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

In the Matter of	)	
	)	
Amendment of Parts 1, 21, 73, 74 and 101 of	)	
the Commission's Rules to Facilitate the	)	WT Docket No. 03-66
Provision of Fixed and Mobile Broadband	)	(Terminated)
Access, Educational and Other Advanced	)	
Services in the 2150-2162 and 2500-	)	
2690 MHz Bands	)	
	)	
Transforming the 2.5 GHz Band	)	WT Docket No. 18-120

COMMENTS OF NORTH AMERICAN CATHOLIC EDUCATIONAL PROGRAMMING FOUNDATION AND MOBILE BEACON

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I. INTRODUCTION AND SUMMARY

The North American Catholic Educational Programming Foundation, Inc. (NACEPF) and Mobile Beacon respectfully submit the following comments in response to the Commission's Notice of Proposed Rulemaking in the above-captioned proceeding.[1] NACEPF and Mobile Beacon support the Commission's decision to initiate this proceeding, which has the potential to facilitate 5G wireless deployment and help close the digital divide. However, the NPRM proposes and seeks comment on ideas that, if taken together, would effectively eliminate education from the EBS band. The Commission need not—and should not—abandon its long commitment to educational use in order to achieve its objectives. The Commission can achieve the highest and best use of this band by modernizing the current EBS regulatory model and applying it consistently to both existing[2] and new EBS licensees.

NACEPF is a 501(c)(3) nonprofit organization that has licensed Educational Broadband Service (EBS) spectrum in 51 markets across the U.S., including 9 large metropolitan areas, 18 mid-size markets, and 24 rural, underserved parts of the country.[3] Consistent with the Commission's current EBS regulations, NACEPF's EBS spectrum is subject to excess capacity lease agreements with Clearwire Corporation and its subsidiary, Clearwire Spectrum Holdings II, now owned indirectly by Sprint Corporation. Sprint has built a national wireless broadband network providing competitive, commercial service using the 2.5 GHz band, and touts 2.5 GHz spectrum as its chief competitive advantage in delivering 5G to the United States.

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1 *Transforming the 2.5 GHz Band*, Notice of Proposed Rulemaking, FCC 18-59, WT Docket No. 18-120 (rel. May 10, 2018) ("*2.5 GHz NPRM*").

2 To avoid disruption of existing lease agreements, we propose that any new educational use rules are addressed prospectively for current EBS licensees at the end of their current lease terms.

3 A list of markets where NACEPF holds an EBS license is available at http://www.nacepf net/about-nacepf.html.

The scope and scale of NACEPF's EBS license holdings enabled it to negotiate lease terms that furnish substantial educational benefits to the underserved communities in its licensed geographic service areas, as well as the ability to provide service to a broad range of educational, nonprofit, and other community anchor institutions both in its licensed areas and throughout the country. A crucial part of these agreements is the number and quality of mobile broadband data subscriptions ("data services") and devices that NACEPF receives and distributes through its wholly-owned subsidiary, Mobile Beacon, to support the broadband needs of K-12 schools, public libraries, colleges and universities, nonprofits, museums, and other community anchor institutions.[4] These organizations often use Mobile Beacon's service to expand program services in their communities and help meet the broadband needs of their constituents and program beneficiaries.

As the service organization of an EBS licensee, Mobile Beacon strengthens communities across the United States by providing anchor institutions with high-speed, unlimited, $10/month mobile internet access so they can better serve their local communities. Today, 799 schools, 739 libraries, and 4,322 nonprofits rely on Mobile Beacon's internet service each day. Given the number of individuals an anchor institution serves, one broadband connection has an educational, social, and economic multiplier effect.[5] We estimate that anchor institutions are using Mobile Beacon's internet service to benefit more than 425,000 individuals throughout the United States.

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[4] We define "community anchor institution" to include schools, libraries, colleges and universities, museums, community centers, public housing, hospitals and health clinics, senior citizen centers, public media, and other nonprofit community-based organizations.

[5] Internet2, *The Impact of Anchor Institutions on a Community's Broadband Connections* 2 (2016), *available at* https://www.internet2.edu/media/medialibrary/2016/06/22/CAI-Influence-in-Broadband-White-Paper.pdf (explaining that, given the central role of a community anchor and the number of people it impacts, providing robust broadband connectivity to one community anchor institution can have network effects that impact hundreds, if not thousands more citizens than a single fiber drop to a residential home); Samantha Schartman-Cycyk & Katherine Messier, *Creating Opportunity Through Connectivity: How Mobile Broadband for Anchor*

As described in more detail below, NACEPF and Mobile Beacon's successful track record illustrates how the FCC's current approach to EBS spectrum both provides substantial educational benefits to anchor institutions and the communities they serve, and fuels commercial deployment by network providers who lease EBS spectrum. Through the broadband data services and devices we receive and distribute under our lease agreement, we are able to help close the "homework gap", reach underserved communities, and expand access to "lifelong learning". The combined portfolio of our EBS spectrum holdings allowed us to negotiate for rich educational benefits that keep pace with technology over time and provide the highest level of available retail service in both our rural and urban licensed areas. In fact, EdTech Digest named Mobile Beacon the *Best Mobile Device Solution* for education in 2018.[6]

NACEPF and Mobile Beacon endorse the Commission's goals of revisiting and modernizing the 2.5 GHz band to meet the spectrum needs of today. Specifically, we urge the Commission to retain the current educational eligibility requirements to hold an EBS license. Where the Commission has made EBS spectrum available to date, the current approach has in no way hindered commercial deployment in the 2.5 GHz band. At the same time, these rules have spurred substantial educational benefits, the value of which would not otherwise be captured by the marketplace. Under the current model, the dual goals of commercial deployment and educational connectivity are achieved through public-private partnerships, not government subsidies like the universal service fund. Eliminating educational eligibility and use rules would effectively commercialize the spectrum, jeopardizing the benefits EBS provides today and

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Institutions Impacts Communities 4, Mobile Beacon (2017), *available at* https://www.mobilebeacon.org/wp-content/uploads/2018/01/CreatingOpportunitiesResearchPaper_2018-1.pdf ("*Creating Opportunity Through Connectivity*").

6 EdTech Digest, *2018 – Finalists & Winners*, https://edtechdigest.com/2018-finalists-winners/ (last visited Aug. 2, 2018) ("*Finalists and Winners*").

depriving the Commission of one its few available tools to close the homework gap, connect the unserved, and close the digital divide. Our experience makes clear that purely commercial deployments are unlikely to replicate these benefits. Even in the areas where our service overlaps with the service areas of commercial broadband providers, we have found that our service routinely reaches consumers who have never before had a home internet connection, let alone broadband speeds.

We agree, however, with the acknowledgement in the NPRM that the Commission's current educational use requirements are out-of-date. The Commission should modernize these requirements for leased spectrum to better reflect today's education and communications landscape. Going forward, educational use requirements should be flexible to evolve with technology; measurable, to ensure accountability; and capacity-based, rather than time-based or content-based. While open to ideas from other stakeholders, we offer three proposals. First, educational use requirements should be redefined to specifically include providing service to more types of educational entities, including public and academic libraries, workforce development providers, early education centers, and digital literacy providers. Second, for licensees leasing their spectrum, we propose that the Commission clarify and convert the current 5% reservation requirement to a deployment requirement such that at least 5% of leased EBS capacity must be utilized to advance education. Third, we propose that the FCC increase transparency and ensure there is an ongoing public record of the level of service each licensee is providing within their geographic service area (GSA).

NACEPF and Mobile Beacon welcome the FCC's decision to end the filing freeze on 2.5 GHz assignments that has left large areas of EBS spectrum unused, particularly in rural areas, for more than two decades. Consistent with the statute, the Commission can—and should—

utilize local priority windows to achieve public policy objectives, including licensing this newly available EBS spectrum in an efficient manner to currently eligible entities. In designing those windows, however, the Commission should maintain, rather than narrow, eligibility to ensure that communities get the maximum benefit from newly licensed EBS spectrum. Specifically, the Commission should define "local" to include entities that already provide a substantial level of service to a community, and allow currently eligible incumbent licensees an opportunity to participate. The Commission should not employ more aggressive auction alternatives, such as an incentive or overlay auction, which would radically increase complexity, invite delay, and reduce broadband availability to students and educators.[7]

II. THE COMMISSION SHOULD PRESERVE EDUCATION IN THE EBS BAND.

Recognizing the power of communications technologies to drive learning, for half a century the Commission has designated portions of the 2.5 GHz band to advance education. Over time, with the evolution of technology, spectrum access for education has grown increasingly important. Today, broadband connectivity is an indispensable tool for modern education. Interactive and video-driven online tools are unleashing innovations that allow educators to teach, and students of all ages to learn, in new and exciting ways.

Moreover, EBS is one of the few tools the Commission has to address the "homework gap"—the systematic inequality arising from a student's inability to access the high-speed internet connectivity needed to complete homework, out-of-school projects, and other activities

[7] NACEPF and Mobile Beacon have undertaken an analysis of the NPRM's various proposals to rationalize current EBS license geographic service areas (GSAs). *2.5 GHz NPRM* ¶¶ 11–18. Because our analysis is not yet complete, we do not address those issues in these comments, but expect to do so in a later filing.

that have become crucial parts of modern education.[8] An estimated 70% of teachers assign homework that requires access to broadband,[9] even as 12 million American students go home at the end of each school day to a household that lacks a high-speed internet connection.[10] The Commission has repeatedly expressed concern about the homework gap and intent to close it.[11]

Preserving education in the EBS band is more important than ever. The Commission should do so by (a) retaining educational eligibility to hold an EBS license, (b) modernizing the educational use requirements for leased spectrum to ensure accountability and robust educational use, and (c) increasing transparency around educational benefits.

A. The Commission Should Preserve the Educational Value of EBS By Retaining Educational Eligibility Requirements.

Under the current rules, EBS licenses can only be held by accredited or governmental educational institutions and nonprofits whose purposes are educational and include providing educational services to such accredited or governmental entities.[12] EBS licensees are allowed,

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8 *See* Comm'r Jessica Rosenworcel, *Limited Internet Access a Challenge for Detroit Kids*, Detroit Free Press (last updated Mar. 17, 2015, 12:10 PM), http://www.freep.com/story/opinion/contributors/2015/03/16/internet-broadband-access/24849353/.

9 *Id.*

10 Comm'r Jessica Rosenworcel, Remarks at the U.S. Conference of Catholic Bishops at 4 (Oct. 12, 2017), https://docs.fcc.gov/public/attachments/DOC-347198A1.pdf ("According to the Pew Research Center, there are 5 million households in this country with school-aged children that lack Internet service at home. According to the Senate Joint Economic Committee 12 million children live in homes that lack a broadband connection."); John B. Horrigan, *The Numbers Behind the Broadband 'Homework Gap'*, Pew Research Ctr. (Apr. 20, 2015), http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap/; Senator Martin Heinrich, U.S. Congress Joint Economic Committee, *America's Digital Divide* 4 (2017), *available at* https://www.jec.senate.gov/public/_cache/files/ff7b3d0b-bc00-4498-9f9d-3e56ef95088f/the-digital-divide-.pdf.

11 *E.g.*, *Bridging the Digital Divide for Low-Income Consumers et al.*, Fourth Report and Order, Order on Reconsideration, Memorandum Opinion and Order, Notice or Proposed Rulemaking, and Notice of Inquiry, 32 FCC Rcd. 10,475, 10,504 ¶ 81 & n.182 (2017); *Lifeline and Link Up Reform and Modernization et al.*, Third Report and Order, Further Report and Order, and Order on Reconsideration, 31 FCC Rcd. 3962, 4095–101 ¶¶ 367–79 (2016); *see also 2.5 GHz NPRM*, Statement of Comm'r Jessica Rosenworcel.

12 47 C.F.R. § 27.1201(a), For such nonprofits, EBS data services are to be used "in furtherance of the institution's educational mission" and provided to "enrolled students, faculty, and staff in a manner and in a setting conducive to educational usage. *Id.* (a)(3); *see also* 27.1203 ("Authorized educational broadband channels must

however, to lease excess capacity and take advantage of the Commission's flexible use standard in Part 27. This regulatory model has been a success, providing substantial educational benefits while driving commercial deployment. As the NPRM itself recognizes, under the current rules, "consumer benefits [have been] maximized,"[13] confirming the Commission's predictions when it put these rules in place years ago.

Nevertheless, the NPRM proposes to eliminate the educational eligibility requirement, allowing EBS licenses to be held by entities with no educational purpose for the first time in over 50 years. NACEPF and Mobile Beacon strongly oppose this change, which ignores the long educational history of the band, fails to properly account for educational benefits, and will ultimately result in the elimination of education from the EBS band altogether.

The NPRM seems to suggest that eliminating educational eligibility will help to optimize the EBS band; however, the Commission has previously explained why this is not the case. The last time the Commission considered eliminating educational eligibility to hold an EBS license, it expressly grappled with adopting a purely market-based, flexible use policy and ultimately concluded that "it is in the public interest to retain . . . [the] restrictions."[14] Recognizing the market failure in the education context, it stated: "In an open market, we are concerned that educators could not effectively compete against broader commercial interests. Indeed, pursuant to an open eligibility scheme, the inability to bid against commercial operators for this spectrum

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be used to further the educational mission of accredited schools offering formal educational courses to enrolled students.")

13 *2.5 GHz NPRM* ¶ 19.

14 *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands et al.*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd. 14,165, 14,222 ¶ 152 (2004) ("*EBS R&O*"). "Of particular importance," the Commission explained, was the fact that EBS is "the only spectrum specifically reserved for educators." *Id.* at 14,225 ¶ 159.

would effectively deny educators any future entry strategy into the band."[15] In addition, the Commission expressly rejected the view that its "goal of moving spectrum to its highest-valued use conflicts with the goal of promoting education."[16] Rather, it found that both can be achieved under the existing EBS regulatory model, where educators enjoy considerable flexibility, including the opportunity to work in partnership with commercial interests, and where "leasing arrangements are sufficiently flexible" to push the spectrum "to its highest valued use."[17]

Each of these findings holds true today. Licensees can—and do—lease substantial amounts of their EBS spectrum to commercial entities that have developed networks and technologies that maximize optimal use of the band. Educational organizations are no better able to compete for spectrum on the open market today than they were in 2004. Although the education sector lacks the revenue to compete with commercial providers in an open spectrum market, this hardly means that education is not important or valuable—it means only that the traditional auction model fails to capture the value that educators provide. An open ended flexible-use policy would fail to address this long-recognized market failure.[18]

In this NPRM, the Commission does not explain what has changed nor identify any specific problems with the current model. Rather, the NPRM casts its proposal to eliminate educational eligibility as one of empowering EBS licensees with additional flexibility, explaining

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15 *Id.* at 14,225 ¶ 159.

16 *Id.* at 14,226 ¶ 160.

17 *Id.* Rule changes that would commercialize the band would be unable recapture the educational value provided by this lease model, resulting in a less efficient use of the spectrum.

18 The NPRM itself appears to recognize this when it seeks comment on priority windows for educational applicants for new 2.5 GHz licenses. As discussed below, NACEPF and Mobile Beacon support the concept of priority windows for education and, among other things, believe that retaining eligibility requirements is the best way to avoid the potential for gaming and unjust enrichment.

that "[u]nder this proposal, the decision whether to lease or transfer a license would rest with the EBS licensee."[19] While the proposal has facial appeal, it ignores market realities.

We recognize that some educational entities facing funding deficits may be tempted to make short-term decisions (i.e. transferring their license rights for immediate revenue) rather than retain their licenses for educational use and long-term, lease-based proceeds. However, effective educational use requires a critical mass of educational licensees and users to maintain a robust ecosystem of products and services for educational users. The Commission knows all too well the stagnation that can result when inconsistent or unpredictable regulation results in fragmented use of spectrum and the inability to take advantage of a robust device ecosystem or established industry standards. The Commission's proposals would do just that by triggering the rapid erosion of the educational EBS user base, and isolating the committed educators and educational providers that remain. This would undermine both the historical purpose of the allocation and the public value of spectrum designated for the education sector.

Moreover, those EBS licensees who wish to retain ownership and continue to lease their spectrum will face a hostile lease environment. Commercial entities will have the ability and incentive to offer favorable *transfer* terms—and highly unfavorable (or no) *lease* terms—in an attempt to drive EBS licensees to sell. Most EBS licensees lack sufficient leverage to fend off such tactics. Far from empowering licensees with greater flexibility over the long-term, eliminating educational eligibility will leave EBS licensees with *fewer* options to partner with entities that would otherwise assist them in building, operating, and maintaining a robust network that utilizes this spectrum.

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[19] *2.5 GHz NPRM* ¶ 20.

B. The Commission's EBS-Leasing Model Has Achieved the Commission's Goals of Driving Both Commercial Deployment and Educational Benefits.

As discussed above, the Commission need not choose between advancing education and promoting more efficient economic use of the available spectrum. The Commission can do both, consistent with its statutory obligations for spectrum assignment, by adopting rules that will quickly put unused EBS spectrum into the hands of those who will use it best for a combination of educational and commercial purposes.

History has proven that providing an opportunity for educational users to license this spectrum does not preclude efficient commercial use. As the NPRM notes, it is common today for EBS licensees to enter into long-term lease arrangements with commercial wireless operators that allow for intensive commercial use while ensuring a standard of educational use is met. There is no evidence that this leasing model has contributed to underutilization of this spectrum for commercial purposes.

On the contrary, Sprint is the primary provider of broadband service using 2.5 GHz spectrum in the United States, with 160 MHz in the top 100 markets.[20] Sprint has continuously touted its 2.5 GHz spectrum as its chief competitive advantage. Far from underutilizing the spectrum, Sprint announced it will have 2.5 GHz deployed on virtually all of its towers by the end of this year.[21] Additionally, Sprint's award-winning Magic Box and latest small cell innovation, the Magic Ball, use "Sprint's ample, dedicated 2.5 GHz spectrum" to expand

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[20] Letter from Nancy J. Victory, DLA Piper, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 18-197, Appendix E: Declaration of John C. Saw, Chief Technology Officer, Sprint Corporation, at 3 (filed June 18, 2018).

[21] Mike Dano, *Sprint Promises to Launch Nationwide Mobile 5G Network in First Half of 2019,* FierceWireless (Feb. 2, 2018, 11:16 AM), https://www.fiercewireless.com/5g/sprint-promises-to-launch-nationwide-mobile-5g-network-first-half-2019-and-to-raise-unlimited ("*Sprint Promises to Launch Nationwide 5G Network in First Half of 2019*").

coverage and improve network speeds.[22] Sprint reported that the Magic Box increased national download speeds 28% in seven months[23] and it plans to deploy one million Magic Boxes by 2019.[24] Sprint's CTO Dr. John Saw has often said the technical characteristics of 2.5 GHz spectrum are ideal for delivering 5G. According to Saw, the other major carriers are trying to "make lemonade out of the lemons they have" in terms of spectrum holdings, with AT&T and Verizon limited to millimeter-wave 5G rollouts and T-Mobile with 600 MHz.[25] Sprint's former CEO, Marcelo Claure, said, "Sprint is the only carrier that doesn't have to compromise what 5G can deliver because we can deliver super wide channels of more than 100 MHz while still delivering mid-band coverage characteristics".[26]

All of this makes clear that the FCC's rules around leasing EBS spectrum have in no way slowed commercial deployment or innovation. Had Sprint been able to directly purchase all of the 2.5 GHz spectrum it currently holds, Sprint would likely be in the same position it is today—poised and ready to deliver competitive 5G service throughout the United States. On the other hand, thousands of schools and other educational nonprofits would have lost the educational benefits they now receive. Our direct experience providing free or low-cost broadband to schools, libraries, nonprofits, and other anchor institutions in all 50 states demonstrates that this

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22 Adrienne Norton, *Sprint Announces World's First All-Wireless Small Cell – The Sprint Magic Box*, Business Wire (May 3, 2017, 8:49 AM), https://www.businesswire.com/news/home/20170503005773/en/Sprint-Announces-World%E2%80%99s-All-Wireless-Small-Cell-%E2%80%93.

23 Monica Alleven, *Sprint Credits Magic Box for Improving Network Performance*, FierceWireless (Aug. 14, 2017, 6:45 AM), https://www.fiercewireless.com/wireless/sprint-credits-magic-box-for-improving-network-performance.

24 *Sprint Promises to Launch Nationwide 5G Network in First Half of 2019*.

25 Corinne Reichert, *Sprint CTO at MWC: We Have the Best 5G Spectrum*, ZDNet (Feb. 28, 2018, 12:19 PM), https://www.zdnet.com/article/sprint-cto-at-mwc-we-have-the-best-5g-spectrum/.

26 *Sprint Promises to Launch Nationwide 5G Network in First Half of 2019*.

would either (a) significantly reduce the number of devices and service plans these entities have purchasing power to obtain, or (b) leave some with no connectivity at all.[27]

For example, last year, Hillsboro Independent School District, located in the heart of rural Texas, instituted a one-to-one technology program at the local high school. Teachers quickly realized that not all students had internet access at home. To prevent any student from falling behind, Hillsboro High School obtained a grant to fund the purchase of mobile hotspots and service plans. But with fees totaling $566 a month for only 14 devices from a commercial provider, the grant money would not last for the whole school year. After learning about Mobile Beacon, it acquired 40 donated devices through our Digital Wish device donation program for schools and is now saving 75% with Mobile Beacon's $10/month service. "If it weren't for Mobile Beacon and Digital Wish we could not have continued the program because those kinds of funds just aren't available," said Sheila Bowman, Executive Director of Innovative Learning.[28]

The FCC's current leasing model provides crucial technological benefits to both EBS licensees and the communities they serve. Particularly in urban areas, EBS licensees that lease

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[27] Far from market theory, this is the reality for many of the anchor institutions receiving Mobile Beacon's EBS service. As non-profit River Valley Food 4 Kids in Russellville, Arkansas reported: "Without Mobile Beacon, internet costs would run us several hundred dollars a year. We're a small program so having that few hundred dollars results in us being able to feed more kids." *Creating Opportunity Through Connectivity* at 26. Similarly, the Jefferson Rural Health Clinic, which provides free medical services in Jefferson City, Tennessee explained that "[w]ithout Mobile Beacon, [it] would have to cut some medical supplies to get internet." *Id.* at 18. Connectivity itself is at stake for organizations like the Academy of Medical & Public Health Services in Brooklyn, NY, which reported starkly: "Without Mobile Beacon, we couldn't shoulder the cost of internet." *Id.* at 17.

[28] Mobile Beacon, *Hillsboro School District Uses Mobile Beacon Hotspot Donations for Students in Need*, https://www.mobilebeacon.org/hillsboro-school-district-uses-mobile-beacon-hotspot-donations-for-students-in-need/ (last visited Aug. 2, 2018) ("*Hillsboro School District Uses Mobile Beacon Hotspot Donations for Students in Need*").

their spectrum (as opposed to building their own network) pass through all the benefits of access to a robust, commercial network with continuous, nationwide coverage. Having a coverage footprint this extensive makes valuable educational programs feasible, such as deploying Wi-Fi on school buses and loaning hotspots to students without internet access at home.[29] Additionally, under the leasing model, educators receive real-time benefits of network improvements. As a result, the current EBS leasing model will achieve the Commission's desire to rapidly facilitate "improved access to next generation wireless broadband, including 5G."[30] Licensees who lease their spectrum will undoubtedly obtain and provide access to 5G faster than those who build their own networks.[31]

Moreover, the EBS leasing model also provides significant indirect benefits for EBS licensees who have built their own networks.[32] The intensive commercial use of 2.5 GHz spectrum (including the large portion of leased EBS spectrum) has created a robust ecosystem of consumer devices and network equipment in the United States. These market dynamics brought

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29 *See Hillsboro School District Uses Mobile Beacon Hotspot Donations for Students in Need*.

30 *2.5 GHz NPRM* ¶ 2.

31 This is not to downplay the important contribution EBS self-deployments make, particularly in rural areas. Rather, we encourage the Commission to facilitate the deployment of 5G to the educational community by automatically expanding existing EBS service areas (rather than having such expansion take place in a filing window) and allowing currently eligible entities to apply for new EBS licenses after the priority window for Tribal Lands. This would speed up the overall licensing process, which will hasten new builds in rural areas, including EBS self-deployments.

32 Examples of EBS self-deployments include Northern Michigan University, *The Board of Trustees of Northern Michigan University; Applications for New Educational Broadband Service Stations*, Memorandum Opinion & Order, 31 FCC Rcd. 3371 (2016); Albemarle County Public Schools, Keith R. Krueger, *Repurposing Educational Spectrum to Address Digital Equity: Case Study: Albemarle County Public Schools, VA*, CoSN (Oct. 1, 2015, 3:18 PM), https://cosn.org/blog/repurposing-educational-spectrum-address-digital-equity-case-study-albemarle-county-public; SETDA, *The Broadband Imperative II: Equitable Access for Learning*, at 29 (September 2016), https://www.setda.org/wp-content/uploads/2016/09/SETDA-Broadband-ImperativeII-Full-Document-Sept-8-2016.pdf; or Kings County School District, Leo Doran, *Calif. Community Builds Homegrown Internet Network for Schools*, Education Week (Oct. 25, 2016), https://www.edweek.org/ew/articles/2016/10/26/calif-community-builds-homegrown-internet-network-for.html.

down the prices of the network equipment and consumer handsets—making it financially feasible for educational entities to self-deploy. All of this underscores that the existing EBS-leasing model has been a success and provides substantial educational benefits for existing EBS lessors and the communities they serve, as well as for EBS licensees that have built their own broadband networks. For all of these reasons, the Commission should ensure its rules continue to make both EBS-leasing and EBS-self-deployment viable options going forward.

C. The Commission Should Modernize, Rather Than Eliminate, Educational Use Requirements for Leased EBS Spectrum.

For leased EBS spectrum, under the current rules, a licensee must reserve a minimum of 5% capacity of its channels for educational use and must provide at least 20 hours per licensed channel per week of EBS educational usage.[33] The NPRM notes that the current educational use requirements appear to be "out of date and do not fit the actual use of the spectrum."[34] We agree; however, we strongly oppose eliminating educational use requirements. We believe educational use requirements should be modernized—not abandoned—to preserve the substantial educational benefits they currently provide and expand those benefits going forward.

To make an informed decision about how to move forward, the Commission first needs a full record on how this spectrum is being used to advance education across the country today and its potential to build on these benefits moving forward. Indeed, the Commission cannot rationally decide to abolish educational use requirements because they are out of date, without considering whether and how they can be updated. This is especially critical because, as described below, EBS licensees are providing considerable educational benefits today, including a homework-gap

[33] 47 C.F.R. § 27.1214(a)(1), (b)(1).

[34] *2.5 GHz NPRM* ¶ 22.

solution that should not be disregarded. We urge the Commission to modernize these educational use rules for leased EBS spectrum and apply them to both existing and new EBS licensees who choose to enter into excess capacity leases.[35]

1. Educational Use Requirements Provide Real Educational Benefits and Should Not Be Eliminated.

Under the EBS-leasing model, licensees today are providing broadband connectivity to students—both inside and outside the classroom. In particular, Mobile Beacon offers one of the most robust and affordable mobile broadband services[36] available in the United States exclusively to schools, libraries, community centers, and other anchor institutions. When these services reach students outside of the classroom and in their homes, the whole family benefits. To be clear, Mobile Beacon's service is only available because of the substantial level of educational benefits NACEPF negotiated for in its EBS lease agreements—something that could not be replicated if the Commission eliminates educational eligibility and use requirements going forward.

a. EBS Bridges the Homework Gap.

As described above, the benefits of providing access to a national coverage footprint make it possible to serve important educational needs, like providing internet access to students in their homes or while traveling back-and-forth to school on a bus. For example:

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[35] We note the NPRM proposes to adopt educational use requirements for new EBS licenses granted through priority windows, *id.* ¶ 48, but eliminate them for incumbent licensees. We believe all licensees should adhere to educational use standards. We recognize that EBS licensees that deploy their own networks may well be differently situated with respect to educational use requirements. We believe such licensees should remain subject to *some* educational use requirements, but remain open as to whether and how to modernize educational use requirements for EBS licensees that build and operate their own networks.

[36] Mobile Beacon's service provides uncapped, high-speed, mobile broadband service for $10/month to eligible educational, nonprofit, and social welfare organizations.

Derrick Marsh, A.D. of Henderson School in Boca Raton, FL shared, "Our student athletes travel to and from all games on a bus and have a lot of idle time. However, with the addition of the hotspot student athletes have access to internet, which allows them complete their homework and research for classes. Our athletes are so thankful for the internet access during the travel to and from their games . . . this program started as a tool to help students do homework as they travel to sports events. Now it's blossomed to helping reduce costs for teachers going to conferences, as well as hospitalized students and those impoverished."[37]

Courtney Love, Operations Manager of Insight School in Midwest City, OK shared, "We have loaned [your hotspots] out to families who are struggling financially so that they can have internet service until they get back on their feet. As a virtual school, internet service is a requirement for our students. We have also used them for Professional Development Meetings . . . student outings . . . and in-person support for families. Thank you for helping make this service available."[38]

Robert Gallant, Science Teacher at Apollo Elementary in Bossier City, LA shared, "I had one student who could not get to the library to prepare for his Science Fair project that was coming up. I have sent [your hotspot] home with him multiple times for him to work on it. Apparently, on nights I send it home, his

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[37] *Donations: Testimonials*, Digital Wish, https://digitalwishes.wordpress.com/donations/ (last visited Aug. 8, 2018) ("*Digital Wish Testimonials*").

[38] *Id.*

brothers and sisters also used it to go to different study websites too! It is a great resource!"[39]

EBS is thus one of the few tools the Commission has to address the "homework gap"—the systematic inequality arising from a student's inability to access the high-speed internet connectivity needed to complete homework, out-of-school projects, and other activities that have become crucial parts of modern education.[40] An estimated 70% of teachers assign homework that requires access to broadband,[41] even as 12 million American students go home at the end of each school day to a household that lacks a high-speed internet connection.[42] According to a recent study from the Hispanic Heritage Foundation, Family Online Safety Institute and My College Options, nearly 50% of students said they had been unable to complete a homework assignment due to not having access to the internet or a computer.[43] On top of that, 42% of students reported receiving a lower grade on an assignment because they did not have access to the internet.

The Commission has repeatedly expressed concern about the homework gap and an intent to close it.[44] To combat these inequities, some EBS licensees use their spectrum to build

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39 *Id*.

40 *See* Comm'r Jessica Rosenworcel, *Limited Internet Access a Challenge for Detroit Kids*, Detroit Free Press (Mar. 17, 2015, 12:10 PM), http://www freep.com/story/opinion/contributors/2015/03/16/internet-broadband-access/24849353/.

41 *Id*.

42 *See supra* note 10.

43 Clare McLaughlin, *The Homework Gap: The 'Cruelest Part of the Digital Divide'*, National Education Association Today (Apr. 20, 2016, 3:30 PM), http://neatoday.org/2016/04/20/the-homework-gap/.

44 *E.g.*, *Bridging the Digital Divide for Low-Income Consumers et al.*, Fourth Report and Order, Order on Reconsideration, Memorandum Opinion and Order, Notice or Proposed Rulemaking, and Notice of Inquiry, 32 FCC Rcd. 10,475, 10,504 ¶ 81 & n.182 (2017); *Lifeline and Link Up Reform and Modernization et al.*, Third

countywide broadband networks, and other licensees that lease their spectrum implement programs like Mobile Beacon's that provide internet service to schools, libraries, and other nonprofit entities that, in turn, provide access to students who otherwise lack a home internet connection.[45]

For example, the media specialist at Snow Hill High School in Maryland wrote to us to share how they are closing the homework gap with Mobile Beacon's service:

> "I cannot even begin to relay how very important access to the internet at home has been for so many of our students. Such a large portion of our population lives in very rural areas, and the only internet available is through cell phone companies like Sprint and Verizon. As you know, most households are restricted by data plans when using their cell service for internet, so many students have restricted or limited access at home because of cost (many more have no internet whatsoever). My family and I actually have this problem ourselves!"[46]

> We have so many students using/requesting hotspots that I continually have holds on them. I originally started out with 1-week check out periods, but due to high demand, the loan period is now two days so more students can use them each week. While this places more on me to keep up with due dates, holds, reminders, etc., I am so pleased to see our students benefiting. Students no longer have to

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Report and Order, Further Report and Order, and Order on Reconsideration, 31 FCC Rcd. 3962, 4095–101 ¶¶ 367–79 (2016); *see also 2.5 GHz NPRM*, Statement of Comm'r Jessica Rosenworcel.

[45] Samantha Shartman-Cycyk & Katherine Messier, *Bridging the Gap: What Affordable, Uncapped Internet Means for Digital Inclusion* 4 (2017), https://www.mobilebeacon.org/wp-content/uploads/2018/05/MB_ResearchPaper_FINAL_WEB.pdf ("*Bridging the Gap*").

[46] *Digital Wish Testimonials.*

> worry about how to complete research, access online assignments, arrange transportation to stay after school to use computers, etc. now that they can take the internet home. I've also had several parents express how pleased they were with the hotspots, as it has eliminated homework stress at home and concern over data overages! One student told me that her mother said the best Christmas present this year was being able to have internet access at home."[47]

NACEPF and Mobile Beacon are highly invested in closing the digital divide and, in particular, the homework gap. Through revenue generated by its EBS leases, NACEPF funds Mobile Beacon's Connect for Success grant program, which awards schools in our EBS-licensed markets with 25 laptops, 25 4G LTE hotspots, and free, unlimited broadband service for a year. These grants are valued at $20,000 each and are awarded to schools quarterly.[48] Rockwell Charter High School in Eagle Mountain, UT is a current Connect for Success grantee. Rockwell serves 500 seventh through twelfth graders in a small town outside of Salt Lake City. Teachers are encouraged to provide individualized help and tailor their teaching style to each learner. Journalism teacher Morgan Olsen has integrated the granted hotspots and laptops in her curriculum. They allow her students to investigate, report, and file stories from outside of the classroom. Since many of the students at Rockwell do not have a computer or internet access at home, she began loaning out the equipment so students could complete their assignments at

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47 *Id*.

48 Mobile Beacon, *Mobile Beacon is Now Accepting Applications for Connect for Success Grants* (Mar. 9, 2017), https://www.mobilebeacon.org/mobile-beacon-is-now-accepting-applications-for-connect-for-success-grants/.

home. As a way to prevent summer learning loss, Rockwell Charter High encourages students to check out devices for the entire summer.[49]

Even outside of traditional educational clients, Mobile Beacon's diverse base of nonprofit clients often report using Mobile Beacon's internet service to provide connectivity to their constituents who otherwise lack access to technology in their homes. These nonprofit-led programs are addressing the homework gap and supporting lifelong learning for all members of the household. Creating Opportunity Through Connectivity, a research study of nonprofits receiving Mobile Beacon service, found that the two most frequently reported online activities of nonprofits' constituents were for educational activities (58%) and general research (44%).[50]

We also know this from Bridging the Gap, a program discussed in more detail below, that uses Mobile Beacon's uncapped, 4G LTE mobile broadband service to help eligible low-income families obtain an affordable computer and get online.[51] A separate research study that surveyed low-income recipients of Bridging the Gap internet service found that 60% of respondents whose previous internet service was subject to a data cap reported difficulty using their capped service for online classes or homework.[52] As more data-intensive applications are used for education, this ultimately means that such students and families may not be able to participate in virtual courses and collaborate with other students or experts using all of the same tools as their peers

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49 Morgan Olsen, *Connect for Success Grant Application*, Rockwell Charter High School (Aug. 1, 2017) (document available upon request).

50 *Creating Opportunity through Connectivity* at 21.

51 Working through local schools, libraries, housing authorities, and community-based nonprofits, local families in need are identified and qualified by PCs for People. Eligibility requirements for the Bridging the Gap program are available at PCs for People, *Eligibility*, https://www.pcsforpeople.org/eligibility/ (last visited Aug. 7, 2018). PCs for People qualifies Bridging the Gap subscribers for the low-cost computer and internet service to ensure program eligibility standards are met and validates ongoing eligibility every 12–15 months.

52 *Bridging the Gap* at 18.

who have enough data to watch videos, Skype, or use other rich multimedia tools. In this way, Mobile Beacon's uncapped EBS service is able to meet the broadband needs of low-income students and their families otherwise left open, even by low-cost programs offered by commercial providers that aim to connect unserved students. Such programs offered by commercial providers usually offer much lower amounts of data than their typical retail service and leave out certain groups of people like low-income adults and seniors.[53]

b. EBS Connects Classrooms and Unserved Communities.

Mobile Beacon's Creating Opportunity Through Connectivity study gathered and analyzed information about how community anchor institutions use our EBS-enabled internet service throughout the United States.[54] Significantly, schools most frequently reported the "main benefit of Mobile Beacon's service" is to supplement an existing wired network inside the school.[55] This is not a surprising finding for schools in rural parts of our country. As a nonprofit EBS licensee that serves the needs of accredited educational institutions in many rural areas, we are well aware of the lack of broadband options for rural schools and its crippling effect on educational opportunities.

Leased EBS helps to connect these unserved and underserved communities. Clearwire had only achieved minimal build-outs in many rural markets by the time it was acquired by Sprint in 2013, but because of the educational use requirements of its many EBS-lessors, it

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[53] For example, Sprint's 1 Million Project provides a 3 GB plan, but that is significantly less data than the currently advertised retail mobile hotspot plans (10 GB or 50 GB plans). We appreciate that Sprint and other commercial entities offer low-cost internet programs to help low-income families but note that these providers do not necessarily have an incentivize to offer an equivalent level of service to that of customers who can afford customary commercial rates. In contrast, EBS licensees like NACEPF provide the highest level of retail service available — a standard that is flexible over time and will keep pace with technology.

[54] *See supra* note. 44.

[55] *Id.* at 9 & fig.4.

prioritized deploying 4G sites in many licensed geographic service areas (GSAs) that had long remained overlooked by commercial providers. For example, Empire Elementary School in Duncan, OK, applied for our Connect for Success grant in 2011. Although located within our Lawton, OK GSA, the school was several miles out of range of the nearest Clearwire cell site. When we told Clearwire about the problem, they assisted us by installing a custom indoor macro cell, which enabled Empire Elementary School to have 4G connectivity throughout their entire building—as robust a level of service as if they were located right next to a typical outdoor cell site. The Technology Coordinator at Empire told us, "There was no 4G service in Duncan before Mobile Beacon. Now we're the most high tech wireless-enabled school for at least 100 miles in any direction!"[56]

This example highlights the power of the educational use requirements under the existing leasing model. Empire Elementary could not have purchased the same service commercially because it simply did not exist. And without educational use requirements related to NACEPF's EBS spectrum in this market, Clearwire would not have done a custom installation for a rural school that was not its customer. But, under the EBS-leasing model, when a commercial lessee is committed to building out in an EBS market and assisting its EBS licensee partners in meeting their educational use requirements, success stories like these are possible.

On the other hand, we were surprised to learn that schools in urban areas of the country also most frequently ranked "supplementing an existing network connection" as the highest value of our service. While mobile broadband speeds are far below speeds from fiber or cable connections, the prevalence of schools using Mobile Beacon's uncapped mobile broadband

[56] *Grant Recipient Updates*, Mobile Beacon, (Oct. 25, 2017), https://www mobilebeacon.org/connect-for-success/.

service to supplement their existing network speaks to their need for additional capacity, or a lack of a reliable fixed service. Here are some examples:

> "The Mobile Beacon hotspots have been a huge help in my classroom. The internet at my school is not very stable and drops often. Using these hotspots, I am able to get my students back onto the internet quickly in case the internet drops! I have been even able to use this for after-school work sessions in different areas when helping students who are behind in their studies to catch up! This is an amazing resource in my class that is helping many students." —Robert Gallant, Apollo Elementary, Bossier City, LA.[57]

> "The Mobile Beacon devices saved us! Until last year, only the main buildings of the school had internet access, even for teachers. But we had teachers and classrooms outside in the portables. Before the devices, teachers had to come into the school on their free time to enter attendance and grades on the computer. With the Mobile Beacon devices, all teachers were able to use the technology straight from their own classrooms even if they were in the portables." —Dr. Suzanne Banas, NBCT, South Miami Community Middle School, Miami, FL.[58]

The prevalence of schools using Mobile Beacon's service in the classroom makes clear why having unlimited data was the second highest perceived benefit of our service. We analyzed data usage trends of our schools over a five-month period and learned that Mobile Beacon

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[57] *Digital Wish Testimonials.*

[58] *Id.*

schools are using an average of 373 GB of data per month.[59] Of the 72% reporting to use Mobile Beacon's service primarily in the classroom, over 55% report connecting an average of between five and ten devices to the service (ten devices is the maximum allowed to connect to a single hotspot at once).[60]

Eliminating the educational use requirements for existing licensees would undercut all of these educational benefits and remove one of the only spectrum tools the Commission has today to address the homework gap and the digital divide. As discussed further below, the Commission appears to recognize the value of educational use requirements for new EBS licenses acquired through priority windows.[61] The Commission offers no explanation for its proposal to eliminate educational use requirements for existing licensees even as it prioritizes spectrum access for educational institution through priority windows. Instead of eliminating existing requirements, NACEPF and Mobile Beacon encourage the Commission to take a fresh look at how educational use requirements can best be structured to provide substantial and measurable benefits that match today's technological and educational needs.

c. EBS Closes the Digital Divide and Promotes Lifelong Learning for The Whole Family.

One of the key findings from the Creating Opportunity Through Connectivity research study is that all client categories are using Mobile Beacon's broadband service to connect not only their staff, but individuals in their communities who do not otherwise have access to technology at home.[62] The current EBS model connects these hard-to-reach consumers without

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59 *Creating Opportunity through Connectivity* at 5.

60 *Id.* at 11.

61 *2.5 GHz NPRM* ¶ 40.

62 *Creating Opportunity through Connectivity* at 8, fig. 3.

any reliance on the universal service fund or other government subsidy program. EBS rule changes, like eliminating educational eligibility and use requirements, jeopardize these benefits and risk widening the digital divide.

For example, as discussed above, Bridging the Gap is a successful digital inclusion program offered by PCs for People, a national digital inclusion nonprofit that uses Mobile Beacon's uncapped, 4G LTE mobile broadband service to help connect eligible individuals and families 200% below the poverty line.[63] This program was created based on our shared core belief that being low-income should not prevent access to first-class technology.[64] Bridging the Gap subscribers benefit from receiving an uncapped, unthrottled, high-speed mobile broadband plan at a price they can afford, refurbished computers, and ongoing support from both PCs for People and its network of Bridging the Gap nonprofit community partners.[65]

In 2017, Mobile Beacon completed a research study of 415 Bridging the Gap households to understand the impact unlimited home internet access had on low-income families. One of the most significant findings is that 73% of respondents never had home internet access before Bridging the Gap.[66] This means that no federal initiative, commercial offer, or digital inclusion program like Comcast's Internet Essentials had reached these families—only our EBS-enabled

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63 *See supra* note 44.

64 As we noted in our comments in the Lifeline proceeding in 2015, like former Commission Clyburn, we believe that when it comes to serving those with the greatest need within our communities, second-class or inferior service is unacceptable. Comments of Educational Broadband Service Agency LLC at 5, WC Docket No. 11-42 (filed Aug. 31, 2015).

65 Bridging the Gap partners include local schools, libraries, housing authorities, and nonprofit organizations that partner with PCs for People to combine their nonprofit services with the technology services of PCs for People to better serve their program beneficiaries. PCs for People ensures all individuals referred by a Bridging the Gap partner meet the Bridging the Gap program eligibility requirements before receiving technology.

66 *Bridging the Gap* at 15.

program did, without any government funding. This also underscores the importance of maintaining educational eligibility.[67]

Bridging the Gap subscribers most often reported that all members of their household benefit from access and use the internet equally.[68] Our research showed that education-based home internet service provides direct educational benefits for the entire family. In particular, children in Bridging the Gap households are now spending four hours or more per week online doing homework[69], parental engagement (a key factor associated with higher student achievement outcomes[70]) increased such that 88% of parents reported using the internet to help their children with homework and 82% communicate more with their child's teacher; and, in 32% of households, adults began using the internet to enroll in an online college or continuing education course.[71] These outcomes demonstrate the power of a "whole family" approach to closing the digital divide. As evidenced in the recent KIDS COUNT policy report, a multi-generation approach that improves education for children *as well as* provides education and job opportunities for adults is *far more likely* to break the cycle of poverty.[72]

As an active member in the National Digital Inclusion Alliance,[73] Mobile Beacon is well aware of how few digital-inclusion offers provide enough data to meet the needs of an entire

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67 *See supra* pp. 6-9.

68 *Bridging the Gap* at 10.

69 *Id*. at 5.

70 *See* W.H. Jeynes, *Parental Involvement and Student Achievement: A Meta-Analysis*, Harvard Family Research Project (2005), *cited in Bridging the Gap* at 13.

71 *Bridging the Gap* at 12–14, 22.

72 *See* The Annie E. Casey Foundation, *Creating Opportunities for Families: A Two Generation Approach* (2014), *available at* http://www.aecf.org/m/resourcedoc/aecf-CreatingOpportunityforFamilies-2014.pdf. (emphasis added).

73 NTIA, https://www.digitalinclusion.org/affiliates/ (last updated Aug. 6, 2018).

family. Most low-cost offers provide limited data (1–3 GB/month), which discourages many valuable uses of the internet for fear of exceeding the data allotment. And many of these programs are only available to households with a student receiving free or reduced lunch. This leaves many segments of the population such as low-income adults, people with disabilities, and seniors without any low-cost offers in their area. These segments of the population are still in need of vital educational services including digital literacy, financial literacy, and job-skills training, but very few low-cost private broadband offers are available for these underserved (not undeserving) groups of people.

Mobile Beacon's EBS-enabled internet service remains one of the only private offers that can be used by local schools, libraries, housing authorities, and community-based nonprofits to provide a robust home internet solution for the eligible low-income families they serve. While commercial offers are available in every location where Mobile Beacon provides service,[74] schools, libraries, health clinics, after-school programs, emergency service units, churches, and other nonprofits are unable to obtain the affordable mobile broadband service necessary to meet their internal needs as well as their communities' needs.[75] Losing access to Mobile Beacon's service would not only result in the loss of one of the few affordable broadband offers for anchor institutions, it would eliminate one of the most robust digital inclusion offers available today.

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[74] As described in the introduction, Mobile Beacon's service is provided on the Sprint network, so anywhere Mobile Beacon's service is available, there is at least one commercial offer available.

[75] *Creating Opportunity through Connectivity* at 24. 86% of all nonprofits whose previous internet service was subject to a data cap reported needing more data than they had planned for or could afford. When the data cap was reached, nonprofits experienced overage charges or impaired service at points in their service history. This issue threatens the effectiveness and ability of nonprofits to carry on their mission-driven work if they are not able to bear the additional charges for their growing use of data. Although internet connectivity is as important to the operation of a business as any other utility, the fee structures that are common in the telecommunications industry are difficult to plan for and often fraught with hidden fees and fine-print terms that comprise the dependability of service.

In sum, all of these benefits—for students, their families, and other under and unserved communities—rest on the existing EBS model that has made Mobile Beacon's service possible. The Commission should not alter the existing educational eligibility and use requirements in ways that would jeopardize existing educational benefits or prevent them from being replicated in the future.

2. The Commission Should Broaden the Educational Use Requirements to Encompass Additional Learning Environments, Convert the Reserve Requirement to a Deployment Standard, and Increase Transparency.

NACEPF and Mobile Beacon support clarifying and modernizing the educational use requirements. In so doing, the Commission should craft requirements that are (1) flexible enough to evolve over time as technology develops; (2) measurable, to ensure substantial educational benefits and accountability; and (3) capacity-based, rather than time-based or content-based. New rules could immediately apply to new EBS licensees and should apply prospectively to existing EBS licensees at the conclusion of their current lease arrangements to avoid disruption to existing contracts and business models. While NACEPF and Mobile Beacon remain open to discussion of how best to modernize these rules, we offer three ideas below.

First, the Commission should expand the scope of approved educational uses to allow EBS to fulfill its potential as a platform for lifelong learning. Under the current educational use requirements, EBS spectrum must be "used to further the educational mission of accredited schools offering formal educational courses to enrolled students."[76] Specifically, EBS can be used for administrative activities and for "[i]n-service training and instruction in special skills and safety programs, extension of professional training, informing persons and groups engaged

[76] 47 C.F.R. § 27.1203(b).

in professional and technical activities of current developments in their particular fields, and other similar endeavors."[77] This overly narrow view of educational use should be broadened to better reflect today's educational realities, in which other types of educational institutions play important and growing roles, including preschools and proven online learning platforms such as Khan Academy.

The Commission should expand the approved educational uses within EBS spectrum to encompass today's learning environments—academic and public libraries, preschools and other early education centers, after-school programs, continuing adult education, digital literacy programs, ESL training, GED certification, and the like. Doing so would modernize the rules, foster an influx of new activity in the EBS band, and help effectuate the Commission's goal of encouraging the highest and best use of spectrum.

To ensure accountability, EBS licensees that are nonprofit organizations providing service to educational entities should submit letters from educational organization they serve stating that the organization receives and use the licensee's internet service. We propose that this requirement apply to new EBS licenses and, after a reasonable implementation period, apply prospectively, upon renewal, for existing licensees. The EBS licensee would periodically submit letters from its educational users describing how they are using the licensee's service, how many people are impacted, and what the service is being used for. This approach would build upon existing eligibility rules, whereby, in certain circumstances, licensees have been required to "submit documentation from proposed receive sites demonstrating that they will receive and use the applicant's educational usage"[78] in addition to demonstrating their own educational

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[77] *Id.* § 27.1203(c)(1).

[78] 47 C.F.R. § 27.1201(a)(3).

qualifications. Here, such documentation could certify the educational purposes of the receiving organization and explain its use of EBS services. Requiring such documentation would help to ensure ongoing compliance with the education use rules. It would also provide the Commission with an important tool for confirming that these requirements are being met if it chose to review one or more licensees' compliance with the educational use requirement. Notably, it would impose no burden at all on EBS lessees.

Second, the FCC should clarify and modernize the 5% reserve requirement for leased spectrum. As noted above, the NPRM itself continues to recognize the value of such educational use requirements, proposing that new EBS licenses granted via the local priority windows be required to reserve (and be prevented from leasing) 20% of the capacity of their channels for educational purposes.[79] Rather than increasing the existing minimum reserve requirement for leased EBS spectrum, we urge the Commission to modernize the 5% minimum reservation requirement by converting it to a 5% minimum deployment standard based on the EBS licensee's capacity contribution to the commercial lessee's network.

Under current practice, the commercial operator typically holds back the reserve amount—5% or more, depending on the lease arrangement—and places limits on the licensee's access to that capacity. While we believe EBS licensees have negotiated terms to comply with this requirement, the current rules lack clear standards for how the 5% should be calculated. As a result, individual licensees could have used very different approaches for calculating the total

[79] *2.5 GHz NPRM* ¶ 48. NACEPF and Mobile Beacon oppose the NPRM's 20% reserve proposal for new EBS licensees. Such a large reserve is likely to preclude certain entities—particularly rural Tribal Nations and new educational entities—from being viable EBS licensees. The NPRM cites no data establishing that EBS spectrum would better fulfill its educational mission through a higher reserve. To the contrary, given the high costs of building a network, a higher reserve would make it more difficult to find commercial partners and could thus delay the build-out and deployment of this newly-licensed spectrum.

amount of bartered broadband data service and number of devices. This type of variance could lead to substantially different levels of educational benefits. In addition, the reserve amount hinges on the total theoretical capacity of the commercial network, rather than the network as deployed. As discussed below, the lack of clarity in how to apply these requirements is exacerbated by a lack of transparency.

To address these issues, NACEPF and Mobile Beacon propose that, instead of the reserve requirement, the commercial operator be required to provide the EBS licensee with access to a minimum of 5% of the deployed data capacity the licensee contributed to the commercial operator's network, and to measure that capacity on a deployed, rather than theoretical, basis. A deployment standard is easily administrable since operators typically know the capacity of their own networks, and can verify these estimates by measuring total uplink and downlink traffic during peak periods. To allow for flexibility over time, we propose measuring capacity, and modifying allotments accordingly, every year. For example, if the 5% amounted to 50,000 GB of monthly capacity, licensees could choose how best to allocate that capacity—providing one thousand 50 GB hotspot plans or five hundred 100 GB plans. Given that the telecommunications industry reports that capacity doubles roughly every 18 months[80], this approach provides a flexible standard that ensures licensees receive proportional benefits as technology improves throughout the term of their 15- or 30-year lease. As capacity increases over time, so will the amount of deployed broadband data service and number of devices being distributed among educational entities and other anchor institutions.

[80] P.C. Jain, *Recent Trends in Next Generation Terabit Ethernet and Gigabit Wireless Local Area Network*, 2016 International Conference on Signal Processing and Communication 106 (2016).

NACEPF and Mobile Beacon recommend that this educational usage be tracked and averaged on an annual basis rather than monthly. Because educational needs vary on a daily and monthly basis, particularly over the summer, the licensee should not be obligated to use every kilobyte of reserved capacity each month. Averaging the data used for educational purposes over the course of a year would be an effective means of ensuring accountability and preventing misuse, without creating unnecessarily rigid day-to-day requirements for educators.

Finally, NACEPF and Mobile Beacon propose that the FCC increase transparency around how EBS spectrum is being used to advance education. Today, for example, the educational reserve and use terms in most EBS lease agreements are not, as a general matter, publicly available. As noted above, we believe that a lack of clarity in how to apply those requirements to today's mobile broadband service has likely resulted in differing approaches employed by current EBS licensees. More generally, there is a lack of accessible information about the educational benefits provided by EBS licensees. Indeed, it is not clear how the FCC can determine the best path forward for EBS in this proceeding and make decisions about educational eligibility and use requirements without a better record on which to evaluate the current model. In addition, for leased EBS spectrum, the lack of visibility into the service and devices provided by other EBS licensees puts EBS licensees at a disadvantage in lease negotiations compared to a single commercial operator who knows the terms of 1,600 leases with individual EBS licensees. This imbalance of information only disadvantages the educational entities in negotiations.

To address these issues, NACEPF and Mobile Beacon believe that the Commission should increase transparency around the educational benefits provided by EBS licensees.[81] For example, Commission should establish that, going forward after an implementation period, EBS licensees, upon license renewal, should provide the Commission with quantifiable information about the educational benefits they are providing, such as: the number of educational mobile data subscriptions or lines served, the number of devices deployed to schools, libraries and other educational entities, or the number of students served using EBS. In this way, EBS licensees and, for leased EBS, their commercial partners can retain confidentiality of competitively-sensitive information, while making public the non-sensitive, public benefits that arise from educational uses of the spectrum. By making this information publicly available, the Commission can enhance accountability, ensure compliance, and empower all EBS licensees to deliver or negotiate leases for an appropriate level of services that will provide substantial educational benefits.

In sum, we believe if our proposals around educational use are adopted by the Commission, the EBS-leasing model will be revitalized, and will provide an efficient secondary-market mechanism that ensures newly-assigned spectrum is used intensively for both educational and commercial purposes.

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[81] The Commission took a similar approach in the E-rate Modernization Order, increasing transparency to, among other things, help the FCC monitor program compliance and "give schools and libraries greater visibility into pricing and technology" to help them "in negotiations with equipment and service providers." *Modernizing the E-rate Program for Schools and Libraries*, Report and Order and Further Notice of Proposed Rulemaking, 29 FCC Rcd. 8870, 8935 ¶ 158 (2014).

III. THE COMMISSION SHOULD ASSIGN NEW EBS LICENSES IN WAYS THAT ADVANCE EDUCATION, CLOSE THE DIGITAL DIVIDE, AND FACILITATE 5G DEPLOYMENT.

NACEPF and Mobile Beacon agree that the Commission should take steps to increase the use and utility of the 2.5 GHz band. In particular, we commend the Commission's decision to end the filing freeze that has left large areas of EBS spectrum unused, particularly in rural areas. As discussed above, however, the Commission need not choose between advancing education and promoting more efficient economic use of the available spectrum. The Commission can do both, consistent with its statutory obligations for spectrum assignment, by adopting rules that begin the process of putting unused EBS spectrum into the hands of those who will use it best for a combination of educational and commercial deployment purposes.

To begin with, we believe the most efficient way to handle the rationalization of existing EBS licensees' GSAs is to automatically expand these GSAs based on the methodology the Commission chooses to adopt (census tracts or county boundaries, with or without a threshold).[82] If the Commission prescribes the way existing licensees' GSAs are to expand in its Report and Order, there is no need to handle this process through a local priority filing window,[83] which would only delay the rationalization process as well as the deployment of EBS spectrum, including 5G service in certain areas. Additionally, using a local priority window to handle something that can be done automatically will also delay the issuing of new EBS licenses for

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[82] As noted above, NACEPF and Mobile Beacon are analyzing the various approaches the Commission raises in the NPRM for existing licensee expansion. We plan to submit the results and our recommendation in a separate filing later in this proceeding.

[83] Should the Commission choose to handle the existing licensees' GSA expansion through a local priority window, we note that the NPRM potentially disqualifies entities like NACEPF from participating in such a window if the Commission only allows existing licensees with a physical mailing address in its GSA to participate in such a window. For the reasons set forth in the text, *see infra* Section III.B and C, we do not support a process whereby certain groups of current EBS licensees would be arbitrarily excluded from participating in the priority window.

Tribal lands (currently the second priority window in the NPRM) and other educational entities (in the proposed third priority filing window).

Once existing license areas are automatically rationalized, NACEPF and Mobile Beacon support the establishment of local priority filing windows, as described below, for new EBS station applications. Educators have been waiting over two decades for the opportunity to apply for new licenses. Priority windows for educational entities would serve to extend the success of the current EBS licensing and regulatory environment into those areas of the country where EBS licensing opportunities have long been denied.

A. Educational Priority Windows Are Consistent with Statutory Requirements and Will Preserve Educational Benefits.

Educational priority windows are critical to maintaining the educational benefits of EBS spectrum. To begin with, no statutory mandate compels the Commission to assign spectrum licenses by auction in every case. To the contrary, the Commission is required by statute to explore options for assigning spectrum that *avoid* that auction requirement. Although the statute requires the Commission to resolve *mutually exclusive* applications through a system of competitive bidding, it also clarifies that the Commission has an "obligation in the public interest to continue to use engineering solutions, negotiation, threshold qualifications, service regulations, and other means in order to avoid mutual exclusivity in application and licensing proceedings."[84] That is why the Commission has created license application processes where, for example, it has restricted eligibility to tribal entities;[85] prioritized some classes of applicants over

[84] 47 U.S.C. § 309(j)(6)(E).

[85] *See, e.g., Policies to Promote Rural Radio Services and to Streamline Allotment and Assignment Procedures,* Third Report and Order, 26 FCC Rcd. 17,642, 17,644 ¶ 4 (2011).

others;[86] set aside spectrum pools for smaller competitive carriers, effectively preventing mutual exclusivity between applications of larger incumbent carriers and their smaller competitors for certain spectrum;[87] and provided licensees a window of time in which to resolve mutual exclusivity through negotiation.[88]

The priority-windows approach described in the NPRM[89] is consistent with this statutory requirement to explore means of avoiding mutual exclusivity in the public interest. Specifically, such priority filing windows would exercise the Commission's authority to prescribe "threshold qualifications"[90] for submitting an application, as it has in numerous other cases, including those described above. In fact, these priority windows would be closely analogous to the priority system that the Commission recently employed for avoiding mutual exclusivity in the Special Displacement Window for low-power broadcasters in the wake of the Incentive Auction. There, the Commission identified certain classes of prioritized applicants, such as "any application filed by a displaced analog-to-digital replacement translator."[91] It resolved potential mutual exclusivity between these prioritized applicants and others by concluding that "any pending LPTV and TV translator displacement application that is mutually exclusive with the granted application will be dismissed."[92] The Commission held that filing window open for 52 days.[93]

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86 *The Incentive Auction Task Force and Media Bureau Announce Procedures for Low Power Television, Television Translator and Replacement Translator Stations*, Public Notice, 32 FCC Rcd. 3860, 3866–67 ¶ 15 (2017) ("*LPTV Special Displacement Window PN*").

87 *Policies Regarding Mobile Spectrum Holdings et al.*, Report and Order, 29 FCC Rcd. 6133, 6156 ¶ 44 (2014).

88 *LPTV Special Displacement Window PN* at 3866 ¶ 14.

89 *2.5 GHz NPRM* ¶¶ 26–48.

90 47 U.S.C. § 309(j)(6)(E).

91 *LPTV Special Displacement Window PN* at 3866–67 ¶ 15.

92 *Id*.

93 *See Incentive Auction Task Force and Media Bureau Announce Post-Incentive Auction Special Displacement Window April 10, 2018, Through May 15, 2018, and Make Location and Channel Data Available*, Public

We think a similar window duration would strike the right balance here as well, allowing ample time for interested entities to apply for spectrum while recognizing the need to promote rapid deployments.

In those situations where mutual exclusivity arises *within* these priority windows, the Commission should exercise its authority to encourage negotiations between applicants to resolve this exclusivity. The Commission has previously concluded that such "settlement windows" serve the public interest and are consistent with the requirements of Section 309(j).[94] Given that participants in these windows will be educational institutions with public interest missions and shared interests in avoiding a costly and complex auction process, such a negotiation window is likely to resolve any potential exclusivity in most, if not all, cases.

Furthermore, the use of priority windows will be an important tool to help the Commission ensure that educational users have a fair chance at acquiring EBS white spaces. Although few (if any) educational organizations may be able to compete directly with a commercial wireless carrier in a spectrum auction, this does not mean that their planned use of the spectrum is less valuable than commercial wireless service. It merely reflects the economic reality that, due to their different missions, commercial wireless operators have more capital to spend on wireless licenses than most educational entities. Although unrestricted spectrum auctions can be an important tool for identifying the highest and best economic use of spectrum, the Commission must be sure not to overlook opportunities to advance public policy goals, like

Notice, 33 FCC Rcd. 1234 (2018); *Incentive Auction Task Force and Media Bureau Extend Post-Incentive Auction Special Displacement Window Through June 1, 2018*, Public Notice, DA 18-389, MB Docket No. 16-306, GN Docket No. 12-268 (rel. Apr. 18, 2018).

94 *See, e.g., LPTV Special Displacement Window PN* at 3866 ¶ 14.

closing the digital divide, that have tremendous social value but are less readily monetizable and thus not properly captured by the marketplace.

It should be noted that the Commission already has plans to auction spectrum in the 3.5 GHz,[95] 24 GHz, and 28 GHz[96] bands with several additional bands in the pipeline for commercial use, including the T-Band,[97] the 3.7-4.2 GHz band,[98] and the 6 GHz band.[99] Each of these proceedings would likely make spectrum commercially available with no rules to encourage valuable but noneconomic spectrum use, such as for education. In this context, EBS is an especially important tool for ensuring that eligible educational, nonprofit, and governmental entities continue to have an opportunity to put spectrum to its highest and best use, even if the value of that use is not readily captured in a spectrum auction.

Proceeding immediately to an EBS white-space auction with no priority windows for educational applicants would greatly compromise the utility of this spectrum for expanding educational access to broadband. Plainly, an unrestricted spectrum auction would take any additional EBS spectrum out of the reach of educational entities. This would be particularly unfair to rural educational entities that have waited over two decades for an opportunity to apply for an EBS license, while their urban counterparts obtained EBS licenses by application, not auction. EBS spectrum that is not licensed to an educational provider in the first instance is more

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95 *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-2650 MHz Band*, Order on Reconsideration and Second Report and Order, 31 FCC Rcd. 5011 (2016).

96 *Auctions of Upper Microwave Flexible Use Licenses for Next-Generation Wireless Services et al.*, Public Notice, FCC 18-43, AU Docket No. 18-85 (rel. Apr. 17, 2018).

97 Middle Class Tax Relief and Job Creation Act of 2012 § 6103, 47 U.S.C. § 1413.

98 *Expanding Flexible Use of the 3.7 to 4.2 GHz Band et al.*, Order and Notice of Proposed Rulemaking, FCC 18-91, GN Docket Nos. 18-122, 17-183, RM-11791, RM-11778 (rel. July 13, 2018).

99 *Expanding Flexible Use in Mid-band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, 32 FCC Rcd. 6373, Statement of Chairman Ajit Pai at 6389 (2017).

likely to see any reserved educational capacity lie fallow rather than be put to productive educational use. Unless the Commission affirmatively requires a licensee to seek out and partner with an educational provider, in addition to designating capacity for education, the commercial operators likely to prevail in a 2.5 GHz spectrum auction will not otherwise have an incentive to seek out educational partners to make use of that reserved capacity.

Moreover, assignment of all new 2.5 GHz licenses to commercial providers through a spectrum auction will erode *existing* educational use of EBS spectrum. As the Commission is aware, deployment of any wireless service requires not just spectrum but also equipment, personnel, and an integrated service that makes use of these disparate parts. As explained above, the private-public partnerships fostered by the lease model have led to technological advancements and reduced costs. The existing educational eligibility and use requirements ensure that schools looking to self-deploy EBS networks are not left behind, and are able to benefit from these advances. On the other hand, to the extent that across-the-board assignment of unused 2.5 GHz spectrum to commercial operators results in a loss of focus on educational use, each of these non-spectrum components of an educational offering will become scarcer, more expensive, and less suited to meeting the needs of unserved communities. Commercializing the EBS band will eliminate what, as described above, may well be the only affordable mobile broadband option for schools, libraries, and other anchor institutions. This presents the real risk of initiating a downward spiral where educational use is less and less feasible within the broader 2.5 GHz ecosystem.

There is no need to introduce such inefficiencies and hamper educational deployment in these ways. Although commercial licensees may lack an incentive to identify educational partners or provide their best service as part of their educational/low-income program, history

proves that the process works far better in reverse: educational licensees have strong incentives to identify commercial licensees, taking advantage of their technical expertise and commercial profit motive to accelerate build-outs, which can then benefit educational users. The creation of priority windows for educational licensees is therefore a win-win for both educational users and commercial providers: it will allow educational users to access spectrum desperately needed to bridge the education gap, while providing commercial providers with access to ample 2.5 GHz spectrum on the secondary market to support 5G deployments.

The Commission raises concerns about the possibility of misuse or unjust enrichment through the sale or lease of EBS licenses obtained within the priority windows. Given the eligibility requirements for participation in these priority windows, it appears unlikely that misuse or unjust enrichment will be common problems. However, the best tools the Commission has to prevent such problems are (1) maintaining current eligibility requirements to hold an EBS license, which will keep the license in the hands of an eligible educational entity, and (2) modernizing educational use rules as we described above, which will increase accountability, improve transparency, and ensure that educational benefits are realized.[100] With the combination of these tools, both the Commission and the public would have regular, ongoing confirmation that EBS spectrum held by educational entities is being put to its highest and best use, delivering the rich educational benefits that it is designed to provide.

B. The Commission Should Broaden Its Concept of "Local Presence" Beyond a Mere Mailing Address.

NACEPF and Mobile Beacon support priority windows for applicants that are best positioned to deliver educational and commercial deployment benefits to a local service area.

[100] *See supra* pp. 14–30.

However, the Commission risks compromising those windows by conditioning entities' eligibility on an unnecessarily rigid definition of "local presence," i.e., "physically located within the license area applied for."[101] Although we agree that entities offering local service and with local knowledge deserve priority access to spectrum, merely having a mailing address or office within a community is a poor proxy for such local ties. Moreover, as we will detail below, the absence of an EBS licensee's local physical mailing address does not preclude local educational entities from putting that EBS service to use in ways that serve the community's specific needs. On the contrary, the Commission should ensure that all eligible educational organizations that meaningfully participate in the life of a community are able to seek spectrum in that community within the applicable priority window.

The most straightforward approach for reforming the proposed local presence requirement would be to clarify that entities that already provide a substantial level of service in a community qualify as having a local presence in that community, in addition to those with other forms of physical presence. The fact that an entity already offers service will be a reliable indicator that it possesses sufficient local ties and knowledge to meet that community's particular needs. Indeed, in many instances, it would likely be a far stronger indicator than having a local address.

NACEPF and Mobile Beacon's model illustrates this point. Although physically headquartered in Rhode Island, the schools, libraries, and other anchor institutions we serve across our GSAs are empowered to use our service to meet their specific program needs. Our status as a national, not-for-profit EBS licensee has in no way prevented us from developing

[101] *2.5 GHz NPRM* ¶ 29.

strong community ties and ensuring that local educational entities can use our broadband service to meet their local needs.

For example, NACEPF holds three EBS licenses in Colorado: Denver, La Junta, and Colorado Springs. Using funds from the royalties received through leasing EBS spectrum, Mobile Beacon provided a grant to PCs for People's Denver office that provided 27 local schools and community organizations with 1,600 donated computers and 870 donated mobile hotspots, which were distributed to more than 5,000 low-income families in these licensed areas—thus using the lease proceeds, as well as the EBS spectrum itself, to expand access to broadband connectivity.[102] These 27 local educational Bridging the Gap partners selected the families in need, PCs for People validated their program eligibility, and together with Mobile Beacon, held distribution events to give many of these families, whose average annual income was just $14,300, their first home computer (57%) and first home internet access (41%).[103]

At Florence Crittenton Services of Denver, CO, teen moms now have the access they need to take online classes at their own pace or get their GED.[104] At Greenlee Elementary, 100 families received a donated computer and hotspot to introduce computer skills at a young age and encourage computer literacy among all members of their household.[105] More recently, this past May, three Mobile Beacon staffers were at La Junta Intermediate School with PCs for

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[102] Mobile Beacon, *A Look Back at PCs for People & Mobile Beacon's Bridging the Gap Distribution Events in Denver*, https://www mobilebeacon.org/bridging-the-gap-denver/ (last visited Aug. 2, 2018).

[103] *Id.*

[104] Julia Goodman, *Florence Crittenton Teen Moms Connect to the Internet at Home*, Florence Crittenton (Feb. 15, 2017), https://flocritco.org/news-resources/news/florence-crittenton-teen-moms-connect-internet-home/.

[105] PCs for People, *Collaboration Provides Computers and Internet to 100 Greenlee Elementary Families to Increase Computer Literacy* (Nov. 8, 2016), https://www.pcsforpeople.org/2016/11/11/collaboration-provides-computers-and-internet-to-100-greenlee-elementary-families-to-increase-computer-literacy/.

People distributing 170 computers and 85 hotspots to qualified students and their families.[106] Given that all of these educational benefits were tailored to the local community, despite our physical address in Rhode Island (2,000 miles away), we respectfully challenge the Commission's notion that a lack of physical address means a lack of local ties or investment in the success of students, families, or the schools and nonprofits that serve them.

Similarly, our lack of a physical address in Utah has in no way prevented us from providing tailored service there. We've provided broadband service to educational entities like the Salt Lake City School District, Jordan School District, University of Utah; we've awarded technology grants to qualified schools like Rockwell Charter High School (as described above); helped the Salt Lake City Public Library start a hotspot lending program across nine branches, provided service through Bridging the Gap to residents of Housing Authority of Salt Lake to support their ConnectHomeUSA launch, and we provide affordable broadband to help a variety of nonprofits and anchor institutions like Discovery Gateway's Children's Museum and Ensign Learning Center reach more people. Additionally, Mobile Beacon was part of the ground team that helped establish Utah Communities Connect, a statewide digital inclusion network established in 2017. Our ongoing commitment and investment in our EBS-licensed markets is not limited by our Rhode Island address.

Moreover, our lack of a physical address has not inhibited the schools, libraries, nonprofits, and other anchor institutions we serve from putting our service to use in ways that address the targeted needs of their local communities. For example, over 86% of the 739 public

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[106] Press Release, Mobile Beacon, *Bridging the Gap Partners with Local Organizations to Distribute 300 Computers and Internet Access to Rural Colorado Community* (May 8, 2018), https://www.pcsforpeople.org/2018/05/10/release-bridging-the-gap-partners-with-local-organizations-to-distribute-300-computers-and-internet-access-to-rural-colorado-community/.

libraries using Mobile Beacon's broadband service have started a hotspot lending program in their communities to increase access to broadband and learning beyond library hours or walls. In an article recently published by the Benton Foundation, Larra Clark, Deputy Director for both the Public Library Association (PLA) and the American Library Association's (ALA) Office for Information Technology Policy, notes that library hotspot lending programs are making a real difference in people's lives. These programs meet many needs, including bridging the homework gap, helping small businesses process payments at community events, and simply staying connected during winter months when heating costs force families to choose between warmth and broadband at home.[107]

Each of our library clients utilizes Mobile Beacon's service to meet the targeted needs of its community. They understand where the greatest need for broadband access exists in their communities and they develop programs to address them accordingly. For example, the Kansas City Public Library (KCPL) partnered with Kansas City Public Schools to implement a loaner program for students that allowed them to use Mobile Beacon's hotspots continuously for the school year.[108] Queens Library in NY, however, decided to offer its hotspot lending program to patrons enrolled in an adult education program with check-out periods limited to one month and the ability to renew up to three times.[109]

In short, the overly narrow definition of "local" as requiring a physical address would arbitrarily exclude organizations that are some of the most effective providers of EBS

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[107] Larra Clark, *Libraries Advance Digital Inclusion Role with Hotspots*, Benton (Nov. 8, 2017), https://www.benton.org/blog/libraries-advance-digital-inclusion-role-hotspots.

[108] Kansas City Public Library, *Pilot Program Allows Families to "Check Out" Wi-Fi Hotspots* (May 29, 2015, 2:29 PM), http://www.kclibrary.org/blog/library-life/pilot-program-allows-families-check-out-wi-fi-hotspots.

[109] Mobile Beacon, *New York Public Library: Free, At-Home Access and 24/7 Learning Opportunities for NYC Patrons*, https://www.mobilebeacon.org/new-york-public-library/ (last visited Aug. 2, 2018).

educational services today. Instead, the Commission should ensure whatever parameters it adopts to establish "local presence" focus on what matters—demonstrated local service to the community.

C. The Commission Should Permit All Currently Eligible Organizations to Participate in the Educational Priority Window for New EBS Licenses.

The Commission should allow all currently eligible educational entities to participate in what is currently proposed as the third priority window[110] in the NPRM. It should permit each such entity to apply for up to two available channel blocks in a given location, striking a balance between ensuring that licenses are widely held and that entities are able to apply for the spectrum they need. As drafted, however, the NPRM would limit participation in this educational entity priority window in two ways beyond the overly narrow local-presence requirement discussed above: (1) "to accredited institutions as well as governmental organizations" that (2) "do not currently hold any 2.5 GHz licenses."[111] There is no basis for narrowing participation in these ways.

First, NACEPF and Mobile Beacon agree that participation in this window should be limited to organizations with *bona fide* educational missions to ensure that the window does not become an opportunity for unjust enrichment by speculators or operators that do not intend to offer educational services. The NPRM's existing formulation, however, would perversely exclude many of the very organizations that have been most effective in providing educational services using EBS. Notably, the "accredited institutions as well as governmental organizations"

[110] Note that our proposal with the automatic GSA expansion for existing licensees would make this the second priority window, following the priority window for Tribal Lands.

[111] *2.5 GHz NPRM* ¶¶ 40–41.

standard would be considerably narrower than the existing criteria for EBS eligibility, which include nonprofits providing service to such educational entities.

The Commission has adduced no evidence that such nonprofits do not provide valuable services, or that the existing rules are ineffective at distinguishing between *bona fide* educational nonprofits and ineligible organizations. The Commission should seek to avoid such arbitrariness, which would exclude from the priority windows organizations providing valuable EBS services today. At a minimum, the Commission should simply use the existing EBS eligibility standards,[112] which provide a similar, but far more comprehensive, set of criteria.

Additionally, while the NPRM admits that national licensees "serve a purpose,"[113] it notably fails to provide *any* specifics about the important educational contributions national, nonprofit licensees have provided—and continue to provide. One of the main benefits of national EBS licensees is that, because of our aggregated spectrum portfolio, we are better positioned to negotiate for robust benefits that are then provided in both large and small markets alike. Among NACEPF's licenses, for example, are four EBS channels in Enid, Oklahoma. If those were our only holdings, we most likely would not have been able to secure the extensive educational benefits we currently offer in Enid today. While no less deserving, the lease terms for small, rural areas like Enid, Oklahoma would be significantly different in terms of financial royalties as well as the extent of education benefits compared to urban areas like Seattle, Washington. Instead, because of our aggregated spectrum portfolio, the educational entities we serve in Enid, Oklahoma enjoy the same rich benefits as those in Seattle, Washington.[114]

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112 47 C.F.R. § 27.1201.

113 *2.5 GHz NPRM* ¶ 31.

114 This underscores the need for greater transparency in educational lease terms discussed above. *See supra* pp. 24–30. Clear standards and better information can empower future EBS licensees in lease negotiations.

Moreover, because the central mission of national EBS licensees is to serve the needs of educational entities, NACEPF and Mobile Beacon are laser-focused on developing programs that (1) maximize the deployment of broadband data services and devices to the maximum number of educational entities and anchor institutions in that area, and (2) provide the highest level of broadband service available from our commercial lessee (a standard that ensures the service we provide keeps pace with technology). A local school district leasing its spectrum may use the devices internally for a variety of worthwhile needs, but they may not be focused on developing partnerships with other types of anchor institutions to maximize the ways this service can be used throughout the community.

Our focus on maximizing broadband deployment for education led us to develop innovations like the library hotspot lending program discussed above. We pioneered this model with Providence Community Library in Providence, Rhode Island (one of our EBS-licensed markets), and replicated this successful program throughout all 50 states, including the largest such program in the nation to-date: a partnership between New York Public Library, Mobile Beacon, and Sprint which deployed 10,000 mobile hotspots.[115]

Additionally, our emphasis on educational service led us to negotiate for the high level of service that we offer to schools, libraries, nonprofits, and other anchor institutions throughout the country. As discussed above, Mobile Beacon's internet service provides uncapped data, mobility, and high-speed 4G LTE service at a price point ($10/month) that is deeply discounted compared to commercial offers. The combination of unlimited data and the flexibility to utilize our 4G LTE devices to support a variety of needs, from high-capacity, in-building connectivity, to mobile

[115] Mobile Beacon, *Mobile Beacon Partners with Sprint on the Largest U.S. Library Internet Lending Pilot*, https://www.mobilebeacon.org/mobile-beacon-partners-with-sprint-and-new-york-libraries-on-the-largest-library-internet-lending-pilot-in-the-united-states/ (last visited Aug. 2, 2018).

applications, such as Wi-Fi on school buses and home connectivity to close the homework gap. Indeed, it is this powerful combination that led EdTech Digest to name Mobile Beacon the *Best Mobile Device Solution* for education in 2018.[116]

Second, NACEPF understands that, because of the long-standing freeze on new EBS license assignments, there are educational entities in parts of the country that have never had the opportunity to benefit from holding and using EBS spectrum.[117] As discussed above, this has particularly disadvantaged rural educational entities that have waited over two decades to apply for an EBS license. The NPRM's approach, however, would arbitrarily exclude some existing licensees who could most quickly and efficiently extend EBS service to a currently unlicensed area. The filing freeze has also prevented existing licensees from expanding into unlicensed areas adjacent to their current licenses. Moreover, the public interest benefits from allowing educational entities to participate in this window would hold equally for all educational entities—whether they are new or incumbent EBS licensees.

Alternatively, if the Commission retains the NPRM's narrowed version of eligibility for this priority window, we suggest the Commission should establish a subsequent, separate filing window for any educational entity that satisfies the existing eligibility requirements before going to auction. We agree that before auctioning the spectrum, the Commission should grant priority to those applicants that can preserve the educational mission of EBS. But, in so doing, there is no basis for excluding applicants that are nonprofit organizations currently serving educational entities, lack a local physical address but can demonstrate their ability to meet local needs, or currently hold EBS licensees in other geographic areas, especially when these are the very

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116 *See Finalists & Winners.*

117 *2.5 GHz NPRM* ¶ 40.

licensees that have the strongest record of success in providing educational benefits. Instead, the Commission can better advance educational connectivity and deployment by providing some opportunity for all currently eligible licensees to apply for the spectrum before it goes to auction.

Finally, the Commission should not hold EBS licensees to a build-out standard, which the Commission acknowledges is more stringent than the requirements for commercial operators in other bands.[118] Although the Commission bases this proposal on its observation that a substantial number of 2.5 GHz devices already exist on the market,[119] it ignores the fact that the newly issued EBS licenses would be disproportionately rural and difficult to serve. This should more than make up for any potential efficiencies derived from the fact that 2.5 GHz devices already exist. The Commission should also consider the effect that an especially stringent build-out requirement would have on educational use by organizations, particularly those that choose to build and operate their own networks. Such organizations could effectively be required to rush to build out throughout their license areas, diverting resources from their educational missions and delaying rollout of the intended educational services.

D. The Commission Should Not Immediately Auction EBS Licenses, Squeezing Educational Users Out of the Band.

The NPRM also raises two extreme options for immediately auctioning EBS spectrum to commercial licensees. First, it asks about the merits of conducting an incentive auction,[120] which would cause significant delay and result in mass transfer of both new and existing licenses away from educational users. Second, it asks about the possibility of an overlay auction,[121] which

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118 *2.5 GHz NPRM* ¶ 54.

119 *Id.*

120 *Id.* ¶ 61.

121 *Id.*

would eliminate white spaces, raise complicated technical challenges, and likewise pressure educational users to relinquish their licenses. Both suggestions, therefore, would radically increase complexity, invite delay, and reduce existing and future broadband availability to students and educators.

As an initial matter, there is no economic need to conduct an incentive auction. The Commission is already in the process of making a great deal of spectrum available for commercial use through traditional licensing models. Moreover, as the Commission has recognized, auctions are not the only way to make spectrum available to commercial operators: the leasing rules that currently apply to EBS spectrum already guarantee that spectrum will be leased and used by those that ascribe the greatest economic value to it.[122] These licenses and leases have limited terms, ensuring that changing valuations are reflected in usage patterns over time.

An incentive auction would also reduce educational use by drawing licenses away from existing educational licensees to commercial users that are less invested in the educational mission. This education drain would risk the race to the bottom described above, where it becomes less and less tenable to offer educational service via EBS by stifling the existing EBS ecosystem.

Moreover, if the Commission were to conduct an incentive auction, this proceeding would only mark the beginning of a long and complex process for developing rules for the auction process itself and the operation of the post-auction band. Notably, the broadcast incentive auction took approximately five years to move from the initial proposal to auction, and

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[122] *EBS R&O* at 14,226 ¶ 160.

now, over two years later, the auctioned channels generally remain unavailable for commercial use.[123]

Presumably there would also be calls to repack the EBS band after any incentive auction, based on the theory that this would reduce fragmentation and increase the value of the spectrum being auctioned. But this would greatly disrupt service for the educators and students that rely on educational service providers that choose not to participate. Such a transition would also bring substantial financial costs in cases where changing to a new channel requires new equipment. Many educational providers cannot afford to absorb such expenses. This type of transition would also raise a host of additional issues such as defining technical mutual exclusivity standards for identifying new channels for EBS operators, determining whether relocation to a new channel would disrupt operations due to increased interference levels, evaluating whether a guard band would be needed to separate EBS and commercial wireless operators. Many EBS licenses are also subject to long-term leases which would badly distort a potential forward auction. These encumbrances will reduce the value of licenses at auction to both the current lessee, which is already enjoying the value of the spectrum, as well as its potential competitors, which would be unable to put the spectrum to use until the conclusion of the existing lease. Thus, any forward auction is likely to result in auction prices far below the true long-term value of this spectrum.

An overlay auction would raise many similar issues. Although it would not directly transfer licenses from existing educational licensees to commercial providers, an overlay auction would result in tremendous secondary-market pressure on these licensees to transfer their licenses to holders of neighboring overlay licenses, resulting in many of the same public interest

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123 *See* FCC, *Broadcast Incentive Auction and Post-Auction Transition* (May 9, 2017), https://www fcc.gov/about-fcc/fcc-initiatives/incentive-auctions.

harms as an incentive auction. An overlay auction would result in market-based licenses, of a size yet to be determined, that contain internal areas where the licensee could not operate in order to avoid causing harmful interference to existing licensees over which the new license was "overlaid." As the new commercial licensee begins to deploy, however, the preexisting "underlay" EBS spectrum will become increasingly attractive. Acquiring it would allow the overlay licensee to minimize geographic fragmentation of the overlay license, and the commercial overlay licensee will be able to leverage investments elsewhere to expand into nearby areas at lower and lower cost.

An overlay auction will also present significant challenges in designing suitable auction rules. The presence of underlay licensees will mean that licenses will not be fungible, even those covering the same geographic area at different frequencies. Different license areas, and different channels in the same license area, will have different numbers of underlay licenses, resulting in potentially dramatic differences between the values of those licenses. This means that each license will need to be auctioned individually, thereby complicating auction design and making it difficult for bidders to design efficient bidding strategies. Some underlay licensees will also be far more willing to make their spectrum available to the overlay licensee, significantly affecting the true value of the overlay license in ways that will be impossible for bidders to reliably ascertain in advance. Strong complementarity between the auctioned overlay licenses and existing licensed EBS spectrum, which is often subject to long-term leases, will give rise to similar distortions to those that would plague an EBS incentive auction.

Finally, overlay licenses will raise special concerns about cross-border and adjacent-channel interference, as the potential would exist for educational users to be effectively surrounded with commercial wireless networks that use different technologies. The Commission

would need to thoroughly evaluate the need for new technical criteria to prevent harmful interference, including geographic buffer zones and guard bands. These measures, while they may prove necessary to prevent harmful interference after an overlay auction, would reduce the overall efficiency of the band.

IV. CONCLUSION

NACEPF and Mobile Beacon recognize that this proceeding will determine the level of educational benefits provided through this spectrum for decades to come. We urge the Commission to retain, but modernize, the existing EBS framework, which provides a flexible and efficient model for simultaneously promoting educational use and commercial 5G deployment. For the reasons detailed above, the Commission can do so effectively and with minimal delay by taking three key steps.

First, it should automatically rationalize existing EBS license areas. This will help to eliminate small unserved areas that fell in the cracks between licensees. This will both correct inequities caused by the existing licensing scheme and immediately make additional leased spectrum available on the secondary market to commercial operators seeking to deploy 5G services.

Second, the Commission should end the decades-long filing freeze for new EBS licenses and allow eligible educational entities to submit applications for EBS spectrum. This will provide a crucial opportunity for educators to meet today's spectrum needs—which have changed dramatically since the last time the Commission accepted applications for EBS licenses. It will also ensure that newer educational entities will not be unfairly and arbitrarily barred from obtaining EBS spectrum and putting it to its highest and best use. As with the rationalization of license areas, this will also quickly make additional spectrum available and help close the digital

divide in rural areas, without requiring the Commission to develop a complex new auction process.

Finally, the Commission should retain educational eligibility requirements and modernize educational use requirements under the EBS-leasing model for new and existing EBS licenses to reflect current technology, and future-proof them against unanticipated changes in the telecommunications landscape. By requiring that a minimum of 5% of deployed capacity be designated for educational use, the Commission can strike the right balance between promoting education and minimizing regulations that might otherwise introduce inefficiencies in the secondary market for 2.5 GHz spectrum. In doing so, the Commission should take the opportunity to update its definitions of educational use to match today's educational landscape and increase transparency and accountability in the EBS band.

Over the past eight years, we have seen the collective social impact of providing broadband to anchor institutions in our EBS-licensed markets. With the internet now playing a dominant role in the way we receive information and communicate with one another, essential anchor institutions must have adequate broadband to deliver their programs and provide the people they serve the connectivity necessary to fully access those resources. We hope the Commission will reform and revitalize the EBS band with rules that enable organizations like NACEPF and Mobile Beacon to continue to increase broadband access for schools, libraries, and other anchor institutions, provide an essential tool for closing the digital divide and homework gap, and ensure that the upcoming 5G revolution does not leave educational entities behind. We look forward to working with the Commission to reform and revitalize the EBS band to advance educational and commercial broadband across the country.

Respectfully submitted,

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