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

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

COMMENTS OF EDUCATIONSUPERHIGHWAY

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EducationSuperHighway respectfully submits these comments in response to the Wireline Competition Bureau's March 6, 2014 *Public Notice*.[1]

INTRODUCTION AND SUMMARY

EducationSuperHighway thanks the Chairman and the Commission for their leadership in recognizing the importance of ensuring that every child, regardless of income or location, has the same opportunity to utilize digital learning to learn the skills necessary to compete in the global economy. The E-rate program has accomplished much over its 17-year history in helping to connect many of the nation's schools and libraries to the Internet and the educational opportunities it offers. However, virtually all commenters in this proceeding have agreed that the E-rate program needs to be modernized to ensure that schools and libraries have the broadband capacity they need to provide every student with equal access to educational opportunity through digital learning—both now and in the future.

Despite its past successes, the importance of modernizing the E-rate program—and doing so soon—is critical. While other countries have been racing ahead in connecting their

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[1] Public Notice, *Wireline Competition Bureau Seeks Focused Comment On e-Rate Modernization*, WC Docket No. 13-184, DA 14-308 (Mar. 6, 2014) ("*Public Notice*").

classrooms to high-speed broadband, many of America's schools are falling behind, jeopardizing their ability to teach students the skills they need to compete in the global economy. Indeed, 40 million students in American classrooms lack the broadband required for digital learning today, much less the rapidly expanding bandwidth needs of the future.[2] These students are more likely to live in America's poorest or rural school districts, and their inadequate access to high-speed broadband will only worsen the "digital divide" absent prompt corrective action.

While American classrooms fall further behind, the existing E-rate program is poorly equipped to deliver the broadband our students need. Critically, much of the program's current funding is not going where it is needed most. Fewer than half of our schools have the robust wired and wireless networks needed to deliver the Internet to every classroom, teacher, and student, yet none of the program's funding is currently going towards LAN and Wi-Fi connections.[3] Instead, many of the program's funds are being diverted towards legacy technologies like voice services that today limit the ways in which teachers and administrators can communicate, and which could be more affordably provided as applications over robust broadband connections. For the E-rate program to address effectively the nation's digital learning needs, the program needs to redirect its focus to broadband connectivity both to, and

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[2] *See, e.g.*, Comments of EducationSuperHighway, WC Docket No. 13-184 (Sept. 16, 2013), at 3-6 (describing results of National SchoolSpeed Test); Press Release, Fed. Commc'ns Comm'n, *FCC Releases Data From E-rate Program And Broadband Usage Survey* (Jan. 6, 2011), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-303959A1.pdf (80% of schools and libraries lack sufficient bandwidth to meet even current needs); *see also* 2010 E-rate Program and Broadband Usage Survey: Report, DA 10-2414, 26 FCC Rcd 1, 2 (2010), *available at* http://transition.fcc.gov/010511_Eratereport.pdf.

[3] *See* Consortium for School Networking, *E-rate and Broadband Survey 2013*, at 3 (Oct. 2013), *available at* http://www.cosn.org/sites/default/files/2013EratebroadbandFinal.pdf?sid=289; Federal Communications Commission, *From the Wall to the Desk: Facilitating 21st Century Digital Leaning* (Feb. 20, 2014), *available at* http://www.fcc.gov/blog/wall-desk-facilitating-21st-century-digital-learning.

within, schools and libraries. That is why a growing chorus of leaders across the country has been calling for swift action.[4] EducationSuperHighway joins those calls in urging the Commission promptly to undertake needed reforms to modernize and upgrade the E-rate program to focus on improving high-speed broadband connections both to, and within, schools, classrooms, and libraries.

I. FOCUSSING ON HIGH-CAPACITY BROADBAND.

A. Broadband Deployment within Schools and Libraries.

Wi-Fi networks in America have become ubiquitous: we now expect them in coffee shops, airports, restaurants, hotel rooms, and private residences. And the ability to access the Internet wirelessly has shown tremendous promise in education as well: it disconnects learning from the desk, freeing teachers and students to learn how and when they want, and enabling one-to-one learning. As seen in Mooresville, North Carolina—where the President launched the ConnectED initiative, and where incorporating laptops and individual instructional tools in classrooms helped the school district improve its pass rate on state tests in reading, math, and science from 73% to 88%[5]—or the one-to-one initiative at the Buck Lodge Middle School where the President recently announced progress on the ConnectED program[6]—Wi-Fi is critical to our educational future.

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[4] *See* pp. 8-10 *infra*.

[5] *See, e.g.*, Margaret Spellings & James P. Steyer, LEAD Comm'n Co-Chairs, *Paving the Way Forward for Digital Learning in the United States*, at 1-2, Presentation at Federal Communications Commission Open Commission Meeting (July 19, 2013), available at http://www.leadcommission.org/sites/default/files/LEAD%20Statement.FCC%20Meeting%207-19-13.final__0.pdf.

[6] *See* White House Fact Sheet: *Opportunity For All – Answering the President's Call to Enrich American Education Through ConnectED* (Feb. 4, 2014), *available at* http://www.whitehouse.gov/the-press-office/2014/02/04/fact-sheet-opportunity-all-answering-president-s-call-enrich-american-ed.

At a time when we have come to expect free and working Wi-Fi in a variety of commercial and residential contexts, we should also expect it in every classroom. But as the Chairman has recently pointed out, the E-rate program no longer supports it.[7] The result is that our nation's schools are lagging far behind. In a recent survey of school district leaders conducted by the Consortium for School Networking (CoSN) and Market Data Retrieval, a majority (57 percent) of district leaders did not believe that their schools' wireless networks had adequate capacity to handle a one-to-one student-to-device deployment like those in Mooresville and Buck Lodge.[8] Absent better deployment of wireless networks within schools and libraries, students and teachers will not be able to avail themselves of the full potential of the Internet for digital learning.

It is clear that the E-rate program needs to do a better job not only connecting schools and libraries to the Internet, but also ensuring that they have the resources to connect their students and classrooms to those Internet connections using current Wi-Fi technology. The funding for in-building wired and wireless networks needs to be widely distributed, reliable, and recurring, so that all schools can provide high-speed and ubiquitous connectivity within their classrooms.[9] In addition, the funding criteria should continue to recognize the relative means and needs of different schools and libraries.[10]

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[7] *See* Remarks of Tom Wheeler, Chairman, Federal Communications Commission, Council of Chief State School Officers Legislative Conference (Mar. 17, 2014), *available at* http://www.fcc.gov/document/chairman-wheeler-remarks-ccsso-legislative-conference.

[8] *See* Consortium for School Networking, *E-rate and Broadband Survey 2013*, at 3 (Oct. 2013), *available at* http://www.cosn.org/sites/default/files/2013EratebroadbandFinal.pdf?sid=289.

[9] *See Public Notice* ¶¶ 14-19 (seeking comment on best ways to allocate funding for Wi-Fi, LAN, and similar equipment).

[10] *See Public Notice* ¶¶ 16 & 23 (seeking comment on best ways to prioritize funding to the right schools if insufficient funding is available).

The Commission is also right to look at the broad categories of equipment that schools need to ensure that robust broadband can reach a student's device.[11] Ensuring the free flow of educational content to classrooms, teachers, and students requires more than the equipment that connects a school to the Internet—it also requires equipment such as switches, firewalls, content filters, and internal wiring. Each of these can bottleneck a school's network,[12] and the Commission is right to be considering expanding the E-rate program to cover the types of expenses schools will realistically face in making the investments necessary to expand Internet access within their facilities.

B. Broadband Deployment to Schools and Libraries.

In addition to providing funding for internal connections, substantial investment is needed today to deploy high capacity broadband infrastructure to schools and libraries. This investment will not only address short-term needs, but will also ensure that learning institutions can easily scale their bandwidth in a cost-effective manner as bandwidth needs explode in upcoming years.[13]

EducationSuperHighway applauds the Commission for focusing in the *Public Notice* on the critical issue of ensuring that schools and libraries be given the right resources to address

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[11] *See Public Notice* at ¶ 12 (seeking "focused comment on what services, software, or equipment are necessary to enable high quality, high-capacity networks *inside* schools and libraries, and whether such services, software and equipment should qualify for support") (emphasis added).

[12] *See* Comments of EducationSuperHighway, WC Docket No. 13-184 (Sept. 16, 2013), at 7-8 & n.13.

[13] *See* Comments of EducationSuperHighway, WC Docket No. 13-184, at 14-20 (Sept. 16, 2013); Reply Comments of EducationSuperHighway, WC Docket No. 13-184, at 13-24 (Nov. 8, 2013).

broadband deployment to their facilities.[14] Our data has shown that affordability has been a key barrier in holding back schools and libraries from making the sorts of long-term investments in broadband infrastructure construction needed to ensure scalable and affordable networks. The *Public Notice* rightly focuses on how to help schools and libraries meet those goals. We believe the Commission is asking the right questions around ensuring that the program's funds are distributed equitably; encouraging funding recipients to use funds in a cost-effective manner through consortiums and bulk-buying opportunities; encouraging better technology planning to ensure that the fund's resources are appropriately spent; and moving forward with better data collection efforts to increase transparency within the program, lower costs, and help guide future decisions. We applaud the Commission for raising these questions and look forward to public comment on how best to address these various issues.

II. REDIRECTING SUPPORT FROM VOICE SERVICES TO BROADBAND.

While many schools are struggling to provide the necessary broadband connections and bandwidth to their students and teachers, the E-rate program continues to divert as much as $1.1 billion a year towards legacy technologies such as voice connections that fail to meet even today's learning needs, much less those of the future. EducationSuperHighway supports the Commission in looking at how to best refocus the E-rate program where its focus now belongs: on broadband.

The reality is that it simply no longer makes sense to fund traditional voice connections at the expense of broadband connections. Broadband connections now allow for a multitude of communications methods not possible with landlines, ranging from email, text, video, Facetime, Skype, video relay, SMS, voice (over IP), and even HD Voice (which landline phone

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[14] *See Public Notice* ¶¶ 24-37.

connections do not support). Not only do the many communications options now enabled by broadband connections encompass and supersede those previously available through landlines, but they are especially helpful for students, teachers, and parents with disabilities. For instance, in addition to enabling voice transmission as one of many applications that can be run over IP, broadband connections allow for substantially clearer audio signal (including additional frequencies beyond the abilities of traditional telephony networks), improved video communications, and simultaneous transmission of information in text, audio, and video.[15]

Shifting the focus of the E-rate program towards broadband and away from support for traditional voice connections, therefore, should not adversely impact the communications options available to recipients—as Chairman Wheeler has noted, "when broadband comes into a school, so do[] digital voice capabilities."[16] And the voice capabilities offered by broadband networks outpace traditional landline capabilities, offering not only cost savings, but enhanced communications features, such as activated homework hotlines and reverse 911 capabilities that can call home or cell phones in an emergency. Making these features and options possible, however, requires ensuring that schools and libraries are not stuck with investments in legacy telephony equipment and services that lock them into limited features and delay future upgrades.

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[15] *See, e.g.*, VON Coal., Benefits of VoIP: Connecting People with Disabilities to New Opportunity, *available at* http://www.von.org/secpgs/02_benefits/benefits_06_disabilities.html (last visited Apr. 5, 2014) (detailing various ways in which VoIP technologies can enable better communications for Americans with disabilities). For instance, Gallaudet University, the nation's premiere school for the deaf, turned to a broadband enabled VoIP service instead of landline phones because it enabled a speech to text implementation, enabled them to use video phone booths around campus, and allowed them to take advantage of "wideband" voice enabled over broadband lines for better frequency response and better speech understanding. *Id*.

[16] Remarks of Tom Wheeler, Chairman, Federal Communications Commission, Council of Chief State School Officers Legislative Conference (Mar. 17, 2014), *available at* http://www.fcc.gov/document/chairman-wheeler-remarks-ccsso-legislative-conference.

As broadband increasingly comes into the classroom, traditional voice connections have become less and less important. Although connecting classrooms to traditional voice technologies was essential at the beginning of the E-rate program in enabling dial-up connections to the Internet, the narrowband capabilities offered by traditional voice connections are no longer adequate to support today's growing bandwidth needs. Indeed, although almost three-fourths of public schools with Internet access used dial-up Internet connections in 1996, by 2001, the majority (55 percent) had shifted to T1/DS1 lines,[17] with 95% of public schools using broadband connections to access the Internet by 2003.[18] And even those T1 connections, once thought to provide robust Internet and learning speeds, today offer speeds slower than the average residential broadband connection. Making the E-rate program more relevant and impactful today requires helping schools and libraries migrate away from traditional voice technologies, and towards broadband connections that can meet rapidly expanding bandwidth requirements.

The number of voices supporting the refocusing of the E-rate program on broadband has been expanding, with a growing number of American leaders calling on the FCC to make the needed reforms. Indeed, EducationSuperHighway applauds the Commission and each of its Commissioners for recognizing the importance of moving forward and refocusing the program on broadband:

- As Chairman Wheeler stated in his address at the Council of Chief State School Officers Legislative Conference, "if we are going to connect 99% of American students to high

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[17] *See* Nat'l Ctr. for Educ. Statistics, Inst. Of Educ. Sci., Internet Access in U.S Public Schools and Classrooms: 1994-2001, School Connectivity, *available at* https://nces.ed.gov/pubs2002/internet/3.asp.

[18] *See* Nat'l Ctr. for Educ. Statistics, Inst. Of Educ. Sci., Internet Access in U.S Public Schools and Classrooms: 1994-2003, at 5, *available at* http://nces.ed.gov/pubs2005/2005015.pdf.

speed connections in 5 years—or faster—we must reorient all our thinking—even about voice calls—to broadband."[19]

- Similarly, as Commissioner Rosenworcel recognized in her remarks at the SXSWEDU Conference, "on a long-term basis we need to make sure that all E-rate support is focused on high-speed broadband."[20]

- Likewise, Commissioner Clyburn has acknowledged that "[r]esources are not unlimited, and we have a responsibility to be careful stewards of public resources. So we need to ensure that we're getting the most bang for our E-rate buck. We need to ensure … that we phase out funding for unnecessary services."[21]

- As Commissioner Pai remarked in July of 2013, "How can it be that E-rate in the last few years committed about $600 million—more than one quarter of its annual budget!—to support voice telephony services while at the same time denying eight out of ten applicants funding for connecting classrooms?" and "E-rate today prioritizes long-distance telephone calls and getting phone service to a school's bus garage over wiring up a classroom."[22] And as Commissioner Pai testified before Congress, modernizing the program "means targeting funding at next-generation technologies like broadband and Wi-Fi."[23]

- Commissioner O'Rielly recently noted in his blog entry regarding E-rate reform that "[b]y dramatically reducing—if not eliminating—funding for other services, such as paging and long-distance telephone service, we can channel funding toward what students (and library patrons) need most: better access to broadband so they can tap into

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[19] *See* Remarks of Tom Wheeler, FCC Chairman, Council of Chief State School Officers Legislative Conference (Mar. 17, 2014), *available at* http://www.fcc.gov/document/chairman-wheeler-remarks-ccsso-legislative-conference.

[20] *See* Remarks of Commissioner Jessica Rosenworcel, SXSWEDU Conference and Festival (Mar. 6, 2014), *available at* http://www.fcc.gov/document/remarks-commissioner-rosenworcel-sxswedu-conference-and-festival.

[21] Prepared Remarks of Acting Chairwoman Mignon L. Clyburn, "Connected in the Digital Age: Improving American Education through Technology," Hosted by the Annenberg Retreat at Sunnylands (Sept. 10, 2013), *available at* http://www.fcc.gov/document/clyburn-remarks-education-technology-annenberg-event.

[22] Remarks of Comm'r Ajit Pai, *On Connecting The American Classroom: A Student-Centered E-Rate Program*, American Enterprise Institute, Washington, DC (July 16, 2013), *available at* http://www.fcc.gov/document/commissioner-pai-speech-student-centered-e-rate-program

[23] *Oversight of the Federal Communications Commission: Hearing Before the Subcomm. On Commc'ns and Tech. of the H. Comm. On Energy and Commerce* 113th Cong. (Dec. 12, 2013) (Statement of Ajit Pai, FCC Commissioner), *available at* http://www.fcc.gov/document/commissioner-pai-fcc-oversight-hearing-statement-0

the greatest collection of information and learning applications the world has ever seen."[24]

- Fifty of the nation's top CEOs recently wrote in an open letter to the Commission that "the FCC should focus E-Rate spending on upgrading America's K-12 Internet infrastructure and help schools dramatically lower the cost of bandwidth."[25]

- A bipartisan group of two dozen members of Congress has observed that "[w]e need to . . . [f]ocus E-rate on broadband connectivity and infrastructure to ensure that we maximize the impact of the program on learning by limiting support for yesterday's outdated dial-up era technologies."[26]

- The bipartisan leadership of the United States Conference of Mayors (USCM), representing more than 1,000 cities with populations of 30,000 or more, has stated that "[w]e need to modernize and expand the successful E-rate program by 1) focusing the E-rate program on broadband connectivity and infrastructure to ensure that we maximize the impact of the E-Rate on learning."[27]

This chorus of voices is saying loud and clear that it is time to answer the call for more capable networks in our schools by hanging up on outdated telephone technologies and transitioning our students to a brighter broadband future. EducationSuperHighway urges the Commission to heed these calls and enact such reforms swiftly.

III. DEMONSTRATION PROJECTS.

The Commission's *Public Notice* also solicits comment regarding demonstration projects to test out various future policy proposals to help the E-rate program better meet its needs going forward.

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[24] Michael O'Rielly, FCC Commissioner, *Commissioner O'Rielly's Blog Introduction and Views on E-rate Reform* (Feb. 12, 2014), *available at* http://www.fcc.gov/blog/commissioner-o-rielly-s-blog-introduction-and-views-E-rate-reform.

[25] *See* Letter to Chairman Wheeler (Jan. 30, 2014) *available at* http://erate2.educationsuperhighway.org/#ceos-letter.

[26] *See* Letter from Congressional Representatives to Chairman Wheeler, Commissioner Clyburn, Commissioner O'Rielly, Commissioner Rosenworcel, and Commissioner Pai, (Dec. 18, 2013) *available at* http://polis.house.gov/uploadedfiles/e-rate_final.pdf.

[27] *See* Letter from U.S. Conference of Mayors to Chairman Wheeler (Mar. 17, 2014), *available at* http://apps.fcc.gov/ecfs/document/view?id=7521093862.

Of course, the power of the E-rate program—including which parts of it work, and which parts of it could work better—has been on demonstration since inception, with every school or library that has received support from the program acting as a laboratory to help educate us about how the program can best serve our students. Over the course of the program's 17-year run, we have already learned a great deal about what works and what doesn't. And if we want our students to continue learning into the twenty-first century, we should be continuing to learn more about how best to bring about the goals of the program and ensure that every student is connected.

The Commission's recently adopted Technology Transitions Order—which solicited a broad set of experiments in order to develop a solid set of facts and data—has been a positive step to support innovative approaches to extending digital opportunities to more schools.[28] To the extent that the Commission is interested in carrying out demonstration projects and programs in order to better understand the best use of E-rate program funds, the various policy levers the Commission has available to increase the effectiveness of the program, and how and whether the program can and should be expanded to meet the goals set out in the President's ConnectED program, EducationSuperHighway suggests that several principles should guide the Commission's approach.

First, while demonstration projects can supply valuable lessons about future opportunities for improvement within the program, they should not be a basis to hold up or delay necessary spending or reforms. To enable information from demonstration programs to be used immediately, the Commission should ensure that they are designed, to the greatest extent

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[28] *See In re Technology Transitions*, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, GN Docket No. 13-5, FCC 14-5 (Jan. 31, 2014).

possible, to gather all relevant information (such as costs, savings, and impact) at the outset, within the proposals themselves, rather than at the conclusion of the programs (such as in an after-action report). This will ensure that the data is available promptly to guide future decisions.

Second, EducationSuperHighway believes that there are particular areas on which the Commission could focus demonstration projects and in which additional data would be most useful in helping the Commission understand the challenges it faces in meeting the goals of the ConnectED initiative:

1. Bulk buying opportunities to help libraries and school districts reduce costs and make the most effective use of E-rate funds;
2. Maximizing the use of Research and Education (R&E) networks to help schools and libraries achieve more cost-effective, high-speed connections to the Internet;
3. Providing better technical assistance to schools and libraries that require it;
4. Exploring opportunities for public/private partnerships to foster investment in broadband;
5. Connecting schools and libraries to last-mile Broadband Technology Opportunities Program ("BTOP") fiber networks;
6. Making the entire Funding Year 2014 E-rate Form 471 data set publicly available as a means of testing the ability of transparency to lower prices and inform decision-making; and
7. Exploring other ways for schools and libraries to make the most cost-effective use of E-rate funds.

CONCLUSION

For the reasons stated above, EducationSuperHighway reiterates its call for the Commission to take swift action to modernize and reform the E-rate program in order to better deliver Gigabit broadband speeds into every school and library, and to deliver Wi-Fi into every classroom. There is no other area in which the opportunities for investment are so compelling as the vital need to ensure that American classrooms and libraries are connected and prepared to meet the educational challenges of the future.

Respectfully submitted,

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