

**Before the
National Telecommunications and Information Administration
Washington, D.C. 20230**

In the Matter of)	
)	
Infrastructure Investment and Jobs Act)	Docket No. 220105–0002
Implementation)	RIN 0660–ZA33

**COMMENTS
OF
NTCA–THE RURAL BROADBAND ASSOCIATION**



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Table of Contents

Introduction & Summary	1
<i>Notice Question 1</i> NTCA response:.....	3
<i>Notice Questions 3, 5, 6 and 8</i> NTCA response.....	9
<i>Notice Question 4</i> NTCA response.....	13
<i>Notice Question 7</i> NTCA Response	20
<i>Notice Question 9</i> NTCA Response	23
<i>Notice Question 10</i> NTCA Response	26
<i>Notice Question 12</i> NTCA Response	30
<i>Notice Questions 13 and 14</i> NTCA Response	33
<i>Notice Question 16</i> NTCA Response	41
<i>Notice Question 17</i> NTCA Response	43
<i>Notice Question 20</i> NTCA Response	46
<i>Notice Questions 22 and 23</i> NTCA Response	49
<i>Notice Question 27</i> NTCA Response	52
<i>Notice Questions 33 and 35</i> NTCA Response	54
<i>Notice Question 36</i> NTCA Response	58

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INTRODUCTION & SUMMARY

NTCA–The Rural Broadband Association¹ hereby submits these comments in response to the Notice/Request for Comment (“*Notice*”)² published in the Federal Register by the National Telecommunications and Information Administration (“NTIA”) on January 10, 2022 in the above-captioned proceeding. The *Notice* seeks comment on the broadband programs contained in the Infrastructure Investment and Jobs Act of 2021 (referred to in the *Notice* and herein as the Bipartisan Infrastructure Law (“BIL”)).³ Those broadband programs for which comment is sought by the *Notice* include the Broadband Equity, Access, and Deployment (“BEAD”), Middle-Mile Broadband Infrastructure (“MMBI”), and Digital Equity Planning Grant Programs.

As discussed further below, NTCA proposes five primary steps that NTIA can take to ensure that the BEAD program’s “once-in-a-generation” investment delivers to areas in need high-

¹ NTCA–The Rural Broadband Association represents approximately 850 independent, community-based companies and cooperatives that provide advanced communications services in rural America and more than 400 other firms that support or are themselves engaged in the provision of such services.

² Request for Comment on Broadband Programs in Bipartisan Infrastructure Law, [Notice, Request for Comment](#), Infrastructure Investment and Jobs Act Implementation, Docket No. 220105–0002] RIN 0660–ZA33 (87 Fed. Reg. 1122, Jan. 10, 2022) (“*Notice*”).

³ Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. (2021) (also known as and referred to in the *Notice* as the Bipartisan Infrastructure Law (“BIL”)).

quality broadband Internet access services that meet consumer demand now and well into the future. These steps are:

- 1. Promote better accountability on the part of applicants: NTIA should publish objective standards by which applicants for funding will be vetted and ensure that the states adhere to such measures when evaluating applicants.**
- 2. Target funding to areas with the most pressing need for quality service: NTIA should ensure that states adhere to the BEAD program emphasis on addressing unserved areas first.**
- 3. Coordinate with broadband programs administered by other agencies: NTIA must ensure that the BEAD program complements, and does not undermine or conflict with, broadband programs administered by other agencies.**
- 4. Aim higher and do better by consumers when it comes to setting program expectations: NTIA can do this by promoting networks designed to deliver service that reliably meets or exceeds symmetrical upload and download speeds of 100 Mbps, with much heavier weighting on better performance and scalability.**
- 5. Ensure that all qualified broadband providers will stand on equal footing when it comes to potential participation in these programs: NTIA should not preference certain kinds of providers based upon organizational form, but should instead look to leverage and prioritize those with proven track records of performance, long-standing commitment, and substantial experience in deploying networks and delivering rural broadband, regardless of the type of entity.**

Below, NTCA addresses a number of questions posed by the *Notice*. Each of the issues discussed in those answers are critical to the success of the BEAD program in terms of addressing the needs of the consumers that are at the heart of this vital initiative. However, faithful adherence to the five steps discussed above will ensure that the BEAD program rests on a strong foundation necessary to meet the many goals set forth by Congress in creating this funding initiative.

Notice Question 1: What are the most important steps NTIA can take to ensure that the Bipartisan Infrastructure Law’s broadband programs meet their goals with respect to access, adoption, affordability, digital equity, and digital inclusion?

NTCA response:

The funding dedicated to broadband deployment and affordability through the BIL should be transformative for rural America, but several steps are essential to ensure that implementation of its provisions will rise to the broadband challenges before it. An effective national strategy to achieve universal broadband requires a holistic and coordinated approach that looks to solve the challenges of availability and affordability in all kinds of areas and for all kinds of consumers. In this section, NTCA recommends five specific overarching steps that NTIA should take in implementing the BIL, with further details regarding each provided in the responses that follow.

The BIL’s broadband goals are daunting, and yet essential, to achieve and maintain – overcoming our nation’s remaining digital divide and enhancing economic growth and job creation by stimulating deployment of the affordable, reliable, high-speed broadband that is essential to full participation in modern life in the United States.⁴ Prioritizing funding for the networks of the future will be critical to meet the broadband access, adoption, affordability, digital equity, and digital inclusion goals of the BIL. The BIL represents a once-in-a-lifetime investment in broadband connectivity, and we cannot afford to waste it on investments that will soon be incapable of meeting consumer broadband demands and will need replacement – or are untested and incapable even now of doing so. The ongoing Covid-19 pandemic and forced school/office closures and subsequent move to remote education/work removed all doubt as to the importance of meaningful, reliable broadband connectivity for all. High-speed broadband facilitates so much more than downstream applications like streaming video entertainment. Many Americans now realize the

⁴ See *Id.*, § 60101; see also § 60102(e)(3)(A)(i)(I), § 60102(f), and § 60104.

importance of robust broadband in connecting with a doctor without traveling to the medical office or hospital, and for students to continue their education even when the classroom is open but hundreds of miles away, or just right down the street but closed. A high-capacity network capable of handling significant upload speeds is also critical for people to continue receiving paychecks by working remotely using secure and bandwidth-intensive virtual private networks, and better two-way capability and network performance allows us to maintain social interactions with friends, family, and other loved ones at all times. The demands on our broadband networks will only increase over time as fewer people go without broadband and consumers rely on smart applications that may not have been created yet but will demand rapid two-way connections.

With this as backdrop, an important first step that must be taken in implementing the BIL broadband programs is to promote better accountability on the part of applicants. Unfortunately, some federal programs have at times in the past failed in this regard. Particularly, under the auspices of wanting to appear “technologically neutral,” too many previous broadband funding programs have failed to publish transparent, objective standards for applicants and technologies, have failed to vet providers prior to welcoming their participation, and/or aimed for broadband speeds that are designed first and foremost to “let all providers play” rather than focusing on long-term consumer needs.⁵ Rather than fall into this trap, and in lieu of leaving the states to fend for themselves in this regard, NTIA should take the time and make the careful effort to: (a) publish

⁵ *Ex Parte* Letter from Michael R. Romano, Sr. Vice President, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 19-126, et al. (filed Feb. 5, 2021), at 1-2 (discussing how the Federal Communications Commission’s Rural Digital Opportunity Fund proceeding departed from its Connect America Fund Phase II Auction process that “helped ensure both transparency and accountability through a data-driven ‘bright-line’ bidding qualification rule that permitted entities to bid at performance levels based upon actual commercially available offerings” and “render[ed] this bright-line rule a mere presumption that individual firms could overcome through confidential filings asserting the ability to deliver higher levels of performance than they offer today using certain technologies or than are otherwise generally seen in the broadband marketplace” and how this “generated significant questions related to the RDOF auction”).

objective standards by which applicants for funding will be vetted to ensure that they have the managerial, technical, operational, and financial capabilities necessary to perform as promised and expected by program rules; (b) require review and sign-off by a professional engineer licensed in the project’s state that proposals will satisfy the published technical standards; and (c) perform the vetting needed pursuant to these standards. It should further ensure that the states undertake such measures when evaluating applicants to the grant programs they create leveraging funds from the BIL, including the provision of technical assistance to the states in implementing such accountability measures and examining the *bona fides* of applicants. As discussed further herein, it will be important as well to promote accountability *after* awards are made – making sure that providers are not only deploying networks capable of fulfilling program construction requirements but also actually providing services that ultimately meet the performance levels required by the BIL and program rules.

A second important step will be to target funding to areas with the most pressing need for quality service. The BIL contemplates such an approach, focusing the BEAD program first on addressing unserved areas before proceeding to open up funding for underserved areas as defined in the statute. This progression makes great sense, as allowing deployment in underserved areas right from the start could lead to unserved areas being neglected and becoming even more uneconomic to serve as a result. Rather than strand unserved customers as providers flock to serve “better served but still underserved areas” first, the BIL rightly places emphasis on solving problems for those most in need and then working upward to address additional customers over time. It is important that NTIA ensure the states adhere faithfully to this framework, and that they also seek to minimize “cream-skimming” in the use of the “80% flexibility” afforded by the BIL⁶

⁶ See BIL at § 60102(a)(1)(B) and (D).

– providers should not leverage BEAD funding primarily for the purpose of competing with existing operators, with the unserved as an afterthought to project design.

Third, it is important that NTIA take measured steps to coordinate with broadband programs administered by other federal agencies to ensure all such initiatives complement one another rather than creating conflict that undermines all of their efforts. While the BIL represents the single largest one-time investment in broadband infrastructure, multiple other existing programs have worked over time to accelerate and sustain broadband access for millions of Americans. New and existing broadband programs at the Federal Communications Commission (“FCC”), the United States Department of Agriculture (“USDA”), the U.S. Department of Treasury (“Treasury”), and in various states, must be coordinated in order to build upon existing initiatives and network investments rather than competing with them – and the BIL underscores the importance of coordination by directing eligible entities to align the use of BEAD Program funds with funds available from other federal broadband programs,⁷ making clear that broadband providers can use multiple programs for expanding broadband access,⁸ and expressing the sense of Congress that federal agencies administering broadband programs should align program goals, processes, and project requirements.⁹

Coordination does not mean that only one program should provide support in an unserved area. In fact, it is essential as a matter of good governance and effective use of scarce resources that federal programs act in concert to deploy and sustain the fastest, most reliable networks possible to as many Americans as possible – rather than double down on deployment of highly

⁷ See *Id.* at § 60102(e)(4)(A)(iii).

⁸ See *Id.* at § 60102(k).

⁹ See *Id.* at § 60102(m).

capable networks twice over in the same rural area even as other areas remain unserved. As a specific example, BEAD Program grants should work in concert with the high-cost Universal Service Fund (“USF”) programs overseen by the FCC,¹⁰ which serve the complementary purpose of supporting recovery of capital expenses *and* ongoing costs in order to promote the availability of services that are reasonably comparable in price and quality in rural and urban areas alike. Thus, it may make sense to direct BEAD funding to a USF recipient to enable that entity to do more than USF requires – *e.g.*, upgrading a network to deliver Gigabit level services that exceed a lower performance level where required by USF. But directing BEAD funding to one entity to deploy a network where another provider is already receiving USF risks putting the viability of both networks at risk and having federal programs compete with one another in an inefficient and uncoordinated manner. Though the BIL allows for some overbuilding by establishing the 80% unserved and underserved thresholds,¹¹ coordination can best be accomplished¹¹ by directing BIL grant funding first to entirely unserved areas to limit duplication of efforts and dollars. Ensuring that all sources of federal and state support for broadband networks continue to work in concert not only avoids duplication and helps deliver high-speed reliable broadband to the consumer, but it also recognizes the hard realities of both deploying robust networks and then delivering high-quality affordable services in the most remote, sparsely populated areas of the nation.¹²

¹⁰ See 47 USC § 254(b).

¹¹ See BIL at § 60102 (a)(1)(B-D).

¹² The statute further directs several points of coordination with the FCC specifically, including Sec 60102 subsections (a)(2)(G) (identifying high-cost areas), (a)(2)(L) (defining reliable broadband service), (b)(4)(A) (providing technical support and assistance to eligible entities), (e)(1)(A)(v) (establishing standards for eligible entities to assess the capabilities of prospective broadband providers), and (h)(2)(E) (the FCC will play an active role in updating the broadband data maps including by resolving challenges; plus NTIA will use the FCC’s maps to identify eligible locations and may not award funds to eligible entities until the FCC’s maps are complete).

A fourth important step that NTIA should take to implement the BIL is to aim higher and do better by the consumers at the heart of the programs when it comes to setting program expectations. Like Treasury in promulgating requirements for the Coronavirus State and Local Fiscal Recovery Funds, NTIA should seek to promote networks designed to deliver service that reliably meets or exceeds symmetrical upload and download speeds of 100 Mbps. More specifically, NTIA should use the leeway granted by the BIL¹³ to establish a clear and heavily weighted priority through the BEAD program for supporting networks constructed to meet the 100 Mbps symmetrical standard. Doing so will ensure that rural Americans are able to receive the same level of service as urban Americans now and well into the future, making the BIL the truly historic and once-in-a-generation investment it is intended to be.

A fifth important step that NTIA can take to promote the success of the BIL initiatives is to ensure that all qualified broadband providers will stand on equal footing when it comes to potential participation in these programs – while also giving proper credit to proven track records of performance and operating experience. As discussed below, community-based providers in particular, whether commercial or cooperative, have long shown their commitment to investments in rural networks and delivery of the highest quality services to their families, friends, and neighbors, and mere corporate form should not form the basis of any advantage or disadvantage whatsoever when it comes to program participation and scoring. Indeed, the BIL expressly contemplates widespread participation by providers of all kinds, and NTIA should respect that recognition – and ensure that states do the same – in implementing the broadband programs created by the BIL. If anything, rather than providing preferences based upon corporate form, NTIA should

¹³ See BIL at §§ 60102(a)(2)(I) and 60102(h)(1)(A)(ii) (directing eligible entities to prioritize funding for projects that “easily scale speeds over time” to evolving connectivity and mobility needs – a standard that only fiber broadband can realistically meet).

instead prioritize awards to community-based providers with proven track records of performance, long-standing commitment, and substantial experience in deploying networks and delivering rural broadband.

Notice Question 3: Transparency and public accountability are critical to the success of the Bipartisan Infrastructure Law’s broadband programs. What types of data should NTIA require funding recipients to collect and maintain to facilitate assessment of the Bipartisan Infrastructure Law programs’ impact, evaluate targets, promote accountability, and/or coordinate with other federal and state programs? Are there existing data collection processes or templates that could be used as a model? How should this information be reported and analyzed, and what standards, if any, should NTIA, grant recipients, and/or subgrantees apply in determining whether funds are being used lawfully and effectively?

Notice Question 5: In implementing the Bipartisan Infrastructure Law’s programs, NTIA will offer technical assistance to states, localities, prospective subgrantees, and other interested parties. What kinds of technical assistance would be most valuable? How might technical assistance evolve over the duration of the grant program implementation?

Notice Question 6: The Bipartisan Infrastructure Law requires states and territories to competitively select subgrantees to deploy broadband, carry out digital equity programs, and accomplish other tasks. How should NTIA assess a particular state or territory’s subgrant award process? What criteria, if any, should NTIA apply to evaluate such processes? What process steps, if any, should NTIA require (e.g., Request for Proposal)? Are there specific types of competitive subgrant processes that should be presumed eligible (e.g., publicly released requests for proposals and reverse auctions)?

Notice Question 8: States and regions across the country face a variety of barriers to achieving the goal of universal, affordable, reliable, high-speed broadband and broadband needs, which vary from place to place. These challenges range from economic and financial circumstances to unique geographic conditions, topologies, or other challenges that will impact the likelihood of success of this program. In implementing the Bipartisan Infrastructure Law’s broadband programs, how can NTIA best address such circumstances?

NTCA response:

The *Notice* seeks comment on a number of discrete, yet ultimately interconnected, topics related to the need for support and provision of guidance to states: questions are raised on how NTIA can assist states/localities, in terms of “technical assistance,” on evaluating the process by which providers will be given awards, how transparency and accountability can be assured in

distributing funds to subgrantees, and more broadly on challenges faced by states. NTCA urges NTIA to: (1) issue guidance to assist states in the initial stages of designing broadband grant programs (or amendment of existing programs to comport with the BIL); (2) articulate and publish best practices and transparent and objective standards that all states can use to evaluate and score applications; and (3) provide guidance as well on how states can promote accountability and determine compliance with program obligations.

As an initial matter, there are a number of state broadband grant programs already up and running, and many have been in existence and issuing grants for broadband deployment for several years. These offices have substantial experience in establishing grant programs specifically for the purposes of promoting broadband deployment – they therefore understand the unique challenges involved with that particular type of funds distribution, the grantees involved, the overall challenges of determining where to target funds, and the type of providers likely to step forward here and reviewing grant applicants’ proposals. NTIA should look to these states for “best practices,” or guidelines, that can be leveraged by other jurisdictions that can benefit from the experience and “lessons learned” of others.

Of course, some experienced states may not have distributed broadband funding on the scale of the BEAD program, and none has specifically faced the scope of requirements attached to BEAD funding in the BIL. Thus, NTIA should also publish best practices in terms of “scaling up” existing grant distribution offices. Even experienced state broadband grant offices will benefit from additional guidance, especially when it comes to considering how to “retrofit” existing state efforts to comport with new BEAD features.

For each of these scenarios – whether for existing broadband grant offices or those newly established – states could benefit from NTIA best practices/guidance as discussed below:

1. For initially preparing broadband offices for the BEAD program, best practices/guidance on:
 - a. how to organize a broadband grant office;
 - b. hiring staff, specifically the types of experts needed (engineers, mapping experts, etc); and
 - c. the types of data a state will need to gather and/or rely upon.
2. For submitting state applications for funding to NTIA,¹⁴ best practices/guidelines on:
 - a. what should be included in a “letter of intent;”¹⁵ and
 - b. how states might utilize “planning” funds.¹⁶
3. For design of a broadband grant program, best practices/guidelines on:
 - a. defining provider eligibility;
 - b. vetting providers for managerial, financial, technical, and operational capability;
 - c. complying with the directive to fund to “priority broadband projects;”¹⁷
 - d. the operation of a “challenge”¹⁸ process; and
 - e. scoring applications.

In addition, as discussed further in response to Questions 13 and 14, *infra*, NTIA should promote accountability and transparency by: (a) in consultation with the FCC based upon that agency’s experience in developing mapping standards, adopting and publishing clear, specific, and

¹⁴ *Id.* at § 60102(e)(2).

¹⁵ *Id.* at § 60102(e)(1)(B).

¹⁶ *Id.* at § 60102(e)(1)(C).

¹⁷ *Id.* at § 60102(a)(1)(I).

¹⁸ *Id.* at § 60102(h)(2)(A).

objective standards that states must use in evaluating service level claims regarding various technologies; (b) providing technical assistance, perhaps relying again upon the FCC, to aid states in undertaking such technology evaluations; (c) adopting common standards and then aiding states as well in evaluating the managerial, operational, and financial wherewithal of applicants; and (d) providing guidance to the states on post-award monitoring of providers' compliance with respect to both construction *and* service commitments – helping states with keeping tabs on whether BEAD fund recipients are meeting speed, latency, and other relevant performance metrics (*e.g.*, “network outage” limits)¹⁹ attached to BIL funding as well fulfillment of buildout obligations.²⁰

In short, to ensure accountability and transparency and as discussed further below, NTIA should articulate to the states specifically what requirements apply to subgrantees as mandated by the BIL (and making clear while doing so that states may not attach their own additional conditions), publish common technical standards for states to use in implementing BEAD, and stand ready to support states in applying these technical standards, as these efforts go far beyond the relatively simple act of merely choosing a party to construct a network – and in the absence of an active role for NTIA after the BEAD rules are promulgated, there is very real risk that the BEAD program could be implemented inconsistently across the country or, worse still, fall short in its aims, as has already been seen in other federal programs where insufficient structure and attention to careful vetting procedures early on led to substantial concerns.

¹⁹ *Id.* at § 60102(h)(4)(A)(I) – (III).

²⁰ *Id.* at § 60102(h)(4)(C).

Notice Question 4: NTIA has an interest in ensuring that the Bipartisan Infrastructure Law is implemented in a way that promotes the efficient use of federal funds. How should NTIA and grant recipients verify that funding is used in a way that complements other federal and state broadband programs?

NTCA response:

As the BEAD program is implemented through the states, it will be critical that NTIA and states have a heightened sense of awareness as to the ongoing work of other existing programs in promoting broadband such that BEAD funding can and will complement these other federal and state broadband programs. These paradigms are essential to ensuring that the BIL is implemented in a way that promotes the efficient use of funds and to ensure that the broadband networks built using BEAD resources will be sustainable for the benefit of millions of Americans.

To this end, a fundamental first step is to identify the purpose and operation of the other complementary federal programs. NTIA must ensure that BIL funding is not used to overbuild existing networks (including those networks that are “on track” for deployment but are as yet not completed; for additional discussion, see response to Question 16, *infra*). While it behooves grant applicants to investigate their proposed market to determine whether there are existing providers with currently operating networks and, where possible, whether those companies have planned networks that are in the queue to “come online,” it is ultimately the responsibility of the states, working through processes guided by NTIA’s direction, to identify instances in which inefficient and damaging overbuilds might occur. A studied review of federal broadband programs – and a comprehensive understanding of both *where and how* those programs are promoting broadband access and affordability – will ensure the rational and efficient application of resources for the greatest common good.

At the outset, it is appropriate to identify and to effectively catalogue the efforts of various federal agencies. Programs under the aegis of the FCC, NTIA, and USDA – and even Treasury, in

collaboration with the states – all contribute to broadband deployment in ways that are intended to be complementary in design and, at least in some cases, perform very distinct functions toward achievement of the mission of universal broadband. For example, the USDA Rural Utilities Service (“RUS”) provides loans, grants, and technical assistance. The USDA also oversees the Distance Learning, Telemedicine and Broadband Program; the Community Connect Program; the ReConnect Program; and the Rural Health Care Pilot Program, all of which ultimately promote not only network deployment but also the use of broadband-enabled applications that promote critical public and consumer services. These different programs, each with their specific goals, processes, and regulatory frameworks, have been and will continue to be most effective when they are understood and implemented as complementary functions. This coordinated approach ensures a comprehensive framework for national broadband policy that recognizes the distinct needs of different areas and the broad range of applications, including education and healthcare, supported by widespread broadband availability.

Toward this end, it is critical that BEAD rules recognize and then reflect the distinct roles of the various programs and strive toward implementation in complementary and not conflicting manner. Put another way, BEAD grants should not be distributed in places where USDA loans or grants are already “at work,” other than perhaps to an existing recipient of a USDA loan or grant who will promise to do even more than is committed to or required by USDA in order to deliver even better broadband to consumers in that area. By contrast, giving a BEAD grant to *another entity* to build a network in an area where USDA is already financing network construction puts two important federal programs in direct conflict and risks the deployment of two government-backed networks competing in an area that cannot sustain even just one network without governmental assistance. Such an outcome should be avoided, as it would undermine the

sustainability of the work these programs all can do, and also to ensure that the resources afforded by these programs go as far as possible in delivering the best possible broadband to as many Americans as possible.

Another example of the importance of – and promise offered by – interagency coordination comes in how government-backed loans and grants can complement the FCC-administered high-cost USF program. The latter’s mission is not to finance networks in the manner of BEAD or various USDA loan and grant programs, but rather to ensure the ongoing availability of services in rural areas that are reasonably comparable in both quality and price to those offered in urban areas. By itself, the presence of a USF high-cost recipient in a region signals an important qualifier for NTIA: Plainly, it means that the area cannot support a single broadband provider without external support, and therefore it would be *de facto* wasteful and inefficient to fund a second, duplicative provider in that area. NTIA rules should guard against an outcome in which BEAD provides funding to firms seeking to operate redundant networks in areas where the market will not justify the deployment or operation of even a single network on its own. Instead, when thinking about how BEAD can complement the FCC’s high-cost USF efforts, NTIA should consider how BEAD can amplify the effects of the FCC’s work, providing a recipient of USF with the kind of financing that will enable deployment of high-speed symmetrical services that exceed current FCC service commitments, with USF then helping to sustain that network once built and cover the operating costs while ensuring that rates for services on that network are far more affordable than they would be in the absence of such USF support. Indeed, the BIL characterized this succinctly, to ensure that the various programs supplement but do not supplant each other.²¹

²¹ *Id.* at § 60102(l). To be clear, however, there is no need for coordination – or to “take an area” off the map for purposes of BIL funding – simply because an entity “won” an auction for USF support. Until the FCC has confirmed that the “winner” of its auction can in fact perform as promised and received

This approach – to leverage the complementary aims of various programs and avoid wasteful overbuilding and unnecessary conflict – has been successful in the past, and interagency coordination has enabled demonstrable results. By way of example, traditional telecom borrowers have utilized RUS loans for decades. Before FCC overhauls of high-cost USF support programs in 2011, RUS loan delinquencies were “effectively zero.”²² Even with the substantial uncertainty created by the FCC revisions in 2011, the highest rate of loan delinquencies during subsequent periods (2014 to 2016) still only averaged 1.26%.²³ RUS itself observed that its traditional telecom loan program “dates back over 60 years and the borrowers in that program have been in operation for decades. These entities have a strong historical track record coupled with years of experience in providing service in the communities where our projects are being deployed.”²⁴ Independent reports corroborate the effective results of rational, complementary implementation of programs as providers leverage RUS and USF programs in tandem:

- An independent report in 2020 report studied companies in North and South Dakota (among other states) that leverage various Federal programs and found that they “regularly feature among the fastest states for broadband”²⁵

authorization for support, NTIA should not presume that such a determination will be made, and it should not abandon consumers and businesses in those areas by banking on the FCC finding later that the USF recipient can in fact perform after all.

²² See, Special Servicing of Telecommunications Programs Loans for Financially Distressed Borrowers, USDA RUS, RUS-19-Telecom 0021, RIN 0572-AC41 (2020) (“RIA”).

²³ RIA at 7. TTP delinquencies in 2014, 2015 and 2016 were 2.00%, 1.97%, and 2.05%, respectively. Delinquencies fell to less than 1.5% in 2017 and 2018, but never achieved the near zero rates recorded in 2010-2013. *Id.* During a period of substantial uncertainty in these FCC programs from 2010 to 18, however, Traditional Telecom Program (TTP) loans decreased dramatically, from 2,257 loans (\$3.8 billion outstanding principal) to 753 loans (\$2.5 billion principal).

²⁴ RIA at 7, 8. Current delinquencies include loans made under the Infrastructure Program, Broadband Program, DLT and BIP (RIA at 8).

²⁵ H. Trostle, Katie Kienbaum, Michelle Andrews, Ny Ony Razafindrabe, and Christopher Mitchell, “Cooperatives Fiberize Rural America: A Trusted Model for the Internet Era,” Institute for Local Self

- The latest Broadband Survey Report of NTCA reveals that more than 75% of NTCA members' rural customers can obtain broadband at rates greater than or equal to 100 Mbps. Notably, 73.5% of those customers can also obtain upload rates of 100 Mbps.²⁶

These results evidence the effective and rational coordinated use of federal programs. In short, the predominant majority of community-based, independent recipients of high-cost USF support have leveraged those resources to build networks with capabilities that are in many places far in excess of the minimum required by FCC rules. However, where a supplemental program (such as financing through RUS and now through BEAD) might enable the deployment of (or upgrading of existing) broadband infrastructure capable of delivering even higher speeds, rather than building a second, duplicative network “from scratch” through competing government programs, interagency coordination should ensure that priority grant funding be directed first and foremost to: (a) areas that lack broadband and are “unserved” (or “underserved,” where and when applicable) as defined by program standards,²⁷ and (b) any entity that is already receiving funding

Reliance, at 11 (May 2020) (https://ilsr.org/wp-content/uploads/2020/05/2020_05_19_Rural-Co-op-Report.pdf) (visited Dec. 29, 2021).

²⁶ *Broadband/Internet Availability Survey Report*, NTCA, (Dec. 2021) (“NTCA Membership Broadband Survey”) ([Microsoft Word - 2021 Broadband Survey Report_Final 12.15.21 \(ntca.org\)](#)) (visited Feb. 2, 2022).

²⁷ It is important to note that Congress provided very specific and clear definitions of what areas would qualify as eligible based upon levels of service. While some agencies have in other contexts expanded eligibility under broadband grant programs based upon amorphous definitions of “need,” the BIL affords no such flexibility in specifying eligibility definitions. Instead, in the case of programs like BEAD, NTIA should look specifically to the call of Congress to consider “reliability” in evaluating availability. *See* BIL At § 60102(a)(1)(A)(ii) and (C)(ii). If a network that is in place or will be built leveraging other programs will deliver “reliable” service, then such an area should not be deemed eligible for BEAD. In this regard, NTCA recommends that NTIA look to how Treasury characterized network and service “reliability” in the context of recent broadband grant programs under its purview in determining which areas should be eligible under BEAD. Department of the Treasury, Coronavirus State and Local Fiscal Recovery Funds, Interim Final Rule (rel. Jan. 6, 2022) (“*Treasury Guidance*”), at 302 (“Recipients are encouraged to prioritize projects that are designed to provide service to locations not currently served by a wireline connection that reliably delivers at least 100 Mbps of download speed and 20 Mbps of upload speed, as many commenters indicated that those without such service constitute hard-to-reach areas in need of subsidized broadband deployment.”)

to serve an area and has implemented a foundational network that can then be improved with supplemental funding. The latter is particularly important in areas that present no business case for even a solitary self-sustaining operator.

By contrast, recent rounds of the RUS ReConnect program – while very much welcomed as sources of capital funding for rural broadband networks – were not in all cases coordinated with certain of the FCC high-cost USF programs. Moreover, the Funding Opportunity Announcement for ReConnect Round III declared all areas without 100/20 Mbps broadband to be eligible for awards, without any direction as to how eligibility for awards would be considered where high-cost USF support was currently being used to support improvements in existing networks. (This outcome implicates the response to Question 16, infra.) With thoughtful coordination, however, NTIA can enable a provider that can only deliver 25/3 Mbps broadband in certain areas through high-cost USF support to expand those capabilities toward a much more capable network by combining the efforts of the various federal programs. Similarly, as discussed earlier, programs that focus on financing networks can aim to support upfront capital expenditures, with USF then focusing upon recovery of any such expenditures not covered by the financing programs together with ongoing costs arising out of operation and maintenance of networks and the provision of services that are reasonably comparable in price and quality to those available in urban areas. In the end, it is essential as a matter of good government and effective use of scarce resources that the various programs be used in concert with each other to deploy the fastest, most reliable, scalable and most sustainable networks possible to as many Americans as possible – rather than creating programs that undertake redundant functions and/or doubling down on robust broadband networks being deployed twice over in the same rural area even as other areas continue to sit

lacking. Fastening BEAD processes to these principles will facilitate results that yield high benefits for American broadband consumers.

Two additional elements are important here, in terms of the “efficient use of federal funds” referenced in *Notice* Question 4 and the program coordination stressed above – broadband maps and challenge processes and the interplay of the two. With respect to challenge processes (*i.e.*, processes under which a provider serving an area where grant applicant seeks BEAD funding can rebut claims that the area is un/underserved) more generally, as noted in response to *Notice* questions 5, 6 and 8, *infra*, NTIA should offer guidance on how states should conduct these vital portions of administering the BEAD – a flawed challenge process can enable wasteful overbuilding and overly burden all parties involved.

That said, it is critical that application and challenge processes here rely exclusively on the FCC’s broadband mapping and location fabric efforts once “final.” Even as a number of states have done excellent and necessary work in terms of mapping out their broadband needs and on a much granular level that current Form 477 census-block level data, in directing the NTIA to begin allocating BEAD funds “on or after the date on which broadband DATA maps are made public”²⁸ Congress indicated its intent for the FCC’s maps to be the sole and final arbiter of need. In other words, even as states may wish to rely upon their own resources initially (or even others made available by NTIA) in drafting letters of intent and developing 5-year plans as contemplated by the statute, the BIL makes clear that states should use the final FCC map as the exclusive touchstone for evaluating grant applications as they are submitted and resolving challengers’ submissions rebutting applicants’ claims with respect to the eligibility of a proposed service area. “Working with one map” equals everyone “working off the same page” – to ensure consistency in

²⁸ BIL at § 60102(c)(1)(A).

the implementation of this massive federally funded undertaking, states, applicants, and providers filing challenges (who will by FCC requirement submit data to document their coverage as part of that agency’s mapping efforts) should be looking at the same data source. At the very least, this will reduce the time and effort involved if parties fighting over whether an area is un/underserved are pointing to “dueling” data sets. It will also give all parties involved the utmost confidence that the most updated mapping data is used, and ensure that providers’ efforts to comply with the FCC’s mapping requirements are not wasted. Put another way, the whole point of the herculean effort put into the FCC’s new maps is to avoid separate funding programs from tripping over one another, and Congress recognized this when adopting the BIL.

Notice Question 7. NTIA views the participation of a variety of provider types as important to achieving the overall goals of the Bipartisan Infrastructure Law broadband programs. How can NTIA ensure that all potential subrecipients, including small and medium providers, cooperatives, non-profits, municipalities, electric utilities, and larger for-profit companies alike have meaningful and robust opportunities to partner and compete for funding under the programs?

NTCA Response:

Ensuring that providers of all kinds without regard to corporate structure can participate on an even playing field and contribute to achievement of national broadband goals is a clearly articulated objective of the BIL – the statute wisely emphasizes the participation of all providers regardless of their form of organization or commercial status.²⁹ By contrast, some federal programs have recently adopted preferences for certain kinds of providers based not upon capability to perform or prior track record or community presence, but rather based upon nothing more than form of organization or commercial status. NTCA understands and recognizes there is frustration on the part of some policymakers particularly with larger operators headquartered in distant

²⁹ *Id.* at § 60102(h)(1)(A)(iii).

markets who have far too often in the past failed to live up to promises to upgrade networks and deliver quality services in rural areas. But that frustration should not lead to an “overcorrection” that penalizes or even shuts out altogether community-based providers that may be commercially operated or owned by families or members of that community simply because they are not legally characterized as non-profits. These community-based providers, whether commercial or cooperative, have long shown their commitment to investments in rural networks and delivery of the highest quality services to their families, friends, and neighbors.³⁰ Delivering on the promise of rural broadband takes not just building a network but then having the know-how to sustain it, deliver affordable services over it, and address customer concerns and trouble reports as they arise – these functions require experience and community commitment that have no tether to the corporate status of the provider. It will take an “all-hands-on-deck” approach to overcome our remaining broadband challenges and ensure that all Americans realize the fullest benefits of broadband investments for decades to come in the wake of this historic investment, and creating artificial preferences based upon nothing more than the organizational form of the entity seeking to perform does nothing to advance this objective.

Moreover, placing a “thumb on the scale” for governmental entities in particular seems ill-advised when greater emphasis should be placed on *experience and track record*. To be clear, NTCA is not recommending denying such entities an opportunity to participate and fill voids in broadband coverage – the law clearly contemplates their participation, and undoubtedly some will seek to do that in serving residents lacking access to broadband now. But prioritizing governmental entities merely because of some perceived notion of their “altruistic” interest ignores the community commitment of many other entities, commercial or cooperative alike, overlooking the

³⁰ See *NTCA Member Broadband Survey*, footnote 26, *supra*.

fact that there are many existing providers with a time-tested and proven track record of investment and operation of broadband networks and delivery of broadband services in rural areas. Preferencing governmental entities – particularly those with no experience in deploying networks or delivering broadband services – introduces needless risks in execution into the BIL programs, and with so much funding and so many consumers’ broadband futures at stake, NTIA should instead look for proven track records and community commitment in whatever form they come.

For these reasons, entities willing and eager to become part of the solution to the digital divide should not be disadvantaged when it comes to preferences or prioritization in the new BEAD broadband program based upon mere corporate form or organizational status. Certainly, as outlined earlier in these comments, capabilities to perform as promised must be evaluated, and providers should not be admitted into the program where they lack a proven track record, a sound business plan, and plans to deploy technologies that are known to be capable of performing as promised and demanded even in deeply rural areas. If anything, NTIA should instead prioritize awards to providers – regardless of how they are organized – where these providers can demonstrate proven track records of performance, long-standing community presence and commitment, and substantial experience in deploying networks and delivering rural broadband. But the simple legal structure of an entity should neither penalize nor certainly preclude its participation; indeed, Congress recognized this in the law when it ensured that entities of all organizational forms would be eligible for funding but specifically did not articulate any preferences among those entities based upon that status alone.³¹ Consistent with this approach, those entities deemed to have sufficient managerial, operational, technical, and financial qualifications should start from a level playing field in seeking to participate in the BEAD program based upon corporate or

³¹ BIL at § 60102(h)(1)(A)(iii).

organizational form alone – with priority or preference awarded instead based upon significant track records of successful performance in rural communities and substantial operating experience.

Notice Question 9. Several Bipartisan Infrastructure Law broadband programs provide that, absent a waiver, a grant or subgrant recipient must contribute its own funding, or funding obtained from a non-federal source, to “match” funding provided by the BIL program. Under what circumstances, if any, should NTIA agree to waive these matching fund requirements, and what criteria should it assess (in accordance with any criteria established by the statute) when considering waiver requests?

NTCA Response:

NTCA recognizes and concurs generally that a matching fund requirement is an important tool for ensuring grant recipients have a financial stake in delivering on the promise of providing high-speed broadband service to areas lacking such service. Providers with a track record of delivering broadband services in high-cost areas, however, have previously demonstrated both their commitment and their capabilities. Yet, these same providers are often small and face challenges in making the business case and securing sufficient financing to expand their service to additional rural areas. Even just obtaining or using one’s own resources for matching funds for a grant to extend broadband service to additional areas can be cost-prohibitive. The statute recognizes as much, directing NTIA to consider whether and to what degree a waiver of matching requirements may make sense for applications to serve high-cost areas.³²

Accordingly, to balance the need for “skin in the game” with a reasonable recognition that a prior track record of consistent and long-standing performance in rural areas offers an effective indication of such commitment to rural investment and operations, NTCA recommends the following waiver process for applications to serve high-cost areas that specifically are **100% unserved** (as compared to unserved in part or underserved). Pursuant to this waiver, providers (1)

³² See *Id.* at § 60102(h)(3)(A)(ii).

with fewer than 200,000 current subscribers in a state, (2) that directly or through a corporate affiliate have reported on FCC Form 477 the delivery of a minimum 100/20 Mbps broadband service continuously and reliably³³ to at least one census block in a high-cost area of that state in which they are seeking a BEAD grant for at least the three calendar years immediately preceding their grant application and (3) propose to serve a completely unserved high-cost area should receive a reduction or outright waiver. Whether providers meeting all three criteria are granted a reduction or outright waver should depend on the duration of their prior service. For example, a complete waiver of the matching requirement might be afforded if the provider or its affiliate has operated in such a manner for seven or more years continuously, while partial relief might be granted on a sliding scale where the provider has delivered such service for three to six years. NTCA further recommends that NTIA consider whether additional relief might be necessary and warranted for smaller operators even without such a substantial track record in more “remote” areas specifically, where the costs of deploying networks and serving customers are among the highest in the country. Such relief should be narrow in scope, however, aimed at addressing concerns that the highest cost areas will go without proposals to serve in the absence of some flexibility on matching requirements (even as it will remain essential to verify that the business case for and long-term viability of such projects “pencils out” nonetheless).

To be clear, the proposed waiver/reduction process should apply only for applications proposing to serve *entirely* unserved areas (as the term “unserved” is defined in the BIL). These are areas that are most likely to be uneconomic to serve, and targeted relief of the kind recommended herein would help to make sure these areas are not left behind. By contrast,

³³ For purposes of this standard, “reliable” networks for delivery of broadband service should be defined consistently with the approach taken by Treasury in the recent broadband grant programs it oversees. *Treasury Guidance*, at 302.

underserved areas, areas that are only unserved in part (*i.e.*, 80% or more unserved), and projects seeking to serve anchor institutions should not be eligible for relief from the requirement to provide matching funds, as those are likely to be more attractive to potential providers and less likely to deter applicants due to a matching funds requirement.

There is precedent for waiver of matching requirements in similar circumstances. Specifically, in the original Broadband Infrastructure Program over a decade ago, RUS granted relief from matching obligations for projects that proposed to “predominantly provide broadband directly to the premise or to end users within completely remote areas.”³⁴ In this instance, granting a waiver of the matching fund requirement to smaller providers with a demonstrated track record of delivering high-quality services in high-cost areas and seeking grants to add new service locations in the same or an adjoining area would serve the goal of ensuring that all program participants have some “skin in the game” while promoting participation in the program in some of the most rural areas of the country by smaller providers who have most often in the past stepped up to serve these kinds of areas. NTCA therefore submits the suggestion herein represents a reasonable and appropriate means of providing tailored relief from the matching requirement while still serving the underlying purpose that such a requirement represents.

³⁴ Notice of Funds Availability and Solicitation of Applications, 74 Fed. Reg. 33104, 33114 (July 9, 2009).

Notice Question 10: The COVID–19 pandemic has disrupted global supply chains and impacted employment patterns. What is the likely impact of current workforce and supply chain constraints on the speed with which states, service providers, and others achieve the Bipartisan Infrastructure Law’s network deployment objectives? Are the areas unserved or underserved by broadband networks, which will see substantial new deployments under the Bipartisan Infrastructure Law’s broadband provisions, likely to face particularly significant workforce or supply-chain constraints? What steps, if any, should NTIA take to mitigate the impact of workforce or supply-chain limitations?

NTCA Response:

As the *Notice* correctly states, global supply chains have been disrupted by the Covid-19 pandemic, and the telecommunications space has not been spared. Telecommunications providers of all sizes began seeing equipment shortages and resulting delays nearly two years ago, and instead of being a brief setback, the delays have not only persisted but increased. The funding allocated for broadband deployment in the BIL, while much needed to allow all Americans to have access to high-speed broadband service regardless of where they live, will almost certainly exacerbate existing equipment shortages and NTIA must account for the very real challenges providers will face in considering how obligations will be met.

It should be noted as an initial matter that these supply disruptions have been accounted for by the FCC in its decision-making for more than a year, and providers of all sizes and technologies have noted their experiences mirror those of NTCA members. In December 2020, the FCC noted supply chain issues and amended deadlines for implementing requirements that would require many providers to source new equipment.³⁵ In April 2021, leading vendors were reported to be warning customers of equipment delays.³⁶ In May 2021, the Commission issued a Public

³⁵ *Connect America Fund*, Order, WC Docket No. 10-90, DA 20-1512 (Dec. 21, 2020).

³⁶ Thomas Seal, Takshi Mochizuki, and Debby Wu, “Sixty Week Delay on Router Orders Shows Scale of Chip Crisis,” Bloomberg (Apr. 8, 2021) (www.bloomberg.com/news/articles/2021-04-08/next-victim-of-chip-shortage-will-be-your-home-internet-router) (visited Nov. 29, 2021).

Notice seeking comment on the general impact of the global semiconductor shortage on the communications market.³⁷ In response, industry associations confirmed the Commission’s impressions: TIA explained, “The global semiconductor shortage has impacted nearly every element of the communications sector . . . [including] routers, switches and base stations”³⁸ Competitive Carriers Association (CCA) related that “the impact of shortage is uneven and varies from supplier to supplier.” CCA noted that while some vendors were able to fill orders “consistent with usual business expectations,” others “are unable to fill entire orders or have communicated lengthy lead times of up to a year”³⁹ NCTA–The Internet & Television Association cited delays in both the manufacture and delivery of equipment, as well as increased costs.⁴⁰ NTCA shared similar information, warning of escalating adverse conditions in the face of Covid-19.⁴¹

Even as there may be reports of some improvement,⁴² backlogs at U.S. ports persist and are not expected to ease until well into the next year at best.⁴³ Moreover, while demand for

³⁷ “Wireless Telecommunications Bureau Seeks Comment on the Impact of the Global Semiconductor Shortage on the U.S. Communications Sector,” Public Notice DA 21-550, Docket No. 21-195 (May 11, 2021).

³⁸ Comments of the Telecommunications Industry Association: Potential Impact of Global Semiconductor Shortage, Docket No. 21-195, at 4 (Jun. 10, 2021).

³⁹ Comments of Competitive Carriers Association: Potential Impact of Global Semiconductor Shortage, Docket No. 21-195, at 2 (Jun. 2, 2021).

⁴⁰ *See*, Comments of NCTA – The Internet & Television Association: Potential Impact of Global Semiconductor Shortage, Docket No. 21-195 (Jun. 10, 2021).

⁴¹ *See*, Comments of NTCA–The Rural Broadband Association: Potential Impact of Global Semiconductor Shortage, Docket No. 21-195 (Jun. 10, 2021).

⁴² Stella Yifan Xie, Jon Emont, Alistair MacDonald, “Supply-Chain Problems Show Signs of Easing,” Wall Street Journal (Nov. 21, 2021) (<https://www.wsj.com/articles/supply-chain-problems-show-signs-of-easing-11637496002>) (visited Nov. 29, 2021).

⁴³ Paul Berger, “U.S. Ports See Shipping Logjams Likely Extending Far Into 2022,” Wall Street Journal (Sep. 5, 2021) (<https://www.wsj.com/articles/u-s-ports-see-shipping-logjams-likely-extending-far-into-2022-11630843202>) (visited Nov. 29, 2021).

telecommunications components and supplies remains high, vendors' ability to deliver is challenged: one major supplier predicted that supply chain constrictions will not ease until the middle of 2022.⁴⁴ NTCA members' experiences reflect these general conditions. In recent surveys of NTCA members regarding supply chain impacts on deployment and operations, the following data emerged: 27% of respondents are experiencing delays with CPE (including modems and home gateways); more than half of respondents report price increases of 20%-60% for finished products or components. With regard to certain customer premises network equipment, specifically, 33% of respondents reported delays of 1-12 weeks, and more than 40% reported delays of 13-26 weeks. The FCC took note of these disruptions and in January 2022 extended yet again certain regulatory deadlines to account for supply chain disruptions.⁴⁵ NTCA members regularly report delivery times of nearly a year and sometimes more for access to fiber and, without planning on a national scale, this will only be exacerbated as providers gear up to deploy pursuant to the BEAD program. NTCA therefore urges NTIA to work with its colleagues in the Department of Commerce and, in turn, with officials from agencies like the Departments of State, Homeland Security, and Transportation to develop a comprehensive national strategy for relieving supply chain concerns through measures ranging from incentives for ramped up domestic production of equipment to efforts to expedite transportation of goods into and within the United States. The ultimate success of the BEAD program depends upon a greater focus on these issues – put bluntly, the broadband buildout goals of the BIL cannot be realized if the equipment needed to build cannot be obtained in a timely and cost-effective manner.

⁴⁴ ADTRAN, Inc., Form 8-K, Securities and Exchange Commission, File No. 000-24613, at 4 (Oct. 14, 2021) (available at <https://d18rn0p25nwr6d.cloudfront.net/CIK-0000926282/68b164b8-d988-43a1-8517-c8b96f5c2303.pdf>) (visited Nov. 24, 2021) (ADTRAN Form 8-K).

⁴⁵ *Connect America Fund*, Order, WC Docket No. 10-90, DA 22-1 (Jan. 3, 2022).

Supply chain disruptions are compounded by skilled labor shortages. Several telecommunications associations have noted a pressing need to develop a sufficient workforce to implement the various federal broadband deployment programs;⁴⁶ one association has launched a national effort to train and educate telecom workers.⁴⁷ NTCA has convened meetings with educators, engineers, and telecom providers who identified numerous independent and overlapping reasons underlying the labor shortage, as well as steps to implement solutions beginning with education, training, internships and apprenticeships. However, these training and curriculum development strategies, coming at a time of strong employment levels and skilled labor shortages affecting many industries,⁴⁸ may not deliver outcomes that coincide precisely with the distribution of BEAD funds and attendant construction deadlines. This is not due to a lack of effort among the interested parties, but rather the timelines for education and training in the normal and ordinary course of business.

In light of these conditions, NTCA recommends that NTIA mitigate these circumstances through several devices, which may be enacted in concert with each other. In the first instance,

⁴⁶ Mike Harrington, “Skilled Labor Shortage Remains Most Pressing Issue: Telecom Groups,” AGL Media Group (Aug. 18, 2021) (<https://aglmediagroup.com/skilled-labor-shortage-stays-most-pressing-issue-telecom-groups/>) (visited Jan. 24, 2021).

⁴⁷ “Fiber Broadband association to Launch National Fiber Optic Technician Training and Certification Program,” Fiber Broadband Association (Jul. 26, 2021) (<https://www.fiberbroadband.org/blog/fiber-broadband-association-to-launch-national-fiber-optic-technician-training-and-certification-program>) (visited Jan. 24, 2022).

⁴⁸ See Caroline Castrillon, “Why U.S. Talent Shortages Are At a 10-Year High,” Forbes (Sep. 22, 2021) (<https://www.forbes.com/sites/carolinecastrillon/2021/09/22/why-us-talent-shortages-are-at-a-ten-year-high/?sh=5e56c44479c2>) (visited Jan. 24, 2022); Francesco Renna and Patrick Coate, “Is There a Labor Shortage?” NCCI Quarterly Economics Briefing (Aug. 21, 2021) (https://www.ncci.com/SecureDocuments/QEB/Insights-2021-Q2_LaborShortage_2021.html) (visited Jan. 24, 2022); Madison Hoff, “The Labor Shortage May Have an Old-Fashioned Solution: Carpenters, Electricians, and Other Trades are Good Jobs That Make Workers Happy,” Business Insider (Sep. 27, 2021) (<https://www.businessinsider.com/labor-shortage-skilled-trades-carpenters-electricians-plumbers-angi-2021-9>) (visited Jan. 24, 2022).

deployment deadlines, to the extent possible, should contemplate projected impacts of equipment and labor shortages. NTCA recognizes the imperative to deliver broadband as rapidly as possible to unserved and underserved communities. Accordingly, NTCA recommends a thoughtful balance that places aggressive deployment goals with market realities.⁴⁹ To promote participation in the program and avoid deterring would-be applicants who fear that even their best efforts to deploy could be foiled by compounding supply chain delays, this may include reasonable deadlines and milestones combined with efficient and seamless processes by which grant recipients facing exogenous events may obtain fair waiver of certain deadlines, as well as NTIA support for and promotion of skilled labor development efforts that can be structured to support local and regional broadband deployment efforts.

Notice Question 12: What steps, if any, should NTIA take to ensure maximum use of American-made network components and that supply shortages are addressed in ways that create high quality jobs for all Americans? What impact, if any, will application of the “Buy American” requirements in the Bipartisan Infrastructure Law have on supply chain and workforce challenges and on the speed with which the nation can reach the goal of 100% broadband connectivity?

NTCA Response:

NTCA recently joined a letter signed by several other leading telecommunications organizations urging NTIA to adopt a limited programmatic waiver to the “Buy American” provisions articulated in the BIL.⁵⁰ Although NTCA supports looking to domestic producers of

⁴⁹ In this regard, NTCA also cautions NTIA against application of (or even affording scoring preferences with reference to) Davis-Bacon or other comparable requirements. As an initial matter, the law does not appear to apply such requirements to the broadband programs even as it does in the context of other initiatives. Moreover, with substantial uncertainty already being experienced by providers attempting to estimate project costs in the face of supply chain concerns and workforce shortages, grafting wage requirements onto the BIL broadband programs would only undermine the ability of providers to plan for successful deployment and likely deter participation, especially by smaller providers based in rural areas.

⁵⁰ See Letter to U.S. Secretary of Commerce Gina Raimondo, U.S. Secretary of Transportation Pete Buttigieg, and U.S. Secretary of Agriculture Thomas Vilsack, (Jan. 31, 2022), available at:

broadband equipment where possible to promote a variety of national objectives, it is quite clear that applying strict Buy American requirements to the programs under the BIL will at a minimum undermine their purpose by materially increasing the time and cost of deployment – leading to fewer customers being reached over a much longer period of time – and perhaps frustrate altogether widespread achievement of the programs’ objectives.

As the Associations Letter explains, the 55 percent U.S. content threshold laid out in Title IX of the BIL does not reflect the current realities of the global information and communications technology supply chain. With telecommunications and broadband networks consisting of dozens of pieces of equipment ranging from fiber to routers and antennas to customer premises equipment, each of these devices may in turn include hundreds of components sourced from around the world from trusted vendors and suppliers. Even network products assembled in the United States by domestic firms rely on foreign inputs from their global partners. Indeed, as the Association Letter highlights, it appears highly unlikely that any combination of network products would satisfy the Buy American standard in the BIL.

NTCA appreciates that manufacturers may have made pledges to ramp capacity in anticipation of demand under the BIL, and we count many of these firms as essential and collaborative partners in furthering broadband access in rural America. Nonetheless, there is no assurance that they will be in position in time to meet the demands in question or to manage the complex supply chain issues underlying where individual components are manufactured. For this reason, it is essential that NTIA grant a waiver for broadband infrastructure programs under its purview. Specifically, Section 70914 of the BIL notes that agencies may waive the application of

<https://tiaonline.org/wp-content/uploads/2022/01/Industry-Letter-on-IIJA-and-Buy-American-v7.4-FINAL.pdf> (“Associations Letter”).

a preference if it is “inconsistent with the public interest,” if there are not “sufficient and reasonably available quantities,” or if a domestic content requirement “will increase the cost of the overall project by more than 25 percent.”⁵¹ Requiring individualized waiver requests in this case would be highly inefficient for all involved, as the marketplace conditions necessitating a waiver apply broadly across the industry; compelling preparation and submission of individual waiver requests by smaller firms would be particularly harmful, likely causing many such operators to forego program participation altogether rather than jump through multiple hoops only to find funding is contingent after all of that on a waiver that may or may not be granted.

There is precedent for the kind of limited programmatic waiver requested by the Associations Letter. Although the 2009 American Recovery and Reinvestment Act imposed identical requirements, NTIA⁵² and the U.S. Department of Agriculture’s Rural Utilities Service⁵³ determined that a waiver for broadband equipment was necessary to effectively implement the legislation. NTCA therefore reiterates the call in this instance – when an even greater amount of funding will place even greater strains on already strained domestic production capability⁵⁴ – for NTIA to grant a limited programmatic waiver for broadband equipment such as fiber, network electronics, and customer premises equipment consistent with the 2009 waiver. As the

⁵¹ BIL at § 70914(b).

⁵² National Telecommunications and Information Administration, Buy American Exception under the American Recovery and Reinvestment Act of 2009, 74 FR 31410 (July 1, 2009), available at: <https://www.govinfo.gov/app/details/FR-2009-07-01/E9-15514>

⁵³ Rural Utilities Service, U.S. Department of Agriculture, Notice of Limited Waiver of Section 1605 (Buy American Requirement) of the American Recovery and Reinvestment Act of 2009 (ARRA) for the Broadband Initiatives Program, 74 FR 31402 (July 1, 2009), available at: (<https://www.federalregister.gov/documents/2009/07/01/E9-15511/notice-of-limited-waiver-of-section-1605-buy-american-requirement-of-the-american-recovery-and>

⁵⁴ See Comments of NTCA, PS. Docket Nos. 21-346, 1589; ET Docket No. 04-35 (fil. Jan. 14, 2022).

Associations Letter concludes, “Americans without access to broadband cannot wait for a domestic supply chain to be developed out of whole cloth, and the federal government has a clear path forward to ensure the success of the President’s infrastructure agenda by instituting a waiver.”⁵⁵

Notice Question 13: NTIA is committed to ensuring that networks built using taxpayer funds are capable of meeting Americans’ evolving digital needs, including broadband speeds and other essential network features. What guidance or requirements, if any, should NTIA establish to assess grant recipients’ plans to ensure that service providers maintain and/or exceed thresholds for reliability, quality of service, sustainability, upgradability, and other required service characteristics?

Notice Question 14: NTIA is committed to ensuring that networks constructed using taxpayer funds are designed to provide robust and sustainable service at affordable prices over the long term. What criteria should NTIA require states to consider to ensure that projects will provide sustainable service, will best serve unserved and underserved communities, will provide accessible and affordable broadband in historically disconnected communities, and will benefit from ongoing investment from the network provider over time?

NTCA Response:

In these questions, NTIA raises essential issues with respect to transparency and accountability in the use of BIL funds. As can be seen from other programs in recent years, without careful attention paid to the standards by which applicants will be vetted and processes for selection executed, the goal of connecting more Americans to broadband can be undermined – resulting in an unfortunate waste of time and resources that delays or denies connectivity for unserved and underserved communities.⁵⁶ NTIA can and should take several steps to ensure that history is not repeated in the context of BIL efforts and the BEAD program in particular.

⁵⁵ Associations Letter at 2.

⁵⁶ See *Rural Digital Opportunity Fund Preliminary List of Areas Subject to Default Announced: Corrections Sought*, Public Notice, AU Docket No. 20-34, WC Docket No. 19-126, WC Docket No. 10-90, DA 21-1256 (rel. Oct. 7, 2021) (stating that “a number of Rural Digital Opportunity Fund (Auction 904) long-form applicants have notified us that they do not intend to pursue Auction 904 support for some or all of their winning bid(s)” in response to the FCC identifying “census blocks where concerns of existing service or questions of potential waste had been raised.”). *The Rural Digital Opportunity Fund Auction (Auction 904)*,

As a threshold matter, NTIA should adopt and publish clear, specific, and objective standards for states to employ in judging applicants to become subgrantees. Several sets of standards in particular are warranted and necessary. The business plan of an applicant must be evaluated, assessing the entity’s ability to see through and fulfill its deployment efforts; NTIA should adopt criteria by which the states will ascertain whether the would-be provider has the financial, operational, and managerial wherewithal and prior track record to do so. As one potential example, NTIA could adopt an approach comparable to that employed by the FCC in its Rural Digital Opportunity Fund proceeding, requiring subgrantees to include with their applications certain financial information – with a baseline of information required from all providers and greater levels of information required specifically from those that lack years of demonstrated experience in rural areas.⁵⁷

So too should NTIA articulate a common set of objective technical standards for evaluation of whether particular technologies will deliver service as required and promised. This, however, is not a simple exercise – it is not as easy as merely saying, for example, that a fixed wireless deployment using a certain kind of spectrum can in theory deliver a speed of X. Rather there are any number of factors that must be evaluated *on a case-specific and localized basis* to determine whether a network will really perform as promised and demanded. As NTCA and others have

AU Docket No. 20-34, *Rural Digital Opportunity Fund*, WC Docket No. 19-126, Order, DA 21-908 (rel. Jul. 26, 2021) (declining to grant petitioners’ waiver of certain filing deadlines and noting that their “self-imposed delay would be inconsistent with the goal of the ETC filing deadline established in this proceeding, which is to expedite the provision of needed broadband service to these rural communities.”).

⁵⁷ See *Rural Digital Opportunity Fund*, WC Docket No. 19-126, *Connect America Fund*, WC Docket No. 10-90, Report and Order, 35 FCC Rcd 686 (2020), at 719-723, ¶¶ 73-80 (describing types of financial information required at various stages of the auction process by different kinds of entities based upon prior experience in operating rural broadband networks or other critical infrastructure).

highlighted in prior contexts, the factors to be considered in assessing the true capability of a fixed wireless deployment include:⁵⁸

- Frequency (Spectrum Band) – with lower band spectrum providing greater coverage than higher band spectrum;
- Licensed versus Unlicensed Spectrum – with exclusively licensed spectrum providing greater assurance of performance and lack of interference than unlicensed (shared) spectrum;
- Amount of Spectrum – with larger amounts of spectrum needed to provide greater throughput;
- Network Architecture – with greater sharing of spectrum and capacity resources occurring in point-to-multipoint and mesh deployments than in point-to-point deployments;
- Spectrum Propagation Characteristics – with greater signal attenuation, and even complete signal blockage, occurring at higher frequencies;
- Atmospheric Conditions – with greater signal attenuation occurring, depending on the frequency and intensity of the event, due to rain, fog, or other conditions;
- Line of Sight Requirements – with greater signal attenuation occurring at higher frequencies where there is not a clear line of sight (e.g., trees, buildings) between the transmitter and receiver;
- Suitable Locations for Access Point Antennas – with a limited density of tall structure for antenna placement in a rural environment to overcome propagation and line of sight limitations at higher frequencies;
- Premises Equipment – with greater signal attenuation occurring at higher frequencies when transceivers are placed indoors; and
- An additional – non-spectrum – factor is the capability of backhaul facilities from the last-mile wireless link to the network – with fiber facilities having greater performance, even if shared, and reliability.

⁵⁸ See *Ex Parte* Letter from Michael Romano, Senior Vice President, NTCA, Brian O’ Hara, Senior Director, National Rural Electric Cooperative Association (NRECA), Brett Kilbourne, General Counsel and VP of Policy, Utilities Technology Council (UTC), and Thomas Cohen, Partner at Kelley Drye, Fiber Broadband Association (FBA) to Marlene H. Dortch, Secretary, Commission, WC Docket Nos. 19-126, 10-90 (filed June 2, 2020).

This of course is just one example involving one technology. In the end, NTIA should work with those experts charged with developing broadband coverage reporting at the FCC to adopt and publish standards tailored for each technology that can then be used, based upon information furnished by applicants, to determine whether in fact the network in question will deliver a *reliable* level of performance consistent with program requirements. NTIA should then work with the states and the FCC to undertake such evaluations and provide technical assistance, recognizing that the highly specialized nature of such assessments will require a level of expertise that some states may not possess.

The adoption, publication, and application of such standards is of course essential to ensure program integrity and foster trust and confidence in the transparency and accountability of the mechanism. At the same time, there is a need not only to ensure that providers are capable in the first instance but that they also will deliver in the end. NTIA should therefore as well focus on providing guidance to the states on post-award monitoring of providers' compliance with respect to both construction *and* service commitments – helping states with keeping tabs on whether BEAD fund recipients are meeting speed, latency, and other relevant performance requirements. Here again, some state broadband offices may be unequipped to ensure that providers are utilizing BIL funds as intended and truly delivering, for example, service with latency “sufficiently low to allow reasonably foreseeable, real-time, interactive applications.”⁵⁹ Therefore, consistent with the directives of the statute, NTIA itself should adopt – and should not leave to the states alone – measures that will ensure the fulfillment of “activities funded by the subgrant in a competent manner.”⁶⁰ For example, NTIA might consider whether adoption of a performance testing and

⁵⁹ BIL at § 60102(h)(4)(A)(II).

⁶⁰ *Id.* at § 60102(g)(2)(A).

reporting regime comparable to that used by the FCC in its distribution of USF resources makes sense,⁶¹ thereby enabling the capture of real-time data from randomly selected customer locations indicating whether and to what degree recipients of BEAD funds have not only deployed a network but are actually delivering services as promised. This will undoubtedly require a national effort in lieu of one administered by individual states, but it may be a route worth exploring further to promote transparency and accountability in performance after networks are built and ultimately to confirm that the objectives of the BIL are being fulfilled.

Even as NTCA supports adoption and publication by NTIA of clear and objective standards for states to use in assessing the financial, operational, managerial, and technical expertise, it is important to ensure a balance in the burdens that will be placed upon subgrantees – especially smaller providers that may be deterred from applying at all by onerous requirements that yield little meaningful benefit for the ultimate consumer beneficiaries. For example, while entities should be encouraged to review the voluntary cybersecurity framework promulgated by the National Institute of Standards and Technology, strict compliance with that framework as if it were a “checklist” is both burdensome and unnecessary. The framework was developed specifically to be flexible in application, providing firms with guidance on the kinds of practices that would be consistent with proper “cyber-hygiene” while avoiding mandates or strict conformance to an exact set of requirements that may be wholly inappropriate, inapplicable, and unnecessary in specific contexts. A one size fits all approach to cybersecurity is not effective even if categorized according to small and large companies. Thus, NTIA should avoid any cybersecurity mandates that reduce to specific checklists of items, and instead work with states to allow would-be subgrantees to

⁶¹ See *Connect America Fund*, Order, WC Docket No. 10-90, 33 FCC Rcd 6509 (WCB 2018); *Connect America Fund*, Order on Reconsideration, WC Docket No. 10-90, 34 FCC Rcd 10109 (2019).

demonstrate cybersecurity awareness and efforts to manage such risks under the circumstances presented in each firm’s unique operations. Examples of good practices could include, but are not limited to, adoption of tailored plans for managing cyber-risks and/or participation in industry information-sharing forums.

In the end, real accountability will ultimately be measured by what happens in the aftermath of the investments spurred by the BEAD program. This is an historic opportunity to serve Americans long desperate for connectivity, whether lacking service altogether or having been disappointed in the past by programs that “aimed too low” and delivered services that barely kept pace with technological advancements and evolving applications. To this end, these once-in-a-generation programs should aim to build networks that will last and remain relevant and useful to consumers and businesses for a generation. Anticipated trends of current and future broadband experiences will demand scalable networks capable of exponentially increasing speeds. It is anticipated that in just one year, 92% of the U.S. population will be internet users.⁶² These will include not only traditional communications devices such as smartphones or computers, but also the ever-expanding range of devices to support consumer and industrial IoT at a predicted per capita rate of more than 13 connected devices per person.⁶³ Whereas the average broadband speed was 58.9 Mbps in 2018, by next year the average speed is trending toward 143.6 Mbps per second.⁶⁴

⁶²*Cisco Annual Internet Report* - Cisco Annual Internet Report Highlights Tool (<https://www.cisco.com/c/en/us/solutions/executive-perspectives/annual-internet-report/air-highlights.html#>) (visited Jan. 21, 2022).

⁶³*Id.* (<https://www.cisco.com/c/en/us/solutions/executive-perspectives/annual-internet-report/air-highlights.html#>) (visited Jan. 21, 2022).

⁶⁴*Id.* (<https://www.cisco.com/c/en/us/solutions/executive-perspectives/annual-internet-report/air-highlights.html#>) (visited Jan. 21, 2022).

In light of data and trends like these, aiming too low when it comes to expectations of performance is ill-advised; it is far less efficient to rebuild networks every several years in the hope of keeping pace with demands than it is to build scalable, future-proof networks in the first instance that, with minimal subsequent capital investment beyond minor upgrades and maintenance, can continue to meet consumer expectations and address evolving applications for decades. Fortunately, the BIL wisely charts out a more effective forward-looking course. Although the statute establishes a baseline minimum requirement to offer speeds of 100 Mbps download and 20 Mbps upload,⁶⁵ Congress also directed NTIA to prioritize higher speeds⁶⁶ and scalable projects.⁶⁷ Consistent with these related – but separately stated – priorities, NTCA specifically recommends that NTIA adopt a weighting system that places heavy emphasis: (1) on higher speeds, affording significantly better scoring to those applicants that propose to deliver symmetrical speeds and even higher levels of service at symmetrical levels (*i.e.*, robust preferences for 100 Mbps symmetrical service and more still for Gigabit symmetrical service); and (2) on scalability, by affording significantly better scoring for fiber networks specifically, as these have consistently been identified as providing much greater efficiency in keeping pace with customer demands and avoiding the need for incremental rebuilds that ultimately cost more over time.⁶⁸

⁶⁵ BIL at § 60102(h)(4)(A)(i)(I).

⁶⁶ *Id.* at § 60102(h)(1)(A)(ii).

⁶⁷ *Id.* at § 60102(a)(2)(I) (defining “priority broadband project as one that can, among other things, “provide broadband service that meets speed, latency, reliability, consistency in quality of service” and “can easily scale speeds over time.”)

⁶⁸ *Treasury Guidance* at 302; *see also Future Proof: Economics of Rural Broadband, Comparing Terrestrial Technologies & Investment Consideration to Meet Increasing Consumer Broadband Demand*, White Paper, (rel. May 2021), at 5, available at: https://www.ntca.org/sites/default/files/documents/2021-05/Future%20Proof%20--%20Economics%20of%20Rural%20Broadband%20FINAL_0.pdf (finding that “over a reasonable time horizon based upon the anticipated and expected useful life of broadband

Some will undoubtedly cry foul at such a proposition, arguing that “technological neutrality” dictates every provider must be on equal footing. But “technological neutrality” requires no such thing – there is no requirement all technologies, regardless of real-world capabilities, be treated the same. All that should be necessary to accommodate technological neutrality is that all providers will be eligible to participate; nothing mandates that they be scored the same when one is proven to offer superior levels of performance in a given way. Indeed, to not afford fiber a priority in scoring would be to ignore the distinct call of Congress to recognize the specific and distinct value of scalability as a matter separately from speed alone. Funding the deployment of inferior networks that can meet minimum thresholds today but cannot scale for future demands would also risk wasting the once-in-a-generation nature of this opportunity by encouraging the deployment of networks that will need significant reconstruction in relatively short order. So too would relying on vague promises that networks not yet proven to be scalable over time will somehow magically be able to scale for future demand at some undefined point in time. NTCA therefore urges NTIA to resist the calls of those that desire to convert a clear congressional preference for rewarding superior performance into a competition where all entities, regardless of track record or capability, must be recognized and rewarded simply for interest in participation.

infrastructure, a FTTP deployment represents the most efficient means of providing the highest level of broadband in a greenfield deployment”).

Notice Question 16: Broadband deployment projects can take months or years to complete. As a result, there are numerous areas where an entity has made commitments to deploy service – using its own funding, government funding, or a combination of the two – but in which service has not been deployed. How should NTIA treat prior buildout commitments that are not reflected in the updated FCC maps because the projects themselves are not yet complete? What risks should be mitigated in considering these areas as “served” in the goal to connect all Americans to reliable, affordable, high-speed broadband?

NTCA Response:

At the outset, and as approached in Question 4, above, an apparent lack of broadband facilities in a region does not mean that broadband facilities are not on the near horizon. As NTIA notes correctly, the planning, engineering, and deployment of a broadband network is measured in years. This is particularly the issue in areas that require specialized permitting or rights-of-way management, including, but not limited to: Tribal regions; deployments crossing federal forest lands; or rights-of-way negotiations with railroads or similar entities. Moreover, supply chain disruptions and workforce shortages (*see* Question 10, above) are visiting even larger-than-normal impacts on broadband deployment efforts. Accordingly, it is reasonably within the realm of possibility that a grant application may appear to cover an area in which broadband is not yet currently deployed – but in which an existing firm already has clear and determined plans “on the table” to deploy.

An important step in addressing these types of situations is, as noted in Question 4, to pursue active coordination with other federal and state offices to determine the actual, current status of an area and the other agencies’ awareness of what broadband is to come in the areas in question. As noted above, recent rounds of the ReConnect program – while very much welcomed as sources of capital funding for rural broadband networks – were not in all cases coordinated with FCC high-cost USF programs, including the Alternative Connect America Cost Model (or “ACAM”) and Connect America Fund-Broadband Loop Support (or “CAF-BLS”) initiatives.

Moreover, the Funding Opportunity Announcement for ReConnect Round III declared all areas without 100/20 Mbps broadband to be eligible for awards, without any direction as to how eligibility for awards would be considered where high-cost USF support was currently being used to *upgrade* existing networks (that in their current form were compliant to current USF regulations) toward much higher speeds.

NTCA suggests that NTIA treat prior buildout commitments that are not yet reflected in FCC maps as rebuttable presumptions that the area is or is about to be served. NTCA further notes that companies with valid deployment plans “on the table”⁶⁹ should not be subject to frivolous challenges. NTCA acknowledges the usefulness of a challenge process where there is a genuine question as to whether an incumbent provider in fact is prepared to serve an area. And yet there may well be instances, as recognized implicitly by NTIA in the instant question, that an area not indicated “served” on FCC maps may be due to (a) the provider’s deployment schedule has not yet reached that area, or (b) supply chain or workforce delays are present (*see* Question 10, above) or (c) other exogenous events are in play. Accordingly, NTCA suggests a balance to discourage wasteful and frivolous challenge proceedings. Criteria may include: is the unserved area within the service territory of an incumbent provider that is subject to regulated buildout milestones from a federal or state agency? Can the provider claiming to have that area in the pipeline demonstrate prior deployment achievements in the geographic region? Has that provider been subject to regulatory or other oversight resulting from prior failure to meet buildout milestones? These or similar standards would enable incumbent providers to work forward with confidence and avoid the potential overbuilding issues discussed in Question 4, above.

⁶⁹ Valid deployment plans “on the table” should be defined as buildout obligations attached to the receipt of funding via other programs or contractual commitments made for deployment (such as contracts signed for materials and construction crews).

Finally, as discussed elsewhere herein, logical coordination would indicate that if an entity that is already receiving funding or support under another federal or state program (such as ACAM or CAF-BLS) applies for BEAD funding, that entity should be afforded an opportunity to obtain such funding to do more than required under the original program. For example, to the extent that another federal or state program is “funding broadband” at 100/20 Mbps, but a provider applying for BEAD commits that it will instead upgrade the network to deliver 100 Mbps symmetrical or Gigabit broadband, it makes sense as a matter of economics and public policy to have the programs work in concert toward that outcome. For the reasons articulated above, however, it would not make sense to award a *second provider* in such areas, as this would result in dueling governmental programs funding dueling networks with there being very real risk of a waste of resources and undermining of the sustainability of either network.⁷⁰

Notice Question 17: Ten percent of total BEAD funding is reserved for distribution based on how many unserved locations within a state or territory are also locations in which the cost to deploy service is higher than the nationwide average. The Bipartisan Infrastructure Law provides that, in calculating the cost of deployment, NTIA should consider factors such as the area’s remoteness, population density, topography, poverty rate, or “any other factor identified by the Assistant Secretary, in consultation with the [FCC], that contributes to the higher cost of deploying broadband service in the area.” BIL § 60102(a)(2)(G). What additional factors, if any, should NTIA consider in determining what constitutes a “high-cost area”?

NTCA Response:

The *Notice* seeks comment on Section § 60102(a)(2)(G) of the BIL, which sets aside ten percent of total BEAD funding for directing grants based on how many locations in a state are “high-cost” locations. The statute directs NTIA to consider several factors – the “area’s remoteness, population density, topography, poverty rate, or ‘any other factor identified by the Assistant Secretary, in consultation with the [FCC],” that is a contributing factor – in calculating

⁷⁰ See footnote 21, *supra*.

the cost of deployment.”⁷¹ In the interest again of ensuring commonality and coordination to the greatest extent possible across various federal programs, NTCA recommends looking to the FCC’s cost models to determine the high-cost areas eligible for this infusion of additional funding. While imperfect in many ways in estimating costs at a granular level – and, to be clear, it should *not* be used as a mechanism for determining actual allocations or distribution of funding to subgrantees in the BIL programs – the FCC’s cost model provides at least a common benchmark for the threshold determination of which areas appear to be higher cost and are less likely to offer a business case for investment and ongoing operation of broadband networks.

As an initial matter, the FCC in 2011 “concluded that a forward-looking cost model should be used to estimate the support necessary to serve areas where costs are above a specified benchmark.”⁷² Over several years thereafter, the FCC sought feedback on “model design and data input issues,”⁷³ engineering assumptions,⁷⁴ and to “calculate the cost of serving census blocks in price cap carrier areas.”⁷⁵ In 2016, the FCC issued an order adjusting the model in multiple ways over more than a year to take into account the circumstances of rate-of-return carriers.”⁷⁶ In short, the FCC has already given the NTIA a roadmap to determining, on a census-block by census-block basis, those “locations in which the cost to deploy service is higher than the nationwide average.”

⁷¹ *Notice*, question 17 (citing BIL at § 60102(a)(2)(G)).

⁷² *Connect America Fund*, WC Docket No. 10-90, High-Cost Universal Service Support, WC Docket No. 05-337, Report and Order, DA 14-534 (rel. Apr. 22, 2014) (“*2014 CAM Order*” or “*Order*”) at ¶ 3.

⁷³ *Id.* at ¶ 8 (citations omitted).

⁷⁴ *Id.* (citations omitted).

⁷⁵ *Id.* at ¶ 2.

⁷⁶ *Connect America Fund*, WC Docket No. 10-90, et al., Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 16-33 (rel. Mar. 30, 2016) (“*ACAM Order*”) at ¶ 4.

In addition to being a census block-level roadmap to defining “high-cost areas,” the FCC’s cost model is largely built on the same foundational factors that the BIL directs NTIA to consider when carrying out this directive. More specifically, factors such as “remoteness, population density and topography,”⁷⁷ among others, are core elements of the FCC’s cost model as it determines cost-per location and, specifically, identifies “high-cost” census blocks. As becomes apparent when reviewing the development history of the FCC’s cost model,⁷⁸ population density, terrain, soil type are foundational inputs⁷⁹ – as one example, the FCC’s 2014 CAM Order notes that in addition to “varying by density, some costs also vary by type of terrain and soil conditions”⁸⁰ The Order goes on to note how “terrain/soil conditions affect the labor costs for placing underground and buried structure”⁸¹ and discusses “input values for underground and buried excavation costs in four types of terrain”⁸² as well as the source of data for that for each census block group.⁸³ Population density is, in a similar fashion, one of several important inputs to estimating costs and is specifically part of the FCC cost model’s identification of “high-cost” census blocks.⁸⁴ In short, even if it imperfect in some respects in estimating costs at a granular level, NTIA has at its disposal a reasonable approximation of nationwide data on census blocks “in which the cost to deploy service is higher

⁷⁷ BIL at § 60102(a)(2)(G).

⁷⁸ *See generally*, CAM Order and ACAM Order.

⁷⁹ CAM Order at ¶¶ 77 and 136 to 139.

⁸⁰ *Id.* at ¶ 77.

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

than the nationwide average,” and it should leverage this rather than attempting to recreate the FCC’s work here.

Moving forward, with the identification of “high-cost areas” in hand, NTIA can then compare them to “unserved” areas (as defined by the BIL) so identified on the FCC’s updated broadband availability map once released. NTIA can then comply with the BIL requirement that it distribute ten percent of total BEAD funding “based on how many unserved locations within a state or territory are also locations in which the cost to deploy service is higher than the nationwide average.”⁸⁵

Notice Question 20: When formulating state broadband plans, what state agencies or stakeholder groups should be considered in development of those plans?

NTCA Response:

Successful implementation of BEAD will be facilitated by interactions among those state agencies charged with distribution of funds and other organizations with specialized knowledge of issues that pertain to broadband, particularly in rural areas. For example, dialogue with such organizations as the National Organization of State Offices of Rural Health and its constituent members can inform broadband policymakers of network capacity needs for rural telehealth. Or solicitation of expert opinion from bodies like the National Rural Education Association can illuminate the role of robust broadband for education. Or the National Rural Economic Developers Association, which can provide valuable perspective on the role of broadband in local rural economic development. Ultimately, state broadband and grant offices will make final determinations for distribution, but consultation with subject matter experts – both by NTIA with national counterparts and by state agencies with authorities on matters of unique local concern or

⁸⁵ *Notice*, question 17.

interest – should lead policy makers to identify the network deployments and providers best poised to deliver high-impact results with broadband deployment.

State designated distribution can have significant beneficial effect if implemented properly, with states offering the perspective of being closest to the communities and customers who will live with the decisions made as to where funding should go and what kinds of networks should be financed. Toward this end, NTCA recommends the creation of a model template for state coordination with federal offices. This can assist with not only clarifying how to identify and address instances in which potential overbuilding may be implicated, but also to leverage shared expertise in assessing the relative value and promise of various applications. This can be an important step inasmuch as only a minority of states have had functioning broadband offices for five or more years, and nearly half of states currently have no state broadband offices. Moreover, this shared expertise can include consultative efforts to identify best practices for rights-of-way and other approvals to cross government and private lands, including, but not limited to, railroad rights of way. The states may consider a uniform form of application and policies to assist a standardized coordination with federal agencies, as may be necessary. This approach would be very useful to entities submitting applications in multiple states. Indeed, coordination and dialogue between states and federal agencies can be expected to be useful to address supply chain disruptions that are anticipated to carry into the coming year. A “direct line” for states into appropriate federal agencies can enable unified databases to identify and corroborate evidence of disruptions that could hold up deployment.

Finally, even as new (or, really, renewed) efforts at interagency coordination are considered, the value of local input and interests should not be lost as well. For example, various government and private industry statements have promoted inaccurate distinctions between for

profit, government, and cooperative entities. While it can be reasonably inferred that larger national and regional operators tend to reflect their interests by focusing deployment efforts in large, densely populated areas instead of small, sparsely populated regions, small, locally operated providers tend to operate according to a different set of principles regardless of corporate or organizational form. Specifically, locally operated providers that are by definition focused more focused on their “home markets,” as small as many of these may be. The achievements of these small, rural providers are demonstrated in substantial data; for example, as referenced *supra*, a recent survey of NTCA members reveals that 75% of providers offer broadband speeds of 100 Mbps in their local service areas.⁸⁶ These accomplishments speak volumes to these carriers’ abilities, should they make applications under the emerging deployment programs, to deploy and maintain state-of-the-art broadband networks in their service regions. The accomplishments of this broad base of rural providers can be defined by more than merely the miles of facilities deployed or the raw capacity of their networks. Rather, the “return on investment” in these rural spaces can be measured by every student whose educational opportunities are expanded by access to broadband; every patient with better health outcomes due to telehealth; every worker and business whose ventures are broader with broadband. NTIA and/or state interaction with stakeholders whose constituents rely on broadband would help inform determinations of which providers stand ready to deploy the most competent, future-proof network.

⁸⁶ See *NTCA Member Broadband Survey*, footnote 26, *supra*.

Notice Question 22: The Bipartisan Infrastructure Law requires that BEAD funding recipients offer at least one low-cost broadband option and directs NTIA to determine which subscribers are eligible for that low-cost option. BIL § 60102(h)(5)(A). How should NTIA define the term “eligible subscriber?” In other words, what factors should qualify an individual or household for a low-cost broadband option?

Notice Question 23: Under the Bipartisan Infrastructure Law, states and territories are charged with developing low-cost broadband service options in consultation with NTIA and broadband providers interested in receiving funding within the state. BIL § 60102(h)(5)(B). What factors should NTIA consider in guiding the states in design of these programs to achieve this goal? Should NTIA define a baseline standard for the “low-cost broadband service option” to encourage states/ territories to adopt similar or identical definitions and to reduce the administrative costs associated with requiring providers to offer disparate plans in each state and territory? What are the benefits and risks, if any, of such an approach?

NTCA Response:

The *Notice* seeks comment on the BIL’s “low-cost broadband option” provisions:⁸⁷ these questions ask how NTIA should define the term “eligible subscriber”⁸⁸ and how states should develop low-cost broadband service options in consultation with the agency and providers.⁸⁹ As discussed further below, the Affordable Connectivity Program (“ACP”) – created by the BIL⁹⁰ and launched by the FCC on December 31, 2021⁹¹ – offers a sound (although not exclusive) foundation to address low-income consumers’ access to broadband with respect to the BEAD program.

Created by the same legislation that established the BEAD program, the ACP is a continuation of the Emergency Broadband Benefit Program (“EBB”), one that in its less than one

⁸⁷ BIL at § 60102(h)(5).

⁸⁸ *Id.* at § 60102(h)(5)(A)(i).

⁸⁹ *Notice*, question 23, seeking comment on BIL § 60102(h)(5)(A)(ii).

⁹⁰ BIL at § 60502(a)(2).

⁹¹ *FCC Launches Affordable Connectivity Program*, Press Release (rel. Dec. 31, 2021). *See also Affordable Connectivity Program*, WC Docket No. 21-450, *Emergency Broadband Benefit Program*, WC Docket No. 20-445, Report and Order and Further Notice of Proposed Rulemaking, FCC 22-2 (rel. Jan. 21, 2022) (“*ACP Order*”) (adopting final ACP rules).

year of operation enrolled 9,048,536 households low-income subscribers⁹² and offered them discounts on services offered by hundreds of participating providers⁹³ in all 50 states. The EBB was in effect given an extended life by the BIL and rechristened as the ACP. Most importantly, it is a program that providers all across the nation, utilizing wireline and wireless technologies and serving all kinds of communities, are familiar with. Moreover, many of these participating providers are likely to seek BEAD funding. Millions of consumers are familiar with it as well (by virtue of being enrolled in the EBB or being informed of it by their provider/in advertising), and in fact the advertising and other community outreach provisions the FCC has adopted with respect to the ACP⁹⁴ could perhaps result in millions more enrollments and significantly increased general consumer familiarity with the program.

With that as the backdrop, and with the ACP already up and running, NTIA should leverage the efforts underway to the greatest extent possible. In the first instance, NTIA should find as an effective “safe harbor” that any provider participating in ACP, regardless of any other program a state may desire to create or recalibrate, will be deemed to have satisfied the requirement to offer a low-cost broadband option under BEAD. The ACP offers many efficiencies in this regard, including a built-in eligibility verification regime – providers can either obtain confirmation of a consumer’s eligibility for the ACP via the National Verifier or through alternative verification methods approved by the Commission and that the agency determines are just as robust and

⁹² *Emergency Broadband Benefit Program Enrollments and Claims Tracker*, Universal Service Administrative Company, available at: <https://www.usac.org/about/emergency-broadband-benefit-program/emergency-broadband-benefit-program-enrollments-and-claims-tracker/> (visited Feb. 4, 2022).

⁹³ *Emergency Broadband Benefit Providers*, Federal Communications Commission, available at: <https://www.fcc.gov/emergency-broadband-benefit-providers> (visited Feb. 4, 2022).

⁹⁴ *ACP Order* at ¶¶ 190-209.

rigorous as the Verifier.⁹⁵ Thus states could be certain that ACP enrolled subscribers taking a “low-cost broadband option” from a BEAD-awardee provider that also participates in the ACP are truly eligible.

Moreover, in giving guidance to states that wish to administer their own programs in addition to an ACP “safe harbor,” NTIA should encourage states to mirror basic provisions of the ACP where possible. For example, in defining which customers will be eligible for a low-cost broadband option, it would make sense to use a common definition of “eligible subscriber,” rather than have one for ACP and then another for a state program. Specifically, if “low-cost broadband option” provisions adopted by states utilize a definition of “eligible subscriber” that mirrors the ACP eligibility provisions, any consumer meeting that definition would be able to approach a BEAD-awardee provider and find an “Internet service offering” that fits their needs. By contrast, if one definition is used for ACP and another for the low-cost offering under the BEAD program, this presents complications for those providers that do participate in both efforts and for customers who may be eligible for one but not the other for reasons unclear to them. And because the ACP can, by statute and FCC rule,⁹⁶ be applied to any of a provider’s Internet service offerings, low-income consumers seeking out a BEAD-awardee provider for the affordable option that the BIL seeks to put in their hands, and also enrolled in the ACP, would have very same choices as any other consumer (albeit with a significant subsidy to make the service a “low-cost broadband option”).

This is not to say that states should be precluded from developing their own low-cost broadband options as well. There may be reasons that states feel compelled to do so unique to their

⁹⁵ *Id.* at ¶ 34.

⁹⁶ *Id.* at ¶ 94.

jurisdictions or based upon existing programs of their own. But providers should not be compelled to participate in such programs and should instead be able to rely upon participation in the ACP as a means of satisfying the statutory obligation. Moreover, states again should at the very least be encouraged to harmonize their own efforts with ACP to minimize confusion among customers and burdens on providers. To the extent that states choose their own path (and for those addressing BEAD awardees not participating in the ACP), it is important that NTIA adopt certain guardrails on such programs. For example, in addition to the notion discussed above of adopting consistent definitions of customer eligibility to the greatest extent possible, it is also important to recognize that the BIL unambiguously prohibits rate regulation; specifically, Section 60102 (h)(5)(D) states that “[n]othing in this title may be construed to authorize the Assistant Secretary or the National Telecommunications and Information Administration to regulate the rates charged for broadband service.”⁹⁷ Because the BIL further states that an “eligible entity shall submit to [NTIA] for approval...a proposed definition of ‘low-cost broadband service option’”⁹⁸ NTIA approval of a state plan that defines such an option as pegged to specific rates for the purposes of defining “low-cost” would run afoul of Section 60102 (h)(5)(D).

Notice Question 27: Equity is also a named goal of the BEAD program described above. How should NTIA ensure that State Digital Equity Plans and the plans created by states and territories for the BEAD program are complementary, sequenced and integrated appropriately to address the goal of universal broadband access and adoption?

NTCA Response:

Ensuring that State Digital Equity Plans and the plans created by states and territories for the BEAD program are complementary, sequenced, and integrated appropriately to address the

⁹⁷ BIL at § 60102 (h)(5)(D).

⁹⁸ *Id.*

goal of universal broadband access and adoption will rely upon matching program design to respective state needs. Extensive research data reveals the many factors that inform broadband adoption and usage decision. These are evidenced in clear trends among various groups, including those defined by age, race, household income, and educational attainment. Although national trends have been documented, NTCA notes that individual communities may easily portray different conditions than the national average. Accordingly, the establishment of a particular national metric by which digital inclusion may be measured is a less desired approach than directing the states to formulate policies and goals that meet their respective local needs. At bottom, however, NTCA suggest that “digital inclusion” be defined as striving to achieve among *all respective* demographic categories adoption rates that are reasonably close to the local community average. Each community may demand a different approach to overcome barriers of age, household income, or other factors, but the overriding principle should be the pursuit of increased broadband usage across the broad spectrum of demographic groups.

It is tempting to look at what every state is doing when it comes to digital equity and look for a model that states can replicate. However, the barriers to digital equity that each state and territory face are as unique as those jurisdictions themselves; a plan that succeeds in Massachusetts might not work for New Mexico. As such, NTIA should encourage states to conduct a needs assessment, identify potential partners, and map community assets to ensure they have fully assessed their needs. By way of example, in a recent report issued by the National Digital Inclusion Alliance, “[I]luckily, good local data about household technology access and needs is getting easier to find.”⁹⁹ NDIA further states that places to start could be the FCC Form 477 Census tract and

⁹⁹ Angela Siefer, Bill Callahan, Paolo Balboa, *The Digital Inclusion Startup Manual*, National Digital Inclusion Alliance, at Ch. 3 (<https://startup.digitalinclusion.org/>) (visited Jan. 23, 2022).

block data, U.S. Census American Community Survey Data, any local survey data that states can find library computer-use statistics, and talk to workforce program staff, housing providers, and county social service staff.

With respect to the roles of states and territories in developing and delivering these plans to their communities, NTCA recommends that NTIA adopt rules that are flexible and non-prescriptive. This would allow states and territories to develop plans that are tailored to their unique issues and needs. To the extent the State Digital Equity Plans rules are prescriptive, they could impose a burden on not only to the state and territory workers but most importantly, the consumers.

Notice Question 33; The Bipartisan Infrastructure Law’s provisions regarding the Middle Mile Broadband Infrastructure Grant Program set out a range of considerations governing NTIA’s assessment of proposals seeking middle mile funding, including improving affordability, redundancy and resiliency in existing markets, leveraging existing rights-of-way, assets, and infrastructure, and facilitating the development of carrier-neutral interconnection points. See BIL § 60401(e), (b)(2), (d)(2). How should NTIA implement these requirements, and the others listed in the legislation, in prioritizing middle mile grant applications?

Notice Question 35: How can the Middle Mile Broadband Infrastructure program leverage existing middle-mile facilities, access to rights of way, poles, conduit, and other infrastructure and capabilities that are owned, operated, or maintained by traditional and non-traditional providers (public and investor-owned utilities, grid operators, co-ops, academic institutions, cloud service providers, and others) to accelerate the deployment of affordable, accessible, high-speed broadband service to all Americans? What technical assistance or guidance should NTIA provide to encourage applications for this program? Are there examples of successful deployments and/or benefits provided by non-traditional providers to highlight?

NTCA Response:

The *Notice* seeks comment on the MMBI, a \$1 billion program for the construction, improvement, or acquisition of middle-mile infrastructure. While middle mile infrastructure does not provide service directly to end users, it is a critical input to providing broadband service, and access to redundant facilities can ensure reliability and resiliency of last-mile networks. Investing in middle mile infrastructure is a capital-intensive endeavor, and to ensure efficient use of

government funding it is essential that unnecessary duplicative projects be rejected and already existing infrastructure and expertise is utilized to its maximum capability.

As an initial matter, the MMBI is for middle mile deployment exclusively, focused on connecting last mile networks that serve retail customers to backbone internet connectivity. More specifically, the BIL indicates that Congress intended the MMBI to: (i) expand and extend infrastructure to reduce the cost of connecting unserved and underserved areas to the backbone of the Internet and (ii) promote broadband resiliency through the creation of alternative network connection paths designed to prevent single points of failure on a broadband network.¹⁰⁰ These twin objectives must inform the overall structure of the program and its requirements, and that focus should be faithfully applied in the funding rules with project applications that seek to stray from that purpose should be rejected. While sufficient middle-mile infrastructure will enable the connection of unserved consumers and anchor institutions, the MMBI is not designed to provide end-user connectivity – NTIA should therefore reject any potential calls for or attempt to use such funds in the connection of various “retail” customer segments, including large institutional users or governmental offices. The BIL makes abundantly clear that, unlike middle mile programs of the past, this effort is indeed truly focused on connecting remote communities to the Internet and not as a bypass of last mile networks that connect the entirety of such communities.

With respect to remaining faithful to the purpose of the MMBI, applicants must demonstrate their request for funding seeks to expand and extend middle mile infrastructure. To satisfy this prong of the analysis, the application should be required to establish that there is not sufficient middle mile infrastructure effectively available in the geographic area for which funds are sought. The applicant should have to demonstrate that the infrastructure is lacking, insufficient,

¹⁰⁰ BIL at § 60401(b)(1).

or otherwise effectively unavailable, due to cost or other considerations. Resiliency is a factor here as well, and applications for funding under the MMBI should be accepted to the extent it is demonstrated that completion of the proposed project would promote resiliency. Here, the applicant should have to show that an area is lacking redundant middle mile transport paths. Any provider currently offering middle mile transport to a geographic area for which a grant is sought should have the opportunity to rebut an applicant's assertion that grant funds will further either of the twin objectives of the MMBI.

Once an application is determined valid, the applicant must be found to be eligible for funding. To be declared eligible, the applicant must agree to prioritize connecting middle mile infrastructure to last mile networks that plan to serve unserved areas, connect non-contiguous trust lands, offer wholesale broadband service to other carriers and entities and must be able complete the buildout in a timely manner.¹⁰¹ To establish eligibility, NTIA must also determine that the applicant demonstrates the necessary financial, technical and operational capability and must give priority to applications that satisfy at least two of the following:

- Has a fiscally sustainable middle-mile strategy.
- Will offer non-discriminatory access to other carriers and entities.
- Identifies specific last-mile networks that will benefit.
- Identifies investments or support that will accelerate the construction and completion of a project.
- Will benefit national security interests.¹⁰²

¹⁰¹ *Id.* at § 60401(e).

¹⁰² *Id.* at § 60401(d)(2).

Once a MMBI application is deemed valid (application satisfies the goals of the grant program) and eligible (applicant meets the application criteria), Congress directed NTIA to give priority to projects that:

- Leverage existing rights-of way and infrastructure to minimize regulatory and permitting challenges.
- Enable the connection of unserved anchor institutions.
- Facilitate the creation of carrier-neutral interconnection facilities.
- Improve the redundancy of existing middle-mile infrastructure.¹⁰³

Congress thus guided NTIA to prioritize and fund those projects that are an efficient use of limited funds and further the goals of the program. Funds should be used to augment existing networks that will need more capacity as demand grows. MMBI funding must be a complementary effort designed to fill gaps in the middle mile network, only adding redundancy where needed to ensure that as one middle-mile option experiences an outage, back-up paths are available to secure network resiliency. This will admittedly involve a delicate balance between “funding competition” and “adding redundancy,” but in doing so, NTIA should keep in mind the unmistakable ultimate intent of the BIL – which is to promote sustainable middle mile access that can be relied upon even in cases where one route “goes down” and additional capacity is needed to handle the demands of local users in remote communities. NTIA should also consider ways of ensuring that MMBI projects do not become “trojan horses” for last mile competition, including a commitment that the applicant will not itself seek to leverage the middle mile network being funded to compete with the last mile networks it is ostensibly aimed at connecting for at least five years following completion of construction.

¹⁰³ *Id.* at § 60401(b)(2).

In addition, coordination to reduce equipment and other costs should be a required showing. Creative partnerships with entities with existing infrastructure should be encouraged to provide an end-to-end solution. Eligible MMBI applicants include a virtually unlimited range of public and private entities, but owners of existing infrastructure or rights-of-way can be used to support network development and provide a meaningful contribution to a MMBI application. Optimum results are often achieved when local commercial operators or cooperatives with significant experience in building networks and delivering communications services work with stakeholders in the community to identify and respond to specific needs. The contribution of existing infrastructure will not only reduce cost, it will also will help the applicant accelerate construction and completion of a project.

Federally funded programs, including the MMBI, should focus on the long-term implications for communications by requiring the deployment of infrastructure that in a decade or more will still deliver the performance capabilities that will be needed. Such an approach is necessary to satisfy all of the objectives identified as priorities. The connection of unserved anchor institutions should not come at the expense of a long-term solution, carrier-neutral interconnection facilities should not be code for inferior services. National security interests require secure, robust transport. Long term viability of every part of the network, including the middle mile, is paramount.

Notice Question 36: As network demand grows, capacity needs in the middle mile and network core grow as well. What scalability requirements, if any, should NTIA place on middle-mile grant recipients?

NTCA Response:

NTCA urges NTIA to impose scalability requirements on middle-mile grant recipients. This will ensure that networks built today are fortified to meet the market demands of tomorrow.

A Cisco report articulates the imperative clearly: “Broadband speed is a crucial enabler of IP traffic. Broadband-speed improvements result in increased consumption and use of high-bandwidth content and applications.”¹⁰⁴ Cisco also notes that a 63.4% increase in the average number of per capita connected devices from 2018 to 2023 may indicate an even steeper increase in bandwidth demand. Cisco explains:

It is important to track the changing mix of devices and connections and growth in multidevice ownership as it affects traffic patterns. Video devices, in particular, can have a multiplier effect on traffic. An Internet-enabled HD television that draws [two] - three hours of content per day from the Internet would generate as much Internet traffic as an entire household today, on an average. . . . the bit rate for 4K video at about 15 to 18 Mbps is more than double the HD video bit rate and nine times more than Standard-Definition (SD) video bit rate. We estimate that by 2023, two-thirds (66 percent) of the installed flat-panel TV sets will be UHD, up from 33 percent in 2018.¹⁰⁵

Admittedly, the sheer increase can be difficult to grasp. NTCA therefore suggests considering the demand for greater middle-mile demand in the context of experiences with which users are familiar. Connected home devices, representing only the consumer aspect of IoT, will represent nearly half of all M2M connections by next year.¹⁰⁶ This calculation leaves unarticulated the demand that will be placed on networks by industrial IoT applications. Moreover, the rapid expansion of broadband demand in the wake of the COVID pandemic cannot be ignored. COVID-19-related school closures affected 55 million K-12 students across the United States. While students have largely returned back to in-person learning, it is anticipated that the COVID-19

¹⁰⁴ “Broadband/Internet Availability Survey Report,” NTCA–The Rural Broadband Association, at 18 (Dec. 2021) (<https://www.ntca.org/sites/default/files/documents/2021-12/2021-broadband-survey-report-final-12-15-21.pdf>) (visited Jan. 21, 2022).

¹⁰⁵ Cisco Annual Internet Report (2018-2023) White Paper (Mar. 9, 2020) (<https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html>) (visited Jan. 24, 2022).

¹⁰⁶ *Id.*

experience has enlightened educators, parents, and students to opportunities in distance and remote education. Increased use of broadband capabilities for in school and outside-school assignments is expected to continue.¹⁰⁷ Broadband remains critical for economic advancement and stability. In the midst of the COVID-19 pandemic (December 2020), it was determined that more than half of middle income and upper-income workers could work from home. More than 80% of those workers reported using video or online conferencing services to connect to co-workers, with nearly two-thirds finding those platforms to be good substitutes for in-person meetings.¹⁰⁸ The range of industries that provide telework opportunities is expansive and is fueling a new-found outlook of “work anywhere, from anywhere,” a maxim that bodes well for rural spaces with robust broadband availability as workers consider new residential opportunities.¹⁰⁹ Telework is expected to experience evolutionary increases post-Covid-19 in both government and private sectors.¹¹⁰ In addition to supporting the ability to work remotely, broadband is also an important component in

¹⁰⁷ “The Evolution of Distance Education in 2020, School of Education and Human Sciences,” University of Kansas (Sep. 17, 2020) (<https://educationonline.ku.edu/community/distance-education-evolution-in-2020>) (visited Jul. 12, 2021).

¹⁰⁸ Jim Parker, Julianna Menasce Horowitz, and Rachel Minkn, How the Coronavirus Outbreak Has – and Hasn’t – Changed the Way Americans Work, Pew Research Center (Dec. 9, 2020) (<https://www.pewresearch.org/socialtrends/2020/12/09/how-the-coronavirus-outbreak-has-and-hasnt-changed-the-way-americans-work/>) (visited Jul. 12, 2021).

¹⁰⁹ *See*, Chip Cutter and Catherine Dill, Remote Work is the New Signing Bonus, Wall Street Journal (Jun. 26, 2021) (<https://www.wsj.com/articles/remote-work-is-the-new-signing-bonus-11624680029>) (visited Jul. 8, 2021); Chip Cutter, Many Companies Want Remote Workers – Except from Colorado, Wall Street Journal (Jun. 17, 2021) (<https://www.wsj.com/articles/many-companies-want-remote-workersexcept-from-colorado11623937649>) (visited Jul. 8, 2021); Remote Work Has Two-Thirds of Americans Considering Moving from Cities to the Country, NextGov.com (Oct. 27, 2020) (<https://www.nextgov.com/cio-briefing/2020/10/remotework-has-two-thirds-americans-considering-moving-cities-country/169598/>) (visited Jul. 8, 2021).

¹¹⁰ *See, e.g.*, Natalie Alms, OPM Official: No Going Back to Pre-COVID Status Quo, Federal Computer Week (Mar. 24, 2021) (<https://fcw.com/articles/2021/03/24/opm-post-covid-no-going-back.aspx>) (visited Jul. 6, 2021); Susan Lund, Anu Madgavkar, James Manyika, Sven Smit, Kweilin Ellingrud, Mary Meaney, and Olivia Robinson, The Future of Work After COVID-19, McKinsey Global Institute (Feb. 18, 2021) (<https://www.mckinsey.com/featuredinsights/future-of-work/the-future-of-work-after-covid-19>) (visited Jul. 6, 2021).

job searches. Across all income and educational levels, people have utilized online resources when researching new employment opportunities.¹¹¹ Agriculture, as well, is poised to expand its reliance on IoT and connected technologies.¹¹²

In sum, consumer and industrial reliance on broadband is increasing across a range of sectors and applications. It would be shortsighted and inefficient if middle mile networks constructed in the near term were incapable of handling long term demands. This is especially true given the initial cap-ex costs associated with construction and acquisition of rights of way. Toward these ends NTCA promotes a “dig once” policy – dig once for the anticipated life of the physical plant but ensure that the physical plant deployed today can shoulder the load of the digital society tomorrow.



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¹¹¹ Aaron Smith, The Internet and Job Seeking, Pew Research Center (Nov. 9, 2015) (<https://www.pewresearch.org/internet/2015/11/19/1-the-internet-and-job-seeking/>) (visited Aug. 6, 2021).

¹¹² See, Seidemann, Joshua, “From Fiber to Field: the Role of Rural Broadband in Emerging Agricultural Technology,” Smart Rural Community (2020) (<https://www.ntca.org/sites/default/files/documents/2021-07/06.14.21%20SRC%20Ag%20Tech%20Final.pdf>) (visited Jan. 24, 2022).