

Before the
 Federal Communications Commission
 Washington, D.C. 20554

In the Matter of)
)
 Establishing a 5G Fund for Rural America) GN Docket No. 20-32

FURTHER NOTICE OF PROPOSED RULEMAKING

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By the Commission: Chairwoman Rosenworcel and Commissioner Starks issuing separate statements;
 Commissioner Simington concurring and issuing a separate statement.

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I. INTRODUCTION

1. Today, armed with the new, granular, and improved mobile coverage data obtained in the Broadband Data Collection (BDC) and reflected on our new National Broadband Map, we continue the

implementation of the 5G Fund for Rural America (5G Fund) and advance our efforts to ensure the deployment of high-speed, 5G mobile service in areas of the country where, absent subsidies, it will continue to be lacking.¹ We undertake this effort in recognition that those living, working, and travelling in unserved areas must have access to high-speed, 5G mobile service.² The need for high-speed mobile services has never been more critical, yet there are many areas of our country that continue to lack access to 5G service. In fact, some areas continue to lack access to any mobile broadband service at all. Moreover, moving forward with the 5G Fund will allow the Commission to proceed with its plan to transition from mobile legacy high-cost support, which continues to be distributed inefficiently.³

2. Accordingly, with this narrowly tailored Further Notice of Proposed Rulemaking, we seek to refresh the record and reignite the Commission’s plan to expand the deployment of 5G service to those rural communities that remain trapped on the wrong side of the digital divide. To that end, we seek comment on a limited set of issues that are critical to the 5G Fund’s success, namely: (1) defining the areas that will be eligible for 5G Fund support; (2) reassessing the budget for the 5G Fund; (3) potentially reconsidering the use of adjusted square kilometers as the metric for accepting bids and identifying winning bids in a 5G Fund auction; (4) aggregating areas eligible for 5G Fund support to minimum geographic areas for bidding; (5) measuring a 5G Fund support recipient’s compliance with its public interest obligations and performance requirements based on any modified metric for accepting bids and identifying winning bids; (6) modifying the schedule for transitioning from mobile legacy high-cost support to 5G Fund support consistent with recent legislative amendments; (7) a proposal to require each 5G Fund Phase I auction applicant to certify, under penalty of perjury, that it has read the public notice adopting procedures for the auction, and that it has familiarized itself with those procedures and any requirements related to the support made available for bidding in the auction; (8) whether to require 5G Fund support recipients to implement cybersecurity and supply chain risk management plans; and (9)

¹ See generally *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32, Report and Order, 35 FCC Rcd 12174 (2020), modified by *Errata* released Nov. 10, 2020, Nov. 27, 2020, and Jan. 11, 2021 (*5G Fund Report and Order*). The Commission received five timely filed petitions for reconsideration of the *5G Fund Report and Order*. See The Rural Wireless Association and NTCA – The Rural Broadband Association, Joint Petition for Reconsideration, GN Docket No. 20-32 (filed Dec. 28, 2020) (*RWA/NTCA Joint Petition for Reconsideration*); The Coalition of Rural Wireless Carriers, Petition for Reconsideration, GN Docket No. 20-32 (filed Dec. 28, 2020) (*CRWC Petition for Reconsideration*); CTIA, Petition for Partial Reconsideration, GN Docket No. 20-32 (filed Dec. 28, 2020); Smith Bagley, Inc, Petition for Reconsideration, GN Docket No. 20-32 (filed Dec. 28, 2020); 5G Fund Supporters, Petition for Partial Reconsideration, GN Docket No. 20-32 (filed Nov. 30, 2020); see also Petitions for Reconsideration of Action in Proceeding, Public Notice, Report No. 3165 (Jan. 6, 2021). These petitions remain pending. At the time the *5G Fund Report and Order* was adopted, the BDC was known as the Digital Opportunity Data Collection.

² *Report on the Future of the Universal Service Fund*, WC Docket No. 21-476, Report, FCC 22-67, at 29, para. 53 (2022) (*Report to Congress*). In determining that the Commission should proceed with providing additional support for mobile broadband through the competitive process after it launched the National Broadband Map, the Commission’s Report to Congress explained that “[f]unding for the deployment under the Infrastructure Act focuses on fixed services, not mobile services. The Commission has a unique role to play in supporting the deployment of mobile broadband to maintain connectivity wherever people live, work, or travel.” *Id.*

³ *5G Fund Report and Order*, 35 FCC Rcd at 12176-77, para. 6. In 2016, staff conducted an analysis of mobile wireless providers’ FCC Form 477 submissions that revealed that almost 75% of legacy high-cost support was being distributed to carriers in areas where 4G LTE service was already being provided by an unsubsidized provider. *Id.* Furthermore, according to the report, only approximately 20% of the land area of the United States outside of Alaska either lacked 4G LTE service entirely or had 4G LTE service provided only by a subsidized carrier. *Id.* Therefore, mobile wireless carriers were receiving approximately \$300 million or more each year in unnecessary legacy high-cost subsidies for 4G LTE. *Id.*; see also *id.* at 12175, para. 1 (stating that the 5G Fund would direct “limited Universal Service Fund dollars . . . to support the deployment of state-of-the art wireless networks that are more responsive, more secure, and faster than today’s 4G LTE networks”).

determining whether and how this proceeding might create an opportunity to support further deployment of Open Radio Access Network (Open RAN) technologies.

3. The entire country benefits when everyone, including those living and working in rural areas, can communicate and innovate equally through access to high-speed, mobile broadband services. Access to high-speed, mobile services allows connections to essential civic, economic, and social opportunities. It touches almost all aspects of daily life, including work and education, access to news and entertainment, public safety information and services, and healthcare, and allows interconnection in times of national crisis. The importance of expanding access to high-speed, 5G services in rural communities cannot be overstated. We therefore issue today's Further Notice of Proposed Rulemaking mindful that full participation in American society requires us to make 5G service available to everyone, no matter where they live.

II. BACKGROUND

4. In October 2020, the Commission established the 5G Fund as a replacement for Mobility Fund Phase II.⁴ The 5G Fund would use multi-round reverse auctions to distribute up to \$9 billion, in two phases, to retarget mobile universal service in the high-cost program to bring voice and 5G broadband service to rural areas of the country unlikely to otherwise see unsubsidized deployment of 5G-capable

⁴ *Id.* at 12175, para. 1. The 5G Fund is the culmination of almost a decade of hard work to reform and redirect universal service funds to areas of the country that need them the most. In its 2011 *USF/ICC Transformation Order*, the Commission took numerous steps to comprehensively reform and modernize the universal service program to ensure that robust, affordable, fixed and mobile broadband service are available to Americans living in rural, insular, and high cost areas of the country. *See Connect America Fund et al.*, WC Docket 10-90 et al., Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 (2011) (*USF/ICC Transformation Order*), *aff'd sub nom. In re FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014). Among other things, the Commission established a two-phased Mobility Fund dedicated to targeting universal service support for mobile services in a cost-effective manner to no more than one provider per area in areas where a private-sector business case was lacking. *See id.* at 17674-75, 17773, 17779, 17819, 17821, paras. 28, 299, 316, 481, 486. In Phase I of the Mobility Fund, which was composed of a general Mobility Fund and a Tribal Mobility Fund, the Commission awarded almost \$350 million in one-time universal service support through two reverse auctions. *See 5G Fund Report and Order*, 35 FCC Rcd at 12176-77, para. 6. In 2017, the Commission adopted rules for Mobility Fund Phase II that provided \$4.53 billion in ongoing support over a ten-year term, redirected universal service funds to areas of the country unlikely to receive 4G Long Term Evolution (LTE) service absent subsidies, and established the framework for a challenge process to resolve disputes about areas that were found to be presumptively ineligible for support. *See Connect America Fund; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90 and 10-208, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 2152, 2154, para. 2 (2017) (*Mobility Fund Phase II Report and Order*); *Connect America Fund; Universal Service Reform – Mobility Fund*, WC Docket No. 10-90, WT Docket No. 10-208, Order on Reconsideration and Second Report and Order, 32 FCC Rcd 6282 (2017) (requiring mobile wireless providers to submit 4G LTE coverage maps and adopting a process for challenging those coverage maps). After questions about the accuracy of the submitted coverage maps arose, the Commission launched an investigation into the 4G LTE coverage data submitted by some providers and suspended the challenge process pending the investigation. *See* News Release, FCC, FCC Launches Investigation into Potential Violations of Mobility Fund Phase II Mapping Rules (Dec. 7, 2018), <https://docs.fcc.gov/public/attachments/DOC-355447A1.pdf> (last visited Sept. 18, 2023). Commission staff ultimately determined that the coverage maps submitted by certain carriers overstated actual coverage and did not reflect on-the-ground performance in many instances, and recommended that the Commission terminate the challenge process because the coverage maps were not “a sufficiently reliable or accurate basis upon which to complete the challenge process as it was designed.” Rural Broadband Auctions Task Force, *Mobility Fund Phase II Coverage Maps Investigation Staff Report* at 2, para. 6 (2019), <https://docs.fcc.gov/public/attachments/DOC-361165A1.pdf> (last visited Sept. 18, 2023) (*Mobility Fund Phase II Coverage Maps Investigation Staff Report*). The Commission proposed, and later established, the 5G Fund as a comprehensive replacement for Mobility Fund Phase II, and adopted the framework and rules for the 5G Fund. *See generally 5G Fund Report and Order; Establishing a 5G Fund for Rural America; Universal Service Reform – Mobility Fund*, GN Docket No. 20-32, WT Docket No. 10-208, Notice of Proposed Rulemaking and Order, 35 FCC Rcd 3994, 3996, para. 2 (2020) (*5G Fund NPRM*).

networks.⁵ The Commission decided that it would use new, more precise, verified mobile coverage data gathered through the BDC to determine the areas eligible for support in a 5G Fund auction.⁶ The Commission defined the areas eligible for support in the 5G Fund Phase I auction as those that lack unsubsidized 4G LTE and 5G broadband service by at least one service provider based on BDC data.⁷ The Commission also decided that it would accept bids and identify winning bids in a 5G Fund auction using a support price per adjusted square kilometer.⁸

5. The Commission recognized from the outset that waiting for the collection of new, more precise, verified mobile coverage data obtained in the BDC would not be the fastest path to holding a 5G Fund auction, but reasoned that this would allow the Commission to better target 5G Fund support to those areas of the country where support is most needed and where the funds could be spent most efficiently.⁹ The Commission explained that waiting for the development of a National Broadband Map

⁵ *5G Fund Report and Order*, 35 FCC Rcd at 12176, para. 4. In adopting a budget of up to \$9 billion for the 5G Fund, the Commission explained that support would be awarded in two phases, with up to \$8 billion for Phase I, of which it would reserve \$680 million of support for service to Tribal lands, and at least \$1 billion in Phase II, as well as any unawarded funds from Phase I. *Id.* at 12185, para. 28.

⁶ *See id.* at 12179, para. 11; *see also 5G Fund NPRM*, 35 FCC Rcd at 4007-08, paras. 37-39.

⁷ *5G Fund Report and Order*, 35 FCC Rcd at 12181, para. 17.

⁸ *Id.* at 12194, para. 48; *see also 5G Fund NPRM*, 35 FCC Rcd at 4014, para. 57. Under this approach, each eligible area will have an associated number of square kilometers that will be adjusted by an adjustment factor that will assign a weight to each geographic area and apply that adjustment factor to bidding for support amounts, and support amounts for an area will be determined by multiplying an area's associated adjusted square kilometers by the relevant price per square kilometer. *See 5G Fund Report and Order*, 35 FCC Rcd at 12194-95, 12196-97, paras. 48, 54-55. For example, an area with 100 square kilometers and an adjustment factor of 1.2 would have 100×1.2 or 120 adjusted square kilometers. *Id.* at 12195, para. 48 n.124.

⁹ *5G Fund Report and Order*, 35 FCC Rcd at 12176, 12179, paras. 4, 11. When the *5G Fund Report and Order* was adopted, all of the major nationwide wireless carriers had begun launching their 5G networks, and many urban and suburban areas of the country had benefitted from the evolution to 5G networks. *Id.* at 12175-76, para. 2. Since then, the deployment of 5G networks in many parts of the country has continued—both generally and as a result of T-Mobile's and DISH Network Corporation's (DISH) respective enforceable transaction commitments. T-Mobile committed to deploy 5G service covering 85% of the population in rural areas and 97% of the United States population within three years after consummation of its transaction, with coverage rising to 90% of the population in rural areas and 99% nationwide within six years after consummation of its transaction, and it also committed to deploy 5G service meeting minimum download speed performance benchmarks of at least 50 Mbps available to 90% of the rural population, with two-thirds of the rural population able to receive download speeds of at least 100 Mbps within three years after consummation of its transaction. *Applications of T-Mobile US, Inc., and Sprint Corporation For Consent To Transfer Control of Licenses and Authorizations*, WT Docket No. 18-197, Memorandum Opinion and Order, Declaratory Ruling, and Order of Proposed Modification, 34 FCC Rcd 10578, 10589, 10682, paras. 26-27, 235 (2019) (*T-Mobile-Sprint Order*). To verify its commitments, T-Mobile must submit drive test results, infrastructure data, and shapefiles. *See id.* at 10807, Appx. G, at 7. Measured data will be mapped to unique 500-meter grids in census blocks containing population across the entire country, and the population of each census block will be associated with the average speed across all speed-tested grids in the census block. *See generally T-Mobile USA, Inc, Methodology for T-Mobile Drive Tests to Verify Compliance with T-Mobile/Sprint Merger Commitments* (Jan. 8, 2020). The T-Mobile-Sprint transaction was consummated on April 1, 2020, and the data as of the April 1, 2023 coverage deadline for T-Mobile's first commitment must be submitted by January 2024. *See T-Mobile-Sprint Order*, 34 FCC Rcd at 10812, Appx. G, Attach. 1 at 3. DISH committed to deploy 5G broadband service on its AWS-4, Lower 700 MHz E Block, and AWS H Block licenses to at least 20% of the United States population by June 14, 2022, and to deploy 5G service on these licenses to at least 70% of the United States population at download speeds of at least 35 Mbps (as verified by a drive test), deploy at least 15,000 5G sites, and deploy at least 30 megahertz of downlink 5G spectrum averaged over all DISH 5G sites deployed nationwide by June 14, 2023. *See id.* at 10740, para. 369. DISH must submit a report demonstrating compliance with its 2022 and 2023 coverage deadlines in December 2023. *See id.* at 10744, para. 381. DISH further committed

(continued....)

was critical to the success of the 5G Fund, even though at the time it lacked the congressional appropriation necessary to implement the BDC.¹⁰ The Commission also reasoned that any risk of delay in holding a 5G Fund auction was further mitigated by the public interest obligations it was adopting for competitive eligible telecommunications carriers (ETCs) to continue receiving legacy high-cost support for mobile wireless services.¹¹

6. In this regard, the Commission adopted requirements for both competitive ETCs receiving legacy high-cost support for mobile wireless service and 5G Fund auction support recipients to meet public interest obligations to provide voice and 5G broadband service, and to satisfy distinct, measured performance requirements as a condition of receiving support. Pursuant to the rules adopted in the *5G Fund Report and Order*, recipients of both legacy mobile high-cost support and 5G Fund auction support are required to meet minimum baseline performance requirements for data speed, latency, and data allowance, including: (1) deploying 5G networks that meet at least the 5G-NR (New Radio) technology standards developed by the 3rd Generation Partnership Project with Release 15 (or any successor release that may be adopted by the Office of Economics and Analytics (OEA) and Wireline Competition Bureau (WCB) after appropriate notice and comment) with median download and upload speeds of at least 35 Mbps and 3 Mbps with minimum cell edge download and upload speeds of 7 Mbps

to deploy 5G broadband service on each of its 600 MHz licenses and to offer 5G broadband service using its 600 MHz licenses to at least 70% of the U.S. population no later than June 14, 2023, and to at least 75% of the population in each Partial Economic Area (PEA) no later than June 14, 2025. *Id.* at 10740, para. 369. DISH must submit a report demonstrating compliance with the first of these two commitments in December 2023. *Id.* at 10744, para. 381.

¹⁰ *5G Fund Report and Order*, 35 FCC Rcd at 12179, para. 11. In March 2020, Congress passed the Broadband Deployment Accuracy and Technological Availability Act. Broadband Deployment Accuracy and Technological Availability Act, Pub. L. No. 116-130, 134 Stat. 228 (2020) (codified at 47 U.S.C. §§ 641-646) (Broadband DATA Act); *see also Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195 and 11-10, Third Report and Order, 36 FCC Rcd 1126, 1128, para. 5 (2021) (*BDC Third Report and Order*). The Broadband DATA Act prohibited the Commission from delegating any responsibilities under the Act to the Universal Service Administrative Company (USAC) or from using funds collected through the Universal Service Fund (USF) to pay any costs associated with fulfilling them. 47 U.S.C. §§ 646(c), 645(a). In 2021, Congress appropriated the funds necessary for the Commission to implement the BDC. *See BDC Third Report and Order*, 36 FCC Rcd at 1127, para. 2 n.4 (citing Consolidated Appropriations Act, 2021, Pub. L. No. 116-260, H.R. 133, Div. E, Tit. V, Div. N, Tit. V, § 906(1) (Dec. 27, 2020)). To align the BDC with the requirements of the Broadband DATA Act, the Commission adopted rules regarding reporting standards for fixed and mobile services consistent with Broadband DATA Act requirements and established processes for verifying the data collected from providers, including certification requirements, regular Commission audits, and the acceptance of crowdsourced data. *Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195 and 11-10, Second Order and Third Further Notice of Proposed Rulemaking, 35 FCC Rcd 7460, 7465-83, 7485-92, paras. 12-51, 58-76 (2020). In a *Third Report and Order*, the Commission required, for mobile services, additional information reporting concerning provider networks and propagation, which would allow the Commission to verify provider data more effectively. *BDC Third Report and Order*, 36 FCC Rcd at 1141-44, paras. 36-42. The Commission also established the requirements for challenges to mobile service coverage reporting. *Id.* at 1164-75, paras. 97-125; *see generally Establishing the Digital Opportunity Data Collection*, WC Docket No. 19-195, Order, 37 FCC Rcd 3007 (WTB/OEA/OET 2022) (*BDC Mobile Technical Requirements Order*) (adopting technical requirements to implement the mobile challenge, verification, and crowdsourcing processes as part of the BDC). Moreover, the Commission established standards for enforcement of the requirements associated with the BDC. *Id.* at 1178-84, paras. 133-47.

¹¹ *5G Fund Report and Order*, 35 FCC Rcd at 12179, para. 11. The phase down of “legacy” high-cost support for competitive ETCs to provide mobile wireless service had previously been frozen at the 60% support level until Mobility Fund Phase II was operational. *See USF/ICC Transformation Order*, 26 FCC Rcd at 17832, para. 519. We use the term “legacy high-cost support” and “legacy support” throughout this item to refer specifically to the high-cost support that was frozen in the *USF/ICC Transformation Order* and is disbursed to competitive ETCs to provide mobile wireless service.

and 1 Mbps; (2) meeting end-to-end round trip data latency measurements of 100 milliseconds or below; and (3) offering at least one service plan that includes a minimum monthly data allowance that is equivalent to the average United States subscriber data usage.¹² The Commission explained that these performance requirements, along with public interest obligations for reasonably comparable rates, collocation, and voice and data roaming, will ensure that rural areas receive service reasonably comparable to high-speed, mobile broadband service available in urban areas.¹³

7. To make certain that 5G Fund support recipients meet their public interest obligations and performance requirements in areas where they receive support, the Commission adopted interim and final service deployment milestones along with reporting requirements to monitor their progress. Specifically, the Commission adopted milestones requiring a 5G Fund support recipient to offer 5G service meeting established performance requirements to at least 40% of the total square kilometers associated with the eligible areas for which it is authorized to receive 5G Fund support in a state by the end of the third full calendar year following authorization of support, to at least 60% of the total square kilometers by the end of the fourth full calendar year, and to at least 80% of the total square kilometers by the end of the fifth full calendar year.¹⁴ Moreover, the Commission adopted a final service deployment milestone that would require a 5G Fund support recipient to offer 5G service that meets the established 5G Fund performance requirements to at least 85% of the total square kilometers associated with the eligible areas for which it is authorized to receive 5G Fund support in a state by the end of the sixth full calendar year following authorization of support.¹⁵ Additionally, a 5G Fund support recipient is required to demonstrate by the end of the sixth full calendar year following authorization of support that it provides service that meets the established 5G performance requirements to at least 75% of the total square kilometers within each of its individual biddable areas.¹⁶

8. In May 2023, we released the latest version of our new National Broadband Map, which reflects the most granular and accurate mobile coverage data we have gathered through the BDC to date.¹⁷ The Commission will release major updates to this map twice a year, overlaying available data from service providers in these updates to ensure that the National Broadband Map is current.¹⁸ Based on the mobile coverage data we have collected in the BDC, our understanding of where mobile service remains lacking has improved significantly, and therefore, we are proceeding with our plans for the 5G Fund. Accordingly, we seek comment on the limited set of issues discussed below to ensure that we meet our statutory obligation of ensuring that those in rural America have access to services reasonably comparable to those provided in urban areas and to achieve our policy goal of ensuring that everyone who lives, works, and travels throughout our country experiences the benefits of high-speed, mobile 5G technology.¹⁹

¹² *5G Fund Report and Order*, 35 FCC Rcd at 12183-84, para. 20; *see also id.* at 12206, para. 78.

¹³ *Id.* at 12184, para. 21.

¹⁴ *Id.* at 12204, para. 73.

¹⁵ *Id.* at 12204, para. 74; *see also 5G Fund NPRM*, 35 FCC Rcd at 4026, para. 95.

¹⁶ *5G Fund Report and Order*, 35 FCC Rcd at 12204, para. 74; *see also 5G Fund NPRM*, 35 FCC Rcd at 4027, para. 96.

¹⁷ *See National Broadband Map*, <https://broadbandmap.fcc.gov/home> (last visited Sept. 18, 2023).

¹⁸ 47 CFR § 1.7008(c); *see National Broadband Map: It Keeps Getting Better*, Note, Jessica Rosenworcel, Chairwoman, FCC (May 30, 2023) (*Chairwoman Rosenworcel May 30, 2023 Note*), <https://www.fcc.gov/national-broadband-map-it-keeps-getting-better> (last visited Sept. 18, 2023); *see also* 47 U.S.C. § 642(c)(3) (requiring the Commission to update the maps at least biannually using the data collected from providers).

¹⁹ *See 5G Fund Report and Order*, 35 FCC Rcd at 12178, para. 10.

III. IDENTIFYING AREAS ELIGIBLE FOR 5G FUND SUPPORT

A. Defining the Areas Eligible for 5G Fund Support

9. In the *5G Fund Report and Order*, the Commission decided to determine the areas eligible for support in the 5G Fund Phase I auction based on where new mobile coverage data submitted in the BDC show a lack of both unsubsidized 4G LTE and unsubsidized 5G broadband service by at least one service provider.²⁰ The Commission noted in the *5G Fund Report and Order* that while most providers were then still in the early stages of deploying their 5G networks in rural areas, it expected that the data collected in the BDC would show significant 5G broadband deployments.²¹ The Commission concluded that consistent with its longstanding policy of avoiding overbuilding competitive networks, it would exclude areas with unsubsidized 5G broadband deployment from eligibility for 5G Fund support.²² The Commission also decided to exclude from eligibility for 5G Fund support those areas where BDC data show the deployment of unsubsidized 4G LTE networks, reasoning that subsidizing 5G deployments where unsubsidized 4G LTE networks already have been deployed would be unnecessary and risk preempting 5G deployments the Commission expected in those areas.²³ Moreover, the Commission adopted restrictions on the use of 5G Fund support to fulfill enforceable commitments to deploy 5G, concluding that it would be inefficient to allow any provider with enforceable 5G deployment obligations to use universal service support to fund those deployments.²⁴ In light of T-Mobile's extensive rural 5G deployment commitments relating to its acquisition of Sprint, the Commission said it would allow T-Mobile to make binding pre-auction commitments to identify the areas in which it will deploy 5G to fulfill its transaction commitments so that such areas can be removed from the auction inventory.²⁵

10. Throughout this proceeding, some parties have taken issue with the definition of areas eligible for 5G Fund support. These parties maintain that the Commission incorrectly presumed that an area that has unsubsidized 4G LTE service will see the deployment of 5G service without the need for subsidies,²⁶ and/or ask the Commission to define the areas eligible for 5G Fund support as those where

²⁰ *Id.* at 12181, para. 17.

²¹ *Id.* at 12181-82, para. 17.

²² *Id.* at 12182, para. 17. At the time it established the 5G Fund, the Commission noted that because nationwide providers had already begun to deploy 5G service in more populated parts of the country, many urban and suburban areas had already benefitted from the evolution to 5G networks, and that even more widely-available 5G service was expected in the near future. *Id.* at 12175, para. 2.

²³ *Id.* at 12182, para. 17. The Commission based this belief on the combination of the then-rapid state of competitive deployment in the marketplace and T-Mobile's enforceable transaction commitments. *Id.*

²⁴ *Id.* at 12246-47, paras. 178-80.

²⁵ *Id.* at 12248, para. 182. The Commission directed OEA and WCB to establish specific procedures for making such pre-auction binding commitments that would cover, as appropriate, qualifications and restrictions on participating in the pre-selection process. *See id.* at 12248, para. 182 & n.457.

²⁶ *See, e.g.*, Verizon 5G Fund NPRM Comments at 2 (stating that “designing the 5G Fund rules [at the time of the 5G Fund comment cycle in mid-2020] will be challenging[] [b]ecause the deployment of high-speed 5G services is in its early stages[] [and] the Commission will have to make predictive judgments about offered 5G speeds and the areas that will require support”); Letter from Richard A. Ruhl, General Manager, Cellular Network Partnership, LLP d/b/a Pioneer Cellular, John Lightle, CEO, Nex-Tech Wireless LLC, Eric Woody, CTO, Union Telephone Company d/b/a Union Wireless, Justin E. Hinkle, President, Smith Bagley, Inc., W. Allen Gillum, CEO, East Kentucky Network, LLC d/b/a Appalachian Wireless, and Francis J. DiRico, President, NE Colorado Cellular, Inc. d/b/a Viaero Wireless, to Marlene H. Dortch, Secretary, FCC at 2 (filed Oct. 19, 2020) (*Rural Carriers October 19, 2020 Letter*) (stating that the Commission's assumption that because there is “unsubsidized 4G service in a rural area, a carrier will promptly build unsubsidized 5G meeting its proposed performance standards in the same area . . . is unsupported by any record evidence and . . . is likely to be incorrect”); Letter from Michael D. Rosenthal, Director

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BDC mobile coverage data show a lack of unsubsidized 5G broadband service.²⁷ Furthermore, the Commission received two petitions seeking reconsideration of its decision to exclude from eligibility for 5G Fund support areas where BDC mobile coverage data show the existence of unsubsidized 4G LTE or 5G broadband service by at least one provider, each of which asks us to instead define as eligible for 5G Fund support any area that lacks unsubsidized 5G broadband service.²⁸

11. Today, our new National Broadband Map reflects the most recently available data concerning mobile broadband service availability and provides us with a substantially improved understanding of where service is available and where it remains lacking.²⁹ Our new map provides an improved picture of where mobile broadband service is available, the type(s) of service available, the speeds available, and the environment(s) in which service is available.³⁰ Historically, mobile data collected in FCC Form 477 suffered from a lack of any standardized parameters for the submission of propagation maps. The Commission remedied this issue in the *BDC Second Report and Order* by adopting certain uniform minimum parameter values that it believed to be equally important for demonstrating 3G and 5G-NR coverage as well as voice coverage,³¹ as recommended by the Rural

of Legal & External Affairs, Southern Linc, to Marlene H. Dortch, Secretary, FCC at 2 (filed Oct. 20, 2020) (*Southern Linc October 20, 2020 Letter*) (“The presence of unsubsidized 4G LTE service in an area does not mean that the deployment of 5G is reasonably likely in the near-term, if ever.”); Letter from Carri Bennet, General Counsel, Rural Wireless Association, to Marlene H. Dortch, Secretary, FCC at 3 (filed Oct. 20, 2020) (stating that “exclud[ing] areas served by unsubsidized 4G LTE and 5G broadband service . . . would deprive a large number of rural areas of the benefits of the 5G Fund since having unsubsidized 4G LTE service in a certain area does not guarantee that 5G service will be deployed by such unsubsidized carriers at a later point in time”); Letter from Carri Bennet, General Counsel, Rural Wireless Association, to Marlene H. Dortch, Secretary, FCC at 2 (filed Jan. 17, 2023) (“The assumption that areas with unsubsidized 4G coverage today will be upgraded to 5G is, in many cases, overly optimistic. There are a number of areas where a smaller carrier has deployed unsubsidized 4G coverage at 5/1 Mbps but will not be able to upgrade to 5G without universal service support because the area is too high cost.”).

²⁷ See, e.g., Letter from Alexi Maltas, Senior Vice President & General Counsel, Competitive Carriers Association, to Marlene H. Dortch, Secretary, FCC at 3 (filed Oct. 16, 2020) (“If the Commission insists on funding only 5G deployments, the relevant question for eligibility should be the presence or absence of unsubsidized 5G services.”); *Rural Carriers October 19, 2020 Letter* at 1 (requesting the Commission define as eligible for 5G Fund support any areas that lack only unsubsidized 5G broadband service); *Southern Linc October 20, 2020 Letter* at 2 (“If the 5G Fund is to be used to fund only 5G deployments, then eligibility for funding in a given area should be determined on the basis of the presence or absence of unsubsidized 5G services in that area.”); Letter from David A. LaFuria, Counsel for the Coalition of Rural Wireless Carriers, to Marlene H. Dortch, Secretary, FCC at 3 (filed July 13, 2022) (urging the Commission to “rectify the prior Commission’s premature decision to adopt a rule providing that areas currently receiving unsubsidized 4G LTE service are ineligible for inclusion in the 5G Fund auction”).

²⁸ See *RWA/NTCA Joint Petition for Reconsideration* at 5 (asking the Commission to define as eligible for 5G Fund support any area that lacks unsubsidized 5G service); *CRWC Petition for Reconsideration* at 14 (asking the Commission to “reassess its determination of eligible areas after it has accurate 4G/5G maps through the DODC process,” and then “define as eligible [for 5G Fund support] any area that lacks unsubsidized 5G service”). The Commission sought comment on these petitions, see *Petitions for Reconsideration of Action in Proceeding*, Public Notice, Report No. 3165 (Jan. 6, 2021), and they remain pending.

²⁹ See Updated National Broadband Map, released May 30, 2023, <https://broadbandmap.fcc.gov/home> (last visited Sept. 18, 2023). The Updated National Broadband Map released on May 30, 2023, shows the Fabric Version 2 location data and broadband availability data as of December 31, 2022.

³⁰ *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3008, para. 1. In the BDC, the term “environment” in the context of mobile services refers to service provided in an outdoor stationary environment or an in vehicle mobile environment. *Id.* at 3024, para. 29.

³¹ See *Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195 and 11-10, Second Report and Order and Third Further Notice of Proposed Rulemaking, 35 FCC Rcd 7460, 7474-83, paras 32-51 (2020) (*BDC Second Report and Order*). The Commission stated that “[i]n

(continued....)

Broadband Auctions Task Force in the *Mobility Fund Phase II Coverage Maps Investigation Staff Report*.³² The new map allows us to more accurately target universal service funding to expand broadband to unserved and underserved areas.

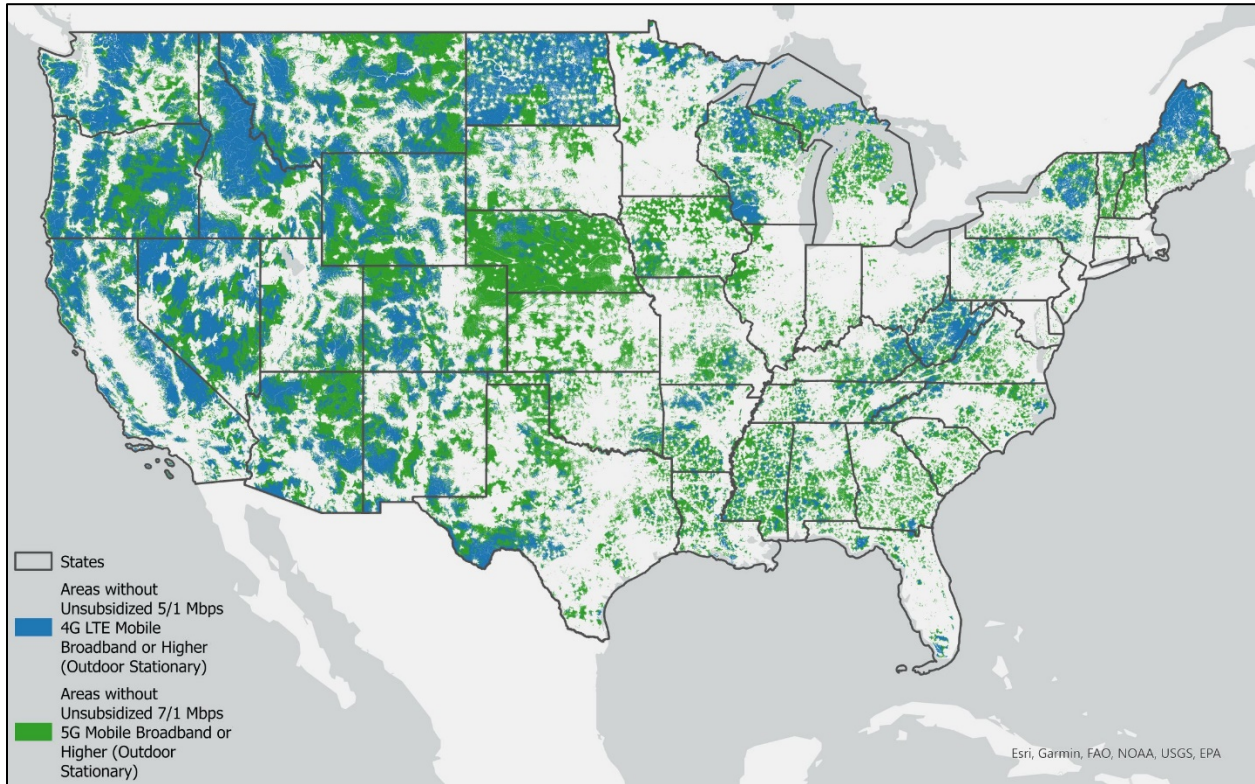
12. Figure 1, below, shows areas where mobile coverage data submitted in the BDC show a lack of unsubsidized 5G mobile broadband service at speeds of at least 7/1 Mbps by at least one service provider, and areas where the data show a lack of unsubsidized 5/1 Mbps 4G LTE mobile broadband service or higher by at least one service provider. Figure 2 shows a picture of the USAC's online map delineating the boundaries of the subsidized service areas of each competitive ETC receiving mobile legacy high-cost support used in determining which areas are subsidized for this purpose.³³

addition to requiring mobile broadband providers to use propagation modeling to generate and to submit maps showing their 4G LTE coverage, [such providers are] additionally required . . . to submit information, data, and coverage maps for existing 3G networks and next-generation 5G-NR networks.” *Id.* at 7474, para. 33. *See also Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195, 11-10, Third Report and Order, 36 FCC Rcd 1126, 1141-42, paras. 36-37 (2021) (requiring mobile providers to submit a second set of maps showing the Reference Signal Received Power (RSRP) and Received Signal Strength Indicator (RSSI) signal levels in the coverage areas for each technology, and requiring that such signal strength maps reflect coverage in both the outdoor stationary and in-vehicle environments).

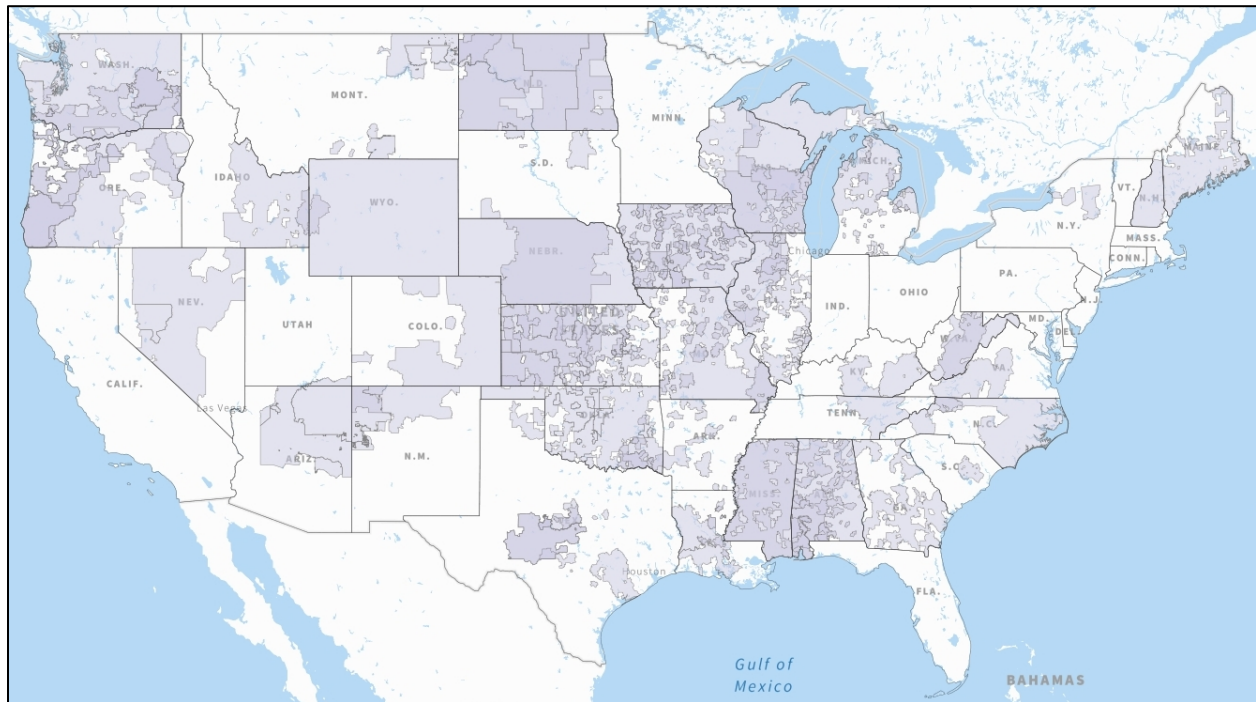
³² *See Mobility Fund Phase II Coverage Maps Investigation Staff Report* at 53, para. 80.

³³ The Commission stated in the *5G Fund Report and Order* that it will use Geographic Information Systems (GIS) data from USAC delineating the boundaries of the subsidized service areas of each competitive ETC receiving mobile legacy high-cost support in determining which areas are subsidized for this purpose. *5G Fund Report and Order*, 35 FCC Rcd at 12181, para. 17 n.43; *see 5G Fund NPRM*, 35 FCC Rcd at 4017-18, para. 71 & n.104.

Figure 1: Areas Without Unsubsidized Mobile Broadband Service³⁴



³⁴ Figure 1 was created using overlapping provider-reported BDC mobile availability data as of December 31, 2022 (updated August 16, 2023), depicting coverage based on an outdoor stationary environment. See <https://www.fcc.gov/reports-research/maps/5g-fund-fnprm> for an interactive version with additional data.

Figure 2: USAC Mobile CETC Service Area Boundaries Map³⁵

13. The following two charts provide more detail about the distribution of mobile legacy high-cost support by state.

³⁵ Mobile CETC Service Area Boundaries Map, <https://data.usac.org/publicreports/cetc-map/> (data as of Feb. 16, 2023; image generated Aug. 28, 2023). The following states and Washington, D.C. do not have any mobile legacy high-cost support service areas: California, Connecticut, Delaware, Florida, Hawaii, Indiana, Maryland, Massachusetts, Minnesota, New Jersey, Ohio, Pennsylvania, Rhode Island, and Vermont.

Figure 3: Percent of a State's Total Area Within a Subsidized CETC Area and the Percent of Total High-Cost Subsidy Directed to That State

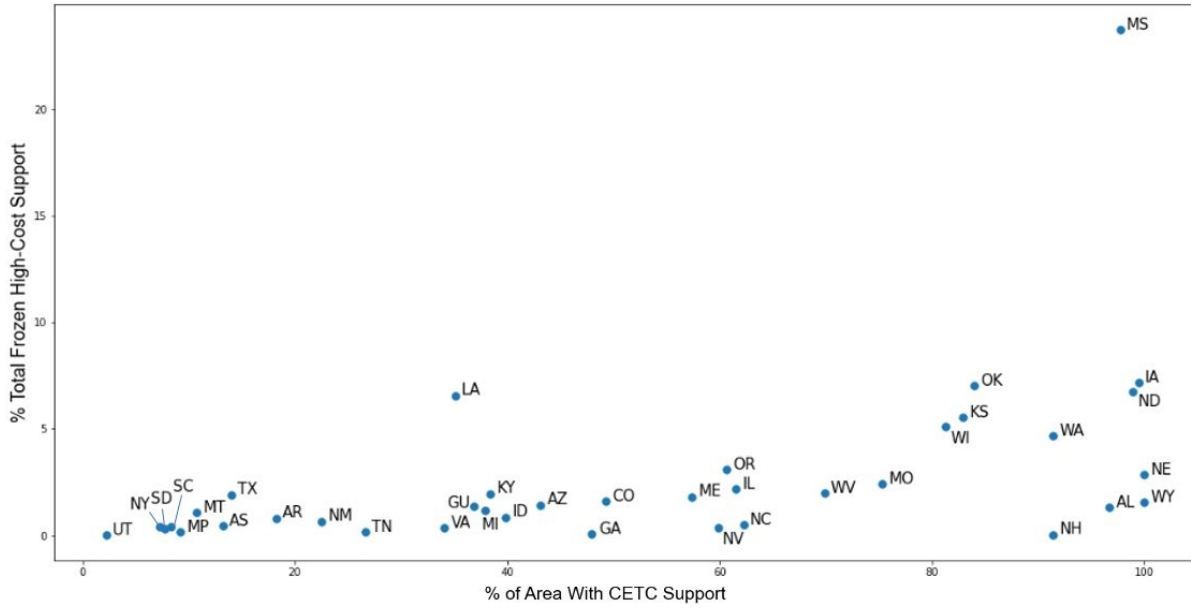
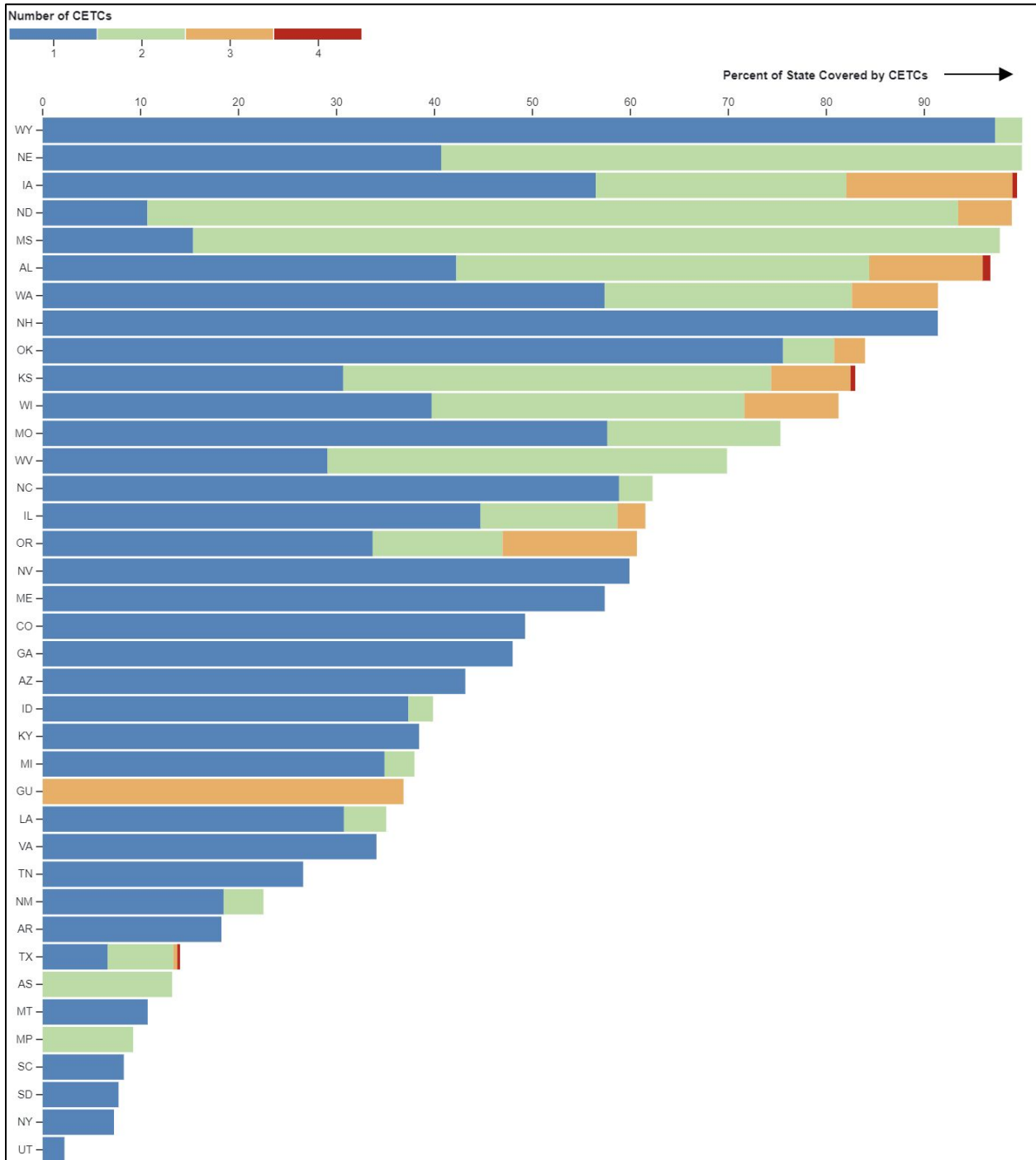


Figure 4: Percent of a State's Total Area Within the Subsidized Areas of 1, 2, 3 or 4 CETCs



14. With data collected in the BDC and currently reflected on our National Broadband Map, we are better able to assess where mobile broadband services are—and are not—available. In the nearly three years since the adoption of the *5G Fund Report and Order*, the deployment of high-speed 5G mobile services has significantly expanded. However, even with this expansion of 5G coverage, the

digital divide remains, and numerous “broadband deserts” continue to exist.³⁶ Indeed, based on BDC data as of December 2022, we estimate that there are over 14 million broadband serviceable locations (locations) that lack mobile 5G coverage at speed thresholds of at least 7/1 Mbps in an in-vehicle environment.³⁷ Given how mobile broadband coverage has evolved over the past three years and our improved understanding of mobile coverage based on data gathered through the BDC, we seek comment on how to ensure that the 5G Fund most efficiently promotes the deployment of 5G mobile broadband service in areas where it would not be offered absent subsidies. To that end, we seek comment on whether we should continue to use the definition adopted by the Commission in the *5G Fund Report and Order* to determine areas eligible for the 5G Fund Phase I auction, or whether we should modify the definition to base the determination of eligible areas on where mobile coverage data submitted in the BDC show a lack of unsubsidized 5G broadband service by at least one service provider.

15. As the map in Figure 1 above shows, we expect that using the definition of eligible areas adopted in the *5G Fund Report and Order* would result in fewer areas being eligible for support in the 5G Fund Phase I auction than if we modified the definition to be based on areas that lack unsubsidized 5G coverage. Given our objective of ensuring that we target our finite budget to where it is most needed to promote the deployment of 5G mobile broadband service, we seek comment on whether using an eligible areas definition that is more likely to limit, or more likely to expand, the number of areas that would be eligible for support in the 5G Fund Phase I auction serves the public interest. If we modify the definition of eligible areas as discussed above, would 5G Fund support be more likely to end up in areas that do not have 5G service but do have unsubsidized 4G LTE service?

16. We seek comment on what motivations there are for unsubsidized providers of 4G LTE service to upgrade their networks to 5G technology in rural areas. Does the provision of unsubsidized 4G LTE service in rural areas serve as an indicator that 5G mobile broadband service will be deployed in those areas absent subsidies? What metrics can the Commission consider to reliably identify rural areas that will not see unsubsidized 5G mobile broadband service? Over what time period should the Commission expect to see an unsubsidized 4G LTE network be replaced by 5G technology in rural areas, absent subsidies? Commenters should specifically address why subsidies are, or are not, necessary in areas that already have unsubsidized 4G LTE coverage. We also seek comment on how we can balance our objective to provide support for the provision of 5G mobile broadband service in all areas where people live, work, and travel with our obligation to be a fiscally responsible steward of our limited universal service funds and our commitment to prevent overbuilding. What are the costs and benefits of

³⁶ See, e.g., Ely Portillio, *Who’s on the wrong side of the digital divide in NC — and how are rural communities affected?* (Jul. 19, 2023), <https://www.wfae.org/race-equity/2023-07-19/whos-on-the-wrong-side-of-the-digital-divide-in-nc-and-how-are-rural-communities-affected> (last visited Sept. 18, 2023); Zach Fischer, *Rural Iowa a broadband desert: No streaming, no Zoom* (Jun. 21, 2023), <https://www.ourquadcities.com/news/state-news/iowa-news/rural-iowa-a-broadband-desert-no-streaming-no-zoom/> (last visited Sept. 18, 2023).

³⁷ This estimate is based on overlapping provider-reported BDC mobile availability data as of December 31, 2022, depicting coverage based on in-vehicle, mobile environment, on broadband serviceable locations. The Broadband Serviceable Location Fabric (Fabric) is a dataset of all locations in the United States and its Territories where fixed broadband Internet access service can be installed. See 47 CFR § 1.7007(a); see also 47 U.S.C. § 642(b)(1)(A)(i). The Fabric contains geocoded information for each such location and is the foundation upon which all data relating to the availability of fixed broadband Internet access service collected in the BDC is overlaid. See 47 CFR § 1.7007(a)(1)-(4); see also 47 U.S.C. § 642(b)(1)(B)(i)-(iv). Specifically, service providers express fixed broadband availability in the BDC in terms of which particular Fabric locations can be served. The Fabric therefore represents the universe of locations to which fixed broadband service can be provided, and the semi-annual BDC tells us which locations have fixed broadband service available, and which do not. Locations are treated as lacking coverage if they fall outside (the latitude/longitude coordinates are not covered by) the areas reported by providers as having coverage available with the relevant technology, speed, and environment. Mobile availability based on coverage in an outdoor stationary environment results in a smaller number of locations, 6 million, that lack 5G coverage at speed thresholds of 7/1 Mbps.

deployment of 5G mobile broadband service in areas lacking both 4G LTE and 5G mobile broadband service relative to deployment of 5G to areas lacking only 5G service? We seek comment on which definition of eligible areas best ensures that the Commission will not subsidize areas that will otherwise see competitive, market-based deployments of 5G mobile broadband networks.

17. We also seek comment on the appropriate 4G LTE and 5G speed thresholds to use as the benchmark for determining areas eligible for support in the 5G Fund Phase I auction under either the previously adopted or a modified definition of eligible areas. Specifically, we seek comment on using speed thresholds of 5/1 Mbps with respect to 4G LTE service³⁸ and 7/1 Mbps for 5G service as the benchmark when determining areas eligible for support in the 5G Fund Phase I auction.³⁹ Under this approach, if we continue to use the definition of eligible areas adopted in the *5G Fund Report and Order*, we would exclude from eligibility for 5G Fund support areas where unsubsidized 4G LTE service and unsubsidized 5G service is available at speed thresholds of at least 5/1 Mbps and at least 7/1 Mbps, respectively. Or, if we modify the definition of eligible areas to be those that lack unsubsidized 5G service, we would exclude from eligibility for 5G Fund support areas where unsubsidized 5G service is available at speed thresholds of at least 7/1 Mbps. We seek comment on using these speed thresholds.

18. The Commission requires that the coverage maps submitted by providers in the BDC predict 4G LTE and 5G coverage based on both outdoor stationary and in-vehicle mobile environments.⁴⁰ An outdoor stationary environment typically results in a larger coverage footprint than an in-vehicle mobile environment. We seek comment on which environment to use when determining the areas eligible for 5G Fund support under whichever definition we use to determine areas eligible for the 5G Fund Phase I auction.

19. Because we seek to direct 5G Fund Phase I support to areas where people live, work, and travel, regardless of the definition we use to identify the areas eligible for the 5G Fund Phase I auction, we seek comment on limiting eligible areas to those that contain locations⁴¹ and/or roads. We seek comment on limiting eligible areas to those that contain locations as identified through the BDC and/or roads. Under this approach, we would use road data from OpenStreetMap, and we seek comment on which categories of roads should be considered in determining eligible areas. We also seek comment on

³⁸ The BDC collects 4G LTE coverage areas based on speed thresholds of 5/1 Mbps in accordance with the Broadband DATA Act. See 47 U.S.C. § 642(b)(2)(B)(ii) (establishing minimum speeds of 5/1 Mbps for 4G LTE services as a requirement of demonstrating coverage).

³⁹ The BDC collects 5G coverage areas based on speed thresholds of both 7/1 Mbps and 35/3 Mbps. See *BDC Second Report and Order*, 35 FCC Rcd at 7479-80, para. 45. In the *5G Fund Report and Order*, the Commission adopted a minimum baseline performance requirement for 5G Fund support recipients to deploy 5G-NR service with median speeds of at least 35/3 Mbps and speeds of 7/1 Mbps at the cell edge. *5G Fund Report and Order*, 35 FCC Rcd at 12206, para. 78. Consistent with the Commission's rationale in the *Mobility Fund Phase II Report and Order* with respect to determining eligible areas, we do not believe it would be advisable to use the same 35/3 Mbps speed thresholds for determining areas eligible for 5G Fund support that we will require of 5G Fund support recipients for determining compliance with their performance requirements. See *Mobility Fund Phase II Report and Order*, 32 FCC Rcd at 2173, para. 51 & n.129 (rejecting the use of the 10/1 Mbps speed thresholds for determining area eligibility required of Mobility Fund Phase II support recipient for determining compliance with their performance requirements). Moreover, we expect that a speed threshold of 7/1 Mbps reflects the minimum desired typical mobile user experience across broad 5G coverage areas. *BDC Second Report and Order*, 35 FCC Rcd at 7480, para. 45.

⁴⁰ See *BDC Second Report and Order*, 35 FCC Rcd at 7481-82, para. 48 ("We also require that propagation maps submitted by providers predict outdoor coverage, which should include both (1) on-street or pedestrian stationary usage and (2) in-vehicle mobile usage.").

⁴¹ We would determine the areas that contain locations using the Fabric. Having the Fabric through the BDC enables us to do this at a granular level.

whether we should use an alternate source of road data and why. In order to limit eligible areas in this manner, we would need to designate the geographic areas that contain locations and/or roads.

20. Under this approach, we would use the H3 hexagonal geospatial indexing system (H3 system) to identify specific geographic areas eligible for 5G Fund support.⁴² The Wireless Telecommunications Bureau (WTB), OEA, and the Office of Engineering and Technology (OET) adopted the H3 system to identify geographic areas where a challenge to a provider's mobile BDC availability data can be created based on the point locations of on-the-ground challenger speed tests.⁴³ The H3 system has also been adapted to the Commission's National Broadband Map to divide the map into specific geographic areas and show the percentage of a hexagon that is "covered" (i.e., where a provider has claimed it can make broadband available) at different resolutions and levels of granularity as a user zooms in or out on the map.⁴⁴ Mobile broadband coverage is displayed down to the resolution-9 hexagon level (hex-9) on the map, and data on such coverage is made available for download based on hex-9s. Because of its nested structure, using the H3 system allows the Commission to categorize geographic areas at multiple levels of granularity.⁴⁵

21. We would then convert the areas eligible for 5G Fund support to, and make them available in the form of, H3 hexagonal units, specifically as hexagons at resolution 9. As opposed to "raw" coverage footprints based on propagation model output, which do not conform to any defined boundary, hex-9s are standardized and can be clearly identified and referenced. Because hex-9s are relatively small, with an average area of approximately 0.1 square kilometer,⁴⁶ any reduction in map resolution when converting from raw propagation model output (as filed by providers) to hex-9s is minimal. We believe the use of hex-9s can strike the appropriate balance between the benefits of their use and this loss in granularity, particularly given that the data as filed are based on models of coverage. As is the case with the data available on the National Broadband Map, if any part of the hex-9 is overlapped by the relevant mobile coverage area, then we would consider the entire hex-9 as covered or

⁴² H3 is an open-source GIS dataset developed by Uber Technologies, Inc., that overlays the globe with hexagonal cells of different sizes at various resolutions, from zero to 15. See Isaac Brodsky, *H3: Uber's Hexagonal Hierarchical Spatial Index*, (June 27, 2018), <https://eng.uber.com/h3/> (last visited Sept. 18, 2023). The smallest hexagonal cells are at resolution 15, in which the average hexagonal cell has an area of approximately 0.9 square meters, and the largest are at resolution 0, in which the average hexagonal cell has an area of approximately 4.25 million square kilometers. See *id.* The H3 system is designed with a nested structure wherein a lower resolution cell (the "parent" hexagon) contains approximately seven hexagonal cells at the next higher resolution (its "children" where each "child" is a smaller, nested hexagon), which fit approximately within the "parent" hexagon. See *id.* ("H3 supports sixteen resolutions. Each finer resolution has cells with one seventh the area of the coarser resolution. Hexagons cannot be perfectly subdivided into seven hexagons, so the finer cells [i.e., the 'children'] are approximately contained within a parent cell. The identifiers for these child cells can be easily truncated to find their ancestor cell at a coarser resolution, enabling efficient indexing.")

⁴³ *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3031-32, para. 41. WTB, OEA, and OET adopted the H3 system for use in the BDC mobile verification process. *Id.* at 3058, para. 94.

⁴⁴ See generally *FCC National Broadband Map*, <https://broadbandmap.fcc.gov/home?version=dec2022> (last visited Sept. 18, 2023).

⁴⁵ See ESRI, *Why Hexagons?*, <https://pro.arcgis.com/en/pro-app/latest/tool-reference/spatial-statistics/h-whyhexagons.htm> (last visited Sept. 18, 2023) ("Hexagons reduce sampling bias due to edge effects of the grid shape, this is related to the low perimeter-to-area ratio of the shape of the hexagon. A circle has the lowest ratio but cannot tessellate to form a continuous grid. Hexagons are the most circular-shaped polygon that can tessellate to form an evenly spaced grid.") Tessellations (i.e., the arrangement of shapes closely fitted together, such as polygons in a repeated pattern without gaps or overlapping) with large hexagons "suffer less distortion due to the curvature of the [E]arth." *Id.* The orientation of a hexagon matters less as compared with squares and rectangles. *Id.*

⁴⁶ H3, *Table of Cell Areas for H3 Resolutions*, <https://h3geo.org/docs/core-library/restable/> (last visited Sept. 18, 2023).

served by that coverage area for purposes of generating the areas eligible for 5G Fund support. We seek comment on this approach, as well as the use of the H3 geospatial indexing system generally, and the hex-9 resolution specifically, as the basis for identifying specific geographic areas that are eligible for 5G Fund support.

22. We also seek comment on other factors we should consider in determining the areas eligible for 5G Fund support, such as whether to include Urbanized Areas, water-only areas, and/or inaccessible areas.⁴⁷

23. Regardless of how we define eligible areas, we propose to use as the basis for the final eligible areas the version of the mobile availability data published on the National Broadband Map no later than 30 days prior to the start of bidding. This version will reflect updates filed by providers as the result of resolved challenges and other corrections and published on the map by that date.⁴⁸

A. Puerto Rico and the U.S. Virgin Islands

24. As a result of the devastation to the communication networks in Puerto Rico and the U.S. Virgin Islands caused by Hurricanes Irma and Maria in September 2017, the Commission took immediate steps to make emergency funding available for the restoration of mobile communications on these islands, and subsequently adopted funding mechanisms to restore and rebuild mobile networks there.⁴⁹ In the *5G Fund Report and Order*, the Commission therefore excluded areas in Puerto Rico and the U.S. Virgin Islands from eligibility for 5G Fund support because the Commission was already providing high-cost support, including support for 5G mobile broadband, through the Bringing Puerto Rico Together Fund and the Connect USVI Fund.⁵⁰

25. In its 2019 *PR-USVI Stage 2 Order*, the Commission adopted a three-year funding period and budgets for Stage 2 of the Bringing Puerto Rico Together Fund and the Connect USVI Fund pursuant to which carriers could elect to receive up to 75% of the support for which they are eligible to restore, harden, and expand their networks using 4G LTE or better technology capable of providing service at speeds of at least 10/1 Mbps, and up to 25% of the support for which they are eligible to deploy 5G

⁴⁷ For example, some areas contain only private roads that are not accessible to the public.

⁴⁸ We expect to provide a preview of the eligible areas based on the most recent version of the data that has been published prior to release of the public notice seeking comment on auction procedures.

⁴⁹ *Connect America Fund*, WC Docket No. 10-90, Order, 32 FCC Rcd 7981, 7981, 7983, 7985, paras. 1, 3, 7, 14-15 (2017) (directing USAC to make available, at the carrier's election, a single advance payment of up to seven months of high-cost support to facilitate expeditious restoration of essential communications services); *The Uniendo a Puerto Rico Fund and the Connect USVI Fund*; *Connect America Fund*, WC Docket Nos. 18-143, 10-90, and 14-58, Order and Notice of Proposed Rulemaking, 33 FCC Rcd 5404, 5408, 5423-24, paras. 13, 82 (2018) (establishing the two stages of the Bringing Puerto Rico Together Fund and the Connect USVI Fund, providing immediate Stage 1 support to help restore voice and broadband service on the islands following the devastation to the communications networks caused by Hurricanes Irma and Maria, and proposing to carve Puerto Rico and the U.S. Virgin Islands out from the Mobility Fund Phase II auction and instead provide support under Stage 2 of the Funds to rebuild, improve, and expand voice and broadband networks on the islands in the longer term); *The Uniendo a Puerto Rico Fund and the Connect USVI Fund*; *Connect America Fund*, WC Docket Nos. 18-143, 10-90, and 14-58, Report and Order and Order on Reconsideration, 34 FCC Rcd 9109, 9162-63, 9165, paras. 101, 110 (2019) (*PR-USVI Stage 2 Order*) (adopting a three-year funding period and budget for Stage 2 mobile support under the Bringing Puerto Rico Together Fund and the Connect USVI Fund as an alternative to mobile high-cost support).

⁵⁰ *5G Fund Report and Order*, 35 FCC Rcd at 12182-83, para. 19. The Commission also excluded from eligibility for the 5G Fund areas in Alaska for which high-cost support is provided via the mobile portion of the Alaska Plan. *Id.*; see also *Connect America Fund*; *Universal Service Reform – Mobility Fund*; *Connect America Fund – Alaska Plan*, WC Docket No. 10-90, et al., 31 FCC Rcd 10139, 10159-60, 10163-66, paras. 66, 72, 75, 80 (2016) (adopting an Alaska Plan for mobile carriers as a comprehensive alternative plan for providing high-cost mobile support to competitive ETCs offering mobile service to consumers in remote Alaska over a 10-year term of support term).

mobile networks capable of providing service at speeds of at least 35/3 Mbps.⁵¹ The Commission noted that it expected to establish a competitive funding mechanism for the long-term expansion of advanced telecommunications access and next generation wireless services for Puerto Rico and the U.S. Virgin Islands by the conclusion of Stage 2.⁵² Stage 2 mobile support under the Bringing Puerto Rico Together Fund and the Connect USVI Fund was scheduled to conclude at the end of June 2023; however, the Commission adopted a transitional support period of up to 24 months to allow eligible mobile carriers currently receiving Stage 2 mobile support to continue receiving support to harden their networks as the Commission works to develop a long-term funding mechanism.⁵³ The Commission stated in the *Transitional Support Report and Order* that transitional support would end sooner than 24 months if such a long-term funding mechanism were established before the transition period ends.⁵⁴

26. At the time of Hurricanes Irma and Maria, the Mobility Fund Phase II auction had not yet taken place. Moreover, the Commission has since replaced Mobility Fund Phase II with the 5G Fund. Accordingly, now, as the Commission transitions from providing restorative support to mobile carriers in Puerto Rico and the U.S. Virgin Islands to repair and harden their networks to offering support to mobile carriers to deploy high-speed 5G mobile services in areas that that would otherwise not see such services absent subsidies, we seek comment on whether to make 5G Fund support available to areas in Puerto Rico and the U.S. Virgin Islands meeting the eligible areas definition, subject to the same terms and conditions as 5G Fund support awarded in other eligible areas. Alternatively, should the Commission instead explore a dedicated long-term funding mechanism for support for mobile services on these islands? Commenters should explicitly explain whether, having been provided support under a dedicated mechanism for the last several years, it is now appropriate to view the funding needs for support for mobile broadband services in Puerto Rico and the U.S. Virgin Islands through the same lens as other areas eligible for mobile support.

IV. 5G FUND BUDGET

27. In the *5G Fund Report and Order*, the Commission adopted a budget of \$9 billion for the 5G Fund, which incorporated and repurposed the \$4.53 billion originally budgeted for Mobility Fund Phase II.⁵⁵ In establishing the 5G Fund budget, the Commission recognized that extending deployment of 5G networks would require significant expenditures.⁵⁶ Nonetheless, the Commission was mindful of its obligation to balance the objectives of the 5G Fund with its obligation to exercise fiscal responsibility by avoiding excessive subsidization, recognizing that the cost of subsidies distributed under the 5G Fund would ultimately be borne by consumers and businesses.⁵⁷ Accordingly, the Commission adopted a reverse auction mechanism to ensure that funds from the available budget would be spent as efficiently and effectively as possible.⁵⁸

28. We take this opportunity to ask if there are significant reasons to modify the budget, and if so, by how much. We note that none of the parties that commented on the *5G Fund NPRM* proposed an alternative amount for the 5G Fund budget, and no party sought reconsideration of the \$9 billion budget that the Commission adopted. Some commenters, however, suggested that the 5G Fund budget should be

⁵¹ *PR-USVI Stage 2 Order*, 34 FCC Rcd at 9163, paras. 101-02.

⁵² *Id.* at 9163, para. 102.

⁵³ *The Uniendo a Puerto Rico and the Connect USVI Fund; Connect American Fund*, Report and Order and Order on Review, FCC 23-32, at 2, 6-7, paras. 1, 14-17 (Apr. 19, 2023) (*Transitional Support Report and Order*).

⁵⁴ *Id.* at 7-8, paras. 19-20.

⁵⁵ *5G Fund Report and Order*, 35 FCC Rcd at 12185, para. 28.

⁵⁶ *Id.* at 12186, para. 29.

⁵⁷ *Id.* at 12186, para. 30 (citing 47 U.S.C. § 254).

⁵⁸ *Id.* at 12184, para. 24.

increased to an amount that would be sufficient to deploy 5G networks to all eligible areas.⁵⁹ Subsequently, other parties, in *ex parte* communications and other filings, echoed the assertion that the budget was insufficient, with several citing to a 5G mobility cost model placed in the record by the Competitive Carriers Association.⁶⁰

29. We ask those commenting on the budget to keep in mind the reasons underlying the Commission's adoption of a reverse auction—the auction uses competition across areas and within areas to determine which areas will receive support, in what amounts, and which entities will receive that support, all within the available budget. This ensures that as many units as possible can be covered within the budget at prices the winning bidders have agreed to accept, consistent with our fiscal responsibilities. As a threshold matter, basing the budget on the estimated cost of serving all areas (however estimated, according to a model such as that submitted in the record⁶¹ or any other method) conflicts with the rationale for using a reverse auction—that is, of spending available funds cost-effectively. Even if we were willing to increase universal service contributions to raise such funds⁶²—and we are not—establishing a budget based on total estimated costs would not result in support amounts that are competitive but still acceptable to the providers, as a reverse auction does.⁶³ With respect to using a cost model to determine reserve amounts, i.e., maximum bid amounts, also as suggested in the record,⁶⁴ we do not believe such a process is needed to determine a uniform starting clock price in dollars per adjusted square kilometer that would apply to all areas.^{65, 66}

⁵⁹ See, e.g., Coalition of Rural Wireless Carriers Comments at 22-24; Trevor Eisnaugle Express Comments; AST&Science Comments at 26 (supporting a \$9 billion budget as it represents a good start, but stating that it is ultimately unlikely to be sufficient to bring 5G service to all rural areas that lack 4G or 5G service).

⁶⁰ See Letter from Alexi Maltas, SVP & General Counsel, Competitive Carriers Association, to Marlene Dortch, FCC, GN Docket No. 20-32, *Ubiquitous Mobile Connectivity: A Plan for Nationwide 5G*, Whitepaper, Competitive Carriers Association (November 2021), and CostQuest Associates, *CostQuest National 5G Model: Methodology, Understanding the Costs to Deploy and Serve Unserved Areas Across the U.S. with 5G Mobile Broadband* (Nov. 2021) (filed Nov. 23, 2021) (*CCA 5G Mobility Cost Model Ex Parte Filing*); Letter from Carri Bennet, General Counsel, Rural Wireless Association, Inc., to Marlene Dortch, FCC, GN Docket No. 20-32, at 2 (filed Jan. 17, 2023); Letter from Carri Bennet, General Counsel, Rural Wireless Association, Inc., to Marlene Dortch, FCC, GN Docket No. 20-32, at 1-2 (filed May 30, 2023) (*RWA May 30, 2023 Letter*); Letter from David A. LaFuria, Counsel for Coalition of Rural Wireless Carriers, to Marlene Dortch, FCC, GN Docket No. 20-32, at 1-2 (filed July 19, 2022); Letter from Angela Simpson, Competitive Carriers Association, to Marlene Dortch, FCC, GN Docket No. 20-32, at 1 (filed Feb. 2, 2023); AST&Science Reply Comments, WC Docket No. 21-476, at 4-5 (filed Mar. 17, 2022).

⁶¹ See *CCA 5G Mobility Cost Model Ex Parte Filing* at 2 (stating that the adopted 5G Fund budget will fall short of supporting nationwide 5G).

⁶² See *id.* (estimating that a total investment of \$36 billion is needed to ensure ubiquitous 5G service).

⁶³ See *5G Fund Report and Order*, 35 FCC Rcd at 12184, para. 23.

⁶⁴ *RWA May 30, 2023 Letter* at 1.

⁶⁵ See *infra* Section V.A., in which we seek comment on using a support unit metric different than the adjusted square miles metric the Commission adopted in the *5G Fund Report and Order*. If a different support unit were to be adopted, the starting/reserve price and the clock price would be denominated in dollars per that new unit.

⁶⁶ Moreover, we disagree with the assertion that “a reverse auction without [area-specific] reserve prices is likely to provide excessive support in areas with few applicants.” Letter from Carri Bennet, General Counsel, Rural Wireless Association, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 20-32 (filed Nov. 23, 2022). The reverse auction format previously used by the Commission and adopted for the 5G Fund incorporates competition across areas, which lowers the support price for all areas before assigning support to any areas. Further, even if there is only one other bidder for a given area, the support price will be lowered still further. That is, under the basic reverse auction format, the support clock price applicable to all areas would begin high and descend in discrete rounds. In

(continued....)

30. In seeking comment on the budget, we ask commenters to provide specific examples of any fundamental factors that have changed since the *5G Fund Report and Order* was adopted. Commenters should also explain how any such factors are significant enough to warrant allocating more Universal Service Fund (USF) monies to the 5G Fund.⁶⁷ Should any change in the budget affect both phases of the 5G Fund, and if so, how? We also ask, if the budget is modified, whether the size of the Tribal reserve budget as previously adopted should also change, and if so, how.

31. We remind those commenting on the 5G Fund budget that the Commission is obligated to distribute universal service funds in the most cost-efficient way possible and that arguments that focus solely on estimates do not take into account the Commission's obligation to balance the cost of subsidies with the additional burden that such increased expenditures would impose on the consumers and businesses that fund the subsidies. Therefore, commenters advocating for an increased budget should consider and address the source of any funds potentially allocated to the 5G Fund.

32. We also seek comment on whether any adjustments to the 5G Fund budget would be necessary if the 5G Fund were to become the long-term funding mechanism for Puerto Rico and the U.S. Virgin Islands and areas in Puerto Rico and the U.S. Virgin Islands meeting the eligible areas definition are eligible for 5G Fund support.

V. ACCEPTING BIDS AND IDENTIFYING WINNING BIDS

A. Metric for Accepting Winning Bids and Identifying Winning Bids

33. In the *5G Fund Report and Order*, the Commission decided that it would accept bids and identify winning bids in the 5G Fund auctions using a support price per adjusted square kilometer.⁶⁸ Under this metric, each eligible area would be associated with a number of units equal to the square kilometers of the area multiplied by an adjustment factor based on a number of area-specific characteristics, including terrain and elevation, and demand-related factors, such as income, gross domestic product (GDP), and population density.⁶⁹ Adjustment factor values ranged from 1 to 3.8, with higher adjustment factors associated with more sparsely populated areas and/or forested and mountainous areas and lower average incomes.⁷⁰ However, the Commission also determined that the 5G Fund auction would wait for the more precise data on "areas of the country where support is most needed and will be spent most efficiently" that would be forthcoming from the BDC.⁷¹

each round, bidders will indicate their willingness to accept support for an area at iteratively lower clock prices. When the total amount of support requested by bidders (counting an area only once) falls to an amount that can be accommodated within the budget, the areas that still have bids will receive support. Areas with a single remaining bidder will be supported at the "clearing price." If there are areas where more than one bidder is still competing, the support clock price will continue descending until a single bidder remains, which will be supported at that price.

⁶⁷ The Commission adopted an overall budget of \$9 billion for the 5G Fund to be awarded in two phases, with up to \$8 billion for Phase I, of which it reserved \$680 million of support for service to Tribal lands, and at least \$1 billion in Phase II. *5G Fund Report and Order*, 35 FCC Rcd at 12185, para. 28.

⁶⁸ *Id.* at 12194-95, para. 48.

⁶⁹ See *id.* at 12194-95, 12196-97, 12197-98, paras. 48, 54-55, 57-58; see also *Office of Economics and Analytics and Wireline Competition Bureau Adopt Adjustment Factor Values for the 5G Fund*, Public Notice, GN Docket 20-32, 35 FCC Rcd 12975, 12976-77, 12979, paras. 4-5, 8 (OEA/WCB 2020) (*Adjustment Factor Values Public Notice*); *Office of Economics and Analytics and Wireline Competition Bureau Seek Comment on Adjustment Factor Values for the 5G Fund*, GN Docket No. 20-32, Public Notice, 35 FCC Rcd 5704, 5706-11, 5714-49, paras. 6-17, Appendices A and B (OEA/WCB 2020) (*Adjustment Factor Values Comment Public Notice*).

⁷⁰ *Adjustment Factor Values Public Notice*, 35 FCC Rcd at 12976-77, para. 5 & Fig. 1.

⁷¹ *5G Fund Report and Order*, 35 FCC Rcd at 12976, para. 4.

34. As discussed above, we seek comment on limiting eligible areas to resolution-9 H3 hexagons that have locations and/or roads. If we were to limit eligible areas to resolution-9 H3 hexagons that have locations and/or roads, we would use a bidding and support price metric based on dollars per square kilometer for those eligible areas. Accordingly, the support amount for an area would be determined as the number of square kilometers associated with the area times the price at which support is assigned. We seek comment on whether we should use the adjustment factor as previously adopted. The adjustment factor was designed to equalize the cost of serving all areas, so that it would be equally likely that particularly costly areas (defined, in part, by low population density and difficult terrain) and areas that can be served more cost-effectively would win support.⁷² Moreover, we seek comment on whether a support unit in terms of square kilometers alone—absent the adjustment that would have given priority to areas with low incomes, low population density, and costly terrain—would, to the greatest extent possible, promote our goal of providing 5G coverage to places where people live, work, and travel. We also seek comment on whether we should adopt an alternative approach that would provide some advantage to particularly costly areas that nonetheless are areas with a considerable number of homes, business, and other locations, and/or roads that are frequently travelled. Could parameters for an alternative approach be determined without unduly delaying the auction?

35. As an alternative to using dollars per square kilometer as the bidding and support price metric, we also seek comment on using a bidding and support price metric based on the number of locations in the eligible areas. If we were to adopt this metric, eligible areas would be associated with a number of such locations in the area; the clock would announce prices in terms of dollars per location; and support amounts would be calculated as the number of locations in the area times the support price per location.

36. We also seek comment on potentially incorporating the number of unserved road miles in an area, as well as the number of locations, into the bidding and support price metric. What source of road data and which road categories should we use? How could we do so in a way that would appropriately balance unserved road miles and unserved locations in a single metric? For example, could we adjust the number of locations upward by a fraction, e.g., 25%, in an area with a moderate number of unserved road miles, and by a larger fraction, e.g., 40%, if the area has a large number of unserved road miles? Or, would a metric that is a weighted sum of unserved locations and unserved road miles be appropriate? For example, a metric might be the total of the number of unserved locations and one half of the number of unserved road miles. If we were to use such a hybrid metric, would covering an unserved road mile be more or less preferred than covering a location? How would we determine the appropriate weights? Commenters should keep in mind that the weights would not have to be precisely calculated, but simply represent the extent to which the auction mechanism would put a “finger on the scale.”

37. Limiting eligible areas to those areas that have unserved road miles and/or unserved locations would reflect our goal of providing support to areas where people live, work, and travel. If we use a bidding and support metric of dollars per square kilometer, are there other ways to incorporate incentives to bid for areas covering unserved locations and road miles, such as by requiring winning bidders’ support obligations to include unserved locations and road miles? A bidder would know the extent of its obligations in advance of the auction and could adjust accordingly the amount of support in terms of dollars per square kilometer that it is willing to accept. Are there other ways to encourage coverage of locations and road miles without explicitly incorporating them into the metric? Commenters should consider that a suggested approach should be transparent and straightforward to measure.

38. We also seek comment on a possible metric based on predicted usage from serving eligible areas. This metric would consider all measurable factors that can affect mobile usage, such as

⁷² *5G Fund Report and Order*, 35 FCC Rcd at 12196-99, paras. 54-60. For a detailed explanation of the adjustment factor, see *Adjustment Factor Values Comment Public Notice*, 35 FCC Rcd 5706-11, 5714-49, paras. 6-17, Appendices A and B.

unserved locations, road miles, and areas with parks or wilderness where devices are likely to be used. For such an approach, we would need to consider what data are available that would enable us to make useful predictions of usage. If we were to use this usage-based approach, how should usage be measured? One possible measure of usage would be the average number of connected 5G devices in 15-minute periods throughout the day. Another possible measure of usage would be total megabytes of data usage during a reporting period. Similar to the approaches used to generate the adjustment factor that was adopted in the *5G Fund Report and Order*,⁷³ such data could be used in a regression or another modeling approach to generate weights for each eligible area based on predicted usage.

A. Minimum Geographic Area for Bidding

39. In the *5G Fund Report and Order*, the Commission concluded that “the minimum geographic area for bidding—i.e., the geographic area by which areas eligible for support for 5G Fund support will be grouped for bidding—in a 5G Fund auction will be no larger than a census tract and no smaller than a census block group, as designated by the U.S. Census Bureau.”⁷⁴ Census tracts and census block groups are practical units for aggregation when starting with census blocks, as, for example, in the Rural Digital Opportunity Fund.⁷⁵ As discussed above, we would convert the areas eligible for the 5G Fund to, and make them available in the form of, hex-9s. We can then group the eligible hex-9s into larger geographic areas for purposes of bidding. For example, we could have the geographic bidding unit be all of the eligible hex-9s that overlap a census tract or census block group. Alternatively, eligible hex-9s could be aggregated to another geographic area, such as the H3 hexagonal geospatial indexing system resolution-5 hexagon level (hex-5s). We seek comment on what aggregation scheme would be an efficient and appropriate way to group eligible hex-9s for bidding.⁷⁶

VI. COMPLIANCE WITH 5G FUND PUBLIC INTEREST OBLIGATIONS AND PERFORMANCE REQUIREMENTS

A. Metric for Measuring Compliance with 5G Fund Public Interest Obligations and Performance Requirements

40. The Commission adopted interim and final service deployment milestones for 5G Fund support recipients in the *5G Fund Report and Order* to ensure that they meet their public interest obligations and performance requirements in areas where they receive support.⁷⁷ Our proposal to use dollars per square kilometer as the bidding and support price metric is consistent with this approach. If we decide to modify the bidding and support price metric for the 5G Fund auctions to use a metric that targets locations (and possibly road miles), as discussed above, we would need to make corresponding modifications to the rules adopted in the *5G Fund Report and Order* concerning the metric that would be used to measure a 5G Fund support recipient’s compliance with its public interest obligations and performance requirements.

⁷³ *Adjustment Factor Values Public Notice*, 35 FCC Rcd at 12976-77, 12979, paras. 4-5, 8; *Adjustment Factor Values Comment Public Notice*, 35 FCC Rcd 5704, 5706-11, paras. 6-17, Appendices A and B.

⁷⁴ *5G Fund Report and Order*, 35 FCC Rcd at 12195, para. 50.

⁷⁵ *Rural Digital Opportunity Fund; Connect America Fund*, Order, WC Docket Nos. 19-126 and 10-90, 35 FCC Rcd 686 (2020), paras. 9-13; *Rural Digital Opportunity Fund Phase I Auction Scheduled for October 29, 2020; Notice and Filing Requirements and Other Procedures for Auction 904*, AU Docket No. 20-34 et al., Public Notice, 35 FCC Rcd 6077 (2020), para. 22.

⁷⁶ If we were to adopt an alternative method of aggregating eligible areas for bidding, we would delegate authority to OEA, WCB, and WTB to determine during the pre-auction process how best to implement it in a manner that is suitable for auction procedures.

⁷⁷ *5G Fund Report and Order*, 35 FCC Rcd at 12204, 12205-06, paras. 73-74, 77; see 47 CFR §§ 54.1015, 54.1019, 54.1020.

41. Under this approach, if we adopt a different bidding and support price metric, we would likely adopt the same metric for measuring compliance.⁷⁸ For example, if we were to use a locations-based metric without a road miles component, we would measure compliance based on a support recipient deploying service that meets the 5G Fund performance requirements to a specified percentage of the total locations within the eligible areas for which it is authorized to receive 5G Fund support in a state by the relevant interim service milestone and the final service milestone. Or, if we were to use a hybrid metric that incorporates locations and road miles, we would measure compliance based on a support recipient deploying service that meets the 5G Fund performance requirements to a specified percentage of the total unserved locations and a specified percentage of the total unserved road miles within the eligible areas for which it is authorized to receive 5G Fund support in a state by the relevant interim service milestone and the final service milestone.

42. We seek comment on our approach to harmonizing the metric we use to measure a 5G Fund support recipient's compliance with its public interest obligations and performance requirements should we decide to modify the bidding and support price metric adopted in the *5G Fund Report and Order*.

43. We also seek comment on whether, in determining the metric we use to measure a 5G Fund support recipient's compliance with its public interest obligations and performance requirements, we should also consider how any such metric might allow us to account for the impact of the Broadband Equity, Access, and Deployment (BEAD) Program and other federal and state broadband infrastructure investments, if any, on the deployment of mobile broadband. Given that the BEAD Program does not provide funding for mobile broadband deployment,⁷⁹ we seek comment on whether our proposals herein, together with the rules and procedures already adopted for the 5G Fund, are sufficient to ensure that the Commission efficiently and effectively facilitates the deployment of mobile broadband service to those areas where support is most needed. Furthermore, we seek comment on whether the use of a metric that targets locations and/or road miles to measure a 5G Fund support recipient's compliance with its public interest obligations and performance requirements provides us with the ability to determine if, and how, mobile broadband deployment supported through the 5G Fund complements other federally funded buildout efforts and investments in broadband infrastructure. Finally, we seek comment on steps we can take to ensure that any final decision here is taken in coordination and with due consideration for the other various broadband infrastructure funding initiatives underway.

A. Methodologies for Demonstrating Compliance with 5G Fund Performance Requirements

44. In the *5G Fund Report and Order*, the Commission decided to generally align the framework for 5G Fund support recipients' demonstration of compliance with their 5G Fund interim and final performance requirement milestones with the BDC, concluding that standardizing the data required for compliance reporting was likely to ease the burden on support recipients throughout universal service programs, while collecting sufficient data to confirm that the 5G Fund's requirements have been met.⁸⁰ To that end, the Commission adopted a requirement that 5G Fund support recipients certify at the established interim and final service deployment milestones that their 5G mobile broadband coverage data reflects deployments in the eligible areas for which they are authorized to received 5G Fund support, and also adopted a requirement that 5G Fund support recipients conduct on-the-ground measurement tests to

⁷⁸ An exception to this would be if we adopt an alternative approach to encouraging coverage of unserved road miles by using a metric based on locations alone, but require coverage of road miles as well as locations as part of the winner's obligations, as mentioned in Section V, above.

⁷⁹ *Report to Congress* at page 30, para. 54. See also National Telecommunications and Information Administration, *Broadband Equity, Access, and Deployment Program*, Notice of Funding Opportunity, (2022), <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf> (last visited Sept. 18, 2023).

⁸⁰ *5G Fund Report and Order*, 35 FCC Rcd at 12233-12234, paras. 143, 145.

substantiate their 5G broadband coverage data pursuant to methodologies for conducting such testing and validating the test results and file that data in the BDC portal.⁸¹ With respect to the methodologies for conducting on-the-ground tests, the Commission decided that a 5G Fund support recipient must submit on-the-ground measurement tests with at least three tests conducted per square kilometer, measured by overlaying a uniform grid of one square kilometer (1 km by 1 km) on its submitted 5G coverage maps within the area for which 5G Fund support was awarded in a percentage of all drive-testable grid cells where the recipient reports deployment of 5G service by the applicable service deployment milestone.⁸²

45. We propose to modify the methodologies that support recipients would use to substantiate their 5G broadband coverage certifications in the areas for which they receive 5G Fund support in order to be consistent with both our proposal above to use hexagonal areas as the basis for the areas eligible for 5G Fund support and the Commission's decision in the *5G Fund Report and Order* to generally align the framework for demonstrating compliance with 5G Fund performance requirement milestones with the BDC. Specifically, we propose requiring 5G Fund support recipients to use the methodologies adopted for the BDC mobile verification process as the basis for substantiating coverage and demonstrating compliance with the 5G Fund interim and final deployment milestones.⁸³ Under the requirements for the BDC mobile verification process, mobile providers can submit either on-the-ground test data or infrastructure data to verify coverage in response to a mobile verification request from the Commission.⁸⁴ The Commission may then use the infrastructure data to generate a predicted coverage area using propagation modeling software.⁸⁵ We seek comment on this proposal and, in particular, whether 5G Fund support recipients should be required to submit on-the-ground test data for areas that are accessible and infrastructure data for areas that are inaccessible. Should they submit infrastructure data sufficient to generate a "core coverage area," as defined in the BDC mobile verification process,⁸⁶ and on-the-ground test data for areas outside of such a core coverage area? Alternatively, should providers be allowed to submit either type of data regardless of the type of area in which they are deploying service?

46. If a provider chooses to submit on-the-ground test data in response to a BDC mobile verification request, it must provide such data based on a sample of on-the-ground tests that is statistically appropriate for the area tested.⁸⁷ The sampled area is based on H3 resolution-8 hexagonal areas, and the provider must submit the results of at least two tests within each hexagon, and the time of the tests must

⁸¹ *Id.* at 12230-33, paras. 137-41. Rather than adopting customized 5G Fund testing requirements, the Commission decided to adopt test metrics, data specifications, and permitted testing applications that are at least as stringent as those adopted for governmental and third party challenges in the BDC as a minimum for the on-the ground tests required for the 5G Fund. *Id.* at 12231-32, para. 139.

⁸² *Id.* at 12232, para. 140. The minimum percentage of drive-testable grid cells tested must equal the minimum percentage of coverage required for each service buildout milestone (i.e., 40%, 60%, 80%, 85%). *Id.*

⁸³ See *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3054-68, paras. 86-113, for information on the BDC mobile verification process. The Commission adopted interim and final service deployment milestones for 5G Fund support recipients that require such recipients to deploy 5G service meeting the 5G Fund performance requirements to at least covering 40% of the areas for which they receive 5G Fund support in a state by the end of the third full calendar year following support authorization, to at least 60% of such areas by the end of the fourth full calendar year, to at least 80% of such areas after the fifth full calendar year, and to at least 85% of such areas after the sixth full calendar year. *5G Fund Report and Order*, 35 FCC Rcd at 12204, paras. 73-74.

⁸⁴ 47 CFR § 1.7006(c); *BDC Third Report and Order*, 36 FCC Rcd at 1146, para. 50.

⁸⁵ See *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3063-64, paras. 104-05.

⁸⁶ *Id.* at 3064, para. 104.

⁸⁷ 47 CFR § 1.7006(c); *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3060-62, paras. 97-99.

be at least four hours apart, irrespective of date.⁸⁸ The tests are then evaluated to confirm, using a one-sided 95% statistical confidence interval, that the cell coverage is 90% or higher.⁸⁹ We propose to use a methodology for support recipients to demonstrate compliance with their 5G Fund performance requirement milestones that is similar to that adopted for the BDC mobile verification process, except that 5G Fund support recipients would not submit speed data based on a *sample* of areas, but for *all* supported areas subject to the on-the-ground testing requirement, and the area would be hex-9 instead of a hex-8. Under this approach, a 5G Fund support recipient's cumulative test data will be required to show that at least 90% of measurements report 5G service at download and upload speeds of at least 7/1 Mbps and median download and upload speeds of at least 35/3 Mbps, and that at least 90% of tests record data latency of 100 milliseconds or less at the cell edge, as adopted in the *5G Fund Report and Order* for each of the support recipient's interim and final deployment milestones.⁹⁰ We seek comment on this approach. Do commenters believe that more tests or fewer tests should be required within a hexagonal area? Should the tests be spaced further than four hours apart or closer together?

47. If a provider chooses to submit infrastructure data in response to a BDC mobile verification request, it must submit additional information beyond what is submitted as part of its biannual BDC availability data (propagation modeling details, as well as link budget and clutter data), including cell-site and antenna data for the targeted area.⁹¹ We propose to require 5G Fund support recipients to submit the same additional infrastructure data as is required in the BDC mobile verification process to substantiate coverage in the areas for which they receive 5G Fund support. We seek comment on this approach.

VII. SCHEDULE FOR TRANSITIONING FROM MOBILE LEGACY HIGH-COST SUPPORT TO 5G FUND SUPPORT

48. In the *5G Fund Report and Order*, as part of its determination that the 5G Fund constitutes a comprehensive mechanism for mobile high-cost support that would serve as the alternative to Mobility Fund Phase II, the Commission concluded that it would commence the phase down of legacy mobile high-cost support in areas that are ineligible for 5G Fund support as soon as those areas were finalized.⁹² In the Consolidated Appropriations Act of 2023, however, Congress amended the language that allowed the Commission to consider support mechanisms as alternatives to Mobility Fund Phase II to further provide that “any such alternative mechanism shall maintain existing high-cost support to competitive eligible telecommunications carriers until support under such mechanism commences.”⁹³ Accordingly, we propose to treat the release of the public notice announcing the close of the 5G Fund Phase I auction to be the point at which support under the 5G Fund commences. We seek comment on this proposal. We also seek comment on whether the appropriations rider requires the Commission to modify or consider any other changes to aspects of its plan for transitioning from mobile legacy high-cost

⁸⁸ 47 CFR § 1.7006(c). The BDC rules provide that a provider must submit the results of at least two tests “unless, for any sampled hexagon, the provider has and submits alongside its speed tests actual cell loading data for the cell(s) covering the hexagon sufficient to establish that median loading, measured in 15-minute intervals, did not exceed the modeled loading factor for the one-week period prior to the verification inquiry, in which case the provider is required to submit only a single test for the sampled hexagon.” *Id.*

⁸⁹ *Id.* For more details on the BDC methodology for verifying mobile coverage data, see the technical appendix in the *BDC Mobile Technical Requirements Order* and section 1.7006(c) of the Commission's rules. *Id.*; *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3084-106, Appx. A.

⁹⁰ *5G Fund Report and Order*, 35 FCC Rcd at 12232-33, para. 141.

⁹¹ See *BDC Mobile Technical Requirements Order*, 37 FCC Rcd at 3063-64, para. 104.

⁹² *5G Fund Report and Order*, 35 FCC Rcd at 12224-25, para. 123.

⁹³ See Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, Div. E, Title VI § 624, 136 Stat. 4459, 4702; see also *5G Fund Report and Order*, 35 FCC Rcd at 12218-19, paras. 109-10 (discussing prior appropriations rider).

support to 5G Fund support. Commenters should provide support for any interpretation they offer and how the public interest is best served by any such interpretation.

VIII. CERTIFICATION OF NOTICE OF 5G FUND PHASE I AUCTION REQUIREMENTS AND PROCEDURES

49. We propose to adopt a requirement for the 5G Fund Phase I auction that each auction applicant certify, under penalty of perjury, that it has read the public notice adopting procedures for the auction, and that it has familiarized itself with those procedures and any requirements, terms, and conditions associated with receipt of 5G Fund support. As with other required certifications, an auction applicant's failure to make the required certification in its short-form application by the applicable filing deadline would render its application unacceptable for filing, and its application would be dismissed with prejudice.⁹⁴

50. Prior to the deadline by which an interested party must submit a short-form application to participate in a given auction, a public notice is released announcing the procedures for the auction. This "Procedures Public Notice" describes in detail both the requirements for participating in the auction and the procedures that will be used to conduct all stages of the auction. The Commission has a longstanding policy that expressly places a burden upon each applicant to be thoroughly familiar with the procedures, terms, and conditions contained in the relevant Procedures Public Notice and any future public notices that may be released in the auction proceeding.⁹⁵ In recent spectrum auctions we and OEA, in conjunction with WTB and the Media Bureau, have reinforced this policy by adopting, as part of the procedures for those auctions, a requirement that each auction participant certify, under penalty of perjury, that it has read the Procedures Public Notice for the auction in question, and that it has familiarized itself with the auction procedures and with the requirements related to the licenses made available for bidding.⁹⁶ In adopting this certification requirement for prior Commission auctions, we noted that it was intended to bolster applicants' efforts to educate themselves to the greatest extent possible about the procedures for auction participation and to ensure that, prior to submitting their short-form applications, applicants understood their obligation to stay abreast of relevant, forthcoming information.⁹⁷ We further reasoned that familiarity with the Commission's rules and procedures governing the auctions would help bidders avoid the consequences to them associated with defaults, which also cause harm to other applicants and the public by reducing the efficiency of the auction process and reducing the likelihood that the license or construction permit will be assigned to the bidder that

⁹⁴ See 47 CFR § 1.21001(f)(2).

⁹⁵ See, e.g., *Rural Digital Opportunity Fund Phase I Auction Scheduled For October 29, 2020; Notice and Filing Requirements and Other Procedures For Auction 904*, AU Docket No. 20-34, WC Docket Nos. 19-126 and 10-90, Public Notice, FCC Rcd 6077, 6081, para. 7 (2020); *Tribal Mobility Fund Phase I Auction Rescheduled For December 19, 2013; Notice and Filing Requirements and Other Procedures for Auction 902*, AU Docket No. 13-53, Public Notice, 28 FCC Rcd 11628, 11647, para. 53 (2013).

⁹⁶ See, e.g., *Auction of Flexible-Use Licenses in the 2.5 GHz Band for Next-Generation Wireless Services; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 108*, AU Docket No. 20-429, Public Notice, 37 FCC Rcd 4370, 4381-83, paras. 24-28 (2022) (*Auction 108 Procedures Public Notice*); *Certification Adopted for Auction of Flexible-Use Service Licenses in the 3.45–3.55 GHz Band For Next-Generation Wireless Services*, AU Docket No. 21-62, Public Notice, 36 FCC Rcd 8444 (OEA/WTB May 19, 2021) (*Auction 110 Certification Public Notice*); *Auction of Construction Permits for Full Power Television Stations; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 112*, AU Docket No. 21-449, Public Notice, 37 FCC Rcd 1155, 1162-1163, paras. 19-23 (OEA/MB Feb. 10, 2022) (*Auction 112 Procedures Public Notice*).

⁹⁷ *Auction 108 Procedures Public Notice*, 37 FCC Rcd at 4382, para. 25; *Auction 110 Certification Public Notice*, 36 FCC Rcd at 8445, para. 4; *Auction 112 Procedures Public Notice*, 37 FCC Rcd at 1162, para. 20.

values it the most.⁹⁸ The Commission has also previously expressed in the context of spectrum auctions that the certification requirement will help ensure that an “auction applicant . . . has investigated and evaluated those technical and marketplace factors that may have a bearing on its potential use of any licenses won at auction.”⁹⁹

51. We believe that applicants for universal service support in the 5G Fund Phase I auction would benefit from a similar certification because, as is the case with our spectrum auctions, familiarity with the rules and procedures governing the 5G Fund Phase I auction would help bidders avoid the consequences to them associated with defaults, which also cause harm to other applicants and the public by reducing the efficiency of the auction process. We also believe that such certification would promote the integrity of and public confidence in the Commission’s auction processes as well as ensure that 5G Fund Phase I support recipients are aware of and better prepared to comply with their public interest obligations and performance requirements. We therefore propose to adopt this requirement for the 5G Fund Phase I auction and seek comment on this proposal. We seek comment on any alternative procedures that could be implemented that would better ensure that an applicant has thoroughly reviewed the auction’s procedures and considered all relevant factors that may affect its participation in the auction and use of any support for which it is the winning bidder.

IX. CYBERSECURITY AND SUPPLY CHAIN RISK MANAGEMENT

52. We seek comment on whether to require 5G Fund support recipients to implement cybersecurity and supply chain risk management plans as a condition of receiving 5G Fund support.¹⁰⁰ In the *Enhanced Alternative Connect America Cost Model Report and Order*, the Commission adopted a requirement that wireline providers receiving funds through the Enhanced Alternative Connect America Cost Model (Enhanced A-CAM) program implement such plans prior to the start of the program’s support term, and that they submit their plans to USAC and certify that they have done so by the established deadline.¹⁰¹ In adopting this requirement, the Commission stated that its actions “emphasize the critical importance of cybersecurity and supply chain risk management in modern broadband

⁹⁸ *Auction 108 Procedures Public Notice* 37 FCC Rcd at 4382, para. 25; *Auction 110 Certification Public Notice*, 36 FCC Rcd at 8445, para. 4; *Auction 112 Procedures Public Notice*, 37 FCC Rcd at 1162, para. 20.

⁹⁹ *Auction of Flexible-Use Service Licenses in the 2.5 GHz Band for Next-Generation Wireless Services; Comment Sought on Competitive Bidding Procedures for Auction 108*, AU Docket No. 20-429, Public Notice, 36 FCC Rcd 645, 648, para. 8 (2021); *see also Auction of Flexible-Use Service Licenses in the 3.45-3.55 GHz Band for Next-Generation Wireless Services; Comment Sought on Competitive Bidding Procedures for Auction 110*, AU Docket No. 21-62, Public Notice, 36 FCC Rcd 6100, 6105, para. 12 (2021); *Auction of Construction Permits for Full Power Television Stations; Comment Sought on Competitive Bidding Procedures for Auction 112*, AU Docket No. 21-449, Public Notice, 36 FCC Rcd 16222, 16224, para. 6 (OEA/MB 2021).

¹⁰⁰ We note that the Commission sought comment in the *Enhanced Alternative Connect America Cost Model Notice of Proposed Rulemaking* on whether to adopt cybersecurity and supply chain risk management requirements for Enhanced A-CAM carriers or, alternatively, for all carriers receiving high-cost support. *See Connect America Fund: A National Broadband Plan for Our Future High-Cost Universal Service Support et al.*, WC Docket No. 10-90 *et al.*, Notice of Proposed Rulemaking, 37 FCC Rcd 6728, 6749, para. 57 (2022). However, the Commission decided to adopt cybersecurity and supply chain risk management requirements only for Enhanced A-CAM carriers because the record contained sparse comment on whether to extend these requirements to other high-cost programs. *See Connect America Fund: A National Broadband Plan for Our Future High-Cost Universal Service Support et al.*, WC Docket No. 10-90 *et al.*, Report and Order, Notice of Proposed Rulemaking, and Notice of Inquiry, FCC 23-60, at 47, para. 109 & n. 311 (Jul. 24, 2023) (*Enhanced A-CAM Report and Order*).

¹⁰¹ *See Enhanced A-CAM Report and Order*, FCC 23-60, at 47, para. 109. The Commission stated that a failure to submit the plans and make the certification will result in 25% of monthly support being withheld until the carrier comes into compliance. *Id.*

networks, consistent with broader initiatives across the federal government,”¹⁰² and reasoned that a risk management requirement was necessary to ensure that the program “does not deprive rural consumers in high-cost areas of broadband service that is as secure as the service deployed pursuant to other federal funding initiatives.”¹⁰³ Specifically, we seek comment on whether 5G Fund support recipients should be required to implement a cybersecurity risk management plan that reflects the latest version of the NIST Framework for Improving Critical Infrastructure Cybersecurity,¹⁰⁴ and that reflects an established set of cybersecurity best practices, such as the standards and controls set forth in the Cybersecurity & Infrastructure Security Agency (CISA) Cybersecurity Cross-sector Performance Goals and Objectives¹⁰⁵ or the Center for Internet Security Critical Security (CIS) Controls.¹⁰⁶ We also seek comment on whether these carriers should be required to implement supply chain risk management plans that incorporate the key practices discussed in NISTIR 8276, Key Practices in Cyber Supply Chain Risk Management Observations from Industry,¹⁰⁷ and related supply chain risk management guidance from NIST 800-161.¹⁰⁸ Would it be appropriate for 5G Fund recipients to submit to USAC their updated cybersecurity and supply chain risk management plans within 30 days of making a substantive modification thereto, as Enhanced A-CAM recipients must?¹⁰⁹ What are the differences (if any) between 5G Fund recipients and Enhanced A-CAM recipients that might warrant different approaches to ensuring cybersecurity?

X. USE OF OPEN RADIO ACCESS NETWORK TECHNOLOGIES IN 5G FUND SUPPORTED NETWORKS

53. We seek comment on whether we should use the 5G Fund to encourage the deployment

¹⁰² *Id.*, citing Exec. Order No. 14028, 86 Fed. Reg. 26633, Improving the Nation’s Cybersecurity (May 17, 2021); NIST IR 8276, Key Practices in Cyber Supply Chain Risk Management: Observations from Industry (February 2021), <https://csrc.nist.gov/publications/detail/nistir/8276/final> (last visited Sept. 18, 2023); Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429, § 60102(g)(1)(B) (2021) (mandating compliance with “prudent cybersecurity and supply chain risk management practice”).

¹⁰³ *Enhanced A-CAM Report and Order*, FCC 23-60, at 47, para. 110.

¹⁰⁴ NIST, Framework for Improving Critical Infrastructure Cybersecurity, v.1.1 (2018), <https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf>.

¹⁰⁵ See Cybersecurity and Infrastructure Security Agency, *Cross-Sector Cybersecurity Performance Goals and Objectives*, <https://www.cisa.gov/cpgs> (last visited August 28, 2023).

¹⁰⁶ See Center for Internet Security, *Critical Security Controls Version 8*, <https://www.cisecurity.org/controls> (last visited August 28, 2023) (providing security controls grouped by priority and feasibility for different sizes and resources of businesses in Implementation Groups).

¹⁰⁷ NIST, Key Practices in Cyber Supply Chain Risk Management: Observations from Industry (2021), <https://csrc.nist.gov/publications/detail/nistir/8276/final> (presenting the following as key practices: 1) integrating cyber supply chain risk management across the organization; 2) establishing a formal cybersecurity supply chain risk management program; 3) knowing and managing critical components and suppliers; 4) understanding the organization’s supply chain; 5) collaborating closely with key suppliers; 6) including key suppliers in resilience and improvement activities; 7) assessing and monitoring throughout the supplier relationship; and 8) planning for the full life cycle).

¹⁰⁸ NIST, *Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations* (2022), <https://csrc.nist.gov/publications/detail/sp/800-161/rev-1/final> (identifying critical success factors for cyber supply chain risk management).

¹⁰⁹ Defining a “substantive” modification to a cybersecurity or supply chain risk management plan as occurring when at least one among certain conditions apply. See *Enhanced ACAM Order*, FCC 23-60 at 48, para. 112.

of Open RAN, and if so, how.¹¹⁰ In its March 2021 *Open RAN NOI*, the Commission sought input on “whether, and if so, how, deployment of Open RAN-compliant networks could further the Commission’s policy goals and statutory obligations, advance legislative priorities, and benefit American consumers by making state-of-the-art wireless broadband available faster and to more people in additional parts of the country.”¹¹¹ Soon after the *Open RAN NOI* was adopted, the President signed Executive Order 14036, which encouraged the Commission to “consider . . . providing support for the continued development and adoption of 5G Open Radio Access Network . . . protocols and software.”¹¹² The Commission has since sought comment in its *Enhanced Competition Incentive Program Further Notice of Proposed Rulemaking* on “whether and how we should factor the use of Open RAN technologies into the [Enhanced Competition Incentive Program],”¹¹³ noting that “Open RAN has the potential to allow carriers to promote the security of their networks while driving innovation, in particular in next-generation technologies like 5G, lowering costs, increasing vendor diversity, and enabling more flexible network architecture.”¹¹⁴

¹¹⁰ The Radio Access Network (RAN) is the portion of the wireless telecommunication system that connects user devices (e.g., mobile phones) with the core network that performs routing or delivery of content. Open RAN is a term that describes a general disaggregation of RAN functionality built using open interface specifications between elements instead of proprietary specifications. Open RAN can be implemented in vendor-neutral hardware and software-defined technology based on open interfaces and community-developed standards providing a flexible and interoperable deployment architecture across multiple vendors.

¹¹¹ *Promoting the Deployment of 5G Open Radio Access Networks*, GN Docket No. 21-63, Notice of Inquiry, 36 FCC Rcd 5947, 5948, para. 3 (2021) (*Open RAN NOI*).

¹¹² Exec. Order No. 14036 § 5(1)(iii), 86 Fed. Reg. 36987, 36994, Promoting Competition in the American Economy (July 9, 2021). Even prior to the issuance of Executive Order 14036, the Commission recognized the potential benefits of Open RAN by including it in the list of the categories of suggested replacements for communications equipment that must be removed by eligible telecommunications carriers (ETCs) that receive USF funds, pursuant to the *Supply Chain Second Report and Order*. See *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, WC Docket No. 18-89, Second Report and Order, 35 FCC Rcd 14284, 14366, para. 202 (2020).

¹¹³ *Partitioning, Disaggregation, and Leasing of Spectrum*, WT Docket No. 19-38, Further Notice of Proposed Rulemaking, 36 FCC Rcd 16956, 16977, para. 63 (2021).

¹¹⁴ *Id.* at 16977, para. 62. We note that other federal agencies are also working to encourage the expansion of Open RAN technologies. For example, the National Telecommunications and Information Administration (NTIA) recently released the first of a series of Notices of Funding Opportunity for the purpose of funding “efforts that accelerate the development, deployment, and adoption of open and interoperable radio access networks . . . through a competitive grant program.” National Telecommunications and Information Administration, *Public Wireless Supply Chain Innovation Fund Grant Program—Expanding Testing and Evaluation*, Notice of Funding Opportunity, at 2 (2023), https://ntia.gov/sites/default/files/publications/pwscif_final_nofp.pdf (last visited Sept. 18, 2023). NTIA also released an in-depth report on security issues related to Open RAN, stating that “[c]ompared to non-disaggregated, non-virtualized RAN, Open RAN has potential security advantages, incl. openly specified, verifiable security controls and capabilities associated to virtualization and cloudification that can help to improve operational security tasks.” NTIA, *Open RAN Security Report: Outcome From Quad Critical and Emerging Technology Working Group* at 7 (May 2023), https://ntia.gov/sites/default/files/publications/open_ran_security_report_full_report_0.pdf (last visited Sept. 18, 2023). The report also found that Open RAN could be expected to provide other benefits, such as “[i]mprovement of the performance and reducing the cost of equipment by stimulating competition in the base station market; [m]itigating supply chain risks (diversifying suppliers) according to the multi-vender configuration; [o]ptimizing energy efficiency through intelligence (Energy saving); [and] [i]mprovement of monitoring and maintenance functions by [Service Management and Orchestration].” *Id.* at 8. We recognize, however, that there is some debate about whether Open RAN is ready for full network deployment, as well as concern that Open RAN may, in fact, create additional security risks. See, e.g., T-Mobile Comments, GN Docket No. 21-63, at 13-14 (filed Apr. 28, 2021); see also Verizon Comments, GN Docket No. 21-63, at 4 (filed Apr. 28, 2021) (stating that there are “many

(continued....)

54. We consider here whether and if so, how, this 5G Fund proceeding should promote the continued deployment of Open RAN technologies in networks built with 5G Fund support. As noted above, we seek comment on whether we should use the 5G Fund to encourage the deployment of Open RAN, and if so, how. We also seek comment on whether the 5G Fund could be an appropriate vehicle by which to further the goals outlined in Executive Order 14036 and if so, what the best mechanism(s) for doing so might be. For example, would deploying Open RAN networks require more time such that we should afford a 5G Fund support recipient an extension of the interim and/or final service milestone deadlines if it demonstrates that it is using Open RAN in its network deployment? If we do adopt such an incentive to encourage the use of Open RAN technologies, how would a support recipient demonstrate compliance with a requirement to implement those technologies, and how would we measure a support recipient's continued compliance with such a requirement? Would supporting the deployment of Open RAN be consistent with our objective to efficiently and effectively distribute finite universal service support?

XI. PROMOTING DIGITAL EQUITY AND INCLUSION

55. The Commission, as part of its continuing effort to advance digital equity for all,¹¹⁵ including for people of color, persons with disabilities, persons who live in rural or Tribal areas, and others who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comment on any equity-related considerations¹¹⁶ and benefits (if any) that may be associated with the proposals and issues discussed herein. Specifically, we seek comment on how our proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well the scope of the Commission's relevant legal authority to address any such issues.

XII. PROCEDURAL MATTERS

56. *Paperwork Reduction Act.* This Further Notice of Proposed Rulemaking does not contain proposed new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, this Further Notice of Proposed Rulemaking does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4).

57. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),¹¹⁷ requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that “the rule will not, if promulgated, have a significant

unspecified and non-standardized functionalities that Open RAN will need to support for network operators who provide customers with advanced wireless capabilities at scale”).

¹¹⁵ Section 1 of the Communications Act of 1934, as amended, provides that the FCC “regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex.” 47 U.S.C. § 151.

¹¹⁶ The term “equity” is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. *See* Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Jan. 20, 2021).

¹¹⁷ 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

economic impact on a substantial number of small entities.”¹¹⁸ Accordingly, the Commission has prepared a Supplemental Initial Regulatory Flexibility Analysis (Supplemental IRFA) concerning the potential rule and policy changes in this Further Notice of Proposed Rulemaking. The Supplemental IRFA is set forth in Appendix B. Written public comments are requested on the Supplemental IRFA. Comments must be filed by the same deadlines for comments on this Further Notice of Proposed Rulemaking indicated on the first page of this document and must have a separate and distinct heading designating them as responses to the Supplemental IRFA.

58. *Ex Parte Rules - Permit-But-Disclose.* This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.¹¹⁹ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

59. *Comment Period and Filing Procedures.* Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. All comments must be filed in GN Docket No. 20-32. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24,121 (May 1, 1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <https://www.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.
 - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
 - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, NE, Washington, DC 20554.
 - Effective March 19, 2020, and until further notice, the Commission no longer

¹¹⁸ 5 U.S.C. § 605(b).

¹¹⁹ 47 CFR § 1.1200 et seq.

accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19.¹²⁰

60. *People with Disabilities.* To request materials in accessible formats (braille, large print, electronic files, audio format) for people with disabilities, send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice).

61. *Additional Information.* For additional information on this proceeding, contact Kelly Quinn of the Office of Economics and Analytics, Auctions Division, at kelly.quinn@fcc.gov, Valerie Barrish of the Office of Economics and Analytics, Auctions Division, at valerie.barrish@fcc.gov or (202) 418-0354, or Mary Lovejoy of the Office of Economics and Analytics, Auctions Division, at mary.lovejoy@fcc.gov or (202) 418-2024.

XIII. ORDERING CLAUSES

62. Accordingly, IT IS ORDERED, pursuant to the authority contained in sections 4(i), 214, 254, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 214, 254, 303(r), and 403, and sections 1.1 and 1.421 of the Commission's rules, 47 CFR §§ 1.1 and 1.421, that this Further Notice of Proposed Rulemaking IS ADOPTED.

63. IT IS FURTHER ORDERED that, pursuant to the authority contained in sections 4(i), 214, 254, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 214, 254, 303(r), and 403, and sections 1.1 and 1.421 of the Commission's rules, 47 CFR §§ 1.1 and 1.421, NOTICE IS HEREBY GIVEN of the proposals described in this Further Notice of Proposed Rulemaking.

64. IT IS FURTHER ORDERED that, pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rulemaking in the captioned docket on or before the date shown on the first page of this document, and reply comments on or before the date shown on the first page of this document.

65. IT IS FURTHER ORDERED that the Office of the Secretary, Reference Information Center, SHALL SEND a copy of this Further Notice of Proposed Rulemaking, including the Supplemental Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

¹²⁰ See *FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, 35 FCC Rcd 2788 (OMD 2020), <https://www.fcc.gov/document/fcc-closes-headquarters-open-window-andchanges-hand-delivery-policy>.

APPENDIX A

Supplemental Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Commission has prepared this Supplemental Initial Regulatory Flexibility Analysis (Supplemental IRFA) of the possible significant economic impact on a substantial number of small entities from the policies and rules proposed in the Further Notice of Proposed Rulemaking (*Further Notice*) to supplement the Commission's Regulatory Flexibility Analyses completed in the *5G Fund NPRM* and *5G Fund Report and Order*.² The Commission requests written public comment on this Supplemental IRFA. Comments must be identified as responses to the Supplemental IRFA and must be filed by the deadlines for comments on the *Further Notice*. The Commission will send a copy of the *Further Notice*, including this Supplemental IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).³ In addition, the *Further Notice* and Supplemental IRFA (or summaries thereof) will be published in the Federal Register.⁴

A. Need For, And Objectives Of, The Proposed Rules

2. The new, granular, and more accurate mobile coverage data obtained in the Broadband Data Collection (BDC) and reflected on the Commission's new National Broadband Map allows the Commission to continue the implementation of the 5G Fund for Rural America (5G Fund) and advance our efforts to ensure the deployment of high-speed 5G service in areas of the country where, absent subsidies, it will continue to be lacking.⁵ We undertake this effort in the *Further Notice* in recognition that those living, working, and travelling in unserved and underserved areas must have access to high-speed 5G service. Mobile services that may have once been considered a luxury by some have become a necessity for all Americans. The need for such services has never been more critical, yet not only are there people in many areas of our country that continue to lack access to 5G services, Americans in some rural areas still lack access to any broadband service at all.

3. In today's narrowly tailored *Further Notice*, we seek to refresh the record and reignite the Commission's plan to expand the deployment of 5G service to those rural communities that remain trapped on the wrong side of the digital divide. We seek comment on a limited set of proposals and other issues that are critical to the 5G Fund's success, including: (1) defining the areas that will be eligible for 5G Fund support; (2) reassessing the budget for the 5G Fund; (3) potentially reconsidering the use of

¹ 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32, WT Docket No. 10-208, Notice of Proposed Rulemaking and Order, 35 FCC Rcd 3994, at App. C (2020) (*5G Fund NPRM*); *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32, Report and Order, 35 FCC Rcd 12174, 12304, at App. B (2020), modified by *Errata* released Nov. 10, 2020, Nov. 27, 2020, and Jan. 11, 2021 (*5G Fund Report and Order*). The Commission received five timely filed petitions for reconsideration of the *5G Fund Report and Order*. See The Rural Wireless Association and NTCA – The Rural Broadband Association, Joint Petition for Reconsideration, *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32 (filed Dec. 28, 2020); The Coalition of Rural Wireless Carriers, Petition for Reconsideration, *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32 (filed Dec. 28, 2020); CTIA, Petition for Partial Reconsideration, *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32 (filed Dec. 28, 2020); Smith Bagley, Inc, Petition for Reconsideration, *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32 (filed Dec. 28, 2020); 5G Fund Supporters, Petition for Partial Reconsideration, *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32 (filed Nov. 30, 2020); see also Petitions for Reconsideration of Action in Proceeding, Public Notice, Report No. 3165 (rel. Jan. 6, 2021). These petitions remain pending.

³ 5 U.S.C. § 603(a).

⁴ *Id.*

⁵ See generally *5G Fund Report and Order*, 35 FCC Rcd 12174. At the time the *5G Fund Report and Order* was adopted, the BDC was known as the Digital Opportunity Data Collection.

adjusted square kilometers as the metric for accepting bids and identifying winning bids in a 5G Fund auction; (4) aggregating areas eligible for 5G Fund support to minimum geographic areas for bidding; (5) measuring a 5G Fund support recipient's compliance with its public interest obligations and performance requirements based on any modified metric for accepting bids and identifying winning bids; (6) modifying the schedule for transitioning from mobile legacy high-cost support to 5G Fund support consistent with recent legislative amendments; (7) a proposal to require each 5G Fund Phase I auction applicant to certify, under penalty of perjury, that it has read the public notice adopting procedures for the auction, and that it has familiarized itself with those procedures and any requirements related to the support made available for bidding in the auction; (8) whether to require 5G Fund support recipients to implement cybersecurity and supply chain risk management plans; and (9) determining whether and how this proceeding might create an opportunity to support further deployment of Open Radio Access Network (Open RAN) technologies.

4. Based on data obtained in the BDC and currently reflected on our National Broadband Map, our understanding of where mobile service remains lacking has improved significantly, and we now seek comment on whether to modify the definition of eligible areas we adopted in the *5G Fund Report and Order*. Specifically, we seek comment on whether we should continue to use the definition adopted by the Commission in the *5G Fund Report and Order* to determine areas eligible for the 5G Fund Phase I auction, or whether we should modify the definition to base the determination of eligible areas on where mobile coverage data submitted in the BDC show a lack of unsubsidized 5G broadband service by at least one service provider. Regardless of how we define the areas eligible for 5G Fund support, we propose to use as the basis for the final eligible areas the version of the mobile availability data published on the National Broadband Map approximately 30 days prior to the start of bidding. Because we seek to direct 5G Fund support to areas where people live, work, and travel, regardless of the definition we use to identify the areas eligible for the 5G Fund Phase I auction, we seek comment on limiting eligible areas to those that contain locations and/or roads that lack unsubsidized 5G service. We would then use the H3 hexagonal geospatial indexing system (H3 system) to identify specific geographic areas eligible for 5G Fund support, limiting eligible areas to resolution-9 H3 hexagons that have locations and/or roads. If we were to limit eligible areas to resolution-9 H3 hexagons that have locations and/or roads, we would use a bidding and support price metric based on dollars per square kilometer for those eligible areas and we seek comment on whether to use the adjustment factor as previously adopted.

5. We also propose to modify the methodologies that support recipients would use to substantiate their 5G broadband coverage certifications in the areas for which they receive 5G Fund by requiring 5G Fund support recipients to use the methodologies adopted for the BDC mobile verification process as the basis for substantiating coverage and demonstrating compliance with the 5G Fund interim and final deployment milestones. Finally, we propose to treat the release of the public notice announcing the close of the 5G Fund Phase I auction to be the point at which support under the 5G Fund commences. We believe these proposals make the best use of our National Broadband Map and will facilitate our policy goals of achieving ubiquitous high-speed broadband coverage, providing rural areas with access to mobile services reasonably comparable to those provided in urban areas, and ensuring that all Americans have access to 5G service where they live, work, and travel.

6. Additionally, we propose to require each 5G Fund Phase I auction applicant to certify, under penalty of perjury, that it has read the public notice adopting procedures for the auction, and that it has familiarized itself with those procedures and any requirements related to the support made available for bidding in the auction. We believe that such a certification would promote the integrity of and public confidence in the Commission's auction processes as well as ensure that 5G Fund Phase I support recipients are aware of and better prepared to comply with their public interest obligations and performance requirements.

7. Access to high-speed, mobile services touches almost all aspects of daily life and is essential to civic, economic, and social opportunities for those living and working in rural areas as well as in big cities and suburban areas. The ability to communicate and innovate through access to high-speed,

mobile broadband services is a necessity for work, education, healthcare, news and entertainment, public safety information and services, and communication during a national emergency or other crisis. Thus, the importance of expanding access to high-speed 5G services in rural communities cannot be overstated. With this in mind, the Commission issued today's *Further Notice* cognizant that full participation in American society requires us to make 5G service available to everyone no matter where they live.

B. Legal Basis

8. The proposed action is authorized pursuant to sections 4(i), 214, 254, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 214, 254, 303(r), and 403, and sections 1.1 and 1.421 of the Commission's rules, 47 CFR §§ 1.1 and 1.421.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

9. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.⁶ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."⁷ In addition, the term "small business" has the same meaning as the term "small-business concern" under the Small Business Act.⁸ A "small-business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.⁹

10. As noted above, Regulatory Flexibility Analyses were incorporated into the *5G Fund NPRM* and *5G Fund Report and Order*.¹⁰ In those analyses, we described in detail the small entities that might be significantly affected. In this Supplemental IRFA, we hereby incorporate by reference the descriptions and estimates of the number of small entities from the previous Regulatory Flexibility Analyses in the *5G Fund NPRM* and *5G Fund Report and Order*.¹¹

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

11. Possible modification to some of the compliance requirements adopted in the *5G Fund Report and Order* that may be necessary based on the proposals and/or the other issues on which we seek comment in the *Further Notice* could impact the reporting, recordkeeping, and other compliance requirements for small and other providers that receive 5G Fund support.

12. In the *5G Fund Report and Order*, the Commission decided that it would accept bids and identify winning bids in the 5G Fund auctions using a support price per adjusted square kilometer, and adopted interim and final service deployment milestones for small and other 5G Fund support recipients to ensure that all support recipients meet their public interest obligations and performance requirements in areas where they receive support. If we decide to modify the bidding and support price metric for the 5G Fund auctions to use a metric other than square kilometers and make corresponding modifications to the

⁶ 5 U.S.C. § 603(b)(3).

⁷ *See id.* § 601(6).

⁸ *See id.* § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

⁹ 15 U.S.C. § 632.

¹⁰ *5G Fund NPRM*, at App. C; *5G Fund Report and Order*, at App. B.

¹¹ *5G Fund NPRM*, at App. C; *5G Fund Report and Order*, at App. B.

rules adopted in the *5G Fund Report and Order* concerning the metric that would be used to measure a 5G Fund support recipient's compliance with its public interest obligations and performance requirements, small and other providers that receive 5G Fund support will be required to use a different metric than what was adopted in the *5G Fund Report and Order* for purposes of measuring and reporting compliance with the 5G Fund public interest obligations and performance requirements.

13. The Commission decided to generally align the framework for 5G Fund support recipients' demonstration of compliance with their 5G Fund interim and final performance requirement milestones with the BDC in the *5G Fund Report and Order*, concluding that standardizing the data required for compliance reporting was likely to ease the burden on support recipients throughout universal service programs, while collecting sufficient data to confirm that the 5G Fund's requirements have been met.¹² With respect to the methodologies for conducting on-the-ground tests, the Commission decided in the *5G Fund Report and Order* that a 5G Fund support recipient must submit on-the-ground measurement tests with at least three tests conducted per square kilometer, measured by overlaying a uniform grid of one square kilometer (1 km by 1 km) on its submitted 5G coverage maps within the area for which 5G Fund support was awarded in a percentage of all drive-testable grid cells where the recipient reports deployment of 5G service by the applicable service deployment milestone.¹³ In the *Further Notice*, we propose to modify the methodologies that support recipients would use to substantiate their 5G broadband coverage certifications in the areas for which they receive 5G Fund support in order to be consistent with both our proposal to use hexagonal areas as the basis for the areas eligible for 5G Fund support and the Commission's decision in the *5G Fund Report and Order* to generally align the framework for demonstrating compliance with 5G Fund performance requirement milestones with the BDC. If this proposal is adopted, small and other providers that receive 5G Fund support will be required to use different methodologies than were adopted in the *5G Fund Report and Order* for purposes of demonstrating compliance.

14. The *Further Notice* also seeks comment on whether to adopt a requirement that each 5G Fund support recipient implement cybersecurity risk management and supply-chain risk management plans as a condition of receiving 5G Fund support, similar to the requirement adopted for the Enhanced Alternative Connect America Cost Model program. In that program, support recipients are required to implement such plans prior to the start of the program's support term, and to submit the plans to the Universal Service Administrative Company and certify that they have done so.¹⁴

15. In assessing the cost of compliance for small entities, at this time the Commission is not in a position to determine whether small entities will be required to hire professionals, and cannot quantify the cost of compliance with our proposals related to the above-described possible modifications to the metric and methodologies for demonstrating and reporting compliance with the 5G Fund public interest obligations and performance requirements. We anticipate, however, that the comments the Commission receives will discuss any potential changes to compliance costs and/or administrative burdens for small entities, and may help the Commission identify and evaluate other relevant issues for small entities associated with the matters discussed in the *Further Notice*.

16. The *Further Notice* also seeks comment on a proposal to add to the existing certifications that are required under the Commission's competitive bidding rules a requirement that each applicant in the 5G Fund Phase I auction certify, under penalty of perjury, that it has read the public notice adopting procedures for the auction, which will be released in advance of the auction's short-form deadline, and it

¹² *5G Fund Report and Order*, 35 FCC Rcd at 12233-12234, paras. 143, 145.

¹³ *Id.* at 12232, para. 140. The minimum percentage of drive-testable grid cells tested must equal the minimum percentage of coverage required for each service buildout milestone (i.e., 40%, 60%, 80%, 85%). *Id.*

¹⁴ See *Connect America Fund: A National Broadband Plan for Our Future High-Cost Universal Service Support, et al.*, WC Docket No. 10-90 *et al.*, Report and Order, Notice of Proposed Rulemaking, and Notice of Inquiry, FCC 23-60, at 47-49, paras. 109-14 (Jul. 24, 2023).

has familiarized itself both with the auction procedures and with any requirements related to the authorizations or support made available for bidding in the auction. Consistent with other certifications required in an auction application, a failure to make these certifications would render an application unacceptable for filing, and the applicant will not be found qualified to bid.¹⁵

17. Typically, the auction procedures inform prospective applicants that they should familiarize themselves with the Commission's general competitive bidding rules, Commission decisions regarding competitive bidding procedures, application requirements, obligations of Commission licensees, construction permit holders, and support recipients, and the Commission's service rules for the frequency band available in the auction or for construction permits or universal service support, and that they must be thoroughly familiar with the procedures, terms, and conditions contained in the public notice adopting procedures for the auction.¹⁶ We therefore do not expect that the certification requirement proposed in this *Further Notice* will increase the need for small entities to hire attorneys, engineers, consultants, or other professionals because it does not increase the level of education or due diligence beyond what was required of applicants prior to the adoption of the certification requirement, and thus it should not increase an applicant's burden in complying with the additional certification requirement. Additional public notices adopting the procedures for any auction will be released before the auction's short-form filing deadline and made publicly available on each auction's web page. We believe that this is sufficient to ensure that applicants in each auction can certify truthfully that they have read the auction procedures and familiarized themselves with the relevant rules and requirements.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered

18. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities."¹⁷

19. We believe that the proposed modification to the metric for measuring compliance that may be necessary depending on the metric that we will use to accept bids and identify winning bids will also benefit small entities as corresponding changes to the metric that will be used to measure compliance will ensure that small entities would not be required to undertake separate analyses to determine how, and where they wish to bid, to identify the areas for which they are awarded support, and to measure and report compliance with their public interest obligations.

20. In the *Further Notice*, an alternative we considered to our proposal to use dollars per square kilometer as the bidding and support price metric, which we seek comment on, is whether to adopt an alternative approach that would provide some advantage to particularly costly areas that nonetheless

¹⁵ See 47 CFR § 1.21001(f)(2).

¹⁶ See, e.g., *Auction of Flexible-Use Licenses in the 2.5 GHz Band for Next-Generation Wireless Services; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 108*, AU Docket No. 20-429, Public Notice, 37 FCC Rcd 4370, 4373-74, paras. 5 (2022); *Auction of Flexible-Use Service Licenses in the 3.45-3.55 GHz Band for Next-Generation Wireless Services; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 110; Bidding to Begin October 5, 2021*, AU Docket No. 21-62, Public Notice, 36 FCC Rcd 9272, 9275, para. 5 (OEA/WTB June 9, 2021); *Auction of Construction Permits for Full Power Television Stations; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 112*, AU Docket No. 21-449, Public Notice, 37 FCC Rcd 1155, 1157, paras. 3 (OEA/MB Feb. 10, 2022).

¹⁷ 5 U.S.C. § 603(c).

are areas with a considerable number of homes, businesses, and other locations, and/or roads that are frequently travelled. We inquire whether parameters for such an alternative approach could be determined without unduly delaying the auction. Another alternative considered is to use a bidding and support price metric based on the number of locations in the eligible areas. Additionally, we seek comment on potentially incorporating the number of unserved road miles in an area, as well as the number of locations, into the bidding and support price metric. We inquire whether there is an approach that would appropriately balance unserved road miles and unserved locations in a single metric. For example, we ask whether we could adjust the number of locations upward by a fraction, e.g., 25%, in an area with a moderate number of unserved road miles, and by a larger fraction, e.g., 40%, if the area has a large number of unserved road miles, or whether a metric that is a weighted sum of unserved locations and unserved road miles would be appropriate, such as a metric that is the total of the number of unserved locations and one half of the number of unserved road miles. We also considered and seek comment on a possible metric based on predicted usage from serving eligible areas. This metric would consider all measurable factors that can affect mobile usage, such as unserved locations, road miles, and areas with parks or wilderness where devices are likely to be used. Possible options we raise for discussion to measure usage are using the average number of connected 5G devices in 15-minute periods throughout the day or the total megabytes of data usage during a reporting period.

21. Our discussion of the approach we should take to harmonize the metric we use to measure a 5G Fund support recipient's compliance with its public interest obligations and performance requirements should we decide to modify the bidding and support price metric adopted in the *5G Fund Report and Order* looked at two potential options upon which we seek comment. If we were to use a locations-based metric without a road miles component, we would measure compliance based on a support recipient deploying service that meets the 5G Fund performance requirements to a specified percentage of the total locations within the eligible areas for which it is authorized to receive 5G Fund support in a state by the relevant interim service milestone and the final service milestone. Alternatively, if we were to use a hybrid metric that incorporates locations and road miles, we would measure compliance based on a support recipient deploying service that meets the 5G Fund performance requirements to a specified percentage of the total unserved locations and a specified percentage of the total unserved road miles within the eligible areas for which it is authorized to receive 5G Fund support in a state by the relevant interim service milestone and the final service milestone.

22. With respect to the proposed certification requirement for short-form auction applications, the Commission has taken steps to minimize any economic impact of the certification requirement on small entities through the many free resources we provide to potential auction participants. The public notice adopting the procedures for each auction will be posted to the auction's website prior to the opening of the application window, and other relevant orders are available through EDOCS, the Commission's online document database (www.fcc.gov/edocs). We believe that reading these materials will be sufficient for applicants to certify that they have familiarized themselves with the relevant auction procedures and other requirements. The Commission also makes available additional educational materials to help potential auction participants understand the auction process, including short-form filing instructions and a tutorial. The Commission makes this information publicly available and easily accessible and without charge to benefit all potential auction applicants, including small entities, thereby lowering their administrative costs to comply with the Commission's competitive bidding rules.

23. Small entities and other auction participants also may seek clarification of, or guidance regarding, auction procedures, the competitive bidding rules, and any requirements related to the authorizations or support to be made available through the auction from Commission staff prior to each auction's application window. Additionally, an FCC Auctions Hotline provides small entities one-on-one access to Commission staff for information about the auction process and procedures. The FCC Auctions Technical Support Hotline is another resource that provides technical assistance to applicants, including

small entities, on issues such as access to or navigation within the electronic short-form application and use of the bidding system.

24. Additionally, in the *Further Notice* we also considered and seek comment whether, and to what extent, if any, we can or should use the 5G Fund to encourage the deployment of Open RAN, and if so, how. We considered, as an example, whether deploying Open RAN networks requires more time such that we should afford a 5G Fund support recipient an extension of the interim and/or final service milestone deadlines if it demonstrates that it is using Open RAN in its network deployment. This approach could benefit small providers by allowing them the flexibility to choose an option that may provide an extension of compliance deadlines.

25. The issues on which we seek comment in the *Further Notice* are designed to ensure the Commission has a complete understanding of the costs, benefits, and potential burdens associated with the different actions and methods. We seek to continue to learn from the experience of small entities so that we can balance our responsibility to monitor the use of universal service funds with minimizing administrative and compliance costs and burdens on 5G Fund participants. The Commission expects to more fully consider the economic impact on small entities, as identified in comments filed in response to the *Further Notice* and this Supplemental IRFA, in reaching its final conclusions and taking final action in this proceeding.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

26. None.

**STATEMENT OF
CHAIRWOMAN JESSICA ROSENWORCEL**

Re: *Establishing a 5G Fund for Rural America*; GN Docket No. 20-32

This week the United Nations General Assembly is gathering in New York. Just before this meeting got underway, I did something that the Federal Communications Commission has not done in years. I joined the United Nations Broadband Commission to discuss ideas to support universal access to high-speed communications. I believe that one of the best ideas is ensuring that the systems we develop for support are based on good data.

That is the reason we are talking today about the future of the 5G Fund for Rural America. For the first time in our history of supporting wireless networks through the universal service system, this agency has comprehensive data about where service is and is not all across the country.

Thanks to the work of our Broadband Data Task Force we have maps that are light years ahead of what we produced before. We standardized the propagation data that carriers must submit to us twice a year and created new ways for consumers, governments, and others to help verify the data when the maps do not reflect service on the ground. As a result, we now know that over 14 million homes and businesses nationwide do not have mobile 5G coverage today.

What this means is that as we develop the 5G Fund and build the successor to our existing universal service program supporting wireless networks in rural America, known as the Mobility Fund, we will be able to incorporate this detailed picture of where service is and is not. We will be able to see gaps in coverage and ensure support actually reaches the communities that need it most.

On top of these data improvements, a lot has changed since the FCC first announced the 5G Fund, including a global pandemic that underscored the importance of access to high-speed mobile services. So we seek comment on updating the 5G Fund proposal in several ways.

First, we look at how best to support 5G service, so that we can address areas without service and we aren't short-changing rural communities covered by the last generation of wireless technology.

Second, we are revisiting the budget so that we can better account for the state of the supply chain and current costs associated with deploying 5G networks.

Finally, we seek comment on how best to leverage our new maps to target the first phase of funding to places where it is needed most—where people live, work and travel.

These are important questions. I look forward to the record that develops. I look forward to combining what we learn from commenters with the information we have from our maps. And I hope that if I get the opportunity to return to the United Nations Broadband Commission I can share what we have done to support universal wireless access—powered by good data.

I would like to thank the team behind this effort to build a better 5G Fund: Valerie Barrish, Craig Bomberger, Emily Burke, Chelsea Fallon, Jill Goldberger, Evan Kwerel, Paul Lafontaine, Mary Lovejoy, Kenneth Lynch, Giulia McHenry, Gary Michaels, Mark Montano, Murtaza Nasafi, Jeffrey Ocker, Kelly Quinn, Steve Rosenberg, Alexander Simmons, and Martha Stancill from the Office of Economics and Analytics; Rebekah Douglas, Jesse Jachman, Dangkhoea Nguyen, and Suzanne Yelen from the Wireline Competition Bureau; Barbara Esbin, Garnet Hanly, William Holloway, Susannah Larson, John Lockwood, Jennifer Salhus, and Thuy Tran from the Wireless Telecommunications Bureau; Michael

Janson, Douglas Klein, and Keith McCrickard from the Office of General Counsel; and Chana Wilkerson from the Office of Communications Business Opportunities.

**STATEMENT OF
COMMISSIONER GEOFFREY STARKS**

Re: *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32

Wireless devices deliver more than just convenience. They're also a means of finding work, doing the job you already have, acing schoolwork, and accessing healthcare, financial services, and emergency services. That's why I've long said that when we talk about making quality, affordable broadband available to every American—finally cracking the digital divide—advanced wireless services are and will remain an important part of the conversation.

That's why I'm proud to support today's action on the 5G Fund. When we first established the 5G Fund, I highlighted that "it's important we get every last drop out of our Universal Service dollars." I noted that the process for allocating those dollars efficiently and fairly "starts with gathering adequate data" that does not risk leaving rural communities behind. Thanks to bipartisan leadership in Congress and the hard work of so many here at the FCC, we now have vastly improved broadband mapping that provides a more accurate picture of where wireless coverage exists, and at what speeds, and where greater support is needed. So today, we propose rules to leverage that clearer data in determining which areas are eligible for receiving support in our reverse auction. Armed with that better data, we also take a second look at key aspects of the program, including speed and technology thresholds for eligibility. Importantly, we also explore the future of mobile support mechanisms in the U.S. Virgin Islands and Puerto Rico. With these combined efforts, we're clearing the way to finally deliver on a more-than decade-long commitment to fund the next phase of mobile deployments in rural America.

Finally, I'm pleased that we're also taking steps to keep our funded networks secure. In other proceedings, I've fought hard to ensure that carriers receiving high-cost support observe baseline cybersecurity and supply chain risk management requirements. I asked that we propose similar requirements for this high-cost program as well. Rural consumers have already experienced the risks posed by insecure equipment in their wireless networks, including ones funded by universal service dollars. In fact, due to a shortfall in rip-and-replace funding, some rural folks are still living through those threats today. Managing cyber and supply chain risks no doubt will be an ongoing process. But this time around, let's do what we can to get the security piece right from the start.

**STATEMENT OF
COMMISSIONER NATHAN SIMINGTON
CONCURRING**

Re: *Establishing a 5G Fund for Rural America*, GN Docket No. 20-32

I have been extremely supportive of 5G as a Commissioner. I am enthusiastic about the advanced network engineering that it enables and especially about what it can do for specialized use cases like high-tech manufacturing and precision agriculture. And without a doubt, 5G is the gold standard for new mobile broadband deployment. Except for special circumstances, the FCC should not be paying for the deployment of previous generation mobile technologies at this point. But I am also aware that, especially in low density rural areas, 5G does not represent a transformational change for end-consumer mobile broadband service. In fact, 5G service in those areas operates on similar bands, at similar speeds, and with similar performance characteristics as 4G LTE service.

So when we are deciding where to spend limited funds to subsidize the deployment of 5G, it is obvious to me that we should prioritize areas that do not even have 4G service to speak of before we start paying for upgrades from 4G to 5G. And that is in fact how our rules, adopted in 2020, say the 5G Fund should work.

Unfortunately, this item seeks to upend that decision. The draft version outright proposed that we treat areas with existing 4G service as being exactly the same as areas with no service at all when it comes to qualifying for 5G Fund subsidies. I was disappointed that the Chairwoman's office was unwilling to accommodate my simple request that the item seek comment on the relative benefit to end-consumers of going from 4G to 5G versus going from no service at all to 5G, given that 4G and 5G are likely to offer similar speeds in these areas. The refusal to confront this glaring issue head-on is concerning.

Because the Chairwoman's office did downgrade this wrongheaded idea from an official proposal to just something we are seeking comment on, I am able to concur on passage of this item in the interests of getting more public input on the issue, but I will be watching this proceeding closely. Like then-Commissioner Rosenworcel said in her statement on our 2020 5G Fund order, "These are not communities without 5G, they are communities with no G." Her office may now be inclined to leave those no G communities behind, but I am not.