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

In the Matter of	)	
	)	
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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TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Commission has the opportunity through the Rural Development Opportunity Fund ("RDOF") to promote the goal of closing the digital divide both immediately and well into the future in wide swaths of rural America. To accomplish this goal, the Commission must adopt rules that require RDOF participants to demonstrate that they truly have the capability to deliver robust voice and broadband services throughout their chosen area. Furthermore, rather than aiming low for minimal measures of broadband performance, the Commission should aim for networks that will meet subscribers' needs for at least a decade to come, if not much longer. It would be far more efficient indeed to pay for networks built to last than for services that risk looking antiquated in just a few years' time.

To this end, the Commission should retain the four-tier structure used in the CAF Phase II auction – but now updated to reflect 25/3 Mbps as a "Minimum," 100/20 Mbps as the "Baseline," 500/100 Mbps as "Above Baseline," and "Gigabit" for 1 Gbps/500 Mbps. Moreover, and more importantly, given widespread recognition of the significance of applications such as telehealth, smart agriculture, and distance learning, the Commission should promote symmetrical speeds – giving the user the same interactive ability to upload and download information – through a "Symmetrical Bonus" in the next auction. Similarly, latency levels remain a significant factor in subscribers' ability to use certain broadband-enabled technologies, and the Commission should adopt a maximum latency standards of 550 milliseconds to be demonstrated using the ITU-T Recommendation P. 800 conversational-opinion test. Finally, the Commission should adopt usage limits updated to reflect what consumers and businesses are likely to need over the next ten years or longer, rather than allowing usage limits that may look too confining in a few short years.

In summary, NTCA proposes the following weights for an efficient, future-proof RDOF auction:

Performance Tier	Speed	Monthly Usage Allowance	Weights
Minimum	≥ 25/3 Mbps*	≥ 3 TB or U.S. median, whichever is higher	79
Baseline	≥ 100/20 Mbps*	≥ 5 TB or U.S. median, whichever is higher	60
Above Baseline	≥ 500/100 Mbps*	≥ 5 TB or U.S. median, whichever is higher	30
Gigabit	≥ 1 Gbps/500 Mbps*	≥ 5 TB or U.S. median, whichever is higher	15
*Symmetrical Service Bonus: Minus 15 Points from Tier Weight if Upload is Within 5% of Download Speed			

Latency	Requirement	Weight
Low Latency	≤ 100 ms	0
High Latency	≤ 550 ms and MOS ≥ 4	20

As in the last auction, NTCA recommends that the Commission conduct the RDOF auction using census block groups as the bidding unit to facilitate participation by as many bidders of all sizes as possible, while simultaneously ensuring that the sheer volume of bidding areas will not preclude entities from being able to participate due to added complexity. NTCA also supports once again using the Connect America Cost Model as the basis for determining RDOF auction reserve prices. Before relying upon the number of locations identified by the model for a given area, however, as a basis for reducing support for any RDOF winners who identify fewer locations when building out their service area, the Commission must first clearly define what qualifies as a

location. The Commission should also refrain from reducing support on a per-location basis if a provider demonstrates there are fewer locations in a given area than that contained in the model.

To promote accountability and ensure that resources are not wasted, RDOF auction participants should be required to submit propagation maps and technical showings in their short-form applications demonstrating their ability to meet their proposed performance metrics in the face of terrain, distance and other relevant factors. The Commission should also require those planning to use spectrum assets that are acquirable only through future auction or acquisition to flag this in their short-form application and include a contingency plan in the event they are unable to acquire the necessary spectrum assets. Post-auction, NTCA supports rules that require performance testing as well as a demonstrated 35 percent subscription rate that begins at the conclusion of the RDOF recipient's final deployment benchmark and continues throughout the remainder of the support term.

Finally, NTCA supports focusing the first stage of the RDOF auction on census blocks that are indisputably unserved (as confirmed by a robust challenge process), to avoid any concern or confusion over partially served areas resulting from erroneous mapping and coverage data. To allow for meaningful participation by smaller entities in the RDOF auction, the Commission should also modify or clarify, as appropriate, its anti-collusion rules to permit more than one RDOF auction participant to receive technical guidance from the same outside consultant during the course of the auction.

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NTCA–THE RURAL BROADBAND ASSOCIATION

NTCA–The Rural Broadband Association ("NTCA")[1] hereby submits these comments in response to the Notice of Proposed Rulemaking[2] adopted by the Federal Communications Commission ("Commission") in the above-captioned proceedings.

NTCA welcomes this chance to provide input on the development of an initiative that, if structured and implemented properly, will be critical in promoting and sustaining critical communications networks in wide swaths of rural America for years, if not decades, to come. With the suggestions provided herein, NTCA believes the Commission can chart a path that will result in a successful auction in terms of *both* encouraging substantial participation by bidders *and* demanding results that deliver high-quality and affordable voice and broadband services over robust networks for the benefit of rural consumers and businesses for the foreseeable future.

[1] NTCA represents approximately 850 rural rate-of-return regulated telecommunications providers ("RLECs"). All of NTCA's members are full service local exchange carriers and broadband providers, and many of its members provide wireless, cable, satellite, and long distance and other competitive services to their communities.

[2] *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) ("*NPRM*").

I. TO FULFILL THE STATUTORY MANDATE FOR REASONABLE COMPARABILITY BETWEEN RURAL AND URBAN AREAS, THE COMMISSION SHOULD PROMOTE NETWORKS THAT ARE BUILT TO LAST AND WILL BE CAPABLE OF RESPONDING TO FORESEEABLE INCREASES IN CONSUMER DEMAND OVER TIME.

Our national thirst for ever-increasing broadband capacity and capabilities is irrefutable. Indeed, this is the very reason that initiatives such as the Rural Digital Opportunity Fund ("RDOF") are mission-critical to our nation's well-being. If parts of our nation cannot connect with the rest of America and the world in a sustainable way that promotes commerce, civic engagement, and access to health care and education opportunities, our nation as a whole will be weaker. Thankfully, there is widespread, shared recognition among policymakers that overcoming remaining "digital divides" through robust and affordable connectivity is the highest communications policy priority.[3]

The RDOF represents one of the most promising initiatives available to help achieve these shared goals. The support provided by this program will, in effect, help create a new "provider of last resort" for the 21st century in the very rural and remote areas where broadband is lacking today – promoting the deployment and ongoing operation of advanced networks in areas that are served by no other operator, with the expectation that those networks will then deliver high-quality voice

[3] *See, e.g.,* Statement of Chairman Ajit Pai, Hearing on "Oversight of the Federal Communications Commission" Before the United States Senate Committee on Commerce, Science, and Transportation (June 12, 2019) (identifying "the top priority of closing the digital divide"); NPRM, at Statement of Commissioner Michael O'Rielly ("In travelling our great country, I have witnessed firsthand those communities lacking broadband availability. For the most part, they were located in areas reportedly served by a price cap carrier."); *Promoting Telehealth in Rural America*, WC Docket No. 17-310, Report and Order (rel. Aug. 20, 2019), at Statement of Commissioner Brendan Carr (discussing the "vital link" of connecting rural healthcare facilities); NPRM, at Statement of Commissioner Jessica Rosenworcel ("I believe the future belongs to the connected. No matter who you are or where you live, you need modern communications to have a fair shot at 21st century success."); NPRM, at Statement of Commissioner Geoffrey Starks ("Making sure that everyone in the US has access to quality affordable broadband is my highest priority and our most important job at the Commission.").

and data services and keep pace with consumer demands through at least 2030 and potentially much longer. It is therefore essential to "get this right," because the funds being allocated and the decisions being made now will define the quality and capabilities of connectivity for significant portions of the United States landmass for years, if not decades, to come – at the expense of billions of dollars from American ratepayers.

Done right, the RDOF presents the chance to solve connectivity challenges for a generation by enabling meaningful, reliable, and sustainable access to robust voice and broadband services; done wrong, the networks enabled by RDOF could require significant "rebuilds" within a short period of time to keep pace with consumer demand and to remain "reasonably comparable," threatening the waste of billions of dollars awarded to construct sub-par networks in the interest of simply claiming some basic (but ultimately insufficient) level of connectivity in the near-term. Put another way, while it may be more attractive on its face to aim for lower speeds at lower upfront cost, it would be far more efficient and effective for the Commission – and, ultimately, for the American ratepayer who contributes to universal service – to invest in networks that will remain relevant and reliable for the entire term of support and beyond.[4]

[4] Indeed, lessons can and should be drawn from the evolution of target speeds for universal service programs over the past decade when considering the perils of an "incrementalist" approach. The National Broadband Plan in 2009 initially posited that a speed of 4 Mbps download and 1 Mbps upload would be sufficient for rural consumers. *Connecting America: The National Broadband Plan*, at 135. After a good deal of backlash and even before the Connect America Fund ("CAF") was fully off the ground, the Commission in 2014 revised the speed target for universal service to 10 Mbps download and 1 Mbps upload. *Connect America Fund*, *et al*., WC Docket No. 10-90, *et al*., Report and Order, 29 FCC Rcd 15644, 15649-50 (2014), at ¶¶ 15-18 (discussing "evolving speed obligations" in light of growth in urban broadband availability since 2011). Only two short years later, the Commission once again realized that universal service should aim higher, calling 10/1 a "minimum" and setting a baseline instead at 25 Mbps download and 3 Mbps upload. *Connect America Fund*, *et al*., WC Docket No. 10-90, *et al*., Report and Order, 31 FCC Rcd 5949, 5959 (2016), at ¶ 24. Standing on the precipice of a new stage of universal service policy three years later, this experience highlights the benefits and efficiency of a far-reaching, future-proof approach, and indicates conversely that an incrementalist approach is all but certain to be viewed

To assess what an efficient investment of RDOF resources would look like over the life of the funded assets and thereby determine how to place relative values on what levels of performance the RDOF should seek to fund, the Commission should start by considering objective data on demand growth trends. Forecasting over too short a period (*i.e.*, considering only a baseline of what is needed today or in just the next few years) risks wasting resources, and failing to forecast by reference to likely changes in traffic patterns and data demands will result in networks that are essentially "built to fail." Fortunately, there are many data points to which the Commission can look in determining what kinds of demands are likely to be placed on broadband-capable networks over the next 10 years and longer.

For example, Cisco's *Visual Networking Index: Forecast and Trends, 2017-2022* Report has estimated that global IP traffic will increase threefold from 2017 to 2022, at a compound average growth rate ("CAGR") of 26 percent. Busy hour Internet traffic – reflecting the level of demand that reliable networks must truly be engineered to support – is estimated to grow even more rapidly, increasing by a factor of 4.8 over the same period.[5] And of great relevance to the current discussion, Cisco's report could not be more clear in stating that "[b]roadband speed is a crucial enabler of IP traffic. Broadband-speed improvements result in increased consumption and use of high-bandwidth content and applications." In North America, Cisco has projected that an average fixed broadband speed of 43.2 Mbps in 2017 will rise to 94.2 Mbps in 2022 – making

unfavorably in the very near future when speed and capacity demands increase to levels in excess of what is deemed minimally acceptable today.

[5] Cisco, *Visual Networking Index: Forecast and Trends, 2017-2022*, at 1 (available at: https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-741490.pdf).

something just south of 100 Mbps an effective "baseline" metric for access in just a few years' time.[6]

Zooming inward to look more specifically at U.S. data, the numbers and estimates are strikingly similar. Cisco has estimated that U.S. IP traffic will increase at a compound average growth rate of 21 percent through 2022, with the startling notation that "[b]y 2022, the gigabyte equivalent of all movies ever made will cross the United States' IP networks every 3 minutes." On an even more granular basis, Cisco predicts that "the average Internet user will generate 277.9 gigabytes of Internet traffic per month by 2022, up 182% from 98.7 gigabytes in 2017, a CAGR of 23%."[7]

Other industry data sources paint a remarkably similar picture with respect to what demands users are placing on networks now and what can be expected moving forward. If anything, more recent reports outpace Cisco's predictions. OpenVault reports, for example, that broadband usage in the first quarter of 2019 nearly equaled what Cisco predicted *for 2022*; specifically, OpenVault states that "[t]he weighted average data consumed monthly by subscribers in 1Q19 reached 273.5 GB" – a 27 percent increase over 2018.[8] The OVBI report further indicates that, as of the first quarter of this year, nearly two-thirds of all subscribers are provisioned for between 50 Mbps and 150 Mbps, "making that the most commonly represented provisioned speed," with close to half of all subscribers provisioned at speeds of 100 Mbps or higher.[9]

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[6] *Id*. at 18, Table 4.

[7] Cisco, *VNI Highlights Tool* (available at: https://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html#).

[8] OpenVault Broadband Industry Report (OVBI), 1Q2019, at 3 (available at: https://www.telecompetitor.com/clients/openvault/report/OVBI_Q1_Report.pdf).

[9] *Id*. at 6.

Taking a step back, the law requires that universal service policy aim above all else for "reasonable comparability" – that is, services supported by universal service should be "reasonably comparable" in price and quality as between rural and urban areas.[10] While other policy considerations may certainly inform how universal service policies are structured, reasonable comparability remains the touchstone, meaning that no policy or auction framework may be developed and implemented if it fails first and foremost to achieve that goal. Against the backdrop of the data and trends discussed immediately above, it is clear then that tiers and weights in the RDOF auction must enable the deployment and operation of networks that not only approximate current measures of performance in urban areas; the RDOF must encourage networks that are "built to last" rather than "built to fail" in the face of such demands. With reasonable comparability as the touchstone, the Commission should not be promoting – never mind paying in part for – the deployment of networks that the majority of users already view as substandard in today's marketplace or that will prove to be incapable of keeping pace with the kinds of demands that industry trend watchers all say will arise in the years to come (especially while the Commission's RDOF programs keep paying for them).

To this end, NTCA therefore proposes the following tiers and weights for use in the RDOF auction:

[10] 47 U.S.C. § 254(b)(3).

Performance Tier	Speed[11]	Monthly Usage Allowance	Weights
Minimum	≥ 25/3 Mbps*	≥ 3 TB or U.S. median, whichever is higher	79
Baseline	≥ 100/20 Mbps*	≥ 5 TB or U.S. median, whichever is higher	60
Above Baseline	≥ 500/100 Mbps*	≥ 5 TB or U.S. median, whichever is higher	30
Gigabit	≥ 1 Gbps/500 Mbps*	≥ 5 TB or U.S. median, whichever is higher	15
*Symmetrical Service Bonus: Minus 15 Points from Tier Weight if Upload is Within 5% of Download Speed			

Latency	Requirement	Weight
Low Latency	≤ 100 ms	0
High Latency	≤ 550 ms and MOS ≥ 4	20

The charts above differ from the Commission's initial proposal[12] in four key respects, with each proposed difference aimed ultimately at promoting more efficient and effective use of RDOF resources through investments that will deliver on consumer need and demand *throughout* the term of support and beyond. More specifically, the four differences are:

1. ***Retain Four Speed Tiers*.** In lieu of collapsing to three speed tiers (Baseline, Above Baseline, and Gigabit) for the RDOF auction as proposed, the Commission should retain the four-tier structure (Minimum, Baseline, Above Baseline, and Gigabit) from the CAF Phase II auction

[11] All speed measures should remain subject to the "80/80" threshold adopted for performance of networks supported by universal service. *See Connect America Fund*, WC Docket No. 10-90, Order, 33 FCC Rcd 6509, 6528-30 (2018) ("*Testing Order*"), at ¶¶ 51-55.

[12] NPRM at ¶ 25.

but updating those tiers for *today's and tomorrow's* broadband world. Given the industry trend data discussed above, it is clear that no longer should speeds of 25/3 Mbps be considered a "Baseline" service as in the CAF Phase II auction. Rather, services at the 25 Mbps level should be recharacterized as a "Minimum" speed (like 10/1 broadband was before), with the "Baseline" expectation set instead at 100 Mbps. Indeed, the industry data and trendlines discussed above,[13] the results of the CAF Phase II auction (in which more than 53 percent of the locations in winning bids were to be served at 100 Mbps or greater),[14] and the Commission's own findings as to what services are already widely available in urban areas[15] all demonstrate the wisdom of treating 100 Mbps as the new "Baseline" for purposes of achieving the universal service mandate of reasonable comparability. Moreover, as in the CAF Phase II auction, it would be prudent to retain an "Above Baseline" Tier that is robust but still short of the top tier, in order to accommodate and recognize the promise of evolving technologies that may not yet be capable of delivering Gigabit speeds but can still perform better than the "Baseline."

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[13] *See* footnotes 5 through 9, *supra*, and accompanying text.

[14] *Connect America Fund Phase II Auction (Auction 903) Closes*, Public Notice, DA 18-887 (rel. Aug. 28, 2018).

[15] *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, GN Docket No. 18-238, 2019 Broadband Deployment Report, 34 FCC Rcd 3857, 3876-77 (2019), at Fig. 4 (indicating that 88.5 percent of all Americans and 95.8 percent of urban Americans have access to fixed terrestrial broadband with at least 100 Mbps download speeds).

Thus, retaining four tiers but recasting 25/3 Mbps service as the "Minimum" and 100 Mbps as the "Baseline" would be far more reflective of the current state of the broadband marketplace, while also helping to foster more forward-looking results in terms of universal service policy and promoting reasonable comparability over the longer-term.[16]

2. ***Modified Usage Allowances.*** Speed and usage allowances are logically correlated – the higher the speed provided to the customer, the greater the capability and likelihood for the customer to make more data-intensive use of the service and thus to exceed any usage allowance. For example, a customer with only 1 Mbps of service can as a practical matter use only 300 GB of capacity presuming the broadband service were used at the maximum speed for the entire month – and the data usage could be twice as much if the upstream capability were used to full capacity for the entire month as well. Similarly, as a matter of basic network engineering, a 25/3 Mbps service could use a maximum of 9 TB per month, while a 100 Mbps symmetrical broadband service could enable more than 60 TB per month of utilization. Meanwhile, industry data indicate that the average capacity used by a subscriber as of the second quarter of 2019 was 282.5 GB per

[16] An alternative approach could be to proceed with three tiers as the Commission suggests, but to adjust those tiers based upon more realistic expectations for performance demands over time. Specifically, if the Commission were to structure the auction with only three tiers, the "Baseline" should not equal 25/3 Mbps, but should instead reflect what consumers would find "reasonably comparable" over the life of the support term helping to "pay for" that network. Such a three-tier structure therefore could include the 500 Mbps and Gigabit tier, but the Baseline level should then start from something like the average broadband speed reflected in a report such as *Measuring Broadband America*, which for data collected as of September 2017 indicated a median download speed of 72 Mbps. This figure should then be "brought forward" to reflect median speeds at the time the auction is actually conducted; for example, if one were to assume a 26% annual increase in speeds, the Baseline speed as of 2019 would equal approximately 114 Mbps. *See Eighth Measuring Broadband America Fixed Broadband Report* (available at: https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuring-fixed-broadband-eighth-report).

month, representing an increase of 23 percent over the same period a year earlier.[17] With increasing deployment of Internet-connected devices – ranging from Nest thermostats to doorbell cameras and smart utility meters to agribusiness applications – this utilization can be reasonably expected to grow at a comparable pace well into the future. For example, a single doorbell camera alone could use up to 400 GB per month depending upon settings.[18]

Thus, the capacity levels set for participation in the RDOF auction should not be premised upon what consumers can do right now with their networks. Rather, prudent planning demands that ratepayer funds be used for networks that are built to meet reasonable estimates of capacity needs *at the end of* the term when those ratepayer funds are still being distributed to network operators. Applying a 23 percent growth rate such as that seen in the most recent OpenVault report would indicate, that by 2023, usage would rise to nearly 3 TB per month. This therefore should represent the usage allowance for the Baseline tier – with higher levels of capacity, such as 5 TB per month, then required of those bidding in higher tiers so that consumers can make the most effective use of those higher speeds.

3. ***Improved and Better Specified Latency Metrics.*** Latency remains essential for purposes of measuring actual network performance and promoting meaningful use of services by consumers. Particularly with applications such as videoconferencing, but also in the context of the voice communications that remain the "supported service" for purposes of universal service,[19]

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[17] OpenVault Broadband Industry Report (OVBI), 2Q2019, at 4 (available at: https://www.telecompetitor.com/clients/openvault/Q2/OVBI_Q2_Report_final.pdf).

[18] *See* https://support.google.com/googlenest/answer/9245832?hl=en.

[19] *Connect America Fund*, *et al*., WC Docket No. 10-90, *et al*., Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17686 (2011), at ¶ 64 (confirming that the actual supported service is "voice telephony" as a telecommunications service, although the statute *also* permits support of "the facilities over which it is offered").

latency can have serious implications for the user experience.[20] The Commission therefore is right once again to include weighting for latency performance within the newest auction framework. Certain changes should be considered, however, to reflect marketplace evolution and changing consumer expectations when it comes to latency-sensitive applications. It is also important to address upfront here and avoid a repeat of the substantial post-CAF Phase II auction debate over what is required to demonstrate compliance with the latency performance metrics.

As an initial matter, the Commission should revisit from the CAF Phase II auction what levels of latency will be acceptable in and expect more from providers, especially as technologies evolve and those services that may have previously been challenged by higher latency could potentially take steps to improve performance. More specifically, in lieu of the 750 milliseconds threshold for higher latency used in the CAF Phase II auction, the Commission should migrate to 550 milliseconds as the highest acceptable level of latency for participation in the auction. Satellite systems appear to recognize this level of latency as physically achievable,[21] and as news about the promise of low-earth orbiting satellites seemingly breaks daily, it is reasonable to expect (and demand) improvement in this key performance characteristic.

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[20] *See, e.g.*, ESOA, EMEA Satellite Operators Network, *Latency in Communications Networks*, at 2 (available at: https://www.esoa.net/Resources/1527-ESOA-Latency-Update-Proof4.pdf) (providing a chart detailing how latency affects different applications and use cases ranging from telematics to streaming video, and from voice and videoconferencing to IoT); *see also* Vantage Point Solutions, *Latency Considerations for Satellite Broadband* (May 2017) (available at: https://www.ntca.org/sites/default/files/legacy/images/stories/Documents/Advocacy/FederalFilings/05.18.17%20rural%20coalition's%20opposition%20to%20hughes%20pfr%20of%20caf%20ii%20auction%20order,%20wc%2010-90,%2014-58.pdf).

[21] *See, e.g.*, *Latency – Why Is it a Big Deal for Satellite Internet?* (available at: https://www.vsat-systems.com/satellite-internet-explained/latency.html) ("Each time a data packet 'hops' (i.e. is handled by a device along the path) several milliseconds of latency are introduced. The physics involved account for approximately 550 milliseconds of latency, a limitation shared by all satellite providers.").

Second, the Commission should clarify expressly upfront what tests will be used to measure latency performance on supported networks and achievement of a Mean Opinion Score of 4 or greater. In particular, to avoid any confusion or *post hoc* debate of the kind witnessed in the wake of the CAF Phase II auction, the Commission should confirm and reaffirm that winning bidders in the higher latency tier must show compliance with latency requirements through the use of an ITU-T Recommendation P.800 conversational-opinion test because this reflects best what the user's "real world" experience will be in communicating across the network with others (especially locally with others on the supported network where "multiple hops" may be necessary).[22] The Commission should also be unmistakably clear in advance how such tests will be conducted so that bidders participating in the high latency tier of the auction cannot assert confusion thereafter.

Finally, presuming that improved latency would be ensured in the form of a relatively lower (but still high) millisecond threshold and that greater clarity will be established surrounding how such latency will be measured, the Commission should then be able to reduce the "points" applicable to higher latency bids. NTCA recommends attaching only 20 points to a higher-latency bid in the event that its other recommendations herein are adopted – a weighting that would represent a 5-point (or 20 percent) improvement over that assigned to higher latency services in the CAF Phase II auction. This would reflect a reasonable balancing of points reflective of the improved experience that could be expected for users with a somewhat lower (but still high) latency threshold and a clearer and more effective testing protocol.

[22] *See, e.g., Testing Order*, 33 FCC Rcd 6509, 6524-26 (2018), at ¶¶ 41-46.

4. ***Weights and Symmetrical Bonus.*** The RDOF weights should be structured to enable all kinds of technologies to participate and potentially prevail in the auction. But as discussed above, technological neutrality must also recognize the returns to be realized by investing in scalable networks upfront, as compared to devoting substantial resources to deployments that will all too quickly become antiquated and rapidly seen as obsolete as consumer demands continue apace. For an analogy that rings true in the infrastructure space, departments of transportation do not build two-lane roads when they can foresee that an eight-lane highway will be needed in the future, precisely because the costs and disruption of rebuilding a road multiple times over is inefficient and will ultimately exceed the cost of doing it right the first time. Thus, the RDOF auction weights should reflect the relative value of the networks to be built over the useful lives of those networks – if, in fact, a lower speed can be delivered at a materially lower cost, then that certainly could be an efficient result that should be recognized in the auction process. But the weights should *not* be utilized as a tool merely to "spread the winnings around" under the auspices of technological neutrality.

The weights proposed herein strike just such a balance. In the first instance, they are very similar to those used in the CAF Phase II auction. To compare:

Tier	CAF Phase II Auction	NTCA RDOF Proposal	Difference
Minimum	65	79	+14
Baseline	45	60	+15
Above Baseline	15	30	+15
Gigabit	0	15	+15

Indeed, as this chart shows, the proposal made herein retains a nearly identical relative "spread" between each tier – and, in fact, provides a slightly greater relative benefit to the "Minimum" tier than was afforded in the CAF Phase II auction. However, NTCA recommends one modification to this basic framework that would apply to the Baseline, Above Baseline, and

Gigabit tiers. Specifically, NTCA has proposed above that the basic weighting framework be adjusted to provide a "Symmetrical Bonus" of Minus 15 points in the event that a bidder in one of those tiers promises to deliver symmetrical speeds in the funded area. Under this concept, a bidder that proposed to deliver 100 Mbps (Baseline-level) symmetrical services through its RDOF-funded deployment would have a bid weight of 45, rather than 60; a bidder that proposed to deliver 500 Mbps symmetrical would realize a bid weight of 15 rather than 30; and a bidder that proposed to deliver symmetrical Gigabit service would have a bid weight of zero. In effect, this Symmetrical Bonus would actually result in precisely the same weighting at these three higher levels (Baseline, Above Baseline, and Gigabit) as in the CAF Phase II auction – as long as the provider is willing to commit to symmetrical speeds.

A Symmetrical Bonus is more than well-justified from a public policy perspective. The Commission has repeatedly expressed significant interest in broadband applications such as distance learning, overcoming the "homework gap," smart agriculture, and enabling connected care and telehealth. Of course, symmetrical services are mission-critical to realize the full promise of such applications and many others. From video consultations with healthcare professionals to distance learning, and from uploading of videos and files to e-gaming, residential users benefit immensely from the capabilities of symmetrical services – and can suffer through the frustration of service quality more commonly associated with the "dial-up" era in the absence of such connectivity. For businesses and economic development, symmetrical connections are even more essential. Employees in enterprises large and small spend much of their time both sending *and* receiving – uploading *and* downloading – large files and other content. Videoconferencing, virtual office arrangements, and shared drives are the norm in today's cloud-based workplace. In rural areas, smarter agriculture will turn at least as much on receiving data for processing and analysis

upstream as it does on pushing instructions downstream.[23] In short, given that broadband access has become about far more than "surfing the Web" and checking e-mail – as the commissioners have all rightly noted at one time or another[24] – public policy should encourage the deployment of symmetrical capability wherever possible, and the inclusion of a "Symmetrical Bonus" in the RDOF auction weighting framework is a logical, reasonable, and efficient means to do so.

As for more direct comparisons to the weights proposed in the NPRM, there are ultimately three key factors to highlight in considering the weighting differences. First, as noted above, the NPRM proposal suggests only three tiers while this concept would propose to retain four tiers for the reasons described earlier. This simple structural difference necessarily results in a difference in the relative weighting among the tiers. Second, as discussed above as well, the proposal herein

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[23] *See, e.g.*, *IoT in Agriculture: 5 Technology Use Cases for Smart Farming (and 4 Challenges to Consider)*, Eastern Peak, June 7, 2018 (available at: https://easternpeak.com/blog/iot-in-agriculture-5-technology-use-cases-for-smart-farming-and-4-challenges-to-consider/). ("Data, tons of data, collected by smart agriculture sensors, *e.g.* weather conditions, soil quality, crop's growth progress or cattle's health. This data can be used to track the state of your business in general as well as staff performance, equipment efficiency, *etc.*")

[24] *See, e.g.*, Remarks of Chairman Ajit Pai at Rio Rancho Cyber Academy (Aug. 20, 2018) (describing how "digital technologies can open up new opportunities for learning" through "lessons online for your students to watch at home" in inverted classrooms, "game-based tools," and "virtual reality and augmented reality"); *Promoting Telehealth in Rural America*, WC Docket No. 17-310, Report and Order (rel. Aug. 20, 2019), at Statements of Commissioner Michael O'Rielly ("I have seen the benefits of telemedicine firsthand and understand its importance, especially to the health and safety of Americans in remote parts of the country, such as Alaska."), Commissioner Brendan Carr (discussing how "reliable Internet connections at home can improve Americans' health"), and Commissioner Geoffrey Starks ("I am a big believer in the power and potential for telehealth to save lives, improve care, and transform the way people interact with doctors and health care systems. I come from a family of doctors and I know what a difference that having the right care and monitoring options available at the right time can make to patients and their families."); Statement of Commissioner Jessica Rosenworcel on New Homework Gap Data from the Pew Research Center (Oct. 26, 2018) ("The Homework Gap is the cruelest part of the digital divide. We need to bridge this gap and fix this problem. Our kids deserve nothing less and our shared economic future depends on it.").

recommends awarding additional points based upon commitments by a bidder to deliver symmetrical services of the kind that users will increasingly require to make the most effective use of their broadband services. This new feature of an auction logically results in changes to the "relative spread" between tiers as compared to the NPRM's simplified three-tier framework, but it is more than justified in terms of the results it promises for both residential and small enterprise users. Finally, as discussed above, NTCA recommends changing the latency metric so that not as many points attach to redefined higher latency services as was the case in the CAF Phase II auction. "Flattening out" the impact of latency necessarily would of course alter the weighting structure as well, as in NTCA's proposal only 20 points would attach to the latency measure rather than the 40 initially proposed in the NPRM.

Thus, while the relative weighting in the proposal put forward herein is somewhat different than that contained in the NPRM, the benefits of retaining a weighting structure comparable to the successful CAF Phase II auction, the benefits of recognizing the value of symmetrical speed offerings, and the benefits from modifying the latency requirement as noted herein all support adopting the weighting proposal suggested herein by NTCA.

II. THE USE ONCE AGAIN OF CENSUS BLOCK GROUPS AS THE STANDARD GEOGRAPHIC BIDDING UNIT WOULD STRIKE A REASONABLE BALANCE BETWEEN PROMOTING PARTICIPATION IN THE AUCTION WHILE AVOIDING A POTENTIALLY UNWIELDY PROCESS.

The NPRM asks 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 such as census tracts or counties would be "more manageable" given the anticipated size of this auction.[25] Some operators have previously argued that smaller bidding

[25] NPRM at ¶ 21.

units – the eligible census blocks themselves – would encourage greater participation by smaller operators seeking to "edge out" their networks or to shape the contours of their bids to geographies such as an electric utility or franchise footprint. These providers are likely to raise the same arguments again, and representing smaller operators as well, NTCA is sympathetic to their concerns. Moreover, NTCA is concerned about the potential for the auction to be structured in a certain way simply because the Commission's current auction software may be designed for certain lots; auction frameworks should not be preordained simply because the Commission's existing infrastructure is architected a certain way heading into the auction in question.

Nonetheless, if "manageability" is more holistically viewed from the perspective of *all* participants in the auction – all bidders *and* the Commission itself – a census block-based auction could make the most sense in this instance. This RDOF auction will indeed be many times larger than the CAF Phase II auction. NTCA has heard from a number of smaller members that found the prior auction complex enough on its own, with participation and monitoring of bids across the country in various rounds a significant resource-consuming and time-consuming task. Here, the degree of difficulty will almost certainly be much higher as many more eligible census blocks are at stake in the RDOF auction. Thus, while it is true that smaller bidding units could encourage some smaller operators to participate in the RDOF auction because they can then tailor their bids to desired serving areas, it is quite possible that a national auction with too many units will deter some smaller providers from bidding because they do not have dedicated staffs and/or cannot procure the outside resources to participate meaningfully in a too-complex process.

At the same time, auction units cannot be too large, or smaller operators will be deterred from participation altogether. For example, while counties may make sense from the perspective of spectrum auctions where mobility across wider areas is important and deployments require

coordination to mitigate against interference,[26] adoption of census tracts or counties in the RDOF auction would almost certainly deter all but the largest operators from bidding – thereby suppressing the levels of participation necessary for the RDOF auction to succeed as a national auction and "boxing out" many smaller operators that have consistently demonstrated the greatest commitment to rural communities and rural broadband deployment to date.

The use of census block group-based bidding units would therefore 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.

III. THE COMMISSION SHOULD UTILIZE THE MODEL TO ESTABLISH THE RESERVE PRICES FOR THE AUCTION – BUT FLEXIBILITY IS NEEDED TO ACCOMMODATE WHERE IT IS DISCOVERED LATER THAT THE MODEL MAY MISALLOCATE THE NUMBER OF SERVICEABLE LOCATIONS IN A GIVEN AREA.

NTCA supports the proposal to use the Connect America Cost Model as the baseline to determine reserve prices for the RDOF auction.[27] The model, while not perfect or accurate in every instance as discussed further below, remains the best available standardized means of estimating the costs of deploying and operating a forward-looking network across wide swaths of rural America. It therefore represents a reasonable starting point against which operators can then register their bids and against which the weights can be applied to arrive at the amount of support necessary to deliver services in any given eligible census block.

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[26] *See, e.g.*, *Promoting Investment in the 3550-3750 MHz Band*, GN Docket No. 17-258, Report and Order, 33 FCC Rcd 10598, 10607-11 (2018), at ¶¶ 19-25.

[27] NPRM at ¶¶ 54-57.

To avoid injecting undue complexity into an auction that will be far-reaching and complex enough already, however, the Commission should decline at this time to make new adjustments to the process for setting reserve prices specifically to drive results in or to direct funding toward certain areas (beyond making limited changes necessary to reflect tribal concerns and a revised per-location funding cap, both of which would be consistent with decisions already reached in the more recent A-CAM context[28]). For example, for reasons discussed further in Section VI below, NTCA recommends against including relatively lower-cost census blocks (*i.e.*., those with average costs below $52.50 per location) in at least the first stage of the RDOF auction; instead, as discussed below, any decisions with respect to structuring the auction to include these more densely populated, lower-cost census blocks should be deferred to a later stage. Similarly, the Commission should refrain at this time from increasing the reserve price to funnel support specifically toward areas that appear to be lacking 10/1 Mbps broadband.[29] In the first instance, it is quite possible – particularly if the Commission once again employs census block group-based bidding – that many of the areas currently lacking such coverage could be part of a winning bid in the RDOF auction. Moreover, another program – the ReConnect initiative overseen by the U.S. Department of Agriculture – is already in the process of deciding how to direct hundreds of millions of dollars to such unserved areas; the Commission would be better served by monitoring how that process unfolds and then seeking possibly to "fill gaps" in a later stage of the RDOF

[28] *See id*. at ¶¶ 56, 62-64. Indeed, as the Commission develops the auction, it should consider other means too – whether differing weights, bidding credits, different subscription ratios, or other measures – that may further prompt and enable providers to seek to serve neglected tribal areas.

[29] *Id*. at ¶ 60.

effort rather than jumping into the fray in a manner that could ultimately lead to duplicative funding.[30]

The Commission also proposes in the NPRM to use the model for purposes of identifying the number of locations to be served by prevailing bidders in eligible census blocks.[31] The Commission's proposed rules would withhold a percentage of an RDOF recipient's support if the recipient does not offer service to the percentage of those locations required by each of the milestone deadlines.[32] Although NTCA supports rules that ensure all rural areas receive voice and broadband service, such rules must also recognize the limitations of using the model as an absolute indicator of the number of locations in a given area. The Commission should therefore provide RDOF recipients with reasonable certainty with respect to the amount of funding they will receive in the event of a disparity between the model's estimation of locations and those found to exist in reality once facts on the ground are examined.[33] As NTCA and others described previously in comments filed with the Commission, however, the current guidance provided for reporting of locations served and addressing disparities that arise when fewer locations exist has unfortunately

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[30] This raises a broader question of interagency coordination that the Commission must consider as noted in Section VIII], *infra*. For example, in determining eligible areas, the Commission will need to ensure that any funds awarded through the RDOF will not go to support the deployment of a redundant network by one provider in areas where the ReConnect or state-level broadband programs are already (or soon will be) funding construction by a different provider (even though such areas may show as "unserved" on current maps).

[31] NPRM at ¶¶ 28-30.

[32] *See id*. at ¶ 36.

[33] In NTCA's 2018 Broadband/Internet Availability Survey Report, nearly 60 percent of survey respondents cited regulatory uncertainty as a significant barrier to the rural deployment of fiber on a widespread basis (available at https://www.ntca.org/sites/default/files/documents/2018-12/2018%20Broadband%20Survey%20Report_FINAL.pdf).

generated significant uncertainty.[34] One concern is that the definition of what constitutes a location for purposes of buildout compliance remains in question, with the potential for many small business locations of the kind typically seen in rural America to be left out of the process.[35] Moreover, while the Commission proposes to allow RDOF recipients to demonstrate there are fewer actual locations within their funded area(s) than included in the model, the proposed rules would reduce support on a *pro rata* basis as a consequence of doing so.[36]

Two steps are needed to address these concerns about disparities in location counts between the model and facts on the ground. First, prior to the auction, the Commission should resolve confusion surrounding what qualifies as a location and how any differences in the "actual" number of locations versus the model-estimated locations will be handled for purposes of compliance with buildout obligations.[37] Second, the Commission should jettison the NPRM proposal to reduce funding on a per-location basis if RDOF recipients conclude at the end of their six-year buildout term that there are fewer locations in the census block for which they received funding than were estimated by the model. Reducing support on a *pro rata* location-by-location basis not only risks unfairly penalizing RDOF recipients for inaccurate model estimates, but also is inconsistent with the realities of how broadband networks are constructed.

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[34] *See, e.g.*, Comments of NTCA, WC Docket No. 10-90 (filed July 10, 2019); Comments of NTCA, WC Docket No. 10-90 (filed July 19, 2019); Reply Comments of NTCA, WC Docket No. 10-90 (filed July 25, 2019).

[35] Petition for Clarification or Declaratory Ruling of Northeast Iowa Telephone Company and Western Iowa Telephone Association, WC Docket No. 10-90 (filed May 6, 2019).

[36] NPRM at ¶ 30.

[37] *See* footnote 34, *supra.*

A recent study by CostQuest, for instance, concluded that a significant portion of the cost of deploying networks is comprised of "distance-caused costs (costs that are fixed or insensitive to the number of housing units)."[38] When providers deploy communications networks, they must deploy infrastructure throughout service areas – and conduct the engineering studies, obtain any necessary permits, etc. necessary to install network facilities – regardless of the precise number of locations to be served. Thus, these costs are "fixed" and constitute the vast majority of the cost of deploying broadband services. Two diagrams in that paper demonstrate in particular how location counts have a marginal effect at most on the overall cost of network deployment. Specifically, in Figure 3, CostQuest depicts a hypothetical area with six locations in it. The overall cost of a fiber deployment project in that area is estimated at $104,490, or $17,415 per location and $34,830 per mile. In Figure 4, however, CostQuest quadruples the density for that same area – assigning twenty-four locations to it rather than merely six. The overall cost of the fiber deployment project of course does not quadruple, however, simply because the locations do. Instead, the overall cost increases to $110,340; in other words, despite four times the number of locations being served, the cost increases by only $5,850, or approximately six percent. (Logically, the cost per mile increases just slightly as well – by $1,950, or the same 6 percent.) The only material change comes in the *per-location* cost of the overall deployment, which drops dramatically from $17,415 to $4,597 when the number of locations and density quadruple.

The Commission should therefore approach the question of what reductions in support should follow in the event of location discrepancies by taking account at most of discrete and identifiable *location-specific deployment costs* in lieu of sweeping per-location estimates and *pro*

[38] Steve G. Parsons, Parsons Applied Economics, and James Stegeman, CostQuest Associates, *Rural Broadband Economics: A Review of Rural Subsidies* (July 11, 2018) (available at: https://www.costquest.com/uploads/pdf/ruralbroadbandeconomics-areviewofruralsubsidiesfinalv07112018r2.pdf.

rata reductions. This approach is consistent both with the underlying model design itself and "real world" network economics, which confirm that the costs of deploying networks are incurred geographically throughout an area and largely independent of the effects of reaching individual locations.

IV. IN THE INTEREST OF CONSUMERS AND TO PROMOTE PROGRAM INTEGRITY, THE COMMISSION SHOULD TAKE ADDITIOANL STEPS TO ENSURE QUALITY OF SERVICE AND THE ABILITY OF AUCTION PARTICIPANTS TO DELIVER ON THEIR PROMISES.

A. The Commission Should Engage in More Thorough Vetting of Would-Be Bidders Prior to Participation in the RDOF Auction.

Rural areas present special challenges that can be daunting even for providers with substantial experience in deployment and operation of advanced networks in deeply rural America. It is therefore in the Commission's and the public's best interest to ensure potential bidders have carefully evaluated the geographic realities and corresponding technical challenges in areas where they intend to bid. This will guard not only against speculative bidders, but also allow the Commission to identify those bidders who have failed to conduct sufficient due diligence to assess accurately whether they have the ability to deliver voice and broadband services in the selected areas.

To address such concerns, the Commission proposes to require anyone wishing to participate in the RDOF auction to certify in their short-form application that they are "technically and financially" qualified to receive support and capable of delivering on the promise of their bids.[39] But more robust review of those qualifications and the practical ability of the bidder to deliver on the promise captured by its bid would come only if that bidder prevails in the auction.[40]

[39] NPRM at ¶ 71.

[40] *Id*. at ¶ 68.

While NTCA recognizes the need to balance rigorous upfront showings with the potential to deter participation in the auction, it is important that the Commission make a greater effort to require potential RDOF bidders to demonstrate more thoroughly their qualifications and capabilities to deliver as promised *prior to* participating in the auction. This can be achieved through a few simple steps, focused particularly on an entity's technical and operational capabilities to perform.

First, the Commission should require potential RDOF bidders to include in their short-form application propagation maps that show the rural topographies where they intend to bid along with a reasonably detailed justification for their purported capability to deliver service to every corner *throughout* those areas based upon reasonable assumptions regarding technological capability and subscription. To ensure such technical demonstrations would not reveal an applicant's bidding strategy, such information could be submitted under seal with the Commission.

Second, as a related matter, the Commission should leverage work that is now being considered in its mapping proceeding and prescribe standards that will be used consistently across all applications to estimate the capability of varying technologies.[41] This is necessary because speed and latency are necessarily affected by multiple factors encountered between the initiating point and the subscriber, including distance, types of terrain, foliage, structures, and natural barriers. Furthermore, speed and latency of course can vary based on the technology used (*e.g.*, copper, fiber, coax, spectrum (including the type of spectrum)) and the assumptions made with respect to the capabilities of those technologies – for example, it is important to take stock of

[41] *See Establishing the Digital Opportunity Data Collection*, WC Docket No. 19-195, *Modernizing the FCC Form 477 Data Collection Program*, WC Docket No. 11-10, Report and Order and Second Further Notice of Proposed Rulemaking (rel. Aug. 6, 2019), at ¶ 14 (noting "that it would be ideal for providers to have more precise technical standards to follow in determining whether fixed broadband is available in an area" and thus seeking comment on the standards that providers should use to establish coverage areas); *see also Ex Parte* Letter from Michael Romano, Sr. Vice President, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 11-10 (filed Apr. 30, 2019).

factors such as the signal strength of DSL technology over copper and spectrum propagation models that contain defined factors for signal strength, cell edge probability, and loading. Accordingly, simply requiring potential bidders to identify the type of service they intend to provide will do little to allow the Commission to accurately assess whether a prospective bidder is in fact able to provide the speed, latency and data usage identified in their application.

Instead, to ensure bidders have adequately accounted for the realities of where they intend to provide service, the Commission should require potential bidders to submit technical showings in their short-form application that would demonstrate their ability to meet the proposed speeds and latency in the face of terrain, distance, and other relevant factors. These need not be incredibly detailed engineering plans that depict the location of every antenna, pedestal, or handhole, but they certainly should be more than a mere certification promising it can be done. The Commission should also require those planning to use spectrum assets that they do not currently possess and that are acquirable only via future auction or acquisition to flag this fact in their short forms, and to explain what contingency plans they have in place to fulfill their obligations should they prevail in the RDOF auction but then fail to obtain the spectrum assets they do not hold today.

Third, the Commission rightly recognized in the NPRM that any rules governing the RDOF auction must ensure accountability and that "public investments are used widely to deliver intended results."[42] To this end, the Commission has proposed to require those wishing to participate in the auction to either demonstrate in their short-form application that they have provided voice or broadband service for at least two years using Form 477 data or provide audited financial statements from the past three years.[43] NTCA supports this proposal, while also

[42] NPRM at ¶ 12.

[43] *Id*. at ¶¶ 74 and 76.

recommending that the Commission require applicants to provide technical data in their short-form application as described above. Such requirements in tandem would not only be consistent with, but would further, the Commission's responsibility to avoid speculative bidders that do not have the ability to deliver service to the area(s) in which they propose to bid in the RDOF auction.[44]

Absent the kind of demonstrations referenced here, RDOF funds could be awarded to an entity that turns out not to have the capability to provide the intended services, wasting the resources that were allocated to that bid. More importantly, even if the Commission were to determine later that such an entity fails to meet the technical standards when evaluating the long-form application and thus does not award any RDOF funds to the entity, that still leaves the areas in which the entity was the winning bidder without essential voice and broadband service until those areas can perhaps be reauctioned, networks built, and services offered.[45]

B. The Commission Should Adopt Reasonable Measures to Assure Quality of Services and Consumer Adoption of Those Services After Networks Are Deployed.

Although much of the focus of the RDOF auction and universal service policy more generally is on promoting the deployment of networks where they are lacking today, this is not the final goal. The ultimate objective articulated by the law, as noted above, is to ensure that rural and

[44] To be clear, while meaningful *technical showings* are important to obtain from *all* providers given the diversity of rural terrain – in that network deployment in one rural area is never necessarily the same as in a different rural area – NTCA supports the proposal in the NPRM for two pathways for the submission of information regarding *operational experience and financial qualifications* based upon years of experience in providing certain services over rural infrastructure. *See id*. at ¶ 74.

[45] *See, e.g.*, *Ex Parte* Letter from Rebekah Goodheart *et al.*, Rural Coalition, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, Nov. 21, 2017 (noting that the submission of maps at the long-form stage "is insufficient to address concerns about accountability and capability to perform … because it would be too late for another qualified bidder to win support for the area … leaving that community … behind.").

urban Americans alike have access to reasonably comparable services at reasonably comparable rates. Thus, the job is hardly finished once a network is built – the mission of universal service is ongoing, with the statutory mandate being realized only as consumers in rural America are able to make use of services like their urban counterparts.

For this reason, even as its precise contours remain subject to review and refinement, NTCA has strongly backed the overarching notion of testing performance on networks supported by universal service resources.[46] This is important to ensure that providers will keep delivering on the promises they made when they bid. Going further, the Commission might also consider whether other measures,[47] such as reports on unfulfilled service requests due to network capacity limitations for locations used to demonstrate compliance with buildout milestones, could augment visibility into whether winning bidders are truly fulfilling the promise of their bids without creating substantial new burdens.

In addition, the Commission seeks comment on whether to adopt subscribership milestones for RDOF recipients in order to ensure "sufficient incentives for support recipients to pursue customers in the eligible census blocks." The Commission cites, for example, the case of a spectrum-based bidder fearful of oversubscription that could require additional capital expenditures, which could result in the provider seeking to serve either customers that can pay more or focusing investment in less costly portions of serving areas.[48] NTCA supports the notion

[46] Application for Review of NTCA, WC Docket No. 10-90 (filed Sept. 19, 2018), at ii ("Particularly as the Commission undertakes new means of distributing USF support, validation of whether operators are delivering upon their promises to engineer a network capable of meeting professed coverage claims and capabilities will be essential to ensure effective use of resources and benefits that accrue to the rural consumers and businesses in need of connectivity.").

[47] *See* NPRM at ¶ 31.

[48] *Id*. at ¶¶ 40-41.

of subscribership requirements for RDOF recipients for precisely the reasons that the Commission articulates – if the Commission is helping to pay for a network through the use of universal service resources, reasonable steps should be taken to ensure that providers are not looking just to "bank support" for building a network, but rather to promote *use* of that network by interested users throughout the funded service areas.

This being said, the subscription level of 70 percent suggested in the NPRM[49] is unachievable for even the most well-intentioned and aggressively-marketing provider under these circumstances. It is worth recalling that, if the CAF Phase II auction is any indicator, the winning bidder will likely be a *new entrant* into the voice and broadband services market in the area in question. This means that, even with a new network and what should be vastly superior services, the winning bidder will be facing an incumbent provider that already holds most, if not all, of the market share and has name brand recognition. It will almost certainly take a significant amount of time and effort to attract subscription levels approaching even 50 percent. Moreover, not all of the customers in any given area will subscribe to broadband: the U.S. broadband adoption rate is only estimated to be 73 percent of all adults,[50] and even in those rural areas where NTCA members are the incumbents and typically the only providers available, the average customer adoption rate has hovered around 72 percent.[51]

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[49] *Id*. at ¶ 41.

[50] Pew Research Internet/Broadband Fact Sheet (available at: https://www.pewinternet.org/fact-sheet/internet-broadband/).

[51] *See* NTCA 2016 Broadband/Internet Availability Survey Report, at 4 and 7 (available at: https://www.ntca.org/sites/default/files/documents/2018-01/2016ntcabroadbandsurveyreport.pdf).

The Commission therefore should adopt a subscription-based requirement in connection with awards of RDOF support, but the level and timing of that must better reflect the realities of being a new entrant into marketplaces where other providers currently serve and not all consumers yet recognize the importance of broadband adoption. With this in mind, NTCA recommends the Commission require RDOF recipients to demonstrate a 35 percent subscription rate measured as of the conclusion of their final deployment benchmark and then continuing for the remainder of the support term. If a provider fails to meet this level of subscription, its support could then be reduced in a proportionate manner as described in the NPRM.[52] A subscription requirement structured in this manner will give providers the chance to focus first on building their networks, but place on their radar screens as well the need to think about promoting adoption of their services as their networks come increasingly online. Moreover, this level of demonstrated subscription, combined with RDOF recipients' reporting of serviceable locations, would provide assurance that RDOF funds are being utilized efficiently and that consumers are realizing the benefits of the Commission's efforts.[53]

The Commission further requests comment on how providers should report subscribership and what method should be used to verify subscribership data.[54] Creating a separate "box" or

[52] *See* NPRM at ¶ 42. The Commission should consider, however, whether reduced subscription metrics should apply in tribal and other areas where adoption presents a chronic challenge; to be clear, providers should be encouraged to promote adoption at every turn, but in areas where current adoption is well below the national average, an overly ambitious subscription target might only deter providers from bidding to serve those consumers most in need.

[53] Measurement of the subscription rate would of course need to take into account the potential that the model estimates more locations than are found to exist in a given area; the denominator for purposes of measuring subscription (*i.e.*, total serviceable locations) should therefore be reduced to reflect any adjustments to the number of locations to which a winning bidder commits to build out. *See* Section III, *supra*.

[54] NPRM at ¶ 43.

column to be checked on the form adjacent to providers' location data indicating whether the location "takes" service would provide this information in a manner that should not be overly burdensome to providers or time-consuming for the Commission to review.

V. BIDDING RULES SHOULD BE STRUCTURE TO ENABLE MEANINGFUL PARTICIPATION IN THE AUCTION BY PROVIDERS OF ALL SIZES.

As the Commission is well aware, auctions achieve their best results typically when there are a sufficient number of qualified bidders. To help smaller providers participate in the RDOF auction and contribute to its ultimate success, the Commission should clarify the scope of anti-collusion rules as they were applied in the CAF Phase II auction. This is necessary because any bidders that are smaller businesses – like those in NTCA's membership – will almost certainly need to hire outside consultants and advisers to assist them first in identifying the technical and economic feasibility of providing voice and broadband services in the areas designated for auction, and then to prepare the technical demonstrations necessary to demonstrate they have the ability to deliver services at the levels specified by the Commission's rules throughout the area(s) on which they propose to bid. Smaller providers typically rely upon outside consultants and advisers to assist them in their technical planning and to evaluate and prepare reports demonstrating the providers' capabilities. Given the few consultants and advisers with the expertise to fill this role, and given the substantial size of the RDOF auction, many smaller providers could likely be foreclosed from participation in the auction if the consultant or adviser were prohibited from offering non-bidding strategy support to more than one auction participant.

This of course is not to say that the Commission should release all limits on use of outside experts and resources in connection with the RDOF auction. To the contrary, anti-collusion rules remain extremely important to preserve the integrity of the auction. But there is a way to strike a better balance than in the CAF Phase II auction – in particular, any potential bidder who uses an

outside consultant or adviser could be required to include in their short-form application a statement identifying the name of the entity with which they consulted, along with an attestation signed by an officer of the potential bidder certifying that such consultant or adviser has and will continue to provide the bidder solely with technical guidance and will in no way offer any discussion of bids or bidding strategy either for that entity or any other potential bidder. This type of attestation would be consistent with that utilized in the Commission-approved New York Broadband Program, and would in no way impair the integrity of the Commission's auction process.[55] Instead, such an approach would strike a much more reasonable balance than the tight restraints imposed in the CAF Phase II auction, and should help to encourage more smaller bidders to evaluate at least possible participation in the RDOF proceedings.

VI. THE PROPOSAL TO CONDUCT A MULTI-STAGE AUCTION STARTING FIRST IN INDISPUTABLY UNSERVED HIGH-COST AREAS AND THEN CONSIDERING THE POTENTIAL FOR AUCTIONS IN OTHER AREAS IS A PRUDENT AND MEASURED APPROACH.

NTCA supports the Commission's proposal to conduct an initial stage of the RDOF auction focused solely upon those census blocks (both high-cost and extremely high-cost) in incumbent price cap carrier areas where no provider purports to offer 25/3 Mbps broadband.[56] Substantial concerns have of course been raised by a variety of parties regarding the granularity and accuracy of the existing broadband availability maps, and these concerns must be vetted and addressed in a variety of ways before the Commission can be confident about the actual scope of broadband coverage in census blocks that may be only partially served. But, other than the need for a process

[55] *See* Comments of the Rural Coalition, WC Docket No. 10-90, at 11 (Sep. 18, 2017) (citing NYS Broadband Program Office, New NY Broadband Program: Phase 3 Request for Proposal Guidelines 49 (March 30, 2017)).

[56] NPRM at ¶¶ 45-46, 48.

to ensure that the existing maps capture more recent data about construction occurring since the date they were initially reported,[57] such mapping concerns should in fact be of no concern at all in census blocks *where literally no provider whatsoever indicates it offers service at this level*. Thus, focusing the first stage of the RDOF auction exclusively upon those census blocks that are indisputably unserved is a prudent choice, and the Commission can proceed without delay or concern in such areas to help the business case for broadband deployment and operation.

The Commission should not, however, expand the universe of eligible census blocks for the first stage of the RDOF auction beyond those identified in paragraphs 45 and 46 of the NPRM. For example, the Commission should not include within an auction those census blocks served by a RLEC that "are almost entirely overlapped by an unsubsidized competitor."[58] As an initial matter, the Commission has not yet resolved what "almost entirely overlapped" means such that it could make such a determination. Moreover, and more importantly as a sheer practical matter, the ability to discern "almost entire overlap" suffers from the same kinds of mapping concerns that have prompted the Commission to propose to defer partially served census blocks to a later stage of the RDOF auction. Until data and maps are available to show with confidence the actual level of competitive coverage that exists at a sub-census block level – such as the "location fabric" that NTCA has supported as an ultimate objective in the context of the mapping proceeding[59] – the Commission has no effective capability to make determinations of "almost entire overlap," meaning that such census blocks cannot be reasonably included within any auction.

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[57] *See id*. at ¶ 48; *see also* Section VIII, *infra*.

[58] NPRM at ¶ 47.

[59] *Ex Parte* Letter from USTelecom and NTCA to Marlene H. Dortch, Secretary, Commission, WC Dockets Nos. 19-195 and 11-10 (filed July 25, 2019).

The same logic applies in those areas served by a price cap carrier that have been the subject of HUBB reporting.[60] While it is true that the Commission can in theory see which locations within a census block have realized broadband deployment by reference to a price cap carrier's geocoded HUBB reports, it is also quite clear that, even as the geocoded reports in the HUBB may be effective for compliance tracking purposes, they are *not* necessarily accurate for mapping purposes. (If they are, then the Commission can and should simply require all providers to report on Form 477 using the HUBB process and immediately generate much-improved maps.) The Commission should therefore not "mix apples and oranges" by trying to use the HUBB reports as conclusive indicators of where coverage does and does not exist, and then adjust what areas are eligible for the first stage of the RDOF auction based upon that. Instead, such partially served census blocks should once again be held for potential inclusion in a later stage RDOF auction, after better data and mapping capabilities permit more accurate identification of service levels on a sub-census block basis.

Finally, other than in tribal areas, the Commission should not at this time expand the universe of eligible census blocks to include lower-cost areas even if they appear wholly unserved.[61] Here still, improved mapping data may be extremely important, helping to understand whether and to what degree variances in location counts affect the estimated average per-location for given census blocks. More importantly, however, there is no information provided in the NPRM to assess how this concept might affect the contours of the auction, making it impossible to determine whether this might result in massive shifts of available budgetary resources to more densely populated areas at the expense of more rural consumers and census blocks. Indeed,

[60] NPRM at ¶ 49.

[61] *Id*. at ¶¶ 51-53.

depending on the scope of census blocks and locations that exist within these areas, this could have a material adverse effect on universal service objectives in the rural areas for which support is intended first and foremost. Put another way, the Commission should decline to adopt at this time what could – if not implemented properly – be called a "Semi-Rural Digital Opportunity Fund" that absorbs significant amounts of resources that would be essential to make the business case for investment and operation in areas that are much more sparsely populated. Instead, the Commission should defer consideration of the inclusion of relatively lower-cost, potentially more urbanized census blocks until a later stage of the RDOF when better mapping resources and more information otherwise can be made available to assess fully the merits and impacts of such a proposal.

VII. REASONABLE TRANSITIONS ARE ESSENTIAL AS AREAS CEASE TO BE SERVED PURSUANT TO ONE SUPPORT MECHANISM AND BEGIN TO BE SERVED THROUGH ANOTHER.

The Commission rightly focuses in the NPRM on the importance of transitions between support mechanisms as it migrates to the RDOF auction structure. While much of the focus of universal service policy is understandably on connecting those that are unserved today, it is an equally important public policy and statutory goal to ensure that those who are connected *stay connected*, and that those rural American consumers and business can continue to access quality broadband at affordable rates on an ongoing basis. NTCA therefore supports the Commission's proposals to ensure "seamless handoffs" from price cap legacy disaggregated support or CAF Phase II model support as described in the NPRM, including in particular the continuation of model support for the price cap carrier pending the initiation of new support to a RDOF auction winner for the same area.[62] If support is withdrawn from the price cap carrier arbitrarily before a new operator starts to receive support in the area in question, the price cap carrier may be unable to

[62] *See* NPRM at ¶¶ 97-98 and ¶¶ 103-104.

sustain operations in that area – leaving consumers in the lurch as they watch the former provider begin to "wrap up affairs" in a given area before the new provider arrives on the scene.[63]

Finally, however, the NPRM fails to address altogether one important set of areas where a more thoughtful transition is likely critical to sustain universal service. Specifically, the Commission should consider what will happen in those high-cost areas where a price cap carrier has leveraged existing legacy disaggregated or CAF Phase II model support to deploy a network capable of 25/3 Mbps or greater broadband and no unsubsidized competitor exists. These areas will be ineligible for the RDOF because they already receive 25/3 Mbps broadband – but they are areas where the incumbent may nonetheless be unable to sustain operations without ongoing support. Put another way, those high-cost rural areas where the incumbent exceeded its buildout obligations under the prior regime and deployed something like a fiber-to-the-premise network should not be punished by the total loss of all support simply because higher-speed broadband is available there now. Once again, universal service is *both about "getting broadband out there" and "keeping broadband out there*." Thus, consideration must be given to what level of ongoing support could be necessary in those areas that are "built out," to allow for reasonable maintenance and to ensure that rates remain affordable for the consumers in those areas.

[63] This being said, continuing support for the price cap carrier should not come without obligation – extended transition payments should not represent a "residual payment" for milestones already met, but should capture an ongoing commitment to universal service. The exact parameters will require further development, but particularly if there will be a longer-term continuation of support to the price cap carrier pending a new RDOF winner initiating operations, some additional level of service commitment should also then be expected and required of the price cap carrier.

VIII. THE PROCESS OF IDENTIFYING AREAS THAT WILL BE ELIGIBLE FOR THE RDOF AUCTION SHOULD INCLUDE A ROBUST CHALLENGE VALIDATION PROCESS.

The Commission should utilize a robust challenge validation process in identifying those areas eligible for RDOF funding. Such a process is critical to preventing inaccurate representations of broadband availability from stranding consumers without service for perhaps years to come or inadvertently directing resources to well-served areas.

With respect to the RDOF, a challenge process is critical and, if conducted as described herein, the most expeditious path towards ensuring that funds are targeted to where they are truly needed. Indeed, even as Phase I of the RDOF prudently focuses on those census blocks that are entirely unserved – areas where *no one* purports to offer service – a challenge process as proposed herein will still be necessary to ensure that census blocks that *should* be eligible are not excluded due to overstated or otherwise inaccurate coverage claims.[64] As the Commission well knows and has recognized in the context of its Digital Opportunity Data Collection proceeding, a lack of clear norms or direction with respect to how data is reported on Form 477 and how availability is to be measured and reported is a significant weakness that can undermine the accuracy of data even if reported on a granular basis.[65] For example, under current Form 477 standards, a provider can advertise fixed wireless or DSL technologies to offer 25/3 Mbps across a wide swath of rural areas – even if it has neither tested nor vetted the actual reach and limits of using those technologies at that speed. In short, it is quite possible for overstatements of coverage to make a census block

[64] NPRM at ¶ 45.

[65] *Establishing the Digital Opportunity Data Collection*, WC Docket No. 19-195, *Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10, Report and Order and Second Further Notice of Proposed Rulemaking (rel. Aug. 6, 2019), at ¶¶ 78-87 (seeking comment on the development of standards to "promote consistency and reliability among submission").

appear "served" at 25/3 Mbps when it is in fact "wholly unserved" at that level, and should therefore be included in Phase I of the RDOF.

Absent the ability to correct such errors in claimed coverage via a simple challenge process, many census blocks purportedly but not actually served with 25/3 Mbps broadband could be erroneously excluded from Phase I of the RDOF. The Commission's laudable goal of not "[w]aiting for the availability of more granular data before moving forward [to avoid punishing] those millions of Americans that we know do not have access to digital opportunity"[66] would be undermined if consumers in these unserved areas were forced to wait for future rounds of RDOF funding.

While welcome as an initial "sanity check," the NPRM's proposal for a limited "challenge" process similar to that conducted in CAF Phase I[67] will be insufficient by itself to ensure that funds are targeted to places where funding is needed. To the contrary, the process contemplated in the NPRM would largely aim to "identify any obvious reporting errors" and correct for "false negatives," in the form of areas that have become "served" in the time period between reported Form 477 data and its public release.[68] A more robust challenge process is needed, however, for

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[66] NPRM at n. 83.

[67] *Id*. at ¶ 48. (*citing Connect America Fund*, *et al.*, WC Docket No. 10-90, *et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 5949, 5969 (2016), at ¶ 57).

[68] NPRM at ¶ 48. (stating that "[b]ecause there is an inevitable lag between the reported deployment as of a certain date and when the data are publicly released, parties would be given an opportunity to identify areas that have subsequently become served. For example, the most recent publicly available FCC Form 477 was released on June 2, 2019, and reports deployment as of December 31, 2017. Similar to the CAF Phase II auction, it is likely that more recent FCC Form 477 data will be available prior to the Rural Digital Opportunity Fund auction. The final list of eligible areas would be based on the most recent publicly available FCC Form 477 data, but this would give the Bureau an opportunity to compare the preliminary list of eligible areas with the final list to identify any obvious reporting errors."). It is also worth noting that this same timing concern would appear to apply with equal force to areas that are slated for deployment pursuant to other programs, such as state broadband deployment initiatives or the ReConnect program

the "false positives" as well – that is, those census blocks that while *looking* served on the face of the current map are entirely lacking in service in fact. In theory, there should be relatively few instances of these (because any census block that has even one location served would instead default into potential consideration for the second phase of the RDOF auction), but it is still important to catch these errors where the Commission can and to direct resources to these areas in need as well as part of the first phase of the RDOF.

The Commission should therefore adopt a challenge validation process as described herein that will permit for potential inclusion those census block that a party believes to be in fact entirely unserved based upon "facts on the ground" notwithstanding claims of coverage by another operator. State and local policymakers and providers in or near the area looking to or working on expanding their service areas, among others that may be involved, typically have the best visibility into where service actually does or does not exist. Receiving that kind of localized input as part of any determination of how to refine eligible areas for the RDOF is critical.

Such a challenge process can be administered relatively easily and quickly. Specifically, parties wishing to challenge coverage in a census block initially deemed ineligible for the RDOF because an operator claims to serve there can submit information such as consumer surveys, "secret shopper" tests, or other indicators that the challenged provider does *not* in fact operate in the census block in question. The "challenged" provider should then have 60 days to respond to such a challenge filing, providing technical and operational information that provides clear and convincing evidence of actual service availability (*e.g.*, billing records, engineering documentation showing the presence of network facilities sufficient to provide service at the speed claimed, etc.).

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overseen by the Department of Agriculture; the Commission should consider how best to avoid funding for the deployment of redundant networks by second providers in an area where one provider has already secured funds for the same purpose.

Looking forward to RDOF Phase II, challenge validation processes will remain important there as well to address the potential for "false positives" – but they should become even less frequent as the increased granularity produced by the Digital Opportunity Data Collection provides more granular information. This being said, as NTCA has previously stated,[69] *granularity and accuracy are not the same thing*, and it would be a disservice to unserved consumers and also a potential waste of resources if the Commission did not take steps to refine even the more granular broadband availability data it uses as part of this important funding mechanism. A challenge process here is, as noted above, is necessary to account for potential errors in reporting regardless of the granularity of the reports submitted.

[69] *Ex Parte* Letter from Michael R. Romano, Senior Vice President, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket Nos. 10-90, 11-10 (filed Apr. 30, 2019).

IX. CONCLUSION

NTCA respectfully recommends that the Commission adopt a longer-term perspective for the RDOF auction, seeking to promote the deployment and sustainability of networks that will satisfy not only immediate needs for connectivity but will remain relevant and useful to rural consumers and businesses a decade from now when the Commission is still distributing support for them. Proper weighting, responsible and meaningful upfront vetting of bidders, reasonable expectations of performance, and efforts to promote adoption thereafter are all essential to ensure that the RDOF is not merely about "getting networks out there" – and that, instead, the RDOF will deliver on the real promise of broadband and leave a legacy for the benefit of rural America that lasts for decades.

Respectfully submitted,

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