

**Before the Federal Communications Commission  
Washington D.C. 20554**

In the Matter of	)	
	)	WC Docket No. 13-184
Additional Comments from	)	DA 14-563
E-rate Modernization Workshop	)	

**Comments of High School District 214**

High School District 214 is the second largest high school district in the state of Illinois. Recognized as a Blue Ribbon School District by the U.S. Department of Education, it is located approximately 25 miles northwest of Chicago in a 68.3 square mile area. We serve students from the surrounding communities of Arlington Heights, Buffalo Grove, Des Plaines, Elk Grove, Mt. Prospect, Prospect Heights, Rolling Meadows, and Wheeling. Larger in area than the city of St. Louis, the district serves 12,100 students and approximately 250,000 residents.

Our district has a complete academic program with more than 600 separate courses, as well as many programs and services for students with special needs. We also have a comprehensive set of extra-curricular offerings including drama, service clubs, special interest clubs, music groups, dance and a full slate of athletic offerings available to students. In addition, District 214 is committed to providing lifelong learning opportunities for residents of all ages through a robust Community Education department serving nearly 50,000 annually.

As educators in High School District 214, we believe it's our responsibility to encourage every student to explore academic and co-curricular opportunities that will inspire them to find their passion and reach their potential.

We believe high school graduation is not an endpoint, but an important step toward a student's future. And yet we recognize that preparing students for the future is a growing

challenge – evolving industries, changing technologies and shrinking economies require us to prepare students for a future we can't even imagine.

In order for the District to provide the best opportunities to the students and community, we agree that E-rate has been a fundamental source of funding to support Internet access, internal connections, and phone service. We strongly agree with the Commission's decision to update and improve the E-rate program. Without the support of the program, it will be challenging for our nation's students to prosper and create a culture of innovation to be successful with emerging technologies.

With these goals in mind, High School District 214 encourages the FCC to consider the following recommendations from the E-rate Modernization Workshop.

**1. Provide Transparent and Consistent Pricing Models from Internet Service Providers (ISP).**

Fiber optic cabling is the highest capacity broadband technology available today and the only commercially available technology that is scalable enough to support the projected bandwidth needs for the vast majority of school districts according to the Education SuperHighway's Connecting America's Students: Opportunities for Action Report, April 2014. According to the Five Year Goals, the typical school district (which averages 3,000 students) will require 3 Gbps of Internet access. Legacy technologies, such as copper T3s, DSL, or cable modem, are currently limited to speeds of 100 Mbps or less and could only support 45 - 100 students under the Five Year Goals. In contrast, 100 Gbps fiber connections are commercially available today and affordable 10 Gbps connections are already in use in many school districts across the country.

There is a large disparity in pricing for Internet bandwidth between school districts of the same size, with the same internal connections, and from the same ISP. A recent survey in Illinois showed that school districts are paying anywhere from \$1.20 per Mbps to \$37.50 per Mbps from one provider and \$7.18 per Mbps to \$166 per Mbps from another. The pricing also varies between the many other providers. These connection costs are for lit fiber including transport.

- Require Consistent Pricing.** Most carriers don't offer their best pricing unless in a competitive situation. In the current economy, school districts are much better off if they can find a way to create a competitive environment. ISPs that also provide transport with Internet access should be required to provide fair and consistent pricing models for school districts. We encourage the Commission to develop policies for these ISPs to provide school districts with one pricing structure outlining the price per Mbps of Internet bandwidth and prices of the most common amounts purchased.

**Sample Pricing Structure** – In this sample, each 1 Mbps of bandwidth would be \$1.00.

\$1.00 per Mbps	50 Mbps	\$50 per month
\$1.00 per Mbps	75 Mbps	\$75 per month
\$1.00 per Mbps	100 Mbps	\$100 per month
\$1.00 per Mbps	200 Mbps	\$200 per month
\$1.00 per Mbps	500 Mbps	\$500 per month
\$1.00 per Mbps	750 Mbps	\$750 per month

\$1.00 per Mbps	1 Gbps	\$1,000 per month
\$1.00 per Mbps	2 Gbps	\$2,000 per month

School districts should not be penalized because they have different enrollments and needs. An example would be a 500 student school district that requires only 50 Mbps of Internet bandwidth versus a 12,500 student school district that requires 1 Gbps. ISPs pay the same amount for aggregate Internet bandwidth and should pass along the same pricing afforded to larger school districts to smaller ones.

The Commission may consider requiring ISPs to separate transport fees from Internet bandwidth fees. This is where the ISPs have build-out and maintenance costs. It should be made clear the ISPs should not increase build-out costs for transport to compensate for the shift of the price per Mbps of Internet bandwidth fees, to keep pricing equitable for school districts.

By providing a level playing field with Internet bandwidth pricing, the government will ultimately save money by not having to pay absorbent prices when reimbursing school districts. The savings can be put back into and shifted to other parts of the E-rate program.

- **Open Market to Competition for School Districts.**

School districts are trying to find creative and innovative ways to meet the challenges of providing Internet bandwidth to support the digital age of teaching and learning. Carriers should not prevent ISPs that provide

Internet egress only from bidding on egress using their transport. Internet Service Providers that provide transport are preventing brokers of Internet access from bidding on that access through their transport at the Network Access Points or Internet Exchange Points.

We encourage the Commission to consider putting rules in place to allow for an open and competitive market. Large carriers that provide transport and last mile connectivity should allow brokers of Internet bandwidth to bid on access through another carrier's transport. An example would be AT&T or Comcast providing transport to the Network Access Points whereas a broker can provide Internet access only. A prime example in the Chicagoland area would allow AT&T or Comcast to provide reasonable transport fees to the Network Access Point, Equinix at 350 E. Cermak, or another Internet Exchange Point, where school districts could request pricing from more than 300 Internet providers. This will open the market up to more competition to drive down the cost of Internet bandwidth for school districts.

## **2. Increase the Cap for E-rate Funding.**

High School District 214 supports the comments from the AASA, the School Superintendent's Association, to increase funding for the E-rate program. The AASA submitted comments to WC Docket No. 13-148 CC Docket No. 02-6 on November 7, 2013.

- **Funding:** *“The E-Rate program is capped at just over \$2.3 billion of the Universal Service Fund. This amount had remained frozen at \$2.25*

*billion until 2011, when the program received a slight inflationary adjustment. Even with this very modest increase in funding, schools and libraries apply for E-Rate discounts that far exceed the available funding. In fact, demand in 2013 exceeded \$5 billion, more than double the available funding, meaning more applications go unfunded than receive funding. The Consortium for School Networking released a survey in September 2013 detailing these fiscal constraints, with virtually all respondents (99%) reporting a need for expanded internet connectivity/bandwidth in the next three years and 90 percent describing E-Rate funding as ‘insufficient’ in meeting their district’s needs. Bolstered with this most recent survey data, AASA urges the FCC to increase base E-Rate funding to \$5 billion (with an inflationary adjustment), and to support this funding level as permanent and not a one-time infusion of funding.”*

- **Flexibility:** *“It is very important for the FCC to recognize the difference between ‘What is good for one is good for all’ and ‘One size fits all’. The difference is best summarized in one word: flexibility. The FCC and President Obama’s ConnectEd proposal are to be applauded for their effort to ensure that all schools have broadband connectivity. The benefits are undeniable, and modernizing the E-Rate program is the most effective way to ensure that all schools have opportunity to access affordable broadband connectivity. Opportunity to access, however, is different than an explicit requirement or overly narrow goal. Opportunity*

*to access addresses the notion that ‘broadband is good for some kids, it will be good for all’ while stopping short of the overly prescriptive requirement (one-size-fits all approach) of making only certain types of connectivity available. As the FCC moves forward with considering the myriad changes proposed in the NPRM, AASA encourages the FCC to do so in the context of autonomy and flexibility at the local level. There is a fine line between incenting desired behavior (i.e., fiber or broadband connectivity) and being overly prescriptive (eliminating other eligible services). In the context of E-Rate and affording higher-cost connectivity, a well-intentioned incentive aimed at prioritizing certain services could, in reality, fall short as schools cannot afford the higher-cost service AND find themselves no longer able to afford previously eligible lowercost/priority services. Districts should remain in control of deciding which services to purchase through E-Rate.”*

- **Streamlining the Application Process:** *“AASA urges the FCC to support online filing to the extent possible, balancing the NPRM’s call for all applicants to file forms electronically with the reality that e-filing may not be feasible for those applicants that lack adequate bandwidth for online filing or for replacement contracts that are filed out-of-cycle. AASA supports streamlining the E-Rate application process so as to minimize administrative burden. This annual paper trail (one-half dozen forms) absorbs countless hours and forces some schools to have to hire outside consultants. Related to our support for streamlining the*

*application and administration of E-Rate, it is imperative the FCC consider the implications of any of its final changes and whether those changes are actually more effective (including online application) or more complicated (set-asides add to difficulty of application).”*

It’s challenging and difficult for school districts when estimating the amount of bandwidth needed for the future school year with the current E-rate application process. Unfunded mandates, such as the Partnership for Assessment Readiness for College and Careers (PARCC), require school districts to make their “best guess” for anticipated needs. Along with unfunded mandates, the increased access to interactive digital curriculum, Web 2.0 websites, Software as a Service providers and Cloud computing, all demand increased bandwidth. When school districts complete the E-rate process, and additional bandwidth is required to be purchased in the middle of the school year, they do not get reimbursed from E-rate. School districts absorb the additional cost incurred. Additionally, ISPs charge based on multiyear agreements. The cost for the additional bandwidth is greater due to the shortened agreement length.

When Form 470s are posted through the USAC website, there are also a limited number of responses from ISPs. There is not enough competition, even in large metropolitan markets, to warrant additional proposals. This could be inherently due to the tight window of time the ISPs have to submit proposals with the hundreds of other school districts posting Form 470s during the same period. We encourage the Commission

to review the current E-rate process and consider allowing school districts to receive reimbursement when an increase in Internet bandwidth is needed in the middle of the year, and allow more funding opportunities throughout the year to allow for more rapid adoption of projects during the year.

### **3. Reimburse for wireless Access Points and Cabling.**

To bring students into the digital age, school districts are providing mobile devices or allowing students to Bring Your Own Device (BYOD). In 2004, wireless technology was being introduced in school districts. Access Points were purchased to provide some coverage in school buildings for laptop carts. In 2009, the goal was to provide 100 percent wireless coverage throughout school buildings. Today, with more than a 1:1 environment, school districts must provide for wireless saturation by providing an Access Point in every classroom.

School districts are also moving away from traditional phone services in favor of implementing Voice over Internet Protocol (VoIP). These phones require a network drop to connect into the district's network. This technology has been saving school districts thousands of dollars by utilizing the district's network and not dependent on a telephone company's Private Branch Exchange (PBX). High School District 214 moved to VoIP in the 2005-06 school year. Since that time, they have experienced savings of \$400,000 per year over the Centrex hosted system.

Additional network drops are required in each classroom for Access Points, projectors, laptops, telephones, and other devices. We encourage the Commission to consider providing E-rate funding for wireless network surveys, Access Points and wiring installation for mixed use to the classrooms. This would include the cable run installation labor and hardware costs from the switchport to the wall plate, the wall plate itself, and RJ45 plugs. Additional consideration should be given for replacement of the Access Points and upgraded wiring to support the bandwidth needs.

#### **4. Reimburse for Network Redundancy and Dark Fiber Networks.**

The present E-rate model does not allow for reimbursement of redundant internal or Internet connections for mission critical applications. School district business operations are critical along with Internet connectivity. With the demands of 1:1 programs, VoIP phones, building automation systems, IP video security systems, PA and Bell scheduling systems, time clock systems, digital curriculum housed in the cloud, and other cloud-based services riding on a single path, along with a single point of failure, there is a compelling reason to review reimbursement for redundant networks. Once network or Internet connectivity ceases due to an outage, instruction and business operations come to a halt. With only 50 minutes of classroom instruction in a high school schedule, the impact is great as students and teachers become dependent on digital resources that require access to the district's network or Internet. It's essential to

build redundant Internet access to ensure continued access to those resources.

Districts are being creative and building out their own fiber networks not to be dependent on the network carriers. Being dependent on carriers brings its own challenges and limitations. School districts must bear the burden of the full cost of redundant paths for network and Internet connectivity.

Another strategy for lowering district WAN prices is to provide districts with the option and resources to lease or self-provision dark fiber networks. In a traditional commercial fiber service model, both the fiber and the optical equipment connecting the fiber at each end are leased from a service provider. This is referred to as “lit fiber.” In a “dark fiber” model, districts either lease or buy the fiber from a service provider or fiber construction company and provide their own optical equipment. This allows the districts to dramatically increase the capacity of their WAN through low cost upgrades to the optical equipment.

As school districts become more reliant on technology to deliver curriculum and manage the day-to-day operations of the District , we encourage the Commission to review this practice and consider reimbursing school districts for redundant fiber rings for internal connections, redundant Internet connectivity, and for dark fiber networks.

## **5. Reimburse for Core Edge Routing and Switching equipment.**

With the increased demands for connectivity come demands for equipment in the Main Distribution Frames (MDF) to support the higher bandwidth connections. The MDF core equipment required for internal connections and Internet connectivity must have enough throughput to support the aggregate amount of bandwidth being generated at any given time. This equipment is of a higher grade than the Intermediate Distribution Frame (IDF) switching equipment and usually at a significantly higher cost to school districts. When considering the overall cost of upgrading infrastructure, including wireless Access Points, fiber optic backbone, cabling to the classroom, along with core edge and access switches, it is easy to see there is a significant cost to school districts.

We encourage the Commission to consider reimbursing school districts for the MDF switching/routing equipment. Ideally, school districts would benefit greatly by providing reimbursement for MDF and IDF switching/routing hardware.

## **6. Reimburse for Web Filters and Web Caching Appliances.**

The FCC explains the Children's Internet Protection Act (CIPA) and requirements for school districts and libraries on their website <http://www.fcc.gov/guides/childrens-internet-protection-act>: *The Children's Internet Protection Act (CIPA) was enacted by Congress in 2000 to address concerns about children's access to obscene or*

*harmful content over the Internet. CIPA imposes certain requirements on schools or libraries that receive discounts for Internet access or internal connections through the E-rate program – a program that makes certain communications services and products more affordable for eligible schools and libraries. In early 2001, the FCC issued rules implementing CIPA and provided updates to those rules in 2011. Schools and libraries subject to CIPA may not receive the discounts offered by the E-rate program unless they certify that they have an Internet safety policy that includes technology protection measures. The protection measures must block or filter Internet access to pictures that are: (a) obscene; (b) child pornography; or (c) harmful to minors (for computers that are accessed by minors). Before adopting this Internet safety policy, schools and libraries must provide reasonable notice and hold at least one public hearing or meeting to address the proposal.*

*Schools subject to CIPA have two additional certification requirements: 1) their Internet safety policies must include monitoring the online activities of minors; and 2) as required by the Protecting Children in the 21st Century Act, they must provide for educating minors about appropriate online behavior, including interacting with other individuals on social networking websites and in chat rooms, and cyberbullying awareness and response.*

*Schools and libraries subject to CIPA are required to adopt and implement an Internet safety policy addressing:*

- (a) access by minors to inappropriate matter on the Internet;*
- (b) the safety and security of minors when using electronic mail, chat rooms and other forms of direct electronic communications;*
- (c) unauthorized access, including so-called “hacking,” and other unlawful activities by minors online;*
- (d) unauthorized disclosure, use, and dissemination of personal information regarding minors; and*
- (e) measures restricting minors’ access to materials harmful to them.*

*Schools and libraries must certify they are in compliance with CIPA before they can receive E-rate funding.*

- CIPA does not apply to schools and libraries receiving discounts only for telecommunications service only;*
- An authorized person may disable the blocking or filtering measure during use by an adult to enable access for bona fide research or other lawful purposes.*
- CIPA does not require the tracking of Internet use by minors or adults.*

The FCC requires school districts and libraries to provide “technology protection measures” to be in compliance, which is an unfunded mandate of the program. Web filtering companies charge for the equipment along with yearly maintenance and support fees. The maintenance fees are for support of the hardware, configuration, and replacement of defective equipment. Other support fees are for “real-time” tracking of inappropriate URLs that should be blocked by CIPA designated categories. This takes human intervention and a large

contingency of staff on the filtering company's behalf to keep track of the thousands of websites that come online each day.

High School District 214 successfully implemented web caching appliances in the last school year. Web caching appliances cache frequently requested web pages locally without having to go out to the Internet every time a request is made. This came out of necessity due to the present challenges with the E-rate program. The District currently purchases 500 Mbps of Internet bandwidth from two different ISPs. With the demands for more Internet bandwidth during the school year, it was evident the cost to increase Internet bandwidth was costly and there would be no opportunity for reimbursement under the current E-rate program. Once the E-rate cycle is over, school districts and libraries are not afforded the opportunity to reapply for reimbursement.

The District was able to save up to 30 percent on Internet bandwidth. Without the web caching appliances, instruction using mobile devices in classrooms would come to a crawl and would not be effective.

The District was forced to secure enough bandwidth and the best pricing during the last E-rate cycle for the upcoming 2014-15 school year. The District will now have 2 Gbps of Internet bandwidth as additional mobile devices are provided to students. The web caching appliances will still be used to continue to serve up web content efficiently and reduce Internet requests.

We encourage the Commission to reimburse school districts and libraries for web filters that are mandated as a requirement under the current E-rate program.

We also encourage the Commission to consider reimbursing for web caching appliances. This request is two-fold. First, web caching appliances can reduce the amount of Internet bandwidth required by school districts thus reducing the amount of reimbursement for Internet bandwidth and assisting school districts that have not been able to upgrade their internal connections or network backbones. Secondly, the appliances provide school districts faster access to frequently requested web pages. This is important with the proliferation of 1:1 initiatives and mobile devices.

In summation, we understand the challenges to reform E-rate is a monumental challenge. We further understand there are financial considerations and limitations with providing end-to-end connectivity to the classroom by providing reimbursement for Internet bandwidth, internal connections, switching/routing hardware, wiring, wireless Access Points, web filters and web caching appliances.

Within these recommendations are cost savings benefits to streamline the program, a shift in reimbursement dollars to provide additional support for equipment, creation of more market competition and level pricing for Internet bandwidth, and an increase in the funding cap. These recommendations are designed ultimately to help school districts and libraries meet the challenges of the President's ConnectED initiative. We urge the Commission to carefully review

the recommendations from High School District 214 and the AASA, and investigate these areas further.

Respectfully submitted,

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