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 Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands	WT Docket No. 03-66 (Terminated)
Transforming the 2.5 GHz Band	WT Docket No. 18-120

COMMENTS OF VOQAL

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I. EXECUTIVE SUMMARY

Voqal[1] welcomes the Commission's decision to modernize rules for the 2.5 GHz band, part of which is known as the Educational Broadband Service (EBS).[2] EBS is a unique public resource that was wisely set aside by the Commission for educational use more than five decades ago. EBS and its predecessor, the Instructional Television Fixed Service (ITFS), have long provided educational institutions and nonprofits the ability to deliver educational content and cutting-edge technology into the classroom and beyond. Today, EBS is delivering benefits to educators, commercial providers, and the public alike – a rare example of a win-win-win. Through successful public-private partnerships, encouraged by the Commission for this spectrum band for over 30 years, EBS frequencies have been put to efficient use by commercial providers while also benefiting educational institutions and nonprofits. Due to far-sighted Commission policies, the EBS portion of the 2.5 GHz band continues to yield educational benefits even as the nation's telecommunications landscape has been repeatedly transformed.

Modernization of the EBS band through this rulemaking has the potential to provide even greater benefits to educators, commercial wireless providers, and the public. This rulemaking should focus on addressing three key public policy objectives: expanding educational broadband access to students, schools, and families; accelerating the deployment of high-capacity fifth generation (5G) wireless networks; and advancing the deployment of cost-effective broadband to rural schools and communities, many of which have limited or no service today.

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[1] Voqal is the collective trade name for five nonprofit organizations that hold licenses in the Educational Broadband Service (EBS): Chicago Instructional Technology Foundation (CITF), Denver Area Educational Telecommunications Consortium (DAETC), Instructional Telecommunications Foundation (ITF), Portland Regional Educational Telecommunications Corporation (PRETC), and Twin Cities Schools' Telecommunications Group (TCSTG). CITF is licensee of WLX-630, Chicago. DAETC is licensee of WHR-488, Denver. ITF is licensee of WHR-509, Indianapolis; WHR-527, Philadelphia; WHR-512, Sacramento; WHR-511, Kansas City; WLX-699, Salt Lake City; WLX-694, Las Vegas; and WLX-816, Phoenix. PRETC is licensee of WHR-522, Portland. TCSTG is licensee of WHR-487, Minneapolis. Though these five commenting organizations are separate, many of our activities are similar or are conducted together, a combination that tended to be confusing to users. Consequently, the five nonprofits adopted the trade name Voqal in common and are referred to collectively as Voqal in this pleading.

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

Expanding educational broadband access to more students, schools, and families should be the first objective of this rulemaking. The best way to achieve this goal is by preserving current eligibility requirements for license holders, which have been in place for decades, and modernizing rather than eliminating the educational use requirement. Voqal and numerous other EBS licensees are focused on serving educational entities and underserved communities, and we look forward to sharing examples of our efforts and also learning of other examples that will no doubt be filed in this docket. While it is unlikely the EBS community alone can bridge the nation's digital divide and close the homework gap, EBS licensees are making a significant impact on these problems by providing schools, low-income households, and nonprofits with low-cost or free mobile internet service and devices. The truth is, without EBS, accessing the internet would be more difficult or perhaps impossible for hundreds of thousands of students, teachers, library patrons, and nonprofits. This rulemaking can help deliver access to more schools and communities by maintaining current education eligibility requirements for EBS licenses. In addition, the current educational use requirements, which were developed for the ITFS video era, are outdated. Our comments offer ideas on how to best modernize the educational use requirement and thus increase the educational benefits provided by EBS licensees.

Accelerating the deployment of 5G networks to more Americans, including schools, should be the second objective of this rulemaking. The Commission has an opportunity to accelerate 5G deployment by licensing unused EBS spectrum through rationalization, particularly in urban and suburban areas, where network investment tends to be greatest. We support the option posed in the NPRM to rationalize existing license areas by expanding them to county boundaries where licenses already intersect a portion of the county. This is the fastest way to put unlicensed EBS spectrum to use for 5G as automatic rationalization to county boundaries would avoid the Commission's first proposed local priority filing window, which the Commission acknowledges could be a time-consuming process due to limitations of the ULS system. Automatic rationalization would also avoid the complexities and delays entailed in auctions of encumbered spectrum licenses, most of which are subject to leases that do not expire for nearly two decades.

Through EBS, schools and nonprofits have played a part in the deployment of 4G to date and are already playing a role in 5G deployment. Next-generation networks built with 2.5 GHz spectrum hold great promise in delivering much faster speeds and lower latency. These new networks are poised to offer better services, learning opportunities, and benefits to educational institutions, while also creating more competition and new economic opportunities for Americans. In the race to 5G the United States faces stiff competition from a number of countries, including China, South Korea, and Japan. EBS spectrum, along with Broadband Radio Service (BRS) spectrum, is key to deploying 5G because it presents the largest contiguous block of spectrum under 3 GHz. In fact, Sprint has already announced that it will use EBS spectrum to launch 5G systems in major U.S. markets, including Atlanta, Chicago, Dallas, Houston, Los Angeles, and Washington, D.C.[3] This commitment and level of investment demonstrate that the longstanding EBS partnership model is working and is the most expedient path to 5G deployment.

Advancing the deployment of affordable broadband in rural areas by licensing unused EBS spectrum to more schools and nonprofits should be the third objective of this rulemaking. According to the Commission's 2018 Broadband Deployment Report, over 30 percent of Americans living in rural areas lack access to broadband.[4] Unfortunately, the market's failure to deploy in rural America has put rural students and communities at a significant disadvantage compared to their urban peers. The decision by the FCC to freeze issuing new EBS licenses in 1995 has contributed to this problem. As a result, EBS frequencies are unused in over half the geographic United States – many of the same areas where broadband remains unavailable. The Commission now has an opportunity to quickly close those coverage gaps by allowing new and existing EBS entities to apply for and obtain new licenses. This step will ensure that EBS spectrum can deliver benefits to schools and address the homework gap,

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[3] *Sprint Announces New York City, Phoenix, and Kansas City Among First to Experience Sprint 5G*, Sprint Newsroom (May 15, 2018), http://newsroom.sprint.com/sprint-announces-new-york-city-phoenix-and-kansas-city-among-first-to-experience-sprint-5g.htm.

[4] *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, 2018 Broadband Deployment Report, FCC 18-10, GN Docket No. 17-199 (rel. Feb. 2, 2018) ("2018 Broadband Deployment Report").

while also creating opportunities for schools to self-deploy or partner with commercial providers wishing to deliver service to entire communities. Self-deployed networks and public-private partnerships between schools and wireless providers offer perhaps the most cost-effective strategy for simultaneously addressing the homework gap and the digital divide in rural areas. Due to economies of scale from international use of 2.5 GHz, self-deployment is an affordable option for many rural communities today. There are several examples that demonstrate this successful model,[5] some of which were made possible by Commission waivers granted during the decades-long EBS application freeze.

The Commission should approach the above policy objectives in a manner that does not disrupt existing lease agreements between incumbent licensees and commercial providers, which have been encouraged by the Commission and are working as intended. EBS has already played an important role in the rise of 4G wireless and is poised to play an even greater role in 5G in the United States. Undermining existing lease agreements could potentially interrupt current operations, delay or diminish future 5G deployments, and disrupt the delivery of educational services to hundreds of thousands of students, educators, and communities.

The digital divide is perhaps one of the greatest challenges Americans face today. Every American – especially every student – should have access to affordable broadband in as many places as possible, including at home. This rulemaking is an opportunity to build on the legacy of EBS and address the challenges associated with the delivery and adoption of broadband in America. We urge the Commission to remain committed to these objectives and modernize the EBS band in a manner that fosters the educational underpinnings of EBS. The Commission should avoid a transformation in the EBS band that would reduce educational broadband access, undermine the transition to 5G that is already underway, and delay affordable rural broadband deployment. We thank the Commission for working to address these critical issues and for the opportunity to share our thoughts on this important rulemaking.

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[5] Among other examples, successful self-deployments exist in Imperial County, California; in Kings County, California; and in the Upper Peninsula of Michigan, provided by Northern Michigan University. *See infra* pp. 9-12.

II. INTRODUCTION OF VOQAL

Voqal, the collective trade name for five nonprofit organizations that hold licenses in the EBS band, has been serving educators and the community for over 30 years. Voqal nonprofits served educators by transmitting educational video programming to K-12 schools and wireless cable customers for two decades. This original video service provided local schools with quality educational content that they often could not offer students otherwise. After the Commission transitioned from ITFS to EBS, Voqal entered into lease agreements with Clearwire that provided meaningful educational benefits to local schools and communities.

Voqal's most prominent project, Mobile Citizen,[6] is a wireless broadband service for educational institutions, nonprofit organizations, and social welfare agencies. As it operates today, Mobile Citizen is made possible because of a series of interrelated excess capacity agreements (referred to herein as the Clearwire Agreements) between EBS licensees Voqal and North American Catholic Educational Programming Foundation (NACEPF), on the one hand, and Clearwire Corporation[7] and one of its subsidiaries, on the other. Pursuant to the Clearwire Agreements, Voqal and NACEPF receive what are referred to as Cost-Free Educational Accounts (CFEAs), which they may give away or resell to educational institutions, nonprofit organizations, and social welfare agencies.[8] CFEAs are broadband accounts that allow access to the Sprint mobile broadband services platform. Voqal provides these CFEAs to educational entities and nonprofits via our Mobile Citizen project for free or at very favorable rates.

Mobile Citizen serves a wide variety of educational entities, nonprofit organizations, and social welfare agencies across the country. In total, Mobile Citizen has provided subsidized service to over 1,100 organizations. Its services have found widespread adoption among nonprofits whose chief purpose is to reduce the digital divide and homework gap. Mobile Citizen is also used by educational institutions both on campus to provide connectivity, as well as off-site through student and teacher device check-out

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6 More information about Mobile Citizen can be found at https://mobilecitizen.org/.

7 Clearwire was acquired by Sprint in mid-2013.

8 Mobile Citizen now utilizes Sprint's LTE network to deliver service through mobile "hot spots."

programs. Since its inception, Mobile Citizen has donated 1,920 free devices to over 125 schools at a value of over $218,000 and has subsidized over $1.15 million worth of service for its customers. Through nonprofit partners, Mobile Citizen serves many low-income households that commercial providers have largely ignored. This work is truly making an impact on the digital divide and the homework gap – two of the Commission's top priorities. Mobile Citizen has achieved all this without ever taking a penny from any Universal Service Fund program.

In addition to Mobile Citizen, Voqal has worked tirelessly to address the root causes of educational inequity by reinvesting royalties back into the communities it serves. One notable example is Voqal's Education Opportunity Project, which invests in innovative startup companies tackling some of the most overlooked areas of education. Examples include investments in companies that build tools and curricula to improve personalized learning, connect businesses and classrooms to improve practical skills training, and address key social-emotional digital learning tools, among other strategic investments.

Voqal is proud of its achievements serving educators, nonprofits, and the public – achievements made possible by the current EBS regulatory regime. We have reinvested over $29 million into the communities we serve through Mobile Citizen, the Education Opportunity Project, and other grants and fellowships. Voqal deeply believes EBS is an equalizing force in education and digital inclusion, and we hope the Commission will take advantage of the opportunity presented by this rulemaking to enhance EBS's strong legacy for decades to come.

III. THE COMMISSION SHOULD MAINTAIN CURRENT ELGIBILITY REQUIREMENTS FOR EDUCATIONAL BROADBAND SERVICE LICENSES

This rulemaking provides an excellent opportunity to modernize and expand the benefits of EBS spectrum. However, the Commission should also be careful not to "fix" the many aspects of the program that are not broken. In particular, the Commission should preserve existing eligibility rules that ensure

that EBS spectrum benefits students and educators. Approximately 6.5 million[9] to 12 million[10] students of the 56 million K-12 students[11] in the United States lack access to broadband at home. At the same time, approximately 70 percent of teachers assign homework that requires access to broadband.[12] This rulemaking is an opportunity to recognize and enhance the role EBS is playing in addressing this disparity.

The FCC currently restricts eligibility for EBS licenses to three categories: accredited educational institutions, governmental organizations engaged in the formal education of enrolled students, and nonprofit organizations whose purposes are educational and who serve educational institutions.[13] By limiting eligibility, the Commission has promoted service grounded in education, as was the original intent when this band was allocated for educational use years ago. By allowing for and encouraging EBS lease agreements, the Commission has allowed commercial wireless providers and the general public to benefit in addition to educational entities. The results have been a policy success story.

EBS Partnership and Self-Deployment Success Stories

Today, educational institutions, students, and instructors benefit from this public-private partnership, which provides greater internet connectivity and financial resources to support the institution's mission. This educational impact arises from the Commission's eligibility requirements. One example comes from the Voqal nonprofits. Pursuant to the Clearwire Agreements, the Voqal nonprofits

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9 *2017 State of the States: Fulfilling Our Promise to America's Student,* EducationSuperHighway 4 (Sept. 2017), *available at* https://s3-us-west-1.amazonaws.com/esh-sots-pdfs/educationsuperhighway_2017_state_of_the_states.pdf.

10 Senator Martin Heinrich, *America's Digital Divide*, U.S. Congress Joint Economic Committee 4 (2017), *available at* https://www.jec.senate.gov/public/_cache/files/ff7b3d0b-bc00-4498-9f9d-3e56ef95088f/the-digital-divide-.pdf.

11 *Fast Facts*, Institute of Education Studies National Center for Education Statistics, https://nces.ed.gov/fastfacts/display.asp?id=372 (last visited Aug. 3, 2018); *Enrollment in Elementary, Secondary, and Degree-Granting Postsecondary Institutions*, Institute of Education Studies National Center for Education Statistics (Feb. 2017), https://nces.ed.gov/programs/digest/d16/tables/dt16_105.20.asp?current=yes.

12 Claire McLaughlin, *The Homework Gap: The 'Cruelest Part of the Digital Divide'*, neaToday (Apr. 20, 2016, 3:50 PM), http://neatoday.org/2016/04/20/the-homework-gap/.

13 47 C.F.R. § 27.1201(a).

are able to provide mobile hot spots through the Mobile Citizen program to a large number of schools and nonprofits – over 1,100 in total. In many cases, these organizations would not have internet access without Mobile Citizen service. The excess capacity agreements also benefit Sprint, Clearwire's parent company and the Voqal nonprofits' commercial partner. Sprint is currently operating 4G LTE networks in the 2.5 GHz band and is deploying its 5G network using 2.5 GHz in nine major markets in the coming months.[14] These deployments and others demonstrate that the existing EBS eligibility rules support intensive commercial investment alongside educational use. To reform or abolish these agreements would undermine 5G deployments that are already underway and would significantly diminish EBS as a tool for closing the homework gap and bridging the digital divide.

Current eligibility requirements have also led to successful deployments in rural communities where there was no internet access. As the Commission acknowledges, but for a handful of waivers, educational entities have not had an opportunity to apply for and acquire licenses since 1995. In the two decades since the decision to freeze issuing EBS licenses, the cost of deploying 4G LTE wireless systems – both fixed and mobile – in the 2.5 GHz band has dropped precipitously, making the economics of self-deployment increasingly affordable.[15] The Kings County Office of Education (KCOE) in central California is one of the most powerful examples of self-deployment on EBS frequencies. Due to a lack of broadband in the county, the school district petitioned the FCC for a Special Temporary Authority to build its own fixed wireless network. Schools in Corcoran, California, which is located in Kings County, were recently equipped with the district's internet service to support One2One,[16] an initiative to offer every student a connected device. Between the 2014-2015 and 2015-2016 school years, schools in

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[14] *Sprint Announces New York City, Phoenix, and Kansas City Among First to Experience Sprint 5G*, Sprint Newsroom (May 15, 2018), http://newsroom.sprint.com/sprint-announces-new-york-city-phoenix-and-kansas-city-among-first-to-experience-sprint-5g.htm.

[15] Sarah Barry James, *Fixed Wireless to Shine in 2018 Thanks to 5G, Cost Savings*, S&P Global (Apr. 6, 2018, 7:29 AM), https://platform.mi.spglobal.com/web/client?auth=inherit#news/article?id=44144018&cdid=A-44144018-13616.

[16] *One2One*, Corcoran Joint Unified School District, https://www.corcoranunified.com/One2One (last visited Aug. 8, 2018).

Corcoran saw dramatic results. According to the Kings County Superintendent of Schools,[17] suspensions at Corcoran schools dropped by 60 percent. Impressively, the number of students enrolled in and passing concurrent college courses doubled. In addition, middle school honor roll rates rose by 30 percent, with similar improvements in math and reading performance.[18] Finally, parents took advantage of the technology to become much more engaged in the education of their children.[19] Ultimately, the Kings County wireless broadband deployment "resulted in improved student academic performance, increased student participation in school and school activities, decreased disciplinary incidents, increased parent/student/school collaboration, and increased rural community participation and collaboration."[20] This is just one example of the power of EBS.

Other schools have proven they can operate a wireless network that connects students, as well as the community. Northern Michigan University (NMU), for example, has deployed a wireless network using EBS frequencies. Their WiMAX network "covers about 230 square miles over rugged terrain in the rural Upper Peninsula of Michigan."[21] This network not only supplies internet service to the 9,000 students and 1,100 faculty of the university, but also it provides internet service to K-12 schools throughout the region.[22] On multiple occasions, the FCC has approved additional waiver requests for NMU to expand operations due to the success and value of the service. As a result, NMU now offers low-cost internet access, including discounted service for alumni and veterans, to 20 communities in the Upper Peninsula of Michigan and is developing service in another nine communities.[23] The Commission

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17 Comments of Kings County Superintendent of Schools at 5, WT Docket No. 18-120 (filed Aug. 8, 2018).

18 *Id.*

19 *Id.*

20 *Id.* at 6.

21 *The Board of Trustees of Northern Michigan University*, Memorandum Opinion and Order, DA 16-358, File Nos. 0007030772-0007030777, ¶ 4 (rel. April 5, 2016); *see also* Jodi Naas, *Building a Network on Michigan's Upper Peninsula*, National EBS Assoc. (2017), https://nebsa.org/index.cfm/ebs-in-action/northern-michigan-university/.

22 *Id.*

23 *See Education Access Network*, Northern Michigan University, https://www nmu.edu/ean/ (last visited Aug. 8, 2018).

should recognize the promise of these self-deployments – often enabled by waivers of the application freeze – and allow more educational entities and nonprofits serving education an opportunity to acquire licenses instead of foreclosing this opportunity and commercializing the band.

In other areas, school districts are bridging the digital divide and the homework gap using EBS frequencies by partnering with wireless internet service providers (WISPs) to deploy fixed wireless systems. One such example is in the rural town of Red Cliff in Eagle County, Colorado. The Eagle County School District implemented a program to provide a connected device to every student,[24] but families in Red Cliff had no home broadband access. In December 2017, that changed when enabled by an EBS lease agreement FORETHOUGHT.net, a local WISP, deployed broadband to the small mountain town. Before broadband, residents were paying $120 to $160 per month for satellite internet plus additional costs for satellite television. Both services were severely impaired by weather-related outages, which were common due to the 150 to 350 inches of snowfall Eagle County receives annually. To access the broadband necessary to complete their homework assignments, parents with school-aged children were forced to travel 20 miles roundtrip on windy mountain roads.[25] The town had urged the local phone company to deploy broadband to no avail. With the help of state grants, Red Cliff took matters into its own hands and built towers both in town and on a ski lift nearby. FORETHOUGHT.net, which had a lease agreement to utilize the Eagle County School District's EBS license, received state grant funding for broadband equipment, and was then able to deploy service. Today, residents have true broadband speeds – 25 Mbps download and 5 Mbps upload – for just $70 per month.[26] Roughly 70 homes are now subscribers, and each is receiving better service and saving hundreds per month when factoring in the use

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[24] Eagle County School District RE 50J 2017-18 Adopted Budget 48 (June 14, 2017), *available at* https://www.eagleschools.net/sites/default/files/website/FINANCE/TRANSPARENCY/2017-18%20Budget%20Book-%20FINAL_0.pdf.

[25] Mark Colwell et al., *The Social Impact of Broadband: A Case Study of Red Cliff, Colorado*, Interdisciplinary Telecommunications Program, University of Colorado-Boulder 1 (Apr. 9, 2018), *available at* http://nwccog.org/wp-content/uploads/2018/05/The-Social-Impact-of-Broadband-Colwell-Schumann-Shakfa_FINAL3.pdf.

[26] *Id.* at 3.

of broadband-enabled technologies, such as video streaming and Wi-Fi calling, as substitutes for traditional services. This a significant boost for the local economy. The EBS lease agreement was key to the project's success; without this public-private partnership encouraged by the FCC, FORETHOUGHT.net would not have been able to provide such a service.

Unlike these examples, marketplace mechanisms have been ineffective in stimulating rural deployments or closing the digital divide, further emphasizing the need to retain eligibility requirements. Ample spectrum is available in rural areas, yet broadband availability is significantly lower in rural areas than in urban areas. According to the FCC's 2018 Broadband Deployment Report,[27] 97.9 percent of Americans living in urban areas have fixed broadband access, but just 69.3 percent of Americans in rural areas have broadband access. Even when broadband is available, rural Americans do not always subscribe. Factoring in adoption, less than half (48.5 percent) of rural Americans actually subscribe to broadband. Affordability is likely a key cause of this low adoption rate. The Pew Research Center shows 43 percent of Americans cite high cost as the primary factor for not adopting broadband at home.[28] There is a wide gap in home broadband use based on income. Just 45 percent of households earning less than $30,000 are home broadband users compared to 87 percent of households with an income of $75,000 or more.[29] As research from Victoria Rideout and Vikki S. Katz demonstrates, many low- and moderate-income families that do have some form of internet connection remain under-connected primarily because they cannot afford higher-quality service.[30]

Where commercial providers do offer educational or low-cost plans or discounts, the offers pale in comparison to those from EBS providers like Mobile Citizen. There is little reason to expect that

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27 2018 Broadband Deployment Report ¶ 50, Table 1.

28 *Cost Is the Major Reason Most People Do Not Have Broadband Connections*, Pew Research Center (Dec. 18, 2015), http://www.pewinternet.org/2015/12/21/home-broadband-2015/pi-2015-10-21_broadband2015-02/.

29 *Internet/Broadband Fact Sheet*, Pew Research Center (Feb. 5, 2018), http://www.pewinternet.org/fact-sheet/internet-broadband/.

30 Victoria Rideout & Vikki S. Katz, *Opportunity for All? Technology and Learning in Lower-Income Families*, The Joan Ganz Cooney Center at Sesame Workshop 5 (2016), *available at* https://www.joanganzcooneycenter.org/wp-content/uploads/2016/01/jgcc_opportunityforall.pdf.

commercial providers will deploy in currently unserved rural areas or reduce costs merely because the Commission allows them to become EBS licensees rather than lessees. On the contrary, ensuring that educational entities and commercial wireless providers deploy high-quality wireless systems via public-private partnerships will ensure that the needs of students and educators in rural communities remain in focus.

The Commission should retain the current eligibility requirements when issuing new licenses. As the examples above demonstrate, maintaining these rules will allow more schools, communities, and nonprofit organizations who are directly invested in tackling the homework gap and digital divide the ability to deploy their own networks. The current approach also gives licensees the ability to partner with commercial entities while ensuring there is an educational benefit to the community that would otherwise not occur through commercialization.

"Flexibility" for Existing Licensees is Unnecessary

With regard to existing licenses, the Commission has also proposed creating "flexibility" for licensees to sell their licenses to commercial entities. Voqal strongly opposes privatizing this vital public resource. As explained above, the proposed flexibility is unnecessary to stimulate efficient spectrum use and intensive commercial deployment, which are already occurring today. At the same time, it would gradually deplete educational licensees from the band – likely irreversibly. Therefore, it is critical to the future educational use of the band that the Commission retain educational eligibility requirements. Educational entities who no longer wish to serve educational needs should not be allowed to sell their licenses to commercial entities when there are other eligible entities who can utilize the license to serve their students and communities. Only a limited number of licenses exist in a given geographic area due to the band plan and channel grouping. For those EBS licensees wishing to relinquish their authorizations, the Commission should allow other eligible entities to apply for the license.

Moreover, outright license transfers from educational to commercial licensees will be very inefficient due to the prevalence of existing lease agreements. The vast majority of EBS licenses are subject to leasing agreements with commercial providers, including Sprint, which on average will not

expire for two decades or more. If the Commission allowed the sale of these licenses, the only likely buyer in this secondary market would be Sprint because existing lease agreements would make the licenses unattractive to other providers. This monopsony market would severely undervalue spectrum assets in the case of a sale, and it would prevent other willing eligible entities from utilizing the EBS license to make a difference in their schools and communities. Given these market realities and potential consequences, the Commission should maintain eligibility requirements for existing and new EBS licenses.

IV. THE COMMISSION SHOULD MODERNIZE THE EDUCATIONAL USE REQUIREMENT FOR THE BROADBAND WORLD

When the Commission last approved rules related to EBS, it failed to update the educational use rules associated with this band. As a result, licensees currently operate under outdated rules designed for the ITFS video era. In addition, the Commission has offered little guidance on the other key standards designed to ensure educational use in the band, namely the educational reservation standard.[31]

A Capacity-Based Educational Use Model

To enhance the educational use within the band, Voqal believes the Commission should adopt a deployment-based educational use requirement for leased EBS spectrum that is based on the actual capacity of the spectrum lessee's network. As commercial operators pursue implementation of 5G services utilizing massive multiple-input multiple-output (massive MIMO) systems, network capacity is expected to grow exponentially. As network capacity grows, such a new rule would ensure the EBS service keeps pace. EBS licensees in leasing arrangements could receive an allotment of data throughput proportional to the spectrum they are contributing to the network that they would be required by rule to deploy for educational purposes.

In urban areas, where investment and network capacity tend to be greater, EBS licensees would have a larger bucket of data to distribute to students in need, giving license holders a greater opportunity

[31] *See* 47 C.F.R. § 27.1214(b).

to address the homework gap. In rural areas, where fixed wireless systems may be deployed, schools or nonprofits would obtain free or discounted accounts to distribute to students who cannot afford access at home. Alternatively, schools or nonprofits could use credits to equip public buildings, parks, or other community facilities with fixed broadband access to improve students' access to broadband internet. Such a model is compatible with the Commission's desire to give licensees greater flexibility to address the needs of their communities.

Any new educational use standard should grandfather existing lease agreements until the end of the lease term. As was noted, many licensees are engaged in long-term lease agreements that may not comply with a new standard.

Transparency for Lease Provisions

Another safeguard to ensure educational use is to require lease agreements be public, with appropriate protections for competitively sensitive information. A transparency rule would help licensees of all kinds understand the basic structure of contracts with commercial operators, which could provide templates for future lease agreements. In addition, the public would have greater insight into the benefits provided by these agreements, and licensees could build trust with the public about how the band is used to serve education and the public.

V. THE COMMISSON SHOULD RETAIN A 30-YEAR MAXIMUM EBS LEASE TERM

The Commission proposes elimination of current lease term restrictions, which limit licensees from leasing their EBS license(s) for more than 30 years.[32] Voqal urges the Commission to abandon this proposal and retain limits on the maximum lease duration. Lease terms were originally adopted by the Commission to provide an educational entity with an opportunity to "review its educational use requirements in light of changes in educational needs, technology, and other relevant factors and to obtain access to such additional services, capacity, support, and/or equipment as the parties shall agree upon in

[32] NPRM ¶ 23.

the spectrum leasing arrangement to advance the EBS licensee's educational mission."[33] This limitation of the length of EBS leases requires licensees and lessees to better consider advancements in technology and educational needs periodically. This rule remains no less important today than when it was adopted. In fact, the accelerated pace of telecommunications innovation today makes it even more critical that licensees and lessees have periodic opportunities to reassess the most productive use of EBS spectrum. As a group of EBS licensees, Voqal strongly supports the current rules. If perpetual lease terms were allowed, lessees could command even greater market power within the band or lock in lax educational benefits. A longer or even infinite lease term is tantamount to selling the license, which Voqal also strongly opposes for the reasons discussed above.

VI. THE COMMISSION SHOULD RATIONALIZE EXISTING EBS LICENSE AREAS BY EXPANDING TO COUNTY BOUNDARIES

Voqal agrees with the option proposed in the NPRM to rationalize existing license areas by expanding them to county boundaries. EBS has a unique history that includes transitioning from broadcast-like licenses into mobile broadband licenses. When this transition occurred, the Commission did not modify the circular Geographic Service Areas (GSAs) and, as a result, EBS license areas remain circles or partial circles today. In many urban areas, several of these 35-mile radius circles intersect, creating irregularly-shaped GSAs.[34] In many other areas, slivers of unused spectrum sit in between circular GSAs. Appendix A demonstrates this phenomenon in the Minneapolis market.[35]

Advantages of Rationalization

As the NPRM explains, there are two advantages to rationalizing existing licenses. First, existing license areas would have more standard boundaries that are easier to manage and track within the Commission's ULS database. Second, the Commission asserts that rationalizing incumbent EBS licenses

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[33] 47 C.F.R. § 27.1214(e).

[34] NPRM ¶ 5.

[35] *See* Appendix A. Note the "orphan" slivers of unallocated area in McLeod County and Sibley County, Minnesota.

"would yield white spaces that also are based on the boundaries of census tracts and/or counties (since census tracts nest into counties), rather than irregular shapes and slivers. This regularity in the shape and size of white spaces would facilitate new entry into the 2.5 GHz band."[36] Voqal agrees with the Commission's rationale for rationalizing existing license areas in order to make more regular geographic service areas.

Advantages of County Boundary Expansion

County boundary expansion has a number of advantages. First, by including entire counties within a license area, the Commission can ensure that school districts and community colleges, many of which operate on a county-wide basis, are contained within the GSA upon expansion.

Second, automatic county boundary expansion will allow the Commission to avoid one of its proposed local priority filing windows. With 1,300 existing licensees, most of which would have some opportunity to expand and would likely apply to do so, a priority window could prove to be a slow process compared to an automatic rationalization. In the NPRM, the Commission acknowledges that it may be unable to process such a large volume of applications simultaneously. "Given technical limitations of the Universal Licensing System (ULS), we note that we may not be able to accept applications for all available EBS licenses in one general filing window."[37] The Commission can avoid such challenges by processing license rationalization automatically. Unlike broadband maps, which rely upon data from commercial providers that can be inaccurate,[38] the Commission has access to EBS GSA data and can make these expansion determinations accurately and efficiently.

Third, county boundary expansion will expedite 5G deployment, particularly in urban and suburban markets. By automatically expanding existing license areas to county boundaries, the Commission can provide an immediate opportunity for deployment. Sprint, the major commercial carrier

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36 NPRM ¶ 16.

37 NPRM ¶ 44.

38 John B. Morris, *NTIA Recommends Improvements to the FCC's Broadband Data Collection*, NTIA (Jan. 3, 2018), https://www ntia.doc.gov/blog/2018/ntia-recommends-improvements-fcc-s-broadband-data-collection.

operating 4G LTE and deploying 5G on the EBS band, has announced plans to spend $5 billion to $6 billion on broadband deployment this year,[39] which is roughly three times the reported capital expenditures of just a few years ago.[40] Without GSA expansion, technical constraints may prevent current commercial lessees from providing wireless coverage up to the edge of the GSA. Should a new licensee acquire spectrum adjacent to an existing irregularly-shaped GSA, it may also prove technically challenging to provide new service to the GSA edge due to interference concerns. By rationalizing existing GSAs, commercial providers with existing lease agreements can invest capital into expanding services, which will increase the likelihood that 5G is deployed faster and throughout the expanded license area.

As the Commission and wireless providers have noted in several proceedings before the Commission, the United States faces stiff competition in the race to 5G, which is likely to have significant economic implications. The wireless industry has repeatedly alerted the Commission to the potential outcome that the U.S. could lose this race. As a recent CTIA-commissioned report from Analysys Mason notes, there are a few ingredients important for 5G, including spectrum availability.[41] While the Commission is considering a handful of rulemakings to free up additional spectrum for 5G, these arrangements will take time and could delay 5G rollout. In addition, EBS is one of the only proceedings involving frequencies below 3 GHz, a critical asset to cover larger geographic areas due to its superior propagation characteristics relative to higher frequencies such as millimeter wave. Given that the Commission has frozen EBS licenses since 1995 but for a handful of waivers, this proceeding offers an ideal opportunity to add EBS spectrum into the 5G pipeline immediately, allowing educational entities,

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39 *Transcript of Sprint's CEO Michel Combes at J.P. Morgan Global Technology, Media, and Communications Conference*, Seeking Alpha (May 16, 2018), *available at* https://seekingalpha.com/article/4174863-sprints-s-ceo-michel-combes-presents-j-p-morgan-global-technology-media-communications.

40 Colin Gibbs, *Sprint Lowers Capex Guidance Again, Raising Concerns Over Network*, FierceWireless (Jan. 31, 2017, 12:40 PM), https://www fiercewireless.com/wireless/sprint-lowers-capex-guidance-again-raising-concerns-over-network.

41 *See* David Abecassis, Chris Nickerson, & Janette Stewart, *Global Race to 5G – Spectrum and Infrastructure Plans and Priorities,* Analysys Mason (Apr. 2018), *available at* https://api.ctia.org/wp-content/uploads/2018/04/Analysys-Mason-Global-Race-To-5G_2018.pdf.

commercial operators, and the American people to benefit. Automatic license rationalization along county boundaries offers the Commission an opportunity for a significant head start by putting more 2.5 GHz spectrum to work immediately, without waiting for priority windows or for the conclusion of a lengthy auction process.

Voqal agrees with the option presented by the Commission that would allow for county boundary expansion in counties where an existing licensee is already present. This strategy will allow for irregular unlicensed white spaces to be absorbed into existing GSAs more effectively. Filling in these areas will avoid complications associated with licensing smaller GSA areas, particularly ones that sit between licensed areas where there are current wireless services operating. For example, CTIA recently urged the Commission in the 3.5 GHz proceeding to consider larger county-sized GSAs as opposed to census tracts, which are much smaller, for a variety of reasons, including that census tracts "[g]enerate interference concerns," "[i]ncrease the cost of deployment," "[h]arm rural investment," "[c]reate economic inefficiencies," and "delay access to spectrum."[42] These concerns highlight the types of challenges that might arise if the Commission adopts a rationalization proposal for the 2.5 GHz band that does not maximize the contiguity and compactness of license areas. In particular, the Commission should avoid any rationalization approach that allows small slivers of spectrum, such as individual or small clusters of census tracts, to remain unlicensed in between or adjacent to larger license areas. Instead, the Commission should ensure that such areas are integrated into larger adjacent license areas, making them far more likely to be served.

[42] Letter from Scott K. Bergmann, Senior Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, Federal Communication Commission, GN Docket No. 17-258, at 3-4 (filed June 15, 2018). These concerns may not all apply or may apply differently to the 2.5 GHz band, due to important differences between the 2.5 GHz and the 3.5 GHz licensing models.

VII. THE COMMISSION SHOULD ISSUE REMAINING LICENSES VIA LOCAL PRIORITY FILING WINDOWS AFTER RATIONALIZATION AND EXPANSION TAKES PLACE

The Commission has proposed three local priority filing windows to assign new licenses.[43] Voqal supports priority windows as a mechanism to issue new licenses to interested, eligible entities. The Commission also discusses the statutory authority to assign licenses via local priority windows in the NPRM. Local priority windows can be utilized to license spectrum consistent with statutory obligations provided by 47 U.S.C. § 309(j). One strategy to allow educational entities to obtain new licenses would be to use a "first-come, first-served" application window. The EBS community endorsed such a proposal in 2014.[44] Under this approach, the Commission could accept an application and close the application window immediately. This method would result in the acceptance of a single application as opposed to multiple mutually exclusive applications, which would trigger an auction. Another strategy would be to use a negotiation period for mutually exclusive applications. The Commission proposes using such a settlement window, which could allow "filers to resolve any mutual exclusivity before we accept any application for a 2.5 GHz license."[45] Since applicants would have an economic incentive to resolve differences, this could be a viable strategy for issuing licenses via local priority windows.

Defining "Local Presence"

The Commission has proposed giving preference to entities with a "local presence" when assigning licenses via a local priority filing window. To determine a "local presence," the Commission proposes that an applicant be "physically located within the license area applied for."[46] The Commission

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43 NPRM ¶ 25.

44 *See* Letter from James B. Goldstein, Senior Counsel, Government Affairs, Sprint Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 03-66 (filed Mar. 15, 2017); Letter from James B. Goldstein, Senior Counsel, Government Affairs, Sprint Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 03-66 (filed Mar. 27, 2017); *see also* Letter from the National EBS Association et al. to Marlene H. Dortch, Secretary, Federal Communications Commission, at 2, WT Docket No. 03-66 (filed June 6, 2014) (proposing a "first-come, first-served" application window).

45 NPRM ¶ 46.

46 *Id.* ¶ 29.

also asks, "Are there any situations in which simply having some sort of physical address is not indicative of the local presence of an applicant?"[47] If the end goal is to "increase the likelihood that the EBS spectrum would be put to beneficial use for local communities,"[48] a physical presence does not necessarily improve the odds of such an outcome, and such a narrow definition of local precludes other successful models that are taking place today.

A good example of a potentially perverse outcome of narrowly-defining "local presence" would be if the Chicago Instructional Telecommunications Foundation (CITF), which holds a license in Chicago, was not defined as "local" by the FCC. CITF has a board comprised of local Chicagoans. The CITF board makes decisions about the license, including offering broadband educational service and reinvesting royalties into the Chicago community. CITF clearly has a local presence because board members live in Chicago and the activities of the board revolve around the Chicago area. However, CITF does not have a physical office in Chicago. Having office space in a community does not necessarily mean an organization would "have a closer understanding of the needs of their local communities" than an organization that does not have an office or physical space.[49]

The Commission should adopt a definition of "local presence" that encompasses service to local communities and relationships with local institutions. Voqal encourages the Commission to consider other types of "local presence," such as subscribers of mobile service in the geographic area, number of lines of service, or local relationships with a school, library, or nonprofit within the GSA. These partnership models also benefit local communities and should not be ignored by the Commission.

Eligibility for Local Priority Windows

When it comes to eligibility for the local priority filing windows, the Commission proposes removing eligibility for nonprofits serving education,[50] which would deny them the opportunity to obtain

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47 *Id.*

48 *Id.* ¶ 31.

49 *Id.*

50 *Id.* ¶ 41.

new EBS licenses. Nonprofits serving education have been eligible to hold EBS licenses for decades. Given the success of nonprofit licensees, like Voqal's five nonprofits, in providing substantial educational benefits, this would be a policy mistake. The Commission should not restrict eligibility in ways that would exclude nonprofits from the opportunity to replicate such educational successes in new license areas. Some current nonprofit EBS licensees have greater spectrum assets with which to negotiate and are able to serve more students – both urban and rural – through their larger scale. In addition, there are numerous nonprofit organizations tackling the digital divide and the homework gap in communities across America that would also be excluded from the local priority filing window if the Commission adopted such a restriction. For nonprofits serving education that do not already hold licenses, this would unfairly exclude them from the first opportunity to obtain EBS spectrum in decades, even though they may be eligible to hold such a license today. Modifying the eligibility to exclude these groups from obtaining licenses would severely undermine the hard work being done to solve the very problems the Commission should address in this proceeding.

If anything, the Commission should consider expanding eligibility categories for new spectrum licenses assigned during local priority windows to other types of institutions where education occurs, including libraries and organizations engaged in job training, digital literacy, or other education programs that might occur outside a traditional classroom. Allowing these groups an opportunity to utilize an EBS license to serve individuals that commercial providers are unwilling to serve is a win-win for communities and for the Commission's goal of closing the digital divide.

Local Priority Filing Window 1

The first proposed local priority filing window is intended for existing licensees to expand to county boundaries. As was discussed above, Voqal believes an automatic rationalization process that would expand existing license areas to boundaries of counties they already serve would make this first local priority window unnecessary. An automatic expansion will save time and result in roughly the same outcome as a priority window, as it is likely that most existing licensees would apply for expansion in the areas they serve. Automatic county boundary expansion would also more quickly put spectrum into the

hands of educators or their lessees for buildout. Voqal urges the Commission to consider automatic expansion, thereby bypassing the first local priority window.

Local Priority Filing Window 2

The second proposed local priority window is for rural Tribal Nations.[51] Voqal strongly supports allowing rural Tribal Nations the ability to apply for licenses during this window, as many have some of the lowest broadband availability and adoption rates in the country.[52] This filing window provides an incredible opportunity to close the digital divide on Tribal lands. Voqal believes the Commission should work closely with rural Tribal Nations to communicate that this opportunity exists and how they might be able to take advantage of it for the good of their communities. Tribal entities have submitted comments in this proceeding, demonstrating there is strong interest for this window. Indeed, Voqal suspects that many more may have an interest than those who have filed comments.

Local Priority Filing Window 3

The next proposed local priority window is for new licensees. Voqal supports allowing non-incumbents to apply for licenses. Given that only a handful of waiver licenses have been granted since 1995, this window could allow entities that have been waiting for decades to finally obtain a license. However, Voqal opposes the exclusion of existing licensees from this eligibility window. Voqal also opposes the modification of the existing eligibility requirements, which would exclude nonprofit entities serving education from eligibility in this window. Both would be policy mistakes that undermine the goals of this proceeding, as existing licensees and nonprofits may, in many cases, be the entities most

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51 *Id.* ¶ 35.

52 *See Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, 2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment, 30 FCC Rcd. 1375, ¶ 79 (2015); *Native Nations: Office of Native Affairs and Policy*, Fed. Commc'ns Comm'n, (last updated Aug. 1, 2017), https://www fcc.gov/general/native-nations ("Approximately 63 percent of Tribal residents lack access to fixed broadband speeds of 25 Mbps download and 3 Mbps upload, as compared to only 17 percent of the U.S. population as a whole. The disparity is even higher for residents of Tribal lands in rural areas, with approximately 85 percent lacking access according to the 2015 Broadband Progress Report.").

capable of rapidly putting this spectrum into use. The FCC offers no policy rationale for such an exclusion other than to say some entities already have multiple licenses.

VIII. SPECTRUM AUCTIONS IN THE EBS BAND ARE LIKELY TO FAIL

The NPRM seeks comment on other potential mechanisms to reorganize the 2.5 GHz band, including auctions.[53] Voqal strongly believes that a "transformation" of the band through auction would not only undermine existing and planned operations in the band, but also would detract from the Commission's overall goals in this rulemaking. The Commission has specifically asked about two forms of auctions: incentive auctions and overlay auctions. Both are bad policy options and should be rejected.

Incentive Auctions

Incentive auctions are a particularly inappropriate option for the 2.5 GHz band for two reasons. First, incentive auctions are complex and time consuming. As described above, the United States is fiercely competing with other nations in the race to 5G and delaying this spectrum from being deployed for 5G would be a severe policy mistake. An incentive auction, unfortunately, would do just that. The Commission should look no further than the broadcast incentive auction to recognize the delay in making spectrum available for mobile service. Congress authorized the Commission to conduct the broadcast incentive auction as part of the Jobs and Taxpayer Relief Act of 2012. Six years later, the Commission finally completed the auction, but the transition of remaining broadcasters via the repacking process is ongoing. According to infrastructure firm Stainless, "less than 40 high power antennas are on their Repack frequency or ready to broadcast. This represents less than 5% of the subject stations properly converted after completion of one third of the established construction period."[54] Stainless notes "it is reasonable to predict that the Repack will not be fully deployed for an additional 3-5 years after 2020."[55]

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53 NPRM ¶¶ 58-62.

54 Letter from Donald Doty, Business Development Manager, Stainless, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 1, MB Docket No. 16-306 (filed May 18, 2018).

55 *Id.*

In total, if Stainless' prediction is accurate, the incentive auction and repack will have taken 13 years from the time Congress authorized the voluntary incentive auction until the time the spectrum is actually cleared for mobile broadband use. An incentive auction in the EBS band could cause similar delays.

Second, the most significant challenge with an incentive auction would be participation from existing licensees. As is noted by the Commission, roughly 90 percent of all EBS licenses are leased to a commercial provider. On average, these lease agreements do not expire for approximately two decades. Were the Commission to pursue an incentive auction, very few licensees would participate because of their contracts with commercial providers. This would drastically limit the supply of spectrum, which ultimately would result in a failed auction both in terms of making this spectrum available quickly for new use and in terms of potential revenue. Even if licensees with existing lease agreements elected to participate, entities other than the current lessee would be unlikely to bid, given the long-term contractual encumbrance, again lowering the potential revenue for the federal government.

Overlay Auctions

Overlay auctions are also doomed to fail in the EBS band, primarily because they do not produce workable service areas. In urban and suburban areas, where there are oddly-shaped slivers of EBS spectrum between existing GSAs that have yet to be licensed, a winning bidder may experience significant technical complexity engineering a network to operate without impacting adjacent licensees. Take, for instance, the Minneapolis map in Appendix A. Counties such as Pierce County, Wisconsin, and St. Croix County, Wisconsin, are mostly covered by current licensees, as are McLeod County, Minnesota and Sibley County, Minnesota. Providing services near existing operations could prove technically challenging, and thus be less desirable to a potential bidder. In addition, allowing a new buyer to purchase this spectrum would foreclose opportunities for existing providers to cover these areas just outside the current GSAs, and could lead to very different levels of service in the two adjacent GSAs, which could include residents of the same county. For these reasons, overlay auctions should be rejected.

In sum, the Commission is not statutorily required to auction the EBS band. Even if it chose to do so, spectrum auctions will not work in the EBS band. Today's EBS system – one of the only spectrum

bands dedicated to the public interest – is working where spectrum has been assigned. The best path forward for the Commission is to finish licensing this critical public asset to allow for even greater utilization, more services, and stronger partnerships that will help deliver on the Commission's important goals of closing the digital divide, accelerating 5G deployment, and advancing the deployment of affordable broadband in rural areas.

Respectfully submitted,

_____/s/_____
John Schwartz
President

Mark Colwell
Director of Telecommunications Strategy

August 8, 2018

APPENDIX

APPENDIX A – MAP OF MINNEAPOLIS G GROUP EBS LICENSES WITH CENSUS TRACTS