



January 10, 2023

To: Lower Rio Grande Valley Development Council

From: Jordana Barton-Garcia,
Senior Fellow, Connect Humanity
jordana@connecthumanity.fund

Re: Strategy for Equity in the Awarding of Infrastructure Investment and Jobs Act Broadband Grants for the Lower Rio Grande Valley¹

I am pleased to provide the following recommendations for the Lower Rio Grande Valley for a regional strategy to gain equitable access to federal broadband funding under the Infrastructure Investment and Jobs Act (IIJA). As you know, in the IIJA, Congress directs the National Telecommunications and Information Administration (NTIA) to establish regulations for administration of billions of dollars in grants to local governments across the country funneled through state governments. This has led all 50 states to establish state broadband offices responsible for working with local governments and ISPs to develop statewide plans for determining the areas within each state in most need of broadband connectivity and a process for awarding federal grants for deployment of broadband infrastructure. In Texas, the Broadband Development Office is housed within the Office of the Comptroller of Public Accounts.

Among other items, Congress also directed the NTIA to: (1) use updated broadband map to be developed by the Federal Communications Commission (FCC) to help guide the process for awarding state broadband grants; (2) efficiently award grants by minimizing deployment of new infrastructure over existing broadband networks; and (3) target *persistent poverty regions* for broadband investment in grant programs. The Rio Grande Valley (RGV), which includes the counties of Cameron, Willacy, Hidalgo, and Starr, is part of a *persistent poverty region* entitled to special consideration by the NTIA in terms of broadband investment under the IIJA. However, for the NTIA to fulfill the third congressional directive listed above, it will be necessary for NTIA, on its own motion or in response to a third-party request, to waive the first two directives as they pertain to *persistent poverty regions*. This letter outlines the strategy for accomplishing this goal.

The Purpose of FCC National Broadband Map

On November 18, 2022, the FCC released updated broadband coverage maps that integrate information from broadband providers with location-specific data sources. The FCC National Broadband Map (the map) is intended to guide the awarding of billions of dollars in grants to close the digital divide and inaccurately presents the impression that 100 percent of the RGV is served. The definitions of “served” and “access” used by the FCC and the industry are different from a layperson’s understanding of the terms. The map indicates 97.86 percent of Texas is “served,” and

100 percent of the Rio Grande Valley is “served” at the minimum broadband speed set by the FCC of 25/3 Mbps. Moreover, according to the map, 100 percent of the RGV counties are also served with 100/20 Mbps, and 250/25 Mbps (See charts below).² Areas with under 25/3 Mbps “available” are considered “unserved” and will receive priority for the grant funding. The “underserved” are areas with less than 100/20 Mbps “available” and will be the next funding priority, subject to availability of funds. A state’s unserved and underserved will determine amount awarded by NTIA.

It is important to understand the FCC’s purpose behind upgrading the broadband maps is to determine “access” to broadband infrastructure based on confidential reports provided by internet service providers, including wireline telecommunications companies, cable providers, wireless carriers, and satellite providers (hereafter collectively referred to as “ISPs”). Generally speaking, “access” for the FCC means an ISP *can provide* (within 10 days) broadband service of a minimum speed of 25/3 Mbps to a residential or commercial address using any technology, irrespective of whether such speed is sufficient for consumer needs. Nor does it account for the potential cost of a line extension (which could cost a consumer thousands of dollars to install); the monthly subscription price; the cost to own or rent premise equipment, such as a cable modem, wireless router, or satellite dish; nor the cost of connectivity devices, such as a desktop computer, laptop computer, tablet, or wireless phone. Finally, it is assumed that users know how to navigate the internet and use other digital tools. In short, the term “access” reveals only *a portion of the first* of three components that make up the digital divide: (1) lack of reliable high-speed broadband infrastructure, (2) inability to afford a broadband subscription and connectivity devices, and (3) digital skills training in navigating the internet and digital platforms to fully participate in the digital economy. Thus, “access” just refers to broadband (minimum 25/3 Mbps) availability that is self-reported by the ISPs as areas they *can cover* (*not* that they have ever or are currently providing service to those residents, anchor institutions, or businesses). ISPs can claim an area is served because they have “infrastructure” near or through a town or low-income neighborhood, even if they have never provided broadband service to consumers there.³

With this general understanding, consider that the FCC has set up a challenge portal and established a deadline of January 13, 2023, for states, local governments, and individuals to dispute inaccuracies in the ISP reported coverage data. In other words, states, local governments, and individuals are invited to conduct their own research to determine whether they have “access” to broadband infrastructure and share that data with the FCC. To determine funding amounts for states, the NTIA is interested in information concerning the deployment of broadband infrastructure and whether such infrastructure can deliver 25/3 Mbps to consumer locations. In implementing IJA, NTIA is not specifically concerned about the need for broadband speeds above the minimum 25/3 Mbps (for unserved) and 100/20 Mbps (for underserved), or the cost of subscriptions, line extensions, premise equipment, or connectivity devices. Nor is NTIA considering actual subscriptions to fixed broadband service.

The digital divide has been more accurately represented with the comprehensive data provided by the U.S. Census American Community Survey, the Pew Research Center, the Benton Foundation, the National Digital Inclusion Alliance, the Brookings Institute, and local surveys where available. The new FCC map data would need to be triangulated with other sources to provide a more valid and reliable picture of the lived experience of underserved communities and the actual digital

divide.⁴ To use an analogy, picture the digital divide as an elephant; the FCC National Broadband Map would represent the tail. However, under the IJA, it is the NTIA’s mandate to develop a process for awarding broadband grants for the purpose of bridging the digital divide. Thus, it would be appropriate for the NTIA to use the FCC map *and* conduct a more rigorous analysis that includes triangulation of data.

Nevertheless, under the current rules, the FCC map will determine state allocations and the eligibility for state broadband funding for communities. For this reason, State of Texas Comptroller, Glenn Hegar, wrote a letter to the FCC and NTIA asking for an extension of the deadline to file challenges to the national map by 60 days, to March 14, 2023; and to postpone release of the final map by 60 days, from May 15, 2023, to July 14, 2023. The timeframe given for residents, businesses, regions and states to file challenges (to meet the NTIA deadline that will inform funding) was 35 working days with three national holidays in between. Given what it takes to navigate the new maps and follow the instructions for issuing a challenge, Comptroller Hegar’s request is important and should be supported. He also correctly holds that the inaccurate maps limit competition and thus perpetuate the status quo.⁵ The new map does not accurately reflect the digital divide that exists in the Rio Grande Valley, and if used as the only determinant in eligibility, the region and the entire State of Texas will be negatively impacted in this historic opportunity for infrastructure investment.

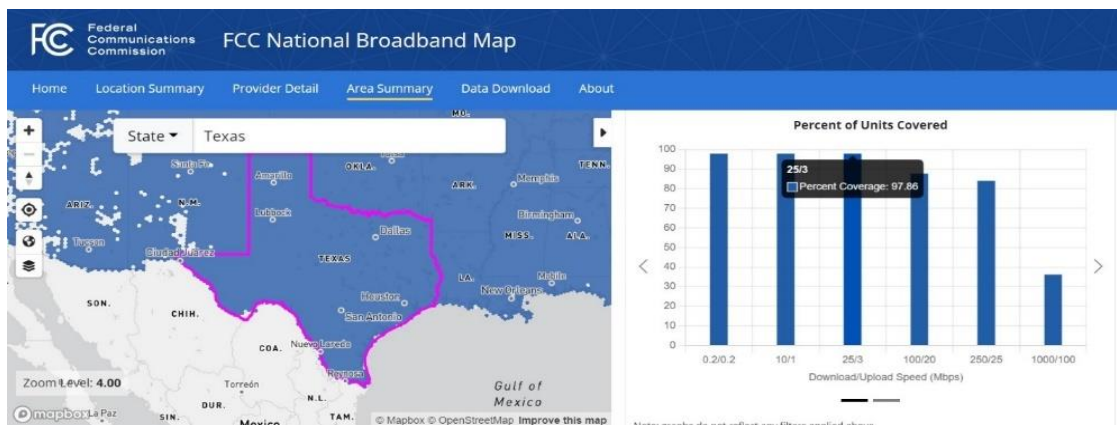


Figure 1. Broadband Availability in Texas, according to FCC National Broadband Map

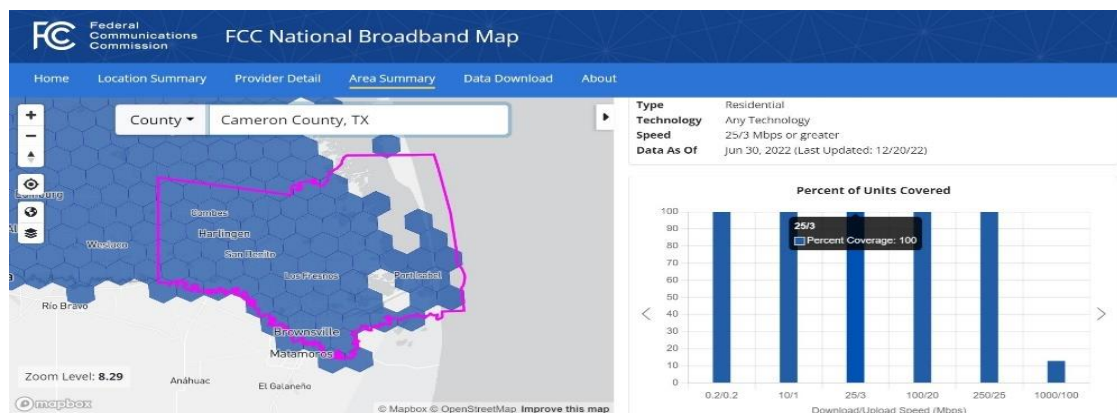


Figure 2: Broadband availability in Cameron County, TX according to FCC National Broadband Map

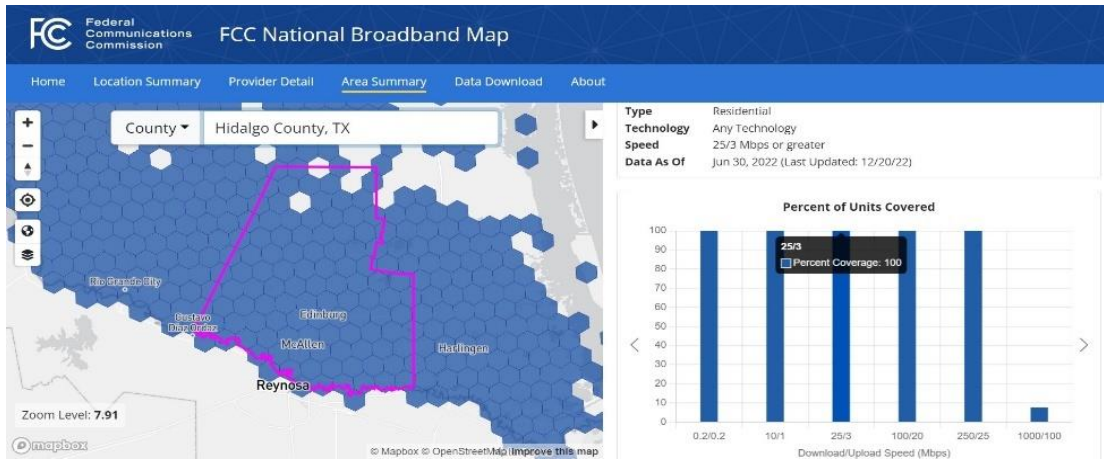


Figure 3: Broadband availability in Hidalgo County, TX according to FCC National Broadband Map

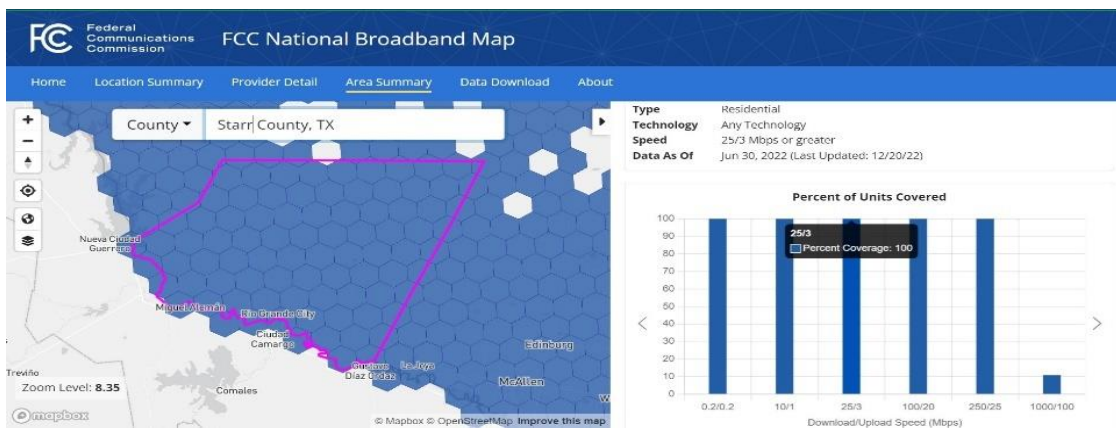


Figure 4: Broadband availability in Starr County, TX according to FCC National Broadband Map

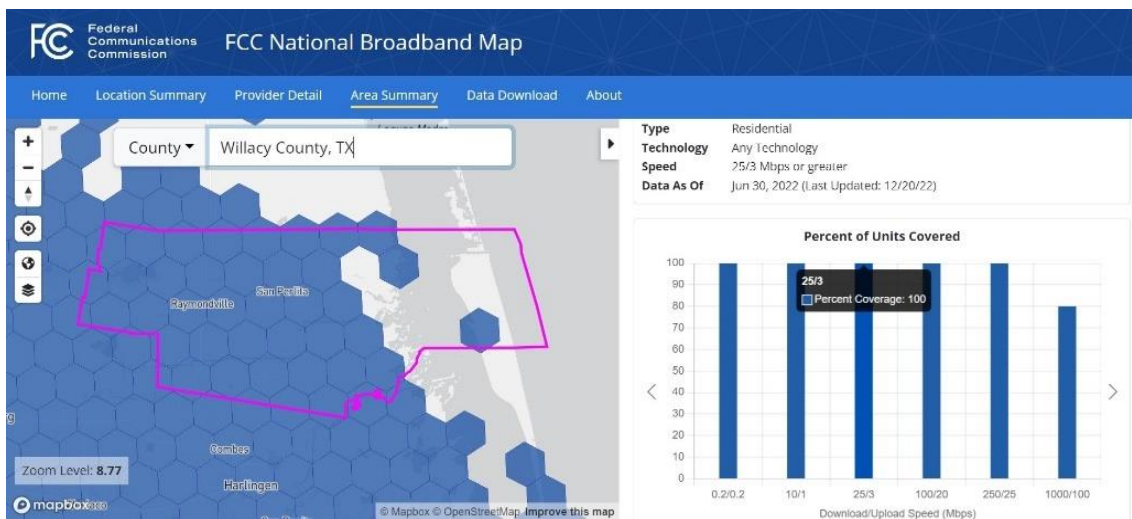


Figure 5: Broadband availability in Willacy County, TX according to FCC National Broadband Map

Special Consideration of Persistent Poverty Regions

The Rio Grande Valley (RGV) is part of a *persistent poverty region*, the Texas-Mexico Border, meaning over the last three decades at least 20 percent of the population lives below the poverty line. According to the latest U.S. Census QuickFacts (2022) for percentage of population living in poverty in the four RGV counties: Hidalgo County has 23.9%, Starr 25.2%, Willacy 34.3%, and Cameron 24.4%.

The other three persistent poverty regions of the country include Central Appalachia, the Mississippi Delta, and Tribal Lands.⁶ In the IJIA, Congress instructed the NTIA to target these underserved areas of the country for broadband investment. Within the border region are also the *Colonias*, which are economically disadvantaged communities that are rural or “rural in nature” and lack safe housing and basic infrastructure, such as safe drinking water, wastewater, and paved roads. Many *colonias* are neighborhoods in unincorporated areas under county jurisdiction. They can also be extrajurisdictional territories around cities, or incorporated communities (small towns). As the Federal Reserve Bank of Dallas noted in the last full report about the status of the *colonias* in 2015, *Las Colonias in the 21st Century: Progress Along the Texas-Mexico Border*, 61.4 percent of *colonia* residents lived below or near poverty. Cameron, Hidalgo, and Starr Counties are among the counties along the border with the highest concentration of *colonias*. The *colonias* are recognized by federal agencies, such as the United States Department of Housing and Urban Development (HUD) and the United States Department of Agriculture (USDA) as vulnerable communities that should be targeted for investment. The Federal Reserve’s *colonias* report and website, and its subsequent report, *Closing the Digital Divide: A Framework for Meeting CRA Obligations*, also document that broadband is an additional basic infrastructure and service severely limited in *colonias* and the persistent poverty counties in the region.⁷

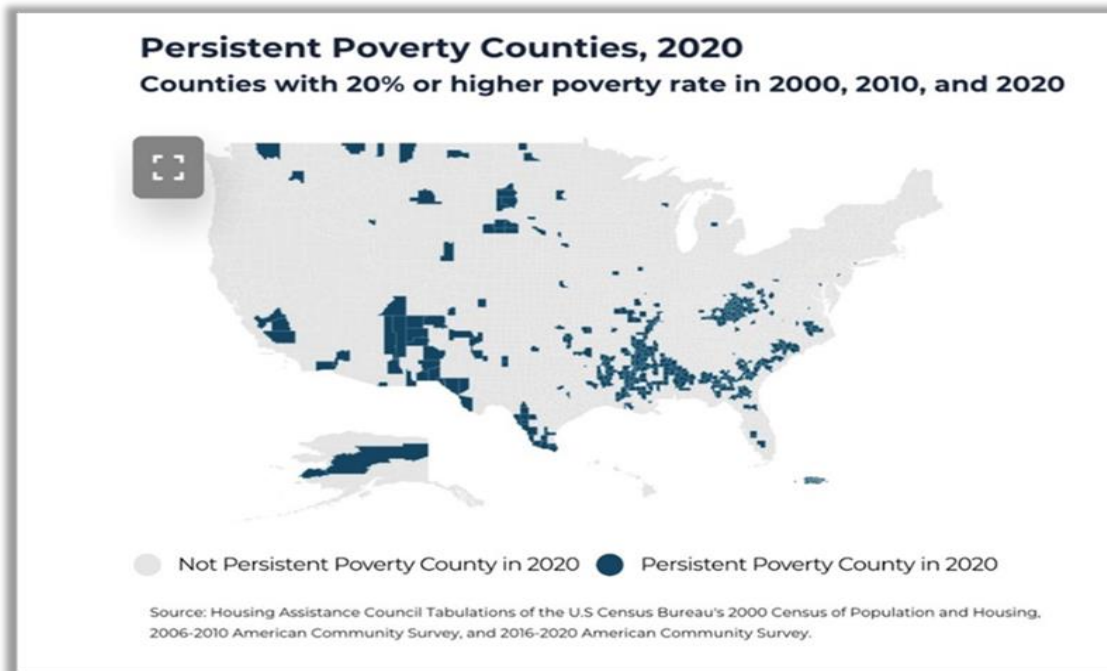


Figure 6: Persistent Poverty Counties, 2020

Given the designation as a *persistent poverty region*, the high concentration of *colonias*, and the misrepresentation of coverage Texas Comptroller Hegar has already pointed out, the Rio Grande Valley should request NTIA to waive reliance on the new FCC map for determining funding for the region. NTIA may consider making grant decisions for the region similarly to how they are made for Tribal Lands to fulfill Congress' intent of targeting *persistent poverty regions* for broadband investment under IJA. The reason for focusing on a waiver request to the NTIA is because of its broader mandate to award broadband grants to close the digital divide and to target *persistent poverty regions* in this effort.

In filing such a waiver, it would be prudent to point out to the NTIA that *colonias* and the broader *persistent poverty* border counties have a similar historical experience as Tribal Lands. Under the Treaty of Guadalupe-Hidalgo that ended the Mexican-American War in 1848, Mexico ceded more than half its territory to the United States. Under the terms of the Treaty, the native people of South Texas were guaranteed they could keep their family land and become citizens. But for many, their land (i.e., their livelihood and generational asset) was taken by force or through the courts in one generation, and decades of systemic discrimination against the native inhabitants, i.e., Mexican Americans, followed, thus creating and cementing persistent poverty.⁸

It has been well-documented by the Federal Reserve Bank of Dallas, the National Digital Inclusion Alliance, the Pew Research Center, and the U.S. Census, that lower-income communities, rural areas, and communities of color along the Texas border have some of the lowest levels of connectivity in the country in terms of “access” to reliable high-speed broadband, and actual fixed broadband subscriptions.⁹ For low-income and rural communities the NTIA and FCC should be requiring the best possible connection, not minimums. Why would low-income and rural areas (that have local providers that would like to serve them or improve service to them) need less than what more affluent people in cities have? We should aim for what Jonathan Sallet, in *Broadband for America's Future* (2019), calls “high-performance fixed broadband networks” that are “fit for the future.” He is referring to fiber-based networks. He recommends a minimum of 100 Mbps symmetrical for households.¹⁰ And I would recommend a minimum of 1 Gbps for many businesses and anchor institutions, with the understanding that some of them, such as hospital systems and business incubator facilities, may need much higher broadband speeds. If we disregard our knowledge of the speed and capacity that are needed now, and in the future, we will be perpetuating the digital divide.

As detailed in Table 1, the RGV region is over 90 percent Latino.¹¹ The underinvestment in fiber infrastructure or network upgrades in these communities is called “digital redlining.”¹² This occurs when mostly large incumbent ISPs calculate that capital investments in low-income neighborhoods and rural areas necessary for 21st century broadband infrastructure and upgrades will not allow them to maximize profits (required by shareholders). Dr. Christopher Ali calls this practice “the politics of good enough,” where low-income and rural areas are told they should accept whatever service is available¹³ and rely on expensive and unreliable satellite service or legacy infrastructure such as DSL technology and early cable modem network architecture. The ISP reported data for the FCC map claims that 100 percent of RGV residents have “access” to broadband. However, as explained above, reliable data on the actual quality and cost/affordability of service is not included in the map. In fact, speed test data some communities have gathered to demonstrate actual speeds they're getting, are not allowed as evidence for the individual or bulk challenges. Those who have

tried to send in the speed test data have been told by the FCC that speed is a consumer issue and not related to the challenge of the map.¹⁴ We know the U.S. has the highest cost of internet service compared to other developed countries¹⁵ and that low-income people and regions are most impacted by the digital divide, yet there is no consideration for affordability of service in determining unserved and underserved.¹⁶

Starr County	96.3%
Hidalgo County	92.6%
Cameron County	90.0%
Willacy County	88.1%
Source: U.S. Census QuickFacts, 2022	

Furthermore, if the reported data by the ISPs were credible, such ISPs would not be seeking access to IJA broadband funds—for there would be no need for further investment in broadband infrastructure. Yet, by their own account, fighting competitive access to such grant funds by local governments and other providers is one of the most critical challenges they are currently facing.¹⁷ Other data closer to home, belies the assurances of the ISP broadband data reported to the FCC.¹⁸ For example, the University of Texas Rio Grande Valley surveyed its students during the pandemic to determine if they were able to adapt to remote learning. They found 45 percent of students who responded did not have internet at home.¹⁹ The situation was still worse for K-12 students. The pandemic showed the country what it means to live without a reliable high speed broadband subscription/service in the home. Internet service was a lifeline to attend school and have access to education, healthcare, financial services, public programs and services, and the ability to care for family members, follow social distancing mandates, and more. Other data sources exist (such as local community surveys, the U.S. Census American Community survey, Pew Research Center, as well as datasets compiled by Microsoft). Those data regarding actual subscriptions should be triangulated with the FCC’s ISP reported data to help improve the broadband maps for the Rio Grande Valley region that reflects the digital divide experienced by the people of South Texas.

Waiver of the “No Overbuilding” of Infrastructure Rule

As stated at the outset, for the NTIA to consider the Rio Grande Valley for targeted broadband investment as a *persistent poverty region*, it will be necessary to also request a waiver of the “no overbuilding” of infrastructure rule. This best practice is misapplied when the granting agencies fail to consider the *type* of broadband infrastructure that determines speed and capacity. For instance, deploying fiber infrastructure over a legacy copper network is necessary for the region to partake in the full benefits of telehealth (for the providers and the residents), among other educational and economic opportunities. During the pandemic, the use of telehealth increased by 38 percent in the country.²⁰ The border region, including the Rio Grande Valley, has a paucity of health care providers (including primary care physicians, physician assistants, specialists, and mental health providers), the worst health outcomes in the nation, and the highest cost of healthcare.²¹ These are all problems telehealth has been proven to address.²²

The FCC recommends 100/100 Mbps symmetrical for telehealth applications for households,²³ which is well above the 25/3 Mbps current minimum and even higher than the aspirational upgrade to the FCC definition of broadband of 100/20 Mbps Chair Rosenworcel has proposed.²⁴ The Rio Grande Valley plans to include robust telehealth programs in their regional broadband plans. Such plans support the creation of healthy competition – among local co-ops, regional ISPs, publicly owned networks, and national ISPs – necessary to offer the speed and capacity to support the local public health offices, the medical school, hospitals, clinics and households throughout the region, and not rely on the 25/3 Mbps standard the FCC leadership has already indicated needs to be upgraded to 100/20 Mbps for households. The healthcare industry is one of the largest creators of jobs in South Texas, and *the* largest creator of jobs in the country.²⁵ The productivity of the industry and the health of residents in the Rio Grande Valley region, rural areas, and indeed the nation, will depend on having the necessary infrastructure to support telehealth and the targeted care and efficiencies it provides.

Summary of Recommendations

- 1) The LRGVDC should file a request with the NTIA to waive reliance on the FCC’s maps due to the counties of the RGV and Texas-Mexico Border region *persistent poverty* status. They should additionally file for a waiver to NTIA’s “no overbuilding” infrastructure rule in considering the award of broadband grants to the entire Rio Grande Valley region to foster competition and secure the necessary speed and capacity of networks to implement the telehealth objectives for the region and other economic benefits. Further, the NTIA should adapt the grant process applicable to Tribal Lands in targeting broadband investment to the Rio Grande Valley region. Without granting these waivers, the NTIA will not be able to fulfill the mandate from Congress to give special consideration to *persistent poverty regions*, such as the Rio Grande Valley/Texas Border region, in terms of broadband investment. The LRGVDC may want to engage an experienced administrative law attorney to file such waiver request and follow-up the written filing with face-to-face meetings with appropriate NTIA personnel to press the case for the appropriate treatment of the Rio Grande Valley region as a *persistent poverty region*. Perhaps a national digital inclusion organization, such as Connect Humanity, can be asked to support the waiver on behalf of the *persistent poverty regions*.
- 2) The LRGVDC should file a letter with the FCC and NTIA supporting the extension requested by Texas Comptroller Hegar and share local broadband infrastructure access data. It is equally important to share subscription, community survey, and other data on the digital divide directly with the NTIA, which is the federal agency with the legal mandate to establish the rules to administer broadband funds efficiently and equitably under the IJA, including the targeting of *persistent poverty regions* for broadband investment. The RGV can participate in the map challenge even if they are granted a waiver. The new FCC maps—that are presented as the source to understand the digital divide in the country—are important to make as accurate as possible and will take some time. Otherwise, they are smoke and mirrors and perpetuate the inaccuracies in previous FCC Form 477 data/maps. Stakeholders could also communicate with the FCC that they should title the map accurately. A more accurate title of the FCC National Broadband Map could be:

“Incumbent ISP Reports on Broadband Infrastructure *Availability*, Regardless of Type of Infrastructure, Quality of Connection, Actual Subscriptions, or Cost of Service.”

Endnotes

¹ This version is edited and adapted by the author from the original Jan. 3, 2022 memo to Judge Eddie Treviño, Cameron County.

² The first number is download speed and the second is upload, i.e., 25 Download/ 3 Upload

³ “AT&T’s Digital Redlining: Leaving Communities Behind for a Profit,” Communications Workers of America and National Digital Inclusion Alliance, October 2020, https://www.digitalinclusion.org/wp-content/uploads/dlm_uploads/2020/10/ATTs-Digital-Redlining-Leaving-Communities-Behind-for-Profit.pdf. The article describes the AT&T practice of not installing splitting equipment to enable home connections even where a fiber backbone exists. However, such a neighborhood is considered “served” because there is line passing the neighborhood. In addition, speakers and attendees at several broadband conferences, including the Broadband Economic Summit in Vicksburg, Mississippi on July 7-8, 2022, and the Texas Association of Telecommunications Officers and Advisors Conference in McAllen, Texas on Nov. 2-4, 2022, gave examples of this practice of national incumbent Internet Service Providers that have “infrastructure” that goes through a community, but don’t provide service to the community.

⁴ Triangulation in research means using multiple datasets, methods, or theories to address a research question, enhancing the validity and credibility of findings. This helps to better understand complex social issues.

⁵ Texas Comptroller of Public Accounts, Press Release, December 13, 2022, <https://comptroller.texas.gov/about/media-center/news/20221213-texas-comptroller-glenn-hegar-petitions-federal-government-on-timing-of-its-broadband-map-development-release-of-federal-broadband-funding-1670529272704>

⁶ “Rural Research Brief: The Persistence of Poverty in Rural America,” by Lance George and Keith Wiley, Housing Assistance Council, 2022, <https://ruralhome.org/persistence-poverty-rural-america/>.

⁷ “Las Colonias in the 21st Century: Progress Along the Texas-Mexico Border,” by Jordana Barton, et. al., Federal Reserve Bank of Dallas, 2015, <https://www.dallasfed.org/assets/documents/cd/pubs/lascalonias.pdf>, & broadband data for the border analyzed and documented in the micro-website, www.dallasfed.org/~media/microsites/cd/colonias/index.html. See also, “Realities of the Digital Divide Within Texas Colonias,” Intercultural Development Research Association (IDRA), October 6, 2022, <https://www.idra.org/events/realities-of-the-digital-divide-within-the-colonias-of-texas/>. At this event, Intercultural Development Research Association (IDRA), along with partners, invited NTIA and the Texas Broadband Office to the border to visit the *colonias* and hear first-hand the digital divide experienced by *colonia* residents.

⁸ “An Historic Overview of Latino Immigration and the Demographic Transformation of the United States,” by David Gutierrez, in *American Latinos and the Making of the United States: A Theme Study*, National Park Service, February 28, 2013, www.nps.gov/latino/latinothemestudy/immigration.htm

⁹ See *Worst Connected U.S. Cities of 2019*, by Paolo Balboa, National Digital Inclusion Alliance, September 17, 2020, and two reports from the Brookings Institute: “Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities,” by Adie Tomer, Lara Fishbane, Angela Siefer, and Bill Callahan, Brookings Institute, 2021, <https://www.brookings.edu/research/digital-prosperity-how-broadband-can-deliver-health-and-equity-to-all-communities/>, and “Trust and Entrepreneurship Pave the Way Toward Digital Inclusion in Brownsville, Texas,” by Adie Tomer and Lara Fishbane, Brookings Institute, 2021, <https://www.brookings.edu/blog/the-avenue/2020/04/08/trust-and-entrepreneurship-pave-the-way-toward-digital-inclusion-in-brownsville/>. See also, border broadband data analyzed and presented in www.dallasfed.org/~media/microsites/cd/colonias/index.html, and “Closing the Digital Divide: A Framework for Meeting CRA Obligations,” by Jordana Barton, Federal Reserve Bank of Dallas, 2016, <https://www.dallasfed.org/cd/pubs/digitaldivide.aspx>.

¹⁰ “Broadband for America’s Future: A Vision for the 2020s,” by Jonathan Salet, Benton Institute for Broadband & Society, October 2019, <https://www.benton.org/publications/broadband-policy2020s>.

¹¹ U.S. Census QuickFacts, 2022

¹² “Digital Redlining is discrimination by internet service providers in the deployment, maintenance, or upgrade of infrastructure or delivery of services. The denial of services has disparate impacts on people in certain areas of cities

or regions, most frequently on the basis of income, race, and ethnicity.” National Digital Inclusion Alliance, <https://www.digitalinclusion.org/definitions/>.

¹³ “Farm Fresh Broadband: The Politics of Rural Connectivity,” by Christopher Ali, The MIT Press, 2021.

¹⁴ Paloma Perez, Federal Communications Commission (FCC), presentation for the Executive Women in Texas Government “Connected Leadership” Conference, November 20-21, 2022, “Broadband Track: Mapping Our Shared Future: Identifying Community Broadband Needs,” San Marcos, Texas.

¹⁵ “The Great Reversal: How America Gave Up on Free Markets,” by Thomas Philippon, The Belknap Press of Harvard University Press, 2019.

¹⁶ The FCC addresses affordability separately through the Affordable Connectivity Program. This is an important IJA program, but is a short-term, disjointed approach that fails to get to the root cause of high prices and the need to build quality broadband networks that can provide high-speed, affordable service to all consumers, which will often require alternative approaches to profit-maximizing service providers.

¹⁷ “Cable Company’s Accidental Email to Rival Discusses Plan to Block Competition,” by Jon Brodtkin, Ars Technica, Nov. 17, 2022, <https://arstechnica.com/tech-policy/2022/11/cable-companys-accidental-email-to-rival-discusses-plan-to-block-competition/>. This article reveals that on October 17, 2022, Cable One Assistant General Counsel Patrick Caron wrote an email to other executives within the company regarding the need to develop a strategy for challenging government grant awards to other ISPs within the cable company’s service footprint, even where the company does not provide service. Mr. Caron wrote: “Challenging publicly funded overbuilds is becoming one of the most important tasks we do as a company.” “Overbuild” is a term cable and telecom companies use to describe what is more commonly known as “competition.”

See also, Charter President & CEO Chris Winfrey explains competitive challenges facing Charter (Spectrum), a cable provider: “It doesn’t mean we don’t have challenges. As everybody knows, we have fiber overbuilders [competition] today [that] have announced significant builds. Some are more refocused with recent divestitures, and others have been recapitalized, and others are more aggressive local overbuilders.” Mr. Winfrey also explained that Charter has received about \$5 billion in federal funding under the RDOF program and an additional \$1 billion in other state and local government subsidies to support rural construction. Statements made at an investment meeting on December 13, 2022, <https://ir.charter.com/>.

¹⁸ “The Broadband Turf Wars Are Hurting Rural Communities,” by Lizzie O’Leary, Slate Magazine, September 19, 2022, <https://slate.com/technology/2022/09/isp-turf-wars-east-carroll-parish-louisiana.html>, and Connect Humanity blog referencing Wesley Muller’s article, “Telecom Giant Moves to Stop Broadband Grant for Northeast Louisiana,” by Wesley Muller, Louisiana Illuminator, September 8, 2022, <https://connecthumanity.fund/telecom-giant-moves-to-stop-federal-broadband-grant-for-northeast-louisiana/>. See also, Rio Grande Guardian article, by Steve Taylor, “Brownsville Mayor Dismisses Criticism of City’s Broadband Plan by AT&T, Spectrum,” by Steve Taylor, July 7, 2022, <https://riograndeguardian.com/brownsville-mayor-dismisses-criticism-by-att-spectrum-of-citys-broadband->. The article provides the AT&T criticism of the City of Brownsville’s public-private partnership to build a fiber network to create economic opportunity and to close the digital divide. AT&T did not apply under the RFP released by Brownsville for an ISP to partner with. However, in another article on AT&T’s website they express the opposite opinion, “AT&T to Bring Fiber-Powered Internet Access to Amarillo,” Sept. 23, 2022, AT&T touts public-private partnerships to close the digital divide, <https://about.att.com/story/2022/amarillo-broadband-access.html>

¹⁹ Email interview with Dean Lance A. Nail, Robert C. Vackar College of Business and Entrepreneurship, University of Texas Rio Grande Valley, December 22, 2022.

²⁰ “Telehealth: A quarter-trillion-dollar post-COVID-19 reality,” by Oleg Bestsenny, Greg Gilbert, Alex Harris, and Jennifer Rost, McKinsey & Company, July 9, 2021, <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality?cid=eml-web>

²¹ “Las Colonias in the 21st Century: Progress Along the Texas-Mexico Border,” by Jordana Barton, et. al., Federal Reserve Bank of Dallas, 2015, <https://www.dallasfed.org/assets/documents/cd/pubs/lascalonias.pdf>, & micro-website, www.dallasfed.org/~media/microsites/cd/colonias/index.html.

²² “Telehealth Along the Texas-Mexico Border,” by Jordana Barton, Texas Tech Health Sciences Center, Rural Health Quarterly, 2018, <http://ruralhealthquarterly.com/home/2018/06/23/telehealth-along-the-texas-mexico-border/>

²³ FCC Notice of Proposed Rulemaking, 19-16, “The Matter of Promoting Telehealth for Low-income Consumers,” adopted: July 10, 2019, Released: July 11, 2019, www.fcc.gov. The Federal Reserve Bank of Dallas also noted the need for at least 100 download/100 upload Mbps symmetrical speed for telehealth since two-way sharing (such as uploading and downloading video simultaneously) is required for many applications, in “Promising Telehealth

Initiatives Highlight the Need to Close the Digital Divide,” Jordana Barton, Federal Reserve Bank of Dallas, 2018, <https://www.dallasfed.org/cd/pubs/2018/telehealth>.

²⁴ “FCC Calls 25 Mbps 'Broadband' Speed. the Push Is on to up It to 100,” by Chris Velazco, The Washington Post, July 20, 2022, <https://www.washingtonpost.com/technology/2022/07/19/fcc-broadband-new-definition-100mbps/>.

²⁵ “Health Care Just Became the U.S.’s Largest Employer,” by Derek Thompson, The Atlantic, January 9, 2018. And, “At the Heart of Texas: Cities’ Industry Clusters Drive Growth,” by Pia M. Orrenius, Executive Editor, Federal Reserve Bank of Dallas, 2018. This publication documents the Health Care Industry is one of the top two industry clusters that drive the economy in the Lower Rio Grande Valley border region.