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VIA ELECTRONIC MAIL

To: Jen Leasure, The Quilt

From: Jeff Mitchell

Re: **Monthly Broadband Policy Update – through August 27, 2021**

Capitol Hill

With the Senate in early August passing the $1 trillion bi-partisan infrastructure package negotiated between key Senators and the Biden White House (§65 billion for broadband and digital equity), attention shifted to the House, and to negotiations around the budget. These separate budget negotiations include the reconciliation package with $3.5 trillion in additional spending on what is being called human infrastructure. Whether these two efforts will be linked has been a key question which was partly answered this week with House Speaker Pelosi (D-CA) announcing an agreement to conduct a vote on the infrastructure package on September 27, 2021. If the budget process in both houses can conclude prior to that date, it is possible everything would be voted on at the same time. If the Senate infrastructure bill language remains unchanged by the House,[1] the bill can then go straight to President Biden's desk for signature. How much or what kind of broadband infrastructure spending can be allowed in the $3.5 trillion reconciliation package seems to be in question.

Treasury Department

Although interim rules were due in August, there has been no movement from Treasury on the $10 billion Capital Projects Fund which will provide grants to states and localities to fund

[1] The broadband provisions include the following:

- $42.45 billion for NTIA broadband grants to states (25% match requirement in most cases)
  - Unserved defined as lacking 25 Mbps down/3 Mbps up
  - Underserved defined as lacking 100 Mbps down/20 Mbps up (Based on FCC maps to be established under the previously enacted Broadband Data Act.)
  - Anchor institutions lacking "gigabit level service" apparently receive the lowest priority for funding.
- $1 billion for NTIA middle-mile broadband grants (not to states) "to reduce the cost of connecting unserved and underserved areas to the backbone of the internet" and to promote network "resiliency."

Although not directly related, concern is rising in industry that the major investments in infrastructure already underway are exacerbating a growing a shortage in optical fiber (hat tip, Chip Byers).

"critical" broadband connectivity infrastructure projects for the "unserved." It may be that the program is on a *de facto* hold, in part because NTIA staff which were helping out Treasury with the interim rules are fully engaged handling NTIA's new broadband programs (see items below). Treasury is also administering a $350 billion program to aid states ($195.3 billion) and localities ($154.7 billion) recovering fiscally from COVID-19: the Coronavirus State and Local Fiscal Recovery Funds (CSLFR) can be used to invest in broadband infrastructure (see Fact Sheet at pages 7-8). The helpful program FAQ was most recently updated on July 19, 2021. Notably, in the interim rules for the CSLFR, projects were expected to deliver 100 Mbps symmetrical service in most cases – although some rural carrier association comments sought to dilute this standard to 100/20 Mbps.

National Telecommunications and Information Administration (NTIA)

Applications for the $288 million Broadband Infrastructure Program (BIP) were due August 17 and NTIA has announced that it received more than 230 applications for over $2.5 billion in funding requests across 49 states and U.S. territories. The program's web page has links to the Notice of Funding Opportunity (NOFO), links to the four sets of FAQs (most recent, August 13), and links to past webinars. (Benton Foundation has good analyses of BIP here and here). The Tribal Broadband Connectivity Grants Program ($1 billion – applications due September 1, 2021[2]) and the Connecting Minority Communities Pilot Program ($285 million – applications due by December 1, 2021) webpages have links to their respective NOFOs, FAQs, and webinars. (There was no monthly BroadbandUSA newsletter for July or August 2021. The June newsletter can be found here.)

On June 15, 2021, NTIA launched an updated guide to all federal funding for broadband (available in PDF or sortable Excel format). NTIA has released an interactive national broadband mapping tool intended to identify "Indicators of Broadband Need" in specific regions or localities. This tool is separate from NTIA's National Broadband Availability Map (NBAM) (scroll down), which reaches 37 states but is not public. For more information about NBAM, email nbam@ntia.gov.

Sen. Wicker (R-MS) on July 8, 2021, sent a letter to NTIA challenging the accuracy of NTIA's "indicators" map. Meanwhile, Microsoft has updated its cloud-based measurement of the number of people accessing the internet at broadband speeds, reporting to the FCC that "in October 2020 approximately 120.4 million people in the United States – more than a third of the

[2] We understand that at least one group from the western states has formally requested NTIA to extend this deadline due in part to the impact on western tribes of an unusually active fire season. Although NTIA has said publicly that it lacks authority to extend the deadline, we are watching this closely. Note also, the Department of Interior is hosting a virtual National Tribal Broadband Summit, occurring September 17, 24, and October 1, 2021.

U.S. population – were not using the internet at broadband speeds (greater than or equal to 25 Mbps)."

USDA – Rural Utilities Service

The House has passed several large appropriations bills which as expected includes $800 million more in funding for the USDA's Re-Connect program, and as much as $105 million for the Community Connect and Distance Learning & Telemedicine grant programs (program links below). (The Senate Agriculture funding bill has $700 million for ReConnect.) 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 most recent RUS Community Connect Grant program annual application window is now closed; the Distance Learning & Telemedicine Grant Program annual application window has also now closed.

Precision Agriculture

The next meeting of the FCC's Precision Agriculture Connectivity Advisory Task Force will be September 14, 2021. Their most recent interim report is from March 2021: Accelerating Broadband Deployment on Unserved Agricultural Lands. Background and links to prior meetings are available here. John Deere has a recent FCC filing highlighting their latest technology. The FCC's Office of Economics and Analytics on December 15, 2020, released a working paper on the impact of broadband availability on agriculture. NTIA's September 2020 webinar on precision agriculture is available here. The April 2019 USDA report on rural broadband infrastructure and next generation precision agriculture is available here. 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

Details on the August 5, 2021, FCC Open Meeting are available here but no notable broadband items are on the agenda. The next Open meeting will be September 30, 2021, with no agenda as of August 27.

Spectrum

FierceWireless has two free virtual conferences coming up: August 31, 2021, is "Higher Education: The Connected Campus"; on September 8 and 9, 2021, Open RAN (Radio Access Network) Summit. Also, University of Colorado at Boulder Law School is sponsoring a conference

called "Frontiers in Spectrum Sharing" available on zoom – September 9 and 10, 2021, at 12:00pm (local time). The cost is $15 for academic and non-profit attendees.

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 often quite complex, we are focused on broad summaries and major developments only.[3]

L-Band (1.0GHz to 2.0GHz)

Although unanimously approved by the Commission, the April 2020 Ligado Networks (f.k.a. LightSquared) decision allowing use of a portion of the so-called L-band spectrum, the decision continues to draw opposition. Because Ligado's spectrum is close to spectrum reserved for GPS, the Department of Defense (DOD), Department of Transportation (DOT), and aviation and other interests strongly opposed the FCC's move. NTIA (on behalf of DOD and DOT) challenged the FCC's decision through a petition for reconsideration and a petition for stay, however the FCC in December 2020 denied NTIA's petition. A high-profile lobbying campaign is apparently underway to reverse the decision (April 2021) and it has borne fruit, with Sen. Inhofe successfully including provisions in the 2021 Defense Authorization Act requiring DOD to report on damage to DOD systems caused by Ligado and, more recently, introducing a bill with bi-partisan support that would require Ligado to compensate satellite users harmed by interference. Sen. Inhofe recently got the new Secretary of Commerce to restate the Department's previous opposition to the FCC's Ligado order (NTIA is part of the Department of Commerce).

2.5 GHz (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 Window." That window closed in September 2020 and the FCC is processing and accepting applications.

[3] Here is a short but helpful backgrounder on the relative 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.

(Once accepted, applications are subject to further review and a public comment period before they are finally approved.) Tribal license grants so far are listed here (click the "Releases" tab) – the most recent license grants occurred August 21, 2021. The Commission in January released a Public Notice seeking comment on proposed auction procedures, the first step toward conducting auction of the remaining spectrum, possibly in 4Q 2021 but more likely in 1Q 2022.

3.45-3.55 GHz

The DOD in August 2020 agreed to vacate a 100 MHz band from 3.45 to 3.55 GHz to allow for 5G use, clearing the way for an auction of this valuable spectrum for 5G deployment. The FCC in March 2021 established rules for the new band and the auction is scheduled to begin in October 2021. WISPA, the Wireless Internet Service Providers Association, in March 2021 announced an innovative proposal to the FCC to obtain 200 MHz between 3.1 and 3.55 GHz "for coordinated, non-auctioned, high-powered, point-to-multipoint use, on either a shared or licensed-by-rule basis."

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

The FCC's CBRS auction of Priority Access Licenses (PALs) closed in 2020 netting over $4.5 billion, with all three major wireless carriers bidding. General Authorized Access (GAA) allow unlicensed access to available channels managed by a frequency coordinator called a Spectrum Access System (SAS). 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. Rural carriers in April 2021 began an effort to get the FCC to modify the power rules for CBRS – a modification that could impact lower power users. A good article about CBRS networks helping K-12 schools bridge the homework gap is here.

C-Band (3.7-4.2 GHz)

The C-Band auction ("Auction 107") commenced December 20 and wrapped up January 15. Up for grabs was 280 megahertz of spectrum in the 3.7–3.98 GHz well-suited for 5G. All 5,685 available spectrum blocks were auctioned with gross proceeds exceeding $80.9 billion – far in excess of the $60 billion estimated. Complete auction results are available here and here.

4.9 GHz Band

In September 2020, the Commission on a party-line vote approved an order eliminating the exclusive public safety use requirement for the 4.9 GHz, permitting "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 were upset with the item and circulated a petition to have the spectrum allocated instead to FirstNet. Acting Chair Rosenworcel is reportedly circulating an order that would pause the current plan.

5.9 GHz Band

The Commission in late 2020 approved rules to reorganize spectrum previously reserved for the transportation sector ("Dedicated Short-Range Communications" or DSRC) making 30 MHz available in the upper band to support development of next generation "Cellular Vehicle to Everything" (C-V2X) technology, while freeing up the lower 45 MHz of the 5850-5925 MHz band. The reorganization increased spectrum available for unlicensed Wi-Fi utilization – strongly supported by Qualcomm and silicon valley interests – but was opposed on safety grounds by transportation interests including state departments of transportation for all 50 states. Congress continues to apply pressure on the FCC to revisit the decision and the Biden Department of Transportation is apparently open to reexamining these concerns. In early June 2021, transportation interests filed suit in the D.C. Circuit; petitioners include the Intelligent Transportation Society of America and the American Association of State Highway and Transportation Officials, and the Amateur Radio Emergency Data Network, a nonprofit that runs a high-speed data network designed for emergency communications and amateur radio operators.

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. In October 2020, the DC Circuit denied emergency requests to stop the 6 GHz order from taking effect – however the cases continue. Interests opposed to the FCC's 6 GHz order included AT&T, the National Association of Broadcasters (NAB), public safety groups, and incumbent utilities. 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

This October 2020 article from Fierce Wireless and an April 2021 article from the American Enterprise Institute provide a good overview of the issues around 12 GHz, which is a

band currently licensed exclusively to satellite providers (and used by SpaceX among others), but is also suitable for 5G. The NPRM adopted in January 2021 sought comment on whether it is possible for mobile service to share use with the current satellite users. With the comment period now closed, battle lines have formed between those who believe the spectrum can be shared and those who see a threat to existing satellite service.

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 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 spokesperson 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." Amazon is also launching a massive LEO project, called "Kuiper." SpaceX ended up being a controversial big winner in the Rural Digital Opportunity Fund (RDOF) reverse auction, winning $885.5 million of the $9.2 billion available.[4]

Separately, early June 2021 saw three separate court challenges of FCC decisions regarding Starlink from Dish Network, Viasat, and a consulting firm called the Balance Group (via Law360 [subscription required]). Viasat's request for a preliminary injunction was denied on July 20, 2021.

[4] AT&T has a useful overview of the complete RDOF auction results that, of course, also provides the big ISP perspective. A more skeptical perspective on the RDOF results can be found here. In May 2021, RDOF came under new attack from the Center for Individual Freedom and other groups based on a just-released study from the Competitive Carriers Association (CCA) showing that "286,000 locations with almost 403,000 people that are poised to receive [RDOF] subsidies already have robust connectivity" – even though RDOF was intended for areas "wholly unserved" by broadband. More on RDOF problems in this Benton Foundation analysis.

Universal Service/Digital Divide

Deloitte in April 2021 released an interesting report providing a good summary overview of the current digital divide. The Verge also has an updated (May 2021) look at the broadband gap using Microsoft cloud services data. For a comprehensive look at the problem along with specific policy recommendations, the National Urban League in April 2021 released the "The Lewis Latimer Plan for Digital Equity and Inclusion" – essentially a privately commissioned reboot of the National Broadband Plan of 2011 (with Blair Levin among other influential authors). The FCC's 2020 Universal Service Monitoring Report contains summary data for all universal service programs (data through September 2020). USAC's 2020 Annual Report (released March 31, 2021) also provides a useful overview of universal service fund ("USF") data.

The current USF construct, which is over 25 years old, is straining to address the equitable distribution of limited resources for broadband – partly reflected in a universal service fund contribution factor that is now almost 32%. Even USTelecom (the largest carrier trade group) is publicly supporting some type of USF contributions reform. On May 24, 2021, FCC Commissioner Carr through an opinion piece in Newsweek called for USF contributions reform – either through Congress or the FCC – to end the current phone-bill based assessment mechanism and tap "Big Tech" revenues instead. On July 17 2021, Sens. Wicker (R-MS), Moore Capito (R-WV), and Young (R-IN), introduced the *Funding Affordable Internet with Reliable (FAIR) Contributions Act*: "The legislation would direct the Federal Communications Commission (FCC) to conduct a study into the feasibility of collecting Universal Service Fund (USF) contributions from internet edge providers such as YouTube, Netflix, and Google."

Emergency Broadband Benefit Program

Because it is primarily consumer-facing, for purposes of this monthly report, we are not closely tracking the $3.2 billion Emergency Broadband Benefit (EBB) FCC program created by Congress. EBB launched May 12 – a program overview with links to more information is available here and within the public notice. While the EBB was a COVID-19 initiative, it was a pre-cursor to a permanent Lifeline program that supports broadband. The $1 trillion bi-partisan infrastructure

bill, if it passes, will provide $14.2 billion for this new program, called the Affordable Connectivity Program.

New Telehealth Programs

COVID-19 Telehealth Program:[5] The FCC on August 26, 2021, announced the first group of Round 2 COVID-19 Telehealth applicants, representing $41,980,345 in funding to 62 health care providers in every state, territory, and the District of Columbia.

Connected Care Pilot Program (application window closed): On July 14, 2021, the Commission announced program deadlines, including an August 27, 2021 deadline to submit updated contact information to USAC; on June 21, 2021, the Commission released additional rules and guidance. On June 17, 2021 the Commission selected an additional 36 projects, including awards to the University of Florida, University of Hawaii, Johns Hopkins University, and University of Kentucky. The first group of 14 projects, included awards to University of Virginia, University of Mississippi, Duke University, and Temple University. About $57 million of the $100 million in funding has now been awarded. The FCC's Connected Care Pilot webpage has full background on the program.

The American Hospital Association in May 2021 released a report from its Future of Rural Health Care Task Force that is quite thorough.

Emergency Connectivity Fund

The FCC webinars on the $7 billion Emergency Connectivity Fund (ECF) (from June 25 and August 3) are viewable here. The initial 45-day application window closed August 13, 2021. The FCC on August 25 announced that over $5.1 billion in funding requests were filed during the first window – and that a second window would open from September 28 to October 13, 2021. Notably, this second window will continue to address *the current school year* (July 1, 2021 to June 30, 2022) rather than reimburse for prior eligible purposes (made between March 1, 2020 and June 30, 2021). Application information is available here.

The ECF order was published in May 2021 with final (corrected) rules published in July 2021. Funding for new network construction is available in very limited circumstances. The subsidy is 100% and there is no separate competitive bidding requirement – although state and local procurement rules apply. The Pennsylvania Department of Education has prepared a helpful summary of the order here; American Library Association's summary is here. A group of

[5] Congress in December 2020 authorized $249.95 million for Round 2 of COVID-19 Telehealth Program awards. The FCC released Round 2 program rules in March 2021. The application window is closed.

legislators led by Sen. Markey (D-MA) is proposing an additional *$40 billion* appropriation for ECF ($8 billion per year for five years).

E-rate

The FCC on June 21, 2021 granted SHLB's request for a further extension of the deadline to complete special construction projects until June 30, 2022. On July 16, 2021, SHLB and several other groups requested a further extension of the pandemic-driven E-rate gift rule waiver until June 30, 2022, which would line up with the ECF gift rule waiver. Groups continue to urge the FCC to cover cybersecurity costs through E-rate.

Rural Health Care

On August 13, 2021, the FCC granted waiver relief to the Utah Education and Telehealth Network (UETN) on a competitive bidding issue dating back to funding year 2017. UETN submitted a master contract in the Rural Health Care (RHC) program that UETN had negotiated in the E-rate program, which is generally allowed under RHC program rules. However, at the time UETN submitted the contract to USAC, USAC's E-rate division had not yet formally approved the contract. While the E-rate division did eventually approve it, USAC refused to accept the contract in the RHC program because it had not been approved at the time it was initially submitted. The FCC had previously denied UETN's appeal and request for waiver however, on reconsideration, upheld its previous denial but found it was in the public interest to grant a waiver of its rules.

March 12, 2021, the FCC announced that the inflation-adjusted RHC program caps for funding year 2021 (July 1, 2021, through June 30, 2022) would be $612 million for the overall program and $154.5 million for upfront payments and multi-year commitments under the Healthcare Connect Fund Program. On June 23, 2021, the FCC announced the rollover of $380 million of unused funding from prior years. Once funding year 2021 gross demand is known, the Commission will consider whether to make some of this rolled over funding available for 2021 applications (through a limited cap waiver).

Net Neutrality

President Biden on July 9 issued an Executive Order on Promoting Competition in the American Economy that, among other things, asked the FCC to restore the Obama-era Net Neutrality rules. Nothing will likely come of this until a fifth Commissioner is confirmed. Lawfare has an overview

of net neutrality issues arising post-pandemic but, for now, federal litigation continues to be the main arena in the ongoing battle.

Recall the DC Circuit in upholding the FCC's repeal of net neutrality rules reversed the FCC claim of blanket preemption of state-specific rules – meaning preemption claims must proceed case-by-case. Other than California and Vermont, 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. Potential litigants are likely waiting for the outcome in the California case. Oral arguments in the California case (appeal from the court's denial of an injunction against the California law) are scheduled for September 14, 2021. The following Amicus briefs were filed in May 2021: Access Now, et al.; Professors of Communications Law and Media Democracy Fund; Electronic Frontier Foundation, et al.; state of New York, et al.; Santa Clara County, California, et al.; and Internet Law Professors. California's answer is here.

The Vermont case has been stayed pending outcome of the California case. (Links courtesy NECA Washington Watch.) Meanwhile, litigation over a New York state law requiring ISPs to offer $15 broadband plans for some state residents was recently stayed by a federal court, creating new precedent on the FCC's preemptive authority over broadband internet service that may have implications for the California case. (New York ultimately agreed not to enforce the law due to federal preemption.)

States

The National Conference of State Legislators (NCSL) features a summary of net neutrality efforts by state for 2021 here (updated January 20, 2021). NCSL now provides a helpful narrative summarizing the status of previously passed net neutrality laws or resolutions.