

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

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| In the Matter of |) | |
| |) | |
| The Rural Digital Opportunity Fund Auction (Auction 904) |) | AU Docket No. 20-34 |
| |) | |
| Rural Digital Opportunity Fund |) | WC Docket No. 19-126 |
| |) | |
| Connect America Fund |) | WC Docket No. 10-90 |

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

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EXECUTIVE SUMMARY

NTCA and its members are excited for the development of a Rural Digital Opportunity Fund (“RDOF”) that, if executed properly, promises to enable the delivery of robust and reliable voice and broadband services in wide swaths of rural America for decades to come. Current circumstances highlight how important such connectivity is for Americans, as it has become clear that “the Internet at home” is about so much more than one-way video streaming and e-mail checking, and that it is instead a critical means of allowing Americans to work and learn from home using Virtual Private Networks and videoconferencing that is latency-sensitive and bandwidth-intensive. Now therefore is not the time for the Federal Communications Commission (the “Commission”) to take its “foot off the gas” in seeking to promote more robust connectivity where it is lacking and to ensure that we never again face circumstances where some Americans cannot participate fully in an increasingly digital society. At the same time, however, precisely because we can see now that the stakes of “getting this right” are so high, it is essential for the Commission to develop a framework that will ensure the integrity of the RDOF auction in the form of truly qualified bidders and promote participation by such qualified bidders regardless of relative size and scope.

As an initial matter, the Commission should use census block groups as the standardized bidding unit in the RDOF auction. Existing auction systems are already designed for census block group-based bidding, and the results of the CAF Phase II auction show the wide range of participation that can be encouraged at that level of granularity in terms of bidding units. By contrast, establishing bidding units that are too large will favor providers that already have considerable scope and scale, while deterring participation by smaller operators that may be unable to bid for such larger geographies.

With respect to qualification of bidders, NTCA recognizes that a balance must be struck between upfront showings that deter participation in the auction and the need for sufficient information to evaluate a provider's plans and ability to perform. Just a few short months ago, however, dozens of members of Congress called upon the Commission to do more to ensure that those receiving funds through the RDOF auction will be capable of living up to their promises. Consistent with those calls from Congress, NTCA recommends that the Commission: (1) require more detail upfront from bidders with respect to their technical capabilities to perform; (2) review whether providers that do not yet provide standalone voice services will be capable of doing so should they win; (3) designate upfront which spectrum bands and levels of bandwidth will be deemed capable of delivering services in specific performance tiers; (4) require would-be bidders to explain in detail their contingency plans if they do not hold the spectrum that forms the basis of their proposed services; (5) apply a technologically neutral framework that limits bids in given tiers to proven performance in those tiers; (6) require each applicant to submit a professional engineer's certification regarding its ability to serve 95% of the required number of locations and to assume a subscription ratio of 70% for both voice and broadband services; and (7) require would-be bidders to employ reasonable peak network utilization assumptions in making all representations and certifications.

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

NTCA–The Rural Broadband Association (“NTCA”)¹ hereby submits these comments in response to the Public Notice² released by the Federal Communications Commission (“Commission”) in the above-captioned proceedings.

NTCA and its members are excited for the development of an initiative that promises to enable the delivery of robust and reliable voice and broadband services in wide swaths of rural America for decades to come. Stated simply, the Commission’s programs are mission-critical to making the business case for rural broadband and, indeed, swift action to implement the Rural Digital Opportunity Fund (“RDOF”) is more necessary than ever in light of current circumstances to establish these kinds of connections so that in the future Americans are not “on the outside looking in” of an increasingly online world. Numerous NTCA members participated in the last auction of this kind, and several dozen prevailed in that auction. Based upon that experience, as the procedures for the RDOF auction are finalized, it is essential that the Commission develop a

¹ NTCA represents approximately 850 small voice and broadband providers operating in the most sparsely populated areas of the United States.

² *The Rural Digital Opportunity Fund*, AU Docket No. 20-34, *Rural Digital Opportunity Fund*, WC Docket No. 19-126, *Connect America Fund*, WC Docket No. 10-90, Public Notice (rel. Mar. 2, 2020) (“Public Notice”).

framework that will ensure the integrity of the auction in the form of truly qualified bidders and promote participation by such qualified bidders regardless of relative size and scope.

I. THE COMMISSION SHOULD ONCE AGAIN UTILIZE CENSUS BLOCK GROUPS AS THE MINIMUM GEOGRAPHIC AREA FOR BIDDING IN THE RDOF AUCTION.

In its notice of proposed rulemaking initiating this proceeding, the Commission asked whether census block groups containing one or more eligible census blocks would represent an appropriate minimum geographic unit for bidding in the RDOF auction, or whether a larger unit would be “more manageable” given the anticipated size of this auction.³ Even as responses to this query ranged from support for census blocks to larger geographies such as census tracts, NTCA struck a middle ground within this spectrum, observing that census block groups would “strike a reasonable balance and represent a reasonable ‘sweet spot’ between too-small units that create an unmanageably complex auction on the one hand and too-large units on the other that make it impossible for smaller operators to participate on a widespread basis in the auction.”⁴

Ultimately, the Commission concluded that the minimum geographic area for the RDOF auction should be “no smaller than a census block group” – noting explicitly that, like in the Connect America Fund (“CAF”) Phase II auction, “using census block groups ensures that all interested bidders, including small entities, have flexibility to design a network that matches their

³ *Rural Digital Opportunity Fund*, WC Docket No. 19-126, *Connect America Fund*, WC Docket No. 10-90, Notice of Proposed Rulemaking (rel. Aug. 2, 2019), at ¶ 21.

⁴ Comments of NTCA, WC Docket Nos. 19-126 and 10-90 (filed Sept. 20, 2019), at 18.

business model and the technologies they intend to use.”⁵ The Commission reserved the right, however, to select larger units “if necessary to limit the number of discrete biddable units.”⁶

NTCA agrees with the Commission’s primary perspective as articulated above regarding the utility of census block groups, and reiterates the importance of the Commission striking a balance between seeking to make the auction as “manageable” as possible with the need to ensure that as many qualified participants as possible are able to participate in the process. With respect to ease of administration and participation, existing auction systems are already designed for census block group-based bidding, and the CAF Phase II auction has provided stakeholders of all sizes with experience in such bidding – and the results of that auction show the wide range of participation that can be encouraged through bidding units at that level of granularity. By contrast, much as is the case in spectrum auctions, establishing bidding units that are too large will confer a substantial competitive advantage on providers that already have considerable scope and scale, thereby deterring participation by smaller operators that may be unable to bid for such larger geographies.

“Larger geographies” mean something different, however, in this context than in spectrum auctions. Specifically, even if counties or similarly large units (such as census tracts) can make sense in certain spectrum auctions where mobility across wider areas is often the desired outcome and because such deployments require coordination to mitigate against interference, this auction is focused on delivery of fixed services in localized areas (census blocks) that the Commission has determined lack such access today. Census block groups thus build upon an already successful

⁵ *Rural Digital Opportunity Fund*, WC Docket No. 19-126, *Connect America Fund*, WC Docket No. 10-90, Report and Order (rel. Feb. 7, 2020) (“RDOF Order”), at ¶ 30.

⁶ *Id.*

auction structure in the CAF Phase II process, and they strike the perfect balance between an auction that the Commission can administer by bundling unserved census blocks into groups and one in which parties of all sizes can have a meaningful opportunity to participate to serve those blocks in need.

II. IN THE INTEREST OF CONSUMERS AND PROMOTING PROGRAM INTEGRITY, REASONABLE MEASURES ARE NEEDED TO ESTABLISH THE BASIC QUALIFICATIONS OF BIDDERS AND CAPABILITIES OF TECHNOLOGIES, PARTICULARLY PRIOR TO BIDDING.

A. At a Time When the Performance Capabilities of Networks Can Make or Break a Community, the Commission Should Conduct More Upfront Vetting of Would-Be Bidders in the Short-Form Application.

In recent weeks, the need for robust and resilient networks has become more apparent than ever. Especially in rural areas, our nation is already seeing how a lack of reliable broadband access can undermine the ability for some Americans to work and learn from home. Better connectivity must therefore be truly assured as the Commission launches the RDOF and considers the capabilities of bidders. In particular, more robust review of qualifications is essential to make the best use of valuable resources and help mitigate the prospect for future “hand-wringing” over why the networks in too many rural areas continue to lag behind the performance of those in many other areas.

NTCA recognizes that a balance must be struck between upfront showings that deter participation in the auction and the need for sufficient information to evaluate a provider’s plans and ability to perform. At the same time, just a few short months ago, dozens of members of Congress called upon the Commission to do more to ensure that RDOF funds are invested wisely “and ensure that those parties receiving such support can deliver on the commitments they make” – including specifically taking steps before the auction to “make sure that the participants in the auction can successfully deliver on their promises.” Indeed, as Congress highlighted, “[i]f a party

is incapable of delivering broadband as promised, the American ratepayer loses twice over – first for having contributed sums that did not go toward the deployment of broadband as hoped, and then again for those ratepayers who reside in the area that ended up not receiving the promised service.”⁷ NTCA therefore urges the Commission to take several measured steps at the short-form stage consistent with these expressed desires of 48 Senators and 54 members of the House of Representatives.

In particular, and in addition to the recommendations that follow in subsequent sections herein, the Commission should require potential bidders to submit technical showings in their short-form application that would demonstrate with some reasonable basis their ability to meet the proposed speeds and latency in the face of terrain, distance, and other relevant factors. These need not be painstakingly detailed engineering plans that depict the location of every antenna, pedestal, or handhole, but they certainly should be more than mere declarations of network aspirations. These should then be measured against reasonable technical standards, such as those that might be employed in discerning whether a provider is claiming reasonable coverage capabilities in the broadband mapping context. Moreover, the Commission should carefully review the short-form applications of those that do not today deliver voice services on a standalone basis today to determine if their service and network plans will enable them to do so if they were to prevail in the auction.⁸

⁷ Letter from Senator John Thune, *et al.*, to Chairman Ajit Pai, Commission (dated Dec. 9, 2019); *see also* Letter from Rep. Peter Welch, *et al.*, to Chairman Ajit Pai, Commission (dated Dec. 13, 2019).

⁸ Comments of Visionary Broadband, WC Docket No. 19-126, *et al.* (filed Sept. 20, 2019), at 2.

B. The Commission Should Expressly Designate Upfront Which Spectrum Bands and Levels of Bandwidth Will be Deemed Capable of Delivering Services in Specific Performance Tiers, and Require Would-Be Bidders to Explain in Detail Their Contingency Plans for Spectrum Access in the Short-Form Application.

In the Public Notice, the Commission lists a series of spectrum bands that it anticipates “could be used by a service provider . . . to, at a minimum, offer service meeting the requirements for the Minimum performance tier provided that the service provider is using sufficient bandwidth in the spectrum band(s) and a technology that can operate on these spectrum bands consistent with applicable rules and regulations.”⁹ The Commission seeks comment on whether these bands and others will provide sufficient capacity to meet RDOF obligations, and also how an applicant can demonstrate that it has sufficient access to the spectrum in question to confirm that it will be able to deliver services if it were to prevail in the auction.¹⁰

As many have observed time and again, “Not all spectrum is created equal.” While the Commission may have rightly determined that the listed bands can deliver 25/3 Mbps broadband at a *minimum*, not all of the bands will be capable of delivering 100/20 Mbps or even 50/5 Mbps necessarily – and, as some have noted, even those spectrum bands that *can* in theory deliver such speeds in limited cases and perfect conditions may not be capable of doing so for all consumers and across wide geographic areas in the kinds of deployment contemplated in the RDOF auction.¹¹ Nonetheless, since the Commission has repeatedly indicated that it will only evaluate such matters in detail as part of the long-form application stage, the Commission should at least attempt then to

⁹ Public Notice, at ¶ 41 and Appendix B.

¹⁰ *Id.* at ¶ 42.

¹¹ *Ex Parte* Letter from Derrick Bulawa, CEO and General Manager, BEK Communications, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 19-126, *et al.* (filed Jan. 23, 2020).

draw better “bright lines” upfront, prior to short form submission, with respect to the realistic capabilities of the spectrum bands listed. Specifically, for each of the bands listed, rather than merely concluding that they can achieve the *minimum* level of performance for the auction, the Commission should designate as well the *maximum* level of performance that its expert engineering staff concludes can be achieved by each spectrum band (licensed and unlicensed) assuming a specified level of bandwidth and the kinds of deployment and subscription metrics otherwise contemplated for the auction. Such upfront guidance would provide all parties involved with clarity and certainty as to the Commission’s technological expectations, and would ensure *prior* to the long-form stage that parties are reasonably planning their networks to deliver services as promised.¹²

In addition, as the Commission rightly notes, it may be the case that would-be bidders do not have access to the spectrum they need to deliver on the promises they make in the auction. The most obvious example is the CBRS spectrum for which priority access licenses will not be auctioned until later this year – but, as the Commission highlights, this is not the only spectrum auction that may follow.¹³ It may also be the case that a provider intends to acquire spectrum in a secondary market either to buttress existing bandwidth levels or to obtain any resources at all within a given band in order to achieve the contemplated level of performance across the proposed service area. Here too, efforts such as those described above to designate the *maximum* levels that given spectrum bands might reasonably be expected to deliver would help parties in articulating acceptable contingency plans if they cannot obtain the spectrum they need after the auction – and

¹² And, if a party were to disagree with the designations provided by the Commission’s engineering staff in terms of maximum speed achievable using a given band, that party would of course be free to file a waiver petition substantiating why its particular deployment using that band is in fact capable of delivering higher speeds.

¹³ Public Notice, at ¶ 43.

thus help the Commission in evaluating the viability of any such plans. In the end, to ensure as few defaults as possible and to avoid the dual prospects of funds wasted and consumers stranded, the Commission should ensure that any would-be bidder can articulate a realistic and air-tight contingency plan to deliver on its promises *prior to* participation in the RDOF auction to the extent that it does not already possess the necessary spectrum when seeking clearance to bid.

C. The Commission Should Apply a Technologically Neutral Framework that Precludes Bidding in Certain Speed Performance Tiers Unless and Until a Given Technology – Whether Wireline or Wireless, Terrestrial or Satellite – Offers Service in those Speed Performance Tiers on a Widely Available Basis as Indicated by the Commission’s Own Data.

In the draft procedures notice for this auction, the Commission proposed a technologically neutral framework that would have in effect precluded any technology from bidding in a particular performance tier to the extent that an applicant was not already offering residential service in that tier based upon reported Form 477 deployment and subscription data. Application of this framework as proposed in the RDOF context would have precluded fixed wireless and DSL technologies from bidding in the Gigabit speed tier¹⁴ and satellite technologies from bidding in the Gigabit or Above Baseline speed tiers.¹⁵ This proposal was more than well-founded, given that “98% of fixed wireless and DSL providers have not reported offering Gigabit speeds, and only 17% have reported offering speeds of 100 Mbps or above”¹⁶ – and in light of the fact that there was “no evidence that satellite providers already offer service that meets all the requirements for

¹⁴ *Comment Sought on Competitive Bidding Procedures and Certain Program Requirements for the Rural Digital Opportunity Fund Auction (Auction 904)*, AU Docket No. 20-34, *et al.*, Draft Auction Procedures Notice (rel. Feb. 7, 2020), at ¶ 51.

¹⁵ *Id.* at ¶ 50.

¹⁶ *Id.* at ¶ 51.

these performance tiers.”¹⁷ In essence, the framework would have precluded technologies of all kinds and without distinction or discrimination – wireline and wireless, terrestrial and satellite – from bidding in tiers where there is no basis whatsoever to conclude that a commercial offering is yet viable for that particular technology, especially across wide swaths of rural America where the challenges of deployment and ongoing operation are rather unique and compelling as compared to more urban environments or, certainly, laboratory conditions and experiments.

It therefore came as a surprise when the Public Notice as adopted contained a material change in the form of a proposed carve-out from this otherwise equally applicable, technologically neutral rule for just a single technology, standing alone. Specifically, the Public Notice as finally approved inserted the word “geostationary” in front of “satellite providers” in paragraph 50. Despite the underlying facts remaining the same in terms of the capabilities (or lack thereof) of satellite providers – and despite the fact that non-geostationary (low earth orbit) satellites appear not to offer *any* service today, Gigabit or otherwise, on a commercially available basis to residential users – this singular change to the Public Notice essentially welcomes low earth orbit satellite operators to bid in the highest speed performance tiers. Indeed, it is ironic that one of the leading low earth orbit satellite providers itself emphatically urged the Commission just a few months ago to focus upon “actual service to consumers,”¹⁸ even as the current proposal would favor theoretical mass-market service that might (or might not) be delivered some day in the future by such experimental satellite technology.

¹⁷ *Id.* at ¶ 50.

¹⁸ *Ex Parte* Letter from David Goldman, Director of Satellite Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, Commission, WC Docket No. 19-126, *et al.* (filed Jan. 20, 2020) (emphasis in original).

It is also telling that, in touting its capabilities, Space X has focused primarily upon latency rather than speed performance. Indeed, based upon NTCA’s review of Space X’s filings in this proceeding, there appears to be *no evidence whatsoever* as to what speeds low earth orbit satellites can actually achieve. All that NTCA can locate in the record related to the firm’s speed offerings is an initial blanket assertion that “well-designed [non-geostationary earth orbit] systems will be capable of exceeding the baseline speeds and latencies proposed by the Commission”¹⁹ and the belated submission of a general press article repeating one Space X employee’s claims that a single test program conducted between satellites and an Air Force plane achieved 610 Mbps.²⁰ Even if this “evidence” – a generic assertion that such technologies will *someday* deliver speeds that may be faster than the then-proposed 25 Mbps “baseline” and a secondhand press report about a provider’s unsupported claims regarding the results of one test under highly controlled conditions – were for some inconceivable reason deemed persuasive and conclusive as to the capabilities of this technology, this still would not justify a finding that this technology can deliver speeds at the highest performance levels on a mass-market basis.

The response to such considerations may be that the Commission would of course not permit any provider with a “nascent technology” to bid in any given performance tier without further review first of its ability to deliver. Indeed, the Public Notice contemplates such a process, indicating that the Commission staff would review any applications by such technologies – which would presumably include low earth orbit satellites – on a “case-by-case basis to determine

¹⁹ Comments of Space Exploration Technologies Corp., WC Docket No. 19-126, *et al.* (filed Sept. 20, 2019), at 6 (emphasis added).

²⁰ *Ex Parte* Letter from David Goldman, Director of Satellite Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, Commission, WC Docket No. 19-126, *et al.* (filed Feb. 21, 2020), at Att. B.

whether they can reasonably be expected to meet the specific requirements” of the program.²¹ But this defeats the purpose of the otherwise generally applicable, technologically neutral framework that the Commission has adopted and, in addition to lacking any transparency whatsoever, it turns the presumption for bidding effectively on its head only for nascent technologies. In short, those technologies that have been deployed are permitted to bid in a tier only if they have previously established a “presence” in that tier on a commercially viable basis for residential users; a provider using such technologies to bid in a higher performing tier than reported on Form 477 would presumably need to file for a waiver to do so, establishing some form of “good cause” to overcome the bar to such a bid.²² Meanwhile, technologies that *do not exist yet* benefit from an effective presumption that they *can* bid in whatever tier they would like, subject to coming forward with information to substantiate that that the Commission (and likely *only* the Commission) can review.

NTCA has repeatedly urged the Commission to conduct even more upfront vetting of *all* bidders in the short-form stage than recommended herein, and to require *all* applicants using every kind of technology to explain better in advance of being qualified to bid how their technological choices will enable the delivery of services as promised to as many users as promised over large rural areas. The Commission has repeatedly rejected NTCA’s pleas, however, indicating that requiring more technical and operational information upfront could pose a barrier to participation and delay the auction.²³ In lieu of such detailed preliminary review, the Commission has at least drawn several “bright lines” with respect to bidding qualifications on a technologically neutral

²¹ Public Notice, at n. 94.

²² To be clear, such a waiver should contain sufficient information to substantiate the would-be bidder’s capabilities to perform in the contemplated tier, including information regarding network design and reliability, and that petition for waiver should be subject to public comment.

²³ RDOF Order, at ¶ 78.

basis, looking to real evidence as reported by providers as to what is actually available to residential users today on a mass-market basis. Having made these choices and reached these conclusions, there is no basis to deviate from such bright-line rules now and provide a special “flipping of the presumption” carve-out for one type of technology. The Commission should either require *all* technologies to adhere to the “bid only in what you offer now” framework and then invite waiver requests that include transparent public review of information if parties want to seek permission to bid in higher performing tiers – or, if it wants to apply a different process for low earth orbit satellites, it should apply that process equally across the board and require *all* applicants to submit upfront documentation along the lines of what NTCA has previously suggested before any applicant is qualified to bid in any tier. In short, there should be a level playing field wherein the same rules and same processes apply on a technologically neutral basis with respect to vetting on the basis of real evidence the qualifications and capabilities of all bidders.

Some may further contend that giving “nascent technologies” a carve-out is useful so that, once these technologies come more fully “online,” they will not be subject to an automatic bar from participation in bidding at any given performance tier in future auctions. This, however, is an unnecessary and unwarranted measure, because the general rule otherwise adopted by the Commission already contemplates such a potential evolution. Specifically, if there is a time in the future when consumers across America are receiving Gigabit services at low latency from low earth orbit satellites on a widespread mass-market basis, then that level of service would be reflected in Form 477 data and that technology would be eligible to bid at such a level. There is therefore no need whatsoever to “prejudge” where a given technology might end up in terms of performance, or to be concerned that application of a bar to bidding in a certain tier now based

upon real evidence will be cemented into place in perpetuity and for all auctions to come, such that a “fix” is needed years in advance of any proof that this can be achieved.

Finally, it is important to take a step back from these discussions of tiers and weights and auction structures, and to take account of the underlying statute and objectives of universal service. The law requires the Commission to promote the availability of services that are reasonably comparable in price and quality between rural and urban areas alike.²⁴ The law further defines supported services as those that “have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers.”²⁵ In some respects, the technologically neutral rule that looks to Form 477 deployment and subscription data in determining whether a would-be bidder can perform as promised if it prevails in the auction does just this, reflecting the existing availability of networks and expressed consumer preferences in the marketplace in deciding what technologies can bid in which tiers. In the end, gambling up to \$1.6 billion per year on any experimental technology that is not yet offered on a mass-market commercial basis to or adopted by residential users would fly in the face of these statutory provisions – and represent a risky bet that could affect many rural consumers who have waited too long already for broadband and whose broadband future hangs in the balance. The Commission should therefore adopt the framework for evaluating technological capabilities and accepting bids at certain performance levels as initially contemplated in the draft of the public notice prior to the February open meeting.

²⁴ 47 U.S.C. §254(b)(3).

²⁵ *Id.* at § 254(c)(1)(B).

D. The Commission Should Adopt its Proposals to Require All Applicants to Submit a Professional Engineer’s Certification Regarding the Ability to Serve 95% of the Required Number of Locations and to Assume a Subscription Ratio of 70% For Both Voice and Broadband Services. It Should Also Require Providers to Employ Reasonable Peak Network Utilization Assumptions in Making Such Representations and Certifications.

Consistent with the theme that the Commission should be promoting advance planning to the greatest extent possible as providers identify how and where to bid, and given the requirements that winning bidders will need to meet, the Commission should adopt its proposals to require all applicants to submit a certification from a professional engineer regarding each bidder’s ability to achieve 95% of the buildout required for the area(s) won and to assume at least a subscription ratio of 70% for both voice and broadband services in architecting its network.²⁶ These metrics represent reasonable assumptions of the objectives for deployment of broadband in rural areas, reflecting both the accountability needed to ensure a sufficient number of locations are reached *and*, just as importantly, that the network built will then be capable of satisfying consumer adoption and demand comparable to what is seen in urban areas.²⁷

Particularly at a time when the essential nature of network resilience and reliability is being highlighted like never before, the Commission should not allow providers to “skimp” on network capacity in making bald promises that they will achieve speed or latency performance parameters. Especially in light of the current crisis – and given the very real possibility of a long-term paradigm shift in the way education, business, and medical consults are conducted moving forward – it is now more necessary than ever to ensure policies that will future-proof networks. In fact, when

²⁶ Public Notice at ¶¶ 37-38.

²⁷ According to the Pew Research Center, roughly three-quarters of American adults have broadband Internet service at home. See <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/>.

current press reports are already highlighting the strains placed on networks by “peak stretching” and shifting of more substantial bandwidth consumption from businesses to homes, it would be a grievous mistake now to let “slip through” substandard networks that prove incapable of meeting everyday demand and meeting the challenge of the next crisis of this kind.

Indeed, the past few weeks make unmistakably clear that important and increasingly prevalent features such as corporate Virtual Private Networks and two-way videoconferencing require high-speed, symmetrical, and low-latency capabilities like fiber can deliver. As a responsible steward of the public interest and the universal service resources going toward the deployment of networks and delivery of services that are critical for Americans to stay connected, the decisions the Commission makes today with respect to what it will expect of providers receiving support funds will have consequences for years, if not decades, to come. With the benefit of the long-term planning afforded by the RDOF, the Commission should be building a broadband foundation in rural America that is built to last, rather than giving Americans access that might allow them to check email and stream Netflix soon but will not enable them to work or learn from home or to function effectively in the next crisis of this sort.

Moreover, as bidders make certifications and assumptions about their network performance capabilities in structuring their bids, the Commission should make clear that these must be premised upon a reasonable oversubscription ratio or busy hour overload (BHOL) factor – and that this should be articulated in the short-form application even if the certification is not required until the long-form stage. Oversubscription is a network engineering concept that presumes that not all users will be using a network at the same time, but that sufficient bandwidth will be available to accommodate the likely number of users at any given point in time – and especially during peak times. For example, if one assumes customers will use 20 to 30 Mbps and

the provider's network capacity is 50 Mbps, one might need a lower oversubscription ratio, such as 4:1; by contrast, if one makes the same usage assumption but the provider's network is capable of Gigabit service, the oversubscription ratio could be materially higher (*e.g.*, 10:1 or 20:1). Thus, an oversubscription ratio far in excess of something like 20:1 should be viewed as unreasonable on even the most robust networks, and in most cases where speed offerings are lower, the oversubscription ratio should be materially lower as well. BHOL, on the other hand, looks at the capacity of a network to handle demand during periods of peak utilization specifically based upon average usage of all subscribers.²⁸ For example, an average BHOL of approximately 2 Mbps per user could represent a reasonable assumption of the network capacity needed to accommodate the total demand that users might place upon a network during peak utilization periods.

By contrast, if a provider employs an unreasonable oversubscription ratio or BHOL assumption, it may be able to claim initially the ability to deliver service to 95% of the locations at the required speed and latency levels based upon its "engineering projections," with its very real shortcomings only to be discovered years later when buildout obligations and testing requirements – or a national crisis – reveal that the network is unable to satisfy the kinds of demands that should have been anticipated from the start. In fact, precisely because the Commission's performance testing requirements for RDOF-supported networks will assess network capacity and latency during peak periods of utilization,²⁹ NTCA recommends that the Commission identify upfront reasonable BHOL assumptions for each of the respective speed tiers for would-be bidders to use

²⁸ See, *e.g.*, *Connect America Fund, et al.*, WC Docket No. 10-90, *et al.*, Report and Order (rel. Apr. 22, 2014), at ¶ 92.

²⁹ See *Connect America Fund, et al.*, WC Docket No. 10-90, *et al.*, Order (rel. July 6, 2018), at ¶ 30.

both in structuring their bids initially *and* then ultimately submitting technical documentation through the long-form application.

Finally, it should again be made explicit that, while all of these requirements may only “vest” at the long-form stage, would-be bidders must be taking them into account in structuring their plans in the short-form stage as well, and the Commission should take such assumptions into account itself when designating the anticipated maximum speeds achievable by certain spectrum bands as recommended in Section II.B, *supra*. Indeed, each provider should be required as part of the network performance components of the short-form application to state its assumed subscription rate, its peak period data usage assumptions and plans for oversubscription ratios, its total capacity for the planned network, and the methods it intends to use to allocate that capacity among existing and new users.

III. CONCLUSION

For the foregoing reasons, NTCA recommends that the Commission adopt the recommendations set forth herein with respect to the processes for conducting the RDOF auction.

Respectfully submitted,

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