

DA 09-2376

**COMMENT IN REPLY TO PUBLIC NOTICE SEEKING INFORMATION ON BROADBAND NEEDS
IN EDUCATION, INCLUDING CHANGES
TO E-RATE PROGRAM TO IMPROVE BROADBAND DEPLOYMENT
NPB PUBLIC NOTICE # 15**

**GN Docket Nos. 09-47, 09-51, 09-137
CC Docket No. 02-6
WC Docket No. 05-195**

**Comment Date: November 20, 2009
Reply Comment Date: December 11, 2009**

BROADBAND DEPLOYMENT DATA

1. We seek information on the current state of broadband connectivity, device availability, and adoption in U.S. schools and classrooms.

- a) There are only two types of barriers as to why school districts cannot gain access to broadband telecommunications services; lack of broadband service offerings, and money. In the upstate New York region, there are still many "pockets" of telecommunication carriers who do not have the technological ability to offer broadband telecommunications service to school districts at a price consistent with the technology budgets they have available to pay for telecommunications services. The Telecom carriers who have the ability to offer the broadband service charge very high monthly fees for this access in order to pay back the money they spent building the infrastructure because there are very few customers available to pay for the broadband service due to the large geographic coverage areas and the lack of customers requiring high bandwidth service. There are also many areas with only one telecommunication carrier offering broadband service for a specific geographic region, so there is no true "competition" and the vendor can charge whatever they feel is necessary to get a return on their investment in the cable infrastructure. School districts have very fixed technology budgets and cannot get more money to pay for the higher monthly service costs associated with broadband technology. Even with E-rate discounts applied to broadband technology, the percentage of discount does not account for the monthly service cost that is three times higher for broadband connectivity when compared to the T1 connectivity they are paying for now. There are very few internal LAN networks not capable of utilizing increased bandwidth. The internal LAN networks typically get upgraded due to building construction/technology projects, however, these projects do not allow for expenditures on monthly telecommunications or broadband services.*

All 17 component school districts in the Champlain Valley Educational Services region have some sort of network connectivity. All but one are connected through a WAN fiber ring providing gig or 100 Mb service. The sole district not on the fiber utilizes a T1 connection. There is currently a pole access issue (rights) with

a local cable provider preventing the merger to the fiber WAN. Most all of our districts in the North Country have active network connectivity, although the speed of that connectivity varies amongst our districts. Some districts have gigabit Ethernet to every desktop, whilst some still utilize speeds of around 10mbps. Our districts are continually looking for means to increase their internal and external bandwidth. Districts that are investing in Distance Learning, or VOIP (Voice Over IP) and other high bandwidth utilization are increasingly needing to acquire better speed.

NERIC WAN Stat's Info:

~ 195 connections – Managed by NERIC WAN Staff

~ 90 School districts – Connected to NERIC WAN

Albany County - ~40

Clinton County - ~26

Columbia County - ~6

Essex County - ~9

Franklin County - ~15

Fulton County - ~8

Greene County - ~4

Hamilton County - ~4

Montgomery County - ~4

Rensselaer County - ~18

St Lawrence County - ~22

Schoharie County - ~7

Saratoga County - ~6

Schenectady County - ~24

Washington County - ~2

- b) **Although kilobits/device, kilobits/classroom, kilobits/student and devices/student are metrics to consider, what metrics should be used to measure an effective balance of network, hardware, application development, training, and adoption? Please include comment on metrics, benchmarks, and results against benchmarks.**

Web application performance and user response times should be included when measuring the effectiveness of the network. Simple evaluation such as how long does it take for a response to a request in seconds can act as a relevant measure of the components of the network. Current levels of performance are acceptable in most locations but should always improve with the increased demand of new more complex applications. Efficiency, utilization and comfort level are key indicators that give a performance benchmarks to those who are tasked with evaluating the effectiveness of technology.

- c) **What are the specific barriers to increased broadband deployment and usage for schools and libraries? Is lack of physical facilities, including, e.g., complete wireless coverage for a school district, a problem for some schools and libraries? Is cost of the monthly service or installation too expensive, even with the E-rate discounts? Is funding for services and equipment not supported by E-rate, such as computers or teacher and staff training, too expensive for schools and libraries to purchase additional bandwidth? Are internal networks insufficient to handle increased usage?**

In the case of wireless deployment cost is the number one factor at schools for site wide wireless deployment. Monthly service rates are reasonable but should remain the same or reduce while increasing bandwidth. The cost of (PC) computers continues to decrease becoming more affordable. The addition of new devices to the network and their cost is a factor. Devices such as smartboards, blackberries, scanner/copier/printers. Network infrastructure (LAN) continues to be an expense and are insufficient in handling the volume of devices and the volume of information transmitted. Space is definitely an issue with regards to usage, accompanied with the fact

that wireless technology does not seem an effective way of providing connectivity in a library. Although the cost is affordable, the additional staff required to provide the necessary filtering and monitoring utilization becomes an added barrier.

BROADBAND IMPLEMENTATION

2. We seek comment on school and school system broadband initiatives including infrastructure and large-scale application deployment.

a) What projects have been considered successful and not successful? What were the success criteria?

Projects that have been considered successful are sites and locations that have been able to connect to broadband services such as interactive distance learning using MPEG or MPEG2 or interactive videoconferencing using H.323 technologies. These technologies allow connectivity to remote sites using higher bandwidth than T1 technology offers and still allows sufficient bandwidth for high speed internet access connectivity. Building QoS across these connections allows for guaranteed service and bandwidth, while allowing bandwidth to be available for instructional connectivity. The criteria for success would be the active utilization of these technologies in the classroom on a daily and weekly basis. Additional criteria for success would be the number of site connected to these technologies continues to grow in number, as opposed to remaining stagnant or decreasing in size.

The largest barrier to entry and adoption is budget constraints, lack of monies available to pay for the increased monthly telecommunications service costs. Additional constraints is the areas or pockets where there are telecommunications monopolies or very tight franchise areas where there is only a single telecommunication carrier with the ability to offer broadband service. The lack of competition in these areas really hurts the ability to drive the monthly service costs down to an affordable price point for a school district or public library with fixed budgets.

One of the most common needs for broadband access from the classroom is high speed connectivity to the Internet, because that is what teachers and students are used to at their homes, and the need for high speed connectivity to applications that are used for student attendance and student scheduling purposes.

The demand for broadband connectivity is driven by the applications and services the site is looking to connect to and to utilize within the school district LAN environment and the need for teachers to implement high speed connectivity within the classrooms connecting to off-site applications and services.

The migration from the Verizon T1 ATM environment to the Charter/ TWC fiber network is successful. Bandwidth was increased along with reliability. The DANC project, and the other North Country fiber projects with Charter and Time Warner Cable have been of great success. The only district that was unable to take advantage of this was Long Lake Central School, due to their geographic location. The success criteria is the stability of the connection, the improved connectivity to the internet and between interconnected districts, and ability to utilize technologies as the districts' needs warranted.

b) What have been the barriers to entry and barriers to adoption?

Cost and access to telephone poles have been barriers. North Country schools are located sparsely over a wide territory. Local "Mom and Pop" providers with even a small amount of political influence could cause a hurdle in the entry process.

c) What are the most common needs heard from classrooms and instructional leaders with regard to using broadband for instructional or other purposes?

Increased speed for video applications, virtual learning, increased training opportunities. Access to audio and video streams from the web, and participating in “virtual field trips”, and being able to visit multi-media rich websites were among the greatest common needs that were fulfilled by the broadband access.

d) What creates demand for using broadband in education?

Demand is created by having available applications, teacher exposure to these applications, opportunity to improve student success in school with new learning platforms and relevant instructional opportunities. It's crucial that teachers make material visually stimulating for students. It breaks through barriers that some students have in learning and absorbing various instruction.

BROADBAND AND DIGITAL CONTENT

3. We seek comment on schools' and school systems' online and digital content needs and uses, including content for student instruction (e.g., whole or partial textbooks or supplemental resources) as well as professional development content for educators.

a) What sets of instructional and operational problems are schools and school systems attempting to solve with online content solutions?

Districts are looking to provide low-cost, synchronous and asynchronous content for students and teachers. Additionally, districts are seeking to provide content for students who are at home or out of the school environment. This area includes: Credit Recovery and failure prevention; Credit Accrual for courses not available in a school's schedule; Credit Accrual within a differentiated environment.

Subscription based credit recovery programs, integrated learning systems (for individualized learning), lack of staff, and AIS are all being addressed with online content solutions.

b) Of the typical set of online content tools (e.g.: content creation, content publishing, content indexing, content management, content search) what have schools and school districts experienced when making purchasing decisions about the quality and availability of tools that meet their needs? Are there areas where needs are consistently unmet or under-served?

Many small rural communities are consistently without quality broadband, additionally, school and library facilities are without adequate networking infrastructure to deliver consistent quality content. (NERIC North Country.) We are meeting these needs with an array of products. Mountain Lake PBS is offering a product that is called Power Media Plus, free for three years, where the district downloads all of the content locally and the local users on the network have access to streaming media without taxing the district's bandwidth. There is also an abundant array of free software out there that allows users to mimic many of the content creation/publishing software available.

c) How is digital content being integrated with traditional textbooks and other materials? Are there issues preventing this integration?

Digital content is being used to supplement and even replace traditional textbooks and course materials. Issues preventing integration may be that different platforms prevent easy integration of materials. Not all publisher materials are SCORM compliant. Many of the publishers out there, such as Pearson, and McGraw-Hill, are supplementing their instruction with CD's and DVD's of additional material, or coursework that complements what is being done in the classroom.

DIGITAL LITERACY

4. We seek comment on digital literacy programs, standards, and content.

a) Please provide case studies or data relating to the use of digital literacy training to improve access and use of online systems, and the educational, social or economic impact created by such work. Where has such digital literacy work been accomplished in a traditional classroom and where has it been accomplished in an online or blended model for developing these skills? What physical locations (if any) were used (libraries, schools, etc.)?

NERIC provides training on the integration of digital tools to improve digital literacy and student learning through its Model Schools teacher training program. These workshops have been offered via a number of diverse delivery models, including in-person in local schools, online using the Blackboard Learning System, and a blend of in-person and online. In particular, several hundred educators have taken and completed workshops on integrating technology tools into student learning entirely online. There are usually between 11 and 14 courses offered entirely online per semester. Blended technology integration courses have been offered at the NERIC, Burnt Hills-Ballston Lake, Guilderland, Ravena-Coeymans-Selkirk, Schalmont, and Voorheesville. In Malone Central School, they use a product called Fastforward, which is a program that actually helps students develop synaptic patterns that help foster the comprehension and retention of material they have read.

b) What barriers or issues have prevented implementation of such solutions?

The lack of broadband access by teachers and students at home has been noted as a common impediment for some technology integration workshops. Individuals lacking access to broadband dependent technologies on a routine basis fail to attain digital literacy. Cost is a definite and measurable barrier in implementation of such products. While they are extremely effective, they are also quite costly.

ONLINE LEARNING SYSTEMS

5. We seek comment on online learning systems.

a) Please provide examples of schools and school systems currently supporting blended online/offline instructional planning and delivery as well as distance learning via broadband and computer-based learning. What online content systems (e.g, online text books, resource libraries, learning management systems (LMS), distance learning programs, student portfolio systems) have been successfully implemented? How do schools and school systems align online learning systems with other traditional instructional tools (e.g., textbooks, curriculum, scope and sequence)?

There are currently 14 schools and the Capital Region BOCES using the Blackboard Learning System. Approximately, 3000 students and 400 teachers actively use the system. The system has approximately 350 active courses. The courses include: classroom homework and document sites, curriculum integration sites, Right-to-Know assessment sites, supplemental content sites, and professional development courses for educators. For the most part, classroom teachers design their courses around their class syllabus, incorporating selected parts of the curriculum, and following the State and district scope and sequence documents.

Many districts are using Online Courseware to supplement school building instruction either for makeup purposes or to supplement curriculum. Again, in many of these cases curriculum is selected from online

environments and integrated with classroom/desk oriented instruction.

Area high schools and career and technical centers are also sharing coursework online in a synchronous, real-time video/audio environment through the regional interactive Distance Learning (DL) Network. 44 school sites are currently connected through this DL Network. Schools are offering over 100 sections of classes to more than 1,300 students through the DL program.

Currently, Malone Central School is successfully utilizing a variety of tools in their arsenal. They use Distance Learning, through NERIC, Success Maker Enterprise (Pearson), Fastforward (Scientific Learning, Inc.), Moodle, and NovaNet Credit Recovery. All of the above are made possible through the use of broadband access to the district.

b) How do schools and school systems measure the effectiveness of online vs. blended vs. offline instruction? What are the benchmarks used to compare delivery approaches?

Measurements of effectiveness for online professional development courses are gauged by course evaluations. One teacher generated study on "Blackboard in the High School Curriculum," has been produced. (Documentation attached) Measurement of Online Courseware is accomplished via course integrated assessment based on the presented curriculum. Ultimate measurement is related to long term graduation rates. Benchmarking varies widely as school and community objectives vary widely leading to a wide range of approaches.

Effectiveness of interactive video/audio courses has been measured by such benchmarks as Advanced Placement exam results and New York State Regents exam results. In addition, schools survey all program participants every year to obtain user feedback on the perceived effectiveness of the program.

Teachers utilizing a combination of online and offline tools to enhance instruction are able to measure their effectiveness in a number of ways. Grades, state assessments, rubrics, and quality of student work are all key indicators to quantifying the value of such resources.

c) What barriers or issues have prevented implementation of such solutions?

Cost factors experienced both by the NERIC and school districts prevent wholesale adoption and upgrading of the Blackboard Learning System and further expansion of the regional Distance Learning network to new districts, non-high schools, and to the home. Lack of Broadband access in rural areas also is another factor in preventing universal adoption of our LMS and online courseware options. The ability for teachers and students to be able to access such tools from home, due to either the cost, or sheer availability of broadband to the home is also a significant impediment to implementing this instructional option.

ACCOUNTABILITY AND REPORTING SYSTEMS

6. Many school systems have built Adequate Yearly Progress (AYP) systems to fulfill accountability obligations. Have schools and school districts had success building online student data reporting systems that have had a positive impact on student achievement and/or classroom/school operations? How have principals, teachers, students, or families benefitted?

a) Districts have online access to a number of reports that can provide accountability data for AYP systems. Principals, teachers, students, or families have benefitted through the ability to access AYP type measures, data and documentation on a timelier basis.

b) What barriers or issues have prevented implementation of such solutions?

Infrastructure to provide access at a reasonable response time is lacking in some areas.

c) Within these systems, how do schools and school systems protect student-level data?

Access to these systems is controlled via the use of assigned user codes and passwords.

d) How have student data reporting systems supported school reform movements?

By providing access on a timely basis to data and analyses developed to inform instruction, better decisions are being made related to instruction and curriculum.

EDUCATIONAL DATA INTEROPERABILITY

7. We seek comment on data interoperability projects utilizing the Internet and/or wide area networks (WANs). Such interoperability projects could include student record transfer solutions between enterprise software applications within a single organization, or inter-agency data transfers.

a) How effective were these projects?

These projects have been effective in some very limited areas. More work is needed to expand the scope of the projects and should yield a better picture of their effectiveness.

b) What metrics were used to define the projects?

The projects have, so far, been very limited in scope due to the limited choice of data that can be transferred.

c) What barriers or issues have prevented implementation of such solutions?

Infrastructure to provide access at a reasonable response time is lacking in some areas. A lack of understanding of some of the more complex issues related to data interoperability have slowed the implementation. While SIF has provided some standards in this area, the SIF standards, at times, are not detailed enough to provide complete guidance.

d) What security systems were implemented and were they effective?

Not know at this time.

COMMUNICATION AND VIDEO SYSTEMS

8. We seek comment on implementation of other online applications in schools and school systems.

a) How have communication tools like instant messaging and online video conferencing supported instructional program implementation?

Videoconferencing provides the opportunity for students to gain experiences that would not otherwise be practical. For example, students can meet with the performers at the New Globe Theatre in London, or learn about the elephant sanctuary in Tennessee. However, as is the case with in real life field trips, good planning must precede virtual field trips.

b) Where have live video streaming programs been implemented to scale?

Our live streamed programs have predominately been related to professional development. These sessions allow for real-time user feedback implemented with an in-house Adobe Connect server. The content has ranged from "lunch bag" sessions about data warehousing to formal presentations about performance evaluations. During the month of November 2009, 606 users attended 49 sessions. These sessions totaled 178 hours. Instructionally, to date, the majority of our streamed content has been recordings of content that is appropriate for our teacher's learning objectives have been made available. In conjunction with the BOCES Library Media Service, these include Learn360, PowerMediaPlus, and locally added content.

c) Where have social networking tools been implemented to support instructional goals?

We have added wikis to several of the DL offerings which enable the student to collaboratively development documents. Single district wikis are in use at Burnt Hills and at Guilderland. In addition, we are piloting Microsoft's SharePoint, which includes "facebook"-like capabilities. In order to insure student safety, both the wikis and SharePoint are implemented as "closed" systems.

d) How have concerns of content appropriateness/content blocking been addressed in rollout to students (especially in kindergarten through grade 12)?

NERIC offers 8e6's content filtering in order to insure that inappropriate content is not presented to students. Processes and procedures have been developed to address issues of appropriate content that has inadvertently been blocked.

e) What single sign-on and identity management tools and approaches have schools and school systems used to ensure security and seamless user experience across online tools?

To date, identity management has been both distributed by district and segregated by application. As part of the SharePoint deployment, NERIC has developed an Active Directory domain that will allow for unified identity management. Our goal is to prompt and re-challenge as appropriate given the specific application.

COLLABORATION AND COMMUNITY SYSTEMS

9. We seek comment on implementation of collaboration and best-practice-sharing online systems. For example, we have been directed to a number of systems which demonstrate features of collaboration or online community capabilities including: www.curriki.org, www.nylearns.org, www.oercommons.org, www.schooltube.com, www.boepilot.org.

a) Please provide examples of successful online collaboration systems rolled out to educators and/or students. How have projects measured success?

In addition to the NERIC, two districts have implemented wiki servers. The NERIC wiki server is used as a training area and professional development course. Successful completion of the online wiki course is measured through a course rubric and submission of an online project.

- Curriculum Mapping systems – Rubicon Atlas and Performance Plus
- Professional Learning Communities facilitated through mapping software
- Online discussion boards and forums through Guidance Direct and Blackboard
- Sharepoint – Tech Valley HS. approx. 100 students & 12 teachers utilized for collaborative student projects & research, administrative processes, and classroom management

- *Interactive video – districts are developing home-grown professional development programs for staff and sharing this content with each other through the regional interactive video/audio Distance Learning Network.*

Wikipedia, Moodle, and Microsoft Sharepoint have been great collaboration systems made accessible to many of the districts in the North Country. They all have been instrumental in improving the ability to share ideas, and aid in the educational process.

b) If they were not successful, what were the major challenges?

All of the implementations have been successful. This does not mean there were not any hurdles. Finding time during the work day, instructional training, and a commitment to the technology are issues that must be addressed. The major challenges to success include time resources for administrators and teachers to devote to the development of these innovative collaborations and sufficient funding to support these programs.

c) What subject matter(s) attracted the most use or were the most helpful for educators or students (e.g., instructional practice development, classroom management strategies, mentor/mentee relationships, administrative processes, student projects, student research)?

Tools such as internet based curriculum mapping services systematically alter the nature of curriculum design and practice through collaborative effort. These tools allow practitioners from across districts and communities to share information in real-time while allowing for powerful analysis of the data entered. Likewise single log-on portal tools offer similar opportunities to student populations. Distributive learning systems in online learning environments are leading to significant changes in student responsibility for his/her own learning.

Distributed environments require students to take greater ownership for learning and to demonstrate new skills needed for success in 21st century learning, including critical thinking, problem solving, both independent and collaborative decision making, communication, and digital citizenship.

Each of the areas mentioned in the question are extremely useful with the inception of these tools. The most useful, however, seems to be the mentor/tee relationships. The ability for the instructor to have additional one-on-one time with the student(s) has proven its greatest asset.

INNOVATION IN BROADBAND AND ONLINE SYSTEMS

10. We seek comment on opportunities for government to support innovation in the education technology sector, both in terms of driving innovative program and product development, as well as driving adoption.

a) What are the opportunities for government to support technology literacy, access to devices, and adoption through school-based programs for students, their families, and their communities?

Government grants for the purchase of hardware, software, and funding for training programs would increase technology literacy. Give tax breaks to businesses and corporations that donate funds, computer equipment and technology resources to K-12 institutions. Encourage local telcos, cable providers, and cellular and satellite phone companies to provide subsidized broadband access to the most remote regions by giving participating companies tax breaks. Refresh outdated regulations and education structures developed in 19th/20th century learning environments for new 21st century learning. Possibly allowing for incentives for broadband companies to blanket the North Country and leave almost no area excluded from access. Providing community centers where individuals can get access to the technology if it is out of their reach either financially, or geographically.

b) What are the opportunities for government in setting technology standards?

Funding supports could be tied to standardization of technologies to stabilize hardware and software development. If the government standardizes on particular platforms with regards to technology, and makes those platforms well known, various institutions will follow, to be in compliance, and for their own ease of operation.

c) What are the opportunities for government to drive innovation in schools and school systems?

d) What are the opportunities for the government to support research and development to drive innovation to the education technology market?

Facilitation of universal broadband access and high bandwidth internal networking capacity will create broader markets leading to wider commercial development of collaborative tools. Outdated regulations and structures could be revised to promote more localized control of learning. More localized control of learning would give schools an opportunity to innovate through the development of new learning models using digital tools and educational technology. Creating competitive grants and funding opportunities designed to foster the creation of an instructional curriculum inclusive of technology within the schools. Promoting programs such as "Project Lead the Way" or an inter school sectional robotics competition would go a long way to drive innovation. Create funding requirements in federal and local initiatives directed toward institutes of higher learning to collaborate and partner with K-12 schools on inter-curricular projects in Science, Technology, Engineering and Math.

E-RATE MODIFICATIONS

11. a) We seek information that would enable us to better understand at a more granular level what broadband services eligible applicants are buying today. Overall, what percentage of priority 1 funding is subsidizing broadband services at what speed levels, and what percentage is subsidizing basic voice service (wireline or wireless)? Can we segment the applicant community that receives discounts on higher capacity broadband services based on specific characteristics (such as number of students, rural vs. urban, discount level, etc.)?

*Three percent of our reimbursement funding has been for Internet service expenses.
Ninety-seven percent of our reimbursement has been for Priority 1 telecommunications.
Forty percent of our telecommunications reimbursement funding has been for distance learning.
Three percent of our telecommunications reimbursement funding has been for dial lines.
One percent of our telecommunications reimbursement funding has been for long distance service.
Five percent of our telecommunications reimbursement funding has been for VOIP service.*

b) When applicants develop their technology plans, what factors do they consider in determining their bandwidth needs?

When applicants develop their technology plans, factors such as network usage statistics, application bandwidth requirements, and connectivity requirements determine the amount of bandwidth required for broadband connectivity. If the application resides off site and is a high bandwidth applications, there is a need to increase the bandwidth to a broadband service in order to serve the connectivity needs of the users. In addition, if there are applications or technologies that require higher bandwidth in the building LAN or network, then a broadband solution is also required. Bandwidth needs are often determined by what the network will be used for and the types of usage or applications they are trying to utilize across the network. If the intent is to open schools, or community centers to the public for non-educational yet productive purposes, this would help maximize the utilization of the bandwidth, however, this utilization would have to take place "after school hours" as to not saturate said bandwidth and inhibit the use for which it was intended. Also, this bandwidth would have to be monitored as to not impede on district's after hours utilization such as evening Distance Learning classes, off site backups, and other needs of the district.

c) We seek comment on any legislative changes that would expand the classes of eligible users. For example, the statute currently limits E-rate support to elementary schools and secondary schools, which are defined by each individual state. What would the impact be of modifying the statute to permit colleges, community colleges, pre-kindergarten, Headstart, or other entities to participate in the E-rate program?

Increased start up cost for network infrastructure but overall total cost reduction. All organizations sharing the same service reducing duplicate spending. As long as the funding increased, so that schools would not feel the burden of these additional entities coming on board, then such legislation should be encouraged. If adding new institutions were to decrease the amount of funding that schools receive, this legislative change should not be pursued. The impact, would be an additional financial burden on already challenged school districts.

d) To what extent does the fact that the E-rate program does not currently fund computers and other end user equipment inhibit the use of broadband by schools and libraries? Likewise, to what extent does the fact that the E-rate program does not currently fund training for teachers or librarians in the use of technology inhibit the use of broadband by schools and libraries? We seek specific information regarding what types of services are not available to teachers, students and library patrons due to lack of funding for end user equipment and training. If the E-rate program were to fund computers and training, what would the projected demand be? From a policy perspective, what are the potential negative consequences if such a change were adopted?

The E-rate program can help to fund computer hardware so there will be one computer for every student and teacher in a school. Additionally, E-rate should fund technology training. Wider training opportunities will enhance long term digital literacy.

A potential negative consequence of adopting these changes may be that funded equipment is not used and/or the equipment is never upgraded and quickly becomes obsolete.

E-rate funding is finite. If the level of funding were somehow increased, then the number of uses within a K-12 institution would be able to be augmented. Districts are increasingly struggling to balance the fine line between cutting staff, and meeting their technology needs. Increasing the amount of funds available to e-rate could only help the districts. Simply keeping the status quo with regards to the amount that districts already receive and making them divvy it up would be counterproductive.

e) Currently, WANs are not eligible for support “to the extent that states, schools, or libraries build or purchase a wide area network to provide telecommunications services.” Would modifications to this rule regarding WANs, which link schools and libraries within a district or link several school districts together, result in greater broadband deployment?

If school district WAN's were more eligible for financial support there would definitely be greater broadband deployment among school districts with multiple remote buildings that are currently connected with limited bandwidth connections. There are many school districts that only serve the larger buildings (HS or MS) where the majority of their students are with broadband connections. The remote buildings with smaller populations do not have broadband connectivity due to the high costs associated with these types of broadband services. If the rules for eligibility for support was modified, then school districts would have the funding available to pay for the broadband connections to the remote buildings that serve smaller populations. This alone would allow equal access to the single building or single campus school districts that can serve their entire student population with a single broadband connection and single monthly service cost. The districts that have small populations in a

geographically separated region are at a significant disadvantage for attaining high speed broadband connectivity.

E-RATE DISBURSEMENT

12. We seek comment on how changing the E-rate disbursement and discount methodology might maximize the deployment of broadband.

a) *One possible modification would be to create a new priority level for schools and libraries that do not have broadband or that have extremely slow Internet speeds to permit those entities to receive funding in advance of other eligible requests, which could enable such entities to “catch up.” An alternative would be to provide increased E-rate discounts for entities that wish to implement certain levels of connectivity. We seek comment on other methods by which the Commission could implement such changes, if they were proposed.*

Some of the places with the greatest need have the worst speeds. Consider offering incentives for the cable providers to build the links to the remote locations. Cost average the monthly annual expense with high volume users. As stated earlier, if this funding to include extra entities did not impact the amount of funding given to K12 institutions, it would overall be beneficial for K-12 schools. If it did not, then methods to implement these changes would have to be looked at by several factors. Geographic location, the possible existence of local broadband in the community, the level of need, and so forth would have to be considered. Having these institutions apply on a “needs” basis, would help assess how to implement the proposed funding. Those communities suffering from economic hardships, and or lack of connectivity would probably make the most sense to begin aiding first.

b) **Currently, the program’s funding varies for applicants based on the number of their students who qualify for free or reduced lunch and based on their geographic location. Using this measure, discounts range from 90 percent to 20 percent of the pre-discount price for eligible services, with the poorest schools receiving funding to pay for 90 percent of eligible services. Some rural schools receive additional discounts. The Commission could recalculate these E-rate discount levels to factor in not just poverty and whether the school is located in a rural area, but also whether the entity lacks broadband services. In addition, the Commission could change its priority structure to give preference for those schools that have not received funding for internal connections in several years. We seek comment on the extent to which schools that have not received funding for internal connections (Priority 2 funding) need to improve their internal connections in order to most efficiently use their broadband connections now and in the future.**

Our consortium application has not been eligible for Priority 2 funding since FY1999. If more funding was available for Priority 2 expenses and the discount level required was reduced the districts in our region (many of which are rural) would benefit. The average discount percentage for the districts in our consortium is usually around 54%.

There are current “Franchise rules” that inhibit the development or expansion of existing regional or broadband networks within pockets of New York State. There are areas where there is a single Telecommunications Service provider, and a single Cable TV provider. In these areas, these two services are often provided by the same company, so the price points are fixed due to lack of competition in the service offering area. In addition, these areas are often an “island” in that there is no connection to a regionally built broadband WAN. In order to “interconnect” to a regional broadband WAN that numerous school districts are connected to, there is a significant cost to build this non-existent interconnection. The lack of competition and lack of interconnection often results in much higher broadband service costs, to the point where the school district needs to decline the implementation of broadband technology for their buildings.

If the Commission established a national broadband goal for schools and libraries, the demand for E-rate funding and broadband connectivity would increase due to schools being able to afford broadband connectivity to their remote facilities with smaller populations and to libraries that receive very little or no E-rate monies currently. School districts that currently connect only their larger populated remote buildings would then have the ability to connect their smaller populated remote buildings and be able to afford it on the same connectivity level as school districts that are able to serve all of their buildings due to a campus environment or that have internal fiber connections to their remote buildings. The ability to serve public libraries would also be addressed because their budgets are very tight and do not have the ability to connect to regional WAN networks due to the high cost for broadband service and the lack of funding available for them.

E-RATE FUNDING

13. We seek comment on the implications of modifying E-rate funding to support additional broadband deployment and how changes to the E-rate program would improve the ability of the program to meet applicant needs for broadband.

a) To what extent does the annual E-rate funding cap of \$2.25 billion limit the extent of broadband deployment by eligible schools and libraries? What are the financial or programmatic implications of increasing the cap to fund additional services not currently covered by E-rate? What are the implications of indexing the cap to inflation? Would there be specific implementation issues that would arise related to such changes?

The annual funding cap of \$2.25 billion has not been raised since the program began. Raising the cap could make eligible some expenses that are currently not eligible, but our consortium districts use: computers, training, filtering, firewall, anti-virus, anti-spam, dark fiber, video scheduling service, text messaging, telephone broadcast messaging, etc.

b) To the extent the Commission modifies its E-rate rules to encourage additional requests for funding for broadband services under priority 1, how would that change likely impact the availability of funding for priority 2 services?

Providing additional E-rate funding above the current cap would advance broadband deployment due to increased funding available to school districts that have fixed budgets. At this time, given the importance of this initiative, and the state of the economy and public funding, it would be difficult to speculate on the dollar amounts or dollar estimates needed for this type of additional funding. Decreasing or eliminating some of the services available would not increase the levels of broadband connectivity, unless it would be to increase the funding available for school districts or public libraries.

c) What other costs not currently covered under the E-rate program would be incurred if schools and libraries could purchase additional broadband capacity? Would schools and libraries have to upgrade personal computer equipment, internal wiring, servers, and other hardware?

Yes, switching, edge devices such as firewalls, and wiring (cat5 to cat5e or cat6). Servers might be eliminated but PCs might need to be looked at for upgrades of NECs and wireless.