

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Establishing Emergency Connectivity ) WC Docket No. 21-93  
Fund to Address the Homework Gap )  
 )

**Comments of the  
Schools, Health & Libraries Broadband (SHLB) Coalition**

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April 5, 2021

The Schools, Health & Libraries Broadband (“SHLB”) Coalition<sup>1</sup> appreciates the opportunity to file these comments regarding the distribution of funding from the Emergency Connectivity Fund (ECF) established by the American Rescue Plan Act of 2021 (“ARPA”) (P.L.117-2). The SHLB Coalition strongly supports this legislation, the appropriation of \$7.171 billion in funding, and the initiation of this proceeding. The SHLB Coalition’s mission is to promote open, affordable, high-quality broadband for anchor institutions and their communities, and this program is very consistent with our goals.

SHLB led the filing of a Petition for Rulemaking<sup>2</sup> in January of this year (along with 8 other parties) asking the Federal Communications Commission (FCC) to make additional E-rate funding available to schools and libraries so that they could fund broadband service to the homes of low-income consumers. The SHLB et al. Petition was a precursor to the federal legislation and gave the FCC a head-start in developing the rules to implement this new federal funding program. We encourage the Commission to issue a final order in this proceeding and open an application window as soon as possible, so that students and library patrons can obtain

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<sup>1</sup> The SHLB Coalition is a broad-based public interest coalition of organizations that share the goal of promoting open, affordable, high-quality broadband for anchor institutions and their communities. SHLB Coalition members include representatives of schools, libraries, health care providers and networks, state broadband offices, private sector companies, state and national research and education networks, and consumer organizations. See <http://shlb.org/about/coalition-members> for a current list of SHLB Coalition members.

<sup>2</sup> Wireline Competition Bureau Seeks Comment on Petitions for Emergency Relief to Allow the Use of E-Rate Funds to Support Remote Learning During the COVID-19 Pandemic, WC Docket No. 21-31 (Rel. Feb. 1, 2021), <https://docs.fcc.gov/public/attachments/DA-21-98A1.pdf> (“Public Notice”); Petition for Expedited Declaratory Ruling and Waivers filed by the Schools, Health & Libraries Broadband Coalition, et al., WC Docket No. 13-184 (filed Jan. 26, 2021), <https://www.fcc.gov/ecfs/filing/101260036427898> (“SHLB, et al. Petition”).

the benefits of Internet connectivity at home and elsewhere during this prolonged pandemic that continues to wreak havoc in our schools, libraries, and communities.

Since the Commission has sought and received comments on both the SHLB et al. Petition and the Emergency Connectivity Fund, SHLB encourages the Commission to issue an order implementing the ECF funding program and eliminating the off-campus Internet cost allocation requirement, as requested in the SHLB et al. Petition.

**I. The FCC should use the flexibility in the legislative language to allow schools and libraries to make their own decisions about which broadband services and equipment will best meet their communities' needs.**

While the legislation provided a few specific details about how to award the funding, it also left a great deal of discretion to the schools and libraries that receive funding. By awarding funding to schools and libraries through the E-rate program, Congress expressed confidence in the judgment of schools and libraries to make these decisions. The legislation does provide for certain specific details, such as requiring the subsidies to cover 100% of services and equipment costs and identifying certain types of equipment that must be eligible for funding. For the most part, however, the legislation left the details to be determined by the FCC and the schools and libraries themselves. For instance, the legislation allows funding for any “advanced telecommunications and information service” and does not specify what other types of equipment could be eligible, what types of technologies are eligible, when applications should be filed, and how to prioritize the distribution of funding if the level of funding is insufficient to meet demand.

The Commission should use this flexibility in the legislative language to recognize that local schools and libraries are in the best position to determine the needs of their communities. There is no need for excessive FCC regulation of schools and libraries' purchasing decisions.

**II. Schools and libraries should be free to make their own purchasing decisions of services and equipment best suited to provide broadband connections in their local market.**

Schools and libraries are well situated to determine the best technology to serve their communities. Each market varies, and the FCC should not arbitrarily limit their available options. We have often heard, for instance, that hot spots work well in some markets but not in others. Some markets may have cable modem services available but not others.<sup>3</sup> Some markets may be served by only a traditional telephone company, others by a rural electric co-op, and other markets by wireless services, including satellite, community WiFi, mesh networks, TV White Space, CBRS, etc. In some markets there may be no existing broadband provider at all, especially in remote rural areas. In these situations, the only way to connect students and library patrons to broadband is for the school or library to deploy its own wireless equipment and service, either by contracting with a private sector company or installing the equipment and providing service itself.

In fact, school and library deployment of new wireless services and equipment is becoming more common than ever, largely due to the 2014 *E-rate Modernization Order*<sup>4</sup> and the Commission's excellent work to make Citizens Broadband Radio Service (CBRS) and TV

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<sup>3</sup> According to the NCTA [website](#), cable serves 78 million households out of 128 million U.S. households.

<sup>4</sup> *Modernizing the E-rate Program for Schools and Libraries*. WC Docket 13-184. December 11, 2014. This Order allowed, under certain conditions, for schools and libraries to build and own their own networks (paragraph 43).

White Spaces spectrum available. The SHLB Coalition has coined a phrase that we call deploying broadband “to and through” the anchor institution to the surrounding community.<sup>5</sup> This is not theoretical - the appendix to these comments includes several examples of schools and libraries promoting the availability of broadband service to surrounding households.

The Commission should not limit the funding to only the equipment listed in the statute.<sup>6</sup> While the legislation identifies some specific types of equipment (such as modems and hot spots) that must be included, it does not say that funding can “only” be used for this equipment. In fact, the House Commerce Committee report language encourages the Commission to support “different technological solutions, including residential broadband service provided in different forms, or through WiFi hotspots . . .”<sup>7</sup> If the Commission limits eligible equipment “only” to these listed types of equipment, vast numbers of students and library patrons would not be able to be connected by this program, thereby undermining the purposes of the statute to provide such connections. Related to this, the Commission asks if it should “interpret ‘advanced telecommunications and information services’ to include the equipment necessary to deliver these services to connected devices as eligible?”<sup>8</sup> The traditional E-rate program has, in fact, allowed funding for the equipment used to provide

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<sup>5</sup> See, [https://www.shlb.org/uploads/Policy/Infrastructure/SHLB\\_ToAndThrough\\_Overview.pdf](https://www.shlb.org/uploads/Policy/Infrastructure/SHLB_ToAndThrough_Overview.pdf).

<sup>6</sup> Nor should the Commission limit the funding to “existing service providers” as [some](#) have already suggested. There is no limitation to existing service providers in the legislative language, and doing so could take off the table the opportunity for schools and libraries to take advantage of the most innovative and cost-effective technologies available.

<sup>7</sup> See, [Report of the Committee on the Budget, House of Representatives, to accompany H.R. 1319](#), the American Rescue Plan Act, Feb. 24, 2021, pp.306-307 ( “Additional emergency funding will ensure that students and low-income Americans have access to reliable high-speed internet in locations other than schools and libraries through different technological solutions, including residential broadband service provided in different forms, or through WiFi hotspots, either incorporated into mobile phone or provided on a standalone basis, among other things.”)

<sup>8</sup> Public Notice, p. 7.

eligible services. We strongly encourage the Commission to make all such equipment eligible for the ECF funding as well. The ARPA legislation’s intent was not just to allow students and patrons to receive service via existing networks but from new networks as well, especially if no existing networks reach a student or library patron’s home. In fact, the Commission should make *all* connectivity options available to schools and libraries as they seek to bring broadband to their communities with ECF funding.

Furthermore, the Commission should provide support for both immediate and long-term approaches to addressing the digital divide, whether on- or off-campus. The legislation allows funding to be used in an open-ended manner to locations “that include locations other than” the school or library. In so doing, the legislation makes irrelevant the on-campus/off-campus restriction that has sometimes limited the use of traditional E-rate program funding. The language also makes funding available from the beginning of the pandemic in January 2020 through the year 2030, which gives the FCC the flexibility to enable schools and libraries to invest in long-term solutions to address the “Homework Gap” well beyond the strict timeline of the pandemic.

**III. The adoption of budget caps (similar to the budget caps used to allocate Category 2 funding) will provide fiscal discipline while also making it unnecessary for the Commission to adopt overly regulatory limitations on use of the funds.**

Congress clearly intended the Commission to award this funding quickly in order to address the emergency, combined with safeguards to ensure that the funding is administered and spent in a proper manner. The Public Notice asks several detailed questions that suggest an intention to establish unnecessarily strict regulatory control over the program. For instance,

several of the suggestions – such as overseeing how the technology is being used, determining whether or not a needs assessment must be conducted, or identifying the specific location of hot spot deployment – are overly intrusive. And requiring schools and libraries to record which individuals used any ECF supported services or equipment and make that information readily available to the Commission or USAC violates student and patron privacy laws. These excessive controls may discourage schools and libraries from participating in the program, which would jeopardize its purposes of connecting unconnected students and library patrons.

We agree with the comments already submitted by E-Rate Central and Funds For Learning that establishing a budget cap on the distribution of funding would address almost all of the concerns about waste, fraud and abuse, while also expediting the award of funding. By providing a fixed amount of funding per school district or library, the school districts and libraries can determine the best and most efficient means of providing service to their communities without fear that they will drain the fund with wasteful expenditures. Schools and libraries are long-standing and trusted community institutions that are already subject to enormous oversight by school boards and municipal officials, so there is no need for the Commission to look over their shoulders to determine whether they made the best possible choice. As long as the funds are used for broadband equipment, services and devices, the schools and libraries themselves are better equipped than federal government officials to determine what particular services and devices best meet the needs of their communities. Furthermore, by choosing to award funding through the E-rate program, which has a proven track record of success, Congress indicated its confidence that schools and libraries and the existing E-rate process are well-suited to distributing this funding equitably without the need

for the Commission to second-guess their choices, especially during this national emergency. Strong audit and enforcement efforts, which SHLB supports, will provide additional deterrent to any improper behavior.<sup>9</sup>

**IV. The Commission should also waive or eliminate the cost allocation rule, as requested in the SHLB et al. Petition.**

SHLB respectfully renews its request that the Commission clarify that the off-campus use of broadband services and equipment for the purpose of facilitating remote learning constitutes an educational purpose, making those services and equipment eligible for ECF support. The requested ruling would make it unnecessary for schools or libraries to cost-allocate between on- and off-campus uses, thereby giving them greater flexibility to use their existing broadband connections for educational purposes to connect students, teachers, library patrons and staff to the Internet from their homes. The Commission should state specifically that, for the duration of the ECF funding, applicants do not have to forgo traditional E-rate funding when those services are used for remote learning off-campus. The statement should clarify that the school/library can use its existing E-rate supported fiber (dark or lit) or wireless services for backhaul to the internet service provider (ISP) point of presence, without losing any of its existing E-rate funding. The immediate granting of this relief would mean that applicants do not have to undertake the complicated cost allocations for their ECF applications or amend their traditional E-rate applications already filed earlier this year. Furthermore, using existing

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<sup>9</sup> The SHLB Coalition is continuing to evaluate the specific dollar amounts and formulas used to calculate the amount of the budget. We note at this time that there may be a need to adjust these formulas to recognize the higher costs of serving some students and library patrons at home, particularly in rural areas. In particular, there should be a “safety valve” that allows schools and libraries to seek additional funding beyond the budget for high-cost areas where additional network facilities are necessary.



(E-rate paid for) capacity available at the school reduces waste. There is no reason to pay for extra Internet circuits when capacity already exists, particularly after hours when students need connectivity for homework. Allowing existing E-rate funded networks for off-campus use can promote public/private partnerships where Internet service providers and other providers can connect students/teachers using the school's backhaul – thus reducing the overall cost for the new connections.

**V. Answers to specific questions raised in the Public Notice.**

With this background, the SHLB Coalition is pleased to provide more specific answers and recommendations to several of the questions raised in the Public Notice:

- a. **Universal Service Administrative Company (USAC):** We agree with the FCC's conclusion that USAC is well-positioned to administer the funding for this program. Having said that, we are concerned that the administration of this ECF program might affect the processing of traditional E-rate program applications (as has happened with USAC's administration of the Rural Health Care program, which suffered because of the implementation of the COVID-19 Telehealth program funding. We respectfully suggest that USAC should use different staff to administer the ECF program funding than the staff used to process traditional E-rate applications. The ECF program should not delay the operations of the traditional E-rate funding and using separate staff will ensure that the two programs can run simultaneously and in parallel without confusing either program.
  
- b. **Performance Goals:** The Commission asks whether it should adopt performance goals for the ECF program. We suggest that the Commission adopt high-level administrative goals at the beginning of the program, such as establishing benchmarks for USAC to approve applications in a certain period of time, and for schools/libraries to make purchasing decisions within a certain period of time after receiving an award. However,

the measurement of other goals, such as the increase in the number of broadband subscribers, can vary by a wide amount from region to region, especially because the Emergency Broadband Benefit (EBB) program subsidies may overlap with the ECF program, making it difficult to determine in advance how many subscribers will result from each program.

- c. **Eligibility:** We support the eligibility of consortia of schools and libraries, as the Commission suggests. Such consortia are already permitted in the traditional E-rate program, and consortia applications can reduce the paperwork for both applicants and for USAC. SHLB also supports changing the definition of Tribal Libraries in the E-rate program to recognize the 2018 change in the definition of Tribal Libraries in the Library Services Technology Act (LSTA) and to make sure that Tribal Libraries are eligible for this ECF program as well. This is a small but crucial step the Commission must take to fulfill its statutory obligation in the American Rescue Plan Act. Tribes should be able to designate a tribally-owned entity as a library both for traditional E-rate funding and for ECF funding provided that the entity meets the minimum requirements of the Institute of Museum and Library Services (IMLS). The Commission should consult with IMLS regarding the amended definition.
  
- d. **Eligible Equipment:** On page 5, the Commission suggests it will “provide funding only for equipment and services that are needed to provide the connectivity required to enable and support remote learning for students, school staff, and library patrons.” The Public Notice does not provide examples of what kinds of equipment are needed or not needed. SHLB believes that audio and videoconferencing equipment and services are increasingly essential for students, teachers, staff and library patrons to engage in online learning. We also suggest that cybersecurity services should be eligible for support, especially because the expansion of connecting devices from locations other than the school/library increases the risk of cyber-attacks or harmful interference. To state the

obvious, gameboxes and other equipment that is purely for entertainment purposes should not be covered.

**We respectfully suggest that the Commission should allow other types of equipment to be eligible for support beyond the five types of equipment identified in the statute if it is “needed” for broadband connectivity.** For instance, eligible equipment should be defined to include antennas and wireless access points and fiber electronics needed to provide such connectivity. As mentioned earlier, the statutory language does not limit “eligible equipment” to include “only” the five types of equipment. Furthermore, the legislation allows funding for any “advanced telecommunications and information service” and historically the equipment used to provide such services have been E-rate eligible. (Stated differently, it would be contradictory for the Commission to fund the service mandated by law but not fund the equipment to provide such service.) The equipment marketplace is constantly innovating; limiting the funding only to these five types of equipment could skew the market in favor of certain technologies over others. Rather than trying to identify each type of equipment, the Commission should add “or equivalent technology” to the definition of eligible equipment. This would be consistent with the legislative intent as expressed in the House Commerce Committee report language and would be comparable to the legislative definition of “connected device” that allows “similar” end-user devices. Furthermore, the phrase “or equivalent” comports with the E-rate’s current program rules.<sup>10</sup>

- e. **Limits on Types of Advanced Services:** We respectfully disagree with the Commission’s tentative conclusion to limit the types of eligible services only to those services made available with the listed equipment.<sup>11</sup> The statutory language does not limit the types of

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<sup>10</sup> When submitting a Form 470 applicants cannot list the specific make or model of products or services without also allowing *equivalent products and/or services to be bid*. See slide #18 in the E-rate Pre-Commitment Process, 2020 Applicant and Service Provider Training. November 5, 2020 ([https://www.usac.org/wp-content/uploads/e-rate/documents/Webinars/2020/fall\\_training/11-05-2020-Pre-Commitment-Slides\\_2020T.pdf](https://www.usac.org/wp-content/uploads/e-rate/documents/Webinars/2020/fall_training/11-05-2020-Pre-Commitment-Slides_2020T.pdf)).

<sup>11</sup> Page 6 of the public Notice says “In considering the specific category one services the Commission should make eligible for purposes of the Emergency Connectivity Fund, we propose that such services be limited to those that can be supported by and delivered with eligible equipment as defined in the American Rescue Plan.”

eligible services, and, as previously mentioned, the House Commerce Committee report language suggests that the schools and libraries use “different technological solutions, including residential broadband service provided in different forms.” We also note that it is illogical for the Commission to rule out the “construction of new networks” because the statute explicitly endorses the placement of hot spots and other forms of connectivity at locations other than the school or library. Such deployment might necessarily involve some “construction” of new towers and antennas, especially in rural markets where there may not be any existing service at all. Furthermore, section 254(h)(2) of the E-rate statute itself (which is the foundation for the ECF funding) specifically calls for the FCC to adopt “competitively neutral” rules when defining “advanced services”. Limiting the funding to existing, already deployed services would conflict with the E-rate statutory language, the ECF statutory language supporting the deployment of hot spots and other technologies, and with the purposes of the legislation.

- f. **Minimum Service Standards:** There is no reason for the Commission to depart from its existing definition of broadband services as 25 Mbps down and 3 Mbps up as a guideline or goal for this emergency legislation. Of course, schools and libraries should be encouraged and permitted to seek higher speeds or more advanced services if they are available. Alternatively, if a less robust form of broadband is the only way to connect students and library patrons, then that service should be eligible for support even if less than the 25/3 broadband goal.
  
- g. **Locations:** The FCC should not limit the locations that the schools and libraries seek to deploy hot spots, access points, antennas or other broadband services and equipment. There is too much disparity from community to community, and a heavy-handed federal approach that attempts to dictate or limit schools’ and libraries’ decisions would be counter-productive and overly intrusive. The FCC should, for instance, encourage schools and libraries to offer broadband connectivity on school buses, bookmobiles, or

in kiosks or lockers, and other non-traditional locations. This policy could enable libraries to set up virtual sites in housing projects or neighborhood community centers, which could be extremely useful means of bridging the digital divide in some communities.<sup>12</sup> In fact, as noted earlier, the program should allow schools and libraries to enhance their existing broadband infrastructure for the purpose of connecting students/patrons, such as for backhaul, if necessary to help connect more students and library patrons to broadband.

- h. **Documentation of One Per Person:** We respectfully disagree with the suggestion that schools and libraries should be required to document each student or patron that uses the broadband connection in order to promote “efficient” use of funds.<sup>13</sup> This burdensome requirement would discourage schools/libraries from participating and would be completely unnecessary. By definition, hot spots and other wireless access points are meant to be shared by multiple people simultaneously, making it virtually impossible to determine which users are served by each piece of equipment. Schools and libraries already have an incentive to maximize the use of their available funds, particularly if the FCC adopts a budget approach to distributing the funding. We support the suggestions that school buses, bookmobiles and other mobile locations should be eligible for this funding. The FCC does not need to adopt specific rules governing the placement of these devices – there is no need for any rules or restrictions on their placement.
  
- i. **“Educational Purposes”:** Similarly, the FCC does not need to adopt specific rules governing the use of this equipment. For the FCC to adopt such usage rules conjures up

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<sup>12</sup> <https://www.bibliotheca.com/solutions/pick-up-lockers/>.

<sup>13</sup> See Public Notice, p. 8: “To maximize available funds, we propose that the Commission require that schools document the student(s) and staff member served at each supported location and prohibit schools from providing more than one supported connection and more than one connected device to each student or staff member. Likewise, we propose that the Commission require libraries to document the patron or patrons served at each supported location and prohibit libraries from providing more than one supported connection and one connected device to any one patron at a given time.”

a “big brother” image of the government looking over the shoulder of each student/patron. The internet is such a powerful source of information that the FCC should presume that any broadband equipment or service purchased by a school or library with ECF funding is for “educational purposes.” The FCC makes this presumption for on-campus use<sup>14</sup> and thus it should make this presumption for off-campus use too.

- j. **“Reasonableness” and “Competitive Bidding”**: We agree with the Commission’s proposal on page 10 that state and local procurement rules are already in place to ensure that the rates are ‘reasonable’. The adoption of budget caps also provides protection against wasteful spending, and the potential of post-award audits reinforces the importance of being careful stewards of funding. With these protections in place, there is no need for a requirement that schools and libraries go through a competitive bidding process. This is particularly important for schools and libraries that already purchased equipment and services and are seeking retroactive reimbursement. The Commission correctly suggests that schools and libraries should simply “certify that they have complied with all applicable state, Tribal, or local procurement requirements with respect to the contracts they used to purchase eligible equipment and services.”
  
- k. **Retroactivity**: Some schools and libraries purchased broadband services and equipment when schools first began to close down in March 2020. These schools and libraries should not be punished for acting quickly to ameliorate the harm from the pandemic. Therefore, schools and libraries should be entitled to retroactive reimbursement back to the beginning of the pandemic in January, 2020 (to the extent they have not already received funding for this equipment or service from other federal funds).
  
- l. **Filing Window**: We agree with the idea of opening a filing window for applicants as soon as possible after the adoption of the rules in this proceeding. To allow schools and libraries the time to comprehend the rules for this program, and to place orders for

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<sup>14</sup> CFR, Title 47, Subpart F, 54.500.

equipment and services, we suggest the filing window should be open for 45 days and also allow applicants to start their procurement process in advance of the filing window. While the school district or library should not be required to have and file a final contract for equipment and services, it should have a written document identifying its specific costs to submit with its application for funding. A provision should be made for one or more additional windows in the event that approved applications in the first window do not fully deplete available funds.

- m. **Certification:** Schools and libraries should also be required to self-certify that they are not receiving financial support from another funding program that duplicates the funding they are seeking from the ECF.
- n. **Reimbursement by Vendors Allowed:** The FCC should allow either the school or library to submit an invoice for reimbursement, or the vendor should be allowed to file for its share of the funding so that the school/library does not have to pay for the entire costs of the project up-front.
- o. **End of the Program:** There should be no limitation on what schools/libraries are able to do with the equipment purchased with ECF funds, as long as the school/library actually uses or tries to use the equipment or services for its intended purpose. However, schools and libraries should not be permitted simply to purchase, warehouse and resell the equipment without an intention to use it.

The SHLB Coalition appreciates the opportunity to provide these comments. If you have further questions, you may feel free to reach me at the contact information below.

Sincerely,



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**“TO AND THROUGH” BROADBAND EXAMPLES**

*The SHLB Coalition believes that deploying broadband service [“to and through”](#) community anchor institutions can be a cost-effective way to bring affordable broadband to surrounding residential consumers. The following provides examples of schools and libraries implementing this “to and through” approach or partnering with private sector companies to help solve the digital divide.*

**APRIL 2021**

***Mayer Public Library, Mayer, AZ.***

Mayer Public Library was provided a [grant](#) to give Mayer families internet access so they can safely learn and access important resources virtually. The funds will be used to purchase 10 hotspots, 10 Arizona Science Center CONNECT Explore Subscriptions, and 10 months’ worth of data for the hotspots. Community members will benefit because families will have access to STEM learning through the Arizona Science Center in the safety of their homes. They will also have internet access for important needs, such as job applications, filing for unemployment, and virtual schooling.

***Arlington Public School: Arlington, VA***

Through a [\\$500K](#) Arlington County Government grant, the Arlington Public Schools (APS) began a program in the 2020-21 school year in partnership with Comcast to pay for up to twelve months of [Comcast Internet Essential Services](#). Eligible families receive a bandwidth of 25/3 mbps download/upload in their home. APS also established a [1-2-3-Connecte Me program to use CBRS spectrum on a trial basis](#) to reach additional families. This initiative financed by the Governor's Fasttrack Broadband Funding program, is an extension of broadband services off of the APS & County owned fiber network using CBRS (Citizen’s Broadband Radio Service). This technology allows for the set up of a private network solely for student use, to connect to the APS network from home, to continue distance learning instruction and access APS resources, but does not require the County to build additional fiber to create the extension.

***Berkeley Unified School District: Berkeley, CA.***

The district [partnered with existing service provider SONIC](#) to allow families who did not already have a contract with SONIC to sign up for high speed fiber-optic internet service without cost to them for the school year. The current program will last through July 2021, though the school hopes to explore options to continue the program for low-income families.

***BiblioTech: San Antonio, TX***

BiblioTech is the nation’s first all-digital public library and serves Bexar County, an area southwest of San Antonio. The library has launched [BiblioTech Connect](#), an effort to provide Internet access for up to

100 disadvantaged and/or rural area students within Southwest Independent School District. The Library targeted an area where 32% of homes have no broadband access. It is providing wireless Internet by placing small cells on water towers to extend wireless service from the school buildings to homes over CBRS spectrum.

***Brooklyn Public Library: Brooklyn, NY***

Brooklyn has the largest broadband access gap of any borough; nearly 30 percent of all Brooklynites and 40% of low-income households have neither home nor cellular broadband with even higher rates of disconnection among lower-income residents. Brooklyn public libraries began a program called [BKLYN Reach](#), installing rooftop antennas on their buildings in October 2020 to boost their wifi signals an additional 300 feet beyond their building. The library estimates between 1100 and 3600 people live within 300 feet of their branches, all of whom should be able to access this wifi today at [23 current branches](#) with more to come. The Library is also adding Wi-Fi service to bookmobiles to deliver the service throughout the borough.

***Boulder Valley School District: Boulder, CO.\****

The Boulder Valley School District's [ConnectME](#) pilot program partners with [Live Wire Networks](#) to give nearly 1,000 families to the Internet since the COVID crisis closed schools in the spring of 2020. The district added routers on school buildings in those communities so students can at least upload and download assignments. The partnership also provides about 60 students, those who qualify for federally subsidized lunch, free internet service.. In exchange for installing short-range towers on the school campuses, the city allows Live Wire Networks access to the district's fiber network.

***Council Bluffs Community: Omaha, NE.\****

The Council Bluffs city council and school district manages the community's free wifi network, called [BLink](#), covering the city including its schools. The Council Bluffs Area Wi-Fi Consortium (CBAWC) is charged with maintaining the network and relationships between the partners. BLink is [low bandwidth](#) and is not meant for streaming; it is primarily intended to deliver basic internet to as many as possible. The network project began in 2014 and is a permanent fixture of the community.

***Dallas School District: Dallas, TX.***

The Dallas School District is putting up towers to [broadcast Internet service for free](#) to students in need. Five towers, which cost about \$500,000 each, broadcast the district's internet service into neighborhoods with high levels of need, determined by students on free and reduced lunch programs. They hope to build permanent infrastructure for the community for post-pandemic life. Note: This article quotes then-Commissioner Rosenworcel as saying, ""We need to give schools the tools they need to help solve the Homework Gap," said [acting FCC Chairwoman Jessica Rosenworcel](#). "Thanks to the FCC's efforts, the 3.5 GHz band is a powerful slice of wireless spectrum that

can do just that. I hope we can use the early success of these schools as a model for other parts of the country too.”

***Digital Lead: The Public Library Association and Microsoft Corp.: 22 Various Locations.***

Microsoft teamed up with the Public Libraries Association to grant [\\$400,000 to 22 rural libraries to purchase hotspots](#) to bring Internet access to consumers in need. These libraries were selected through an application process eligible to public libraries in rural areas.

***East Side Union High School District: San Jose, CA.\****

A \$2.7 million tech bond allowed the East Side Union High School District to create [211 wifi access points](#) which provides Internet access to [75%](#) of San Jose’s students. This was part of a pre-COVID pilot project which has already shown demonstrable increases in student performance. According to New America, the district’s students no longer suffer from a homework gap, thanks to a “Wi-Fi for Everyone” partnership with the City of San Jose that has built out a dual-use, mesh Wi-Fi network, which is currently being expanded into additional neighborhoods.

***Fredericksburg City Public Schools: Fredericksburg, VA.\****

The Fredericksburg City Public Schools is poised to transmit Internet access service to some of its students using [CBRS spectrum](#), although it would prefer to use the Educational Broadband Service (EBS) spectrum. The school district filed an FCC petition to use EBS in 2020 because the range of EBS signals is much farther (8 miles radius) and would cover another 40% of the city. T-Mobile filed an official opposition to the city’s EBS petition and the FCC has not acted. The school district intends to keep pushing for a permanent EBS network while using CBRS to provide Internet to as many students as possible in the meantime.

***Fontana Unified School District: Fontana, CA.***

The Fontana Unified School District is partnering with Crown Castle Fiber to establish a private LTE wireless network using [citizen’s broadband radio service \(CBRS\)](#). The school distinct will cover the cost of the limited trial to connect some of the 55% to 60% of students who say they do not have reliable internet at home. This program, approved in April 2020, is intended (as of now) to last five years. Fontana Unified’s private network will deliver high-speed, unmetered access using the existing CBRS spectrum, supported by nearly 400 cellular nodes positioned throughout school district boundaries. Those nodes can also benefit the Fontana community by laying the infrastructure to support the expansion of technologies, such as 5G.

***Imperial County Office of Education: El Centro, CA.***

Imperial County established a private network using a [Department of Agriculture grant](#) in 2018. The LTE network is called [Borderlink](#) and connects students' and teachers' school devices anywhere in 120 sites, including 30 anchor institutions. The county is hopeful that the network will last beyond COVID.

***Kings County Office of Education: Hanford, CA.***

The Kings County Office of Education decided in 2009 to [build its own LTE broadband network](#), called KingsNet, using the EBS frequencies. Kings County consists of mostly farmland in southern San Joaquin Valley. KingsNet provides students and employees with [subsidized internet service](#) and is in the process of improving its infrastructure by building more towers. The subsidies are designed to make access more affordable specifically to staff members and students of the school system. The school system administration manages applications and creates accounts for families. School districts pay KCOE \$10 a month for each 4G LTE device, but expects the cost per unit will decrease as the program expands. KingsNet currently provides approximately 3,500 devices to students, distributed through schools and/or districts. KCOE believes the program has resulted in improved student academic performance, increased student participation, fewer disciplinary issues, improved parent/student collaboration, and greater overall benefits to their communities.

***Lindsay Unified School District: Lindsay, CA.\****

The Lindsay Unified School District worked with the city and community to install antennas on schools, city buildings, and private homes to create a [cellular network](#) and provide its 4200 families Internet at no cost to them. In 2016, the school district estimated the startup cost of \$1.25 million to install antennae and hotspots. The anticipated ongoing maintenance cost is \$75,000 per year (\$17 per Lindsay student). The network is planned to last beyond the pandemic and benefit the students and their families.

***Maryland Department of Education: MD.\****

Using \$15 million of CARES Act and Governors Emergency Education Relief (GEER) funding, the state of Maryland is in the process of [rolling out a rural wireless network](#) to serve unserved communities in Maryland primarily using the CBRS frequencies. Funding will flow through the Department of Education, which will work with nonprofits, and the Office of Rural Broadband. Officials are currently engaged in [a feasibility study](#) to explore using existing towers to deploy antennas. They hope the network will be up and running by the end of 2021. This project would provide Internet access for students at first and then expand to other rural Maryland residents.

***McAllen Independent School District: McAllen, TX.\****

Using a \$6 million CARES Act reimbursement, the McAllen Independent School District created a [CBRS](#) network by mounting antennas on city water towers, light poles, and utility poles in September 2020. The town is located just 11 miles from the Mexican border. Initially, the district purchased more than 8,000 Wi-Fi hotspots for homes without connectivity, but officials soon learned that this was not an adequate

solution. The district partnered with Cambium Networks and Federated Wireless who provided expertise, service, and equipment at no cost. While initially built for the district's 8,000 students, the city has allowed all residents access to the network. This network intends to last beyond the pandemic.

***Murray City School District: Salt Lake City, UT.***

Using a CARES Act grant, the Murray City School District created a [private LTE network](#) using CBRS that will provide Internet service to 6,000 students at no cost to the families. This dedicated centrally managed cellular network will enable students to keep their critical online studying, class sessions, and coursework separate from all other traffic at home. The network is intended to last beyond the pandemic and create a lasting benefit for students and families in the area.

***Nebraska Indian Community College: Various Locations, NE.***

Nebraska Indian Community College is a public tribal land-grant community college with three locations on tribal land in NE. The College worked with five other K-12 school districts to establish a private LTE network in the area using an Educational Broadband Service (EBS) license. They partnered with [Red Rover Ltd. and Baicells](#) to install base stations at each of the three community college campuses and used the fiber to each location for backhaul. This ensures affordable connectivity to rural students in Nebraska.

***Northern Michigan University: Marquette, MI.***

Northern Michigan University created the [Educational Access Network](#) (EAN), a private LTE network connecting 50 mostly rural Michigan communities with internet service, including [21,000 miles of connectivity and 6 tribal communities](#). The University works with municipalities to attach LTE equipment to existing public infrastructure in order to connect under-connected areas. The service has been so popular that NMU expanded service beyond the students to allow the general population access to its network.

***Patterson Unified School District: Patterson, CA.\****

The Patterson Unified School District explored deploying hot spots but found them unsatisfactory. Instead, the district used CARES funding to create a CBRS network, contracting [Bearcom](#) for the installation of the 10 Motorola Solutions towers. The LTE network will be accessible to 6,000 students and their families across 8 schools. [The total cost of the project is roughly \\$2 million.](#) All traffic on the CBRS network is routed back to the district central office and through its firewall.

***Pittsburg Community Schools: Pittsburg, KS.***

The Pittsburg school district partnered with the city of Pittsburg to create a private LTE network, Dragonnet, to service approximately [500 families](#) at no cost to them. The program is for all students, though those who engaged in remote learning may be prioritized. Using a Broadband Partnership

Adoption grant from the second round of Kansas' COVID relief, the city will put up [6 antennas](#) with the intention of creating full coverage for the city. The connections will last beyond the pandemic.

***Pottsboro Area Public Library: Pottsboro, TX.\****

Pottsboro Library Director Diane Connery said the library initially tried using hot spots but they did not work very well. Using CARES Act funding, the [rural library](#) began installing equipment at the regional airport in July 2020 to expand its wifi to 40 nearby homes. They intend to use further grants to provide hotspots specifically geared at connecting K-12 students to Wifi.

***Poultney Public Library: Poultney, VT.***

The Poultney Library expanded its Wifi service into the city's downtown, creating [free broadband access at all hours](#). Access to this service is open to citizens as well as businesses, who are able to access the Wifi for their staff as well as allow customers access. This has made their downtown area a permanent WiFi "zone" which will benefit the town into the future.

***Texas Education Agency: TX.***

The greater Texas Education Agency is working to close the digital divide by providing free at-home internet available to every public school student beyond the pandemic. They have stated they [intend to connect students and that they are working with private ISPs](#). The plan is in early stages but would likely be a cooperative effort between the school system and private ISPs. This would create permanent infrastructure for students in Texas.

***Vermont Department of Public Service: VT.***

When the COVID crisis hit, the [Vermont Department of Public Service](#) contracted for the rapid installation of 190 commercial-grade outdoor Wireless Access Points around the state of Vermont to provide adequate wireless internet and Wi-Fi calling services for telehealth, contact tracing, distance learning, e-government, remote working, and other COVID-19-related needs.

***Utah Education and Telehealth Network: Salt Lake City, UT.\****

Operated out of the University of Utah, the [Utah Education and Telehealth Network](#) services all schools, libraries, universities, colleges, hospitals, clinics, and health departments. UETN is providing private LTE networks, which [according to UETN](#), extends internet access across a wide area without incurring high data usage or infrastructure investment costs. A CBRS pilot that was planned for four locations turned into an \$800,000 project that will connect 25 schools at the outset. TLC Solutions installed Quortus core platforms for 5G service. Schools are provided with SIM cards that connect to the [CBRS](#) and edge routers that function as LTE hotspots and connect the students of Utah schools.

***Williamsburg Libraries: Williamsburg, VA.***

Williamsburg is repurposing [bookmobiles](#) as WiFi hot spots as a way to [extend broadband access](#) into communities which may be lacking adequate broadband. The library has been parking its bookmobile outside schools, grocery stores, and community centers so that locals can connect to their Wi-Fi hotspots from their cars. Anyone can connect to their wireless network for free from up to 30 feet away. The mobiles drive in and stay in these communities as long as possible in order to share the library's Wi-Fi resources.

\*updated examples from the New America's Nov. 2020 Report: [“The Online Learning Equity Gap”](#)