

**Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
Washington, D.C.**

In the Matter of

Infrastructure Investment and Jobs Act
Implementation

Docket No. NTIA-2021-0002

COMMENTS OF 5G AMERICAS

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5G Americas, the voice for LTE, 5G and beyond in the Americas, submits these comments in response to the request by the National Telecommunications and Information Administration (“NTIA”) for comments on its grant program under the Bipartisan Infrastructure Law (“BIL”). Currently chaired by T-Mobile USA Inc., 5G Americas has a broad membership of leading wireless operators and vendors of 5G core and radio access network equipment and software. 5G Americas facilitates and advocates for the advancement and transformation of LTE, 5G and beyond throughout the Americas.¹

INTRODUCTION AND SUMMARY

5G Americas agrees with Congress and NTIA that “[a]ccess to affordable, reliable, high-speed broadband is essential to full participation in modern life in the United States” and that ubiquitous deployment of broadband will help our economic competitiveness.² For purposes of NTIA’s implementation of the Broadband Equity, Access, and Deployment Program (“BEAD”), 5G Americas requests that NTIA administer BEAD in a manner that does not discriminate against plans that incorporate wireless network equipment that meets the minimum 100/20 Mbps speed requirement. We also urge NTIA to seek a waiver to allow the use of broadband equipment from

¹ The 5G Americas Board of Governors includes Airspan Networks Inc., Antel, AT&T,Ciena, Cisco, Crown Castle, Ericsson, Intel, Liberty Latin America, Mavenir, Nokia, Qualcomm Incorporated, Samsung, Shaw Communications Inc., T-Mobile USA Inc., VMware, WOM, and Telefónica. [Board of Governors](#), 5G Americas (last visited Jan. 27, 2021).

² Infrastructure Investment and Jobs Act (Bipartisan Infrastructure Law), Pub. L. No. 117-58, § 60101, 135 Stat. 429, 1182 (2021) (“BIL”).

trusted vendors like all the manufacturing members of 5G Americas Board. Such implementation will best fulfill NTIA's goal to provide universal, affordable, reliable, high-speed broadband while ensuring the efficient use of Federal funds.³

I. THE BEAD PROGRAM SHOULD NOT DISCRIMINATE AGAINST WIRELESS BROADBAND DEPLOYMENTS

The BIL requires technology neutrality. As NTIA is aware, Congress directed the Assistant Secretary to carry out his broadband grant authority in a technologically neutral manner, to the extent practicable.⁴ Given that wireless networks based on currently available technology can deliver speeds that meet the speed and other operational criteria of the BIL, it is indeed practicable to include wireless technology in approved BEAD plans.

Congress found that competition among broadband providers has the potential to offer consumers more affordable, high-quality options for broadband service.⁵ This is true for both the service providers and the vendors upon whom those providers rely. 5G Americas appreciates that Congress ultimately chose to base its state grant program for underserved areas on a technologically neutral speed of 100 megabits per second (Mbps) for broadband user downloads and 20 Mbps for user uploads. That 100/20 Mbps criteria will ensure that competitive, affordable options are included in state and territorial plans. As 3GPP technology has improved with successive standard Releases, the wireless service known as "5G" can provide cellular high-speed

³ See Question 4, Infrastructure Investment and Jobs Act Implementation, 87 Fed. Reg. 1122, 1124 (Jan. 10, 2022) ("*IJIA Notice*").

⁴ See BIL § 60307(b).

⁵ BIL § 60101(4).

data broadband speeds competitively and efficiently compared to other forms of broadband technology. Cellular wireless broadband networks based on the current 3GPP Releases can deliver a “latency sufficient to support real-time interactive applications.”⁶

Because the BIL also included a program separate from BEAD for middle mile deployments⁷ which expressly includes fiber,⁸ 5G Americas is concerned that the 100/100 Mbps symmetrical target debated for the BIL but rejected prior to enactment may nonetheless inappropriately affect NTIA’s consideration of BEAD plans. Regardless of what speeds the Federal Communications Commission may ultimately establish as a benchmark for underserved areas for the middle mile (MMBI) grant program,⁹ NTIA should not impose such speeds on BEAD. Favoring speeds for the BEAD program faster than 100/20 Mbps would unnecessarily increase costs and reduce flexibility for areas to be served by BEAD-funded networks.

II. FLEXIBLE WAIVERS FOR APPLICATIONS USING TRUSTED VENDORS

The BIL includes “Buy American” provisions.¹⁰ In telecommunications, many of the world’s leading manufacturers of communications radio access and core network equipment are headquartered in allied countries like South Korea and those in Europe, including 5G Americas members Ericsson, Nokia and Samsung. The value proposition of these trusted vendors is one of the reasons there are no existing domestic content procurement preferences in the United States

⁶ BIL § 60102(a)(1)(A)(ii)(II).

⁷ See BIL § 60401.

⁸ BIL § 60401(a)(9)(B).

⁹ See BIL § 60401(a)(16).

¹⁰ BIL § 70901–70953; see also BIL §70219(5)(J) (including broadband infrastructure under its definition of infrastructure).

Code provisions governing telecommunications equipment. Moreover, U.S. trade agreements have covered telecommunications equipment for decades.¹¹ These trusted vendors, that maintain a substantial presence in the United States, contribute to a thriving U.S. research and development ecosystem which includes thousands of “high-quality” and “good paying”¹² technology, operations and management jobs.¹³ Not only are these 5G Americas members directly responsible for thousands of U.S. tech jobs, but they have contributed substantially to the productivity of the U.S. economy. Their equipment has been a catalyst for broad economic benefits across the country. After all, when a community is connected, jobs follow.

Broadband equipment,¹⁴ whether for wireless or wired components, is not predominantly manufactured in the U.S. The BIL requires 55% domestic content based on the bill of materials of

¹¹ See, e.g., World Trade Organization, Ministerial Declaration on Trade in Information Technology Products, WTO Doc. WT/MIN(96)/16 (1996). The Buy America provisions include a provision that any domestic content requirements under the BIL shall be applied in a manner consistent with United States obligations under international agreements. BIL § 70914(e).

¹² See Question 11, *IJJA Notice*, 87 Fed. Reg. 1122, 1124 (Jan. 10, 2022).

¹³ See *id.*, Question 13. For instance, Nokia owns Bell Labs, which has been central to the development of U.S. telecommunications technology over the last century and today employs many researchers in its New Jersey facilities. Nokia Bell Labs, while operating labs around the world, is headquartered in the U.S.

¹⁴ “Broadband equipment” includes:

- *Broadband Switching Equipment*—Equipment necessary to establish a broadband communications path between two points.
- *Broadband Routing Equipment*—Equipment that routes data packets throughout a broadband network.
- *Broadband Transport Equipment*—Equipment for providing interconnection within the broadband provider’s network.
- *Broadband Access Equipment*—Equipment facilitating the last mile connection to a broadband subscriber.
- *Broadband Customer Premises Equipment and End-User Devices*—End user equipment that connects to a broadband network.
- *Billing/Operations Systems*—Equipment that is used to manage and operate a broadband network or offer a broadband service.

the broadband products used in deployment. The scope of “domestic content” does not take into account the cost of research and development done in the United States, nor does it include the value of intellectual property or software originating in the U.S. Because of these variables, it will not be possible for NTIA, states, and subgrantees to procure the broadband equipment they need to build the networks envisioned in the BIL on the timelines that the law requires while meeting the 55% domestic content threshold.

As noted above, Congress intended to support competitive plans in its grant programs, in order to ensure affordable, high-quality options for consumers.¹⁵ Affordability is a key objection of the BIL, as NTIA states in its request for comments.¹⁶ NTIA asks what factors should be considered in the deployment of BEAD funds to help drive affordability.¹⁷ Restricting some of the world’s most trusted telecom vendors from BEAD plans could certainly raise costs for grantees and subgrantees. NTIA also asks how “can existing infrastructure be leveraged to facilitate and amplify” the benefits of broadband.¹⁸ Given that much of the infrastructure in U.S. broadband networks today is sourced by members of 5G Americas, and that infrastructure is part of a standards-based ecosystem that will evolve to deliver next-generation technologies, Americans will benefit from plans that do not exclude trusted vendors.

Reducing competitors would lead to greater inefficiencies that would only be exacerbated by existing supply chain constraints. 5G Americas members have been installing telecom

Note that this list excludes fiber, fiber optic cables, and other facilities that are produced in the United States in sufficient quantities to be reasonably available as end products. See Broadband Technology Opportunities Program, 74 [Fed. Reg](#) 31410, 31411 (Jul. 1, 2009).

¹⁵ See BIL § 60101(4).

¹⁶ Question 24, *IIJA Notice*, 87 Fed. Reg. at 1125.

¹⁷ *Id.*

¹⁸ See Question 15, *IIJA Notice*, 87 Fed. Reg. at 1125.

equipment in the U.S. for decades. Prohibiting trusted vendors, with well-established sales channels, from supplying to grantees and subgrantees will roil supply chains further. NTIA asks what steps it should take to mitigate the impact of supply chain limitations.¹⁹ The answer is simple – waive the Buy American provisions for the broadband grant programs.

Fortunately, the Buy American title does include a waiver process. If the head of the applicable Federal agency finds that such restrictions would be inconsistent with the public interest, that official may seek a waiver.²⁰ As NTIA recognizes, the public interest would be served by the participation of a variety of provider types in BEAD, as well as by all potential subgrantees having opportunities to partner and compete for funding.²¹ Such broad participation would be undermined by strict application of the BIL’s Buy American provisions. In addition, 5G Americas members, including those vendors not headquartered in the U.S. but with substantial operations, research and employment here, share the commitment of the United States to environmental, worker, and workplace safety protections, as well as to U.S. security and other regulatory requirements.²²

Therefore, 5G Americas urges NTIA to apply for a limited waiver for “broadband equipment,” *per se*, and that the “Made in America” Office in the Office of Management and Budget approve such a waiver as soon as possible to provide market certainty. There is precedent to do so from a very similar prior circumstance: NTIA issued a limited waiver to allow deployment

¹⁹ See Question 10, *IJA Notice*, 87 Fed. Reg. at 1124.

²⁰ BIL § 70914(b)(1).

²¹ See Question 7, *IJA Notice*, 87 Fed. Reg. at 1124.

²² See BIL § 70911(3) and (4).

of nondomestic “broadband equipment” in connection with the American Recovery and Reinvestment Act of 2009 (ARRA) funding.²³

III. EVOLVING BEAD-FUNDED NETWORKS

NTIA notes that in its efforts to ensure that BEAD-funded networks scale to meet Americans’ evolving needs, it seeks to understand foreseeable broadband use cases over the next several decades.²⁴ 5G Americas is a market representative partner of the global standards consortium 3GPP, which develops wireless broadband standards.²⁵ As such, 5G Americas is a proponent of internationally harmonized specifications-based technology that is developed to evolve in a broad ecosystem. 3GPP-based technology has the certainty of network evolution. At 3GPP, contributors are constantly working on new “Releases” of wireless broadband technology. 3GPP works on several Releases in parallel by starting future work well in advance of the completion of the current Release.²⁶ Although this adds some complexity to the work of the groups, this method ensures that progress is continuous and stable.

²³ See BroadbandUSA, Nat’l Telecom. and Info. Admin., [Broadband Technology Opportunities Program: Buy American Fact Sheet](#) (Mar. 2012).

²⁴ Question 15, *IIJA Notice*, 87 Fed. Reg. at 1125, .

²⁵ The 3rd Generation Partnership Project (3GPP) unites seven telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners” and provides their members with a stable environment to produce the reports and specifications that define 3GPP technologies. With 5G, 3GPP has become the focal point for most mobile systems beyond 3G. Early Release 18 work on evolved features has started. See generally [About 3GPP](#), 3GPP (last visited Jan. 27, 2022).

²⁶ See 5G Americas, [3GPP Releases 16 & 17 & Beyond](#) 8 (Jan. 2021). For instance, while work began in 2017 on 3GPP’s Release 15, commonly associated with the beginning of “5G”, 3GPP members continued to evolve 5G technology with Release 16 and now Release 17. Release 16 was “frozen” in 2020 and its 5G features made available for implementation in the market. Work on enhancing many 5G features and functionality have been studied under Release 17

One of 5G Americas' core functions is to educate policymakers on 3GPP-based technology. It does this in part by publishing white papers on various aspects of wireless technology evolution. Relative to NTIA's question on what are the foreseeable use cases for America's broadband infrastructure over the next five, ten and twenty years, 5G Americas has published a white paper on 5G vertical use cases. Most Americans expect faster connections on their smartphones or tablets as mobile technologies evolve, and many have heard that mobile technologies will enhance the safety of automated vehicles. But beyond these enhanced mobile broadband and ultra low-latency applications like cellular vehicle-to-everything (C-V2X), 5G technologies five years out will deliver new use cases across a broad range of "verticals" such as manufacturing, mining, utilities, healthcare and education, and gaming.²⁷ Beyond personal connectivity, these use cases will deliver broad productivity benefits to our economy, and result in new technology jobs and investment.

For a glimpse of evolving broadband technology beyond five years, 5G Americas has begun to explore the technology evolution called "6G" in its white paper, *Mobile Communications Towards 2030*.²⁸ 5G Americas considers this paper a leading source "for predicted future uses of broadband."²⁹ 6G use cases include multi-sensory telepresence and immersion ("XR"), which is an extension of augmented, mixed and virtual realities (AR, MR,

over the last two years, and that Release is now targeted for a freeze implementation in the market later in 2022. The Release 18 study package was approved late last year, and early Release 18 work on evolved mobile broadband features has started.

²⁷ See 5G Americas, [5G Vertical Use Cases](#) 6, 13–30 (Oct. 2021).

²⁸ 5G Americas, [Mobile Communications Towards 2030](#) (Nov. 2021).

²⁹ See Question 15, *IIJA Notice*, 87 Fed. Reg. at 1125.

and VR, respectively).³⁰ XR will more fully engage all five senses, for instance by using tactile and brain-computer interactions.³¹ In addition to XR, emerging applications may include the use of digital twins in Industry 4.0's cyber-physical systems.³² Additional use cases may include holographic teleportation.

Wireless impacts on vertical industries may include opportunities in precision crops and livestock, biosensor monitoring in health care, advanced driver assist and autonomous driving for transportation systems, first responder systems that allow rapid data collection from sensors and real-time situational awareness, and government systems utilizing ubiquitous connectivity.³³

Depending on the specific needs of each use case, evolutions from the current 5G standard to 6G may require much higher data rates, into the Tbps range, for digital twins and tactile feedback. Requirements could include wider coverage for rural needs, enhanced reliability up to “seven nines” uptime for remote control and digital twin requirements.³⁴ Requirements could also include “high density endpoints (up to 10 million devices per square km), synchronization of multiple flows, even more time-sensitive operations, precise location tracking and ever-lower energy use.”³⁵ 6G networks will need to support “trillions of devices . . .

³⁰ See Swaminathan Arunachalam, [The 6G race is on](#), Nokia Bell Labs Institute (Jan. 21, 2022).

³¹ *See id.*

³² 5G Americas, [Mobile Communications Towards 2030](#) 15 (Nov. 2021).

³³ *Id.*

³⁴ *Id.*

³⁵ Swaminathan Arunachalam, [The 6G race is on](#), Nokia Bell Labs Institute (Jan. 21, 2022)

embedded in every part of our lives,” which means they must be both highly reliable and trustworthy.³⁶

As Nokia Bell Lab’s Arunachalam describes the future of network systems:

To make the complexity of these systems manageable, networks will have to become more intelligent. AI and machine learning will have to move beyond black box configurations to provide trusted, interpretable and explainable decision-making processes. Applications and networks will need to collaborate intelligently to ensure that network resources match application requirements.³⁷

5G Americas is prepared to meet these evolving broadband needs through the continuous evolution of its wireless technologies.

CONCLUSION

5G Americas appreciates NTIA’s dedication to ensuring broadband is ubiquitously deployed across the country through affordable, scalable networks. Its members are a leading source of broadband infrastructure today. Wireless service with speeds of 100/20 Mbps can meet U.S. consumers’ need for reliable broadband that allows real-time interactive applications. Broadband equipment supporting such wireless speeds should be welcomed in BEAD plans. 5G Americas members – both those incorporated in the U.S. and those in trusted allied nations – are investing in innovative solutions for tomorrow. For its broadband grant programs, NTIA should apply to OMB for a waiver to the BIL’s Buy American provisions, to serve the American public’s interest in affordable, efficient broadband that can scale to meet evolving needs over the next several decades.

³⁶ *Id.*

³⁷ *Id.*