

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)
)
Federal-State Joint Board on Universal) WC Docket 05-337
Service and High-Cost Universal Service)
Reform)

REPLY COMMENTS OF THE BENTON FOUNDATION

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SUMMARY

THE JOINT BOARD SHOULD RECOMMEND THAT THE UNIVERSAL SERVICE FUND PROMOTE AFFORDABLE BROADBAND DEPLOYMENT FOR ALL AMERICANS

Pursuant to the Public Notice issued by the Commission on May 1, 2007 seeking comments on various proposals and reforms to the high-cost universal service support mechanism,¹ the Benton Foundation (“Benton”) hereby submits these comments along with the attached white papers (Attachments 1-10 hereto).

The mission of the Benton Foundation is to articulate a public interest vision for the digital age and to demonstrate the value of communications for solving social problems. Benton, a longtime supporter of research on universal service and the potential of high-speed Internet connections for improving Americans’ lives, provides herewith for inclusion in this docket these new research papers which should inform the Commission’s deliberations as it considers whether and to what extent to extend USF support to broadband services.

¹ *Federal-State Joint Board on Universal Service Seeks Comment on Long Term Comprehensive High-Cost Universal Service Reform*, WC Docket 05-337, CC Docket No. 96-45, Public Notice, FCC 07J-2 (May 1, 2007) (“Notice”).

The Joint Board explicitly asks in the *Notice* whether universal service funding should be used to promote broadband deployment directly:

8. Broadband. Section 254 of the Act defines universal service as "an evolving level of telecommunications services." We seek comment on whether the Joint Board and the Commission should consider adding broadband to the list of supported services, and whether there are statutory impediments to doing so. We also seek comment on the impact of adding broadband support on the size of the fund, and whether broadband should be a separately identified category of support apart from other high-cost support. Additionally, if support is provided for broadband, should that support be targeted to areas where there is no broadband deployment to date. We also seek comment on whether the Commission should consider a pilot program to promote broadband deployment. A pilot program would give the Commission and the Joint Board an opportunity to evaluate potential program designs without committing to a single design that may not ultimately be effective. As discussed above, Alltel filed a proposal to use a reverse auction pilot program to speed broadband deployment to areas of the country where there is no broadband available today. We seek comment on this and other broadband pilot programs.²

Based upon the research we have provided, Benton urges the Federal-State Joint Board on Universal Service ("Joint Board") to recommend to the full Federal Communications Commission ("Commission") to add broadband to the list of Universal Service Fund ("USF") supported services. There are no legal or statutory barriers to the Joint Board allowing USF support to be used to increase broadband deployment and affordability throughout the country and it is critical that the United States not fall further behind in broadband deployment.

Benton strongly agrees with comments filed by the Consumer Federation of America, Consumers Union and Free Press ("Consumers") and others that U.S. communications law is

² *Notice*, 4.

historically rooted in universal service.³ Universal Service is a time honored national priority enshrined in the Communications Act of 1934 and confirmed in the Telecommunications Act of 1996. In identifying the purposes of the Acts, Congress wrote:

“For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication, and for the purpose of securing a more effective execution of this policy.”⁴

The nearly 70-year commitment Congress and this nation have had to universal service has been indispensable in providing the same opportunities for rural and low income Americans to participate in the nation’s economy. Universal service programs have helped deliver essential communications services to rural areas, the poor, schools, libraries, and rural health care clinics. It has made the telephone an ubiquitous communications tool in the U.S. and enhanced the value of the public network to all users. This unparalleled level of communication has helped to foster economic productivity and increase our quality of life in immeasurable ways. The vital importance of this program is clear to anyone who has ever lived rural in America or struggled to make ends meet. Just as rural electrification in the 1930s led to a surge of economic growth and raised living standards across rural America, universal, affordable broadband service can play the same role in the Internet era.

³ See Consumers at page 7; General Communications Inc at page 1.

⁴ 47 U.S.C. 151

Table of Contents

SUMMARY	2
I. USE IS AT A CROSSROADS AND MUST BE MODERNIZED TO INCLUDE EXTENSION OF SUPPORT TO BROADBAND	6
II. THE JOINT BOARD AND THE COMMISSION HAVE AUTHORITY TO EXTEND USE SUPPORT TO BROADBAND PURSUANT TO THE EXPLICIT AUTHORITY PROVIDED IN SECTIONS 254(C) AND 706 OF THE TELECOMMUNICATIONS ACT OF 1996.	10
III. BROADBAND MEETS THE STATUTORY CRITERIA FOR SERVICES ELIGIBLE FOR USE SUPPORT	14
IV. DESPITE BROADBAND PENETRATION PROGRESS, AND ITS REACH TO A MAJORITY OF AMERICANS, TOO MANY AMERICANS ARE GETTING LEFT BEHIND	30
V. COST NEED NOT BE A BARRIER	34
VI. CURRENT USE RULES ACT AS A DETERRENT TO UNIVERSAL, AFFORDABLE BROADBAND	39
VII. THE E-RATE PROGRAM IS A MODEL FOR ADDRESSING BROADBAND INEQUITY AND ACHIEVING UNIVERSAL SERVICE GOALS	41
VIII. CONCLUSION	45
SUMMARY OF ATTACHMENTS 1-10	47

I. USF IS AT A CROSSROADS AND MUST BE MODERNIZED TO INCLUDE EXTENSION OF SUPPORT TO BROADBAND

For all its past success, USF support today is at a crossroads. The program faces a strain at present because of a declining base of long distance minutes which funds the program and a growing number of companies and services that the fund is supporting.

1) The amount needing to be paid out of USF is growing.

The USF has grown every year since 1996 and is likely to continue to increase – more than doubling in recent years from \$1.8 billion in 1996 to \$7.2 billion in 2007⁵.

2) The number of recipients has grown 20-fold in just 4 years.

The growth in the number of competitive eligible telecommunications carriers (CETCs) and the support they receive has strained the program. In 2003, fewer than 30 designated CETCs received approximately \$ 126.7 million in high-cost support.⁶ Four years later, the approximately 650 designated CETCs are projected to receive more than \$1.2 billion in support.⁷ What once represented a small proportion of the high-cost fund now represents almost one quarter of that program.

⁵ Testimony of Billy Jack Gregg, Director, Consumer Advocate Division, Public Service Commission of West Virginia, Before the Senate Commerce Committee, March 1, 2007 at: http://www.commerce.senate.gov/public/_files/Testimony_BillJackGregg_WVPubServiceCommiss_BillyJackGreggTestimonySenateCommerce3107.pdf

⁶ Ibid.

⁷ Ibid.

3) The revenue base is shrinking.

The “base” of interstate and international revenues that supports the fund has been stagnant or declining. The base fell from \$81 billion in 2000 to \$73 billion in 2005.

4) The contribution factor has doubled since 2000.

As a result of these macro trends, the contribution factor (the portion of your long distance bill that pays for the program) has more than doubled, from an annualized rate of 5.7% in 2000 to 11.3 % in for the third quarter of 2007.⁸

5) Immediate Reform is needed.

These accelerating trends, which show no signs of abating, demand immediate reform. And in reforming the universal service program, the Joint Board and the Commission have both a challenge and an opportunity -- to make broadband an explicit part of the Universal Service Fund. As communications technologies change, universal service must change with it, thus ensuring that a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges for all Americans remains the bedrock of America’s communication future. Some say we can’t afford to make this change; however it is becoming more and more clear that we can’t afford not to. Indeed, making the transition to broadband can, over the long run, save consumers tremendously.

⁸ Most recent contribution factor released: 06/14/2007. http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-07-2639A1.doc

The necessary reforms must address funding mechanisms:

USF reform must ensure the continued availability, viability, and sustainability of the fund. Benton agrees with AT&T⁹ and others¹⁰ that USF reform must include reform of the existing federal high cost funding mechanisms to ensure the continued availability of affordable, quality telecommunications services to all Americans – no matter where they live or the classification of the carrier serving them – and to promote deployment of broadband.

- Specifically, Benton agrees with AT&T¹¹ that the existing federal high-cost support mechanisms are deeply flawed, and cannot meet Congress’s directive to preserve and advance universal service in a competitive environment – let alone promote the deployment of broadband and wireless in rural America. Adding broadband to the mix *without fundamental reform of the high cost support regime* will only increase the strain on an already broken system, and doom any effort to promote additional broadband deployment in rural areas to failure. Moreover, Benton agrees with the National Telecommunications Cooperative Association and others that the existing revenue-based USF contribution mechanism be modified by expanding the pool of USF contributors, and recommends a contribution mechanism be established that is equitably assessed and technology neutral.¹²

⁹ See AT&T at page 3.

¹⁰ See NTCA at page 22.

¹¹ See AT&T at page 6.

¹² See NTCA at page 27.

6) Competition plays an important role in ensuring universal service.

Consumers can benefit from competition which spurs innovation, increases investment, spurs deployment, lowers costs, and increases choices. As General Communications Inc. points out, in promulgating the Telecommunications Act of 1996, Congress aimed both to introduce competition in the telecommunications marketplace and to preserve universal service.¹³

Competition helps the market continually to identify the most efficient suppliers of supported telecommunications services, to provide appropriate incentives to those suppliers and their competitors alike, to deliver universal services at minimum cost, and to continually reduce the costs and improve the quality of telecommunications services. Benton agrees that competition is essential for putting consumers in control of their communication's future – and “[t]he FCC must see to it that both universal service and local competition are realized; one cannot be sacrificed in favor of the other.”¹⁴ Benton notes US Cellular and Rural Cellular Association comments that lack of voice competition in rural areas is a significant factor in the nation's drop in broadband penetration over the past five years.¹⁵ Obviously, policies that promote competition must be part of the mix that ensures universal, affordable broadband services.

Three attachments from the Future of Universal Service project -- a collaboration between Benton and the Institute for Information Policy at Pennsylvania State University detail

¹³ General Communications Inc at page 1.

¹⁴ Alenco Communications, Inc. v. FCC, 201 F.3d 608, 615 (5th Cir. 2000).

¹⁵ See US Cellular & Rural Cellular Corporation at page 13 and Rural Cellular Association and the Alliance of Rural CMRS Carriers at page 13.

how competition is essential for putting consumers in control of their communication's future and how competitive policies can help ensure universal service:

- In Attachment 1, Jorge Schement outlines how universal broadband can promote further competition in services and enable new choices. For many years, universal telephone service meant ubiquitous black phones. Even today, too many consumers have too few choices. Schement shows that universal service is also about enabling choices – which are critical for political participation, economic participation, and social participation.
- In Attachment 2, Krishna Jayakar and Harmeet Sawhney find that many successful national broadband strategies in other countries embrace “ubiquitous” broadband for the competitive advantages it offers (not just as a societal goal), and embrace universal goals that extend beyond mere physical connectivity to fostering the “arenas of innovation” that drive broadband adoption and drive demand for it.
- In Attachment 3, Amit Schejter looks at how Europeans may be on the way to taking a more innovative and effective approach to universal service, by fostering competition in and over broadband networks. Europeans have embraced, perfected, and are benefiting from the open competitive network concepts first developed by U.S. policymakers. The combination of competition between broadband providers and a universal service broadband goal have proven effective in Europe.

II. THE JOINT BOARD AND THE COMMISSION HAVE AUTHORITY TO EXTEND USE SUPPORT TO BROADBAND PURSUANT TO THE EXPLICIT AUTHORITY PROVIDED IN SECTIONS 254(C) AND 706 OF THE TELECOMMUNICATIONS ACT OF 1996.

Congress gave the Joint Board and the Commission the authority to include broadband as a part of universal service. Specifically, Section 254(c)(1) states that: “Universal service is an evolving level of telecommunications services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services.” Accordingly, the Federal-State Joint Board on Universal Service is provided specific authority to recommend “from time to time” to the Commission modification in the definition of the services to be included for federal universal service support.

The Commission has the authority it needs to include broadband in universal service. Benton disagrees with Time Warner Cable¹⁶ and other commenters¹⁷ that the Commission does not have authority under Section 254 to provide USF support for broadband services. They argue that because the Commission has designated broadband as an information service and because universal service is limited to an evolving level of telecommunications services, broadband cannot be included. However, this narrow reading of the Act ignores a key phrase: “taking into account advances in telecommunications and information technologies and services.” Obviously, Congress envisioned technological advancements and mandated that the Joint Board and the Commission consider not only developments in telecommunications services, but in informational services as well when defining universal service.

Broadband, while defined as an information service, still includes a telecommunications component. The United States Court of Appeals for the District of Columbia Circuit, in affirming Section 254’s applicability to information services that include a telecommunications

¹⁶ See Time Warner Cable at page 7.

¹⁷ See Sprint Nextel at page 16.

component, described its reasoning this way: It found that the Act defines both “telecommunications service” and “information service” as “offerings.”¹⁸ In an order issued several years ago, the Commission advanced a narrow definition of the verb “offer,” explaining that cable modem service, even though it contains telecommunications as a component, is not a “telecommunications service” because an “offering” of telecommunications can only be something perceived as telecommunications by the end user viewing the integrated, finished product.¹⁹ Because cable modem customers use the service “to access the World Wide Web . . . rather than ‘transparently’ to transmit and receive ordinary-language messages without computer processing” the Commission concluded that “cable modem service is not a ‘stand-alone,’ transparent offering of telecommunications.”²⁰ In *Brand X*, the Supreme Court upheld the Commission’s interpretation of the word “offer” as reasonable, explaining:

It is common usage to describe what a company “offers” to a consumer as what the consumer perceives to be the integrated finished product, even to the exclusion of discrete components that compose the product. . . . One might well say that a car dealership “offers” cars, but does not “offer” the integrated major inputs that make purchasing the car valuable, such as the engine or the chassis. It would, in fact, be odd to describe a car dealership as “offering” consumers the car’s components in addition to the car itself.²¹

The court argued that the scope of the Commission’s authority, however, does not depend on whether the service is considered an “offering” of either telecommunications or information.

¹⁸ As described in *Vonage Holdings Corporation v. Federal Communications Commission*, See 47 U.S.C. § 153(46) (defining “[t]elecommunications service” as “the offering of telecommunications for a fee directly to the public”); id. § 153(20) (defining “[i]nformation service” as “the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications”).

¹⁹ In re Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, 17 F.C.C.R. 4798, 4822–23 ¶¶ 38–39 (2002) (hereinafter “Cable Modem Order”).

²⁰ *Brand X*, 545 U.S. at 988 (citing Cable Modem Order at 4823–4825 ¶¶ 41–43).

²¹ *Brand X*, 545 U.S. at 990.

Rather, the Commission's permissive contribution authority extends to "*provider[s]* of interstate telecommunications."²²

Benton agrees with the comments submitted by Consumers and others²³ that Congress intended to have the Commission use the USF to make advanced telecommunications technology available to all Americans, and directed the Commission to modernize universal service in step with technological advances. Moreover, Section 706 of the Telecommunications Act of 1996 directs the Commission and State commissions to encourage deployment of advanced telecommunications capability to all Americans.²⁴ Congress defined "advanced telecommunications capability" as "without regard to any transmission media or technology, high-speed, switched, *broadband telecommunications capability* that enables to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology."²⁵ [emphasis added]

Moreover, adding broadband services to universal service is consistent, if not mandated, by Section 254 (b) in which Congress directed the Joint Board and the Commission to base policies for the preservation and advancement of universal service on, among other principles:²⁶

(1) **QUALITY AND RATES**- Quality services should be available at just, reasonable, and affordable rates.

(2) **ACCESS TO ADVANCED SERVICES**- Access to advanced telecommunications and information services should be provided in all regions of the Nation.

²² 47 U.S.C. § 254(d) (emphasis added).

²³ See MoPSC at page 19.

²⁴ 47 U.S.C. 157 nt.

²⁵ Telecommunications Act of 1996 Sec 706(c)(1).

²⁶ 47 U.S.C. 254

(3) ACCESS IN RURAL AND HIGH COST AREAS- Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

However despite the fact that broadband is now, undeniably, the essential communications medium of the 21st Century, it is surprising that although Section 254(c) talks about universal service as “evolving,” the Commission has yet to update universal service support despite the fact that communications in America has indeed evolved. Congress clearly intended for the fund to modernize in step with advances in technology.

III. BROADBAND MEETS THE STATUTORY CRITERIA FOR SERVICES ELIGIBLE FOR USF SUPPORT

Section 254(c)(1) directs the Commission to consider “...the extent to which such telecommunications services— (A) are essential to education, public health, or public safety; (B) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers; (C) are being deployed in public telecommunications networks by telecommunications carriers; and (D) are consistent with the public interest, convenience, and necessity.” In today’s world each prong of the four part test is met.

Benton agrees with Consumers that broadband is now, undeniably, the essential communications medium of the 21st century.²⁷ According to a survey of U.S. and Canadian consumers, all demographic segments rated broadband “the communication service they can

²⁷ Consumers at page 9.

least live without.”²⁸ Soon broadband will offer the most affordable conduit for making phone calls to anywhere in the world, deliver the video and audio programming we want where and when we want it, and allow us to remain connected to friends, family and co-workers -- even when we leave the home or office. All of our basic communications -- television, radio, telephone, e-mail, and Internet -- will soon all require a single broadband connection. Lack of access to the tool doesn’t just mean being disconnected from the Internet, it means being disconnected from the economy, from society, and from the benefits of the digital age.

Benton agrees with Consumers that the Telecommunications Act of 1996 instructs the Commission and the Joint Board to include “advanced service” for USF support.²⁹ Congress intended for the Universal Service Fund to modernize in step with advances in technology. The Fund’s purpose is not to indefinitely maintain support for businesses, but to provide universal access to advanced telecommunication technologies to all Americans. If the Commission decides to include broadband, carriers can be given ample time to take the steps to modernize. If they cannot, then they should not expect continued support for the provision of outdated technology.³⁰

Further, Benton agrees with MoPSC that any inclusion of broadband services in the definition of qualified services must contain clear requirements, including specific transmission speeds and roll-out commitments.³¹

The federal Universal Service Fund (USF) has provided a critical safety net for connecting communities and those struggling to get by with affordable telephone service. As technology has advanced, it’s now time to modernize USF for the digital age. Modernizing the USF for

²⁸ In-Stat (<http://www.in-stat.com>)

²⁹ Consumers at page 9.

³⁰ Consumer at page 44.

³¹ See MoPSC at page 2.

broadband isn't just about patching holes in a safety net program. It's time to move beyond thinking about universal service as merely a safety net and begin thinking of it more as a trampoline that can catapult us into a new world of opportunity. A broadband driven global economy demands a system of supports that not only catch people when they fall, but can help propel all of us into the new jobs, careers, and opportunities that broadband services afford.

(A) Broadband is essential to education, public health, and public safety

1. Broadband is essential to education.

Every American should have the ability to compete and win in the 21st century economy with broadband. Broadband access is about the ability to maximize one's own personal potential without regard to geography or economic circumstance. With broadband:

- Children in the most isolated inner-city neighborhood or rural region can have access the same universe of knowledge as a child in the most affluent suburb -- transforming the way teachers teach and students learn.
- Parents can keep on top of their children's homework and be in contact with their teacher.
- Students can complete a university degree online.
- Children can take language or piano lessons from experts around the globe with the help of voice and video software.

The Telecommunications Act of 1996 took an important first step in linking education with universal service supported broadband access. The Act created the E-Rate program as part of the Universal Service Fund to make broadband universally available in every school,

classroom, and library in America. The E-Rate, not without its detractors, has been an enormous success in improving broadband access for libraries and schools.

A report sponsored by the Education and Library Networks Coalition (EdLiNC)³² concluded that:

- The E-Rate is bringing new learning opportunities to special education students;
- The E-Rate is transforming education in rural America; and
- E-Rate-supported technical infrastructure in schools is vital to reaching student achievement goals in No Child Left Behind legislation.³³

In 1996, only 28 percent of public library systems offered public Internet access. Today, thanks to increased resources and the E-Rate, nearly all library buildings offer public access computing, and 14 million Americans regularly use these computers at no fee. Further, only three percent of instructional classrooms were wired in 1994. As of 2003, 93% of instructional classrooms are wired. Between 1998 (when the E-Rate launched) and 2003, statistics show that classroom Internet access disparities between rural, urban, and suburban schools and high and low-poverty districts have been dramatically reduced. Former FCC Chair Reed Hundt calls the E-Rate the biggest new investment in education since the creation of the GI Bill of Rights.

³² EdLiNC, "E-Rate: A Vision of Opportunity and Innovation." Education and Library Networks Coalition, 2003.

³³ See, for example, Doyle, Denis P. & William J. Slotnik. "Leave No Parent Behind: Negotiating the New World of Data, Mandates, and Options." Education Week . January 4, 2006.

(http://www.pta.org/ne_news_detail_1136409860453.html) "Parents will need access to computers and broadband communications, knowledge about improving student performance, and training in computer use and academic improvement." "It is essential to help community members use technology to communicate with each other, with their children's educators, and with community organizing groups, and to be able to receive instantaneous access to their students' records and relevant instructional resources." "Without these... elements, No Parent Left Behind will fall short of its potential. So, too, will school and district improvement efforts."

Broadband is a proven tool for education, and must be extended universally. Education's linkage to broadband is so critical, that when President George W. Bush set his goal for universal affordable broadband access by 2007, he highlighted the critical connection between education and universal broadband access.³⁴

“I saw what broadband technology can mean for education. I mean, if you've ever been a governor of a state, you understand the vast potential of broadband technology, you understand how hard it is to make sure that physics, for example, is taught in every classroom in the state. It's difficult to do. It's, like, cost-prohibitive. But it's not cost-prohibitive when you can wire your classrooms and have a physics professor from the University of Texas/San Antonio give a lecture in a real-time basis to kids out in rural Texas or anywhere else in America. It's a fantastic way to take information and spread it on a real-time basis.... . It means that some who go without certain subjects can now gain access to those subjects. It will mean we've got a more educated population when we get broadband technology spread throughout the entire country.”

Studies back up the President's assertion that broadband is essential to education.

- One study³⁵ found that broadband is essential for education including for transforming the learning experience, improving inter-institutional collaboration, achieving new potentialities, improving efficiencies in current delivery systems, and widening access to education in a cost-effective way.

³⁴ President Bush remarks 6 -24 -2004: High Tech Improving Economy, Health Care, Education Remarks by the President on Innovation, U.S. Department of Commerce, Washington, D.C.
<http://www.whitehouse.gov/news/releases/2004/06/20040624-7.html>

³⁵ from Opportunities and Barriers to the Use of Broadband in Education. 2003. Broadband Stakeholder Group
http://www.broadbanduk.org/component/option.com_docman/task.doc_view/gid.47/

- Likewise, the Cambridgeshire Schools Broadband Project provides early evidence of the impact that broadband can have on teaching and learning.³⁶ In particular, the following benefits were identified:
 - Students made more use of the Internet for their own research projects across the whole curriculum.
 - Teachers were quick to locate relevant educational material on the Internet and made much more use of online resources for their lesson planning and incorporated media rich graphics and video content into their teaching.
 - Teachers reported improvements in achievement, and levels of confidence and self esteem, particularly as students found that their problem solving strategies bore fruit more rapidly.
- Broadband is essential for higher education as well. From the Massachusetts Institute of Technology to the University of California at Berkeley, universities are posting course videos online and transforming the way teachers teach and students learn. A host of online classes, courses and universities have now emerged which may use of broadband's ability to deliver voice and video to broadband-enabled remote classrooms in people's homes.

Notably, teachers support universal, affordable broadband. "The National Education Association believes that every school classroom, office, teacher workroom, and library/media center should have affordable, high speed, seamless, and equal access to the Internet."³⁷

³⁶ The project was based around visits to 42 Cambridgeshire schools in late 2002 where the purpose was to produce a snapshot of the situation in broadband schools and to register any evidence of early impact on teaching and learning.

2. Broadband is essential to public health.

As early as 1999,³⁸ Benton found that by collecting new types of data and providing it to the myriad participants in the health care system—everyday citizens as well as professionals—we may be able to improve the quality of care without increasing costs or increasing the ranks of the uninsured. This pleasant prospect arises from three distinct trends, all of which involve information. First, medical researchers are producing information that promises to improve the quality of care. Second, policymakers are looking to inform consumers to use their buying power to produce a more responsive and effective health care system. And third, consumers themselves are using information to assume more direct responsibility for their own health.

To use information technology to reduce rather than increase inequities, the nation needs to commit itself to making health information networks “a public highway,” not a “private road,” Thomas Eng, Andrew Maxfield, Kevin Patrick, Mary Jo Deering, Scott Ratzan, and David Gustafson argued in the October 21, 1998, *Journal of the American Medical Association*. Achieving universal access, they concede, will involve substantial costs, not only for communications lines, computers, and other hardware, but to develop appropriate software, train users, increase information literacy, and hire essential information helpers such as librarians. But much of the basic infrastructure already exists to deliver health information to people’s homes or to public facilities like schools, libraries, community centers, and other public places.³⁹

³⁷ National Education Association Handbook. Resolution B69 adopted 1993 and updated 2000.

³⁸ Conte, Chris. *Networking for Better Care: Health Care in the Information Age*. Benton Foundation. 1999. (Attachment 4)

³⁹ Thomas R. Eng, et al., “Access to Health Information and Support,” *Journal of the American Medical Association*, Vol. 280, No.15, 21 October 1998: <http://jama.ama-assn.org/issues/v280n15/abs/jpp80018.html>

Eng and his co-authors argue that various institutions—employers and health plans, pharmaceutical and other health companies, government, public agencies, and charitable organizations—all should share the cost of achieving universal access. These institutions also could join forces with allied institutions outside the health care field—schools, universities, and economic development agencies—that also have a strong interest in building information networks and training people to use them.

With broadband:

- Doctors in urban areas can diagnose patients in rural areas or consult with experts from around the globe.
- Seniors can take advantage of new remote health monitoring technologies and independent living.
- Broadband is an especially promising technology for the 54 million Americans with disabilities – able to provide breakthrough new benefits and more inclusive opportunities not possible in today’s legacy phone network.

Public health’s critical link to public health is so fundamental, that President Bush used health care access as rationale for announcing his goal for universal affordable broadband access by 2007.⁴⁰ After providing an example of how a cardiologist was treating patient’s remotely with broadband, the President said:

⁴⁰ President Bush remarks 6 -24 -2004: High Tech Improving Economy, Health Care, Education Remarks by the President on Innovation, U.S. Department of Commerce, Washington, D.C.
<http://www.whitehouse.gov/news/releases/2004/06/20040624-7.html>

“This healer was able to spread his compassion and talents and assure a mom across broadband technology. It's amazing when you think about it. Imagine what's going to happen in Texas when Alpine or somewhere down there, they're looking for a specialist, and a parent is panicked about whether or not their loved one is going to receive the care needed and they don't have -- they can't drive 600 miles to a local hospital. They call up this guy via broadband technology and he is able to analyze the child from afar -- it's very sophisticated software -- and give the reassuring words to the parent, everything is okay. And whether it be cardiology or ear infection, any other aspect of medicine, we'll be able to make sure health care is available throughout the country by using this technology. The quality of life for our citizens is going to improve dramatically as we spread this technology all across America. “

Studies back up the vital link between broadband and public health.

- Policies designed to accelerate the use of broadband could save seniors more than \$800 billion by reducing health care costs.⁴¹ These benefits are as substantial as what the federal government is likely to spend on homeland security over the next 25 years, and under the right set of policies, could exceed what the United States currently spends annually for health care for all its citizens. A New Millennium Research Council analysis finds that accelerated broadband deployment could lower medical costs; lower costs of institutionalized living; and generate additional output by more seniors and individuals with disabilities in the labor force.
- Broadband has benefits for mental health patient too.⁴² For people caring for a family member with a condition such as Alzheimers, broadband provides

⁴¹ “Great Expectations: Potential Economic Benefits To The Nation From Accelerated Broadband Deployment To Older Americans And Americans With Disabilities,” Robert E. Litan
http://www.newmillenniumresearch.org/archive/Litan_FINAL_120805.pdf

⁴² Benefits of broadband: Mental Health Conditions,
http://www.btplc.com/age_disability/technology/broadband/benefits/mhealth.htm

instant access to information about the condition, helping the caregiver understand the support available. Other mental health conditions such as depression, anxiety and schizophrenia are often very isolating, meaning it is difficult for people to leave their homes to meet other people or even to pick up the phone to speak to friends and family. Broadband facilities' use of web cameras at remote locations creates a visual link between patient and caregiver. Broadband brings into the home many services many people take for granted like shopping, banking and government services.

3. Broadband is essential for public safety.

- a) **Broadband is essential for Homeland Security.** In a post 9/11, post Katrina communications environment, ubiquitous broadband is a national security imperative. The Internet, designed by the Defense Department to withstand a nuclear attack, has some inherent advantages over traditional communications systems in an emergency. The transformation to a decentralized broadband network with multiple paths between any two points and the Internet's packet of communication protocol enhanced network capabilities, eliminates many single points of failure, and enables the network to automatically and efficiently work around failures. The Internet's inherent network efficiencies were on display on September 11th, prompting the National Academies of Science to find afterwards that the Internet held up better than other communications technologies on that fateful day. Among the thousands of casualties on 9/11 was our outdated communications infrastructure. According to the National Academies, on 9/11

95% of cell phone calls at 11 a.m. failed to get through; the central office for the phone system cut off 300,000 landline phones; television stations were knocked off the air; and police and Fire Department radios failed. In fact, only 2% of Internet addresses remained off-line for an extended period. 9/11 demonstrated the Internet's overall resilience to attacks through its flexibility and adaptability. But 5 years after 9/11, America has not done enough to advance the broadband Internet technologies that can help avoid future communications failures.

b) Broadband is essential for Public Safety. Katrina, another catastrophic communications failure, highlighted once again how fragile and woefully outdated the emergency communications system in this country has become -- demonstrating why we need to take another approach to communications. During Katrina, 38 Public Safety Answering Points (PSAPS) failed, preventing 911 calls from being answered -- which public safety leaders say could have been avoided if they had switched to IP based voice and data communication.⁴³ Connecting public safety answering points to broadband, like we've connected schools and libraries, is a new post Katrina communications imperative. As FCC Chairman Kevin Martin told the Katrina panel, *"I would also like to see a greater use of IP technologies that are capable of changing and rerouting telecommunications traffic. In the event of a systems failure within the traditional network, such IP technologies would enable service to be restored more quickly and would provide the flexibility to initiate service at new locations chosen by consumers."*

⁴³ 911 dials IP technology. http://news.zdnet.com/2100-9595_22-6026770.html

c) Broadband is essential for Government Continuity. Universal broadband could also have important advantages for the government itself, allowing government workers to communicate in more geographically dispersed locations in an emergency. In the event of a major 9/11 type attack on Washington, offices could be inaccessible but employees will still need to communicate. Federal workers using broadband-enabled phones could immediately work from home or other broadband-enabled locations – improving continuity of government. Many government agencies are already making the switch to broadband-enabled voice services, but without broadband at home, workers can't connect. The White House flu pandemic plan suggests every business have a plan in place to allow employees to work from home. However, one in four Americans say they likely would lose their job or business if they had to stay at home for seven to 10 days in a severe flu pandemic, according to a new survey.⁴⁴ Broadband is an essential ingredient in allowing people to stay connected to work and work from home.

Thus the Commission should find that the first prong of the four part test contained in Section 254(c)(1) regarding "...the extent to which such telecommunications services— (A) are essential to education, public health, or public safety;" is met.

(B) Broadband has, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers

⁴⁴ "One in Four Say They'd Lose Job or Business if They Had to Stay Home in a Pandemic", by Charles Hoskinson OCT. 27, 2006

In expanding supported services under the universal service program, Section 254(c)(1) directs the Commission to consider “...the extent to which such telecommunications services...have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers” In both 1997 and 2003, the Commission declined to extend USF support to broadband because it found that “high-speed and advanced services currently do not meet the Act’s criteria for inclusion on the list of supported services” because they “are not subscribed to by a substantial majority of residential consumers.”

Benton agrees with commenters⁴⁵ who note that, today, the answer is yes. As Chairman Martin has pointed out, America has made substantial broadband progress in the last few years.⁴⁶

On June 7, 2007, Leichtman Research Group, Inc (“Leichtman”) released new data⁴⁷ showing that 53% of all U.S. households now subscribe to a broadband high-speed Internet service at home. Broadband services now account for about 72% of all home Internet subscriptions – compared to 60% last year. Leichtman predicts the total number of broadband subscribers will increase by over 40 million over the next five years.

⁴⁵ See NASUCA at page 23 “It appears that, based on level of subscriptions (using FCC data), broadband service may be poised to qualify as a supported service.” And, on same page, discussion about meeting other criteria as well.

⁴⁶ In the Chairman’s statement accompanying the 706 proceeding, he said “Since I arrived at the Commission in July 2001, high speed lines in the U.S. have gone from 9 million to nearly 65 million. According to the Commission’s most recent data, high-speed connections increased by 26% in the first half of 2006 and by 52% from June 2005 to June 2006. A recent independent study by Pew confirmed this trend, finding that from March 2005 to March 2006, overall broadband adoption increased by 40% – from 60 to 84 million – twice the growth rate of the year before. The study found that, although overall penetration rates in rural areas still lags behind urban areas, broadband adoption in rural America also grew at approximately the same rate (39%). Perhaps most importantly, the Pew study found that the significant increase in broadband adoption was widespread and cut across all demographics. For example, broadband adoption grew by more than 120% among African Americans and grew by almost 70% among middle-income households (those with incomes between \$40,000 and \$50,000 per year).”

http://www.fcc.gov/Daily_Releases/Daily_Business/2007/db0417/FCC-07-21A2.pdf

⁴⁷ Broadband Access and Service in the Home 2007. Leichtman Research Group, Inc. June 2007. (http://www.leichtmanresearch.com/research/bband_home_brochure.pdf)

The Pew Broadband Trends for 2006⁴⁸ study also found that:

- At the end of March 2006, 73% of households subscribed to the Internet.
- 42% of Americans had high-speed at home, up from 30% in March 2005, or a 40% increase.

Others concur that broadband already is a majority-adoption technology, replacing dial-up Internet- and traditional wireline voice-only service, by some measures⁴⁹. The FCC's most recent 706 report, issued in 2004, noted trends suggesting that in a few years most American households will have broadband.⁵⁰

In fact, a recent United Nations report found, broadband Internet access is becoming as vital for success as access to water and electricity.⁵¹ Despite the need for more progress -- the kind of progress that USF support can foster -- the Commission should find that the second prong of the four part test contained in Section 254(c)(1) regarding "...the extent to which such telecommunications services ... (B) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers" is met.

C) Broadband deployment in public telecommunications networks by telecommunications carriers

As has been widely acknowledged by commenters, it is abundantly clear that broadband today is being deployed in public telecommunications networks by telecommunications carriers.

48 See Pew Broadband Trends 2006 http://www.pewinternet.org/pdfs/PIP_Broadband_trends2006.pdf

⁴⁹ from Bowe paper http://www.benton.org/benton_files/Bowe.doc (Attachment 5)

⁵⁰ see <http://www.fcc.gov/broadband/706.html>).

⁵¹ UNCTAD Information Economy report 2006, http://news.yahoo.com/s/afp/20061116/tc_afp/technologyittelecomtradepovertyunctad

In fact when the Commission last addressed this question in 2003,⁵² the Commission found then that broadband meets its third criterion: “We note that the Commission previously concluded that market forces have encouraged the deployment of advanced and high-speed services on a reasonable and timely basis.” The deployment of broadband in public telecommunications networks by telecommunications carriers is even more true today.

D) Support for broadband is consistent with the public interest, convenience, and necessity.

1) Broadband is essential for the economy. Ubiquitously available broadband could unleash

- a. an estimated \$500 billion in economic growth
- b. create more than 1.2 million high-wage jobs
- c. restore America’s global competitiveness
- d. boost business productivity – which is essential to raising standards of living for all families in America
- e. allow small businesses to reach global markets

2.) Broadband is essential for telecommuters. Broadband access is essential for enabling more Americans to occasionally work from home – delivering dramatic benefits:

- If everyone who could took full advantage of telecommuting, the reduction in miles driven would save \$3.9 billion a year in fuel and the time savings would be equal to

⁵² In the Matter of Federal-State Joint Board on Universal Service, Order and Order on Reconsideration, FCC 03-170, CC Docket No. 96-45, July 10, 2003

470,000 jobs⁵³ -- reducing our dependence on foreign oil, traffic congestion, and greenhouse gas emissions at the same time.

- 79% of all office workers agree that allowing employees to work remotely improves their work-life balance.⁵⁴

People who normally commute 30 minutes each way to and from work can reduce their commute by 125 hours annually over a 50-week year – the equivalent to giving them more than three weeks of additional vacation time every year.

3.) Broadband is essential for Americans with disabilities.

Broadband is an especially promising technology for the 54 million Americans with disabilities -- able to provide breakthrough new benefits not possible in today's legacy phone network. As all Americans increasingly depend on e-mail and the Internet to work and communicate, it becomes even more important to ensure that people with disabilities are not left out of the digital revolution. Broadband-enabled technology...

- is simply a more inclusive technology than the universal service-supported voice telephone network
- gives Americans with disabilities the opportunity to improve personal communication and leave inaccessible voice telephony behind.
- for people with disabilities, is not just something nice to have, it is a critical communications link and equalizer with the rest of the population.

4) Broadband is essential for the environment.

⁵³ National Technology Readiness Survey 2005/2006 <http://www.rhsmith.umd.edu/ntrs/NTRS-2005-06.pdf>

⁵⁴ Avaya 2005 Global Research Report, January 2006

If every U.S. home had Internet access and viewed and paid bills online, the switch would cut solid waste by 1.45 billion tons a year and curb greenhouse-gas emissions by 1.9 million tons a year by processing and hauling less, according to Javelin Strategy & Research.

IV. DESPITE BROADBAND PENETRATION PROGRESS, AND ITS REACH TO A MAJORITY OF AMERICANS, TOO MANY AMERICANS ARE GETTING LEFT BEHIND

Although some may argue that the marketplace will ensure universal deployment of affordable broadband service,⁵⁵ research shows there is a persistent broadband divide, leaving many Americans behind.

a) The gap between rural and urban America persists.

The broadband penetration rate in urban and suburban households is almost double the rate in rural areas. Though growing, rural Internet penetration has remained roughly 10 percentage points behind the national average. It is critical that the 25 percent of Americans who live in the rural areas of the United States are not left behind in this increasingly information and technology driven economy. For example, the Government Accountability Office has indicated that while about 30% of households in urban and suburban areas have access to broadband, only 17% of rural households have access.

Benton agrees with Alltel⁵⁶ that rural consumers have the same interests in obtaining access to high-speed technologies and mobile services, and are demonstrating changes in

⁵⁵ See, for example, “The market is working in most areas” (Verizon and Verizon Wireless at page 16); National Cable & Telecommunications Association at pages 1 and 2; Sprint Nextel at page 13; Time Warner Cable at page 9.

demand that parallel those of consumers across the country. But due to the relatively high costs of deploying wireline and wireless networks in many rural areas, these services are being deployed less rapidly in rural areas than elsewhere.

Benton disagrees with commenters who argue that the broadband challenge is simply deploying infrastructure where there currently is none.⁵⁷ The broadband gap persists in many households that may find these services unaffordable. We agree with commenters like CTIA who identify the single greatest universal service challenge currently facing policy makers is ensuring that broadband services are available to *all consumers*.⁵⁸ Moreover, as noted by MoPSC and based on the universal service principles in the Telecommunications Act of 1996, simply making broadband “available” nationwide does not satisfy the goals of universal service – quality service must be available at just, reasonable and affordable rates, with rural service comparable to urban service.⁵⁹

In Attachment 6, Sharon Stover summarizes some of the economic factors that highlight the need for improved telecommunications in rural regions, framing the transformations associated with the information technologies of the past three decades as essential to cultivating economic vitality in rural areas. Rural America is far behind in its broadband access compared to urban areas -- yet stands to benefit most by bridging geography. Stover finds that the demand for “advanced” services is more uncertain in rural regions than in metro areas. Stover suggests that universal service funds should enhance communities’ projects for extending their

⁵⁶ See Alltel at page 49.

⁵⁷ See, for example, Verzin and Verizon Wireless at page 16.; CA PUC at page 9; Iowa Utilities Board at page 5; MoPSC at page 22; Time Warner Cable at page 14; NCTA at page 4.

⁵⁸ CTIA at page 1.

⁵⁹ See MoPSC at page 22.

telecommunications capabilities. The funds could be used to match local investment in infrastructure, connectivity, public access and similar access technologies.

b) A Persistent Digital Divide Separates Americans.

Too many Americans are getting left behind in their access to broadband. About 50 percent of African-Americans and 50 percent of Latinos own home computers, as compared to 75 percent of whites. Forty-one percent of African-Americans, 38 percent of Latinos, but 67 percent of whites, have Internet access at home. Furthermore, Internet growth exhibits minimal increases in penetration, with approximately 25% of households not likely to come online in the foreseeable future.

Leichtman finds that broadband penetration remains strongly correlated with household income: 68% of all households with annual incomes over \$50,000 now get broadband (compared to 59% last year) while 39% of all households with annual incomes under \$50,000 get broadband – (compared to 27% last year). Moreover, while 81% of all U.S. households have at least one computer, only 56% of those with annual household incomes under \$30,000 have a computer at home. Just 45% of households with annual incomes below \$30,000 subscribe to an Internet service at home -- compared to 92% of households with annual incomes above \$75,000.

⁶⁰

Benton agrees with the New Jersey Division of Rate Counsel (“NJ Rate Counsel”) that the digital divide between those who subscribe to advanced services and those who do not is thwarting the nation’s vision of universal service.⁶¹ Moreover, Benton agrees with NJ Rate

⁶⁰ Broadband Access and Service in the Home 2007. Leichtman Research Group, Inc. June 2007. (http://www.leichtmanresearch.com/research/bband_home_brochure.pdf)

⁶¹ See NJ Rate Counsel at page 5.

Counsel that the Joint Board and the Commission should consider not only whether rural areas have broadband access comparable to that of urban areas, but also whether all socioeconomic groups have comparable access.⁶² As the NJ Rate Counsel writes, in order to fulfill the nation's objective of universal service, advanced services must be available to and affordable by all consumers, regardless of geography or income.⁶³

The U.S. pays a heavy competitive cost for our broadband shortcomings. Our economy pays a competitive cost, our children will pay when they have to compete with others from around the globe, and our personal well-being suffers when we don't have the latest productivity improving technologies that are critical to our ability to raise standards of living. By one estimate, \$1 trillion could be lost over the next decade due to constraints on broadband development.

In addition, Benton notes Commission research included by Consumers⁶⁴ on broadband penetration by state. Benton highlights that for 14 of the 17 states in the bottom third of states as ranked by broadband penetration also are in the bottom third as ranked by broadband growth rate. Obviously, market forces alone will not quickly close the broadband gap between states. Benton agrees with NJ Rate Counsel that the Joint Board and the Commission should expand the Lifeline and LinkUp programs for low-income households to encompass steep discounts for broadband services.⁶⁵

⁶² See NJ Rate Counsel at page 7.

⁶³ See NJ Rate Counsel at page 8.

⁶⁴ Consumers at page 29.

⁶⁵ See NJ Rate Counsel at page 7.

V. COST NEED NOT BE A BARRIER

Previously, in declining to extend USF to broadband, the Commission expressed significant concern about the cost of adding advanced services to the definition of universal services. However, exclusion of support for broadband on a going-forward basis will drive costs up and making USF support available only for “voice” services makes no sense in the 21st century. In the same way that the United States has mandated a transition from analog to digital infrastructure for television and cellular phones, it must also do so for the rest of the telecommunications world. The Commission has the tools to restrain growth of the USF while at the same time bringing new competition and broadband services to millions who do without today. Recovering the extra \$3 billion a year, the amount NECA estimates broadband upgrades will cost on a going forward basis, would increase universal service contributions only by an estimated 50 cents to a dollar per month for USF contributors. Instead, increased costs can be negated and avoided through a simultaneous reduction in analog telephone USF support, an expansion of broadband competition, and increased subscriber revenue to the broadband provider (from the availability of triple play services), combined with other policy measures. Together such measures could substantially reduce or even eliminate the need for increasing USF support payments while also facilitating the build-out of the nation’s broadband communications networks.

Benton disagrees with commenters who argue that the cost of adding broadband services to USF is prohibitive.⁶⁶ Comments from the state Public Utility Commissions in California, Iowa, Missouri, and New Jersey all caution against adding broadband to various degrees, generally

⁶⁶ See, for example, National Cable & Telecommunications Association at page 3; Sprint Nextel at page 17; California PUC at page 9; Iowa Utilities Board at page 5; New Jersey BPU at page 11; Time warner Cable at page 2 and 4; T-Mobile at page 13.

citing cost as a primary concern. We disagree with T-Mobile and Time Warners comments, for example, that supporting broadband would exacerbate the current funding crisis. Merely extending universal service support to broadband, without a commensurate decrease in analog support, could indeed increase costs to consumers who can't afford to pay more. Instead, broadband support should be phased in over a limited timetable while phasing out support for analog service, spurring new competition, and enabling providers to offset the increased cost through increase subscriber services like the addition of VoIP and Video to their broadband offerings. In fact, continued subsidization of outdated analog technologies may create disincentives for the digital transition we seek to accelerate. As we have done with digital television, our goal must include not only a transition to newer better digital services, but must also include a plan for moving away from older and limited analog services.

Broadband opens up a whole new frontier in communications. In Attachment 7, Richard D. Taylor points out, soon voice, video and everything else will be delivered over IP networks. Former FCC Commissioner Abernathy characterized it as a move towards “Everything Over IP” (EOIP). In the world of EOIP, it all becomes just delivering packets of bits – a commodity service. In the EOIP world, “voice” capability is being integrated into many applications, and will not manifest merely as VoIP. It will be part of messaging (IM), games, “push to talk,” and likely will be a basic feature in next generation operating systems. It will be available in many ways at no separate charge. It may be ad supported, or free, or bundled. In the EOIP world, there is not a need for a separate voice network.

The Court of Appeals in *Alenco v FCC* 201 F.3rd at 620: found that “excess subsidization...may detract from universal service by causing rates unnecessarily to rise, thereby

pricing some consumers out of the market.” Merely expanding the current universal service to support both broadband and telephone without reducing the costs of the program in other ways and without decreasing analog high cost support could increase USF’s costs and increase costs for many including the working poor. An escalation of the size of the fund threatens the affordability that the program was intended to safeguard. Instead of supporting two networks simultaneously, analog support could be phased out over time as broadband support is phased in – creating extra incentives for the broadband switch.

Broadband access can now sometimes be less expensive than PSTN access. One study found that the average narrowband household could capture a net savings of \$8 per month, or \$96 a year, if it were to switch from analog PSTN connection to broadband with a digital voice service⁶⁷. While, for example, a PSTN phone service can cost consumers approximately \$50 per month plus fees and taxes,⁶⁸ broadband can now be purchased from the same provider for as little as \$10 per month⁶⁹ which can be combined with a digital voice service for \$25 a month⁷⁰ – for a combined savings of \$15 a month per consumer. These same types of savings to both consumers and providers from more efficient digital technologies can be replicated throughout the USF program by making the switch from analog to digital support.

The Commission can learn from the companies and countries that are making the switch. British Telecom, the incumbent phone company for the United Kingdom, for example, hopes to complete work on its “21st Century Network” by 2009. They will replace their outdated analog

⁶⁷ Market research firm Parks Associates, study February 2004

⁶⁸ PSTN monthly charges for service from AT&T and BellSouth cost approximately \$50.00 per month plus fees and taxes. See:

http://www.micradc.com/news/publications/pdfs/MiCRA_Report_on_Consumer_Benefits_from_Cable.pdf page 5

⁶⁹ See AT&T’s \$10 per month broadband service at http://news.com.com/8301-10784_3-9731367-7.html

⁷⁰ See AT&T CallVantage for \$19.99 for a local plan, and \$24.99 a month for an unlimited local and long distance plan <http://www.usa.att.com/callvantage/index.jsp?>

phone network with a single Internet protocol network to handle all of a customer's needs: voice, data, e-mail, movies, and everything else. Upon completion of this user-centric network, all phone calls will travel across the network as VoIP calls, though customers will be unaffected still being able to use their household telephones. Being able to handle voice calls more inexpensively, as just another stream of data like e-mail or streaming video, is just one of the benefits of transitioning to broadband networks. Replacing its analog telephone service with broadband and VoIP allows BT to lower its operating costs, and save an estimated \$1.9 billion per year as a result of the network overhaul.⁷¹ Transitioning USF from analog to digital support could achieve the same kind of costs savings for networks in the U.S.

Likewise in the Netherlands, the country often at or near the top of international broadband rankings, the incumbent phone company KPN plans to unplug its analog phone network entirely by 2010 – relying entirely on broadband and VoIP to serve its customers.⁷² It allows KPN to reduce its costs, while offering consumers more capable digital services.

While U.S. policymakers have sought to accelerate the overall digital migration by setting a specific date for switching off of analog cellular service, and for switching off analog TV services, there is no such plan for switching off the outdated and antiquated analog phone network, let alone a plan for migrating from analog to digital networks.

As former FCC Chair Reed Hundt puts it:

“Currently federal and state regulation causes consumers and taxpayers to pay staggering sums to sustain old networks when much less money

⁷¹ Total cost of the overhaul is estimated at £10 billion.

http://www.infoworld.com/article/06/11/28/HNbtallipnetwork_1.html?source=rss&url=http://www.infoworld.com/article/06/11/28/HNbtallipnetwork_1.html

⁷² As reported by the German Press Agency.

could pay for the same services plus additional services and also for the cost of building Big Broadband to every home and business.” “the invention of VOIP - voice over a high speed Internet access connection - actually means that state and federal regulations that subsidize and guarantee affordable local telephone service should be junked. Instead, if state and federal authorities want to assure that everyone can buy voice service, they should write rules to subsidize Big Broadband connections, through which voice can be provided at a fraction of the cost of maintaining today's legacy networks.”

A complete transition to digital networks is not only essential for our economy and our consumers, it is essential for the future financial success of rural telephone companies as well. Per minute voice costs are quickly plunging to zero. As the Economist magazine, points out, “metered telephone calls whose cost depends on the length of the call and the distance covered are becoming an anachronism.”⁷³ To remain in business rural providers, often a provider of last resort, need new revenue streams. Rural phone companies won't be successful unless they are able move to broadband and tap into a broader stream of broadband enabled services.

According to figures from Informa, a market-research firm, global revenues from fixed-line voice calls were around \$600 billion in 2005, and data revenues were \$202 billion. By 2010, Informa predicts, fixed-line calls will account for less than half of operators' revenues in the developed world. Instead, their new core product will be broadband internet access. Even as voice revenue decline, fixed-line operators have a booming new business in the form of broadband internet access and related services, global revenues from which will grow from \$202 billion in 2005 to \$410 billion by 2011, Informa predicts. The broadband boost will help offset declines in voice revenue. Some rural operators are now coming to understand that being able to provide digital telephone and television over the same broadband connection is the key to their

⁷³ “The end of the line: Traditional fixed-line telephony has had its day” The Economist, Oct 12th 2006

continued economic vitality and for increase their overall revenues.⁷⁴ Policymakers shouldn't be protecting rural providers from this opportunity, but accelerating it.

It is becoming increasingly apparent to providers that IP communication provides a better form and more efficient communications network. . IP can cost less; enable voice, video and multimedia; provide high-value services such as presence and instant messaging; and enables higher-quality wideband speech. For digital phone services, it can enable new features not possible in today's outdated analog phone network. Nearly 90 percent of broadband-enabled phone service early adopter households claim the same or better voice quality and service reliability than traditional landline service.⁷⁵

Benton agrees with comments by Consumers that it is the responsibility of the Joint Board and the Commission to make USF work as intended by the Telecommunications Act of 1996.⁷⁶

VI. CURRENT USF RULES ACT AS A DETERRENT TO UNIVERSAL, AFFORDABLE BROADBAND

Broadband is quickly becoming the dominant form of communication around the world. It will determine economic success, personal success etc. But millions are being deprived of the benefits of universal broadband today, despite the fact that it is essential.

⁷⁴ For example Coleman County Telephone Cooperative (CCTC) in rural Texas was able to deliver a profitable Triple Play of next-generation services -- voice, video and data by deploying a single IP-based network. CCTC increased their revenues from about \$20 a month for analog phone service to about \$100 a month for a package of VoIP, video and data; decreased its operational costs; and empowered consumers. Likewise, Cross Telephone in rural Oklahoma faced declining subscriber revenue. But it embraced broadband and a triple play of voice, video and data over a converged IP network increasing the average subscriber rate from \$45 per month for local telephony (excluding toll calls) to approximately \$105 per month to include VoIP, digital TV, and high-speed Internet access. See <http://www.tmcnet.com/usubmit/2004/Nov/1096245.htm>

⁷⁵ according to a March 2006 survey by Telephia.

⁷⁶ Consumers at page 40.

Benton agrees with General Communications and MoPSC that the USF's High-Cost Program does promote broadband indirectly through investments that rural carriers make to upgrade their telephone networks. The upgraded networks are generally capable of offering both conventional telephone service and new broadband service. The National Exchange Carrier Association (NECA) reports that about 920, or three quarters of its member telephone companies, the vast majority of which operate in rural areas, offer residential digital subscriber line (DSL) service for \$30 per month. Some of those investments become part of the historical costs that rural carriers use in filing for funding from the High-Cost Program. However, ironically a rural provider would lose universal service support if they transitioned from conventional phone service and upgraded to fiber in order to provide consumers with high speed data, more cost efficient voice over IP, and enabled digital television. Such a system deters broadband, as pointed out in Attachment 8. Only if broadband is included as a supported service can such a counter-incentive be avoided.

Incumbent local exchange companies are in many cases burdened with equipment that is outdated and inefficient relative to what could be used if one were starting fresh. Universal service funding to keep consumer prices below costs sustains the use of outdated equipment against more efficient competitors and technologies which would likely prevail (at least on price) were the market cost based – and may actually have the perverse effect of discouraging both competition and innovation. Innovations are unlikely to attract investment if they must compete with established and subsidized "status quo" technology.

VII. THE E-RATE PROGRAM IS A MODEL FOR ADDRESSING BROADBAND INEQUITY AND ACHIEVING UNIVERSAL SERVICE GOALS

Some commenters suggest other federal programs, such as the Department of Agriculture's Rural Utilities Service, be used to address a lack of broadband infrastructure in some areas.⁷⁷ Benton agrees that other broadband-supporting programs could play a crucial role in ensuring universal, affordable high-speed Internet service, but ignoring the role of the USF would be inconsistent with the Communications Act of 1934 and Telecommunications Act of 1996 – and will not solve the problem on their own.

Broadband costs can be lowered and speed increased thru a variety of pragmatic policy choices. Prices can be lowered utilizing a number of complementary approaches in conjunction with USF reform, for example: boosting broadband competition, spurring new wireless broadband technologies, enabling broadband boosting applications that act as demand drivers[1], and allowing municipalities to offer broadband choices. As Congressman Edward Markey has pointed out, “[f]or the United States any successful plan that will move us up in these rankings will inevitably involve a mix of policy solutions including competitive policies, universal service, targeted grants, wireless policy, network neutrality provisions, municipal offering of broadband service - and maybe other tools as well.”

Past experience rolling out telephone networks suggests that extra investment the USF program provides is necessary as a compliment to other policies to reach all Americans at affordable rates. While broadband penetration is indeed increasing, Internet penetration overall

⁷⁷ See, for example, Iowa at page 5; NJBPU at page 13; NCTA at page 3; T-Mobile at page 13.

(which includes both broadband and dialup) appears to be hitting the top of an S curve in the U.S. The Pew Foundation for Internet and Life found that 32% of the adult population does not use the Internet—a figure that may be plateauing.⁷⁸ If more and more of how we communicate, work, live, and learn moves online, those without access because of affordability could cost America even more because of our inability to include all Americans in our digital future. The current analog based universal service funding system is inadequate to bridge this gap or to meet future needs as technology evolves and broadband based communication becomes the norm.

Some commenters support use of targeted⁷⁹ or pilot programs⁸⁰ to advance the deployment of broadband services in high cost areas. Moreover, Chairman Martin has argued, "We shouldn't be subsidizing multiple voice competitors, and instead we should subsidize broadband in rural areas."⁸¹

If the Joint Board recommends and the Commission adopts a targeted or pilot program to address persist broadband deployment and/or subscription inequities, the E-Rate provides a prime example for how this can be done. The Telecommunications Act of 1996 took an important first step in linking universal service and broadband access. The Act created the E-Rate program as part of the universal service fund to make broadband universally available in

⁷⁸ See John Horrigan, "Broadband in the United States: Growing but Slowing," Pew Internet and American Life Project, September 21, 2005, http://www.pewinternet.org/PPF/r/164/report_display.asp

⁷⁹ See, for example, Verizon and Verizon Wireless at page 16; NTCA at page 21 and 22; CA PUC at page 9; MoPSC at page 22; NASUCA at page 24 (including Lifeline)

⁸⁰ See, for example, Alltel at page 48 and February 16, 2007 filing; AT&T at page 4, 6-8, 10-11; and NASUCA at page 24.

⁸¹ Kaplan, Peter. "FCC chief wants some subsidies used for broadband." Reuters. June 19, 2007. (<http://www.reuters.com/article/bondsNews/idUSN1947760320070619>) . Kerner, Sean Michael. "FCC Calls For More And Less Competition" internetnews.com June 19, 2007 (<http://www.internetnews.com/xSP/article.php/3684166>)

every school, classroom, and library in America. The E-Rate has been an enormous success in improving broadband access for libraries and schools.

In Attachment 9, Heather E. Hudson explains how the Telecommunications Act of 1996 took an important first step in linking universal service and broadband access. The Act created the E-Rate program as part of the universal service fund to make broadband universally available in every school, classroom, and library in America.

In Attachment 10, Nancy Kranich finds that thanks to the USF's E-Rate program and other investments, libraries are now the number one point of access for the public outside the home, school, and work, leveling the playing field for those left behind in the digital age. But the success of the E-Rate program goes well beyond Internet access – it now is helping provide a communication outlet of last resort in a crisis. Both 9/11 and Katrina demonstrated the power of public access broadband in libraries for providing alternative communication channels. Continuing the success of the E-Rate and expanding the goals of universal service to broadband could similarly have broad and unmistakable impacts well beyond just increasing Internet access rates.

The E-Rate has two key attributes that may be important in extending the universal service mechanisms more broadly to broadband.

First, the E-Rate is capped at \$2.25 billion a year. Capping a new broadband component may be essential in providing clarity that the size of the fund won't grow over time. The commission shouldn't just add broadband to USF. Supporting two networks simultaneously will

unnecessarily drive up costs for the working poor who contribute to the fund. Instead, the fund should support access over excess. While decreasing voice support, which has not increased voice penetration in years, a new broadband component should be capped. AT&T argues it should be capped at a total amount of one billion dollars per year. NECA's Packet Train study estimates the additional investment cost of upgrading 5.9 million rural telephone access lines to 8 Mbps, a level capable of delivering voice, video, and data to rural customers, is \$11.9 billion. Adding operating expenses, overhead expenses, and depreciation expenses plus a return on investment translates into a \$3 billion annual revenue requirement as estimated by NECA. However, NECA may underestimate the offsetting increase in revenue rural companies would gain from increasing expanding revenues streams from just voice – to a triple play of voice video and data services – or the reduction in costs by moving to more efficient newer technologies.⁸² Targeting a broadband subsidy for example to unserved rural remote and underserved communities could help limit the size of a capped broadband universal service component and ensure that the fund remains sustainable and relevant to the predominant communications technology of the 21st century. In addition, ensuring that the broadband provided is at speeds capable of providing voice, video and data will likely provide a greater financial return for providers – thus boosting value for consumers while further decreasing the amount of a subsidy necessary.

⁸² NECA only assumes recovery of \$99/month in triple-play revenue to cover costs of \$121.91/month. Instead, industry analysts report that users on average are paying \$148/month for triple-play bundled services (Parks and Associates). This revenue is likely to increase to \$206/month per subscriber by 2010, by adding incremental value-added services, such as TV-based caller ID and home monitoring, to basic triple-play service bundles. (See <http://www.itfacts.biz/index.php?id=P6579>) In these cases, triple play income is likely to more than offset the cost of broadband upgrades. But as NECA points out, the problem may be more acute in unserved areas, where costs are 1.4 times higher. These are the areas where universal service support will be critical.

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SUMMARY OF ATTACHMENTS 1-10

Attachment 1: Universal Service for a Globally Competitive America by Jorge Schement, John B. Horrigan and Anamarcia Lacayo, Pennsylvania State University

The writers outline how universal broadband can put consumers in the driver's seat and enable new choices. For many years, universal telephone service meant ubiquitous black phones. But broadband is different. It moves decisions that were once made in the core of the network to the edge of the network. Once a consumer has broadband, they can eventually choose the voice, video and other services of their choice – not from the network owner but from a competitive and broadband marketplace. Control can shift from providers to users. Communications no longer has to be a scarce centrally controlled resource; it can be pervasive and abundant. But too often today's consumers don't have choices. Universal services should be about enabling universal choice. But its not just choices in service, it helps enable choices in life. Schement shows that broadband is about political participation, economic participation, and social participation. As broadband enables more user-created content, people can actively shape the content of universal service for themselves.

Attachment 2: Universal access in the information economy: Tracking policy innovations abroad by Krishna Jayakar and Harmeet Sawhney, Pennsylvania State University and Indiana University.

Krishna Jayakar and Harmeet Sawhney examine several successful national broadband strategies developed by countries that have overtaken the U.S. in per capita broadband deployment. They find that many embrace “ubiquitous” broadband for the competitive advantages it offers (not just a societal goal), and embrace universal goals that extend beyond mere physical connectivity to fostering the “arenas of innovation” that drive broadband adoption and drive demand for it. Many policies focus on enabling broadband innovation (applications, services, and devices) that

make broadband more valuable and drive its uptake are also key components in these effective national strategies i.e. promoting digital literacy and providing incentives for broadband service innovation.

Attachment 3: “From all my teachers I have grown wise, and from my students more than anyone else:” What Lessons can the U.S. learn from Broadband Policies in Europe? by Amit M. Schejter, Pennsylvania State University

Schejter looks at how Europeans may be on the way to taking a more innovative and effective approach to universal service, by considering the adoption of a universal broadband goal.

Europeans have quickly moved ahead of the U.S. on broadband. They have embraced, perfected, and are benefiting from the open competitive network concepts first developed by U.S. policymakers but later abandoned in the U.S. The combination of competition between broadband providers and a universal service broadband goal have proven effective in Europe.

Attachment 4: Networking for Better Care: Health Care in the Information Age

This 1999 Benton Foundation report looks closely at the ways new communications technologies are transforming health care, describing both the promise and pitfalls.

Attachment 5: Universal Service and the Disability Community: The Need for Ubiquitous Broadband Deployment by Frank G. Bowe, Hofstra University

This paper explores the need to expand the base of universal service to include broadband, which has become vital for the disability community. Universal service is the bedrock upon which functionally equivalent service for Americans with disabilities has developed. Relay services, accessibility of telecommunications equipment, and hearing-aid compatibility all rest upon the universal service doctrine that was first articulated in the Communications Act of 1934. Today, however, the high-speed, always-on, voice/video data services known as broadband increasingly are required for full and equal access to communications for people with disabilities. Universal service does not reach broadband services and products. Bridging the gap, that is, extending

universal service to encompass broadband, will require legislation. This paper explores the benefits of taking that step, including those related to independent living, social interaction, health care, and employment.

Attachment 6: Universal Service and Rural America by Sharon Strover, University of Texas at Austin

Once connected to broadband we are no longer limited by the borders on a map or the geography of where we live, the only limits we face in this broadband world are the limits of our own imaginations. In a digital world, borders can begin to function more as bridges than barriers, and geography can be spanned. However, as Sharon Strover points out in her paper, rural America is far behind in its broadband access compared to urban areas – yet stands to benefit most by bridging geography. She finds rural connectivity is vital to cultivating economic vitality in rural areas. But the FCC’s rural broadband data, reliant on zip codes that span vast areas in rural America, provides a poor tool for gauging the pervasiveness of broadband subscribership in rural America. In July 2006, FCC data showed that 99% of zip codes have at least one high-speed service provider. But if one person in a zip code has access to broadband, the FCC counts everyone in the zip code as having broadband. Its like counting everyone in a zip code as driving a Lexus if just one person does. This abysmal data provides a weak platform upon which policymakers must plan the nation’s future. The Government Accountability Office (GAO) took a close look at the efficacy of the FCC’s broadband data. In Kentucky, for example, the GAO relied on extensive state-level data to conclude that 77 percent of residents had broadband access as of mid-2005. However, FCC zip code data from the end of 2004 showed 96 percent of Kentucky households had broadband access. Instead of declaring mission accomplished, American needs better intelligence on the availability, take-up, speeds, and prices on a much more granular basis. There is, however, a preponderance of evidence that rural Americans are

indeed being left behind, as are rural small businesses. Broadband in these rural and remote regions offers extraordinary benefits. Stover finds that broadband can help empower people thru improved access to health care, better education, and access to more jobs – lifting rural economies and connecting their success to the rest of the country.

Attachment 7: Time for Change: Transforming Funding for Broadband Universal Service by Richard D. Taylor, Pennsylvania State University

Broadband opens up a whole new frontier in communications. As the paper by Richard D. Taylor points out, soon voice, video and everything else will be delivered over IP networks. Former FCC Commissioner Abernathy characterized it as a move towards “Everything Over IP” (EOIP). In the world of EOIP, it all becomes just delivering packets of bits – a commodity service. In the EOIP world, “voice” capability is being integrated into many applications, and will not manifest merely as VoIP. It will be part of messaging (IM), games, “push to talk,” and likely will be a basic feature of next generation operating systems. It will be available in many ways at no separate charge. It may be ad supported, or free, or bundled. In the EOIP world, there is not a need for a separate voice network. Charging consumers based on criteria such as time of call, time of day, distance of call, local vs. long-distance, and length of conversation will no longer make sense as communication enters the global internet that no longer usage sensitive or distinguishes between local and long distance or between voice and data. It takes moving to a more competitive USF model where prices to customers would more realistically reflect the cost of providing them service, where competitors can compete to provide the service to the consumer and win the support as well, ensuring a reasonable parallelism between those who are required to contribute and those who can apply for distributions from the USF. USF has generally supported infrastructure. Thus, contributions from broadband providers and

connection providers to broadband and connection providers makes parallel sense. The physical infrastructure is the piece that often costs more over greater distances and the piece that we need to connect people to. However, if other broadband enabled services are important enough to be required to pay in, then those type of services are also important enough that rural and low-income Americans should benefit by accessing them through universal service support.

Attachment 8: Strategies for Repairing the Universal Service Fund by Rob Frieden, Pennsylvania State University

Frieden examines the flaws, defects, and accommodations that exist in the current universal service funding process with an eye toward proposing a new workable system that can support broadband infrastructure development. Frieden argues that consumers deserve more from their sizeable investment in the universal service program. Because of its blanket approach, USF provides financial benefits to some consumers who are entirely capable of paying the full cost of their telecommunication services while at the same time imposing contribution obligations on consumers, including the working poor and others not well equipped to absorb the financial burden. He points out that the emphasis on promoting basic telephone penetration has a negative effect on broadband penetration. The current USF system creates several constituencies keen on maintaining the status quo regardless of its efficacy and efficiency and potentially thwarting broadband goals. The USF system largely accepts as a given whatever costs carriers report regardless of whether carriers could operate more efficiently and whether newer technologies might offer lower costs, possibly without significant recurring operational costs. In order to sustain future USF funding in a changing telecom environment, a connection based contribution mechanism would prove more equitable and sustainable over the long run. While the expansion of USF to include broadband could create financial challenges in the near term, it can also help create a more efficient and versatile USF mechanism in the long run. Frieden argues for several

alternative means for transitioning from a usage based mechanism to a non-usage based mechanism including greater reliance on competitive grants, project specific funding, and reverse auctions.

Attachment 9: The Future of Universal Service Fund Support for Organizations: Schools, Libraries and Rural Health Care Providers by Heather E. Hudson, Professor and Director, Communications Technology Management Program, University of San Francisco

Some may ask whether we can take a 20th century solution and apply it to a 21st century

problem. The paper by Heather E. Hudson explains how the Telecommunications Act of 1996

took an important first step in linking universal service and broadband access. The Act created

the E-Rate program as part of the universal service fund to make broadband universally

available in every school, classroom, and library in America. The E-Rate, not without its

detractors, has been an enormous success in improving broadband access for libraries and

schools. In 1996, only 28 percent of public library systems offered public Internet access.

Today, thanks to increased resources and the E-Rate, nearly all library buildings offer public

access computing, and 14 million Americans regularly use these computers at no fee. Further,

only three percent of instructional classrooms were wired in 1994. As of 2003, 93% of

instructional classrooms are wired. Between 1998 (when the E-Rate launched) and 2003,

statistics show that classroom Internet access disparities between rural, urban, and suburban

schools and high and low-poverty districts have been dramatically reduced. A former FCC Chair

calls the e-rate the biggest new investment in education since the creation of the GI Bill of

Rights.

Attachment 10: Libraries as Universal Service Providers by Nancy Kranich, KS Consultants and Fomer President, American Library Association

The paper by Nancy Kranich finds that thanks to the USF's E-Rate program and other

investments, 99% of public libraries are now wired—many with broadband and wireless

services—and offer free public access to the Internet. Libraries are now the number one point of access for the public outside the home, school, and work, leveling the playing field for those left behind in the digital age. But the success of the E-Rate program goes well beyond Internet access – it now is helping provide a communication outlet of last resort in a crisis. Both 9/11 and Katrina demonstrated the power of public access broadband in libraries for providing alternative communication channels. Continuing the success of the E-Rate and expanding the goals of universal service to broadband could similarly have broad and unmistakable impacts well beyond just increasing Internet access rates.