SANTA FE INDIAN SCHOOL

RE: Senate Oversight Hearing on the GAO Report on Tribal Access to Spectrum: Promoting Communications Services in Indian Country

Testimony of Ms. Kimball Sekaquaptewa, Chief Technology Director, Santa Fe Indian School

September 17, 2019

I come here today from Santa Fe Indian School, which is owned and operated by the 19 Pueblos of New Mexico. As an off-reservation boarding school, maintaining community connections and providing culturally-relevant curriculum requires close and constant contact with our communities. How perfect is video-conferencing for distance learning to connect students with their native language instructors back at home? We thought so five years ago after SFIS was finally able to bring fiber optic Internet to our campus in downtown Santa Fe, the state capitol. However, we were quickly put in place, when we reached out to the Pueblos and realized that the majority of their Internet connections were too slow to talk back. At this time, the entire government of Cochiti and the public library shared a 1.5 Mbps copper T-1 line. And when you called the service provider for more, we were told that all the copper was used up and that there were no options. Five years later the copper is still exhausted in our area – there is no change. Further challenging our situation, is the fact that not all of the tribes have IT Departments to install and maintain network equipment. Expensive managed service contracts

provide help desk but not strategic management. With the epiphany that we are always stronger together, we rolled up our sleeves to get to work.

For the past four years, we have worked with six of our Pueblo tribes to be their own solution to the digital divide. Through the use of the FCC Schools and Libraries E-rate program, we built two middle mile fiber optic networks, connecting two tribal schools and six tribal libraries. The tribal libraries are located in the heart of the community and when most homes don't have computers and those computers don't have Internet connections, the libraries have to serve as computing centers for the community. So much so that after the library closes, cars pull up in the parking lot to connect to the wi-fi that bleeds out of the building. Post E-rate special construction, our schools and libraries connect at speeds over 3000% faster and over 90% cheaper than before. These two projects were the largest E-rate awards in New Mexico in 2016 and the only tribal projects of their kind since the E-rate Modernization order.

Through our efforts, we cracked the code to connectivity by learning how to construct a fiber optic network. To complete this project, we were supported by our Governors and Tribal Councils, who were educated along the way. Since then the tribes have self-invested to build a second network that can connect beyond schools and libraries. Admittedly, the learning curve was steep but now when we meet, tribal leadership brings new ideas. For instance, we are constructing tribally owned cell towers. In the past, the tribes were paid a small fee for a land lease. By owning the cell tower, tribes can work directly with the carriers to realize the profit from the device traffic, resulting in a new income stream that has minimal environmental impact to our natural resources. But the primary goal of the towers is to first increase cell phone coverage for tribal members given the poor service in heart of some communities. We

also have the potential to hang our own wireless infrastructure and provide Internet access, whether through traditional fixed wireless, or as we have tested lately - spectrum.

Furthermore, tribally controlled towers will result in increased access to the FirstNet public safety network, which utilizes the AT&T network. Unfortunately, at this time AT&T coverage is extremely limited in the Pueblos and thus it is unknown how FirstNet can improve first responder communication – or our health in an emergency.

Tribal leadership has also expressed a priority need to provide residential Internet access. At the Santa Fe Indian School, seniors are assigned tablets. We use an online portal for student email, group collaborations, and to submit homework. However, when the students return to their home communities, these Internet-dependent devices become paperweights. At best, students can tether the Internet from their cell phones but those are expensive connections with limited data – and as much as we'd like to report that they save their data for their homework, entertainment and social networking can become priorities. In fact, in a meeting with graduating seniors in the spring we learned that despite having Chromebooks, the number one choice for essay writing was to use the Notes application to essentially text out a paper – and the reason for cell phone preference had a lot to due to with Internet access. From their phones, they uploaded their assignments. If we want our graduates to be on par with mainstream America, the expectation to write a research paper replete with citations is an important skill – that is not possible when they are writing their papers with their thumbs!. Our solution is to address what we have come to call the Homework Gap and provide the home or bus Internet to help our student learn, grow and compete. And while we want them to go to college, we also want them back. We want them to return as professionals and skilled workers

to bring economic vitality for themselves, improve overall community well-being as participating members, and to return vibrancy to rural America. Skilled American workers with proud rural roots and commitment to stay, making small towns thrive. Instead of the urban centers taking our talent resulting in a brain drain, let's bring the digital economy to our hometowns.

To do this, the Santa Fe Indian School has been working with our tribes to test ways to provide broadband connectivity for students. And that brings me to what I can share about spectrum. We did it- we set up an LTE network in one of our Pueblos with the help of a non-profit and the higher education institution who agreed to let us use their EBS license for educational access. Our challenge is that almost of all the EBS spectrum near Albuquerque and Santa Fe is licensed. We set up the LTE network up from de-boxing to connectivity in less than half a day. We have spent the fourteen months since, planning to deliver the fastest speeds we can for the students. The lion share of the work is regulatory process. Presently, there are six attorneys working to license, sublease, or partner for connectivity. Today network is down while work through legal issues. While we appreciate the strong higher education partnerships willing to work towards quid pro quo broadband benefits, our results utilizing EBS in the 2.5 Mhz will always be limited. The higher education institutions have long ago subleased to a national carrier and a spectrum speculator. We continue to increase our access to the EBS spectrum within our reach but it feels like drops from a faucet instead of the opening of a flood gate.

In my experience of deploying an LTE network, the technology is not the hard part. The hardest part to navigate the spectrum use. We do have choice spectrum above us but it

licensed to outside entities who are not using it. So we work through the legal process for rights of use. Additionally, without the day-to-day support of the non-profit, we would likey not still be in the fight. They have provided financial support to specialized EBS attorneys, engineers, and helped navigate the FCC ULS data set. Through those efforts, they gave us maps and the short list of license holder names, along with their holdings. Only at that point could we pick up the phone and know who to call. It should not be this hard to find out who is in control of the airwaves over our own land.

I am happy that the FCC created the EBS Tribal Priority Window for tribal governments and organizations to claim unlicensed EBS spectrum. The use of spectrum for rural deployments offers great potential. I worry that without the technical assistance to educate and help navigate the licensing process that not enough tribes will succeed. The Tribal Priority window, whose start date is not yet announced will only provide sixty days to apply. And despite the priority window, tribes have faster network buildout requirements than an auction winner. And if we can't meet these buildout requirements? Perhaps they go back to auction. Why do tribes have half the time to build out more of the network than the carriers? Is this a system that is set up tribal success or failure?

I come to you today as newcomer to the spectrum landscape. The Pueblos that we are working with to build an LTE broadband network are not gaming tribes. They are small rural communities. And despite not having an IT Department, we successfully deployed a network. In this limited experience building a LTE network, I have learned that we need more than EBS to meet our bandwidth goals. Our solution is to also use CBRS, also a mid-range frequency. Draft rules were proposed last week for a 2020 auction for CBRS Priority Access Licenses. To do so

we'll need to learn a new set of complex rules. Do we have the bank to win against higher bidders or might a different tribal priority help us serve our own lands?

If you ask why we need multiple strategies, it is because of the limitations of different frequency types – mid-range frequencies offer a balance between total bandwidth throughput, increased range, and the ability do a better job penetrating walls or trees. The TV Whitespace is a lower frequency technology and is often proposed in the most rural of locations because it can travel long distance with high penetration but only delivers limited speeds. The 5G revolution promises faster speeds but currently requires a fiber transport and small cell antennas that are very close together – which can exacerbate the permitting challenges to build on tribal land.

Access to spectrum also bring ancillary challenges with FCC and USDA program rules. The USDA released the ReConnect opportunity for last mile broadband funding. However, some of our tribes were not able to apply for the USDA Reconnect program because there is a rule that if the census tract was awarded in the FCC CAF II auction, then it is not eligible for ReConnect support. Unfortunately, a provider was awarded CAF II funding in many of the Pueblos but did so without consulting the tribes. In communication with the provider, the deployment would utilize CBRS spectrum. I mentioned we built a fiber optic transport network. We are ready to deploy last mile services but the ineligibility of our census tracts limits our tribal efforts to build out the network. How can a third party get credits for connecting tribal lands without ever consulting the tribal government? I know there is a FCC process, what is accountability is there to protect the integrity of that process? I stress tribal engagement as the

key to working in Indian Country. Instead of making tribal lands barriers to long haul fiber routes, engage the tribe to create partnerships to provide local access.

But what I really want to know why tribes don't have sovereign access to the airwaves, just as we do for other natural resources on our lands? In the global digital economy, the airwaves are essential elements to communicate. Among other things public safety, or lack thereof, transpires over the availability of reliable, real-time communication. If tribes had authority or safe harbor from legal suit to use the not used but licensed by third party EBS spectrum on our lands, instead of fourteen months in legal, we could be growing our network instead of setting it up.

Actually, as I am writing these comments, I receive a text from my sister-in-law in the Pueblo, "Haleigh as swamped with homework but the Internet has been down here at the house. Is it possible for her to use your Internet to get this work done? Not sure what else to do besides dropping her off at McDonald's to use WiFi". As we have learned through our efforts, broadband is too big to solve as a school, as a tribe, or as a rural community but that working as collaborators, we can and have built the networks that the market said didn't have the return on investment. Our people, our students, our children, nieces and nephews, traditional ways of life, and the ability to thrive in rural lands is our return on investment. Thank you.