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VIA ELECTRONIC MAIL

To: Jen Leasure, The Quilt

From: Jeff Mitchell

Re: **Monthly Broadband Policy Update – January 3, 2022**

Capitol Hill

On December 7, 2021, the Senate confirmed Federal Communications (FCC) Chair Rosenworcel to a new term which will expire in 2025. This preserves a 2-2 Democrat/Republican tie pending a Senate vote on President Biden's other FCC nominee, Gigi Sohn. For reasons not limited to Sohn's role in net neutrality, her nomination faces stiff Republican resistance and its outcome is uncertain. Although the Senate Commerce Committee in December 2021 advanced President Biden's nomination of ex-Google and Mozilla Foundation executive Alan Davidson to head NTIA, any unconfirmed nominations must start from scratch in the New Year. That said, Davidson's nomination will likely proceed to a vote quickly in when the Senate reconvenes in early January 2022.

National Telecommunications and Information Administration (NTIA)

On December 23, 2021, NTIA released the Access Broadband Report 2021, a new annual report recently mandated by Congress. The report provides a comprehensive overview of NTIA actions in 2021 and upcoming. In September 2021, NTIA launched an interactive guide to all federal broadband funding.

NTIA will be at the forefront of the $65 billion in broadband investments that are part of the $1.2 trillion Infrastructure Investment and Jobs Act which President Biden signed into law in November 2021. Meanwhile, we will continue following these existing NTIA programs:

- 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 is now publishing proposed service areas for projects, most recently on December 6, 2021, opening the process by which existing carriers can make challenges.

- Tribal Broadband Connectivity Grants Program ($980 million initially; $2 billion for further round – see below): 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, with final awards not expected until spring 2022.

- Connecting Minority Communities Pilot Program ($285 million): Applications were due December 1, 2021. On December 9, 2021, NTIA announced it had received over 200 applications requesting $833 million in funding.

New NTIA-Administered Broadband Programs

Details regarding some of the programs listed below were addressed in a separate memo. While NTIA must establish program rules by May 2022, we expect NTIA will issue a request for public comment on the new programs in January 2022. NTIA will also conduct four further public listening sessions on the new programs in January and February 2022 (the first session was on December 15, 2021).

- **Broadband Equity, Access & Deployment Program** (BEAD Program) – $42.45 billion in grants to states.

- **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.

- **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.

Meanwhile, Kathryn DeWitt at Pew Charitable Trusts identifies where much of the initial action will be with these new programs:

> 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, as discussed here, states are in varying degrees of readiness for this influx of federal funding. Moreover, 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. This is especially true now that Lightbox has filed a bid protest challenging the FCC's selection of the mapping vendor.

Treasury Department – American Rescue Plan Act (ARPA) Broadband Funding

Pew Charitable Trusts writes about how different states are using ARPA broadband funding here. Application guidance for the $10 billion Capital Projects Fund, which provides *non-competitive* grants *to states, territories, and Tribal Governments* for "critical" broadband connectivity infrastructure projects for the unserved is available here. Among other things, the program requires installed infrastructure to be upgradable to 100 Mbps symmetrical, effectively favoring fiber deployments. The state-specific funding allocations are available here. There was a September 2021 webinar for states (slides here; webinar recording); the webinar for Tribal Governments was in October 2021 (slides here; webinar recording). The program FAQ was last updated in November 2021.

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 program FAQ was last updated in November 2021. In October 2021 Treasury provided this summary of projects so far.

USDA – Rural Utilities Service

The application window for a third round of the Reconnect Program which will award $1.15 billion in new funding began November 25, 2021.[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. There is also a new 100% grant category which will provide $350 million for

[1] We understand 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.

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).

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 approved its most recent report on November 10, 2021. The Benton Institute has background and a summary of the recommendations from that report here. Background and links to prior Precision Agriculture Task Force meetings are available here – the next meeting will be January 13, 2022.

John Deere on December 2, 2021, provided a presentation on precision agriculture to FCC Commissioner Simington (available here). The Benton Institute in September 2021 released its 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. Lastly, see this recent article on connected cows.

Federal Communications Commission

The agenda for the Commission's next open meeting will be on Thursday, January 27, 2022 (agenda not yet available). Details regarding the December 2021 open meeting are here.

E-rate

The FCC at the December 2021 meeting approved a Notice of Proposed Rule Making (NPRM) to consider major changes to the current competitive bidding processes. The NPRM seeks comment on, among other things:

- Establishing a bidding portal for competitive bidding documentation and require service providers to submit bids to USAC through the 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.

These changes are in response to a September 2020 Government Accountability Office (GAO) report regarding fraud risk in the E-rate program. Comments will be due 60 days after the NPRM is published in the Federal Register with reply comment due 30 days later.

Emergency Connectivity Fund (for E-rate)

Initial application windows for the $7 billion Emergency Connectivity Fund (ECF) have closed with over $5.1 billion in funding requests filed and over $3.8 billion committed (as of December 20, 2021). The FCC FAQ for the program is here. A map of amounts requested by state is available here; a current list of commitments is available here: https://www.fcc.gov/ecf-current-funding-commitments.

The FCC on December 2, 2021, granted a petition by the State E-Rate Coordinators Association (SECA) and extended the ECF invoicing deadline to August 29, 2022, for certain classes of ECF applicants. The FCC also "clarif[ied] that the service delivery date for all requests for equipment, other non-recurring services, and recurring services submitted in any [ECF] filing window covering funding for purchases made between July 1, 2021 and June 30, 2022 is June 30, 2022."

The Hechinger Report addressed the need for further ECF funding in this December 2021 article.

Rural Health Care

The Department of Health & Human Services (HHS) in December 2021 released a comprehensive report on Medicare Beneficiaries' Use of Telehealth in 2020.

Connected Care Pilot Program

The Commission in June 2021 released additional rules and guidance for the Connected Care Pilot Program. 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 so far (new projects were most recently announced in October 2021). The full list of approved projects is here. 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. Round 2 program rules were released in March 2021. 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. USAC has additional COVID-19 Telehealth program information here.

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 and reply comments were filed in December 2021. While the ACP reduces the monthly benefit to $30 from the $50 available in the Emergency Broadband Benefit (EBB) program, the ACP eligibility criteria have been relaxed.

The $3.2 billion EBB program was created by Congress and launched in May 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. The transition from EBB to the new ACP is currently underway.

Mapping

The timetable is still unknown for when the FCC will complete its broadband maps (necessary before BEAD funding can be disbursed). 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). NTIA announced in December 2021 that NBAM (which is not public) now includes 40 states.[3] 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 (company announcement from December 2021).

[3] "The NBAM is a geographic information system platform which allows for the visualization and analysis of federal, state, and commercially available data sets. This includes data from the Federal Communications Commission, U.S. Census Bureau, Universal Service Administrative Company, USDA, Ookla, Measurement Lab, BroadbandNow, White Star, and the state governments. The mapping platform provides users, including administrators from the 40 participating states and territories, with access to the NBAM and its data to better inform broadband projects and funding decisions in their states."

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.[4]

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 November 11, 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 a waiver to extend the deadlines for network buildout (due to COVID-19).

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 (third largest ever). The assignment phase of the auction commenced November 2021.

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

[4] 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.

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 2020 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, the 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 2020 the FCC authorized 1200 MHz of spectrum to be available for two kinds of unlicensed use of the 6 GHz band: unrestricted low-power indoor usage (so-called "Wi-Fi 6") and standard power usage anywhere subject to an automatic frequency coordination (AFC) system. Some say this is the most important decision the FCC has made on unlicensed spectrum in 25 years. Parties opposing the order included AT&T and incumbent utilities who warned of interference to microwave backhaul links needed for 5G – which led to a legal challenge at the D.C. Circuit Court of Appeals. The D.C. Circuit on December 28, 2021, decided mostly in the FCC's favor. It is unclear whether AT&T or the other opposing parties will seek review by whole court "*en banc*" or review by the Supreme Court. Meanwhile, on December 7, 2021, a large group of utilities and other interested parties sought an immediate stay from the FCC of the low-power indoor (LPI) device licensing process, pending a new rulemaking addressing whether LPI devices should also be subject to AFC. Yet another dimension is the potential for AT&T and others to provide 5G services using the *unlicensed* spectrum in the band.

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). RS Access released a report in December 2021 challenging claims by SpaceX regarding current use of the band.

Non-Geostationary Low-Earth Orbit (LEO) Satellite

MIT Technology Review in September 2021 offered a review of SpaceX's Starlink service and plans. However, there is a case now before the D.C. Circuit with Starlink competitor Viasat arguing the FCC failed to conduct a sufficient environmental impact review when it granted Starlink's license. Oral arguments were in December 2021 and a decision is pending. 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.

Amazon's competing LEO project called Kuiper (named after the Kuiper Belt and pronounced Ky-per) 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

C-NET has a technological and policy overview of where we are, and where we are headed in broadband in 2022. 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. In the meantime, Congress as part of the recent infrastructure law mandated the FCC issue a "Report on the Future of the Universal Service Fund" which caused the FCC to issue a Notice of Inquiry in December 2021 seeking comment on such a report. While **initial comments are due January 17, 2022**, many parties requested a 30-day extension to February 17, 2022 for initial comments. While this is a potentially a far-reaching proceeding, for now, the FCC is just seeking comment on the potential scope for the eventual report. (Benton Institute has more on this item.)

On January 19, 2022, from 4-6pm (Eastern) Vince Cerf will be part of a panel discussion addressing "Perspectives on Technology & Regulation in the Internet Age" put on by the Federal Communications Bar Association (registration here). The National Broadband Resource Hub recently launched with the goal of assisting and providing resources to government and community leaders that are leveraging the broadband funding that is now available. 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.

Net Neutrality

Although the federal court challenge to California's state net neutrality law is ongoing (with the Vermont case stayed pending the outcome there), focus for many has shifted to the potential impact of net neutrality advocate Gigi Sohn should she be confirmed 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.