

BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

In the Matter of the Nebraska)	
Public Service Commission, on)	
its own motion, to make adjustments)	Application No. NUSF-108
to its high-cost distribution)	Progression Order No. 4
mechanism and make revisions to its)	
reporting requirements.)	

COMMENTS BY
CHARTER FIBERLINK – NEBRASKA, LLC AND
TIME WARNER CABLE INFORMATION SERVICES (NEBRASKA), LLC

In accordance with the Nebraska Public Service Commission’s (the “Commission”) Progression Order #4, *Order Seeking Comment* dated November 19, 2018, Charter Fiberlink – Nebraska, LLC and Time Warner Cable Information Services (Nebraska), LLC (collectively, “Charter”), take this opportunity to provide Comments in the above captioned proceeding.

I. INTRODUCTION AND SUMMARY

In Progression Order #3, also dated November 19, 2018, the Commission rejected a per-location cap as a cost-control measure and found that further study should be conducted for areas where a rate of return (“RoR”) carrier has elected federal Alternative Connect America Model (“A-CAM”) broadband support but such support is capped at a level *allegedly* insufficient to deploy broadband to 25/3 Mbps (“capped locations”). The Commission is soliciting comments on a proposal to provide ongoing support to capped locations where broadband has been deployed. The Commission would determine the locations eligible for ongoing support based on the amount of modeled costs remaining above the capped amount already received in support. The modeled costs would be based on the State Broadband Cost Model, which in Progression Order #3 the Commission affirmed its intent to use in lieu of the Benchmark Cost Proxy Model (“BCPM”) to

determine the costs for building fiber-based broadband networks. The Commission now seeks comments on several questions about additional state universal funding, premised on cost modeling, to capped locations.¹

It is important to keep in mind, however, that the Commission's existing approach, which relies on cost models and predetermined favoritism towards incumbent telephone companies, has distributed over \$652 million in state universal service subsidies since 2005.² With the state having spent more than half a billion dollars for rural broadband and in an environment where technologies have converged and rural and incumbent providers are active in multiple lines of business, it is more important than ever to ensure that subsidies are based on merit and efficiency, rather continuing to fund historic networks and their associated business models. What this also means is that the Commission must look to recent examples of success-based funding mechanisms.

On December 12, 2018, the Federal Communications Commission (the "FCC") adopted a Report and Order³ that will largely accomplish the additional broadband deployment the state

¹ The Commission's questions in Progression Order #4 are:

1. How should the Commission determine the amount of funding that should be made available for the identified capped locations?
2. Should the Commission limit the number of locations that would be able to receive support?
3. Are additional measures necessary to ensure that support is not duplicative?
4. What limits if any should be placed on the allocation of support ?
5. Should the Commission wait and see how the FCC resolves the requests for additional support?
6. Should the Commission account for federal-support received for locations that were not built to?
7. Should the Commission provide support to locations at levels that are commensurate with support provided to non-A-CAM areas statewide?

² "Broadband Deployment Cost and Support (Wireline)," Nebraska Broadband Task Force, November 7, 2018, Gary Warren.

³ *In the Matter of Connect America, ETC Annual Reports and Certifications, Establishing Just and Reasonable Rates for Local Exchange Carriers and Developing a Unified Intercarrier Compensation Regime*, WC Docket Nos. 10-90, 14-58, 07-135, and CC Docket No. 01-92, FCC 18-176, Report and Order, Further Notice Of Proposed Rulemaking, and Order On Reconsideration (rel. Dec. 13, 2018) ("Report and Order"), available at: <https://docs.fcc.gov/public/attachments/FCC-18-176A1.pdf>.

presently seeks. Moreover, this can be accomplished with *federal* universal service funding (and, as discussed below, other sources of federal funding) to meet the reasonable needs of the RoR carriers. In addition, as we have learned from the FCC's recent experiences, there is no evidence that further funds are necessary using fiber to the premises to bring 25/3 Mbps speeds to rural locations in Nebraska. The FCC specifically permitted fixed wireless providers to compete for broadband subsidy in this summer's Connect America Fund ("CAF") Phase II reverse auction (the "CAF II Auction"). Winning bidders committed to offering speeds of at *least* 25/3 Mbps to 99.75% of the locations, with a total subsidy commitment of \$1.49 billion over ten (10) years.⁴ In other words, the FCC found that fixed wireless was competitive with more expensive landline alternatives while at the same time, using 70% *less* than the cost estimated by the Connect America Cost Model (the equivalent to the A-CAM that is used to estimate costs in areas served by price cap carriers).⁵

Accordingly, rather than devote additional time and resources to address the results of a questionable cost model, the Commission should open a proceeding, as authorized by newly-enacted LB 994, to develop a competitive bidding program to allocate support to those unserved areas where it is most needed. To avoid duplication of funding, however, the Commission should first determine whether federal support has been exhausted before committing hundreds of millions of dollars, again, to funding incumbent telephone companies, particularly in a converged and largely deregulated business environment. As discussed herein and in Exhibit 1, the

⁴ See "Lessons from the CAF II Auction and the Implications for Rural Broadband Deployment and the IP Transition," by Joseph Gillan, which was released at NARUC during a policy luncheon on November 11, 2018, attached as Exhibit 1.

⁵ "CONNECT AMERICA FUND AUCTION TO EXPAND BROADBAND TO OVER 700,000 RURAL HOMES AND BUSINESSES, *Auction Allocates \$1.488 Billion To Close the Digital Divide*," Federal Communications Commission Press Statement, August 28, 2018 ("FCC Press Statement on Auction"). Available at: <https://www.fcc.gov/document/connect-america-auction-expand-broadband-713176-rural-locations-0>.

Commission also should not ignore the principal lesson of the FCC's CAF II Auction, which is that alternative technologies – and alternative providers – can provide broadband in rural markets far more efficiently than simply providing incumbent telephone companies with support payments based on the alleged costs of fiber optic networks. In addition, the Commission should keep in mind that the incumbents' networks have been repeatedly funded, not only by the state and FCC, but from other federal sources including the US Department of Commerce and the U.S. Department of Agriculture. Unfortunately, if the Commission continues to refuse to engage the competitive market, funds will continue to be exhausted on incumbents who, having received more than a half a billion dollars in state universal service funding alone, have yet to solve the problems of rural broadband. Without a competitive incentive and without the efficiencies of the latest technologies, history sadly will repeat itself.

II. THE FCC'S REPORT AND ORDER ADDRESSES, WITH FEDERAL FUNDING, THE COMMISSION'S QUESTIONS CONCERNING FUNDING TO CAPPED LOCATIONS

The FCC will provide additional funding to federal rate-of-return regulated carriers that currently receive model-based universal service support in exchange for deploying broadband at increased speeds (*i.e.*, 25/3 Mbps), provide yet another opportunity for "legacy" federal rate-of-return regulated carriers (*i.e.*, those not having elected A-CAM support) to transition to A-CAM model-based support, and authorize additional support for carriers remaining on such legacy support mechanisms in exchange for targeting higher broadband speeds.

Specifically, the FCC is providing additional funding (up to \$200 per location, from the previously-determined \$146.10 per location) to carriers that currently receive model-based universal service support if they expand the availability of 25/3 Mbps broadband service in their service areas while deploying at least 10/1 Mbps broadband service to new locations in their

service areas.⁶ The term of the revised offer will be ten (10) years, beginning January 1, 2019.⁷ The new term of support effectively extends A-CAM subsidies by two (2) years for carriers that elect the revised offer. Understandably, Nebraska RoR carriers receiving A-CAM subsidies advocated in favor of the FCC's Report and Order.⁸

The FCC also is providing a renewed opportunity for rate of return regulated carriers to transition to model-based universal service support of up to \$200 per location, in return for specifically tailored obligations, promoting efficiency, stability and spurring 25/3 Mbps broadband deployment.⁹ In addition, the FCC is authorizing additional support for carriers remaining on the legacy rate-of-return support mechanism in exchange for additional buildout of 25/3 Mbps broadband service, and to provide predictable funding levels that will promote continued broadband deployment.¹⁰

This money is *in addition to* the separate offer of over \$43.65 million in annual support to smaller, rate of return-regulated ILECs for modeled A-CAM) broadband support.¹¹ These ILECs accepted and are receiving approximately \$32 million in such annual support. Moreover, there is additional federal universal service fund support that has yet to be assigned and may well become available to pay for broadband network deployment in rural areas of Nebraska. The FCC has

⁶ Report and Order, para. 34.

⁷ *Id.*, para. 58.

⁸ See, e.g., *Ex Parte* letters of Matthey Consultants, LLC on behalf of Great Plain Communications and Consolidated Companies (Nov. 29, 2018 and Nov. 30, 2018), filed in *Connect America Fund et al.*, WC Docket Nos. 10-90, 14-58, 07-135, and CC Docket No. 01-92, and attached as Exhibit 2.

⁹ Report and Order, para. 39.

¹⁰ *Id.*, para. 70.

¹¹ See "WIRELINER COMPETITION BUREAU ANNOUNCES SUPPORT AMOUNTS OFFERED TO RATE-OF-RETURN CARRIERS TO EXPAND RURAL BROADBAND," WC Docket No. 10-90, DA 16-869 (rel. Aug. 3, 2016).

another \$50 million (and possibly more) additional annual funding available as a result of the CAF II Auction.¹² In 2021 and for ten (10) years thereafter, the FCC will make another \$1.5 billion annually in federal funds available in the CAF “Phase III”.¹³ The FCC also has had another \$100 million per year “set aside” for a “remote area fund.”¹⁴ Compounding the cornucopia of FCC-related funding, the FCC’s Mobility Fund Phase II (MF-II) will provide additional support over then (10) years to rural areas that lack 4G LTE service.

These abundant (and arguably over-generous) federal subsidies are precisely why the legislature not only enacted LB 994 earlier this year but further created a Rural Broadband Task Force to consider how to best “leverage federal universal service fund support and other federal funding” in deploying rural broadband in Nebraska. As previously discussed in detail by Charter in the Commission’s universal service proceedings,¹⁵ the ready availability of vast amounts of federal funding strongly suggests the Commission should take into account the huge disbursements – present and reasonably anticipated – of Connect America Funds and other subsidies to the state’s incumbent local exchange carriers. To ensure that this money results in actual deployment, any mechanism should address the reforms and alternatives recommended by Charter. In addition,

¹² While \$198 million was to be available per year, only \$148.8 million per year was allocated as a result of the CAF II Auction.

¹³ See Exhibit 1, at 8.

¹⁴ See e.g., “Federal Communications Commission Universal Service Fund Overview Initiatives that Advance Broadband Infrastructure,” available at:

https://www.ntia.doc.gov/files/ntia/publications/fcc_universal_service_fund_overview.pdf.

¹⁵ Charter incorporates by reference the Comments of Reply Comments of Charter Fiberlink-Nebraska, LLC and Time Warner Cable Information Services (Nebraska), LLC, filed March 5, 2018, Reply Comments of Charter Fiberlink-Nebraska, LLC, Time Warner Cable Information Services (Nebraska), LLC and Cox Nebraska Telcom, LLC, filed April 12, 2018, Comments of Charter Fiberlink-Nebraska, LLC, Time Warner Cable Information Services (Nebraska), LLC and Cox Nebraska Telecom, LLC, filed July 19, 2018, and the Post Hearing Comments of Charter Fiberlink-Nebraska, LLC, Time Warner Cable Information Services (Nebraska), LLC and Cox Nebraska Telcom, LLC, filed September 18, 2018 in this proceeding. See also Charter’s comments and testimony filed in in NUSF-and anything from NUSF-100 and NUSF-111.

before undertaking significantly *more* state high cost universal service funding, the Commission must ensure the mechanisms offer transparent accountability for responsible use of the FCC's massive funding efforts.¹⁶ Although the Commission in Progression Order #3 undertook to implement several incremental improvements to the state universal service fund,¹⁷ they represent only the *beginning* of what should be accomplished before determining to further increase state broadband funding for the RoR carriers.

III. THE COMMISSION SHOULD IMMEDIATELY OPEN A PROCEEDING TO CREATE A COMPETITIVE BIDDING PROGRAM TO SUPPLANT THE EXISTING STATE HIGH-COST UNIVERSAL SERVICE FUNDING PROGRAMS

Foremost among those reforms, and directly relevant to the questions raised by the Commission in Progression Order #4, should be the Commission's design and, to the extent state subsidies would still be needed, implementation of competitive bidding in lieu of the existing high cost mechanisms. LB 994, enacted earlier this year, and codified as Neb. Rev. Stat. § 86-330, authorizes the Commission to consider using reverse auctions.¹⁸ Charter has previously identified significant flaws in the cost-model approach and the problems with replacing the BCPM with *any*

¹⁶ In addition to the federal subsidies previously discussed, the Nebraska state universal service fund was separately established over twenty (20) years ago and, like the federal universal service fund, has been used principally to subsidize the voice services of incumbent local exchange carriers (ILECs), premised on the use of cost models. Currently the ILECs are receiving about \$29 million in state high cost support universal service subsidies, but the Commission has stated its intent to significantly increase that support.

¹⁷ In Charter's view, the most important of the Commission's incremental reforms is the decision to create a framework "which would include a request for support in advance and payment of support upon documentation of deployment." (Progression Order #3 at 41).

¹⁸ LB 994, as codified as Neb. Rev. Stat. §86-1102(3)(d), also implores the newly-created Rural Broadband Task Force, among other things, to:

Examine alternatives for deployment of broadband services to areas that remain unserved or underserved, such as reverse auction programs described in section 86-330, public-private partnerships, funding for competitive deployment, and other measures, and make recommendations to the Public Service Commission to encourage deployment in such areas.

variant of the Connect America Cost Model cost model, which would accomplish little more than replacing the obsolete (*i.e.*, a voice services-based model) with the overstated, because the use of modeled support overemphasizes the cost of broadband.¹⁹ Competitive bidding systems that permit any broadband provider the opportunity to request support, with specific proposals judged by their relative merit, are vastly superior to approaches using cost models and administrative systems that give preference to incumbents.

It is increasingly clear that competitive bidding is a less expensive, more efficient means of allocating public subsidies. As detailed in Exhibit 1, the CAF II Auction this summer offered \$198 million in annual subsidies for ten (10) years to providers willing to serve the locations within the service territories of price cap ILECs that would remain unserved even after the CAF II obligations of these price cap ILECs are fulfilled. The CAF II Auction was the nation's first widespread empirical test²⁰ as to whether non-ILEC providers would be willing to provide broadband and voice services in rural areas if permitted to compete for support. The CAF II Auction demonstrated that a variety of providers would employ a range of technologies to bring

¹⁹ Some of the known problems with the Connect America Cost Model include:

- Recipients of model-based support have reported to the FCC that there are fewer actual locations than the cost model assumed. *See* Comments of Charter, NUSF-111, January 30, 2018 at 8.
- The cost model assumes a single technology (fiber) and a single architecture (premise to incumbent wire center) when it is likely that alternative technologies and architectures are a more efficient approach; *See* Reply Comments filed by Charter Fiberlink-Nebraska, LLC, Time Warner Cable Information Services (Nebraska), LLC and Cox Nebraska Telcom, LLC, NUSF-108, April 12, 2018, at 3.
- The fact that roughly 94% of the Cost America Cost Model-based offers (excluding Verizon) were accepted by the ILECs indicates that the model likely overstated costs (and was, therefore, unnecessarily generous in its support). *See* Pre-Filed Reply Testimony of Joseph Gillan on behalf of Charter, No. NUSF-100, April 21, 2017, at 20-21.

²⁰ As discussed in Exhibit 1, the earlier Rural Broadband Experiments demonstrated that competitive bidders were willing to construct faster networks at much lower (by half) cost than estimated by the Connect America Cost Model.

broadband speeds of at least 25/3 Mbps to unserved locations in the high cost areas served by price cap ILECs. Indeed, the CAF II Auction will produce faster speeds than the Connect America Cost Model produced speeds (10/1 Mbps) for the price cap carriers.²¹

The two defining metrics that measure the success of the CAF II Auction are: (1) the total support *awarded* by the auction (\$148.8 million/year) was *70% less* than the amount the Connect America Cost Model estimated would be needed (*i.e.*, \$198 million), and (2) the number of unserved locations in the territories of the price cap ILECs will decline by *almost 75%* once the CAF II Auction winners begin offering service. The CAF Phase II Auction resulted in more than 99.7% of new locations being served by 25/3 Mbps service.²²

The overarching lesson of the CAF II Auction this summer, therefore, is that competitive bidding systems for broadband support are demonstrably more efficient at extending broadband than systems that typically provide support only to local exchange carriers, particularly support based on Connect America Fund-related or previously derived cost models. The CAF II Auction process demonstrated that competitive bidding achieves better results than subsidizing the incumbents based on a modeled support system (*i.e.*, the cost models provide more support than is necessary; stated differently, the CAF II Auction “bought” far more broadband for far less to locations in need). This not only is Charter’s conclusion; the FCC also has concluded that the CAF II Auction unleashed “robust price competition” so that “more locations will be served at less cost.”²³

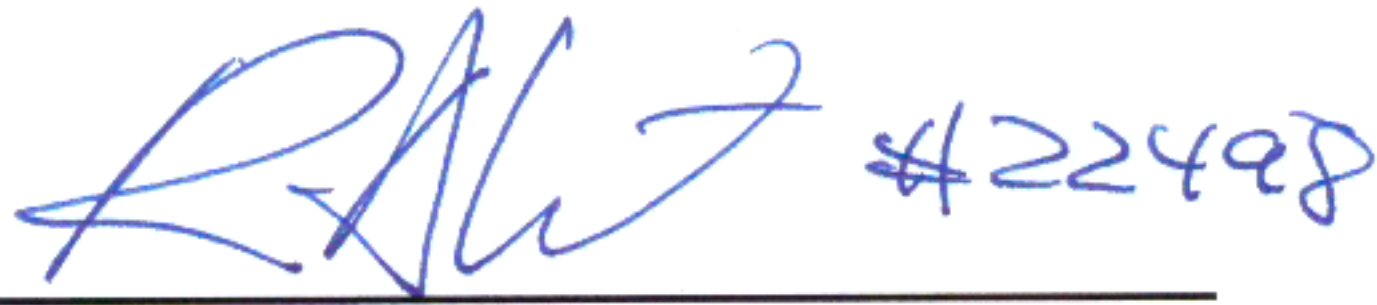
²¹ *FCC Press Statement on Auction. See also Exhibit 1.*

²² Report and Order, para. 22. Nebraska was among the leading state beneficiaries of the CAF II Auction, with 8,900 of the 9,053 unserved locations in areas served by price cap carriers slated to receive broadband support from providers awarded CAF II funding. See also Exhibit 1.

²³ Press Release, FCC, Connect America Fund Auction to Expand Broadband to Over 700,000 Rural Homes and Businesses, (Aug. 28, 2018), <https://docs.fcc.gov/public/attachments/DOC-353840A1.pdf>.

Accordingly, and in Charter's view, the Commission should move forward to design and, after industry input and hearings, to the extent determined to be necessary, implement competitive bidding to replace the existing state high cost programs.

Respectfully submitted this 18th day of December 2018.



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Lessons from the CAF II Auction and the Implications for Rural Broadband Deployment and the IP Transition

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The CAF II Auction provides empirical proof that alternative providers and technologies are capable of deploying broadband services to targeted high-cost areas and will compete for the support to do so. This conclusion is important to public policy in two ways. First, it demonstrates that competitive bidding is a more efficient means to determine support levels and recipients than approaches using cost-models and predefined outcomes. Second, as the CAF II Auction recipients deploy facilities, the parallel narrowband networks of the incumbent local exchange carriers will become redundant and obsolete, requiring companion regulatory reforms to facilitate exit and fully effect the IP transition.

Introduction

The term “transformative” is over-used. By its very nature, life is transformative. Change is inevitable – technologies change, cultures change, people change and, as a result, markets change. What has been remarkable is how long the telecommunications industry has provided an exception to the rule.

During August 2018, however, an event transpired that directly challenged the most fundamental assumption of traditional universal broadband policy – *i.e.*, that the incumbent local exchange carrier is best positioned to deploy broadband to rural areas today served by its narrowband voice network. This event was the Connect America Fund (CAF) II Auction that offered \$198 million in annual subsidy for ten (10) years to providers willing to serve the locations within the service territories of price cap ILECs that would remain unserved even after the CAF II obligations of these price cap ILECs are fulfilled.

The CAF II Auction will accelerate the IP transition as CAF II awardees supplant price cap ILECs in the high cost rural areas that benefit from the Auction.

The July CAF II Auction was the nation’s first widespread empirical test as to whether non-ILEC providers would be willing to provide broadband and voice services in rural areas if

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Exhibit 1

permitted to compete for support. The auction demonstrated that a variety of providers would employ a range of technologies to bring broadband speeds of at least 25/3 to unserved locations in the high cost areas served by price cap ILECs.²

The two defining metrics that measure the success of the CAF II Auction are: (1) the total support awarded by the auction (\$148.8 million/year) is **70% less** than the amount the Connect America Cost Model (“CAM”) estimated would be needed,³ and (2) the number of unserved locations in the territories of the price cap ILECs will decline **by almost 75%** once the CAF Auction winners begin offering service.⁴

The purpose of this paper is to analyze the results of the CAF II Auction and to discuss what the auction suggests for future policy. The analysis is particularly important because of the looming “CAF III Auction” that will have a budget of \$1.5 *billion* per year (10 times larger than the CAF II Auction analyzed here) and is scheduled to occur when the six-year CAF II commitments made to price cap carriers expire.⁵

The analysis supports two broad conclusions. The first is that the CAF II Auction demonstrates that competitive bidding systems for broadband support are generally more efficient at extending broadband than systems that provide support only to local exchange carriers, particularly support based on CAM-derived cost models.⁶

The CAF II Auction demonstrates that competitive bidding systems are more efficient at extending broadband to rural areas than systems with predetermined outcomes.

² To be technically precise, a small amount of support was awarded to minimum speed bids (10/1). However, as this represents only 0.25% of the awarded locations, the exception deserves little more than a footnote reference (as done here).

³ <https://www.fcc.gov/document/fcc-staff-presentation-connect-america-fund-auction-results>

⁴ This paper analyzes the number of locations served/unserved as provided by the FCC, recognizing that the values are estimates. There are known, yet unquantified, compensating errors in the data whose net effect is unknown. The estimates may understate the number of unserved locations because of locations in census blocks that are only partially served; other experience suggests that the estimates may overstate the number of unserved locations, a fact that has led the FCC to review proposals to adjust deployment obligations downward (in exchange for corresponding reductions in support) to address circumstances where there are not enough actual locations for the provider to serve. See, for instance, *Wireline Competition Bureau Seeks Comment on Procedures to Identify and Resolve Location Discrepancies in Eligible Census Blocks Within Winning Bid Areas*, Federal Communications Commission WC Docket No. 10–90; DA 18–929. Despite these concerns, the data is nevertheless the best information publicly available.

⁵ The FCC has not yet adopted the term “CAF III” to describe the future auction(s) that will apply to the \$1.5 billion per year payments currently provided to price cap carriers as part of CAF II. The final year of CAF II support to price cap carriers is 2020.

⁶ This conclusion is not a call to unwind existing federal (or state) policies that have time-limited commitments of support. The CAF II Auction demonstrates, however, that structuring new programs based on the CAM or its small-ILEC derivative, the Alternative Cost Model (ACAM), is likely to be an inefficient means to encourage broadband service in rural areas.

Second, the broadband networks funded by the CAF II Auction will largely cause the parallel narrowband networks of the price cap ILECS to be duplicative, unnecessary and almost certainly uneconomic in these areas.⁷ The CAF II Auction (and the CAF III Auction to follow) will accelerate the IP transition in high cost areas. It is not possible to embrace the goal of universal broadband – a goal that necessarily obsolesces the existing narrowband network – without simultaneously addressing the issues that arise as the traditional network is replaced.

As CAF II awardees supplant price cap ILECs in specific high-cost rural areas, the complex set of state-specific carrier-of-last-resort (COLR), or provider-of-last-resort (POLR), obligations (that are sometimes redundant to federal rules) will need reform. It is a public policy paradox to promote rural broadband networks *and* require legacy narrowband networks to

It is a public policy paradox to promote rural broadband networks and require legacy narrowband networks to coexist, particularly when the economics of the broadband network would improve with the gain in subscribers if the legacy network were retired.

coexist, particularly when the economics of the broadband network would improve with the gain in subscribers if the legacy network were retired.⁸ Facilitating the exit of narrowband providers (where that is their desire) should be a public-policy imperative, although it must also be recognized that doing so will raise end-stage issues where some residual customers may not have alternatives they find acceptable and the existing network cannot be maintained.

Managing the final stages of the IP Transition gives rise to significant public-policy issues that should not be viewed as the commercial responsibility of any individual carrier (or a belief that “the market” will sort it out). It is beyond the scope of this paper to fully describe, much less resolve, the myriad of issues that accompany the shutdown of a TDM network as it is replaced with broadband. There are narrowband applications (essential alarm monitoring for instance) for which broadband is neither warranted nor desired (at least at present), and fully describing even the *federal* service-discontinuance process (which is only half the framework) would be a significant undertaking that this paper does not attempt.⁹ The broader point of the paper, however, is that these end-stage issues should be confronted through reasonable transitions rather than continuing regulatory obligations that are no longer technologically rational.

⁷ This paper focuses on areas served by price cap carriers because federal policies are more mature in these areas. Obviously, rural terrain, rural communities and rural technologies are agnostic as to the regulatory structure (rate-of-return or price cap) that applies to the incumbent telephone company. As such, the policy community should expect that the same competitive diversity would likely emerge in areas served by rate-of-return carriers if comparable competitively-neutral support mechanisms (such as the CAF II Auction) existed.

⁸ An assumption underlying this paper is that the target areas are not served by existing broadband networks (*i.e.*, there is no overbuilding) and that it is unlikely these areas would attract entry in the absence of support.

⁹ See, for instance, Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, Federal Communications Commission WC Docket No. 17-84.

The Empirical Lessons from the CAF II Auction

In some ways the success of the CAF II Auction should have been anticipated. Although the CAF program was structured to initially rely upon the incumbent local exchange carrier to extend broadband to rural areas, it was always the FCC's intention to "... distribute universal service funding in the most efficient and technologically neutral manner possible, through market-based mechanisms such as competitive bidding."¹⁰

As the FCC moved through layers of complexity to transform its universal service policies, it also began to test the willingness of participants other than the incumbent local exchange carriers to deploy broadband in high cost rural markets. The FCC's first empirical test was its Rural Broadband Experiments (RBEs).¹¹ The RBE program had limited funding (\$100 million) and was designed to better inform the FCC as to how to advance the CAF's implementation.¹²

Foreshadowing some of the lessons more broadly demonstrated by the CAF II Auction, the RBEs showed that non-ILEC providers would be willing to use a range of technologies (particularly wireless) to bring broadband to rural markets at significantly lower cost than the CAM estimated.¹³ Each of the RBE proposals sought amounts of support at or below CAM-calculated levels, and high-performance network bidders (*i.e.*, areas that bidders were required to build to 100 Mbps download and 25 Mbps upload) collectively requested \$69 million in annual support for census blocks that would have received \$149 million in model-based support.¹⁴

The RBE program foreshadowed that alternative technologies – and, just as importantly, alternative providers – would be willing to provide broadband services in high cost

¹⁰ See *Connect America Fund et al.*, WC Docket No. 10-90 et al., Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161 (rel. Nov. 18, 2011) ("*USF Transformation Order*") at ¶ 1.

¹¹ See *Technology Transitions et al.*, GN Docket No. 13-5 et al., Order et al., (2014) ("*Tech Transitions Order*") at ¶ 94-97.

¹² See *Connect America Fund; ETC Annual Reports and Certification*, WC Docket Nos. 10-90, 14-58, Report and Order and Further Notice of Proposed Rulemaking, 29 FCC Rcd 8769 (2014) (*Rural Broadband Experiments Order*) at ¶ 10.

¹³ The RBEs also suggested the need for a structured approach to test the financial and operational ability of non-traditional bidders. Of the 37 provisional recipients the FCC earmarked for RBEs, 22 were later disqualified for being unable to demonstrate their qualifications. See *Wireline Competition Bureau Announces Entities Provisionally Selected for Rural Broadband Experiments; Sets Deadlines for Submission of Additional Information*, WC Docket No. 10-90, Public Notice, DA 14-1772 (Wireline Comp. Bur. rel. Dec. 5, 2014) and *Connect America Fund; Rural Broadband Experiments*, WC Docket Nos. 10-90, 14-259, Order, DA 15-139 (Wireline Comp. Bur. rel. Jan 30, 2015). Although the CAF II Auction includes procedures to avoid a similar result, there remains unavoidable uncertainty as to its ultimate success.

¹⁴ See *Connect America Fund; ETC Annual Reports and Certifications; Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) from Obsolete ILEC Regulatory Obligations that Inhibit Deployment of Next-Generation Networks*, WC Docket Nos. 10-90, 14-58, 14-192, Report and Order, FCC 14-190, (rel. Dec. 18, 2014) ("*December CAF Order*") Dec 2014 at ¶ 85.

Lessons from the CAF II Auction

rural areas if they were able to access CAF II support payments. The CAF II Auction provided a structured opportunity to do just that, combined with a much more significant budget (\$1.98 billion over 10 years), and a framework that enabled participants to prepare the market-specific information critical to a bid. The CAF II Auction opened with 172 bidders that collectively requested \$598 million in support.¹⁵ Ultimately, the auction concluded with 103 winning bidders and awarded \$148.8 million in annual support. A review of the winning bids established four key findings:

1. A wide variety of providers are willing to provide broadband service in high cost rural areas;
2. Winning bidders will offer significantly higher broadband speeds (25 Mbps down and 3 Mbps up) than the lower (10Mbps down/1 Mbps up) required for the CAF support allocated to the ILECs;
3. The CAF II Auction lowered support costs compared to the levels estimated by the Connect America Cost Model; and
4. The CAF II Auction will significantly reduce the number of unserved locations in the areas served by the price cap carriers.

First, as to the types of providers that successfully participated in the CAF II Auction, Table 1 (following) shows CAF II Auction winners organized into key categories. Importantly, wireless providers in general (and fixed wireless providers specifically) received over half of the total support awarded in the auction. Other entities that successfully participated in the auction were electric utilities (or their affiliates) that already maintain physical networks in rural areas, as well as rural local exchange carriers (or their affiliates). In addition, a satellite provider (ViaSat) participated and, although it was awarded only 8% of the support, represents more than a quarter (27%) of all the locations that will be served through CAF II Auction support.¹⁶

¹⁵ An additional 47 providers completed the process to qualify to bid but did not do so.

¹⁶ Arguably ViaSat *already* has the capability to serve its awarded areas, suggesting that its bids were calculated to meet pricing and service obligations (in contrast to network expansion). For instance, ViaSat's bids were all in the baseline performance tier, which requires 25/3 service and a monthly usage allowance of 150 Gbs., and the FCC has determined that the reasonable comparable rate must be less than \$95/month. In comparison, ViaSat's standard Unlimited Gold package (25/3) is priced at \$150/month after its promotional period, and the customers' traffic is "prioritized" (which is to say it will *lose* priority) compared to other subscribers once a customer reaches a 100 Gbs. in a month.

Table 1: CAF II Auction Winners by Provider Type¹⁷

Provider Type	Annual Support (\$ Millions)		Locations	
Satellite	\$12.2	8%	190,595	27%
Cable	\$4.1	3%	10,165	1%
Electric utility/affiliates	\$26.5	18%	91,852	13%
Fixed Wireless	\$71.8	48%	263,752	37%
Other Wireless	\$9.8	7%	47,870	7%
Rural LECs/Affiliates	\$15.2	10%	59,910	8%
Price Cap ILEC ¹⁸	\$1.1	1%	3,726	1%
Other	\$8.2	5%	45,306	6%
	\$148.8		713,176	

Participants in the catch-all “Other category” include tribal governments,¹⁹ an entrant using TV white spaces,²⁰ and system integrators (that also provide broadband). The CAF II Auction demonstrated that competitive bidding will attract new technologies and new providers to even these rural, high cost, markets. This is particularly true where existing providers were positioned to incrementally expand service to contiguous areas.

As noted, the table suggests the technology that will be used to provide service in high cost areas is the same as the technology the provider deploys today. This is an *assumption*, as it remains unclear whether the latency associated with satellite technologies can be overcome to support real-time requirements such as VoIP. Although the CAF II Auction assigned a weight to disadvantage high latency proposals, the weight could be offset by significantly lower cost. For instance, ViaSat’s was awarded \$640 per location in support, while the average support awarded all other recipients is \$2,614 per location. Ultimately, however, addressing latency may require a more imaginative network design than a pure satellite connection.

¹⁷ Table 1 categorizes providers based on the company’s website, which may not always be descriptive of its network. In addition, the technology a CAF II Auction winner intends to deploy to provide broadband in the awarded area *may* differ from the technology currently used to provide service to its existing customer base. That said, the effect of a mis-categorization (if any) is likely to be small and inconsequential to the analysis and conclusions presented in this paper.

¹⁸ The majority of the support (89%) provided to price cap carriers is associated with Verizon’s bids to provide gigabit service in the same states that it had declined the statewide offer of support in CAF II.

¹⁹ For instance, CAF II winning bids were submitted by Northern Arapaho Tribal Industries and the Fond du Lac Reservation Business Committee.

²⁰ Declaration Networks Group, Inc., was awarded support for the Eastern Shore of Maryland and Virginia. In addition, Declaration Networks is in a partnership with Microsoft as part of its Rural Airband Initiative to provide broadband services using TV White Spaces. See <https://www.prnewswire.com/news-releases/declaration-networks-group-and-microsoft-announce-agreement-to-deliver-broadband-internet-to-rural-communities-in-virginia-and-maryland-300635160.html>.

Lessons from the CAF II Auction

In addition, the weighting system favored higher speed offerings and resulted in winning bids of at least 25/3, exceeding the speed obligation of the earlier CAF programs (10/1).²¹ Overall, 53% of the CAF II Auction locations will be provided service with download speeds of at least 100 megabits per second, and an additional 19% will have gigabit service available.²² The CAF II Auction demonstrated that higher speeds are the norm for entrants that are not otherwise constrained by existing technologies, architectures or regulatory obligations.²³

One of the key lessons from the CAF II Auction is that “*local* is more important than *large*.” Although price cap companies are large (relative to other ILECs), that size does not appear to necessarily provide a meaningful advantage when deploying broadband services in rural markets. Indeed, of the 182 winner/state combinations,²⁴ nearly 25% of bids/state were for 200 locations or less in *that* state, with the individual bids tailored even more precisely.

By way of example, consider WPS Information and Engineering, whose website indicates it offers wireless internet, as well as services designed for schools and libraries.²⁵ WPS is a relatively small participant in the CAF II Auction, but its experience is illustrative of a broader point: The auction brought a “thousand points of light” approach to rural broadband. No individual participant solved the rural broadband gap, but *collectively* the CAF II Auction empowered over a 100 (relatively) small firms to make a difference.

**Table 2: The CAF II Auction
Attracts Small Providers
(WPS Information and Engineering)**

Awarded Area	Annual Support	Locations
Area 1	\$7,525	147
Area 2	\$7,310	274
Area 3	\$5,776	176
Area 4	\$4,500	152
Area 5	\$4,007	57
Area 6	\$978	42
Area 7	\$741	18
Area 8	\$542	48
Area 9	\$542	15
Area 10	\$479	25
	\$32,401	954

Another useful comparison is between the level of support awarded by the auction to the level of funding the CAM estimated would be needed. As the FCC calculated, the reserve price (*i.e.*, the support level the cost model estimated would be needed) was \$5 billion dollars (over 10 years), while the auction winners required only \$1.48 billion (70% less). This comparison demonstrates the savings possible when market forces are used to direct subsidies to the lowest cost provider, rather than award subsidies based on cost models.²⁶

²¹ As noted, a very small number of locations (866 in Massachusetts and 921 in Oklahoma) will be provided 10/1 broadband service by CAF II Auction winning bidders.

²² <https://www.fcc.gov/document/fcc-staff-presentation-connect-america-fund-auction-results>

²³ It is beyond the scope of this paper to discuss the reduced incentives/capabilities to deploy new networks when older technologies must be maintained to support legacy services.

²⁴ Several of the 103 CAF II Auction winners were awarded support for bids in multiple states.

²⁵ <http://wpsinc.com>

²⁶ Although this may seem a technical point, there is a significant difference between the CAM as used to develop the statewide offers to price cap carriers and its use here. The statewide offers to the price cap carriers only required that the CAM be reasonably close on *average*, as the price cap LEC was presented with the opportunity/obligation to accept CAM-based funding for its entire territory in the state

Table 3 shows that the CAF II Auction will reduce significantly (by almost 75%) the estimated number of unserved locations in the territories of the price cap carriers. Although the CAF II auction is small in comparison to the CAF III auctions yet to come, its effectiveness at bringing broadband to high cost rural markets is dramatic and real, demonstrating that alternative technologies *can* solve much of the rural dilemma.

Table 3: Effect of the CAF II Auction on the Number of Unserved Locations in Areas Served by Price Cap Carriers

Estimated Number of Unserved Locations at Start of Auction ²⁷	983,582
Locations to be Served as a Result of the CAF II Auction	713,176
Remaining number of Unserved Locations	270,356
Reduction in unserved locations from Auction	-72.5%

The CAF II auction, which awarded \$148.8 million/year, is merely the precursor to the much larger CAF III auction(s) on the horizon. As such, it is useful to distill the lessons from CAF II to better anticipate and realize the benefits possible with CAF III.

The Implications of the CAF II Auction for Public Policy

The central lessons of the CAF II Auction are described above. The CAF II Auction proved that competitive bidding systems can bring more broadband, to more locations, at faster speeds, than other mechanisms. The initial CAF II commitment of \$1.5 billion per year to the price cap ILECs will end in 2020. The FCC has long expressed a preference for competitive bidding systems and the nation should anticipate that \$1.5 billion per year that will be offered through CAF III Auction(s) by 2021.²⁸ The CAF II Auction provides the model, but it will be CAF III that has the largest impact.

– less those census blocks defined as too costly to include in the offer and are now included in the auction. In contrast, by allowing companies to bid for individual census-block groups, the CAF II Auction effectively presumes that the CAM is accurate at the census-block group level. All cost models have errors, and the smaller the area examined, the more likely the estimate for that specific area is inaccurate. There is no reason to expect that the CAM can produce accurate cost estimates for each individual census-block group, even if the CAM is otherwise accurate when averaged over much larger areas (a conclusion that the paper does not assert).

²⁷ The number of initial unserved locations in Table 3 is developed from the final list of eligible census block groups released by the FCC. <https://www.fcc.gov/document/wireline-bureau-announces-caf-phase-ii-auction-final-eligible-areas>. This total is slightly lower than the number of eligible locations (974,223) listed as available in the FCC's auction summary spreadsheets, although the discrepancy is not material. https://auctiondata.fcc.gov/public/projects/auction903/reports/round_summary

²⁸ See *USF Transformation Order* at ¶ 178:

[W]e expect that support after such five-year period [later changed to six-years] will be awarded through a competitive bidding process in which all eligible providers will be given an equal opportunity to compete. Thus, we anticipate that funding will soon be allocated on a fully competitive basis.

As the market prepares for CAF III, it is important to consider the corollary repercussions for price cap carriers as these auctions successfully render their narrowband networks in these areas obsolete.²⁹ The diversity of providers in Table 1 is important not only by who successfully

The CAF II Auction will render the parallel narrowband networks of price cap ILECs duplicative, unnecessary and almost certainly uneconomic.

participated in the auction, but who did not – *i.e.*, the price cap carriers.³⁰ The CAF II Auction signals that as subsidy becomes available to any provider, the price cap ILEC may not always be best positioned to be the broadband provider in every rural high-cost market. Instead, in many

instances it is likely that smaller firms, geographically focused on specific individual areas, will be able to develop lower cost entry strategies.³¹ If so, the CAF auctions will reduce the price cap ILECs' share of the rural markets as subscribers shift to the IP-based services offered by auction winners.

As the market inevitably shifts to new technologies and providers, what then is the role of the price cap ILEC in rural areas where other providers have been awarded support?³² The most obvious path is to act in partnership with CAF II Auction winners. There are two motivations for price cap ILECs (or an affiliate) to partner with auction winners. The first is to provide the auction winner with transport and Internet backhaul where economies of scale are present. As noted earlier, when it comes to access, it appears that local is more important than large. In the transport market, however, the opposite is true – there are economies of scale that give large the advantage over local. As a result, a natural economic fit would be for locally-focused providers to provide the last-mile access component, while the price cap ILEC provides the middle-mile transport facilities to aggregate rural markets and interconnect their networks to the world at large.

The most obvious path forward for price cap ILECs in areas awarded to an entrant in the CAF II Auction is to partner with that provider for transport and to coordinate the IP transition.

²⁹ The FCC has not adopted rules to address how the \$1.5 billion will be used when the 6-year commitment to price cap ILECs expires. To date, the CAF system focused on the *deployment* of network facilities to reduce the number of unserved areas. It is likely that a variety of claims will be made on the \$1.5 billion, including claims that support is needed to *maintain* the broadband networks deployed as part of CAF II, which would reduce the support available for deployment to the remaining unserved locations.

³⁰ It is likely that price cap carriers will participate more aggressively in the CAF III Auction(s). In part this is because of the larger budget for CAF III, but it is also because the network deployments funded by CAF II will lower the incremental costs to expand service to those contiguous areas that will qualify for the CAF III Auction(s). In addition, there will likely be efforts to obtain on-going support to maintain CAF II networks (ftn. 30 *supra*).

³¹ This is particularly true if the area is served by a technology not typically deployed by the ILEC.

³² The term "price cap ILECs" gives the erroneous impression that the term defines a class of comparable, homogenous carriers. This is simply not the case. To the contrary, the principal thing these carriers have in common is the regulatory label they share, as their actual businesses differ greatly.

The second reason that price cap ILECs should consider partnering with CAF II Auction winners is to manage the transition to IP as the legacy network atrophies. With almost 75% of the remaining high-cost locations (potentially) served by CAF II Auction winners, the market for legacy services will shrink. As a practical matter, to achieve an *orderly* transition as the legacy network is phased out will require coordination between the price cap ILEC and the CAF II Auction winner, and that coordination would be easier if there is already a commercial relationship between the two.

The purpose of the CAF II Auction is to obsolete the incumbent's narrowband network, and this means that companion transition policies will be necessary.³³ Fortunately, the CAF II process will provide some runway for companion policies to be developed as it will take time for the FCC to conclude vetting the applicants and for the network expansion contemplated by the Auction bid to occur.³⁴ This runway should not be wasted, however, but used expeditiously to address the logical consequences described above.

The final stage of the IP transition – deliberately moving customers from services they find acceptable to services they have not voluntarily chosen – is a public-policy dilemma that should not be made the responsibility of a legacy carrier. Understanding exactly what issues arise as legacy networks disappear – and determining which of these issues justify intervention – is a task best accomplished through transparency and cooperation.

Conclusion

The CAF II Auction is an important and remarkably successful step towards universal broadband, but more remains to do. The first important lesson from the CAF II Auction is that market mechanisms can be used effectively to achieve broadband deployment. As we approach the much larger CAF III Auction(s), this paper closes with a caveat and recommendation.

First, the caveat. There are over 100 CAF II Auction recipients proposing a variety of technologies to offer services that are, even with the CAF II support, characterized by thin margins. As with *any* market entry, there is uncertainty as to whether they will be able to deliver on their services, prices and deployments described in their bids. Logic and experience suggest that at least some of these proposals will confront unexpected difficulties that directly challenge the assumptions in their business models and they will have to adapt, which could result in the auction recipient not achieving all that they hoped (and thus bid). Any such future event, however, should not be interpreted as a failure of the auction process, but rather the unavoidable consequence of such a large experiment in entry.

³³ These issues are before the FCC and this paper does not address that proceeding. Rather the point here is to encourage commercial relationships that facilitate the transition, without prejudging the regulatory environment that prevails. See Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, Federal Communications Commission WC Docket No. 17-84.

³⁴ An exception concerns the areas where ViaSat was the winning bidder and, as a satellite-based provider, is likely to begin offering broadband service quickly (subject to the previously noted caveat as to how ViaSat will address latency and its effect on VoIP).

Lessons from the CAF II Auction

Second, a recommendation. As noted above, the CAF II price cap offers are scheduled to expire in 2020 and \$1.5 billion/year in support will be available to CAF III.³⁵ Because CAF auction commitments are for ten (10) years, the current structure could result in a single large auction and a decade-long gap before a similar auction is held. Importantly, the CAF II Auction awarded 75% of its initial budget.³⁶ If this proportion holds, then even after the CAF III Auction is held there would be approximately \$375 million/year in support to fund a follow-up auction. That said, there would be considerable merit in *deliberately* restructuring the CAF III auction(s) to occur in several tranches (say of \$500-700 million each) over a period of years rather than the cicada-like approach currently embedded in federal orders.

Conducting several auctions over a period of years would also allow the market to explore new technologies, adapt and mature, while the rolling nature of the support (*i.e.*, auctions would occur every few years) would provide the developers of new technologies a continuing incentive to innovate. For instance, low earth orbit technologies are today being tested, but have not yet been deployed. Moreover, it is logical to expect that 5G investment will initially focus on urban markets, but over time there may be scale and scope economies that facilitate the deployment of such networks in rural areas (particularly if such technologies can compete for support). It makes little sense to only conduct auctions every 10 years when technological change is so rapid. As such, smaller auctions held more frequently would appear preferable to the current (implied) schedule.

In conclusion, the CAF II Auction demonstrates that alternative technologies and providers are positioned to bring broadband services to rural markets if permitted to compete for support. This conclusion means that public policy should favor competitive bidding strategies, but it also means that such subsidy mechanisms must be matched with thoughtful exit paths that recognize the economic reality that rural broadband networks will render the existing narrowband network obsolete.

³⁵ As noted, the FCC has not yet adopted rules to define how CAF III will be implemented.

³⁶ The CAF II Auction awarded \$148.8 million/year of the \$198 million/year budget. The gap between funds-available and funds-committed arises from the structure of the auction. The auction first uses *inter-area* bidding to reach the budget, and then engages in further bidding for areas with duplicative bids. As these contestation rounds (*i.e.*, rounds to select winners in areas with more than one bid) occur, the total requested support declines.

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November 29, 2018

Via ECFS – Notice of Ex Parte Communications

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: *Connect America Fund et al.*, WC Docket Nos. 10-90, 14-58, 07-135, and CC Docket No. 01-92

Dear Ms. Dortch:

On November 28, 2018, Ken Pfister of Great Plains Communications, Wendy Thompson Fast of Consolidated Companies (collectively, Nebraska A-CAM Companies), and I met separately with Travis Litman, Office of Commissioner Jessica Rosenworcel, and with Commissioner Michael O'Rielly and his legal advisor Arielle Roth regarding the draft order in the above-referenced docket that is scheduled to be voted at the December agenda meeting.¹

During the meeting, the Nebraska A-CAM Companies expressed their full support for adoption of a voluntary offer of additional funding up to \$200/month per location for existing A-CAM recipients, with modified deployment obligations, as set forth in the draft order. They also indicated that they support extending a new offer of A-CAM support to all companies not currently receiving A-CAM support and would not limit such an offer to those companies that would receive less support under the model than their current support. Extending a new offer of A-CAM support to all companies, for high-cost areas that are not competitively served, would result in significantly more broadband deployment and advance the Commission's longstanding public policy objective of providing universal service support based on forward-looking efficient costs.

Please do not hesitate to contact the undersigned if there are questions regarding this submission.

Respectfully submitted,

/s/

Carol E. Matthey
Principal
Matthey Consulting, LLC

¹ *Connect America Fund*, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, FCC-CIRC1812-02 (Public Draft Nov. 21, 2018).

Exhibit 2
Page 1 of 4

cc: Commissioner Michael O’Rielly
Arielle Roth
Travis Litman

5904 Devonshire Dr.
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240.461.7816

November 30, 2018

Via ECFS – Notice of Ex Parte Communications

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

**Re: *Connect America Fund et al.*, WC Docket Nos. 10-90, 14-58, 07-135, and CC
Docket No. 01-92**

Dear Ms. Dortch:

On November 29, 2018, Ken Pfister of Great Plains Communications, Wendy Thompson Fast of Consolidated Companies (collectively, Nebraska A-CAM Companies), and I met separately with Commissioner Brendan Carr and his Chief of Staff, Jamie Susskind, and with Preston Wise, Office of Chairman Ajit Pai, regarding the draft order in the above-referenced docket that is scheduled to be voted at the December agenda meeting.¹

During the meeting, the Nebraska A-CAM Companies expressed their full support for adoption of a voluntary offer of additional funding up to \$200/month per location for existing A-CAM recipients, with modified deployment obligations, as set forth in the draft order. They also indicated that they support extending a new offer of A-CAM support to all companies not currently receiving A-CAM support and would not limit such an offer to those companies that would receive less support under the model than their current support. Extending a new offer of A-CAM support to all companies, for high-cost areas that are not competitively served, would result in significantly more broadband deployment and advance the Commission's longstanding public policy objective of providing universal service support based on forward-looking efficient costs. They expressed their appreciation for the establishment of separate budgets for A-CAM companies and companies that are not receiving A-CAM support.

In addition, they discussed the status of current proceedings before the Nebraska Public Service Commission to determine support levels provided to rate-of-return carriers through the Nebraska Universal Service Fund to advance a state goal of 25/3 Mbps broadband.

¹ *Connect America Fund*, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, FCC-CIRC1812-02 (Public Draft Nov. 21, 2018).

Please do not hesitate to contact the undersigned if there are questions regarding this submission.

Respectfully submitted,

/s/

Carol E. Matthey
Principal
Matthey Consulting, LLC

cc: Commissioner Brendan Carr
Jamie Susskind
Preston Wise