Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	
Modernizing the E-rate Program for Schools and Libraries	WC Dkt. 13-184
Connect America Fund A National Broadband Plan for Our Future High-Cost Universal Service Support	WC Dkt. 10-90
Schools and Libraries Universal Service Support	CC Dkt. 02-6

COMMENTS OF
NEW AMERICA'S OPEN TECHNOLOGY INSTITUTE, CENTER FOR RURAL STRATEGIES, NATIONAL HISPANIC MEDIA COALITION, PUBLIC KNOWLEDGE, X-LAB, AND UNITED CHURCH OF CHRIST, OC INC.

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Table of Contents

INTRODUCTION 1

I. The Commission should grant the Petitions and clarify that extending access to the Internet and to online school services for students and faculty off-campus can be an eligible expense under E-rate. 2

A. Extending E-rate networks into the communities and homes of students furthers the goals of the E-rate program. 3

B. Off-campus services, such as those proposed by Petitioners, can further the educational purposes requirement of the E-rate program. 6

C. The Petitions should be granted. 10

CONCLUSION 11

INTRODUCTION

New America's Open Technology Institute, the Center for Rural Strategies, the National Hispanic Media Coalition, Public Knowledge, X-Lab, and the United Church of Christ, OC Inc. (the "Public Interest Organizations," or "PIOs"), submit these comments in response to the Federal Communications Commission's ("FCC") Public Notice, *Wireline Competition Bureau Seeks Comment on Petitions Regarding Off-Campus Use of Existing E-rate Supported Connectivity*, seeking comment on petitions filed by (1) the Boulder Valley School District and (2) Microsoft Corporation, Mid-Atlantic Broadband Communities Corporation, Charlotte County Public Schools, Halifax County Public Schools, GCR Company, and Kinex Telecom (collectively the "Petitions").[1]

OTI has previously supported giving greater flexibility to schools and libraries to provision their networks for the benefit of their communities.[2] Providing Boulder and Southern Virginia, and all similarly situated school districts, such flexibility would further the goals of universal service and would further the educational purposes requirement of E-rate. The FCC should grant the Petitions and clarify that extending access to the Internet and to online school services for students and faculty off-campus can be an eligible expense under E-rate.

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[1] Public Notice, DA 16-1051 (Sept. 19, 2016).

[2] *See generally* OTI Comments, Dkt. 13-184 (Sept. 16, 2013) at 11-14 ("2013 OTI Comments"); OTI Reply Comments, Dkt. 13-184 (Nov. 8, 2013) at 11-16 ("2013 OTI Reply Comments").

I. The Commission should grant the Petitions and clarify that extending access to the Internet and to online school services for students and faculty off-campus can be an eligible expense under E-rate.

The E-rate rules should not prevent schools from finding new ways of extending their networks for the benefit of their constituents and communities. Schools should not feel "wary" about initiatives that extend Internet access to unserved and underserved communities, particularly when extending access to school networks directly advances its educational mission.[3] In fact, the Commission should encourage schools and libraries to extend the usefulness and reach of their E-rate-supported networks, so long as the extension does not interfere with normal school use.

Recent E-rate updates have already allowed network access to community members after school hours. The rules should similarly allow for the type of proposal contemplated by the Petitions—extending network access beyond the school or library to homes and other community locations in a manner that serves the intended beneficiaries of the networks. It is also critical to recognize that what Petitioners propose here—leveraging a technology to extend the reach and functionality of the school's E-rate-supported network for educational purposes—is different from a request to purchase commercial wireless services for use off campus. The FCC should ensure these and similar projects can move forward without fear of violating the E-rate rules.

[3] Microsoft Petition at 14.

A. Extending E-rate networks into the communities and homes of students furthers the goals of the E-rate program.

The Petitions describe in detail how their programs will further the E-rate program's goals.[4] The PIOs offer two additional arguments: (1) allowing schools to extend the reach and functionality of their broadband networks will enhance the value derived from E-rate funding in the same way that investments in Wi-Fi access points throughout a school building have magnified the value of E-rate; and (2) extending school networks beyond the walls of the institution will lower the cost of connectivity for low-income students.

First, increased network use, whether for no additional cost or a marginal increase in cost, will boost the network's value for schools and the E-rate program. Extending access to a school's already-built network off-campus and off-hours will increase the usage of the network during normally-dormant times. Schools invest a tremendous amount of money in their networks to handle peak capacity, but during off-hours schools could increase their network's utility by extending it to the homes of students who lack adequate Internet access. In turn, home Internet access can help disadvantaged students perform better in school.[5] Thus, low-income students can gain Internet access and improve in school, which will also reflect better on the school itself.

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[4] Microsoft Petition at 5-7; Boulder Petition at 5-8.

[5] Daniel Boffey, *Children with Internet Access at Home Gain Exam Advantage, Charity Says*, Guardian (May 21, 2011), https://www.theguardian.com/education/2011/may/21/children-internet-access-exam-advantage.

For schools that offer free devices to their students,[6] home access could improve the efficiency and usefulness of those devices. By leveraging TV White Space, wireless mesh, or other technology as a network extender, students would no longer be tied to the physical school structure to take advantage of free devices—those devices could then facilitate learning at home. For instance, in Arlington, VA, students use school-provided technology at home. Even on snow days, the students with Internet access do not "miss a beat" as teachers assign activities for their students to do while school is closed.[7] Students even indicate they prefer learning by tablet.[8] If schools can both provide tablets (or similar devices) and extend internet connectivity to the home, students may find learning more enjoyable, benefitting the student and the school.

Second, extending E-rate-funded networks to nearby low-income households will help lower the cost of connectivity for low-income communities, bridge the digital divide, and overcome the homework gap. Cost is often cited as the number one barrier to home Internet access adoption.[9] It is then no wonder that millions of K-12 students lack Internet

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[6] Michael Alison Chandler & Hayley Tsukayama, *Tablet Proliferate in Nation's Classrooms, Taking a Swipe at the Status Quo*, Wash. Post (May 17, 2014), https://www.washingtonpost.com/local/education/tablets-proliferate-in-nations-classrooms-and-take-a-swipe-at-the-status-quo/2014/05/17/faa27ba4-dbbd-11e3-8009-71de85b9c527_story.html

[7] *Id.*

[8] Press Release, *New Study Reveals U.S. Students Believe Tablets Are Game Changers in Learning and Student Engagement*, Pearson (Sept. 8, 2014), http://www.pearsoned.com/news/new-study-reveals-u-s-students-believe-tablets-are-game-changers-in-learning-and-student-engagement.

[9] John Horrigan & Maeve Duggan, *Home Broadband 2015*, Pew Research Ctr. (Dec. 21, 2015), http://www.pewinternet.org/2015/12/21/home-broadband-2015; *see also* Leila Meyer, *Home Connectivity and the Homework Gap*, Journal (July 28, 2016),

access at home, creating a homework gap that exacerbates educational disadvantages due to family income and other factors. FCC Commissioner Jessica Rosenworcel has highlighted this problem, citing research showing that seven out of ten teachers assign homework that requires high-speed Internet access, yet in some communities only one in three students can access the Internet at home.[10] A 2014 survey by the Consortium for School Networking found that 82 percent of school systems provide no off-campus broadband services to students. Only ten percent of districts had identified community or business Wi-Fi hotspots for students, and an equally low number reported partnerships with Internet providers for low-cost home access.[11] Having free Internet service at home alleviates the affordability concern, at least for educational Internet use.

Moreover, students without home Internet access have to turn elsewhere for access, especially to complete homework. These places are often inconveniently located, and include school and library parking lots or, in some cases, McDonalds.[12] For students that do not have the luxury of a flexible night-time schedule, or who may lack transportation, or who may be disabled, or who otherwise lack the ability to go to where

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https://thejournal.com/articles/2016/07/28/home-connectivity-and-the-homework-gap.aspx.

[10] Cecilia Kang, *Bridging a Digital Divide that Leaves Schoolchildren Behind*, N.Y. Times (Feb. 16, 2016), http://www.nytimes.com/2016/02/23/technology/fcc-internet-access-school.html.

[11] Michelle R. Davis, *District Extends Wi-Fi to Students in Public Housing*, Education Week (Apr. 13, 2015), http://www.edweek.org/ew/articles/2015/04/15/district-extends-wi-fi-to-students-in-public.html.

[12] Jorge Rivas, *Not Loving It: Young Students Forced to Go to McDonalds for WiFi After Libraries Close*, ColorLines (Feb. 12, 2013), https://www.colorlines.com/articles/not-loving-it-young-students-forced-go-mcdonalds-wifi-after-libraries-close.

the Wi-Fi is, such travel may not be possible. Students should not have to rely on parking lots or fast food outlets to do their homework in cases where the school (or library) could extend network services to reach them at home, at a community center, or at other safer and/or more convenient locations. Home access through a modest adjustment to the school's E-rate-funded network could ease these burdens.

Extending school networks may even relieve some of the pressure on the Lifeline program. Some families may, instead of applying for Lifeline, rely on the free educational service provided by the local school. Alternatively, this program could encourage low-income families to get connected via Lifeline or other low-income program after seeing how beneficial Internet access can be, particularly for education. In either case, expansion of school networks through projects like those described in the Petitions will help narrow the digital divide and close the homework gap.

B. Off-campus services, such as those proposed by Petitioners, can further the educational purposes requirement of the E-rate program.

E-rate funds must be used primarily for educational purposes.[13] The FCC's rules define educational purposes as "activities that are integral, immediate, and proximate to the education of students" and activities that are on-campus are presumed to meet that definition.[14] Unfortunately, the definition does not specifically address the increasing role that off-campus education can play, nor technological developments (such as TV White

[13] *Schools and Libraries Universal Service Support Mechanism, Sixth Report and Order*, 25 FCCRcd 18762, ¶22 (2010).
[14] 47 C.F.R. §54.500(b).

Space and wireless mesh networks) that can allow the school network to be extended to reach students away from school.

As an initial matter, the petitioner schools are simply asking to extend the service they provide on-campus to the same intended beneficiaries (school children) off-campus. The FCC itself, in the 2013 E-rate NPRM, recognized "the potential value to students and the broader community of having access to broadband services off-premises."[15] At that time, Oakland Unified School District and Revere Public Schools had already sought a waiver of the rules to allow them to provide wireless hotspots to nearby areas.[16] Thus, schools and the FCC have long been aware of the benefits of off-campus connectivity.

Petitioners' proposed use of TV White Space technology to extend the reach of school network connectivity is conceptually no different than adding Wi-Fi access points to extend the network within a school, or between buildings on a school campus, to reach more classrooms, students, and teachers at the location where the network can best serve the school's educational purpose.[17] Indeed, in terms of the purpose it serves, the TV White Space technology proposed here is equivalent to a wireless extension cord—indeed, former FCC Chairman Julius Genachowski called TV White Space technology "Super Wi-Fi" because it has a far longer range than the on-campus Wi-Fi supported by E-rate today.

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[15] *Modernizing the E-rate Program for Schools and Libraries*, *Notice of Proposed Rulemaking*, 28 FCCRcd 11304, 11397, ¶320 (2013).
[16] *Id.*
[17] The FCC recently updated its funding rules to allow for more category 2 funding, with an emphasis on Wi-Fi, within schools. *Modernizing the E-rate Program for Schools and Libraries, Second Report and Order and Order on Reconsideration*, 29 FCCRcd 15538 (2014).

There is great educational value in extending E-rate-supported networks to allow students to access the Internet and school resources at home. School systems increasingly deploy Internet-enabled technology for home use and for continued learning. As mentioned above, schools increasingly provide free devices for "one-to-one" learning, which is catching hold across the nation, where the devices become a personalized learning tool for the students.[18] With home Internet access, these devices could be used to continue education and homework outside school hours. Summer access could also combat the issue of "summer slide," where students lose skills and knowledge over the summer months, with low-income students sliding more than their higher income classmates.[19]

School districts are already piloting innovative ways to bridge the digital education divide among disadvantaged students. For example, the school district in Kent, Washington, just south of Seattle, has placed nine Wi-Fi kiosks in three community centers at public housing projects and outside six district schools in poor neighborhoods.[20] The school district has also coordinated with local businesses and

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[18] Moriah Balingit, *New Program Will Give Some Fairfax Students Their Own Laptops*, Wash. Post (Sept. 2, 2016), https://www.washingtonpost.com/local/education/new-program-will-give-some-fairfax-students-their-own-laptops/2016/09/02/412ed3cc-7060-11e6-8365-b19e428a975e_story.html; Andrew Marcinek, *5 Steps for Implementing a Successful 1:1 Environment*, Edutopia (Oct. 21, 2015), https://www.edutopia.org/blog/one-to-one-environment-andrew-marcinek.

[19] Know the Facts, National Summer Learning Association, https://summerlearning.site-ym.com/?page=know_the_facts; 2013 OTI Comments at 12.

[20] Michele R. Davis, *District Extends Wi-Fi to Students in Public Housing*, Education Week (Apr. 15, 2015), http://www.edweek.org/ew/articles/2015/04/15/district-extends-wi-fi-to-students-in-public.html.

organizations to establish a network of school-sponsored Wi-Fi hotspots.[21] Cincinnati and Green Bay schools offer mobile hotspots to students who lack home Internet access, allowing more students to finish their homework.[22] North Carolina's Rowan-Salisbury school district has a fleet of six Wi-Fi-enabled "activity" buses, including a STEM bus that teachers use to help students embrace and understand science, technology, engineering and math. "The bus is equipped with mobile connectivity, interactive whiteboards, iPads and other tech tools that allow students at schools all over the district to go from 'module to module' learning about STEM."[23] These programs have had beneficial results and are unquestionably valuable for education.

There are technical ways to ensure that school networks and broadband services continue to be used primarily for educational purposes and by students. Microsoft's petition states students would be required to input unique credentials to log in, and the network would be filtered and CIPA-compliant.[24] Limiting the potential uses of the connection will help ensure the network is used for educational purposes. Requiring

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[21] *Id.*

[22] Leila Meyer, *Home Connectivity and the Homework Gap*, Journal (July 28, 2016), https://thejournal.com/articles/2016/07/28/home-connectivity-and-the-homework-gap.aspx. Cincinnati Public Schools purchased dedicated mobile hotspots for its students that had no Internet access at home and were enrolled in an Advanced Placement course. The students used the hotspots for much more than just their AP class homework, including researching other issues they were interested in related to the subjects they were studying in school. Green Bay Area Public Schools rented mobile hotspots to students, which have similarly allowed more students to complete their homework.

[23] Bridget McCrea, *Wi-Fi on Wheels Puts Two Districts on the Fast Track to 24/7 Access*, Journal (Apr. 30, 2015), https://thejournal.com/Articles/2015/04/30/WiFi-on-Wheels.aspx (quote on page 2).

[24] Microsoft Petition at 10.

unique credentials also reduces security concerns because the network as proposed is not an open network and therefore does not pose the same security challenges that an open network would.[25]

The FCC should allow the off-campus expansion of E-rate-supported networks.

C. The Petitions should be granted.

The FCC should use its response to these Petitions to establish clear norms around the use of wireless technology to extend a school's connectivity. Although the Petitioners here propose to extend E-rate-supported Internet access to disadvantaged students at home without incurring any additional costs, the FCC should also clarify that extending access to the Internet and to online school services for students and faculty off-campus can be an eligible expense.

Thus, the FCC should grant the petitions and issue a declaratory ruling stating that, in general, extending a school's E-rate-supported network into its surrounding community need not be cost-allocated, and may even qualify for additional E-rate funds, so long as the network continues to serve primarily an educational purpose and is being used by the network's intended beneficiaries. This will best ensure that the schools in issue here, and other schools similarly situated, can implement these beneficial projects in the future without needing to seek a waiver or a clarification of the E-rate rules.

The FCC should also monitor these projects as they begin operating to ensure there are no unforeseen issues or consequences and to potentially use them as a model for other

[25] *See* 2013 OTI Comments at 13-14.

schools hoping to extend their own networks for the benefit of their surrounding communities.

CONCLUSION

Projects like those proposed in the Petitions hold tremendous educational value for low-income students. The FCC should allow these and similar projects to move forward by clarifying the E-rate rules to remove barriers to such projects.

Respectfully submitted,

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