

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

In the Matter of: Broadband Equity, Access and Deployment (BEAD) Program: Alternative
Broadband Technology Policy Notice

Comments of Vernonburg Group LLC

September 10, 2024

I. Introduction

[Vernonburg Group](#)¹ submits these comments to the above-referenced Policy Notice to help stakeholders better understand the critical role that alternative broadband technologies will play in extending high-speed broadband connectivity to all unserved and underserved locations in the United States. To that end, NTIA should issue clear, fair, and flexibility guidance on alternative broadband technologies that provide Eligible Entities (*i.e.*, state and territorial broadband offices) the flexibility needed to allow internet service provider (ISP) BEAD subgrantees to use the full array of end-to-end fiber, other reliable broadband services, and alternative broadband technologies to extend reliable and affordable high-speed broadband services to unserved and underserved locations. NTIA should not dictate how state and territorial broadband offices reimburse ISP subgrantees using alternative broadband technologies. As we explain herein, if alternative broadband technology guidance provides state and territorial broadband offices the flexibility they need to ensure accountability and encourage maximum participation in the BEAD program, then there will be significant funding available to not only connect every unserved and underserved location to robust broadband, but also to connect Community Anchor Institutions (CAIs) and advance digital equity efforts.

II. Internet for All Can Be Achieved Only with a Mix of Technologies

Even with unprecedented public funding made available through BEAD and other programs, one question that has arisen is whether that funding is sufficient for state and territorial broadband offices (Eligible Entities) to achieve Internet for All; *i.e.*, extend affordable high-speed broadband to every unserved and underserved location in the United States. Further, is there sufficient funding for states and territories to not only extend high-speed broadband to every unserved and underserved location, but also to further other policy priorities such as connecting CAIs and increasing rates of broadband subscription? Can state and territorial broadband offices leverage

¹ Vernonburg Group is a consulting firm focused 100 percent on closing the digital divide. Our mission is to support governments, companies, non-profits, and other organizations as they deploy broadband infrastructure and develop regulatory regimes, programming, business models, and technologies that could be used to close the digital divide for all. Additional information about the firm is available at www.vernonburggroup.com.

available funding to accomplish both their broadband access and digital equity and opportunity goals?

To help answer these questions, Vernonburg Group developed a [Broadband Funding Optimization Tool](https://www.vernonburggroup.com/broadband-funding-optimization-tool),² an interactive free online tool that shows state and territorial broadband offices need not settle for Internet for *Almost* All. The tool shows states and territories can achieve Internet for All, as envisioned in the bipartisan federal Infrastructure Investment and Jobs Act (IIJA or Infrastructure Act), by establishing a reasonable upper limit on what they are willing to spend per-location on deployment of end-to-end fiber networks and other reliable broadband services, thereby enabling them to consider other, less costly qualifying alternative broadband technologies. States and territories can preserve sufficient funding to connect all remaining unserved and underserved locations, as well as connecting CAIs and funding digital equity programs.

The Broadband Funding Optimization Tool demonstrates that to achieve these goals state and territorial broadband offices need to set their Extremely High Cost Per Location Thresholds at levels that place a reasonable upper per-location limit on what they are willing to spend on end-to-end fiber builds. Each state's Extremely High Cost Per Location Threshold will be different based on a variety of factors, but all states and territories can set their Extremely High Cost Per Location Threshold at a level that enables them to achieve Internet for All using a mix of fiber, fixed wireless, and satellite technologies. For example, the default view of the Tool shows that, if states and territories collectively chose to set aside 10 percent of available funds for connecting CAIs and funding digital equity programs, they could still extend high-speed broadband to all unserved and underserved locations.

As of June 2024, according to the Federal Communications Commission's (FCC's) Broadband Data Collection, there are approximately 7.0 million locations that lack access to broadband services that meet the minimum speed of 100/20 Mbps required under the IIJA to be considered served. Of those, 4.5 million are unserved and 2.5 million are underserved. The Broadband Funding Optimization Tool's default view shows that to achieve Internet for All approximately 65.9% or 4.6 million locations could be served with end-to-end fiber connections, 29.4% or 2.1 million locations could be served with fixed wireless, and the remaining 4.7% or 330,143 locations would be served with satellite.³ At the same time, the Broadband Funding Optimization Tool shows that the cost of extending end-to-end fiber to every unserved and underserved location would be approximately \$119 billion, far exceeding available public and private funding.⁴

However, the Broadband Funding Optimization Tool optimistically assumes that prospective ISP subgrantees will be willing to bid up to \$20,000 for a location served by end-to-end fiber and up to \$10,000 for a location service by fixed wireless. With a required 25 percent private

² See <https://www.vernonburggroup.com/broadband-funding-optimization-tool>.

³ The default view of the Broadband Funding Optimization Tool calculates an optimal Extremely High Cost Per Location Threshold for each state to ensure that all locations are connected and reserves 10% of the grant funds available for Community Anchor Institutions, and Deployment & Non-Deployment Efforts.

⁴ See Broadband Funding Optimization Tool, available at <https://www.vernonburggroup.com/broadband-funding-optimization-tool> (visited September 6, 2024). This number can be viewed by hovering over the top of the fiber cost curve.

sector match minimum, that means the prospective ISP subgrantee must be willing to contribute up to \$5,000 toward the cost of an end-to-end fiber connection and up to \$2,500 toward the cost of a fixed wireless connection. It is very possible that ISPs and their investors will be unwilling to spend this much; reasons for this include increasingly constrained capital markets, opportunities to invest funds in less costly markets free from the BEAD program's regulatory overhead, and the high costs of ongoing operations in rural and low-density areas which the BEAD program will not support.

The Broadband Funding Optimization Tool allows users to see how the mix of technologies used to extend high-speed broadband to every unserved and underserved location will change as prospective ISP subgrantees change the upper limit they are willing to bid on a per location basis for end-to-end fiber and fixed wireless deployments. If, for example, prospective ISP subgrantees were only willing to bid up to \$10,000 per location (i.e., not greater than a \$2,500 match) for end-to-end fiber and up to \$5,000 (i.e., not greater than a \$2,500 match) per location for fixed wireless, then approximately 36% or 2.55 million locations could be served with end-to-end fiber connections, 37% or 2.57 million locations could be served with fixed wireless, and the remaining 27% or 1.9 million locations would be served with satellite. The percentage of locations served by fiber, fixed wireless, and satellite technology becomes roughly equal under this scenario, a radically different outcome than if ISPs were willing to invest much more.

At this point, nobody can predict how the BEAD program will play out. Each state and territory will need to go through its BEAD subgrantee selection process before this picture becomes clearer. The overall point, however, is that all qualified technologies will be necessary to close the digital divide and achieve Internet for All. States and territories will need flexibility in how they select and fund subgrantees, especially in the hardest to reach unserved locations – the very locations most likely only feasibly served with alternative broadband technologies. NTIA, therefore, should not establish overly restrictive criteria for Eligible Entities to use when they are trying to connect all locations in their jurisdiction.

III. Flexibility for Eligible Entities is Critical

The NTIA has selected two criteria in particular that may deter participation by prospective ISP subgrantees utilizing alternative broadband technologies and, thus, would unnecessarily restrict the ability of Eligible Entities to use allocated BEAD funding to connect all unserved and underserved locations. These criteria are: reimbursement based on subscribers as opposed to serving the location and specific capacity set-asides and the requirement to set aside a significant and seemingly arbitrary amount of capacity for each BEAD location.

A. The Subscriber Metric Conflates the Goal of 'Internet for All' and Jeopardizes LEO Participation in BEAD

In the proposed guidance, NTIA suggests that Eligible Entities only reimburse subgrantees utilizing low earth orbit (LEO) satellite connectivity for the amount of capacity actually used, such as by reimbursing based on the number of actual *subscribers* served in the project area.⁵ That

⁵ National Telecommunications and Information Administration, "Proposed BEAD Alternative Broadband Technology Guidance," p. 14. Published on August 26, 2024. Accessed September 9, 2024. Available at: https://broadbandusa.ntia.gov/policies-waivers/BEAD_Alternative_Broadband_Technology_Policy_Notice.

construct differs from the way subgrantees are reimbursed when deploying end-to-end fiber and other reliable broadband services. Under the BEAD program, providers awarded subgrants to serve unserved and underserved locations are reimbursed as they deploy facilities and services across the funded service area, regardless of whether the person or business at the broadband-serviceable location actually subscribes to the service offered. Subgrantees are not forced to incur and absorb the full cost of deployment and only receive compensation for locations served. Focusing on subscribers conflates broadband adoption with broadband access such that a location a subgrantee commits to serving with qualifying LEO satellite service will not be considered “served” until someone actually subscribes to broadband. The effect of this policy would, therefore, be discriminatory and could deter participation by prospective subgrantees utilizing LEO satellites to provide eligible broadband services and would harm the success of the BEAD program.

The proposed guidance recognizes that LEO satellite providers will need to make upfront and ongoing capital investments in their networks to ensure the availability of sufficient capacity in a project area.⁶ Reserving capacity, regardless of whether there is a subscriber, is similarly a cost that is incurred by a LEO satellite provider that deserves compensation, a point acknowledged by NTIA in the *pre-decisional draft*.⁷ Instead of trusting that Eligible Entities will adequately ensure the cost of capacity is reasonable, and relying on their justification which will be submitted and approved by NTIA, the pre-decision draft goes on to determine that “Eligible Entities shall reimburse recipients of LEO satellite capacity subgrants only for the amount of capacity actually used, such as by reimbursing based on the number of actual subscribers to the broadband service in the project area.”⁸ It is at this point that NTIA converts an opportunity for Eligible Entities to work with LEO satellite providers to close their digital divide into a deterrent to participation by LEO satellite connectivity providers.

Limiting reimbursement of costs to those associated with actual subscribers will create an unfair burden on LEO satellite connectivity providers over other alternative broadband technologies, since LEO satellite connectivity providers will need to dedicate a considerable portion of their capacity to potential BEAD customers for a 10+ year period.⁹ Reserving capacity that goes unused for multiple years would have a significant and harmful impact on LEO satellite connectivity providers’ ability to serve other customers because the capacity would need to be set-aside for the exclusive use of BEAD locations, whether or not it is being used. LEO satellite providers should be permitted to recover costs, or some percentage of costs that can be agreed upon with the Eligible Entity and consistent with the *BEAD Uniform Guidance*, for locations where they can connect a customer within 10 business days of a request for service.¹⁰

⁶ *Id.* p. 14.

⁷ *Id.* p. 14 (“Eligible Entities must ensure the reasonableness of the cost of the capacity on a per BSL basis for which BEAD funding will be used. NTIA will require Eligible Entities to explain in their Final Proposal how the Eligible Entity calculated the cost of the network capacity per BSL to the recipient of an LEO Capacity Subgrant.”).

⁸ *Id.* p. 14.

⁹ *Id.* p. 13.

¹⁰ A standard broadband installation is defined in the Broadband DATA Act (47 U.S.C. § 641(14)) as “[t]he initiation by a provider of fixed broadband internet access service [within 10 business days of a request] in an

NTIA's proposed rules for compensating ISP subgrantees utilizing LEO satellite technologies also would contradict decades of precedent. Historically, other federal broadband infrastructure programs, including the Rural Digital Opportunity Fund, the Connect America Fund, the ReConnect program, and the Alternative Connect America Cost Model (ACAM) program, have not allocated funding based on subscriptions. There is no reason to upend this precedent and treat LEO satellite connectivity providers differently under the BEAD program.

B. Alternative Broadband Technology Providers Are Best Positioned to Determine Capacity Needs

The Proposed Guidance requires LEO providers to dedicate 5 Mbps of capacity (or 2 TBs of usage per month) to each subscribing BSL but does not provide a strong justification for this metric.¹¹ All technologies vary in their performance, and Eligible Entities in coordination with alternative broadband technology providers should be afforded the flexibility to determine what level of capacity is sufficient to ensure compliance with the BEAD service standards and ongoing performance measurement testing. To do otherwise may deter alternative broadband technology providers from participating because the costs are too high. Again, instead of mandating the capacity needs for every Eligible Entity, NTIA should provide an opportunity for flexibility in the first instance with an opportunity as part of the Final Proposal to review and approve what the Eligible Entity was able to negotiate to ensure all locations in its jurisdiction are served, within available funding limits. This approach maximizes the opportunity for success of the BEAD program's goal of not only connecting unserved locations but upgrading underserved locations.

IV. Getting the Balance Right Provides an Opportunity to Expand Access for Community Anchor Institutions and Advancing Digital Equity Efforts

As NTIA recognizes, the IIJA allows for other uses of these funds, including upgrading connections to CAIs and advancing digital equity. This can only be done, however, if Eligible Entities have approved plans to connect all unserved and underserved locations within their jurisdictions.¹² If NTIA's final alternative broadband technology policy guidance provides Eligible Entities with flexibility to use alternative technologies to ensure all unserved and underserved locations in their jurisdiction are connected, then the benefits of doing so will help connect not just every home to high-speed broadband, but will leave ample funding available to advance critically important broadband affordability and digital equity goals.

While over 6% of residents in the United States still lack access to broadband infrastructure, approximately 20% of US residents are not signing up for home broadband services even when available to them. Research from Pew Charitable Trust, the Benton Foundation and

area in which the provider has not previously offered that service, with no charges or delays attributable to the extension of the network of the provider.”

¹¹ National Telecommunications and Information Administration, “Proposed BEAD Alternative Broadband Technology Guidance,” p. 11. Published on August 26, 2024. Accessed September 9, 2024. Available at: https://broadbandusa.ntia.gov/policies-waivers/BEAD_Alternative_Broadband_Technology_Policy_Notice.

¹² Broadband Equity, Access, and Deployment Program Notice of Funding Opportunity. p. 41. Published May 12, 2022. Accessed September 9, 2022. Available at: <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>.

others shows that beyond access, digital equity, including skills training and access to affordable computers, are barriers for a substantial number of households.¹³ AARP's Older Adults Technology Services (OATS) research shows that nearly half of older Americans live with technology barriers.¹⁴ More needs to be done to realize the full range of economic, health and educational benefits that can flow from greater broadband connectivity.

¹³ John A. Horrigan, PhD. for the Benton Institute for Broadband and Society. "Are We There Yet? Affordability, Adoption, Equity, and the United States's Universal Broadband Goals". Published December 2023. Accessed September 9, 2024. Available at: <https://www.benton.org/publications/are-we-there-yet>.

Olivia Sidoti and Emily A. Vogels for Pew Research Center. "What Americans Know About AI, Cybersecurity and Big Tech." Published on August 17, 2023. Accessed September 9, 2024. Available at: <https://www.pewresearch.org/internet/2023/08/17/what-americans-know-about-ai-cybersecurity-and-big-tech/>.

¹⁴ Older Adults Technology Survey (OATS) by AARP and the Humana Foundation, "Aging Connected: Exposing the Hidden Connectivity Crisis for Older Americans." Published May 2021. Accessed September 9, 2024. Available at: <https://oats.org/wp-content/uploads/2021/01/Aging-Connected-Exposing-the-Hidden-Connectivity-Crisis-for-Older-Adults.pdf>.

By utilizing the full range of fiber, reliable broadband services, and alternative broadband technologies to get every broadband serviceable location connected, states and territories can use reserved funding to advance these other objectives. Vernonburg Group’s Broadband Funding Optimization Tool, for example, shows how states and territories could collectively set aside 10% or approximately \$6 billion of available funding for CAIs and digital equity programs while still extending high-speed broadband connectivity to every unserved and underserved location. Those percentages will vary by state or territory, but that sum is more than two times the amount of funding available under the three standalone Digital Equity Act programs.¹⁵ The opportunity to create a digital equity and opportunity dividend from leftover BEAD funding should not be overlooked.



V. Conclusion

The BEAD program represents the best possible opportunity to finally deliver Internet for All, and NTIA has done a thoughtful and thorough job designing a program. But the restrictions NTIA is

¹⁵ National Telecommunications Information Administration. “Digital Equity Act Competitive Grant Program”. Accessed on September 9, 2024. Available at: <https://www.ntia.gov/funding-programs/internet-all/digital-equity-competitive-grant-program>.

currently proposing are threatening the success of the program NTIA has spent three years building up. Treating LEO broadband providers differently than fixed wireless and other alternative broadband technology providers is unnecessary given the other safeguards that NTIA proposes in its Alternative Technology Guidance, and threatens the success of the BEAD program. We encourage NTIA to grant state broadband offices the flexibility they need to encourage participation from all broadband providers. That is the only way the states will be able to achieve Internet for All.

Please contact the undersigned with any questions regarding this comment.

Respectfully submitted,

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