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VIA ELECTRONIC MAIL

To: Jen Leasure, The Quilt

From: Jeff Mitchell

Re: **Monthly Broadband Policy Update (early February 2022)**

Capitol Hill

A Senate Appropriations' Subcommittee held a hearing on Feb. 1, 2022, on the Infrastructure Investment and Jobs Act (IIJA) broadband programs being administered by the National Telecommunications and Information Administration (part of the Department of Commerce (DOC)). Among other things, DOC Secretary Raimondo had notable remarks about the status of Federal Communications Commission (FCC) mapping efforts (more in the "Mapping" section below). The Senate Commerce Committee was scheduled on February 2 to vote on Gigi Sohn's nomination to the FCC, however the vote was canceled after committee-member Sen. Lujan (D-NM) was hospitalized with a stroke. A hearing on Sohn's nomination has now been scheduled for February 9, 2022, although a vote is not expected until Sen. Lujan returns. Although certain broadcast interests who had objected to Sohn's nomination have softened their opposition, the viability of her nomination remains murky.

National Telecommunications and Information Administration (NTIA)

Well over 700 comments were filed in response to the NTIA Request for Comment (RFC) on implementing the new Infrastructure Investment and Jobs Act (IIJA) broadband programs (comments were due February 4, 2022).[1] The Quilt and Internet2 jointly filed comments. Many

[1] The new NTIA administered broadband programs are:

- **Broadband Equity, Access & Deployment Program** (BEAD) – $42.45 billion in grants to states.
- **Enabling Middle Mile Broadband Infrastructure** (EMMBI) – $1 billion in broadband grants by NTIA for "construction, improvement or acquisition of middle mile infrastructure." t
- **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

other groups filed comments although they are not all yet accessible through the Regs.gov website (in the meantime, here is a partial list). Meanwhile, the states are preparing (Michigan, Maine and Kansas mentioned); see also Federal Infrastructure Funding Creates Huge Broadband Responsibilities for States. Lastly, Blair Levin's advice to NTIA is here.

On December 23, 2021, NTIA released Access Broadband Report 2021, an annual report that was 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. (This interactive guide replaces the previous static guide.)

While we await the new NTIA broadband programs, we continue to follow these existing 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. Proposed service areas for BIP projects were most recently posted on December 6, 2021. There is apparently a very high rate of incumbent service area challenges in BIP in some areas. See also this interesting article looking at this issue from the perspective of a small island community in Maine.

- Tribal Broadband Connectivity Grants Program ($980 million initially – $2 billion additional under IIJA): In September 2021, NTIA announced it received more than 280 Applications representing over $5 Billion in funding requests. The NTIA website now features an interactive map showing where each of the awarded projects is located ($3.8 million awarded so far).

- Connecting Minority Communities Pilot Program ($285 million): In December 2021, NTIA announced it had received over 200 applications requested $833 million in funding.

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

Pew Charitable Trusts provides writes about how different states are using ARPA broadband funding here. The Institute for Self-Reliance has another list 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-

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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.

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 January 2022.

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. The CSLFR Final Rule was issued in late December 2021 and will be effective April 1, 2022 (Final Rule Quick Reference Guide; helpful Benton/Keller and Heckman article). The program FAQ was last updated in January 2022.

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. 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. Reconnect application workshop and webinars materials are available 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 For meetings are available here; the most recent meeting was held January 13, 2022.

John Deere in December 2021 provided a presentation on precision agriculture to FCC Commissioner Simington. 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. Note also this recent article on "connected cows."

[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.

Federal Communications Commission

The Commission's next open meeting will be Friday, February 18, 2022. The agenda includes a Further Notice of Proposed Rulemaking (FNPRM) in the Rural Health Care program – more below on this. The January 27, 2022, open meeting included an item addressing Tribal Library eligibility in the E-rate program, an item further addressing "White Space" spectrum, and a Notice of Proposed Rulemaking (NPRM) regarding "nutrition labels" for consumer broadband services, among others. Comments on the broadband nutrition labels are due March 9, 2022; replies are due March 24, 2022. Full details on the January meeting are here.

E-rate

The E-rate competitive bidding NPRM, which was voted on at the December 2021 meeting, was published in the Federal Register on January 27, 2022, thereby setting the following comment schedule: *Initial comments due on or before Monday, March 28, 2022; replies due on or before Wednesday, April 27, 2022*. 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. SHLB and other groups are expected to oppose centralization of the program's bidding processes.

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 $4.4 billion committed (as of January 25, 2022). 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.

On January 28, 2022, the Schools, Health & Libraries Broadband (SHLB) Coalition, American Library Association and others requested the FCC extend the June 30, 2022, service delivery deadline – along with several other requests. One reason was that applicants who have not, or

only recently, received funding decisions would not be able to spend the funds ECF funds they were awarded.

Rural Health Care

As noted above, at the February open meeting the FCC will be voting on a limited FNPRM in the Rural Health Care program. The pre-meeting draft version of the FNPRM proposes changing how rate determinations are made in Telecom Program (urban and rural rates), changing when the Healthcare Connect Fund (HCF) $150 million sub-cap is triggered, and harmonizing the invoicing processes between the Telecom Program and the HCF. SHLB may seek minor modifications to the FNPRM prior to when it is voted on. Once it passes, the FCC will announce a public comment schedule.

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) and a February 14, 2022 deadline to post an initial request for funding (Form 462) – although the Form 462 deadline was recently extended to April 27, 2022. 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. On December 21 and December 26, 2021, respectively, the FCC released the fifth and sixth groups of Round 2 COVID-19 Telehealth applicants. The sixth group is the final group, bringing total funding commitments to $256,378,567 (slightly more than the $250 million available due to unused funding from Round 1 being de-obligated and re-committed, and one Round 2 applicant that relinquished its funding). USAC has additional COVID-19 Telehealth program information here.

Emergency Broadband Benefit Program/Affordable Connectivity Program

The FCC on January 21, 2022, released implementing rules for the new Affordable Connectivity Program (ACP) which Congress authorized through the recently enacted bi-partisan infrastructure bill. General information on ACP is available here. ACP replaces the $3.2 billion

Emergency Broadband Benefit (EBB) which effectively ended on December 31, 2021. Education Superhighway has a handy table comparing the two programs.

Mapping

Secretary of Commerce Raimondo stated recently that the FCC has indicated to her that its broadband maps could be available as soon as the summer of 2022. (When the FCC's maps become available is critical to the BEAD funding timeline.) NTIA has 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.

A company called LightBox provides a "geospatial mapping service" using "two billion Wi-Fi access points with billions of real-time cell phone GPS observations" (company announcement from December 2021). On January 24, 2022, it was reported that more states are interested in doing their own mapping and have approached LightBox. LightBox has previously helped Georgia and Alabama and Montana how now expressed interest. (LightBox has also filed a bid protest with the Government Accountability Office, challenging the FCC's selection of its third-party mapping vendor – potentially delaying the FCC's mapping efforts.)

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]

[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."

[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

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. The auction finally closed in January 2022, netting $22.5 billion and making it the third largest spectrum auction in FCC history. AT&T and Dish were the top winners; Sasha Javid has a good overview and analysis.

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. Here is a recent article about K-12 schools in Fort Worth, TX using CBRS to bridge the homework gap.

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

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.

available spectrum blocks were auctioned with gross proceeds exceeding $80.9 billion – far more than the $60 billion estimated. Complete auction results are available here and here. We have not been closely tracking the C-Band Federal Aviation Administration fiasco, but here is a recent analysis of the topic.

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 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. Oral arguments took place on January 25, 2022.

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 claimed this was the most important decision the FCC has made on unlicensed spectrum use 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 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 remains active with SpaceX dueling 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). You can view the latest docket filings here.

Non-Geostationary Low-Earth Orbit (LEO) Satellite

MIT Technology Review in September 2021 offered a review of SpaceX's Starlink service and plans. But is Starlink broadband service slowing down as it gains subscribers? Starlink competitor Viasat has sued the FCC in federal court 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

The University of Missouri has released a study (Broadband Adoption and Availability: Impacts on Rural Employment During COVID-19) measuring the correlation between employment and rural broadband availability and adoption. 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.

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 perform a "Report on the Future of the Universal Service Fund" which has caused the FCC to approve a Notice of Inquiry (NOI) on December 15, 2021, seeking comment on such a report. (An NOI is a prelude to an NPRM.) The FCC in January granted requests to extend the comment period and *initial comments are now due February 17, 2022 with replies due March 17, 2022*. (Benton Institute has more on this item.)

The latest Universal Service Monitoring Report was released on January 14, 2022 (data through September 2021). This FCC annual report is a clearinghouse of USF data, often broken down by state.

Net Neutrality

On January 28, 2022, a three-judge panel in the U.S. Ninth Circuit Court of Appeals upheld California's state net neutrality law. This is obviously a significant development and opens the door to the possibility of other states moving forward with their laws – however, a further appeal is likely. (The other pending state case in Vermont was stayed pending the outcome in California.) While we wait on the fate of net neutrality proponent Gigi Sohn's nomination to the FCC, here is some educated speculation on where net neutrality is headed in 2022.

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.