BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matters of	
Schools and Libraries Universal Service Mechanism	CC Docket No. 02-6
Comprehensive Review of the Universal Service Fund Management, Administration, and Oversight	WC Docket No. 05-195
NBP Public Notice #15	GN Docket Nos. 09-47, 09-51, 09-137

REPLY COMMENTS OF MICROSOFT CORPORATION

Microsoft welcomes the opportunity to share with the Federal Communications Commission ("FCC" or "Commission") views on broadband access in education. Below, we discuss a variety of programs Microsoft has implemented, often in partnership with non-governmental organizations and public institutions, to improve educational opportunities through technology. One key lesson learned from these and other efforts is that schools, libraries, and other community-based institutions need higher-bandwidth broadband connectivity. Microsoft believes that the Commission has an important role to play in promoting the deployment and adoption of robust, future-proof broadband connectivity by schools, libraries, and other community-based anchor institutions. To that end, we urge the FCC to reinvigorate the schools and libraries universal service mechanism's focus on broadband deployment and adoption and pursue other ways to improve its operation.

I. MICROSOFT IS COMMITTED TO CREATING NEW LEARNING OPPORTUNITIES THROUGH TECHNOLOGY

The evolving demands of the global economy make education vital to sustainable social and economic success. Specifically, educational systems that foster 21st century skills ensure that graduates are prepared for the workplace and contribute to local innovation and job growth. A quality education is a fundamental human right and is the single most important investment in the future of individuals, communities, the nation, and the world.

Microsoft works with educators, educational organizations, and industry partners on this transformation of education by expanding the power of education for all through personalized learning. We are providing products, programs and services to empower educators and engage students, building communities to help those in education work together more easily, and delivering agile infrastructure so that all types of students, educators and schools can easily, securely and inexpensively access what they need anytime, anywhere and in any way they need.

Education is a foundation of our communities, and key to America's ability to remain competitive in the global economy. Microsoft is working to strengthen K–12 and higher education worldwide through a range of programs that support students, teachers and school leaders. Some examples of those programs include:

- **Partners in Learning:** Partners in Learning is a 10-year, $500 million commitment to help local schools increase their access to technology and improve its use in learning. Since 2003, Partners in Learning has touched the lives of more than 90 million students, teachers and education policymakers in 101 countries. Through the Innovative Schools program, we are partnering with 12 schools in different parts of the world to move beyond the limits of the classroom and traditional education models toward new approaches that make learning more engaging, inspiring and relevant. The resulting educational tools and methods are available for other school districts to adapt and use. Our Innovative Teachers program is dedicated to helping educators develop and share successful teaching methods, lesson plans, practices and professional development resources. As part of our Innovative Students program, we work with governments and schools to help deliver technology products and supporting curricula directly into the hands of students to enrich their learning.

- **Club Tech at the Boys and Girls Clubs of America:** For more than a decade, Microsoft has partnered with the Boys & Girls Clubs of America to teach essential digital literacy skills to children across the country and on U.S. military bases abroad. Club Tech uses fun, interactive lessons to give youth of all ages and backgrounds the skills they need to showcase their creativity, perform better in school and eventually take their technology know-how into the workplace. To date, Microsoft's $150 million pledge has reached 4.5 million children in 4,300 locations. Microsoft also provides local Clubs with technology and support services to help run their operations, and many of our employees volunteer at Clubs.

- **DigiGirlz:** Started in 2000, the Microsoft® DigiGirlz program is designed to dispel the stereotypes typically associated with careers in technology. DigiGirlz Days and DigiGirlz High-Tech Camps give high-school girls a chance to learn about careers in technology, connect with Microsoft employees, and participate in hands-on computer and technology workshops hosted on many of Microsoft's campuses around the world. Participants receive career planning assistance, explore technology and business roles, engage in thought-provoking exercises and view in-depth Microsoft product demonstrations.

- **Imagine Cup:** Encouraging young people to apply their imagination and their passion to create technology innovations to solve real-world problems is the goal behind Imagine Cup. In 2009, more than 300,000 students from 142 countries participated. The competition helps students strengthen technical, problem solving and communication skills that can aid them in a future career. In the eight years since Microsoft created Imagine Cup, students have created technology solutions to improve software accessibility for the visually impaired, increase food production and improve access to healthcare in remote areas. Using the UN's ambitious Millennium Development Goals as a guiding framework, the theme for 2010 is "Imagine a world where technology helps solve the toughest problems."

- **DreamSpark:** To support advanced technical learning and unlock students' creative potential, the Microsoft DreamSpark™ program enables university and high-school students to download professional Microsoft developer, designer and gaming software at no cost. Since 2007, DreamSpark has provided more than 2.3 million downloads of Microsoft software tools. The program also offers online instructional resources, training videos, special offers on Microsoft Certified Technology Specialist exams and access to Microsoft IT Academy learning opportunities.

- **The Microsoft Students to Business (S2B)** program helps university students who are pursuing technology careers to connect with Microsoft partners and customers for entry level and internship positions. Microsoft S2B provides unique training and certification opportunities as well as other resources that fuel innovation and help students gain the skills required to become more employable. Since 2006, the program has provided more than 300,000 students with new career skills and has led to internships and jobs for 15,000 students.

- **Microsoft IT Academy:** The Microsoft IT Academy program provides comprehensive IT training curricula and resources, as well as Microsoft certification opportunities, to help prepare students for today's workplace, encourage lifelong learning and enhance employability. The program gives educators the tools they need to deliver technology courses that align with industry hiring needs and to offer dynamic learning experiences to a diverse community of students. The program is available in thousands of locations in more than 100 countries.

Microsoft also offers qualifying preschools, public and private primary and secondary schools, libraries, public museums, and home-school programs discounts on software and other products.[1]

Another example of Microsoft's efforts in education is the Assessment & Teaching of 21st Century Skills (ATC21s) initiative.[2] Cisco, Intel, and Microsoft are working together to support global education reform by mobilizing the international educational, political, and business communities to help transform the teaching, learning and measurement of 21st Century skills. ATC21s is a multi-sector research project to develop new assessment approaches, methods and technologies for measuring the success of 21st-century teaching and learning in classrooms around the world.

In cooperation with the Bill and Melinda Gates Foundation (the Gates Foundation), Microsoft also donates software to expand public access to computing and the Internet at public libraries in underserved, often low-income communities. In the United States, Microsoft has donated more than $176 million worth of software to 10,915 libraries nationwide to reduce the digital dividend and empower residents of the United States to realize their full potential. The Gates Foundation recently committed nearly $3.4 million in grants to bolster Internet connections for libraries in five states – Arkansas, Kansas, Massachusetts, New York, and

[1] http://www.microsoft.com/education/license/howtobuy/academicsavings.aspx
[2] http://www.microsoft.com/education/programs/transformation.mspx.

Virginia.[3] With current software on public access computers, library users can harness the benefits of technology while learning valuable IT skills.

II. THE SCHOOLS AND LIBRARIES PROGRAM CONTINUES TO PLAY A PIVOTAL ROLE IN INCREASING TECHNOLOGY ACCESS IN LOWER-INCOME, RURAL COMMUNITIES

There is broad support in the record for the FCC's schools and libraries universal service (E-rate) program. The FCC's E-rate program has been successful in promoting broadband availability in schools and libraries.[4] As the Education and Libraries Networks Coalition (EdLiNC) points out in its comments, the E-Rate program has "already proven successful in improving broadband connectivity in schools and libraries throughout the nation, particularly in low-income and rural localities."[5] Moreover, "there is evidence that the E-Rate program has catalyzed access to the Internet in surrounding communities and other institutions."[6]

At the same time, it is time for the Commission to enhance the E-Rate program's focus on broadband deployment. Broadband is foundational for driving innovation and productivity across all market sectors including education, healthcare, and energy. Core to driving innovation is better education and an increasingly skilled workforce. What we are seeing today in leading-edge educational settings is broadband and e-learning being used in combination with face-to-face teaching. An encouraging and important development in education is the increasing use of Virtual Schools and Virtual Classes. Approximately 30 states now have Virtual Schools with the biggest being the Florida Virtual School that serves about 100,000 students. Other Virtual Schools are substantially smaller, but are growing quickly.

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[3] http://www.gatesfoundation.org/press-releases/Pages/opportunity-online-helping-libraries-get-broadband-funding-091201.aspx.

[4] *See, e.g.*, Dell Inc. Comments at 2; Iowa Department of Education (Iowa) Comments at 2; State E-Rate Coordinators Alliance (SECA) Comments at 28.

[5] *See* Education and Libraries Networks Coalition (EdLiNC) Comments at 1.

[6] *Id.*

To ensure that all schools and libraries can benefit from these technological advances, Microsoft agrees with other parties that facilitating ubiquitous, robust, and future-proof broadband deployment should be the core focus of the E-rate program going-forward.[7] Microsoft has proposed that anchor institutions, such as K-12 schools, higher education institutions, libraries, hospitals and other key community hubs, should, at a minimum receive baseline broadband delivering 100 Mbps throughput, to be adjusted for the size of the institution, and preferably symmetrical, to encourage deployment of future-proof technology like fiber.[8]

At first blush, defining baseline broadband for anchor institutions as delivering throughput of at least 100 Mbps may sound ambitious, but one should consider the average throughput that would be delivered to an individual user in such a shared environment. In a typical school environment with about 1,000 students and staff, one third of the students and staff may be using the network at the time of peak usage and must share the 100 Mbps of capacity. 10 Mbps may support one third of the school concurrently reading email, but will be completely inadequate for any video-learning and other rich media experiences. Our proposed definition of baseline broadband for schools, libraries, and other anchor institutions, therefore, is modest when one considers the types of video and advanced data applications necessary in today's (and tomorrow's) e-learning environment.

We, therefore, wholeheartedly agree with the Wisconsin Department of Public Instruction that "[t]he goal the Commission should set in its National Broadband Plan is to ensure that every

[7] *See, e.g.,* AT&T Inc. Comments at 1; SECA Comments at 32; Verizon and Verizon Wireless (Verizon) Comments at 7; Wisconsin Department of Public Instruction (Wisconsin) Comments at 1.

[8] As we noted in our reply comments in response to the Commission's National Broadband Plan NOI, subsidized facilities should be subject to interconnection requirements. *See* Microsoft Reply Comments, GN Docket No. 09-51, at 9 (filed Jul. 21, 2009).

school and library has sufficient connectivity that only fiber can provide."[9] Moreover, based on estimates submitted by the Bill and Melinda Gates Foundation, the Wisconsin Department of Public Instruction argues that this level of broadband connectivity may be achievable over a period of a few years at current funding levels.[10] The Bill and Melinda Gates Foundation has estimated that installing fiber to all anchor community institutions – a subset of which includes public schools and public libraries – may cost $5 to $10 billion, with the range driven by unknown site-specific factors in fiber deployment costs.[11]

As AT&T points out, schools and libraries are quintessential "anchor institutions" that are uniquely positioned to increase awareness and, thus, stimulate consumer demand for, and adoption of, broadband.[12] Robust broadband connectivity is key to providing students and schools with access to a growing range of education courses, services, and content-rich material that can heighten the learning experience.[13] Robust broadband connectivity is likewise key to improving global competitiveness. As the City of Chicago points out, "the Commission should view all elements of the National Broadband Plan through the lens of global competitiveness."[14]

Question 11.c. In order to further enhance schools' and libraries' role as community-based anchor institutions and to maximize the "spill-over" effect of E-Rate funded broadband connectivity, Microsoft supports proposals to expand "eligible use" beyond students and employees to others (*e.g.*, preschool and adult learners) in the community as long as for

[9] *See* Wisconsin Comments at 6.
[10] *See* Wisconsin Comments at 7.
[11] *See* Letter from Jill Nishi, Bill & Melinda Gates Foundation, to Marlene H. Dortch, FCC, GN Docket No. 09-51, filed October 5, 2009.
[12] *See* AT&T Inc. Comments at 1.
[13] *See* Council of the Great City Schools (Great City Schools) Comments at 2.
[14] *See* City of Chicago, the Chicago Board of Education, the Chicago City Library and the City Colleges of Chicago (City of Chicago) Comments at 27.

"educational purposes" as required by Section 254(h)(1)(B) of the Act.[15] This change would allow schools to serve as public computing centers, as allowed in the National Telecommunications and Information Administration's Broadband Technology Opportunities Program (BTOP).[16] As the Council of Great City Schools points out, communities will benefit to the extent that E-rate supported broadband connections can be utilized "[f]or adult education, online coursework, parent and community groups, and other activities that offer support to low-income, limited English proficient, unemployed, and other vulnerable populations concentrated in urban areas."[17]

Questions 11.d-e. Given existing strains on the E-Rate program's $2.25 billion annual funding cap, many parties rightly oppose proposals that would expand eligible users (such as colleges, community colleges, pre-kindergarten, Headstart, or other entities), or extend funding to computers and other equipment, as well as fund training for teachers or librarians. While these are all worthwhile endeavors, the E-Rate program should remain focused on its core mission – enabling broadband connectivity for eligible schools and libraries. Other programs, such as the United Department of Education's Enhancing Education Through Technology program, while subject to their own budget constraints, are already focused on training,

[15] *See, e.g.,* AT&T Comments at 5; Dell Inc. Comments at 3; EdLiNC Comments at 2; Great City Schools Comments at 2, 3, 5; Iowa Comments at 2, 4; SECA Comments at 11, 16; Utah Education Network (Utah) Comments at 2; West Virginia Department of Education (West Virginia) Comments at 6-9.
[16] *See, e.g.,* City of Chicago Comments at 24; EdLiNC Comments at 5; SECA Comments at 11; West Virginia Comments at 10.
[17] *See* Great City Schools Comments at 5.

hardware, and software.[18] As the Iowa Department of Education points out "[e]ach program has a unique and yet mutually supportive function" and each should be supported.[19]

Question 11.h. Microsoft also supports proposals to reduce the complexity of E-Rate application and reimbursement procedures, which will reduce administrative costs for both applicants and USAC.[20] One of the simplest, and yet extremely helpful rule changes, would be to allow the Form 471 to be filed once or at least allow for a simple annual renewal process for multi-year contracts.[21] Other parties propose changes to simplify the reimbursement process; for example, requiring carriers to put discounts on monthly bills, as opposed to forcing schools to complete monthly BEAR forms.[22] Moreover, the FCC should consider providing more assistance to small schools and libraries regarding E-Rate eligibility and the application process.

Questions 13.a-i. Before determining whether the annual E-Rate fund cap should be increased or indexed for inflation, the Commission should first see whether and how enhancing the focus of the E-Rate program to broadband will affect funding demand.[23] The FCC should consider various proposals to shift funding priorities over time to more aggressively focus dollars on broadband deployment.[24] In order to better manage limited resources, we also encourage the

[18] *See* AT&T Comments at 7-8; California K-12 High-Speed Network and Its LEA (California K-12) Comments at 10; EdLiNC Comments at 4; Great City Schools Comments at 5; Iowa Comments at 5, 11; SECA Comments at 16-18, 32.
[19] *See* Iowa Comments at 11.
[20] *See, e.g.*, City of Chicago Comments at 22; EdLiNC Comments at 5-6; Iowa Comments at 6; Oregon Department of Education (Oregon) Comments at 8-9; SECA Comments at 19; Utah Comments at 7.
[21] *See, e.g.*, California K-12 Comments at 11 (proposing a "same as last year" 470/471 EZ process) or Wisconsin Comments at 5 (proposing an "evergreen" process).
[22] *See, e.g.*, Utah Comments at 10.
[23] *See, e.g.*, AT&T Comments at 14; Verizon at 10-11.
[24] *See, e.g.*, AT&T Comments at 15 (proposing that the FCC gradually phase out support for basic legacy, circuit-switched voice services so that limited resources can be directed to broadband deployment); Iowa Comments at 7 (proposing that the FCC prioritize broadband and Internet funding); National Association of Telecommunications Offices and Advisors (NATOA)

FCC to closely align and coordinate the goals of various other programs focused on defraying the cost of deploying and purchasing broadband connections, such as the universal service mechanisms (*e.g.*, high-cost and rural healthcare), as well as programs administered by other federal (National Telecommunications and Information Administration, Rural Utilities Service, and Department of Education) and state agencies.[25]

III. CONCLUSION

Microsoft shares the Commission's commitment to improving education through technology. Microsoft urges the Commission to reinvigorate the schools and libraries universal service mechanism by focusing on delivery of robust, future-proof broadband connectivity. At the same time, the Commission should pursue other steps to improve the effectiveness of the schools and libraries mechanism.

Respectfully submitted,

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Comments at 5 (proposing that the FCC declare Internet access and internal connections to be of higher priority than telecommunications services); SECA Comments at 25 (proposing that the FCC reduce discounts for priority 2 internal connections, so as to free up dollars for priority 1 broadband).

[25] *See* Iowa Comments at 2, 12; Oregon Comments at 8; SECA Comments at 19-20; Wisconsin Comments at 8.