

**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

Transforming the 2.5 GHz Band

WT Docket No. 18-120

**JOINT REPLY COMMENTS OF COMMUNITY TELECOMMUNICATIONS
NETWORK AND MICHIGAN EDUCATION TECHNOLOGY LEADERS**

Community Telecommunications Network, Inc. ("CTNI") and Michigan Educational Technology Leaders ("METL") provide these joint reply comments in the referenced rulemaking proceeding.

The FCC website lists *Bridging The Digital Divide For All Americans* as its top initiative. CTNI and METL have a strong interest in bridging the digital divide and specifically, bridging the homework gap in the State of Michigan. We support the joint filing by the National EBS Association and the Catholic Technology Network which urges the FCC to maintain EBS as educational spectrum, rationalize existing licenses by extending GSAs to county boundaries, open a

window for educational entities to apply for EBS licenses after a 23 year waiting period, and avoid auctions.

In Michigan there are 32 counties, over a third of the counties in the state, in which EBS has remained fallow during this period of FCC inaction, and these counties are primarily rural areas in desperate need of reliable and affordable broadband services. Licensing EBS to local educators in these areas, and similar areas across the United States, is the best and the fastest path to bring affordable and reliable broadband services to all Americans.

Background

The Community Telecommunications Network, Inc. (CTNI) is a not-for-profit tax exempt 501(c)(3) organization with six member institutions -- Detroit Public Schools, Detroit Public Television, Macomb Intermediate School District, Oakland Schools, Wayne Regional Educational Service Agency and Wayne State University. CTNI was formed in 1987 for the purpose of coordinating the use of the member institutions' collective instructional television (ITFS) channels in the 2.5 to 2.7 GHz spectrum band. CTNI managed the spectrum and a joint video broadcast operation for its members which delivered courses directly to schools and cable TV head-ends for home access across the Metropolitan Detroit area. The broadcast operation operated from 1991 through 2005. Courses included foreign language and other material for K-12, a variety of college level courses used by a consortium of community colleges and universities in Southeast Michigan, and general education programming for the broader community.

CTNI worked hard from 1999 to 2006 to support changes in the FCC's rules to promote new and better uses of EBS spectrum for education. CTNI was particularly interested in the ability of students in their homes and elsewhere to obtain broadband access for

anytime/anywhere learning. As a result of rule changes adopted by the FCC in 2004, EBS spectrum now supports many such exciting new education applications using 4G-LTE.

CTNI has worked to bridge the digital divide and to develop innovative applications of digital and mobile technologies in education and the community. Examples include:

- Connect Your Community, a \$5M project to train, equip, and connect low-income households in the Metropolitan Detroit area to the Internet. Over 6,000 households successfully completed course work, obtained computers and Internet access through EBS service where available and through purchased services.

- WIFI hotspots for the 6th grade classes for anytime/anywhere broadband access to multimedia class materials, the Web, parents, teachers and each other in the Macomb Intermediate School District.

- Detroit Public Schools Chromebook program with WIFI hotspots for all who did not have broadband at home.

- Environmental field work with students and the community in Oakland County.

- Connectivity for the Street Medicine Project at Wayne State University (medical students out on the streets caring for homeless people) and masters level Social Work students working in the neighborhoods.

- Connected Learning projects with Detroit Public Television, the Michigan Science Center, and the Ann Arbor Hands-On Museum to augment STEM education.

Michigan Education Technology Leaders (METL) was formed in 2016 and consists primarily of senior technology leaders in K-12 schools from across the state of Michigan. METL works to organize and align the collective efforts of the Intermediate School Districts, Education Service Agencies and Regional Education Service agencies along with State of Michigan

representatives to work on issues that are held in common and also those larger, transformative, statewide, and systemic issues. Bridging the homework gap is one of those key issues.

Bridging the Homework Gap

One of the critical issues for education – and one of the issues we have struggled with for some time in Michigan -- is bridging the homework gap. We need available, affordable and capable broadband service in both our urban and rural communities. Our experience in Michigan suggests that market forces supported by government funding programs haven't been sufficient, and won't become sufficient, to bridge the digital divide and the homework gap, in large part because commercial providers build out their networks to make money. Attempts to bridge the gap with WIFI, TV Whitespace and CBRS also have not and will not provide the necessary connectivity for education. We believe that EBS must remain in the hands of educators if we are to solve the digital divide and the homework gap.

1. We need available, affordable, capable, true broadband service in both our urban and rural communities

The availability of broadband in our rural communities is particularly inadequate, and the situation is actually worse than one might think looking at the FCC's 2018 Broadband Deployment report. The report is based on mapping that everyone, including the FCC and Congress, recognizes as inadequate. This view was clearly expressed, for example, during the July 25, 2018 Hearing before the House Subcommittee on Communications and Technology on Oversight of the Federal Communications Commission (“House 2018 FCC Oversight Hearing”), when Commissioner Rosenworcel acknowledged that broadband deployment mapping practices do not accurately reflect the state of connectivity on the ground. In much of rural Michigan, service is not available at all. In areas where service is available, it suffers from limited speeds, data caps and costs that are overly burdensome.

For example, according to its website, a service without caps at up to 8 mbps (if one can get it) may be available in some areas in Michigan from one provider, RuralReach.com, but costs \$200/month. This is less than one-third the speed of what the FCC considers to be true broadband. An alternative, the HughesNet satellite service, according to its website, provides up to 25 mbps download speed, but with a data cap of 30 GB and costs \$100/month. This download speed fits the FCC broadband definition but this service suffers a significant problem of latency. Together, latency and data caps are barriers to use of the broad range of educational materials, particularly video and interactive tools, tools which are shown to be more effective than just print. The large carriers provide only mobile service with very limited coverage in rural areas even though they already have spectrum that completely covers those areas. Actual data speeds are as low as 1 – 3 mbps. High costs and data caps of 1 or 2 GB per month make these wireless services almost useless for education. This is today's equivalent of dial-up service.

2. Market forces and government programs haven't been enough, and won't be enough, to bridge the digital divide and the homework gap

The idea that the best and highest use of spectrum can be determined by who pays the most money for the spectrum is misguided. *Solving the digital divide is the best and highest use* and this won't happen if spectrum goes to the highest bidder, who then needs to build its network and price its services to generate profits. Large wireless carriers already have spectrum covering rural areas. In some cases, they even have BRS and/or leased EBS spectrum in rural areas, but they have not adequately built out networks in those areas. Putting more EBS spectrum directly into their hands through auctions will not change the fact that these companies are in the business to make money, won't build in low-density population areas and won't offer affordable broadband services to students.

Certain wireless internet service providers, including very small companies with as few as 1 or 2 employees, have managed to provide some services in some rural areas, but even they must make money to survive. During the House 2018 FCC Oversight Hearing, Chairman Pai acknowledged that there is no private business case for broadband service to low-density rural areas, noting that it's a central problem for broadband policy.

Rural programs that have funded broadband deployment have been inadequate, resulting in services that are still too costly and too limited to truly meet education needs.

Furthermore, the FCC's notion in the NPRM that it might provide spectrum to commercial providers and then require 30% coverage within four years (or even 80% coverage) won't resolve the problem. Companies will be driven to build where population density is higher and where other broadband solutions may already be available. Many have-nots will remain have-nots under this approach.

3. WIFI, TV Whitespace and CBRS have not and will not provide the necessary connectivity for education

CTNI attempted to build a WIFI network in Metropolitan Detroit but failed. WIFI mesh relies upon close proximity of houses. Our efforts failed in the target areas because of Detroit's economic and population decline and the resulting low density of houses remaining per block. WIFI in rural areas faces a similar problem given low density and long distances. TV Whitespace has been explored given its long-distance propagation characteristics, but this same characteristic leads to interference from far-away places. This, coupled with very small amounts of available bandwidth and a lack of a solid market for equipment, will inevitably lead to low level service at high cost. CBRS is even worse than WIFI given its low power and higher frequency, making it also not well suited for rural solutions. EBS, on the other hand, is in the

sweet spot for service to smaller markets and rural areas, with its ability to provide service up to 7 to 9 miles from a tower with licensed spectrum.

4. EBS must remain in the hands of education if we are to solve the digital divide and the homework gap

Local educators are best equipped to determine how best to use EBS to get connectivity to their students, either through partnerships with commercial providers or through construction of their own networks.

The current rules for EBS have worked quite well in the primarily urban environments where EBS has been licensed to date. Secondary markets leasing arrangements have helped educators and commercial operators provide highly valuable services from wireless cable, to 3G, to 4G and soon to 5G. As far as 5G is concerned, we note that the FCC's second major initiative, according to the FCC website, is *Leading the World Toward a 5G Future*. Rather than being a deterrent to rolling out 5G, keeping EBS in the hands of educators will actually facilitate 5G deployment. Sprint is already relying heavily on leased EBS spectrum for its 5G plans.

The ability to lease excess capacity was essential in the Metropolitan Detroit area as partnering with Sprint was the only way to build a system covering 4 million people. CTNI did not have the ability to deploy a 2.5 GHz network in Detroit on its own, and even Sprint struggled to make the necessary investment there. Nevertheless, through cooperation among Sprint, CTNI and CTNI members made possible by the FCC's existing EBS licensing, regulatory and leasing rules, commercial services are being provided across the area on EBS spectrum and CTNI and its member institutions have been able to bridge the digital divide and the homework gap for thousands of low-income households.

There is no reason that such partnerships with commercial providers cannot work in rural areas as well. Educators who hold licenses can push for buildout in low-density areas as part of

negotiations with a network provider. And, unlike in the past, technology and costs are such that educators can now build their own systems if necessary to reach students in remote areas, if educators can get access to the spectrum.

CTNI and METL are certain that if EBS spectrum is put up for auction, it will be acquired by commercial providers who will not have the incentive to build where service is needed most. Educational needs and rural needs will not be well served in that context. As for FCC concerns about “unfair enrichment” that might result from issuing new EBS licenses to educators, the small market and rural spectrum available for licensing is not that valuable as a financial matter because of its low-density population. Given that some of the counties in Michigan have population densities as low as 6 people per square mile, no one is going to get rich leasing EBS licenses. The *true* value will be in bridging the digital divide and the homework gap.

Some have asked why more educators haven't obtained EBS licenses. The answer is simple. In the early days of ITFS, TV broadcast equipment and program production were very expensive. Those high costs limited the number of license holders. In later years, when EBS service switched from video to data, and more recently, off-the-shelf equipment became available and costs plummeted, educators have not been able to apply for new EBS licenses. The most critical need now is to get EBS spectrum into the hands of rural educators.

CTNI and MTEL support the Comments of the National EBS Association and the Catholic Technology Network.

CTNI and MTEL support the positions taken in the Joint Comments of the National EBS Association and Catholic Technology Network. Existing GSAs should be rationalized by extension to county boundaries. That process should be automatic. Little is to be gained and time will be lost if the rationalization process requires two-steps, including an actual application

process. Following rationalization, remaining EBS spectrum across the country should be licensed through priority filing windows for Tribes and then for local educators that do not already hold licenses. Although commercial entities should not be permitted to buy existing licenses or apply for new licenses, the FCC should continue to permit and encourage existing and new licensees to partner with commercial providers for the good of all.

Summary

Commercial entities are focused on making money. Educators are focused on reaching their students. From the perspective of the FCC's most important initiatives, the latter trumps the former. EBS needs to remain in the hands of educators to bridge the homework gap and the digital divide. This is the best and highest use of EBS. It will not impede 5G and in fact is already nurturing it.

Respectfully submitted,

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MICHIGAN EDUCATION TECHNOLOGY
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