Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399

Tel 425 882 8080
Fax 425 936 7329
http://www.microsoft.com/

Microsoft

March 25, 2009

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Suite TW-A325
Washington, DC 20554

Re: GN Docket No. 09-29; Report on Rural Broadband; Comments of Microsoft

To: The Commission

The Federal Communications Commission and its companion agencies have an historic opportunity. In the context of the current economic crisis, Congress has asked the FCC, USDA and NTIA to establish a national broadband strategy, and to begin pursuing elements of that strategy by distributing billions of dollars in grants and loans for broadband deployment. Microsoft believes that if the US government were to accomplish just one goal in this process, it should be to ensure that all schools, libraries and hospitals across the nation are connected to future-proof broadband facilities, such as fiber-optic cable. By offering these community anchor institutions connections with speeds that can approach 100 Mbps, plus expansion capacity, the federal government will bring communities nationwide into the larger national and international digital environment.

The benefits of such a strategy will be direct, tangible, rapid and profound. Regardless of their location, children and adult learners will be able to use anchor facilities to engage in distance learning. Medical professionals and their patients in under-served and unserved areas will be able to plug into the latest telemedicine capabilities. The indirect benefits will also be substantial and widely distributed. Once high-capacity and future-proof facilities are deployed to every community and embedded more deeply into those communities, the broadband pump will be primed. Commercial and, where appropriate, non-commercial entities will have jumping off points for distributing broadband services to Main Street and into neighborhoods.

This recommendation flows from our assessment of future needs, as well as the American experience. Throughout our history, policymakers have understood that connectivity sustains the nation's communities and our economy. From the digging of canals and the laying of railroad tracks, to the installation of wires and construction of highways, our leaders always have recognized that access to the best physical networks man can build generates opportunity. Future-proof, high-capacity access to the Internet is the next must-have connection. Without such connectivity, our most needy communities, the businesses that fuel them and their citizens risk economic and social atrophy. On the other hand, by connecting schools, libraries and hospitals to fiber using funds from the 2009 Recovery Act, this Administration and Congress will steer the nation as a whole towards a better future. Today, the federal government has a unique opportunity to create the Internet highway system. No community should be left behind.

*****

Priority Setting. Little need be said about the importance of connecting schools, libraries and hospitals to high-capacity facilities and, in particular, connecting those institutions located in rural America. Congress has made it clear that providing broadband to them is a national priority. For sure, they are just three of the many priorities Congress identified in the Recovery Act. However, Congress delegated to the FCC and to the Administration the task of establishing a strategy for ranking priorities. With less than $7 billion in recovery funds available, we believe it is impossible to blanket the nation with the broadband capacity that our local governments, anchor institutions, businesses and residents ultimately require. The question therefore becomes one of how to maximize the near- and long-term return on taxpayers' investment in broadband. Within the range of priorities set forth by Congress, which investments provide the greatest and most immediate benefit for the dollar? We recognize the political demand to ensure that taxpayer dollars are spread across Congress's different objectives. But in establishing and executing a strategy – in setting priorities among Congressional objectives – we believe that connecting schools, libraries and hospitals will generate the quickest, most impactful and most equitable distribution of social benefits.

Schools. One might ask why anchor institutions require high-capacity connections today, with room for future expansion. There are many answers to this question, but the primary one is to enable the delivery of high-quality video and other bandwidth-intensive applications to the individual classroom and even student. The Internet can carry increasingly effective educational tools, be they lectures from the nation's best teacher-trainers or from leading experts in basic math, science, reading and special education – or be they new educational applications that enable students to interact with multimedia information (such as the WorldWide Telescope) or interact with fellow students from faraway geographies. Each classroom or student would not required 100 Mbps to make use of these tools, but in aggregate a school needs to be able to support the collected, diverse demands of its population. By prioritizing Recovery Act projects that install future-proof, high-capacity connections, the government can ensure schools have both near- and long-term access to such learning.

An example from Microsoft's own backyard is instructive. On Inauguration Day, a well-funded Seattle area school district told its teachers ***not*** to use the Internet to view inaugural events. It turns out that if all of the classrooms had tuned in via the Internet, they would have overwhelmed and crashed the district's system. That day, TV broadcasts served as good substitutes. But the story lays bare the fact that even a wealthy school district could not support Internet video into all classrooms all the time. Today, this school district is on a path to correct the problem. Local taxpayers have voted to fund fiber deployment to the district's schools. Without support from larger governmental entities such as the FCC, USDA and NTIA, we can be sure that rural and less wealthy districts will never get the same. Students and teachers in those areas will be left behind.

As the Recovery Act recognizes, unfortunately, there is no reliable data on the number or type of schools that have access to high-capacity connections. Based on anecdotal assessments and what information exists, we believe a vast number of schools across the nation have woefully inadequate connectivity. In some cases, the school may have as little as a T-1 connection; in others, they may have a first-generation DSL or cable-modem connection. In either case, schools cannot deliver video and media rich applications to all classrooms, let alone to individual students, with such technology.

A follow-on question is: which "schools" require the federal government's priority treatment? K-12 education is where the nation most desperately needs modernization. We would put community colleges in the same category. They have long been important for vocational studies, as a stepping stone for four-year college, and for workers and citizens exploring new fields. Now, community colleges are becoming even more central to the nation's education system. As the business world and technology continue to evolve rapidly, workers need to acclimate to lifelong learning, and for laid-off workers, retraining is often essential. Student preparedness for four-year college is another critical issue. Sadly, the gap between much K-12 learning and university demands is increasing. As a society, we are relying more and more on community colleges to fill these gaps. Just as K-12 schools require future-proof, high-capacity connections, so too do the country's community colleges. Finally, while most four-year colleges and universities have likely wired themselves with high-capacity lines, more demand exists in those environments. Massive capacity helps research institutions connect with each other and speed collaboration on tough, computationally intensive, basic research questions. In addition, no doubt there is a demand for extending broadband capacity to the dorm room.

Libraries. The role of the nation's public libraries is also in transition. Access to physical books and other materials will be important for a long time to come. But, increasingly, libraries are becoming community hubs for digital access and e-learning. They complement the role of K-12 schools, community colleges and other social hubs in expanding patrons' knowledge. Uniquely, they foster broad, self-directed learning. Not every adult learner will enroll officially in a school. Libraries are the community's focal point for ad hoc, highly individualized learning. This is especially true in rural and hard-to-reach communities where, unlike in suburbia or city centers, there is not a sufficient concentration of people or wealth to foster a large market for Internet cafes, coffee shops and other access points. At libraries, Internet usage is and will be, in our estimation, comparable to usage in schools. Yet libraries' Internet access today is in many, many cases, again, a minimally useful T-1 connection or an increasingly strained DSL or cable-modem connection.

Hospitals. Investing in high-capacity connections for schools and libraries is an investment in human learning capacity and the future ability for people to use that capacity in the workplace and social life. Investing in connectivity for hospitals brings near-term improvements in the quality and efficiency of healthcare. Improving healthcare efficiency is, of course, intimately tied to our economic growth goals, and quality healthcare is an unalloyed social good. By assuring that the nation's hospitals have access to future-proof, high-capacity connections, the FCC and its companion agencies will dramatically help spread those benefits to all communities. And as in the school environment, there is value in distributing that capacity among treatment rooms throughout the hospital.

In pursuing this strategy, it also will be important to use an appropriately flexible definition of a hospital. Many rural and inner city communities lack easy access to a true hospital. Instead, they primarily rely on emergency care or other treatment centers. Accordingly, the government's ultimate goal should be to ensure that every community in the nation has a medical facility with a high-capacity connection to the Internet.

Priming the Pump. By pursuing this strategy, the federal government will do more than connect important anchor institutions to the digital world in a robust way. Fiber or other future-proof technologies will be brought to all communities and will be deployed deep into those communities. Schools, libraries and hospitals are distributed hubs. K-12 schools, in particular, are frequently considered to be the central neighborhood hubs in rural towns. By pulling this capacity deeper into communities, barriers to extending broadband to others will be reduced. In some cases, they will be reduced dramatically. We understand from some network operators, for example, that the local cost of upgrading wires and distributing broadband is not a hurdle. The marginal cost of adding subscribers to broadband systems can be more than covered by subscriber fees. However, rural or remote providers cannot take advantage of those economics, because the cost of acquiring high-capacity facilities between the Internet backbone and the community is too high. Once this hurdle is overcome, we believe that in many instances the market can remedy the problem of delivering affordable broadband to Main Street and neighborhoods.

*****

President Obama has been clear in articulating the Administration's strategy for a better future. It rests on modernizing education, healthcare and energy – on top of promoting jobs, growth and international competitiveness. Our recommendation for a broadband strategy directly supports this all-encompassing agenda. You cannot truly modernize education and healthcare – or improve our long-term competitiveness – without ensuring our schools, libraries and hospitals are plugged into future-proof, high-capacity broadband connections. As the FCC and its companion agencies go about distributing broadband subsidies and formalizing a nationwide broadband plan, we urge that these anchor institutions be a top priority.

Respectfully submitted,

/s/
Craig Mundie
Chief Research & Strategy Officer

cc:

FCC Chairman, Michael J. Copps
FCC Commissioner, Jonathan S. Adelstein
FCC Commissioner, Robert M. McDowell
Agriculture Secretary, Tom Vilsack
Acting Administrator, USDA Rural Development, James Newby
Commerce Department Senior Advisor, Acting Chief of Staff, Rick Wade
Wireline Competition Bureau, William Kehoe
Wireline Competition Bureau, Melissa Kirkel
Wireless Telecommunications Bureau, Charles Mathias
Wireless Telecommunications Bureau, Christina Clearwater