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

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The Schools, Health & Libraries Broadband (SHLB) Coalition ("SHLB Coalition")[1] respectfully submits these comments in response to the Public Notice in this proceeding issued on March 6, 2014 requesting focused comment on certain E-rate modernization issues.[2]

The SHLB Coalition is a broad-based coalition of different kinds of organizations that share the goal of promoting open, affordable, high-capacity broadband for anchor institutions and their communities.[3] 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.

[1] "SHLB Coalition" is pronounced "SHELL-bee Coalition."
[2] "WIRELINE COMPETITION BUREAU SEEKS FOCUSED COMMENT ON E-RATE MODERNIZATION," WC Docket 13-184, DA 14-308, released March 6, 2014, available at http://www.fcc.gov/document/focused-comment-sought-e-rate-modernization (hereinafter, "*E-rate Public Notice*").
[3] Our members include representatives of schools, libraries, state broadband mapping organizations, private sector companies, state and national research and education networks, foundations, and consumer organizations. See www.shlb.org for a complete list of SHLB Coalition members.

I. Introduction

The SHLB Coalition has previously submitted comments and reply comments in this proceeding and has provided a variety of recommendations for modernizing the E-rate program. One of our principal recommendations is that the FCC should create a capital investment program within the E-rate program in addition to continuing and expanding the traditional support for monthly recurring expenses and internal connections. We believe that including a capital investment program is vitally important for improving the efficiency of the E-rate program, upgrading schools' and libraries' access to high-speed, future-proof Internet services, and accomplishing the President's ConnectED goals within five years. We are pleased that the Public Notice recognizes the value of this capital investment approach[4] and asks for additional comment on how a capital investment program could work. After addressing a few select issues, the majority of these comments will explore the capital investment concept in further detail.[5]

II. Select Issues

A. Additional Funding Should Be Provided for the E-rate Program.

The SHLB Coalition continues to believe that greater funding for the E-rate program is vitally important. As many observers have already pointed out: 1) our nation's students and library patrons need access to Internet services and applications so that they can obtain high-skill jobs and be innovators and creators; 2) our schools and libraries are suffering from a severe shortage of broadband connectivity that is inhibiting technological progress;[6] and 3) the E-rate program, which was established in 1997, has done an admirable job of connecting our nation's schools and libraries and is deserving of this wide-ranging proceeding to consider how to best focus on future connectivity needs and administrative streamlining. Providing libraries and schools with high-speed broadband Internet access

[4] "More specifically, the record underscores the importance of providing . . . greater support, at least in the short term, for last-mile deployments needed to connect schools and libraries that do not currently have access to high-speed connections; . . ." *(E-rate Public Notice*, para. 3)

[5] Our comments will not address some of the other questions raised in the Public Notice, such as the treatment of voice services and the best way to allocate funding for internal connections.

[6] See, "School Readiness Assessment Project Report," prepared by MOREnet, January 2014, available at http://dese.mo.gov/ccr/documents/School-Readiness-Assessment-Report.pdf, p. 17 (finding that 335 of 399 external bandwidth connections in 308 school districts will need additional bandwidth to meet the SETDA 2014-2015 bandwidth goals, and nearly one-third of these connections will need upgrades of greater than 100 Mbps per connection). See also, "High-Speed Broadband in California Public Libraries: An Initiative of the California State Library: Needs Assessment and Analysis," Feb. 3, 2014, p. 33, available at http://www.cenic.org/wp-content/uploads/2013/08/Public_Library_Broadband_Assessment_2014.pdf (reporting that 71% of California libraries have Internet speeds below 20 Mbps, and 84% of Internet speeds that it finds are "slow", a result that the report calls "stunning.").

is even more essential than in 1997. The E-rate program must foster a comprehensive digital platform to support to one-to-one learning, so that every student and library patron can use his or her device for personalized content, research, study, assessment within the school or library. Increased funding is thus absolutely essential for internal connections (wired and wireless), for capital investment in long-term, future-proof, last mile broadband connections, and for the recurring costs of high-speed broadband services.

B. Greater Funding Should be Provided for Internal Connections.

The SHLB Coalition strongly supports greater funding for internal connections inside the library and school buildings. An external high-capacity broadband connection should not run into a brick wall when it reaches the school or library building. If the school or library does not have sufficient capacity inside the building (both wireless and wired) to bring the broadband connection directly to the tablets, smartphones and other educational devices used by students, teachers and patrons, then the investment in external broadband services will be of much less value. While the SHLB Coalition does not have a specific proposal about how to allocate internal connections funding most efficiently, we believe that the E-rate program should focus on end-to-end connectivity all the way to the student or library patron's handheld devices to support ubiquitous access throughout these community institutions.[7]

C. Extensions from E-rate Funded Facilities Should Be Permitted by, but Not Funded by, the E-rate Program.

Under the current rules, there is some uncertainty about whether E-rate rules allow a school or library to build off of E-rate funded infrastructure to additional locations in the community. Some schools and libraries have been reluctant to allow others to interconnect with and extend E-rate funded facilities out of fear that they might lose their E-rate funding. As we stated in our earlier comments in this proceeding regarding community "hot spots", the E-rate program should allow, but not pay for, extending E-rate funded facilities into the community:

> The SHLB Coalition supports extending the principle established in the 2010 E-rate Order to allow schools and libraries to use their E-rate-supported broadband connections to serve as community hot spots. Encouraging such use will expand the benefits of the E-rate program. Providing free wireless Internet access to the community surrounding a school or library could

[7] One way to accomplish this goal is for the FCC to allow E-rate support for managed wireless services that aggregate certain services "in the cloud" or virtualize the necessary hardware. As the SHLB Coalition has expressed in previous comments, a managed wireless service may be the most cost effective way for certain school systems and libraries to purchase Wi-Fi and should be allowed to compete with other available options on a total cost of ownership basis.

be extremely valuable, and could help to meet the Commission's overall goals for promoting the widespread availability of wireless broadband.

While community hot spots are a value to the community, the SHLB Coalition does not suggest that E-rate funds should be used to pay directly for the equipment or services used to provide community hot spots. There is already more demand on the E-rate fund than funds available.

At the same time, the E-rate rules should not impede a school or library that wants to serve as a community hot spot. Schools and libraries should have the option of supporting a community hot spot without losing E-rate support.

The SHLB Coalition continues to support the principle that schools and libraries should have the option of allowing others to build off of their facilities, without the school or library losing their E-rate funding, if the library or school would like to do so. Further, such extensions may go beyond wireless "hot spots." It should be possible to build off of E-rate funded facilities to reach other broadband deployment sites like cell towers, Central Offices, small cell sites in rural unserved census tracts. Allowing E-rate funded facilities to be extended for additional uses, even if not funded by the E-rate program, could make the most efficient use of these deployments and could avoid the additional costs of deploying duplicative infrastructure. The costs of such extensions should be borne entirely by the entity providing the extension, not the E-rate program, and cost allocation rules should be clarified to ensure that such entity pays for its share of the E-rate funded facilities.

III. Capital Investment

A. Examples of other capital investment approaches.

If the FCC chooses to incorporate a capital investment approach into the E-rate program, which we recommend, the FCC will not be starting from a blank slate. The Federal government and several state governments have implemented a variety of programs to incentivize capital investment in broadband infrastructure.[8] The SHLB Coalition's proposed capital investment program is not out of the mainstream and in fact, is an increasingly common practice among policy-makers in several jurisdictions. These capital investment programs may provide useful case studies or precedents that the Commission can draw upon in deciding how to structure its own capital investment approach. Some of these programs are summarized below:

[8] In addition to these domestic examples, there are numerous international examples of broadband investment programs, such as in Australia (http://www.nbnco.com.au/communities.html), New Zealand (http://www.med.govt.nz/sectors-industries/technology-communication/fast-broadband), Korea (http://blogs.worldbank.org/edutech/broadband), and others.

- The California Advanced Services Fund (CASF) provides financial support for the build-out of broadband facilities in both unserved and underserved areas. The Broadband Infrastructure Grant Account within the CASF awards funding for 60% to 70% of the cost of a broadband build-out project. California is considering extending the eligibility of funding to any commercial provider of broadband access or any nonprofit entity, including government entities or community anchor institutions that elect to provide facilities-based broadband service.[9]

- Iowa is currently considering broadband legislation that, with the support of Republican Governor Branstad, will include incentives to promote broadband build-out, including tax incentives, loans, grant programs, and regulatory reform. This legislation is considered a key component of the Connect Every Iowan initiative launched by Governor Branstad in September 2013.[10] The Connect Every Iowan program was initiated after a finding in 2013 that 63 school districts in Iowa needed more bandwidth. The STEM Advisory committee found that "Broadband connectivity must become a priority of the highest level. Like the electrification of rural America and the building of farm to market roads, broadband Internet access is the foundation of 21st century creating, learning and commerce. . . . [C]ost effective and equitable broadband [is important] not only to K-12, but also to homes, public accessibility such as libraries, and community centers along with business and industry. Iowa needs to become a global "hot spot."[11]

- Pennsylvania established an E-Fund in 2004 to provide a framework and a financing mechanism for upgrading broadband infrastructure in Pennsylvania's K-12 schools. It allocated $60 million over six years for telecommunications, equipment, distance education initiatives and technical support. The E-Fund was an experiment in "demand aggregation." The idea was to encourage multiple schools to buy technology services together in order to reduce costs and encourage private companies that earned the business to make new investments to serve the schools. In turn, the upgraded infrastructure and associated services would be available to other customers in the surrounding community. The E-Fund helped 678 schools across Pennsylvania increase their broadband capacity by an average of 534%. Old, expensive T1 circuits were replaced by new, affordable Ethernet access, and the number of schools using fiber optic cables more than doubled. The price per unit of bandwidth declined 92%. Today, 2,640 school buildings are connected statewide in a safe, secure, high-speed network for K-12 education.[12]

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[9] http://www.cpuc.ca.gov/PUC/Telco/Information+for+providing+service/CASF/.

[10] https://governor.iowa.gov/2013/12/connect-every-iowan-committee-releases-recommendations-in-broadband-study/.

[11] http://www.iowastem.gov/sites/default/files/May_23_2013_Meeting/stem_broadband_final_.pdf.

[12] See also, http://www.dellicker.com/index.php/news/press-releases/112-what-is-the-e-fund ("The E-Fund enables the Pennsylvania Department of Education (PDE) to give out grant dollars to schools for improving their technology infrastructure in accordance with Act 183's provisions. Schools used the E-Fund to create . . . . Wide Area Networks (WANs) among regional schools. . . . By 2005, Act 183 had passed and demand for WANs exploded. During the first year of the E-Fund, nine new regional WANs were successfully launched, catapulting Pennsylvania schools into the information age. By 2008, three years after the launch of the E-Fund, all of the IUs in Pennsylvania had regional WANs either operational or under contract.")

- In Georgia, the state legislature, at the urging of the Governor allocated $5M in 2006 and an additional $1 M in 2007 to support the Wireless Communities Georgia program. In addition, the OneGeorgia Authority (OGA) received $5M to support its Broadband Rural Initiative to Develop Georgia's Economy (BRIDGE) program that supports rural broadband development in Georgia. OGA also funded a major project for the South Georgia Regional Information Technology Authority (SGRITA) to expand broadband coverage in rural southwest Georgia for Baker, Calhoun, Early, Miller, and Mitchell counties. This nearly $3M state investment has yielded world-class broadband speeds for the region's school systems. It has also set the stage providing middle and last mile connectivity to businesses and citizens in the region.[13]

- Nebraska adopted a statewide Nebraska Broadband Pilot Program (NEBP) in 2011 that specifically includes a capital investment program for unserved and underserved areas. NEBP grants are available to regulated wireline, wireless, and unregulated communications providers.[14] (The Nebraska Commission staff adopted a rigorous process for evaluating infrastructure projects that may be of interest to the FCC. The methodology allocates funding for these projects based on a variety of factors, including cost, bandwidth, number of consumers served, rurality, etc. While the SHLB Coalition does not express a positive or negative opinion of this approach, we note that it appears to lack a factor recognizing anchor institutions' needs for greater bandwidth than residential users.)[15]

- In 2012, Illinois Governor Pat Quinn announced a $6 million "Gigabit Communities Challenge," a competitive grant program to build ultra-high speed broadband in neighborhoods across Illinois.[16] The most recent grant of $1.5 Million – supported by the Governor's *Illinois Jobs Now!* capital construction program – provides funding for Frontier to build a high-speed fiber optic network to Carbondale's businesses, schools, hospitals and neighborhoods.[17]

In addition to these state-supported capital investment projects, the Broadband Technology Opportunities Program (BTOP) and the Broadband Initiatives Program (BIP) provided about $7 billion in funding to fund middle mile and last mile infrastructure through grants (BTOP and BIP) and loans (BIP). By most measures, these programs have been quite successful. The BTOP program has connected over 20,000 anchor institutions to broadband networks in the past five years.[18] The BIP program has connected about 1,400 educational providers, libraries, health providers and public safety points to broadband networks.[19] And the FCC's own rural healthcare program provides funding both for capital

[13] http://www.georgiabroadband.net/Portals/0/State%20Broadband%20Strategy%20-%20-Rich%20Calhoun%20December%203%202010%20-%20Read%20Only%20-%20Final.pdf.
[14] http://www.psc.state.ne.us/ntips/ntips_nusf_broadband_pilot.html.
[15] http://www.psc.state.ne.us/ntips/pdf/usf/NUSF_77_Applications/NUSF-77%20Testimony/NUSF-77.9-27-2013%20Direct%20Testimony%20Tyler%20Frost.pdf.
[16] http://www2.illinois.gov/gov/gigabit/Pages/default.aspx.
[17] http://www3.illinois.gov/PressReleases/ShowPressRelease.cfm?SubjectID=2&RecNum=11483.
[18] http://www.ntia.doc.gov/report/2014/nineteenth-quarterly-status-report-congress-regarding-btop.
[19] http://www.rurdev.usda.gov/Reports/RUS_BIPStatusReport_Q1_2014.pdf. p.4

investment in broadband networks (through the Healthcare Connect Fund) and ongoing support for recurring expenses in rural areas (through the Telecommunications program).[20]

B. General Approach to Capital Investment

Before addressing the specific questions raised in the Public Notice, it is important to lay the foundation with a few important observations:

First, it is clear that no matter what level of broadband connections schools and libraries have today, they will need more five years from now, and they will need even more in 10 years. The demands for Internet capability continue to advance at a geometric growth rates. As entrepreneurs develop more innovative Internet applications, as students engage in more on-line research and collaboration, as schools replace textbooks with one-to-one devices, as government programs replace paper with electronic services, as the Internet of things becomes commonplace, as library collections increasingly include streaming and downloadable content, the demand for bandwidth will continue to explode.

Second, to address this ever-increasing demand for bandwidth, policy-makers should abandon any approach that seeks to invest in incrementally better technologies. It is economically inefficient to invest in any broadband service that has a shelf-life of five years or less when there are networks and facilities available today that can last much longer. Policy-makers should aim to invest in long-term, future-proof networks that are easily scalable and can last for decades into the future. Investing in any incremental technology today will simply require additional dollars to be spent to replace that technology in five or ten years.

Third, given the trends in Internet usage among schools and libraries, the Commission ought not to become too bogged down in measurement or become too fixated on predicting how much bandwidth will be needed at a certain date in the future. Measuring the exact broadband capacity at any school or library – through speed tests or other measures – is difficult, as the throughput may vary over the course of the day or time of year and may depend on congestion in other portions of the network.[21] Similarly, any standard for future connectivity is likely to be overcome by the natural growth

[20] In the Matter of Rural Health Care Support Mechanism, Report and Order, WC Docket 02-60, December 21, 2014, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-12-150A1.pdf.

[21] Having said this, it may be possible in the near future to measure the actual throughput at the last mile by using a box at the customer premises. New America Foundation's M-Lab is working to develop such equipment. See www.measurementlab.net.

in the marketplace.[22] Setting targets can certainly help to drive investment and can provide a useful benchmark against which to measure progress. The GAO has encouraged the FCC to set such standards as a way to analyze results of the program.[23] But specific bandwidth targets should not be set in stone as specific requirements, and applications for E-rate funding should not be approved or denied based on whether they meet a single pre-determined bandwidth target. Rather, applications should be reviewed holistically based on a wide variety of factors that include the need for additional bandwidth, scalability of the infrastructure being deployed, the total deployment cost of the project, the amount of the match, the affordability of the recurring rates after the deployment, the community income, the rurality of the geographic area covered by the application, the number of users, the social benefits of the uses, the extent that the infrastructure will be shared among schools and libraries, etc.

Finally, the FCC suggests that applicants' reluctance to use the E-rate program for capital investment is because of the high-cost to the applicant of the non-discounted portion of the investment expense.[24] We respectfully suggest that the high cost of the capital investment is just a part of the reason. The other is that the Commission's rules regarding capital investment are not clear and applicants tend to receive mixed messages about whether such capital investment projects are permitted. For instance, many of the policies for determining E-rate support for capital expenditures are set forth in the Tennessee Order[25] and the Brooklyn Order[26] which were decided before the Commission's 2010 E-rate reform Order. Despite the Commission's effort to promote technological neutrality, the FCC's 2010 Order actually discriminates against the use of dark fiber by ruling that electronics and certain special construction charges are not eligible for dark fiber, even though such

[22] For example, the National Broadband Plan set a national goal for equipping anchor institutions with 1 Gbps bandwidth by 2020, but there are already some schools that need 2 Gbps levels of service today. See testimony of Dr. Ray Timothy, CEO of Utah Education Networks, at the March 19 Workshop on Rural Broadband Experiments, available at http://www.fcc.gov/events/rural-broadband-workshop.

[23] http://www.gao.gov/products/GAO-09-253.

[24] See Para. 26 ("("In light of the record demonstrating that the costs of one-time construction projects, even though already supported by the E-rate program, can be cost-prohibitive, we seek comment on whether the Commission should undertake a limited initiative, within the existing priority one system, to incent the deployment of high-capacity broadband connections to schools and libraries.")

[25] Requests for Review of the Decisions of the Universal Service Administrator by the Department of Education of the State of Tennessee et al., CC Docket Nos. 96-45 and 97-21, Order, 14 FCC Rcd 13734, 13750 (Tennessee Order) (1999) (concluding that relevant indicia for determining whether an applicant is seeking to purchase a WAN include: what services are provided over the WAN, whether there are exclusivity or lease purchase arrangements, and the structure of the contract (e.g. whether there is a substantial payment for upfront capital costs)).

[26] Request for Review by Brooklyn Public Library of a Decision of the Universal Service Administrator, CC Docket Nos. 96-45 and 97-21, Order, 15 FCC Rcd 18598, 18606-07 (Brooklyn Order) (2000) (finding that because the non-recurring charge for capital investment vastly exceeded the monthly recurring charge, Brooklyn must prorate the non-recurring capital investment charges equally over a term of at least three years in duration)

charges are eligible for lit fiber. The FCC's policy appears to be that E-rate funds cannot be used to fund school-owned or library-owned owned fiber, even if this is the most affordable option in terms of total cost. The confusion around capital investment demonstrated by these case-by-case determinations and discriminatory treatment of certain technologies and ownership discourages applicants from pursuing capital investment funding.

We respectfully suggest that the Commission should embrace a capital investment approach within the E-rate program and articulate clear and consistent rules to encourage greater investments in high-capacity, future-proof, long-term, last mile connections to schools and libraries. The capital investment approach can also be used to encourage greater sharing of network infrastructure among schools and libraries, which was one of the major recommendations of the National Broadband Plan. We further suggest that establishing an intermediate-term broadband capital investment program of five to eight years will go a long way toward upgrading our nation's schools and libraries' broadband capabilities, giving them the time may will need to provide the broadband infrastructure they need to access "advanced services" (as called for in the statutory language) and serve their students, teachers, library patrons and communities more effectively.

Any entity should be eligible to apply for and receive such funding, including commercial companies, non-profit providers, municipalities, and schools and libraries themselves. Schools and libraries should have the full range of options available to them, including the option of self-provisioning their own network facilities and inviting service providers to compete to provide the service.[27] Such a capital investment fund will be especially valuable to schools and libraries in rural and high-cost areas where the commercial marketplace often does not provide adequate broadband coverage. Funding network deployment for schools and libraries in rural areas will go a long way toward making rural areas more economically viable, and may provide incentives for the deployment of additional broadband investment to homes and businesses in the region.

[27] One SHLB Coalition member is aware of several school districts where two service providers overbuilt each other's fiber networks, both funded by E-rate. The program could operate more efficiently if the school or library were able to own the fiber itself and service providers could then bid to win the right to provide ISP service to the schools over that WAN.

C. Answers to some of the questions about capital investment in the *E-rate Public Notice*.

The following discussion paraphrases the questions in the E-rate Public Notice and suggests some possible approaches and answers:

1. If the Commission allocates additional support for capital costs, how can it best ensure that the recurring costs are affordable going forward?

This is a very important factor for any capital investment program. If funding is provided to cover up-front capital deployment costs, this support should result in lower recurring rates to the school or library. The Commission should require that any recipient of capital investment support should, in the case of a service provider, commit to charge recurring rates that are lower than they would have been without the capital investment support as a condition of receiving such funding, or, in the case of a school or library owning such facilities, that the total cost of the project including recurring operational costs is the lowest cost alternative, including projected bandwidth growth. Otherwise, the recipient of the capital investment fund would receive a windfall if it were allowed to accept federal support for capital expenditures and still charge high recurring charges. The applicant for capital investment funding should be required to include detailed information in its funding application specifying what the recurring rates would be with and without the capital investment support. And, if the capital investment is provided, the Commission should enforce this commitment thereafter to ensure that schools and libraries do, in fact, obtain the benefit of that capital investment support through lower recurring rates.

2. Should the Commission change the program's funding methodology as part of this deployment initiative? Should it raise the discount rate by 10% or some other percentage, or adopt a flat discount rate? Should the discount be 100% in some Tribal lands or remote rural areas?

The existing discount matrix was originally established under the assumption that E-rate would support recurring expenses alone. There is an argument that a different approach is appropriate for a capital investment approach because of the high up-front costs involved in deploying broadband infrastructure.[28] While providing 100% of the funding may be excessive and invite opportunities for waste, providing up to 95% for Tribal and rural remote areas (a 5% applicant match) where the costs of deployment are exceptionally high may be appropriate in order to encourage greater deployment in

[28] In addition to adopting a different approach for capital investment projects, the Commission can also reduce the impact of funding capital investment projects by amortizing the costs of build-out projects over several years, and by adopting an annual cap, if necessary, on the amount of such funding.

these communities of greatest need.[29] At the other end of the scale, the Commission may also wish to give priority to applications that offer a much higher match (such as 50%) if the application serves a great number of users in a relatively lower-cost region. Rather than adopt a specific discount matrix for capital investment programs, the Commission should consider a more flexible approach that allows it to evaluate the proposed match as well as variety of factors in evaluating capital investment applications.[30] Whatever approach the Commission adopts – whether a specific mathematical formula or a set of criteria – the evaluation process should be made publicly available in advance so that applicants will have some guidance in structuring their applications and to provide transparency and accountability.[31]

The Commission should also take into account that coming up with the matching funds to support a capital investment project is no small task, especially for schools and libraries that must receive budget approval from their local governments. Because of the lengthy budget approval process that many state and local governments employ, it will be difficult for schools and libraries to take advantage of the capital investment program if it operates for only three to five years as we originally suggested in our initial comments last September 2013. The SHLB Coalition suggests that an eight year period of time (from funding years 2016 through 2023) will better reflect the realities of local budgets and will thus be more successful.

3. Should the Commission authorize increased support for recurring costs over a period of time instead of, or in addition to, increased support for up-front costs to the extent the recurring costs reflect recovery for capital investment? For how long?

Again, the Commission's approach should be flexible and should provide capital investment support either up-front or spread out over time through additional recurring rates. Some projects may only be able to go forward if the support is provided in a lump-sum up-front; other projects may be comfortable with having the investment costs spread out over several years. Assuming that a limited amount of dollars are allocated to a capital investment approach, the Commission should be careful to

[29] While the BTOP program required a minimum 20% match and encouraged a 30% match in the second round, these applications were for middle mile projects where the costs could be shared among a wider pool of users. The proposed capital investment approach for E-rate would provide funding for last mile projects, so the minimum match should be lowered to 5% to recognize the difficulty that certain communities will have in raising such match funding.

[30] As mentioned above, the Nebraska PUC adopted and made public a multi-factor formula for evaluating its capital investment applications that may be a useful reference point for the FCC, although the Nebraska formula may not have included a factor reflecting the high-speed needs of anchor institutions.

[31] NTIA published published a list of the factors and the amount of points associated with each set of factors in advance of receiving BTOP applications. See http://www.ntia.doc.gov/legacy/broadbandgrants/nofa.html.

spread out the funding over the course of the application period. For instance, if the Commission only provides up-front support, there is a risk that the funding could be "lumpy" in year 2 (as applicants become familiar with the program).

Also, the Commission should evaluate options that will make maximum use of the funds. If the capital investment approach is in effect for only a limited number of years (for the sake of discussion, we will use eight years), the Commission should still be able to accept and fund applications in year seven or eight of the program and allow the recovery of investment costs over several years thereafter (potentially beyond the eight year deadline for accepting new applications.)

4. How should the Commission allocate deployment support among eligible schools and libraries, and how should they be identified? Should the Commission rely on broadband speed targets and provide funding for those that do not meet the target? Or should the Commission consider future scalability of existing connections or existing pricing in identifying the eligible schools and libraries? What other methods should be used?

As discussed above, the Commission should set targets as benchmarks by which to measure progress, but the Commission should not make funding decisions based solely on whether a specific speed is met or not. Rather, the Commission's funding decisions on capital investment applications should strongly consider the need for additional bandwidth, scalability of the infrastructure being deployed, the total deployment cost, the amount of the match, the affordability of the recurring rates after the deployment, the community income, the rurality of the geographic area covered by the application, the number of users, the social benefits of the uses, the extent that the infrastructure will be shared among schools and libraries, etc. These factors should be identified in advance but no single factor should alone determine whether or not the application is funded.

IV. Conclusion

Libraries and schools need additional high-capacity broadband services today, and this need will become even more urgent over the next few years. Many K-12 schools are implementing national Common Core testing, and these schools will need greater broadband capacity to satisfy their testing obligations. Public education is increasingly embracing individualized, "personalized learning" that uses mobile devices in the classroom. Public libraries are increasingly using advanced technology to provide digital literacy training, offering "maker spaces" to young entrepreneurs that demand robust upload as well as download, supporting e-books and videoconferencing, and providing on-line access to e-government, health and job training services. All of these trends demand that schools and libraries

have affordable and higher-capacity broadband services than they have today. The SHLB Coalition urges the Commission to adopt the recommendations above to help schools and libraries obtain the affordable, high-capacity broadband that they need to meet the challenges of the 21st century.

Respectfully Submitted,

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