

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

In the Matter of	)	
	)	
Lifeline and Link Up Reform and Modernization	)	WC Docket No. 11-42
	)	
Telecommunications Carriers Eligible for Universal Service Support	)	WC Docket No. 09-197
	)	
Connect America Fund	)	WC Docket No. 10-90

COMMENTS OF MICROSOFT CORPORATION

## TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	
I. MAXIMIZING THE AVAILABILITY OF AFFORDABLE BROADBAND IS A CRITICAL AND WORTHWHILE GOAL .....	1
II. LIFELINE SUPPORT FOR BROADBAND SERVICE CAN PRODUCE FINANCIAL SAVINGS.....	3
III. LIFELINE SUPPORT FOR BROADBAND SERVICE IS AN INVESTMENT IN EMPOWERING PEOPLE IN THE FUTURE AND TODAY .....	6
A. Close the Homework Gap.....	6
B. Empower Persons with Disabilities.....	8
IV. USE OF UNLICENSED SPECTRUM CAN EXPAND AVAILABILITY OF AFFORDABLE BROADBAND SERVICE.....	10
V. EFFORTS TO REDUCE WASTE, FRAUD, AND ABUSE SHOULD NOT RESTRICT LIFELINE EXPENDITURES FOR ELIGIBLE HOUSEHOLDS.....	11
VI. CONCLUSION .....	13

## SUMMARY

- The Commission should reform the Lifeline program to support wireless and wireless broadband service because it will provide increasingly important tools and benefits across a range of beneficiaries.
  
- Lifeline support for broadband service can:
  - produce financial savings for other government programs, such as with mobile health applications and programs;
  - help close the homework gap and open online learning opportunities for students in low-income households; and
  - empower Lifeline recipients with disabilities to more effectively and easily communicate, collaborate, and contribute.
  
- Unlicensed spectrum can be used to expand availability of affordable broadband service.
  
- Measures to reduce waste, fraud, and abuse should be designed and executed to enhance the Lifeline program's effectiveness, but they should not be employed as a mechanism to reduce the amount of overall expenditures.

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The Lifeline program has evolved with technology, beginning as a program to support affordability of wireline telephone service and expanding to include wireless telephony as consumer practices shifted. Lifeline’s continued evolution to support affordability of broadband service would be consistent with the history of the program. And it’s overdue.

I. MAXIMIZING THE AVAILABILITY OF AFFORDABLE BROADBAND IS A CRITICAL AND WORTHWHILE GOAL

The Commission emphasized the magnitude of the Internet’s importance earlier this year when it stated that:

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<sup>1</sup> Microsoft submits these comments in response to the *Second Further Notice of Proposed Rulemaking* issued by the Federal Communications Commission (“FCC” or “Commission”) in the above-referenced proceeding. *Lifeline and Link Up Reform and Modernization; Telecommunications Carriers Eligible for Universal Service Support; Connect America Fund*, WC Docket Nos. 11-42, 09-297, and 10-90, *Second Further Notice of Proposed Rulemaking, Order on Reconsideration, Second Report and Order, and Memorandum Opinion and Order*, FCC 15-71 (rel. June 22, 2015) (“Notice”).

[t]he open Internet drives the American economy and serves, every day, as a critical tool for America's citizens to conduct commerce, communicate, educate, entertain, and engage in the world around them. The benefits of an open Internet are undisputed.<sup>2</sup>

The importance of access to the Internet through affordable broadband service will only increase as more of our daily actions move to the cloud, whether that's drafting and collaborating on documents and presentations; applying and interviewing for a job; communicating with family, friends, and colleagues; watching movies and television (or creating and editing them); listening to or composing music; involving oneself in civic participation (Commission meetings, for example, can be watched remotely using a broadband connection); or editing, sharing, and saving cherished home movies and photographs. Microsoft encourages the Commission to extend Lifeline support to broadband connectivity because that connectivity will provide increasingly important tools and benefits across a range of beneficiaries.

Increasing affordable broadband access is an undertaking that can and should be accomplished through the efforts of both government and private enterprises. Microsoft has undertaken a variety of financial and technological measures to enhance affordable broadband access. For example, Microsoft provides financial support for affordable broadband through its non-profit partner EveryoneOn.org which offers home

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<sup>2</sup> *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601 at ¶ 1 (2015).

Internet service for as low as \$10 to Americans living in communities with low median incomes. More broadly, last year Microsoft committed to contribute more than \$1 billion in technology savings to schools across the nation that will make broadband access even more productive and rewarding.<sup>3</sup> Microsoft encourages the Commission to focus, in a similar way, on the variety of opportunities for the public sector to make affordable broadband services available for low-income households.

## II. LIFELINE SUPPORT FOR BROADBAND SERVICE CAN PRODUCE FINANCIAL SAVINGS

Discounting broadband service for low-income households is likely to produce financial savings for other federal and state government programs in amounts that greatly exceed the costs of Lifeline's broadband coverage. The use of mobile broadband in health care applications offers a prime example.

Over the past year, Microsoft participated, together with Health Choice Network (HCN), TracFone Wireless, and MobiMedix, in a mobile health pilot program<sup>4</sup> designed

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<sup>3</sup> In a little more than a year, over 3 million students have received access to Office 365 in K-12 schools across the U.S. Since inadequate teacher training is one of the key reasons technology deployments fail, Microsoft has provided in-depth technology training to nearly 150,000 educators, with more training sessions scheduled. In partnership with Acer, Asus, CTL, Dell, HP, Lenovo, Samsung, Toshiba, and others, Microsoft has deployed 2.9 million affordable, Windows-based devices in classrooms. With IT Academy, students and teachers have access to industry-recognized certifications, and Microsoft has enrolled 594 additional schools into the IT Academy program, reaching an estimated 60,000 students. Finally, Bing in the Classroom offers ad-free search for students, creating a safer environment for learning--and over 13,870 schools and 9.62 million students have enrolled in the program. See [http://blogs.technet.com/b/microsoft\\_in\\_education/archive/2015/06/25/microsoft-answers-the-connected-challenge-delivers-technology-and-devices-to-schools-across-america.aspx](http://blogs.technet.com/b/microsoft_in_education/archive/2015/06/25/microsoft-answers-the-connected-challenge-delivers-technology-and-devices-to-schools-across-america.aspx).

<sup>4</sup> See <http://news.microsoft.com/2014/08/21/microsoft-and-tracfone-collaborate-to-offer-innovative-mobile-health-management-solution-to-the-healthcare-market/>.

to tackle chronic medical care challenges and ascertain how access to mobile technology can improve patient compliance, education, and ultimately disease-related outcomes. The patient participants in the pilot program were low-income, at-risk patients. Each patient received a Windows Phone with TracFone's prepaid services – including mobile broadband connectivity – and HCN's custom application to provide patients with security-enhanced and HIPAA-compliant access to their personal health record, treatment plans, aid in disease self-tracking for blood sugar levels, and other vital health information that, together, help them improve their engagement and manage their disease. It even took care of things that made patients' participation in their own health care a little easier, such as allowing them to plan their route to doctors' offices and hospitals, track public transportation schedules, and receive reminders about appointments.

Final results of the project are still being compiled, but preliminary figures suggest that making mobile broadband available to low-income individuals allows them to utilize these health care tools which, in turn, improves their health, reduces missed doctors' appointments, and reduces the number of costly – but avoidable – emergency room visits. Medicaid wins; health care providers win; and the patient wins. Some of the preliminary results include:

- *Financial savings:* Preliminary results indicate that the program reduced unnecessary emergency room visits by patients. The savings from just one less emergency room visit over the course of the program more than paid for

the cost of the patient's participation in the program.<sup>5</sup> In addition, preliminary figures show a reduction in missed appointments with physicians by roughly 50 percent. This translates into real dollars as the price of an average doctor visit is \$150 and the cost of that time cannot be recovered if the appointment is missed.

- *Administrative efficiencies.* Medical office staff was not distracted by having to call patients to remind them of their appointments, allowing more robust staff engagement with patients.
- *Health improvements.* Patients enrolled in the program showed significant reductions in their Hemoglobin A1c (a diabetes measure), quantifying improvements in management of patients' diabetes.

Further, experience with this health care pilot, including the success it achieved by making things easier for program participants, highlights the efficiencies that might be produced if the Lifeline program were to coordinate with and leverage Medicaid enrollment databases (and other government program enrollment databases, as appropriate) to facilitate automated Lifeline eligibility rather than requiring consumers to undertake an independent Lifeline eligibility process.

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<sup>5</sup> A National Institutes of Health-funded study of 8,303 emergency room visits concluded that the median charge for an ER visit is \$1,233, with Medicaid patients being charged the most (a median of \$1,305 per visit) vis-à-vis their counterparts who were uninsured or had private insurance. See Caldwell N, Srebotnjak T, Wang T, Hsia R (2013) "How Much Will I Get Charged for This?" Patient Charges for Top Ten Diagnoses in the Emergency Department, PLoS ONE 8(2): e55491. doi: 10.1371/journal.pone.0055491, available at <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0055491#abstract0>.

III. LIFELINE SUPPORT FOR BROADBAND SERVICE IS AN INVESTMENT IN EMPOWERING PEOPLE IN THE FUTURE AND TODAY

A. Close the Homework Gap

Five million American households with school-age children, most of which are low-income households, don't have broadband service.<sup>6</sup> Students from low-income households lacking broadband at home are at a disadvantage relative to their peers who have broadband at home. The tradition of teachers assigning homework is evidence that learning has long existed both within and outside the classroom. Modern and successful education systems, however, must also embrace *online* learning both within and outside of the classroom. It is not surprising, then, that homework assignments at most schools today require access to online tools or performance of online research. It follows that the absence of broadband service in a student's household could compromise the student's academic performance. While the E-rate program laudably supports online learning within the classroom, the current application of the rules restricts that program from helping with the portion of a student's learning environment that exists outside the school structure.<sup>7</sup> Libraries constitute important broadband resources for many students, but they are a supplement, not a substitute, for

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<sup>6</sup> See John B. Horrigan, "The numbers behind the broadband 'homework gap,'" Pew Research Center (Apr. 20, 2015), available at <<http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap/>>.

<sup>7</sup> The Commission's E-rate rules presume that geographic proximity to a school satisfies the "for educational purposes" requirement of the Universal Service Fund's Schools and Libraries program, 47 C.F.R. § 54.500.

in-home broadband due to a variety of factors. Microsoft commends the Commission for highlighting and seeking to resolve the problem of the homework gap.<sup>8</sup>

Students' academic opportunities outside of school include traditional school subjects, but they also include the opportunity to learn computer programming and other digital skills through home broadband connections. These are skills that provide them with a baseline for higher learning in subjects that are highly sought after in a digital economy and prepare them for rewarding careers. There are many excellent programs available, but to highlight just a few:

- **DigiGirlz**<sup>9</sup> provides high school girls with the opportunity to learn about careers in technology, connect with Microsoft employees, and participate in hands-on computer workshops. It increases high school girls' access to technology training courses they can complete online at home if they have access to high speed broadband service.
- **KudoKup**<sup>10</sup> lets kids create games on their PC and Xbox via a simple visual programming language. Kids can access Kudo at home for a learning experience that will help them build essential digital skills at an early age.
- **Students for Business through the Microsoft Virtual Academy** offers free technical training to students, helps match students' skills with needs of local businesses, and offers developer, designer, and gaming software free of charge. Students can use this online resource through a home broadband connection to experiment with coding and game design and learn marketable digital skills.<sup>11</sup>

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<sup>8</sup> See Notice at ¶¶ 18-26.

<sup>9</sup> See <https://www.microsoft.com/en-us/diversity/programs/digigirlz/onlineclasses.aspx>.

<sup>10</sup> See <http://www.kodugamelab.com/>.

<sup>11</sup> See <http://www.microsoftvirtualacademy.com/offers/s2b-mva-welcome>.

These resources are accessed and used over a broadband connection. Children from low-income households should not be disadvantaged vis-à-vis their peers by not having access to these valuable tools because their home lacks broadband service.

The good news is that the problem is solvable for those 5 million households with students at home who don't have high-speed Internet service: discounting home broadband service through the Lifeline program could play a significant role in closing the homework gap as well as helping students prepare for success in a digital economy. The Commission's proposal would represent an important investment in those students across the United States who currently lack basic, critical tools to help them achieve their potential today and in the future.

B. Empower Persons with Disabilities

Broadband also plays an important role in empowering persons with disabilities to more effectively and easily communicate, collaborate, and contribute. The Notice cites to data identifying the income challenges faced by many persons with disabilities,<sup>12</sup> indicating that many would benefit from the modernization of the Lifeline program to include broadband service.

The use of many relay services, including video relay services, requires a broadband connection. Accordingly, broadband service is tantamount to a traditional voice line – something already covered by the Lifeline program – for people using these

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<sup>12</sup> See Notice at n.92.

relay services. The limitation of the Lifeline program to telephone technology unnecessarily excludes support for those otherwise eligible people who utilize IP-based relay services to communicate.

Affordable broadband service can empower and expand opportunities for people with disabilities in other ways. For example, Microsoft's Skype Translator, which works best over a broadband connection, holds the potential to empower people with hearing loss by providing an innovative way for them to communicate in their personal and professional lives.<sup>13</sup> In addition, earlier this year, Microsoft launched ASL support as a new offering in its Disability Answer Desk.<sup>14</sup> This team provides technical support and for Microsoft customers with disabilities. The offering uses a broadband connection to provide a direct video option for customers with deafness speaking American Sign Language. And there are future broadband uses – only now being imagined – that could further enhance lives. For example, Microsoft's Guide Dogs pilot study explores how the use of mobile broadband service could better facilitate greater mobility and independence for people who are blind.<sup>15</sup> These and other existing and potential uses of broadband service will benefit people with disabilities who are enrolled in the Lifeline program.

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<sup>13</sup> See video demonstrating this use of Skype Translator at <https://www.youtube.com/watch?v=QH3zpsQma9c>.

<sup>14</sup> See blog post at <http://blogs.msdn.com/b/accessibility/archive/2015/08/21/working-towards-a-more-accessible-world-asl-answer-desk.aspx>.

<sup>15</sup> See video demonstrating Microsoft's Guide Dog concept at <https://vimeo.com/61897229>.

#### IV. USE OF UNLICENSED SPECTRUM CAN EXPAND AVAILABILITY OF AFFORDABLE BROADBAND SERVICE

Technological options also can make broadband more affordable. Consumers can access broadband directly over fixed and mobile cellular connections as well as through a hybrid approach – nomadic broadband access – whereby portable Wi-Fi-enabled end user devices access the Internet wirelessly within a relatively short distance of a fixed broadband connection.<sup>16</sup> This hybrid approach is the way that many households, businesses, and anchor institutions currently deliver nomadic broadband connectivity throughout their premises using 2.4 GHz or 5 GHz unlicensed spectrum. The ease of deploying Wi-Fi has made it nearly ubiquitous in densely populated urban areas. In the future, additional frequencies – some with propagation characteristics superior to 2.4 GHz and 5 GHz -- such as the 600 MHz guard band, the remaining television broadcast bands, and 60 GHz will provide more spectrum on which nomadic Wi-Fi Internet connectivity could be delivered.

Microsoft's own experience with work on Wi-Fi offerings using TV white spaces has revealed that unlicensed spectrum offers an affordable broadband option. Microsoft has been a partner in several pilot programs in the United States and internationally to provide broadband connectivity through the use of TV white spaces

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<sup>16</sup> A properly configured smartphone with a cellular data connection also can serve as a nomadic broadband access point.

combined with Wi-Fi-capable and other unlicensed devices.<sup>17</sup> In many circumstances, the projects have made broadband service affordable for individuals and communities where it may otherwise have been unaffordable or unavailable.<sup>18</sup> These projects exemplify the ways in which unlicensed spectrum can be harnessed to make high-speed broadband more ubiquitous and affordable.

V. EFFORTS TO REDUCE WASTE, FRAUD, AND ABUSE SHOULD NOT RESTRICT LIFELINE EXPENDITURES FOR ELIGIBLE HOUSEHOLDS

Measures to reduce waste, fraud, and abuse should be designed and executed to enhance the Lifeline program's effectiveness, but they should not be employed as a mechanism to reduce the amount of overall legitimate expenditures. Properly designed efforts to reduce waste, fraud, and abuse in the Lifeline program maximize the Fund's effectiveness by ensuring that limited funds are distributed only to those they were intended to help. The Notice, however, appears to measure the success of recent reforms to combat waste, fraud, and abuse by the reduction in Lifeline disbursements – a different metric.<sup>19</sup>

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<sup>17</sup> See <http://www.microsoft.com/en-us/news/press/2013/may13/05-08tanzaniapr.aspx> (pilot with University of Dar es Salaam in Tanzania); see also [http://www.microsoft.com/africa/4afrika/white\\_spaces\\_project.aspx](http://www.microsoft.com/africa/4afrika/white_spaces_project.aspx) (using TV white spaces and solar-powered base stations to deliver high-speed broadband to schools lacking basic electricity in rural Kenya); see also [http://www.businesswire.com/news/home/20091021005394/en/White-Spaces-Network-Brings-Broadband-Internet-Rural#.UvLM\\_I2YaUk](http://www.businesswire.com/news/home/20091021005394/en/White-Spaces-Network-Brings-Broadband-Internet-Rural#.UvLM_I2YaUk) (using TV white spaces to connect Claudville, Virginia's post office, several businesses and homes, and Trinity Christian School to the town's fiber optic backbone).

<sup>18</sup> The Notice asks Commission asks how best to use unlicensed spectrum bands for providing broadband service to low-income consumers. Notice at ¶ 129.

<sup>19</sup> See Notice at ¶ 55 ("In 2012, USAC disbursed approximately \$2.2 billion in Lifeline support payments compared to approximately \$1.6 billion in Lifeline support payments in 2014.").

Next to the Rural Health Care fund, the Lifeline program remains the smallest of the four federal universal service programs in terms of dollars disbursed.<sup>20</sup> In 2014, the federal universal service program disbursed roughly \$1.6 billion to low-income households for affordable telecommunications service while disbursing more than \$3.7 billion to carriers to incentivize service and network build-out in high cost areas and roughly \$2.3 billion to schools and libraries.<sup>21</sup> Reducing expenditures on fraudulent applications and wasteful processes is laudable and, like other successful reform efforts, they should focus on the goal of making broadband affordable for as many eligible households as possible. Thus, successes in combatting waste, fraud, and abuse may provide an opportunity to make more funds available to eligible households who need them.

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<sup>20</sup> See [USAC Annual Report 2014](#), p.35.

<sup>21</sup> *Id.*

VI. CONCLUSION

Microsoft commends the Commission for its proposal and urges it to modernize the Lifeline program by supporting broadband service for low-income households.

Respectfully submitted,

MICROSOFT CORPORATION

/s/ Gunnar D. Halley\_\_\_\_\_

Laura H. Carter  
Assistant General Counsel

Gunnar D. Halley  
Senior Attorney

LCA - Regulatory Affairs  
One Microsoft Way  
Redmond, WA 98052  
425.703.3651  
gunnarh@microsoft.com

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