

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of )  
 )  
Addressing the Homework Gap Through the ) WC Docket No. 21-31  
E-Rate Program )

**COMMENTS OF  
THE SCHOOLS, HEALTH & LIBRARIES BROADBAND COALITION  
AND  
THE OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA**

The Schools, Health & Libraries Broadband Coalition (SHLB) and the Open Technology Institute at New America (OTI) submit these comments in response to the Commission’s Notice of Proposed Rulemaking regarding E-Rate support for Wi-Fi hotspots for remote learning.<sup>1</sup> SHLB and OTI are longtime advocates for cost-effective and inclusive strategies to eliminate the Homework Gap.<sup>2</sup> In fact, SHLB and OTI jointly filed a Petition for Rulemaking in January 2021 specifically calling for E-Rate funding to be used to support broadband access for students and

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<sup>1</sup> *Addressing the Homework Gap Through the E-Rate Program*, WC Docket No. 21-31, Notice of Proposed Rulemaking, FCC 23-91 (rel. Nov. 8, 2023) (*Notice*).

<sup>2</sup> SHLB is a broad-based public interest coalition of more than 330 organizations that share the goal of promoting open, affordable, high-quality broadband for anchor institutions and their communities. SHLB members include schools, libraries, representatives of health care providers and telehealth networks, state broadband offices, private sector companies, state and national research and education networks, consulting firms and consumer organizations. For a current list of SHLB members, see <http://shlb.org/about/coalition-members>. OTI works at the intersection of technology and policy to ensure that every community has equitable access to digital technology and its benefits, including universal and affordable access to communications technologies that are both open and secure. More information can be found at <https://www.newamerica.org/oti/about/>.

library patrons lacking Internet access at home.<sup>3</sup> For that reason, SHLB and OTI applaud the Commission’s proposal to allow E-Rate support for Wi-Fi hotspots: if adopted, this proposal will dramatically improve students’ ability to participate in remote learning and enrich their education online. In these comments, SHLB and OTI recommend additional steps the Commission should take to ensure that the school districts and libraries most in need of this support are not left behind, and that E-Rate applicants have the flexibility to choose the most cost-effective service that suits their needs.

SHLB and OTI have long supported the use of E-Rate funding to serve students and library patrons outside of the school or library building. The E-Rate program is uniquely positioned to bridge the digital divide, which disadvantages millions of students across the country. During the past few years, it has become even more clear just how essential access to the Internet is, especially for students. Students who do not have home Internet access often cannot complete their homework and cannot take advantage of online educational opportunities—from videos that teachers create to allow students to review a lecture at their own pace to educational supports, such as the educational website Khan Academy, that allow students to watch lectures on various subjects, practice math problems, or prepare for a college entrance exam. A May 2022 survey by the Pew Research Center found that among middle- and high-

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<sup>3</sup> SHLB, OTI, et al., Petition for Expedited Declaratory Ruling and Waivers Allowing the Use of E-Rate Funds for Remote Learning During the COVID-19 Pandemic, *Modernizing the E-Rate Program for Schools and Libraries*, WC Docket No. 13-184 (Jan. 26, 2021) (SHLB/OTI Petition).

school students living in households with income under \$30,000, at least 24 percent reported they were not able to complete homework assignments due to a lack of Internet access at home.<sup>4</sup>

The COVID-19 pandemic brought heightened attention to the unmet need for remote learning capability, prompting Congress to establish the Emergency Connectivity Fund (ECF) in 2021. The ECF helped millions of students and library patrons access the Internet when schools or libraries were closed and continued to support remote learning after they reopened. However, the ECF program will sunset in less than six months, on June 30, 2024.

Fortunately, the Commission’s proposal to provide E-Rate support for off-premises use of wireless services for educational purposes will allow many students to continue learning at home. However, SHLB and OTI believe that the Commission’s proposal to limit E-Rate support to Wi-Fi hotspots will leave many students behind and will cost the E-Rate program more over the long term. To avoid this outcome, SHLB and OTI urge the Commission to incorporate the following recommendations into its final rules:

- Schools and libraries that have no commercially available mobile carrier services should be able to receive E-Rate funding for off-premises Internet access using other wireless solutions.
- Instead of limiting funding to commercially available Wi-Fi hotspot devices and mobile carrier service, the Commission should allow funding for any wireless service that provides comparable Internet access to student homes and library patrons, as long as it is the most cost-effective option, because other wireless options can be less expensive and provide better service for some schools and libraries.
- Rather than limit eligibility to a single wireless technology, the Commission should apply the E-Rate competitive bidding requirements and the requirement that applicants pay the non-discounted share to the newly eligible off-premises services,

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<sup>4</sup> Monica Ander, Michelle Favario and Colleen McClain, “How Teens Navigate School During Covid-19,” Pew Research Center (June 2, 2022), <https://www.pewresearch.org/internet/2022/06/02/how-teens-navigate-school-during-covid-19/>. The report also found that 43 percent in this same low-income cohort often relied on cell phones or public Wi-Fi access to do their homework.

which will ensure that whatever wireless solution an applicant chooses will be the most cost-effective option.

- The Commission should waive or eliminate the E-Rate cost-allocation requirement for off-campus services that enable remote learning. This would allow schools and libraries to use the E-Rate supported services at the school/library location to distribute Internet access through a private LTE or similar service without receiving additional E-Rate support but without losing E-Rate support they would otherwise be eligible for—a Homework Gap “community use” rule, essentially.
- The Commission should apply certain existing E-Rate rules to the off-campus services.
- The Commission should ensure that any additional requirements are not burdensome, so that applicants are not discouraged from participating in the program.

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**I. THE COMMISSION HAS THE LEGAL AUTHORITY TO EXPAND THE E-RATE PROGRAM TO SUPPORT INTERNET SERVICE “OFF-CAMPUS” WITH THE GOAL OF REDUCING THE HOMEWORK GAP**

SHLB and OTI agree with the Commission’s tentative conclusion that the Commission has the authority under section 254 of the Communications Act to permit E-Rate support for services used for educational purposes off-premises.<sup>5</sup> As SHLB and OTI have previously argued, section 254(h)(1)(B) of the Communications Act does not prohibit the provision of E-Rate support for off-premises services, but merely requires that off-premises use serve primarily educational purposes.<sup>6</sup> SHLB and OTI agree that providing E-Rate support for the off-premises use of Wi-Fi hotspots and services ““enhance[s], to the extent technically feasible and economically reasonable, access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms . . . and libraries.””<sup>7</sup> SHLB and OTI also agree that the Commission’s proposal is consistent with the Commission’s exercise of its authority under section 254(h)(2)(A) to establish the Connected Care Act and to authorize E-Rate support for Wi-Fi on school buses.<sup>8</sup>

**II. THE COMMISSION SHOULD ALLOW APPLICANTS TO SERVE STUDENTS, SCHOOL STAFF, AND LIBRARY PATRONS OFF-CAMPUS USING THE MOST COST-EFFECTIVE METHOD AVAILABLE**

SHLB and OTI appreciate the Commission’s proposal to allow the use of E-Rate support for off-premises Internet access. SHLB and OTI respectfully recommend, however, that the Commission modify its proposal to allow school districts to choose the wireless services and distribution mechanisms that best serve their needs, and the needs of their students, provided that

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<sup>5</sup> Notice ¶ 46.

<sup>6</sup> *Id.* ¶ 46; SHLB/OTI Petition at 20-25.

<sup>7</sup> Notice ¶ 46.

<sup>8</sup> Notice ¶ 49; SHLB/OTI Petition at 22-23.

the applicants select the most cost-effective service. This approach would make the Commission's proposed action more consistent with the rules applicable to every other type of eligible service. It also would give applicants greater flexibility and control over their own networks, to the benefit of both the applicants and the E-Rate program, and it could save the E-Rate program money.

To be eligible for E-Rate support, the broadband services contemplated by this proposal must be sufficient to support remote learning indoors, and program rules should allow applicants to ensure that such indoor use is sufficient for online learning before having to select their service provider. SHLB and OTI agree with the Commission that it should consider the overall cost to the program when determining eligibility of services, and we believe our suggestions concerning cost-sharing and competitive bidding would incentivize applicants to provide services effectively, efficiently, and in a fiscally responsible manner.

#### **A. Wi-Fi Hotspots Used Off-Premises Should Be Eligible for E-Rate Support**

The Commission proposes making Wi-Fi hotspots eligible for E-Rate support and proposes to define a hotspot as “a device that is capable of (a) receiving advanced telecommunications and information services; and (b) sharing such services with a connected device through the use of Wi-Fi.”<sup>9</sup> SHLB and OTI agree that this definition should be used to provide support for Wi-Fi hotspots. However, the Commission should also allow the cost for equipment receiving the wireless signal to be eligible whether it is a cellular modem embedded in the end-user computing device or a Wi-Fi hotspot.<sup>10</sup> As described by the Dallas Independent

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<sup>9</sup> Notice ¶ 19.

<sup>10</sup> To be clear, we are not suggesting that the program pay for the entire cost of the end-user computing device, only the portion of the cost that covers the equipment or function necessary for the end-user device to receive the wireless services.

School District in its comments in this rulemaking, this approach would allow school districts to provide one device to students, instead of multiple devices, and could be accomplished at the same cost as or less than a separate Wi-Fi device.<sup>11</sup> As Dallas ISD proposes, the Commission could either revise its proposed definition of Wi-Fi hotspot or add embedded wireless modems as a separate eligible item.<sup>12</sup> The device could be portable or resident in a fixed location, such as a student home.

The Commission also proposes to limit eligibility to those Wi-Fi hotspots “receiving mobile services.”<sup>13</sup> SHLB and OTI urge the Commission not to limit eligibility to hotspots receiving commercial mobile services. As described below, there are hotspots that receive fixed wireless services that may provide better and less expensive solutions for some school districts. Even if the Commission declines to make eligible the cost for services or equipment located at the applicant’s buildings for fixed wireless solutions, it should allow hotspot devices distributed to students or patrons, or installed at the customer premises, to be eligible for support.

**B. The Commission Should Allow Applicants to Receive E-Rate Support for Off-Premises Services They Provide to Students, Staff and Patrons Using Their Own Equipment, Instead of Limiting Support to Services Provided by Commercially Available Mobile Wireless Carriers**

The Commission proposes to permit schools and libraries to receive E-Rate support only for “commercially available Internet access services (e.g., a data plan) that will be used on any individual user Wi-Fi hotspot.”<sup>14</sup> The Commission acknowledges that this proposal will not address the connectivity needs of all students, school staff and library patrons caught in the

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<sup>11</sup> Comments of Dallas Independent School District, WC Docket No. 21-31, at 2-3 (filed Jan. 12, 2024).

<sup>12</sup> *Id.* at 3.

<sup>13</sup> *Notice* ¶ 19.

<sup>14</sup> *Id.* ¶ 21.



Homework Gap, and seeks comment on other off-premises uses that meet the definition of an educational purpose.<sup>15</sup> Alternatively, the Commission seeks comment on whether other types of off-premises services should be funded via E-Rate when there is no commercially available mobile service or the existing service is insufficient to allow students, school staff or library patrons to fully engage in remote learning.<sup>16</sup>

SHLB and OTI urge the Commission to allow applicants to receive E-Rate support for off-premises services they provide to their students, staff, and patrons using their own equipment, instead of only allowing support via commercially available mobile carrier services. As the Commission acknowledges, there are many schools and libraries serving areas that cannot receive commercially available mobile broadband services at all. There are also many schools and libraries whose students and patrons ostensibly have access to commercially available mobile wireless services, but those services do not actually support remote learning indoors. Finally, even where commercially available mobile services are available and sufficient for remote learning, some schools and libraries—and the E-Rate program—may be better served by other wireless options, especially when those services are less expensive over the longer term.

**1. Using Commercially Available Mobile Service Can Be an Adequate Solution for Some, But It Does Not Bridge the Digital Divide for All**

As the Commission has noted, in some rural and remote parts of the country, commercially available mobile broadband service that is robust enough to support remote learning simply does not exist. It is for this reason that in the ECF program, the Commission authorized funding for the construction of new facilities where applicants could prove that they

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<sup>15</sup> *Id.* ¶ 27.

<sup>16</sup> *Id.*

lacked access to commercially available options.<sup>17</sup> That approach was successful in those cases where applicants actually received funding to construct their own infrastructure: students in geographically remote parts of the country that had no access to commercially available options gained access to home broadband service capable of supporting remote learning for the first time.

For example, in Alaska, two school districts—Lower Yukon School District and Northwest Arctic Borough School District— had no commercially available options capable of supporting remote learning, so they were able to use ECF funding to install new infrastructure.<sup>18</sup> As a result, the students in these districts gained access to remote learning capability for the first time, with transformative results. In Lower Yukon, for example, a majority of the curriculum is now available online, and students and parents can track grades, attendance, progress reports, and report cards through an online platform, 24 hours a day. Disruptions of in-person learning are more common than they are elsewhere due to the harsh climate: freezing weather, blizzards, power and water outages, flooding, even a typhoon in 2022. In the past, the district dealt with school closures by having students pick up paper packets and return them to school. Now, thanks to the ECF program, students can continue their regular daily coursework at home during school closures—a vital resource that the students and teachers of the district have come to depend on.<sup>19</sup>

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<sup>17</sup> *Establishing Emergency Connectivity Fund to Close the Homework Gap*, WC Docket No. 21-93, Report and Order, 36 FCC Rcd 8696, ¶¶ 40-41 (2021) (*ECF Order*).

<sup>18</sup> *See* Request for Clarification and Waiver by Lower Yukon School District, CC Docket No. 02-6 (filed Sept. 27, 2023) (Lower Yukon Request for Waiver); Request for Waiver by Northwest Arctic Borough School District and OTZ Remote Villages Home Internet Support, WC Docket No. 21-93 (filed July 5, 2023).

<sup>19</sup> *See* Lower Yukon Request for Waiver at 6-7.

In short, the ability to purchase and install new broadband infrastructure changed the lives of hundreds of mostly Alaska Native students in two of the most geographically remote school districts in the country. Without E-Rate support, this new infrastructure will be stranded, and these students will be right back where they started, on the wrong side of the digital divide. For that reason, the Commission should allow funding for new network deployment where there are no commercially available options suitable for remote learning, as it did in the ECF rules.<sup>20</sup> The Commission's proposal to limit the award of E-Rate support to traditional commercial mobile services providers could leave applicants like Lower Yukon and Northwest Arctic without any E-Rate support for off-premises remote learning. These areas, many of which are predominantly serving Native or Tribal communities, would be left even further behind. The purpose of the universal service programs is to try to ensure access by all Americans to advanced telecommunications and information services. Adopting the Commission's proposal without providing for these applicants would only further exacerbate the digital divide. At a minimum, then, the Commission's new rules should provide support for applicants that have no access to commercially available services capable of supporting remote learning.

But there is another category of applicant that is at risk of being left behind by the proposed rules: applicants that ostensibly have access to commercially available options but discover that those options do not provide connectivity capable of supporting remote learning. Many school districts tried to use Wi-Fi hotspots using mobile carrier services before and during the ECF program, but in many areas they simply could not obtain mobile service with indoor

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<sup>20</sup> In addition, if the applicant received funding for new network infrastructure from the ECF program, it should be presumed to be eligible for E-Rate funding for new network equipment and services as well.

coverage or throughput sufficient for remote learning.<sup>21</sup> During the pandemic school shutdowns, many districts found (including through cellular signal sampling) that while mobile carriers “cover” virtually the entire district with a signal adequate to make phone calls outdoors, the signal strength and throughput in many low-income neighborhoods is not adequate to support remote learning—especially not indoors, where there is often no coverage at all. Mobile “coverage” across a neighborhood outdoors is a very different metric than the availability of a reliable mobile signal and high-capacity broadband throughput inside individual student homes.

The Fresno Unified School District (Fresno USD), a largely exurban city in California’s Central Valley, is a case in point.<sup>22</sup> When the pandemic school shutdowns occurred, the district experienced major challenges with students trying to connect from home. The district gathered data on network connectivity using a speed test application it developed, including approximately 14 million measurements.<sup>23</sup> Fresno USD also tested mobile carrier RF coverage through “drive tests” in student-populated neighborhoods to find out where mobile carrier signals were too weak to support indoor remote learning.<sup>24</sup> It found that many very low-income and outlying areas in the district did not have mobile broadband coverage sufficient to support

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<sup>21</sup> Notably, many schools found that mobile carrier service might have been available in a certain neighborhood—and sufficient to make phone calls or possibly web browsing outdoors—but did not work inside a student, staff or patron home. In other areas, particularly outlying rural or exurban portions of a district, there may be no mobile carrier broadband service at all.

<sup>22</sup> Fresno USD has approximately 70,000 students with 89 percent on free and reduced lunch.

<sup>23</sup> Letter from Kristen Corra, Schools, Health & Libraries Broadband (SHLB) Coalition, to Marlene H. Dortch, FCC, *Addressing the Homework Gap Through the E-Rate Program*, WC Docket No. 21-31 (Nov. 3, 2023).

<sup>24</sup> Regarding wireless connectivity in particular, the district discovered that fewer towers and older equipment are located in areas of poverty. Philip Neufeld, Fresno’s executive officer for information technology, noted that this problem in many low-income neighborhoods was partly confirmed when AT&T self-reported, based on its own measurements, that in 15 of 22 public middle and high schools in Fresno the carrier would need to install micro cells on top of school buildings because the signal strength did not meet FirstNet standards for reliable connectivity.

remote learning indoors. As a remedy, the district decided to target those neighborhoods with a private LTE network that used schools as towers to transmit Internet access (using CBRS spectrum) directly to hotspot/CPE devices distributed to students at home.

Unfortunately, by limiting support to commercially available options, the ECF program failed to take this situation into account. SHLB and OTI urge the Commission not to leave school districts in this situation behind again. The Commission should also defer to the applicant's assessment of whether broadband service capable of supporting remote learning is in fact available, rather than relying solely on the service providers who have an incentive to exaggerate their service coverage. In short, the Commission's proposal to limit funding to commercially available mobile services provided to students, patrons and school staff homes via a Wi-Fi hotspot will leave too many students and community members without an off-premises option supported by the E-Rate program. Indeed, the lowest-income and most rural households are most likely to be excluded from this program if schools must rely solely on commercial mobile services. For the reasons described above, the Commission should not limit eligibility of supported services to the one model it has proposed.

## **2. Other Types of Wireless Service Delivery to the Home Are Cost-Effective and Can Increase the Commission's Impact on the Homework Gap**

While the Commission's proposal is an excellent first step, SHLB and OTI recommend that the Commission allow off-campus E-Rate support for various wireless services that can deliver Internet connections to student homes, instead of limiting support to commercially available mobile services, as the Commission proposes in the *Notice*, and as was the case in the ECF program. This approach would allow school districts in areas of the country that lack commercially available alternatives capable of supporting remote learning to participate in the program, rather than be left even further behind. In addition, allowing other wireless solutions

will save the E-Rate program money over the long run. As described below, the evidence to date suggests that wireless solutions other than commercially available mobile wireless services can actually be less expensive than the service the Commission is proposing as the only option. In addition, alternative solutions can be designed to provide better and more reliable indoor connectivity that is sufficient to support remote learning at home or in other locations away from school. Among other advantages, a school-sponsored or -controlled network that connects students directly back to the school network will have usage data on the throughput, latency, security and other metrics for each individual student's connection.<sup>25</sup>

Accordingly, rather than favor one type of solution over others, the Commission should allow applicants to choose any wireless solution that provides home Internet access to students, whether directly or with the applicant itself handling distribution of service to student homes, provided that the applicant has found it to be the most cost-effective option via a competitive bidding process. This approach would be consistent with the E-Rate competitive bidding rules, and with the Commission's longstanding position that applicants are in the best position to determine their own needs and should be granted maximum flexibility to do so.

Specifically, instead of funding home broadband access only where a commercially available mobile provider extends service all the way to the household, as the Commission has proposed, the Commission should give applicants the option to take responsibility for distributing wireless service to their students' homes, directly connecting students to the school's

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<sup>25</sup> For example, a collection of 12 school district case studies published by SHLB and OTI in August 2022 describes how Fresno USD collects and analyzes data on student connections to its school network. See Matthew Marcus and Michael Calabrese, *The "To and Through" Opportunity: Case Studies of Schools and Community Networks Able to Close the Homework Gap for Good* at 27 (Aug. 2022), available at <https://www.shlb.org/uploads/Policy/Policy%20Research/Anchor-Nets-Case-Studies-final.pdf> (SHLB/OTI Case Studies).

network. Under this “applicant distribution model,” the applicant purchases commercially available Internet access service from a service provider to the school building, then distributes (i.e., extends) the wireless broadband service to student, staff and patron homes itself.

This “applicant distribution model” stands in contrast to the “service provider distribution model,” typified by traditional mobile hotspots (MiFi), where the service provider extends service directly to the student’s home. Both models use hotspots or hotspot-like devices. For that reason, SHLB and OTI believe that the Commission should be agnostic as to which entity extends the service to the student’s home. The applicant distribution model would allow students and school staff to reap the benefits of E-Rate-supported Internet access for remote learning; it would let the school district handle matters such as assessing need, ensuring that supported services are being used, and content filtering—all of which could be managed by the school district rather than by the service provider. By incorporating this option into its new rules, the Commission would make these benefits possible with no corresponding drawbacks and would place the focus of the rules where it belongs: not on what technology is used to provide the service, but on whether the service is cost-effective.

In recent years, particularly in response to the pandemic’s remote learning crisis, dozens of school districts and libraries have used a variety of wireless technologies and business models to connect students and patrons directly to their network from home. In August 2022, SHLB and OTI released detailed case studies of 12 districts that are using the “applicant distribution model” to either partly or in some cases completely close the homework gap in their district.<sup>26</sup> These

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<sup>26</sup> *See id.* Because of the lack of adequate and reliable commercial mobile carrier hotspot services sufficient to support remote learning, particularly indoors in many low-income and less densely populated areas, some school districts have taken the initiative to connect students directly to school networks using non-commercial wireless networks and home

case studies represent a variety of innovative models and wireless technologies—including partnerships with municipalities and/or local wireless Internet service providers—that together establish that reliable and high-capacity indoor broadband connectivity can serve areas where mobile carrier service is inadequate, nonexistent, or too expensive over a multi-year period. Some are pilots, some deployed at scale (*e.g.*, Fresno USD and San Jose, CA), and a few now cover their entire district (*e.g.*, Council Bluffs, Iowa; Lindsay, CA). All of the districts profiled leverage free public access to unlicensed spectrum (Wi-Fi), the Citizens Band Radio Service (CBRS), Educational Broadband Service licenses (EBS) or, in one case, a combination of all three.

Fresno USD is an example built to scale. After determining that the commercially available mobile hotspot service would not be sufficient to support remote learning, Fresno USD decided to install its own private LTE network using public, no-cost access to CBRS spectrum. Placing antennas that broadcast the wireless signal on the school (“schools as towers”), the LTE signal is received by a CPE hotspot device issued to individual students lacking home Internet access. Like a commercial MiFi hotspot, the CPE receives the wireless signal and relays it as Wi-Fi to the student’s school-issued Chromebook. The district both authenticates the devices on the network and monitors usage. In its next phase, Fresno USD is putting transmitters on an additional 35 towers using 66-foot poles and improving the coverage of base stations on single-story elementary schools that sit below tree level. Combined with its existing 15 sites, the network will provide more robust service that covers about two-thirds of the geography of the

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hotspots/customer premises equipment (CPE) distributed to students. In local areas lacking adequate mobile network coverage or signal strength, a school district that deploys its own private LTE network to connect directly to a student-issued device at home (*i.e.*, a hotspot) can address the student’s educational needs by delivering more robust, reliable and cost-effective connectivity.



student population. Fresno also buys monthly subscriptions for mobile carrier hotspots in certain circumstances where it would not be cost-effective to provide private LTE service.

In addition to Fresno, the school districts in Pullman, Washington, and in Lindsay, California, are illustrative. Pullman Public Schools is a small six-school district with 2,700 students located in Whitman County in southeastern Washington. While the city of 32,000 is home to Washington State University, it is a rural farming region. An estimated 120 students live outside of Pullman in the rural parts of the county. As the school district responded to the pandemic, it discovered that its rural students did not have any broadband service options or cellular service. This meant that hotspot loans (through ECF, for example) would not get them adequate connectivity needed to participate in school. In response, the Pullman Public Schools, in conjunction with the state of Washington, developed a private LTE wireless network using CBRS spectrum to connect the students in need. The project involved erecting six semi-permanent towers using school property or free/low-cost leases. To connect the students to the network, the district purchased 60 Band-48 capable Chromebooks for some students, as well as CPEs and home-mounted antennas for others.

Lindsay Unified School District (LUSD), which serves an overwhelmingly low-income farmworker community in California's Central Valley, has pioneered a hybrid school distribution model that has closed the homework gap completely and demonstrably boosted educational achievement.<sup>27</sup> The roughly 75 percent of student households below the poverty line lacked home Internet access when the district began the network prior to the pandemic. LUSD deployed, in stages, a hybrid network that relies on Wi-Fi access points in the town areas, CBRS in the less densely populated exurban areas, and EBS in outlying rural areas. Student homes are

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<sup>27</sup> *Id.* at 52-59.

outfitted with hotspot CPE to ensure a reliable and high-throughput connection back to the school's network, which monitors and filters data traffic. LUSD's total cost of deploying the three-tiered network, including equipment and installation, was roughly \$800,000 (\$266 per student household connected).<sup>28</sup> Moreover, ongoing operating costs are only \$17 per connected student annually. The district has also documented substantial improvements in high school graduation rates, college attendance, and standardized test scores since the network and blended digital curriculum were implemented.<sup>29</sup>

While few library systems are extending broadband access directly to patrons at home, an E-Rate discount for the cost of at least the hotspot CPE loaned to patrons would make this option very cost-effective. This is the conclusion of the New York Public Library system (NYPL), which last year completed a successful pilot using CBRS, with antennas mounted on local branch libraries in very low-income areas.<sup>30</sup> The libraries lend hotspot CPEs to low-income patrons. NYPL officials reported that they would expand this hotspot-lending program if the CPE hotspot devices were lower-cost or subsidized.

The modest \$266-per-student-household cost in Lindsay USD is entirely consistent with an August 2022 economic study published by SHLB and OTI that found that the deployment of wireless network connections by schools and libraries that extend home broadband service directly to students, patrons, and staff at home (what SHLB calls the "to-and-through" approach) can often be the most low-cost and financially sustainable option to connect households in

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<sup>28</sup> *Id.* at 56-57.

<sup>29</sup> *Id.* at 56.

<sup>30</sup> See Mike Dano, "New York Library to Offer Internet through Fixed Wireless, Fiber," *Light Reading* (Nov. 27, 2023), <https://www.lightreading.com/private-networks/new-york-library-to-offer-internet-through-fixed-wireless-fiber->.

unserved and underserved areas.<sup>31</sup> The study, conducted by Columbia University economist Raul Katz, concluded that the purchase of monthly service from a commercial ISP costs far more than obtaining similar service over a comparable period of time through a private LTE or Wi-Fi network of the type being deployed by school districts in Fresno, Lindsay, Council Bluffs, San Jose or other jurisdictions.<sup>32</sup>

Using the actual cost data from the initial phase of deployment by the Fresno and San Jose school districts, the study found that the total cost per student connected over a five-year period is far lower using a school or community deployment model using either a CBRS or Wi-Fi network, as compared to purchasing mobile carrier hotspots and monthly service subscriptions.<sup>33</sup> For example, based on the costs of Fresno’s phase one deployment, the total five-year cost of using CBRS spectrum and LTE base stations mounted on the school buildings to connect a student directly to the school’s network ranges from \$250 to \$350.<sup>34</sup> The estimated cost of the CPE/hotspot device represents \$160 of that cost. The San Jose school district used a mesh Wi-Fi network with a large number of access points mounted on municipal-owned street lights. San Jose’s costs amounted to roughly \$370 per student connected.<sup>35</sup> In contrast to those

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<sup>31</sup> The study can be found on SHLB’s website. See Dr. Raul Katz, *The “To and Through” Opportunity: An Economic Analysis of Options to Extend Affordable Broadband to Students and Households via Anchor Institutions*, at 3 (August 2022) (“Katz Cost Comparison Study”), available at <https://www.shlb.org/policy/research/to-and-through>.

<sup>32</sup> See *id.* at 6.

<sup>33</sup> *Id.* at 6 (Table A), Estimates in this paragraph derive from summary Table A and the individual cost tables cited for each option. Dr. Katz quantified and compared the investment and operating costs of each option on a per-connection basis over a five-year period, which is the approximate useful life of private LTE and Wi-Fi network and CPE costs, including installation. A total of 19,000 students connected was assumed in each scenario for comparison purposes.

<sup>34</sup> *Id.* at 6 (Table A), 26 (Table III-10).

<sup>35</sup> *Id.* at 6 (Table A), 29 (Table III-13).

two projects, the estimated five-year cost of a mobile carrier MiFi hotspot device and monthly service subscription totaled between \$1,684 per student (based on an assumed \$30 per month subscription fee) and \$2,425 per student (based on an assumed \$45 per month service fee).<sup>36</sup> Even assuming \$15 a month for a mobile carrier subscription and an average \$100 for each MiFi device, the total five-year cost would be roughly \$840 per student connected, which is more than double the cost of the school deployment model relying on either CBRS or Wi-Fi technology.

Long-term, then, the costs for schools or libraries to deliver service to student, staff or patron homes can be lower than commercial carriers can provide. Of course, the cost differential could vary substantially depending on the scale and density of a school district or library network, as well the geography and other factors. As such, requiring the use of commercially available mobile wireless services may actually cost the program more money, instead of limiting expenditures, as the Commission's proposal aims to do.

A model with service distributed by the school can also be qualitatively better. For example, some wireless mobile services include a data cap, which is not likely to be the case in applicant distribution models. In addition, such an applicant model would provide more control by the school of what can be accessed over the network, thus eliminating a concern expressed by the Commission regarding educational use. And by backhauling the packets from off-campus sites through the school's network, the service will be subject to the school's filter. Doing this would "ensure that minors are not accessing harmful content through E-Rate-funded Internet access"<sup>37</sup> even when third-party devices are used.

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<sup>36</sup> *Id.* at 6 (Table A), 18 (Table III-4).

<sup>37</sup> *Notice* ¶ 55.

Finally, the ECF rules did not allow an applicant that did have access to commercially available mobile broadband to choose a different technological solution that might have better suited the applicant's needs. This approach was understandable during an emergency and in response to school shutdowns; the program was intended to make these services available to students as quickly as possible, which favored a streamlined approach to eligible services. There was no competitive bidding requirement and no requirement that applicants pay for part of the service, as in E-Rate. The Commission therefore needed a different way to ensure that applicants were purchasing cost-effective services, and the data the Commission relied on at the time suggested that Wi-Fi hotspots were generally the cheapest option and could be deployed quickly.<sup>38</sup>

Here, however, there is no need for an emergency workaround: the E-Rate competitive bidding requirements and the requirement that applicants pay the non-discounted share can ensure the cost-effectiveness of an applicant's chosen service, eliminating the need to limit eligibility to one particular type of wireless service. There is also no need to act as quickly as was required in the ECF program, which was intended to address an emergency need. SHLB and OTI believe it is now time to take a longer-term approach that is better able to close the homework gap for all low-income students and in a more cost-effective manner.

**C. The Commission Should Use the Cost-Effectiveness Standard to Determine Eligibility of Wireless Services**

Schools and libraries should be able to choose whichever wireless approach is the most cost-effective before the E-Rate discount. As we have explained, other types of solutions—namely, wireless solutions managed by the applicant—can be less expensive and provide a better

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<sup>38</sup> See *ECF Order* ¶¶ 36-37.

qualitative experience, depending upon the needs and characteristics of the particular school or library. To ensure that the solution adopted is the best one for the applicant's particular circumstances, SHLB and OTI suggest that the Commission incorporate current E-Rate regulations that require applicants to seek bids for any possible wireless solutions that could serve students off-premises, including commercially available mobile services, and conduct a bid evaluation process wherein the applicant is required to select the most cost-effective service.

This process would be similar to the process adopted by the Commission in the 2014 Second Modernization Order where an applicant is allowed to purchase dark fiber or build its own network, even where leased lit or managed services are already available in the market, as long as the applicant considers the traditional service option and concludes that dark fiber or self-provisioned services are most cost-effective. The Commission could require that applicants compare the cost of commercially available services to the cost of a school-distribution model by evaluating the cost based on the number of students or patrons expected to be served.<sup>39</sup>

The *Notice* seeks comment on whether the requirements that applicants conduct competitive bidding processes and pay the non-discounted share of the cost of service are sufficient safeguards against wasteful spending.<sup>40</sup> SHLB and OTI believe that the existing E-Rate rules will prevent wasteful spending *as long as* applicants are permitted to consider other technologies in addition to Wi-Fi hotspots. As it is, the Commission's proposal would weaken the existing safeguards in the rules by artificially restricting the services for which applicants can solicit bids. Rather than adopting additional and potentially burdensome safeguards, the

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<sup>39</sup> Applicants can use other factors to determine cost-effectiveness, just as the rule allows today, as long as price is the primary factor. If no commercially available services are bid, then obviously the applicant would only compare the pricing of other solutions.

<sup>40</sup> *Notice* ¶ 22.

Commission should allow the E-Rate rules to work as they are designed to work, by allowing applicants to consider any cost-effective technological solution that can meet its needs. If the Commission adopts the requirement that applicants pay part of the cost of the service—as SHLB and OTI believe it should—then applicants should be able to seek out and purchase the best-priced options to serve their students. Without this option to purchase the most cost-effective solution, program rules would force them to pay a higher price for the specific eligible service than they otherwise would.

### **III. THE COMMISSION SHOULD ELIMINATE THE REQUIREMENT TO COST-ALLOCATE WHEN USING E-RATE SERVICES OFF-PREMISES**

Even if the Commission declines to provide funding for applicant-controlled wireless networks, the Commission should waive or eliminate the E-Rate cost-allocation requirement for off-campus services that enable remote learning.<sup>41</sup> Doing so would be a low-cost way to allow students, school staff and library patrons to obtain services for off-premises educational use. Simply waiving the cost-allocation rule would allow schools and libraries to use the E-Rate supported services at the school/library location to distribute Internet access through a private LTE or similar service without E-Rate support—a Homework Gap “community use” rule,

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<sup>41</sup> Historically, the Commission’s approach has been that most off-campus services are not eligible. See *Schools and Libraries Universal Service Support Mechanism; A National Broadband Plan for Our Future*, CC Docket No. 02-6, GN Docket No. 09-51, Sixth Report and Order, 25 FCC Rcd 18762, 18778 ¶ 41 (2010). (“[O]ur rules presume that services used on school or library premises are serving an educational purpose . . . . If a device that provides wireless Internet access service, such as a laptop or other mobile computing device, is taken off school or library premises, however, applicants are required to cost-allocate the dollar amount of support for wireless Internet access use for the time that the device is not at the school or library and remove that portion from its E-rate funding request.”); see also *Wireline Competition Bureau Confirms That Community Use of E-Rate-Supported Wi-Fi Networks Is Permitted During School and Library Closures Due To COVID-19 Pandemic*, CC Docket No. 02-6, WC Docket No. 13-184, Public Notice, 35 FCC Rcd 2879 (2020).

essentially. The E-Rate program would incur very few additional costs, once the service is up and running.

This is an example of how this would work: a school district purchases 10 Gbps for its high school to use during the school day. The school district then deploys its own private LTE network to connect students off-campus. Primarily used outside of school operating hours, students and school staff with access to the private LTE network via password can connect to the school's network to do homework, watch educational videos, or whatever educational use the school district allows.<sup>42</sup> The only two expenditures are for (1) upfront equipment installation and (2) the monthly recurring charge for the 10 Gbps of Internet access, which the school is purchasing anyway.

Under the current E-Rate rules, if that school district provided, say, one-fourth of its total 10G capacity to students and staff after hours, it would have to decrease its monthly E-Rate funding request by one-fourth—even though the amount of the funding request would be exactly the same with or without the after-hours service. Also, in many cases, the cost of the ineligible service that has to be cost-allocated out of the E-Rate funding request is so small that it is lower than the administrative cost to the applicant of doing the cost allocation.<sup>43</sup> In addition, because it is difficult to calculate after-hours use of E-Rate-supported services accurately, some school districts purchase separate circuits without E-Rate funding in order to provide Internet access outside of school hours for remote learning, rather than risk violating the cost-allocation rule. Waiving or eliminating the rule for off-premises use for the purpose of remote learning would

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<sup>42</sup> We would also suggest the Commission allow use during the school day by students who cannot be physically present in the building, *e.g.*, because they are ill.

<sup>43</sup> In a request for waiver filed with the Commission in 2016, the Boulder Valley School District in Colorado made this point. *See* Petition for Waiver on Behalf of Boulder Valley School District, WC Docket Nos. 13-184, 10-90, at 3-4 (filed May 16, 2016).



make this extra expense unnecessary, saving applicants money with little to no additional cost to the program.

The Commission could require applicants to certify they are not requesting more bandwidth than they would purchase for use within the school building, just as required now by the “community use” rule. Allowing off-premises use without requiring cost-allocation would only be a minor change from the existing rules, which allow community members to use the school’s E-Rate supported service. SHLB and OTI’s suggestion of eliminating cost-allocation also would provide greater value to the program and federal dollars by allowing additional use of the network at no additional cost.

At a minimum, SHLB and OTI request that the Commission clarify its recently adopted 10 percent rule, under which applicants do not have to cost-allocate ineligible use of an applicant’s Internet access services.<sup>44</sup> The Commission should clarify that “ineligible use” references include any off-premises use that is not made eligible by a Commission order. While off-premises use is currently ineligible with minor exceptions, the examples provided by the Commission when adopting the rule all were for ineligible use within a school or library building.<sup>45</sup>

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<sup>44</sup> *Schools and Libraries Universal Service Support Mechanism*, CC Docket Nos. 02-6, 96-45, 97-21, Report and Order and Further Notice of Proposed Rulemaking, FCC 23-56, ¶ 26 (rel. July 21, 2023) (*Tribal Libraries Order*) (“[W]e adopt a presumption that if at least 90% of an applicant’s requested Internet service is being used for eligible purposes, the remaining ineligible use of the Internet service will be presumed to be ancillary and, therefore, cost allocation is not required.”).

<sup>45</sup> *Id.* ¶¶ 36-37.

#### IV. THE COMMISSION SHOULD APPLY CERTAIN EXISTING E-RATE RULES TO THE OFF-CAMPUS SERVICES

The *Notice* asks various questions about whether and to what extent current E-Rate requirements should apply to newly eligible off-campus services as well. In this section, SHLB and OTI offer their recommendations. As a general matter, it is appropriate to apply certain existing E-Rate rules to off-campus services, including:

- The general competitive bidding framework;
- The price-as-primary-factor rule;
- The discount matrix; and
- The requirement that applicants pay the non-discounted share of the service.

Applying the current rules to off-campus services will protect against waste, fraud, and abuse. In addition, if the Commission applies the existing competitive bidding requirements to off-campus services, there will be no need for a usage requirement. To ease the burden on smaller schools, school districts and libraries, SHLB and OTI recommend that the Commission allow an exemption to the competitive bidding rules for small-dollar requests—say, under \$10,000 per year. If the Commission is not amenable to this, we ask that the \$3,600 exemption it adopted in its July 21, 2023, *Tribal Libraries Order* be broadened to include this exemption for libraries and schools on all E-Rate eligible services, be they Category One or Category Two.<sup>46</sup>

The *Notice* also asks about the applicability of the Children’s Internet Protection Act (CIPA) to the off-campus services the Commission proposes to add to the Eligible Services List.<sup>47</sup> SHLB agrees with the Commission’s conclusion that CIPA does not apply to the use of any third-party-owned device.<sup>48</sup> The Commission asks if it should require filtering at the

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<sup>46</sup> In the *Tribal Libraries Order*, the Commission granted a \$3,600 bid exemption for libraries purchasing Category Two (internal connections) equipment and services. *Id.* ¶ 19.

<sup>47</sup> *Notice* ¶¶ 53-58.

<sup>48</sup> *Id.* ¶ 54.

network level to help ensure minors are not accessing harmful content.<sup>49</sup> CIPA already requires schools and libraries to have Internet safety policies, including measures to protect against visual depictions harmful to minors. Thus, we suggest that, rather than specifying where filtering should occur or that third-party devices be filtered, the Commission rely on the Internet safety policies and the more than 20 years of experience that schools and libraries have in addressing issues of inappropriate Internet use by minors.

**V. THE COMMISSION SHOULD CAREFULLY BALANCE THE BURDENS ON APPLICANTS WHEN CONSIDERING ADDITIONAL REGULATIONS**

It is essential that the Commission carefully consider the burdens on applicants of additional regulations, including those relating to usage, use, educational purposes, and recordkeeping. Overly burdensome requirements will discourage participation in the program. Furthermore, any new requirement applicable to off-campus services must be clear, and new requirements must be adopted by the Commission through notice-and-comment rulemaking—not by USAC. SHLB and OTI suggest that if the Commission adopts documentation requirements, those requirements should be clear and determined before the program begins. We note that this program will be different from the ECF program in that applicants will presumably have to pay the non-discount share and conduct competitive bidding processes—both of which will work to ensure the applicants are making the best use of the supported services.

With respect to some of the specific issues raised in the *Notice*, SHLB notes that libraries might have an issue tracking one device per household, as libraries check out devices to a library patron without reviewing that patron's address. In addition, requiring schools, libraries or

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<sup>49</sup> *Id.* ¶ 55.

service providers to track the monthly usage of a given recipient of service or requiring some minimum amount of usage will create more work than it is worth.

The current 10-year requirement to retain all E-Rate related records is already burdensome enough without requiring the creation of additional documentation, e.g., on unmet needs and monthly usage. We are also concerned about privacy issues with respect to student- and patron-identifiable information being submitted to USAC. With respect to the latter, we ask the Commission to allow schools and libraries to erase the student or library patron's name once the Wi-Fi hotspot device is returned. We see no benefit to the Commission or USAC to know, maybe years later, that a particular student or patron checked out a hotspot device. An even better approach would be simply to not require the name of the user in the first place.

SHLB and OTI do not support limiting hotspot purchases to once every three years: applicants cannot yet estimate need with that degree of accuracy, and limiting purchases to once every three years would leave applicants unable to replace stolen or damaged equipment as needed. Finally, rather than requiring certification by the end user, it would be less burdensome to require schools and libraries to certify that devices are being used primarily for educational purposes.

## **VI. THE COMMISSION SHOULD ALLOW SCHOOLS AND LIBRARIES FLEXIBILITY ON STUDENT AND EQUIPMENT ELIGIBILITY**

Finally, SHLB and OTI offer their recommendations on student and equipment eligibility. First, the Commission should not limit E-Rate eligibility to services associated with hotspots purchased using ECF program funds.<sup>50</sup> While many schools and libraries participated in ECF and distributed hotspots and services to students and patrons, others may have chosen not

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<sup>50</sup> *Id.* ¶ 21.

to participate, whether due to uncertainty about the program or some other limitation. Further, some may have been *unable* to participate, for example if they could not submit their funding request by the deadlines, if their funding request was denied, or if the funding request was approved too late to purchase and deploy equipment and services prior to the program winding down. Limiting funding to ECF participants would thus undermine the Commission's goal of closing the Homework Gap. Additionally, those applicants that did purchase hotspots through ECF might not want to continue the service associated with their ECF-funded devices. For example, the service might not provide the bandwidth students or patrons need to sustain indoor learning, video capability, or other types of remote services they require. Furthermore, limiting eligibility to ECF-funded equipment and services could be problematic if that equipment is not reusable. For example, when the ECF program sunsets and a school or library's hotspot contract ends, the SIM might be "locked," preventing the school or library from reusing the same equipment in the future.

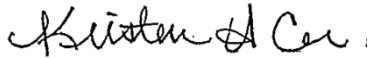

Second, the Commission should allow school and library applicants to receive hotspot devices and service from multiple service providers simultaneously (which could include the school or library itself under the applicant distribution model explained above). Because the goal of this initiative is to accommodate off-campus connectivity, the school or library must be given the tools and flexibility required to meet that need. For example, one provider might supply adequate service in a particular area of the community but fall short of meeting the remote learning needs for students and patrons in other areas. As such, the school or library should have the flexibility to work with multiple service providers so that no students or patrons are left behind based solely on where they live. We additionally note that support for multiple service providers should not be limited only to rural areas. Even school districts or libraries in

suburban areas may need to use multiple service providers because of the geographic size of their service area.

**VII. CONCLUSION**

SHLB and OTI commend the Commission for taking important steps to eliminate the Homework Gap and requests that the Commission incorporate their recommendations into its final rules.

Respectfully submitted,

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