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From the Desk of Brent Skorup

January 6, 2023

Senator John Thune
United States Senate
Washington, DC 20510-4105

Dear Senator John Thune,

Thank you for your December 6 letter regarding oversight of existing federal broadband programs and ideas for reform. Researchers at the Mercatus Center at George Mason University are dedicated to advancing knowledge about the effects of regulation on society, commerce, and innovation. As part of its mission, I conduct independent legal and economic analyses of federal and state policies from the perspective of consumers and the public.

I served on the FCC's Broadband Deployment Advisory Committee from 2017 to 2021, including as vice chair of the Competitive Access Subcommittee, and worked on broadband issues with many representatives from industry, academia, and the FCC. Those experiences have shaped my views about these important policy areas. The following are my responses to your inquiries.

1. As part of the IIJA, Congress established a technology-neutral approach for the BEAD program. Do you believe NTIA followed Congress' intent in establishing a technology-neutral approach? If not, should Congress consider amending the IIJA statute to make it more explicit that all technologies are allowed to participate? If so, how?

The National Telecommunications and Information Administration (NTIA) has not followed a technology-neutral approach for the Broadband Equity, Access, and Deployment (BEAD) Program. Congress evinced no preference for one broadband technology over another. Therefore, NTIA's express preference for fiber optics projects,[1] while probably lawful, given the assistant secretary's broad authority over BEAD Program projects,[2] violates the spirit of a technology-neutral approach. A preference for fiber optics could undermine the broad congressional goals for the program and risks rapid depletion of BEAD Program funding, given that fiber optics projects are typically significantly more expensive than fixed wireless projects.[3] To prevent rapid depletion of funds and to maximize the

1. NTIA has said, for instance, "with respect to the deployment of last-mile broadband infrastructure, the Program prioritizes projects designed to provide fiber connectivity directly to the end user." National Telecommunications and Information Administration (NTIA), *Notice of Funding Opportunity: Broadband, Equity, and Access Deployment Program*, 2022, 7.
2. Under the statute, the assistant secretary has broad discretion to define "priority broadband projects," "reliable broadband service," and "quality-of-service standards" for BEAD Program projects. 47 U.S.C. 1702(a)(2)(I) (2022); 47 U.S.C. 1702(a)(2)(L) (2022); 47 U.S.C. 1702(g)(1)(A) (2022).
3. Estimates vary, but the upfront cost is approximately $4,500 to connect the average household using fiber optics, approximately $2,200 using cable, and approximately $500 using fixed wireless. See industry analyst estimates in Mike Dano, "WISPs to Command 9M Customers by Next Year—Analysts," *Light Reading*, April 26, 2021.

number of rural households connected by the BEAD Program, Congress might consider limiting the assistant secretary's broad authority in defining "priority broadband projects" and expressly preclude technology preferences by NTIA.

2. In the BEAD Notice of Funding Opportunity (NOFO), there are detailed reporting requirements on subgrantees who do not use a unionized workforce or a project labor agreement. As a practical matter, do you think this favors certain providers over others? Does Congress or NTIA need to take further action to remove this requirement?

Yes, NTIA specifies that subgrantees who do not have a unionized workforce have mandatory additional reporting obligations,[4] which are effectively a penalty and deterrent to such subgrantees. The BEAD Program statutory language does not distinguish between unionized and nonunionized workplaces,[5] much less mandate additional reporting from nonunionized workplaces. The mandated reports make NTIA's lengthy and complex requirements longer and more complex. If retained, they will likely burden small operators in rural areas most. NTIA is not clear about the source of its statutory authority for making those distinctions or these reporting mandates. At the very least, NTIA should first show that subgrantees with nonunionized workforces are less likely to comply with "federal labor and employment laws," which is the statutory requirement.[6]

3. The BEAD NOFO promotes government-owned networks. Do you believe government-owned networks are an effective entity to deploy broadband networks? If yes, please explain.

Government-owned networks are risky projects and should be discouraged. The risks are borne primarily by private broadband companies and by taxpayers.[7] Broadband networks require high capital expenditures and operating costs. However, unlike sewer, electricity, and water, where public provision is often effective, a public broadband operator has no captive customer base. When government-owned networks are deployed in areas where competition is viable, the government-owned network will likely crowd out future private investment or destabilize the finances of an existing private provider.

In very rural areas where broadband deployment or competition appears unviable, local governments should first prioritize investment in low-maintenance passive infrastructure—such as conduit, poles, and handholes—and rights-of-way management to minimize deployment costs to private operators.[8]

4. One of the provisions of the IIJA requires products and materials used for broadband projects to be produced in the United States. Given the current supply chain issues, should Congress consider modifying this obligation or otherwise clarify this provision?

Congress should consider liberalizing its rules to ensure fast and cost-effective deployment of new networks.

4. NTIA, *Notice of Funding Opportunity*, 58.
5. Under the BEAD Program, subgrantees need show only "a demonstrated record of and plans to be in compliance with Federal labor and employment laws." 47 U.S.C. 1702(h)(1)(A)(iv)(IV) (2022).
6. 47 U.S.C. 1702(h)(1)(A)(iv)(IV) (2022).
7. See, e.g., Jamey Malcomb, "Rural Minnesota County Built a Fiber Network, but Now Taxpayers Face Huge Bills," *Government Technology*, 2018. Despite receiving tens of millions of dollars in federal loans and grants, Lake County, Minnesota, "local property taxpayers are still on the hook for more than $25 million" for a troubled public network.
8. Korok Ray and Brent Skorup, "Smart Cities, Dumb Infrastructure: Policy-Induced Competition in Vehicle-to-Infrastructure Systems," *Texas Review of Law and Politics* 25, no. 1 (2020): 61–87.

5. The Broadband Buildout Accountability Act, S. 3671, would remove the Freedom of Information Act exemption in the BEAD program. Should Congress enact this legislative proposal? If not, why?

Although the NTIA has been fairly open about its decision-making regarding the BEAD Program, the possibility of Freedom of Information Act disclosures would tend to encourage fair and effective administration of broadband subsidy programs.

6. Are there other technical issues in the BEAD program that Congress should address before NTIA announces funding allocations by June 30, 2023?

Congress should consider encouraging states, tribes, and municipalities to use BEAD Program funds to create and disburse broadband vouchers to rural and high-cost households. Broadband vouchers are a simple, effective way to expand broadband to underserved and unserved areas and to consolidate disparate federal funding streams.[9] They also allow state broadband officials to easily combine disparate federal and state funding streams into one coherent program.

To illustrate with plausible figures, suppose South Dakota broadband officials were to win $100 million annually for five years from the various federal programs matched with $5 million annually in state funds for a broadband voucher program. If state broadband officials were to give vouchers to the most rural households in South Dakota, about 73,000 households,[10] officials could give a $120 monthly voucher to each household. In that circumstance, any potential broadband provider would be guaranteed about $7,200 revenue from each participating household over a five-year contract.[11] That guaranteed stream of revenue would induce buildout for many providers.

Rural broadband vouchers have been used in the United Kingdom for several years and seem popular and effective.[12] NTIA has also approved the use of vouchers for its Tribal Broadband Connectivity Program,[13] and a handful of states have used Coronavirus Aid, Relief, and Economic Security Act funds to create vouchers for households with children without broadband plans.[14]

The catch-all provision about the use of BEAD Program funds is broad and seems to permit broadband vouchers to households: "An eligible entity may use grant funds . . . to competitively award subgrants for . . . any use determined necessary by the Assistant Secretary to facilitate the goals of the Program."[15]

However, NTIA and state broadband offices would benefit from express congressional endorsement of broadband voucher programs that draw from BEAD Program funds and other federal funds.

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9. Brent Skorup and Michael Kotrous, "Narrowing the Rural Digital Divide with Consumer Vouchers" (Mercatus Policy Brief, Mercatus Center at George Mason University, Arlington, VA, October 13, 2022).
10. Skorup and Kotrous, "Narrowing the Rural Digital Divide."
11. As with the UK voucher program, there should be a mandatory minimum contract period to avoid stranded investment by providers.
12. "Get a Voucher," Gigabit Broadband Voucher Scheme, UK Government, accessed September 30, 2022, https://gigabitvoucher.culture.gov.uk.
13. "The [Tlingit and Haida] Tribe is also using the grant to create a voucher program with existing internet service providers to provide access to broadband services to '100% of unserved households and discounted subscriber rates to [low-income] households . . . .'" Robin Layton, "Grants Awarded for High-Speed Internet on Tribal Lands," AllConnect, November 28, 2022, https://www.allconnect.com/blog/high-speed-internet-on-tribal-lands.
14. Brent Skorup, "The NTIA Should Consider Authorizing Broadband Vouchers to Rural Households and Grants for Passive Infrastructure" (Public Interest Comment, Mercatus Center at George Mason University, Arlington, VA, February 4, 2022), 3.
15. 47 U.S.C. 1702(f)(6) (2022).

1. As noted above, there are over 130 programs supporting broadband access across 15 agencies.
    a. To date, which of these programs do you believe has had the most success in delivering broadband services to truly unserved areas?

Most independent studies of US rural broadband programs are fairly critical of the effectiveness of these programs. Some of this criticism is to be expected: the nature of rural broadband programs means that, if they are targeted well, funds will be spent in marginally profitable or unprofitable markets. Given this reality—which makes assessment of program quality difficult—I favor simple allocation mechanisms such as consumer vouchers (the rural Tribal Broadband Connectivity Program grant to the Tlingit and Haida tribe of Alaska is an example) combined with reverse auctions (the FCC's Rural Digital Opportunity Fund is an example).

Unfortunately, the programmatic benefits of reverse auctions and vouchers—simplicity, transparency, and fixed deadlines for buildout—also often make these programs politically vulnerable. For instance, fraud involving small amounts of funds is often easily detected in a simple consumer voucher program (fake addresses and fake names can be found via audit, for instance), whereas larger fraud and inflated costs likely go completely undetected in more complex broadband program grants to providers. The perverse effect is a tendency within federal agencies to create complex programs that are insulated from scrutiny and criticism.

    b. Should Congress consider eliminating any of these programs? If so, which ones?

Yes, particularly in light of the new federal funding for rural broadband programs, Congress should consider eliminating most of the 100+ smaller programs to reduce the extreme fragmentation in this policy area. Ideally, programs, staff, and funding should probably be consolidated within the Commerce Department and FCC with an eye toward benefiting the US economy and consumers generally, not specific sectors (agriculture, information technology, education, electric utilities, etc.).

    c. Should Congress merge and combine any of these programs? If so, which programs would be best suited to be merged?

Yes, most sector-specific programs, associated staff, and funds should be consolidated, perhaps within the Commerce Department. Consumer-focused programs could be consolidated within the FCC. Broadband is a valuable general-purpose technology and input into most commercial sectors. Too often, it is viewed within agencies and programs as an amenity to be disbursed to benefit some narrow constituency.

2. What specific reforms and constraints should Congress consider to ensure federal funds are not being awarded where providers are receiving other federal or state broadband funding support?

Congress should rely less on broadband maps and adopt a simple, geography-based voucher program that relies on, for example, census-defined rural areas.[16] Although mapping is important to track progress, conditioning program and project funding on accurate broadband maps creates significant delays and contentious challenge processes. The new FCC maps already have errors at tens of thousands

16. "At the time of the 2010 Decennial Census, almost 60 million people, about 19 percent of the population, lived in rural areas of the United States." "Rural America," Census Bureau, accessed January 24, 2022, https://mtgis-portal.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=49cd4bc9c8eb444ab51218c1d5001ef6. The Census Bureau generally defines a town, village, or area as rural if it has a population less than 2,500. "2010 Census Urban and Rural Classification and Urban Area Criteria," Census Bureau, last updated October 8, 2021, https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html.

of locations,[17] which will take time to sort out, and by the end of this month, tens of thousands more errors are likely to be found. This is no criticism of the FCC or NTIA; they have been given an impossible task. Even before the pandemic and resulting new broadband programs, around 130,000 rural households were getting high-speed broadband for the first time *every month*.[18] Alternatively, reforming existing programs into geography-based voucher programs means wasteful program duplication and overlap is eliminated: disparate federal funding streams are consolidated into one lump sum to each eligible household.

3. Should Congress take additional action in response to concerns that broadband funding may be used to overbuild existing service? If so, what reforms and constraints should be implemented?

Overbuilding, strictly defined, is when a subsidized broadband provider extends service in an area where an unsubsidized provider serves or plans to serve. Rural broadband vouchers can essentially eliminate overbuilding. If funds are disbursed to households via coupons and monthly credits, no provider overbuilds because all providers have equal access to consumers' vouchers.

4. Should Congress take additional action in response to concerns that broadband funding may be conditioned on recipients imposing some form of rate regulation of broadband services, whether or not such requirements are explicitly denominated "rate regulation?" If so, what reforms and constraints should be implemented?

The statutory language for BEAD Program grants precludes the assistant secretary from engaging in rate regulation.[19] However, certain NTIA guidelines seem to invite rate regulation by state and local officials.[20] In light of the confusing and potentially far-reaching administrative interpretations about "low-cost broadband service,"[21] Congress should consider relying instead on consumer voucher programs like the FCC's Affordable Connectivity Program.

5. Should Congress take additional action in response to concerns that broadband funding may be conditioned upon recipients imposing some form of "net neutrality" mandates upon broadband services, whether or not such mandates are explicitly denominated "net neutrality?" If so, what reforms and constraints should be implemented?

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17. "The Wisconsin Public Service Commission says it's identified 7,000 locations not even on the new FCC map. The State of New York said it found 31,000 missing unserved or underserved locations. Vermont said 22% of the locations it knew of were missing . . . ." Rick Barrett, "The FCC Has a New Broadband Map, and You Can Challenge the Results," *Milwaukee Journal Sentinel*, December 13, 2022. Thirty-seven thousand locations in New Mexico alone are "unaccounted for" according to "Senate Commerce Subcommittee Hearing on Broadband Access," statement by Sen. Ben Ray Luján, CSPAN, December 13, 2022, video 1:58:00, https://www.c-span.org/video/?524804-1/senate-commerce-subcommittee-hearing-broadband-access.
18. FCC data show that, annually, around 4.2 million people in rural areas gained high-speed (25 Mbps download, 3 Mbps upload) terrestrial broadband annually from 2013 to 2018. See Federal Communications Commission, "2018 Broadband Deployment Report" (report no. FCC 18-10, Federal Communications Commission, Washington, DC, February 2, 2018), 22 (recording 29.1 million with access to high-speed broadband); and Federal Communications Commission, "2020 Broadband Deployment Report" (report no. FCC 20-50, Federal Communications Commission, Washington, DC, April 24, 2020), 19 (recording 50.1 million with access to high-speed broadband). The Census Bureau reports that the average household size is 2.6 people, so 4.2 million people gaining access to high-speed broadband would be approximately 1.6 million households, or approximately 130,000 households per month.
19. 47 U.S.C. 1702(f)(6) (2022).
20. NTIA suggests, for instance, that state and local officials "require providers receiving BEAD funds to offer low-cost, high-speed plans to all middle-class households using the BEAD-funded network." NTIA, *Notice of Funding Opportunity*, 66.
21. 47 U.S.C. 1702(h) (2022).

Congress should consider expressly precluding NTIA and state and local officials from requiring net neutrality or conditions amounting to net neutrality, perhaps with a statutory penalty.

6. How effective have the Memoranda of Understanding between (1) the FCC, USDA, and NTIA, and (2) the FCC, USDA, NTIA, and Treasury been with respect to broadband coordination efforts? Are there additional reforms federal agencies should implement to better coordinate on broadband deployment efforts?

This is not an issue I have great familiarity with.

7. Should Congress take steps to increase the transparency of agencies when allocating and disbursing broadband funds? If so, what steps should Congress take?

As noted earlier, a move toward consumer voucher programs and reverse auctions would increase transparency and program benefits.

8. What, if any, permitting regulations at the federal level are impeding broadband deployment?

Please see my responses to the following questions; they contain recommendations about permitting and reforms that could hasten broadband deployment.

9. Does the FCC presently possess sufficient authority to preempt state and local requirements that may unreasonably impede the deployment of broadband networks? If not, what steps should Congress consider to address the unreasonable impediments?

Federal law allows states to "reverse preempt" FCC pole access rules if a state "has issued and made effective rules and regulations" about pole access.[22] It's not clear to me the FCC scrutinizes state pole access rules, and more FCC guidance to all states seems appropriate given the significant amount of money and new public policies devoted to expanding broadband coverage.

Congress has also allowed the FCC to preempt certain state and local rules that interfere with the landowners and tenants installing over-the-air reception devices on private property. The FCC has protected certain satellite dishes and small, outdoor broadband antennas, but the FCC's authority here is vague and incomplete. Congress should consider clarifying when the FCC can protect the installation of small, outdoor antennas from state and local permits and fees.

10. What specific steps can Congress take to reduce costs to broadband providers when deploying new networks?

Access to rights-of-way and corresponding passive infrastructure—such as poles, handholes, and conduit—is necessary for most broadband coverage expansions and upgrades. Congress and NTIA should be commended for making competitive conduit access a priority in the BEAD Program.[23] However, rights-of-way ownership and management is extremely fragmented—including among private landowners, state agencies, local agencies, federal agencies, tribes, cable companies, and utility companies—and a constant source of conflict in broadband policy. Given increasing uses of rights-of-way for broadband, electric, and other "alternative uses," something the Federal Highway

22. 47 U.S.C. 224(c) (2022).
23. Broadband grantees "must include interspersed conduit access points at regular and short intervals for interconnection by unaffiliated entities." NTIA, *Notice of Funding Opportunity*, 66.

Administration noted in 2021 guidance,[24] this is an important economic issue with many powerful interest groups involved.

Congress should consider creating a rights-of-way and passive infrastructure division within the Commerce Department, consolidating relevant experts spread across NTIA, the FCC, the US Department of Transportation, and the Federal Energy Regulatory Commission. Rights-of-way and passive infrastructure are valuable inputs for multiple industries, including transportation, telecommunications, and energy, but current federal policies are ad hoc and conflicting. A Commerce Department division with economics and real estate specialists could establish and apply neutral criteria and national policy for the best uses and sharing of rights-of-way and passive infrastructure.

11. Would updating pole attachment regulations spur more rural broadband deployment? If so, what actions should be taken?

Yes, refining pole attachment and pole replacement rules would accelerate broadband deployment. In the near term, Congress and the FCC need to ensure that pole disputes are resolved quickly and fairly.[25] At the very least, new attachers should not bear the full cost of replacement for a pole near the end of its expected lifespan.

In the long term, the FCC and state public utility commissions need a new economic analysis of pole attachment issues. The FCC has made careful and technical decisions about pole costs and replacement fees in the past, but two significant, newer trends are not represented in those earlier pole access efforts: first, hundreds of millions of poles are near the end of their useful life, and second, new landline, wireless, and intelligent transportation services companies are expanding their use of utility poles.

Before the bulk of the poles are retired and replaced, the FCC and other public agencies should expressly endorse and encourage a policy of access and markets for passive infrastructure. Korok Ray, associate professor at Mays Business School at Texas A&M University, and I outline this passive infrastructure policy proposal in a Mercatus Center working paper.[26] As we point out in our paper, poles are no longer single-industry infrastructure. Poles increasingly resemble "network hotels"—owners host and sell vertical pole space to multiple lessees. On the one hand, the new infrastructure is more expensive; on the other, it allows more revenue opportunities (more pole lessees). It's unclear how those costs should be shared given the mix of benefits and costs to the pole owners and inability in most of the country to build competitive poles. Public agencies should endorse the passive infrastructure approach and ask the FCC Office of Economics and Analytics to outline principles of fair cost sharing in this new world of network hotels.

12. How are federal broadband programs addressing cybersecurity challenges? Should Congress consider reforms to improve cybersecurity?

This is not an issue I have much familiarity with.

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24. "This guidance document supports the consistent utilization of the ROW for renewable energy generation, electrical transmission and distribution projects, broadband projects, vegetation management, inductive charging in travel lanes, alternative fueling facilities, and other appropriate uses as identified herein." Memorandum from Stephanie Pollack, Acting Adm'r, Fed. Highway Admin., State DOTs Leveraging Alternative Uses of the Highway Right-of-Way Guidance (April 27, 2021) (https://www.fhwa.dot.gov/real_estate/right-of-way/corridor_management/alternative_uses_guidance.cfm).
25. Brent Skorup, "The FCC Should Reexamine the Economics of Pole Use in Light of New Technology" (Public Interest Comment, Mercatus Center at George Mason University, Arlington, VA, August 12, 2022).
26. Ray and Skorup, "Smart Cities, Dumb Infrastructure."

13. Are there other broadband policy issues that Congress should consider reforming during the 118th Congress?

Congress should ensure that there is a regular transfer of underutilized federal spectrum to licensed, flexible uses. This process could probably be made faster and less painful for federal agencies if Congress were to grant federal agencies a large cut of auction proceeds or in-kind benefits to make them whole.[27]

Thank you for the opportunity to comment on these issues. Please let me know if you, your staff, or your colleagues have further questions.

Sincerely,

Brent Skorup
Senior Research Fellow, Mercatus Center at George Mason University

27. Brent Skorup, "Sweeten the Deal: Transfer of Federal Spectrum through Overlay Licenses," *Richmond Journal of Law and Technology* 22, no. 2 (2016): 1–36.