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VIA ELECTRONIC MAIL

To: Jen Leasure, The Quilt

From: Jeff Mitchell

Re: **Monthly Broadband Policy Update – through November 30, 2021**

Capitol Hill

Senate confirmation hearings for President Biden's nominees Gigi Sohn (Federal Communications Commission) and Alan Davidson (National Telecommunications Information Administration) are scheduled for Wednesday, December 1. The confirmation hearing for Commissioner (now Chairwoman) Rosenworcel's second term on the FCC occurred November 17, 2021 and a committee vote on her nomination is also scheduled for December 1.

On November 15, 2021, President Biden signed into law the $1.2 trillion Infrastructure Investment and Jobs Act which finally passed the House on November 5. The new law provides $65 billion for broadband in the following ways:

- **Broadband Equity, Access & Deployment Program** (BEAD) – $42.45 billion in grants to states (to be administered by the National Telecommunications and Information Administration (NTIA)).
- **Enabling Middle Mile Broadband Infrastructure** (EMMBI) – $1 billion in broadband grants (not to states) for "construction, improvement or acquisition of middle mile infrastructure" that will "reduce the cost of connecting unserved and underserved areas to the backbone of the internet" and promote network resiliency (to be administered by NTIA).
- **Digital Equity Act of 2021** – $1.3 billion for state-level digital equity efforts: $60 million for planning grants to states for the development of state Digital Equity Plans; $650 million for grants to states to implement those plans; $650 million for grants to a variety of public-sector and not-for-profit entities to support digital inclusion and broadband adoption.
- **Tribal Broadband Connectivity Program** – $2 billion in additional funding for this existing program (administered by NTIA).

- Creates a permanent **Affordable Connectivity Program** (ACP) (@$30/month) to replace the temporary Emergency Broadband Benefit (EBB) program (@ $50/month) (to be administered by the Federal Communications Commission).

Details regarding some of these programs are addressed in a separate memo. As we wait for the final federal rules (expected in May 2022), Kathryn DeWitt at Pew Charitable Trusts identifies where much of the action will be:

> The next move in broadband expansion belongs to the states, which are required to submit five-year action plans that illustrate how they will use the federal broadband funds to improve local economic development, education, health care, and other vital needs. It's an important requirement because it will force states to focus on broadband as a means to a greater end, not as the end itself: Laying fiber in the ground is only a first step to creating a truly connected nation.

However, concern is real that the new FCC broadband maps, which must be in place before BEAD funding can be awarded, will not be ready until late 2022 or even later – especially with the bid-protest recently filed by Lightbox against the FCC's selection of a mapping vendor.

Treasury Department

The Department of Treasury has released application guidance for the $10 billion Capital Projects Fund, which will provide *non-competitive* grants *to states, territories, and Tribal Governments* for "critical" broadband connectivity infrastructure projects for the unserved. Among other thing, the program requires installed infrastructure to be upgradable to 100 Mbps symmetrical, effectively favoring fiber deployments. The state-specific funding allocations are available here. Application windows are as follows:

Type	Application Portal Launch Date	Deadline to Request Funding	Deadline to Submit Grant Plan
States, Territories & Freely Associated States	September 24, 2021	December 27, 2021	September 24, 2022
Tribal Governments	October 1, 2021	June 1, 2022	Not Applicable

There was a September 30, 2021 webinar for states (slides here; webinar recording); the webinar for Tribal Governments was October 6, 2021 (slides here; webinar recording).

Treasury is also administering the Coronavirus State and Local Fiscal Recovery Funds (CSLFR), a $350 billion program to aid states ($195.3 billion) and localities ($154.7 billion) recovering fiscally from COVID-19. CSLFR funds can be used to invest in broadband infrastructure (see Fact Sheet at pages 7-8).[1] The interim rules for the CSLFR required broadband projects to deliver 100 Mbps symmetrical service. The helpful program FAQ was most recently updated in November 2021. In October 2021 Treasury provided this summary of projects so far.

National Telecommunications and Information Administration (NTIA)

President Biden has nominated ex-Google and Mozilla Foundation executive Alan Davidson to head NTIA. NTIA will be at the forefront of the $65 billion in broadband investments coming, with six separate programs to implement. Meanwhile, existing programs are moving forward:

- Broadband Infrastructure Program (BIP) ($288 million): NTIA announced that it received more than 230 applications representing 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, and links to past webinars. (Benton Institute has good analyses of BIP here and here). NTIA published proposed service areas in October 2021.

- Tribal Broadband Connectivity Grants Program ($980 million): On September 8, 2021, NTIA announced it received more than 280 Applications representing over $5 Billion in funding requests. The first group of awardees was announced November 16, 2021.

- Connecting Minority Communities Pilot Program ($285 million): Applications are due December 1, 2021. The page above links to the Notice of Funding Opportunity (NOFO), FAQs, and past webinars.

In September 2021 NTIA launched an interactive guide to all federal broadband funding. (This interactive guide replaces the previous static guide.)

USDA – Rural Utilities Service

USDA on October 25, 2021, announced a third round of the Reconnect Program which will award $1.15 billion in new funding.[2] Similar to prior rounds, there will be a mix of loans and grants, with $200 million in 100% loans, $250 million in projects combining loans and grants, and $350 million in grants only. The maximum grant size is $25 million and all grants require 25% in match funding.

[1] We understand that California relied in part on CSLFR funding to launch its $6 billion middle-mile initiative in which CENIC will be a partner.

[2] Previously proposed Reconnect projects can be viewed here (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.

There is also a new 100% grant category which will provide $350 million for tribal governments and "socially vulnerable communities" with no match requirement and a $35 million maximum award amount. Eligible areas and broadband speed requirements have changed in the third round, as has evaluation criteria, with projects adhering to net neutrality standards receiving points (among other things). Two Reconnect webinars are scheduled for December.

The most recent RUS Community Connect Grant program annual application window is now closed; the Distance Learning & Telemedicine (DLT) Grant Program annual application window has also now closed. USDA has announced $50 million in awards from the last DLT funding window – those can be seen here.

Precision Agriculture

The FCC's Precision Agriculture Connectivity Advisory Task Force most recently met on November 10, 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. The FCC's Office of Economics and Analytics in December 2020 released a working paper on the impact of broadband availability on agriculture. NTIA's September 2020 webinar on precision agriculture is available here.

John Deere has a recent FCC filing highlighting their latest technology. Also, see this interesting recent article on "connected cows". The Benton Institute has released a report on precision agriculture: The Future of American Farming: Broadband Solutions for the Farm Office, Field, and Community. 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

The agenda for the Commission's next open meeting on December 14, 2021, includes a significant E-rate item regarding proposed new processes for competitive bidding (more below). Details regarding the November 2021 open meeting are here.

E-rate

In response to a September 2020 Government Accountability Office (GAO) report regarding fraud risk in the E-rate program, the FCC has issued a draft Notice of Proposed Rule Making (NPRM) for consideration at the December open meeting. The proposed changes would represent a major overhaul and include:

- Establishing a bidding portal for E-Rate competitive bidding documentation and require service providers to submit bids to USAC through the bidding portal rather than directly to applicants.

- Requiring applicants to provide other competitive bidding documentation that is not captured in the bidding portal (*e.g.*, bid evaluation matrices, questions from bidders, etc.), as well as contract documents, at the time they submit their FCC Form 471 funding applications to USAC.

We expect this will be a contentious item that will generate many comments and much lobbying at the Commission. Whatever is finally decided will very likely impact competitive bidding processes in the Rural Health Care program.

The FCC in September 2021 proposed clarifying its definition of eligible library to ensure that Tribal libraries could fully participate in the program. Comments were due November 15 with replies due November 29. Some commenters addressed the evolving nature of public libraries.

Emergency Connectivity Fund (for E-rate)

The initial 45-day application window for the $7 billion Emergency Connectivity Fund (ECF) closed in August 2021 with over $5.1 billion in funding requests filed and over $2.3 billion committed (as of October 12, 2021). A second ECF window ran from September 28 to October 13, 2021. Application information is available here; the FCC FAQ for the program is here. As of November 23, 2021, the FCC had committed $3.2 billion of the available support. A current list of ECF commitments is available here: https://www.fcc.gov/ecf-current-funding-commitments.

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.

Connected Care Pilot Program

The Commission released additional rules and guidance for the Connected Care Pilot Program in June 2021. In July 2021 the Commission announced program deadlines, including a January 17, 2022 deadline to post an initial request for services (Form 461). About $69 million of the $100 million in funding has been awarded – the full list of approved projects is here (new projects announced October 27, 2021). The FCC's Connected Care Pilot webpage has more background.

COVID-19 Telehealth Program

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). The FCC on November 9, 2021, announced the fourth group of Round 2 COVID-19 Telehealth applicants, representing $41,113,186 in funding to 72 health care providers. So far, the Commission has made $83,093,531 in awards to 134 awardees. The FCC also released a clarification on identifying COVID-19 hotspots for purposes of application priority. Invoicing guidance for Round 2 was released in August 2021.

Emergency Broadband Benefit Program/Affordable Connectivity Program

The FCC is seeking comment on the new Affordable Connectivity Program (ACP) which Congress authorized through the recently enacted bi-partisan infrastructure bill. *Comments are due December 8, 2021, with replies due December 28, 2021*.

The $3.2 billion Emergency Broadband Benefit (EBB) FCC program created by Congress launched May 12, 2021. A program overview with links to more information is available here and within the public notice. The FCC Office of Inspector General issued an EBB fraud advisory on November 22, 2021; Commissioner Carr's statement on this is here.

Mapping

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. Microsoft in August 2021 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 U.S. population – were not using the internet at broadband speeds (greater than or equal to 25 Mbps)." A company called LightBox has a similar effort apparently relying on data from Wi-Fi access points.

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

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. Tribal license grants so far are listed here (click the "Releases" tab) – the most recent license grants occurred October 29, 2021. The Commission in January 2021 released a Public Notice seeking comment on proposed auction procedures, the first step toward conducting auction of the remaining spectrum, possibly as soon as 1Q 2022. Meanwhile, tribal groups in November 2021 requested waiver of the tribal license performance requirements.

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. Gross proceeds for the initial phase of the October 2021 auction exceeded $21 billion.

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

[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.

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 2021 and wrapped up January 2021. 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. In November 2021, however, C-Band made news with the Federal Aviation Administration claiming potential interference, causing Verizon and AT&T to announce pauses to their 5G deployments.

4.9 GHz Band

Since the September 2020 reform order was passed on a party-line vote, taking a state-by-state approach to repurposing 50 MHz of the 4.9 GHz spectrum, public safety interests were opposed. They ultimately circulated a petition to have the spectrum allocated instead to FirstNet. The Commission in September 2021 voted to vacate the 2020 decision, instead launching a new rulemaking that will explore options for a unified national approach.

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. 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. Recent developments in the proceeding are discussed here; in October 2021, Public Knowledge filed an *amici curiae* brief in support of the FCC.

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 (Wi-Fi) and standard power usage anywhere. 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 with oral arguments in September 2021. 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. In a September 2021 Public Notice, the FCC began the process for authorizing an automated frequency coordinator (AFC) that will be required for standard power usage (outside of the home).

12 GHz

The Commission in January 2021 adopted an NPRM to explore whether the FCC should re-auction portions of the 12 GHz spectrum band (12.2-12.7 GHz), currently used exclusively used by satellite providers – including non-geostationary satellite providers such as SpaceX – for use on a shared basis by 5G providers. Comments were filed over the summer but the docket was active in November 2021 with a flurry of *ex partes*: opposition to sharing is led by SpaceX with a coalition supporting sharing led by the following groups: INCOMPAS, Public Knowledge, DISH, Computer & Communications Industry Association (CCIA), RS Access, and the Open Technology Institute at New America (OTI) (among others).

Non-Geostationary Low-Earth Orbit (LEO) Satellite

MIT Technology Review in September 2021 offered a review of SpaceX's Starlink service and plans. Starlink competitors in June 2021 failed to convince D.C. Circuit to block the FCC's authorization for Starlink to change its launch plans for new satellites, however the case is continuing with briefs filed in late October and oral arguments scheduled for December 2021. Meanwhile SpaceX has announced a partnership with Google to install earth stations at Google datacenters with the goal of bypassing cell-towers, and we could see a Tesla "Pi" Phone running off the Starlink network in 2022. On the bearish side, Musk has told employees that SpaceX could go bankrupt next year (taking Starlink with it) due to recently discovered problems with its next generation rocket launcher technology.

Amazon's competing LEO project called "Kuiper" plans over 3200 satellites but has yet to launch its first. The project got a boost in October 2021 when Verizon announced it would partner with Amazon in order to use the Kuiper satellites for cellular-backhaul. Kuiper's first launch

is scheduled for Q4 2022. Amazon's FCC license gives it until July 2026 to deploy half of the planned number of Kuiper satellites.

Universal Service/Digital Divide

SHLB on November 29, 2021 released a "Call to Action" letter on USF contributions reform, with 254 signatory organizations. SHLB in September 2021 released its report on the future of the Universal Service Fund (USF). The report pegs the major decline in the revenue base in recent years to the shift away from voice to data within the mobile service revenue category. While the FCC has authority to reform the contribution base, Congress could still act to force the FCC's hand. 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 in March 2021) also provides a useful overview of USF data.

The Electronic Frontier Foundation in October 2021, released a report showing that open access networks are the most efficient way to solve the digital divide: Wholesale Fiber is the Key to Broad US Fiber to the Premises Coverage. Deloitte in April 2021 released a 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).

Net Neutrality

Although the federal court challenge to California's state net neutrality law is ongoing, focus for many has shifted to the nomination of net neutrality advocate Gigi Sohn to the FCC. The National Conference of State Legislators (NCSL) features a summary of net neutrality efforts by state for 2021 here. The NCSL page now also provides a narrative summarizing the status of previously passed net neutrality laws or resolutions.