



March 27, 2024

SUBMITTED ELECTRONICALLY VIA ECFS

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street NE
Washington, DC 20554

Re: Ex Parte Filing

Addressing the Homework Gap Through the E-Rate Program, WC Docket No. 21-31

Dear Madam Secretary:

Pursuant to Federal Communications Commission’s *ex parte* rules, I hereby submit the following summary of our March 25, 2024 conversation with Elizabeth Cuttner, Chief Legal Advisor to Chairwoman Rosenworcel, to discuss considerations for the Commission’s Notice of Proposed Rulemaking regarding E-Rate support for Wi-Fi services for remote learning (Proposal).¹

The following individuals from the Schools, Health & Libraries Broadband Coalition (collectively “SHLB”) participated in the call: John Windhausen, Jr., Executive Director, SHLB Coalition; Kristen Corra, Policy Counsel, SHLB Coalition; Matthew Elder, Director for Business IT Operations, Boulder Valley School District; Kristin Humphries, Superintendent, East Moline School District 37; and Branson Rasko, CTO, East Moline School District 37.

SHLB reiterated its support for the Commission’s Proposal that would allow the E-rate program to fund wireless Internet services for remote educational purposes. We additionally discussed that there are alternative technology options (including varying devices and Internet service offerings) outside of those associated with traditional mobile carrier “hotspots” that can connect students and library patrons at home. Specifically, schools and libraries might choose to deploy other types of broadband services using Wi-Fi or CBRS spectrum to connect those lacking Internet access in their communities. These options might not only provide the district with a more cost-effective and manageable network compared to maintaining and tracking traditional hotspots, but it can also offer students and library patrons with more robust service

¹ 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).

that is needed to engage in remote learning.² Given this, SHLB urges the Commission to allow E-rate applicants the flexibility to choose any comparable equipment (including devices like subscriber modules and other types of customer premises equipment (CPE), and antennas and access points, as described below) and wireless service (like CBRS and Wi-Fi spectrum) if it is the most cost-effective option.

East Moline School District

Kristin Humphries and Branson Rasko of the East Moline School District 37 (located in East Moline, Illinois) discussed the district's deployment of a mesh Wi-Fi network into the surrounding community. The East Moline District has about 2,300 students from Pre-K through eighth grade. The community speaks forty-four languages and has a high poverty rate (all students qualify for free and reduced lunch). The district created a one-to-one program so that all students could receive a laptop/device, but during the Covid-19 pandemic they discovered that many families could not afford Internet service. Many students had to sit in parking lots outside of McDonald's or the local library to receive a wireless signal.

The district first turned to traditional mobile hotspots to solve the Homework Gap in its community. It found, however, that many student devices wouldn't work with hot spots due to poor mobile coverage and tower placement. Additionally, managing over 2,000 carrier hotspots was difficult for its six-person IT department, especially because they didn't control access and thus couldn't easily diagnose issues.

East Moline subsequently obtained state and local foundation funds to organize an alternative connectivity solution. It worked with SmartWAVE Technologies to purchase access points and placed them on top of existing infrastructure like streetlights. All student devices automatically connect to the network at no cost wherever they are situated, and filtering is done directly from the device. Using equipment like access points and switches to run this separate network was favorable for the district, because it is modeled after their internal school-based network, which is familiar for both the district and students. Further, unlike traditional hotspots (where the provider controls the network), the IT department can now control network access, diagnose problems, and "see" how the network is running and being used.

The District has completed two out of nine total phases of its project and has connected about 300 students. By June 30, they anticipate to be fully running with 4,000 – 5,000 students accessing the network. They estimate that the cost to build out the network was about \$4M, and the cost of now running the network is about \$14/student per year, representing annual maintenance or break fix fees.

² See generally Comments of The Schools, Health & Libraries Broadband Coalition and The Open Technology Institute at New America, WC Docket No. 21-31 (filed Jan. 17, 2024).

Boulder Valley School District

Matthew Elder of the Boulder Valley School District (BVSD), located in Boulder Valley, Colorado, discussed the district's ConnectME program that uses CBRS spectrum to connect students. BVSD has about 29,000 students and roughly covers 500 square miles around Boulder, spanning five counties and fifty-five schools. In 2016, the district entered into a public-private partnership with a small local wireless ISP (WISP), LiveWire Networks, Inc., to create a network pilot program. BVSD provided space on four school building roofs and, in exchange, LiveWire constructed towers with fixed wireless access points that transmit wireless internet using the 3.5 GHz (CBRS) spectrum band. The network is a point-to-point fixed wireless system, whereby the access points on each tower connect to subscriber modules – small receivers that are placed on the student's dwelling (such as the roof or patio). Such a system allows for a broader range of coverage, since each tower has a five-mile range radius around the school. LiveWire provided no-cost Internet service to about 25 – 30 students that were eligible for free and reduced lunch (FRL) during the pilot program.

In April 2020, BVSD expanded the program and signed an agreement with LiveWire to provide roof space on 48 out of 55 of its school buildings. It utilized state grant money to purchase the access points and subscriber modules for student dwellings. In exchange, LiveWire continues to provide no cost service to FRL student households throughout the district. As of today, over 300 FRL students are enrolled in the program.³ LiveWire operates and manages the network and performs installation and other services directly at the home.⁴ In setting up its network, BVSD has learned about unique connectivity issues in its community that it didn't initially expect. For example, there is a large mobile home park community next to the Boulder County jail. Because the jail blocked cell phone signal, students couldn't access the internet regardless of which carriers were available in the area. BVSD used its partnership with LiveWire to also partner with jail; they built a tower that has now covered that community. BVSD estimates that the total capital costs to purchase the point-to-point wireless antennas and subscriber modules was around \$1.2M. The cost to manage the district's fiber backbone infrastructure to support LiveWire's service offerings is minimal (single digit dollars per student per year).

BVSD originally purchased and issued traditional hotspots to students during the Covid-19 pandemic, but no longer funds this type of distribution. They found that hotspots could not provide the bandwidth needed to support remote learning (and households with multiple students

³ The district also has discounted service rates for families that do not qualify for free and reduced lunch. The lowest tier costs about \$10/month and the highest tier (200 Mbps download speed) costs about \$35/month.

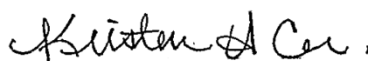
⁴ LiveWire connects the household like any other normal ISP, whereby the household subscribes to its service. The district, which owns its own dark fiber ring, also secured a revenue sharing agreement where it leases one strand of dark fiber to LiveWire and receives a portion of the profits generated by LiveWire's sales of commercial service in return.

required multiple hotspot devices), there were unexpected overhead costs, and it was difficult to receive the device back from the borrower. They also explained that managing a large number of hotspots (they initially purchased approximately 445 devices across three mobile carriers) was onerous, including tracking which ones were going in and out and knowing which ones to turn on and off. At the time the district purchased hotspots, it paid about \$40-50 per hotspot device and \$20-40 per hotspot per month for the service.

Neither East Moline nor BVSD recalled encountering opposition from wireless companies as they rolled out their network solutions.⁵ Mr. Rasko expressed that East Moline has been at the table with local ISPs and explained that the district is not aiming to replace traditional internet service offerings or offering high speed streaming capabilities. Instead, it provides connectivity that makes sense for its students, so that learning doesn't have to stop at the schoolhouse gate.

East Moline and BVSD believe that more school districts would be encouraged to adopt similar deployment models if E-rate funding would support functionally equivalent equipment (like access points, subscriber modules and other CPEs) and costs to maintain or upkeep this infrastructure. SHLB also notes that the Commission should also allow funding for various wireless services, like those using CBRS or Wi-Fi spectrum, so that one technology is not favored over another. If the Commission is inclined to allow funding support for these (and other variations of these networks), SHLB would be willing to work with it to develop a list of E-rate eligible equipment and services.

Sincerely,



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⁵ BVSD had to go through two ballot initiatives to overcome an originally prohibitive state law.