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VIA ELECTRONIC MAIL

To: Jen Leasure, The Quilt

From: Jeff Mitchell

Re: **Monthly Broadband Policy Update – through November 30, 2020**

Capitol Hill

What will happen in broadband under a Biden Administration is at the top of everyone's agenda. While we expect a large infrastructure/stimulus package (to include broadband) in the first 100 days, precise details are yet to emerge. In the meantime, one dynamic many will be watching is between a President Biden and Senate Majority Leader McConnell – who have a very long working relationship.

Turning to the lame duck session (*i.e.*, before the new Congress is seated in January), emergency broadband funding as part of COVID relief and/or the government funding bill remains possible. In addition, as you may know, CARES Act funding must be spent (or obligated) by December 30, 2020, and bills extending this deadline are expected. On November 24, 2020 two Republican Congressman introduced the Enabling Extra Time to Extend Network Deployment (EXTEND) Act that would allow unexpended CARES Act funding to be utilized by states for broadband connectivity. Another interesting bill is the *Signal Booster and Hotspot Connectivity Tax Credit*, sponsored by Rep. Moolenaar (R-MI). This legislation would create a 75 percent tax credit up to $400 for one year for individuals in certain unserved areas who purchase signal boosters.

Finally, we have previously highlighted the bi-partisan Internet Exchange Act of 2019 (sponsored by Senators Blackburn (R-TN) and Baldwin (D-WI)) which would create a grant program administered by NTIA to build or expand internet exchange facilities in areas where either one or none exist. The bill also would enable E-Rate and Rural Telehealth Program USF funds to be used for connection to exchange facilities. The bill was marked up in Committee on November 18.

National Telecommunications and Information Administration (NTIA)

NTIA has launched a Digital Inclusion webpage which provides a clearinghouse of information about federal and state digital inclusion resources. There is no NTIA webinar scheduled for December. The November webinar addressed How Broadband Enhances Local Economies while

October addressed Digital Inclusion and K-12 Education: The Impact of COVID-19 on Students and Educators; archived webinars are here. The November BroadbandUSA Newsletter again has many articles about states using CARES Act funding to increase broadband connectivity including Alabama (connecting 100,000 low income students to distance learning), Illinois, North Carolina, South Dakota, and Virginia, among others.

NTIA hosts a searchable database featuring 50 federal broadband funding opportunities across a dozen federal agencies. The NTIA Broadband USA main page features a state-by-state summary of state broadband programs (scroll down to the map and click on a state). NTIA has released pilot results of its National Broadband Availability Map (NBAM) which was authorized by Congress in 2018. The NBAM initially covered eight states, but now includes 22 states total. Because the NBAM includes both public and proprietary data, coverage details are available only to state and federal partners and not the general public (contact nbam@ntia.gov for more info).

USDA – Rural Utilities Service

The RUS Community Connect Grant program is open and accepting applications through December 23, 2020. Grant awards require a 15% non-federal match and can range from $100,000 up to $3 million and can be used for the "construction, acquisition, or leasing of facilities, including spectrum, land or buildings used to deploy service at the [a minimum of 25 Mbps down/3 Mbps up] to all residential and business customers located within the Proposed Funded Service Area . . . ." Applicants must provide free broadband service for two years to "Essential Community Facilities" in the funded service area. See link above for more details.

Proposed ReConnect projects can be viewed here (must create free log-in to access); 2019 awardees are identified here; 2020 awardees are here; proposed and funded projects are depicted on an interactive map here. The Distance Learning & Telemedicine Grant Program is currently closed.

Precision Agriculture

The FCC's recently-approved $9 billion 5G Rural Fund will included a $1 billion set-aside for agricultural use in Phase 2. Some claim the set-aside is counter-productive and will simply ensure traditional telcos capture this market. Meanwhile, farms are already using private LTE networks with CBRS spectrum, including greenhouse monitoring in Missouri and supporting drone-mounted cameras to make real-time decisions on herbicide applications in North Dakota. In the "miscellaneous" rural category, note the American Connection Project, which identifies existing open Wi-Fi networks in rural areas.

NTIA's September webinar on precision agriculture is available here. The most recent meeting of the FCC's Precision Agriculture Connectivity Advisory Task Force was October 28 and can be viewed here. Background and links to prior meetings are available here. The April 2019 USDA report on rural broadband infrastructure and next generation precision agriculture is available here. As the precision agriculture market explodes, Purdue University announced in August 2020 that it was collaborating with the National Science Foundation-funded Engineering Research Center to develop the Internet of Things for Precision Agriculture.

Federal Communications Commission

Biden's FCC transition team has been announced and includes John Williams, a House Judiciary senior counsel; former Commissioner Mignon Clyburn; and Obama-era agency veterans Smitty Smith and Paul de Sa. Chairman Pai has announced he will be leaving on inauguration day (the traditional departure date for Chairman when there is a change in administration and party), thus leaving a President Biden with potentially two slots on the FCC to fill (one D and one R). Although President Trump has already nominated Nathan A. Simington to fill the Republican seat being vacated by Commissioner O'Rielly (a hearing on Simington's nomination was held November 10), it is unclear whether Simington will be confirmed.

Although not directly related to broadband policy, on December 15, 2020, the FCC will facilitate a forum on the Quantum Internet from 10 to 1:30 pm, ET. The forum, which will feature presentations by leading academics and industry experts, looks fascinating. The next FCC open meeting will be December 10 and will not feature any broadband-focused items. The November FCC open meeting included an order Modernizing the 5.9 GHz Band (more background in Spectrum section below), among other items.

Spectrum

In this section of the monthly broadband policy update, we are maintaining short summaries of selected FCC spectrum proceedings that are active and which are expected to impact the public availability of broadband. Because each of these items are potentially very complex, we are focused on broad summaries and major developments only.

Here is a short but helpful backgrounder on the importance of the different bands in the 5G era (courtesy Jeremy Horowitz at venturebeat.com):

> The . . . low band tier covers a lot of space, slowly, while the . . . mid band covers less space at faster speeds, and the . . . high band covers the least space at super-fast speeds. . . . One low band (600-700MHz) tower can cover hundreds of square miles with 5G service that ranges in speed from 30 to 250 megabits per second (Mbps). A mid band (2.5/3.5GHz) tower covers a several-mile radius with 5G that currently ranges from 100 to 900Mbps. Lastly, a high band

(millimeter wave/24-39GHz) tower covers a one-mile or lower radius while delivering roughly 1-3Gbps speeds. Each of these tiers will improve in performance over time.

National 5G Network?

This item will continue to generate tremendous political controversy which we will not be following in detail. However, here are some basics: In September 2020 the Department of Defense (DOD) issued a Request for Information (RFI) from industry concerning establishing a system to support widespread military and civilian spectrum sharing. The RFI is not limited to any particular spectrum band and, given military use of so much spectrum that is crucial for robust 5G, this is a potentially revolutionary development. Some see establishment of a governance body for all national 5G spectrum usage as a potential first step toward a controversial nationalized 5G system. Others see a potential opportunity to increase the availability and lower the cost of 5G services. Existing wireless carriers (of all sizes) inevitably see a threat to the value of their existing spectrum holdings and strongly oppose this move, while Google, Silicon Valley, and possibly defense contractor interests are pushing for it. One obvious hurdle is DOD's doubtful legal authority to commercially sub-lease spectrum allocated by NTIA without FCC approval.

L-Band (1.0GHz to 2.0GHz)

The FCC's unanimous decision in April to approve a long-pending request by Ligado Networks (f.k.a. LightSquared) to utilize a portion of the L-band spectrum continues to generate opposition. Because Ligado's spectrum is close to spectrum reserved for GPS, the Department of Defense (DOD), Department of Transportation (DOT), and other interests strongly opposed this move. On May 22, NTIA (on behalf of DOD and DOT) formally challenged the FCC's decision through a petition for reconsideration and a petition for stay. While efforts to reverse the FCC's Ligado decision continue, most recently reflected by a letter to Congress on October 27 from nearly 80 organizations opposing the decision, Ligado has apparently raised $4 billion to implement 5G deployment in the cleared spectrum.

2.5 GHz Rural Tribal Priority Window (formerly EBS)

The FCC in 2019 decided to auction remaining unlicensed Educational Broadband Spectrum (EBS) (2.5 GHz band) to commercial users. This spectrum is suitable for mobile and fixed point-to-point wireless services. Prior to the auction, tribal entities in rural areas had a limited opportunity to apply for licenses for available 2.5 GHz spectrum in their areas through a "rural tribal priority window." With that window closed, the FCC is processing and accepting applications. (Once accepted, application are subject to further review and a public comment period before they are

finally approved.) On October 23, 2020, the FCC announced the first batch of 154 2.5 GHz license grants to tribes.

C-Band (3.7-4.2 GHz)

Broadcast satellite operations are the current licensed users of the mid-band C-Band spectrum. The FCC in February 2020 voted to approve two orders to reorganize and reclaim 280 MHz of the band for flexible-use and to facilitate public auctions of the newly available bands. The public auction is slated to commence December 8, 2020, with the new spectrum slated to be in use by September 2025. Incentive payments to the incumbents – which will come from auction proceeds – exceed $9 billion. The list of entities expected to bid on C-band is here.

3.1-3.55 GHz

On August 10, 2020, the White House announced an intergovernmental agreement where the Department of Defense has agreed to vacate a 100 MHz band from 3.45 to 3.55 GHz to allow for 5G use. This agreement clears the way for an auction of this valuable spectrum in as soon as 15 months. In September 2020 the Commission approved an order and notice of rulemaking proposing uses for the newly cleared 100 MHz of spectrum. The speed at which this agreement was reached is unusual by historical standards, where the process typically takes 5-8 years. The 3.1-3.55 GHz band is currently used by the Department of Defense (DOD) for fixed and mobile radar as well as secondary non-federal amateur and experimental users.

Citizens Broadband Radio Service (CBRS) (3.55-3.65 GHz)

The FCC's CBRS auction of Priority Access Licenses (PALs) closed on August 24, netting over $4.5 billion, with all three major wireless carriers bidding. Verizon, the large carrier with the biggest mid-spectrum needs, was the big winner, bidding $1.9 billion for 557 licenses in 157 counties. According to TeleCompetitor: "The top 5 CBRS auction winners combined will spend about $3.9 billion, representing nearly 87% of total auction proceeds. There were a total of 228 winners in the auction, including many small rural providers."

General Authorized Access (GAA) allow unlicensed access to available channels managed by a frequency coordinator called a Spectrum Access System (SAS). More information about SAS functionality – which is critical to all future spectrum sharing applications – is available here and here. A good general non-legal web resource for CBRS is available here.

UETN was in the news in October 2020, with their announced deployment of a private LTE network to 25 schools using GAA CBRS spectrum. UETN's project is expected to deliver robust parking lot access to school networks featuring high speeds and content filtering. Virginia Tech,

which claimed eight PALs CBRS licenses, is expected to combine those with GAA use to develop innovative private LTE applications.

4.9 GHz Band

From the Commission's background on this item:

> Nearly two decades ago, the Commission designated the 4.9 GHz (4940-4990 MHz) band for use in support of public safety. Today, the 4.9 GHz band remains underused outside of major metropolitan areas, with stakeholders citing high equipment costs and limited availability of broadband equipment, among several barriers to its use. Currently, access to the 4.9 GHz band is restricted to certain entities and use of the spectrum is limited to public safety purposes. Licensees do not receive exclusive use licenses for the spectrum but rather operate pursuant to a coordination framework for shared use of the band. Although nearly 90,000 public safety entities are eligible under our rules to obtain licenses in the band, there are only 3,559 licenses currently issued to 2,090 individual licensees.

The order, which was approved in September 2020, eliminated the exclusive public safety use requirement for the spectrum and permits "one statewide 4.9 GHz band licensee per state (the State Lessor) to lease some or all of its spectrum rights to third parties, including commercial, critical infrastructure, and other users, thus making up to 50 megahertz of mid-band spectrum available for more intensive use." Public safety interests are upset with the item and the speed at which it is proceeding, with a petition circulating to have the spectrum allocated instead to FirstNet.

5.9 GHz Band

As noted above, at the November 2020 open meeting the Commission approved rules to reorganize spectrum previously reserved for the transportation sector ("Dedicated Short Range Communications" or DSRC) in order to support development of next generation "Cellular Vehicle to Everything" (C-V2X) technology in the upper band, while freeing up the lower 45 MHz of the 5850-5925 MHz band. The reorganization increases spectrum available for unlicensed Wi-Fi utilization – strongly supported by Qualcomm and silicon valley interests – but continues to be staunchly opposed on safety grounds by transportation interests including state departments of transportation for all 50 states.

6 GHz Band

In April 2020 the FCC authorized 1200 MHz of spectrum to be available for two kinds of unlicensed use of the 6 GHz band: low power indoor usage and standard power usage anywhere.

By expanding Wi-Fi and increasing opportunities for innovation, the FCC's action is widely expected to create billions in value for the economy. Some claim this is the most important decision the FCC has made on unlicensed spectrum use in 25 years. On October 2, the DC Circuit denied emergency requests to stop the 6 GHz order from taking effect – however those cases will continue to be heard. Interests opposed to the FCC's 6 GHz order included AT&T, the National Association of Broadcasters (NAB), and public safety groups. Generally, opposing interests fear interference with incumbent operators with AT&T, for example, expressing concern that existing microwave links used for network backhaul will be disrupted.

12 GHz (coming soon, but here is a preview).

White Spaces

The unused spectrum between TV station channels or in places where channels are vacant are called "white spaces." This vacant broadcast spectrum represents a resource for mobile broadband, particularly in rural areas. In March 2020 the FCC proposed updated rules to facilitate increased innovation in the white spaces area. The FCC approved proposed rules in October 2020 that are expected to protect broadcasters while allowing innovative 5G and broadband deployment in the unused channels. These rules were essentially the product of a negotiated industry consensus between broadcasters and groups such as Microsoft who have helped perfect the technology necessary to make spectrum sharing in these spaces work.

Low-Earth Orbit (LEO) Satellite

Elon Musk's SpaceX in October 2020 launched its "Better Than Nothing Beta" test of its Starlink LEO satellite internet service. The beta has a $499 set up fee associated with the equipment needed to connect, and a $99 monthly fee. A Starlink spokemsan explained: "Expect to see data speeds vary from 50Mb/s to 150Mb/s and latency from 20ms to 40ms over the next several months as we enhance the Starlink system. There will also be brief periods of no connectivity at all." CNBC further reports:

> To date, SpaceX has launched nearly 900 Starlink satellites — a fraction of the total needed for global coverage but enough to begin providing service in some areas, including in the northwest United States. The company has begun to work with a handful of organizations in rural regions that Starlink satellites in orbit currently cover, such as Washington state.

In addition, schools in one rural Texas community are getting free Starlink service for a year, thanks in part to grant funding. These announcements come on the eve of Starlink's expected participation in the FCC's Rural Digital Opportunity Fund auction. Amazon is also launching a

massive LEO project, called "Kuiper." Notwithstanding these well-funded, glitzy LEO start-ups, skeptics remain.

Universal Service/Digital Equity

The current universal service construct, which is over 25 years old, is straining to address the equitable distribution of limited broadband resources – partly reflected in a universal service fund contribution factor that is currently over 27%. The next FCC will inherit this unstable situation and so we are adding this general universal service section to the memo. Notably, the related concepts of universal service and digital equity seem to merging, as illustrated by this recent comprehensive Benton report: "Broadband for America NOW".

Libertarian academics have floated a proposal to "voucherize" the high cost program, which is the largest of the four universal service programs, designed to keep rural service available and affordable. The idea would be to give funding directly to rural consumers rather than to rural carriers. The idea has conceptual appeal and has been raised periodically over the years. While rural broadband vouchers are apparently being used now in the UK with some success, it is far from clear whether a voucher system alone could serve a country as large as the US including Hawaii and Alaska.

COVID-19: New Telehealth Programs and E-rate & Rural Health Waivers

The $100 million Connected Care Pilot Project application window opened in early November and ***closes December 7***. The linked public notice above has essential information, but here is the FCC's Connected Care Pilot webpage with more background.

The Commission on March 18, 2020, waived the gift rules for both the E-rate and RHC programs through September 30, 2020. In September the Commission partially granted SHLB and other groups request for extension, to December 31, 2020. We understand SHLB intends to file a further request for extension of the gift waiver to June 30, 2021 (reiterating the original August 2020 request). The FCC also waived information request deadlines in both programs, but not deadlines for filing appeals and other matters. (The Commission previously extended programmatic deadlines for filing funding applications, appeals, invoicing, service delivery, as well as waived certain rules regarding contract extensions in E-rate and RHC.) *If you intend to take advantage of any waivers, please consult these orders very carefully.*

The FCC in April 2020 established the COVID-19 Telehealth Program in response to Congress appropriating $200 million in funding for telehealth to the FCC as part of the CARES Act. The FCC stopped accepting applications in late June and on July 8 announced it had fully committed the program. The final list of awardees are available here (Excel; PDF). Under that program,

successful applicants received funding commitments that they could claim by demonstrating the purchase of eligible goods or services by September 30, 2020. The FCC on September 28 extended that purchase deadline until December 31, 2020.

E-rate

New America recently released a report addressing the digital learning gap in the age of COVID: The Online Learning Equity Gap – Innovative Solutions to Connect All Students at Home. The report strongly supports the FCC's use of E-rate funding to support digital learning outside of the classroom, and highlights innovative efforts in Colorado and Virginia to address the "online learning chasm." Related: see this article about the DragonNet project in Missouri. As noted, last month, Funds for Learning has released its annual E-rate Trends Report for 2020, reflecting spending and survey data through July 17, 2020.

From September 16 to October 16, the Commission opened a special E-rate filing window to support Category 1 Internet Access or data transmission only – allowing schools to seek additional funding for funding year 2020 (July 1, 2020 through June 30, 2021) *without further competitive bidding*. The FCC recently announced $1.3 million in funding was awarded to the first wave of second-window applicants (291 schools in 32 states). The State E-rate Coordinators Alliance (SECA) in November filed a further petition for reconsideration of the Commission's new Category 2 rules focused on the narrow issue of the proper treatment of shared equipment that serves non-instructional facilities.

Rural Health Care

We understand the FCC has instructed USAC to clear the backlog of unapproved Rural Health Care (RHC) applications from FY 2019 and to release applications that have been unofficially held from prior years, assumed to be based on disputes over the appropriate "rural rate." This push to clear the backlog is coming at the expense of resources devoted to new funding applications for FY 2021. Paradoxically this means, although the new rules allowed competitive bidding to start this past July 1 (instead of the upcoming January 1), many may not be able to commence their applications early because of USAC delays approving eligibility and RFPs.

Net Neutrality

At its October 2020 open meeting, the FCC approved along party lines an Order on remand addressing the DC Circuit's concerns on remand (pole attachment regulation, impacts on public safety, and funding broadband through the Lifeline Program) without taking further action.

No parties ultimately sought Supreme Court review of the October 2019 DC Circuit decision upholding the FCC's 2017 repeal of net neutrality rules, thus ending the voluntary stays in the state-specific federal litigation. Recall the DC Circuit reversed the FCC in asserting blanket preemption of state-specific rules, but this did not preclude state-by-state preemption claims based on specific conflicts with federal law. In addition to California and Vermont (litigation updates below), four other states have enacted some form of net neutrality law: Colorado, Maine, Oregon, and Washington, none of which have yet been challenged by industry or the federal government. The likely reason for no new cases is that potential litigants are looking to the California and Vermont cases to see what those courts do.

Federal Courts:

- Eastern District of California. In October 2018, SB 822, the California Internet Consumer Protection and Net Neutrality Act of 2018 was challenged in federal district court in California by the DOJ and several industry groups in a separate suit. DOJ had sought a preliminary injunction but the court agreed to a request by all parties to stay the case after California agreed not to enforce the law pending final resolution of *Mozilla v. FCC*. The DOJ on August 5, 2020 filed a renewed motion for a preliminary injunction; the state responded on September 16; reply briefs by the DOJ and industry groups were filed October 14.

- Vermont District Court. In October 2018 the same industry groups – American Cable Association (ACA), CTIA - The Wireless Association (CTIA), NCTA - The Internet & Television Association (NCTA), and USTelecom challenged Vermont's net neutrality law and executive order in federal district court there and in January 2019 sought summary judgment. The parties in March 2019 agreed to stay further proceedings pending a final resolution of *Mozilla v. FCC.* DOJ and industry groups also renewed their challenges to the Vermont law after the stay expired, however the parties have agreed to a new stay pending the outcome of the motions for injunctions in the California litigation.

States

The National Conference of State Legislators (NCSL) features a summary of net neutrality efforts by state for 2020 here (updated March 27, 2020). *Note this list does not identify current laws, only current efforts to pass new laws*.