

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

In The Matter Of)
)
Modernizing the E-rate Program) WC Docket No. 13-184
For Schools and Libraries)
)

**REPLY COMMENTS OF THE
SCHOOLS, HEALTH & LIBRARIES BROADBAND (SHLB) COALITION**

The Schools, Health & Libraries Broadband (SHLB) Coalition (“SHLB Coalition”)¹ respectfully submits these reply comments in response to the Notice of Proposed Rulemaking (NPRM) in this proceeding issued on July 23, 2013.² The SHLB Coalition believes that providing additional funding to the E-rate program and modernizing the program so that it operates more efficiently are extremely important for the future of our country.

In our initial comments in this proceeding, the SHLB Coalition outlined its support for a capital investment fund of the E-rate program. The record demonstrates significant support for using the E-rate program to invest in the deployment of high-capacity services to schools and libraries that currently lack such access in addition to providing support for monthly recurring costs. For instance, the American Library Association (ALA) suggests short-term funding to upgrade the broadband connections for small libraries (which it calls FINAL – Fast Internet Networks for All Libraries). The Alliance for Excellent Education proposes a “temporary increase in the cap [to] support one-time costs associated with

¹ “SHLB Coalition” is pronounced “SHELL-bee Coalition.” The SHLB Coalition is a broad-based coalition of organizations that share the goal of promoting open, affordable, high-capacity broadband for anchor institutions and their communities. High-capacity broadband is the key infrastructure that libraries, K-12 schools, community colleges, colleges and universities, health clinics, public media and other anchor institutions need for the 21st century. Enhancing the broadband capabilities of these community anchor institutions is especially important to the most vulnerable segments of our population – those in rural areas, low-income consumers, disabled and elderly persons, students, minorities, and many other disadvantaged members of our society. A complete list of our Members is available at www.shlb.org.

² The deadline for reply comments was extended to November 8, 2013 by Public Notice DA 13-2025 dated Oct. 17, 2013.

building and investing in lasting infrastructural investments such as a fiber build out.”³ Education SuperHighway says that E-rate “can provide the connectivity and infrastructure that schools need through a combination of (1) providing a targeted, one-time investment to fund both a fiber connection to every school and the networks (wired and wireless) needed to distribute bandwidth within the school.”⁴ The National Association of State Boards of Education (NASBE) urges the FCC “to at least raise the cap temporarily to build-out the broadband infrastructure needed to support all public school classrooms, . . .”⁵ The LEAD Commission recommends updating the E-rate program to “provide the funding necessary to migrate our schools from the current inadequate bandwidth to high-speed broadband in a timely, efficient manner.”⁶ The State Library of Kansas says “we need to use the E-rate authority to quickly allocate additional temporary funding to support the deployment of ‘future-proof’ fiber broadband capacity to libraries and schools.”⁷ The Massachusetts Broadband Initiative (MBI) suggests “First, the FCC should annually reserve a percentage of E-rate funding for infrastructure build-out and special construction costs.”⁸ NATOA, the Benton Foundation, Merit Networks, and the Montana and Kansas State Libraries also support reforming the E-rate program to support investment in high-capacity broadband networks for schools and libraries.

In addition, EdLiNC strongly urges the Commission to permanently increase the E-rate cap to \$5 billion to at least meet current registered demand.

These reply comments flesh out how a capital investment fund could work and explain how such an approach would help to accomplish the goals of this proceeding.

I. The E-rate Program Should Focus on Its Core Mission of Promoting Connectivity to the Library and School Buildings, and Funding Should Not Be Used to Fund Services or Applications Beyond the School or Library Premises.

Before discussing the capital investment approach, we begin by noting that the overriding priority of the E-rate program is to promote high-capacity broadband **connectivity** for **all schools and libraries**. As many commenters have pointed out, broadband is the foundation for learning so that students of all ages can develop the technological skills they need for the 21st century marketplace.

³ Alliance for Excellent Education comments, p. 8.

⁴ Education SuperHighway comments, pp. 8-9.

⁵ National Association of State Boards of Education (NASBE) comments, p. 2.

⁶ LEAD Commission comments, p.9.

⁷ State Library of Kansas comments, p.2.

⁸ Massachusetts Broadband Initiative (MBI) comments, pp. 7-8.

E-rate is intended to provide Internet and data connectivity, including the underlying transport and associated functions (security, firewalls, switches and routers, etc.) to make bandwidth plentiful and affordable.

Some commenters, however, have suggested using the E-rate program to fund services that would be inconsistent with the connectivity goals of the E-rate program. For instance, wireless Internet access at home and teaching software are valuable and important services. But the E-rate program is not designed or authorized to provide funding for these activities; the authorizing statute for the E-rate program is limited to providing *access* to advanced services, not to support the costs for content-based services. Furthermore, the marketplace for services and applications is changing constantly, and deciding to fund a particular type of application or service may be logical one year and foolhardy the next depending on how the market changes. The purpose of the E-rate program is to make the underlying broadband transport functions more widely available to schools and libraries. If this purpose is met, it will create an environment in which new services and applications can flourish, making government funding for those applications and services less necessary.

II. The Commission Should Define Specific Connectivity Goals and Bandwidth Targets for All Schools and Libraries, including Small Schools and Libraries, and for Internal Connections.

The first step in ensuring that the E-rate program achieves its objectives is to clearly define those goals and benchmarks. The Government Performance and Results Act requires the Commission to establish such goals,⁹ and the General Accounting Office has, in the past, recommended that the Commission adopt specific performance metrics by which to assess its progress with the E-rate program.¹⁰

⁹ Government Performance and Results Act of 1993, Publ. L. No. 103-62, 107 Stat. 285 (1993).

¹⁰ "FCC does not have performance goals for the E-rate program, and its performance measures are inadequate. In 1998, GAO first recommended that FCC develop specific performance goals and measures for the E-rate program in accordance with the Government Performance and Results Act of 1993. FCC set forth specific goals and measures for some of the intervening years, but it does not currently have performance goals in place. Further, the performance measures it adopted in 2007 lack key characteristics of successful performance measures, such as being tied to program goals. Performance goals and measures are particularly important for the E-rate program, as they could help FCC make well-informed decisions about how to address trends in request for and use of funds. Without them, FCC is limited in its ability to efficiently identify and address problems with the E-rate program and better target funding to highest-priority uses. FCC's piecemeal approach to performance goals and measures indicates a lack of a strategic vision for the program." GAO Report, "Long-Term Strategic Vision Would Help Ensure Targeting of E-rate Funds to Highest-Priority Uses," March 2009, available at <http://www.gao.gov/products/GAO-09-253>.

Several parties, including the President of the U.S., have identified specific bandwidth measures for schools' and libraries' external broadband connections. The National Broadband Plan also sets forth goal #4 that calls for all community anchor institutions to have at least 1 Gbps of capacity by the year 2020. These goals should be used as targets, not as federal mandates, because local circumstances and costs may vary from location to location. Nonetheless, these goals and measurements are important and useful benchmarks against which we can measure progress of the E-rate program. These goals can be further strengthened in three ways:

- While bandwidth targets of 100 Mbps per 1,000 students is helpful for schools that have 1,000 students or more, few schools have this number of students. This goal does not address the bandwidth needs of the vast majority of schools that have fewer than 1,000 students. According to NCES statistics, the average school size is about 500 students per school; suburban schools may average over 600 students per school, while rural remote schools have an average student body of about 170 (based on 2010 figures).¹¹ It would be unrealistic to measure the success of the E-rate program based on whether rural remote schools can achieve the same 100 Mbps connections as large suburban schools. But it also may be inappropriate simply to reduce the standard proportionate to the number of students (for instance, to set a standard for rural remote schools at 17 Mbps) if their needs for broadband connectivity may be greater than the larger schools (because of increased need for distance education, for example).
- The SETDA targets (understandably) do not include benchmarks for libraries. The ALA has suggested a per-device approach that would set the target benchmark at 1 Mbps per library-provided device today and higher bandwidth levels in the future. Establishing more specific benchmarks for libraries would also help determine whether or not the E-rate program is meeting libraries' needs.
- The bandwidth goals external to the library or school building do not, by definition, include bandwidth benchmarks inside the building. With the increasing need for connectivity inside the building, and the trend toward providing a Wireless Access Points in each school classroom, the FCC may want to consider benchmarks for internal connections similar to the benchmarks for external connections.

III. The Commission Should Consider Sponsoring an "In-the-Field" Inventory of Schools' and Libraries' Existing Broadband Capacity Available at Each Building.

There have been a variety of efforts to estimate the broadband access at schools and libraries across the country. The National Broadband Map offers some information, but the quality of the survey

¹¹ See, http://nces.ed.gov/programs/digest/d12/tables/dt12_101.asp.

data varies from state to state and the Map is not structured to provide the bandwidth available at specific buildings. Several organizations have encouraged the collection of “speed test” data as a proxy for measuring the bandwidth available at each location. While useful, speed tests also depend on the quality of the Middle Mile and backbone connections and congestion on shared network facilities, so they cannot provide an exact measure of the school or library’s Last Mile bandwidth. The American Library Association has sponsored surveys of libraries’ broadband connections that have produced very useful information from the libraries that respond to the survey,¹² but we are not aware of any comparable survey of schools’ broadband connectivity.

The most accurate way to determine the level of bandwidth is to go into the field and collect the information directly from each and every school or library building. This information can be gathered on a state-by-state basis by delegating authority to a state government official to gather this information, as has been done in Florida.¹³ An alternative, and more efficient, method would be for the FCC or USAC to commission (hire) a firm to conduct this analysis for five to ten representative states. This state data could then be used as benchmarks to estimate the broadband connectivity for the country as a whole.¹⁴

Once developed, this data of actual broadband connectivity can then be compared to the benchmark goals (discussed above) so that we can gauge how far we need to go to attain those speeds. This can be known as the Schools and Libraries Broadband Gap.¹⁵

IV. The FCC Should Determine the Costs of Meeting the Goals for All Schools and Libraries.

Once the Schools and Libraries Broadband Gap is identified, the next step is to estimate the costs of filling that gap. The BTOP program and the current E-rate program can both provide useful data from which to estimate the investment that will be required to provide all the remaining schools and libraries that do not yet have sufficient broadband capacity to meet the goals. Some of those projects have estimated their costs in the neighborhood of \$40,000 to \$70,000 per location. For instance, the Wisconsin Department of Public Instruction stated that its BTOP project – which would have connected

¹² Public Library Funding & Technology Access Study, available at <http://www.ala.org/plinternetfunding/>.

¹³ See Comments of the Florida Department of Management Services Division of Telecommunications.

¹⁴ This is not to suggest that the E-rate program reforms should be delayed pending the results of this data collection effort. The FCC should incorporate into its E-rate Modernization Order a process for gathering this data, or to identify an outside party to gather and analyze this data.

¹⁵ Use of this term is comparable to the “Broadband Availability Gap” terminology used in the National Broadband Plan, Section 8.1.

467 schools and libraries – would have cost an average of \$57,707 per location.¹⁶ But the costs of deployment can vary significantly from location to location and region to region, depending on the terrain, whether fiber or microwave is used, the distance from the nearest interconnection point, etc. If there is fiber nearby, for instance, building a fiber lateral from the school/library building property to that fiber could involve a few thousand dollars. Deploying buried fiber to a remote location could require well more than \$100,000.¹⁷ Furthermore, the schools/libraries that have not yet been connected may be more remote or more costly to reach than those that have already been connected. The costs of deploying broadband services to the remaining schools and libraries that do not yet have sufficient broadband connectivity may, on average, be somewhat higher than the average costs of BTOP projects or the projects funded under the current E-rate program. (The commercial providers and BTOP recipients may have already connected the “low-hanging fruit”.)

The Commission could also gather evidence of the average costs of providing wireless access points throughout the entire school/library building. We have heard anecdotal evidence that the costs of providing a full wireless solution to all the classrooms in a school building falls in the range of \$35,000 to \$50,000 per school building, but more information would be useful to verify these estimates.

We encourage the Commission to issue in the next month a supplemental Public Notice asking for comment specifically on the costs of serving the remaining schools and libraries with sufficient broadband, much as it did during consideration of the National Broadband Plan.¹⁸ The Public Notice could call attention to the data that has been filed in this proceeding to date and ask parties to comment on that cost information. The Commission could also set forth its preliminary estimate of the per-mile costs of deployment – buried and aerial – based on the E-rate data and the available BTOP data. The cost estimate would also include network equipment – routers, firewalls, hubs, remote terminals, real estate, etc.

Taking all these factors and information into account, the Commission could then derive several average cost estimates for different categories of schools or libraries, depending on their rurality, their geography, their size, etc. The Commission could then multiply the average cost estimates for each

¹⁶ See, Comments of the Wisconsin Department of Public Instruction, p. 5, footnote 10.

¹⁷ See *ex parte* presentation by Jill Nishi of the Gates Foundation filing on the National Broadband Plan, Sept. 25, 2009, estimating the cost of serving individual anchor institutions at between \$10,000 and \$200,000 per location.

¹⁸ See FCC Public Notice #12, Docket GN 09-51, “Cost Estimates for Connecting Anchor Institutions to Fiber,” issued September, 2009.

category of school or library by the number of such schools and libraries that are not yet served with adequate broadband in order to calculate the total amount of funds needed to connect the remaining schools and libraries and to achieve the goals of this proceeding.

V. The Commission Should Create a Temporary E-rate Connect Fund (Similar to the Healthcare Connect Fund) to Address the Costs of Deploying Future Proof Broadband Facilities to All Remaining Schools and Libraries.

Once the Commission determines the total cost of connecting all the remaining schools and libraries with enough broadband capacity to meet the benchmark, it should create a technology-neutral and provider-neutral fund within the E-rate program to award financing for the deployment of future-proof broadband to meet the goals of this proceeding. This fund – perhaps called the Temporary E-rate Connect Fund or TECF – would be similar to, but not identical to, the Healthcare Connect Fund that the FCC created to support deployment of rural broadband health networks. It would be similar in that it would award matching grant funds to applicants after they engage in an open competitive bidding process to select the most cost-effective provider of service. All providers would be eligible to participate in the competitive bidding process, and these providers would be able to use any technology that satisfies the bandwidth benchmarks.¹⁹ Schools and libraries could consider a variety of technologies, including lit fiber, dark fiber, cable, wireless and other technologies. Funding would be made available over the next three to five years, and applicants would be expected to deploy their networks within three years of receiving their award. However, the new TECF would differ from the Healthcare Connect Fund in that the amount of the match would not be fixed at a set percentage but would vary depending on the geography and income levels of the residents in that community (much like the existing E-rate discount matrix).

The TECF would also include funding for each library and school to obtain a one-time upgrade of its internal connections using the lowest-cost scalable and most efficient long-term technology.

The TECF would be a short term supplement in addition to the existing and traditional E-rate support mechanism that focuses on the monthly recurring costs of service. The TECF would be created only for 3-5 years to focus on the build-out costs and internal wireless networking costs alone. The traditional E-rate support mechanism would continue indefinitely because of the ongoing need to

¹⁹ The Commission should equalize the treatment of dark fiber and lit fiber in order to make sure that schools and libraries have all options on the table.

support monthly recurring expenses. Building state-of-the-art broadband infrastructure with TECF funds may benefit the traditional E-rate program, as these new networks may operate more efficiently than existing networks, and the monthly recurring charges for using these networks may decline as result of these efficiencies.

As with the Healthcare Connect Fund, the FCC could set the rules for the TECF to encourage greater benefits for the wider community. For instance, recipients of TECF funding could be required to have an open interconnection policy, similar to the BTOP program, so that the network facilities could be used to benefit other anchor institutions and their communities (with appropriate cost allocation). The FCC could also allow these networks to be shared with health providers, much as recipients of Healthcare Connect Funds may share their networks with schools and libraries. The networks deployed with TECF funds could also be open for use for wireless Internet access using “white spaces” or other spectrum. The FCC could also clarify the cost allocation rules to ensure that the E-rate program only supports the access by schools and libraries but allows other users to share the networks as long as they “pay their own way.”

VI. Conclusion

The need for additional funding for the E-rate program is abundantly clear. Almost every commenter has pointed out that the demand for E-rate support is at least two times greater than the actual funds available under the E-rate “cap”, even after the cap is adjusted for inflation. Almost every commenter as well has pointed out that broadband connectivity is an essential ingredient to ensuring that students of all ages have the requisite technological skills to participate in the 21st century economy.

The real question is not whether more E-rate funding is needed, but how that funding should be provided. Historically, the E-rate program has focused support on the monthly *recurring* costs of broadband service, rather than the up-front, one-time costs of deployment. While applicants have, at times, been allowed to recoup investment expenses through the E-rate program, the rules are not clear, and the proposals have sometimes depended upon case-by-case determinations by USAC. The uncertainty of the process may have deterred some providers from pursuing broadband investment plans.

It is often the upfront deployment costs that can serve as the biggest impediment to connecting schools and libraries with high-capacity broadband services. Thus, the E-rate program should explicitly address *both* the one-time deployment costs *and* the recurring monthly costs.²⁰ Clarifying the rules will reduce confusion and stimulate greater investment. The SHLB Coalition supports the creation of a short-term, technology-neutral capital investment fund within the E-rate program, and sustaining and increasing the current fund to support recurring expenses, to explicitly encourage broadband investment to schools and libraries in a way that will more readily achieve the goals of the ConnectED initiative and provide schools and libraries the broadband capabilities that they need today and in the near future.²¹

Respectfully Submitted,



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²⁰ As ALA stated in its initial comments in this proceeding, increasing E-rate funding is necessary both to “jump-start and sustain” high-capacity broadband connections to schools and libraries. ALA comments, p. 4.

²¹ As discussed in more detail above, providing support for both the upfront capital expenditures and the ongoing, recurring expenditures is consistent with the latest FCC Orders to promote broadband for rural health providers.