yes

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