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BROADBAND ACCESS FOR K12 Schools

Minnesota schools and public libraries receive state support to help pay for the cost of high speed Internet access that remains **after** federal E-rate discounts have been applied. The annual appropriation for public schools is \$3.75 million. For public libraries, it is \$2.3 million. Currently the proration of funding is 43% as requests are over \$9 million for K12 schools. To fully support school broadband needs an increase of \$7 million a year for a total of \$10.75 million for telecommunications/internet access equity aid is necessary to support school district connectivity.

Internet access is mission critical for schools and public libraries. Digital content, increasingly accessed over mobile devices, requires higher levels of bandwidth. Schools use the Internet in their daily operations for student instruction, food service, communications, transportation, accounting, and procurement. Public libraries need Internet access to manage collections, provide access to digital materials and research capabilities, and serve as public Internet access centers.

Use of mobile devices in schools and libraries has exploded over the past few years. This dramatic increase has severely taxed the capacities of both wireless servers and bandwidth. **The State Educational Technology Directors Association (SETDA) recommends that all schools provide 1 Gigabyte per second (Gbps) of Internet bandwidth per 1000 students/staff by 2018. Education Superhighway estimates that 22 percent of Minnesota schools do not yet meet 2014 goals, and less than 19 percent of Minnesota schools meet the 2018 goal. Over one-third of Minnesota schools do not feel they have the necessary Internet bandwidth to address their technology use and deployment plans moving forward.**

Broadband access is critical to schools and libraries in order to provide the following services:

1. Citizens without high speed Internet access at home or who lack proficient computer skills visit their public library and use the computers to communicate, file for government services, search for employment, research special topics, and conduct personal business. Families with dial-up or low-bandwidth connections use public library Internet for projects and software that require higher bandwidth. Citizens with wireless devices sync up with the public library wireless whenever they are in the building to place and respond to ongoing calls and messages.
2. Schools are increasingly creating and using digital learning resources instead of purchasing traditional textbooks. Schools are also expanding networks to allow for students to bring their own Internet enabled devices for educational purposes and are using more school-owned tablet devices in classrooms. These conditions are causing a steady increase in the amount of bandwidth needed by schools. Students also use school-owned tablets or their own mobile devices at the public library to access educational resources and complete homework after school, in the evenings and on the weekends.
3. Students access distance-learning opportunities from post-secondary education institutions, other Minnesota K-12 schools, and online learning programs. Broadband connections are used to provide post-secondary, advanced placement, and foreign language classes which otherwise are unavailable to rural students.
4. Public library customers use online systems (MNLINK) to access books and materials through interlibrary loan, effectively making all the resources of all Minnesota libraries available to customers statewide.
5. Institutions such as museums, historical societies, zoos, and other centers of culture provide interactive learning opportunities to students through "field trips" using broadband connections and videoconferencing. These experiences provide 21st century learning opportunities to students in rural areas who might otherwise miss out because of the high costs of long-distance visits. Hearing a Holocaust survivor's first hand story or getting a lesson from a professional musician and even watching a live knee replacement surgery are all available to students through broadband access.
6. Citizens interested in computer-related technologies depend on public libraries to provide education and training on a variety of tools and applications such as videoconferencing, web cams, GPS systems, digital cameras, presentation tools, and electronic reading devices, smartphones and tablets.
7. Parents use school districts' broadband connections to access information from district databases on their child's educational progress and achievement, manage lunch accounts, and participate in the school community.
8. Schools use broadband and cloud services to conduct their daily business using cloud-based classroom documents and communication tools. Schools are increasingly looking to web-based applications to manage finances, report required data to the state and federal government, and connect with the local community.
9. Students in school library media centers and citizens in public libraries use resources found in the Electronic Library for Minnesota (ELM), and thousands of e-books, including electronic textbooks, through NetLibrary, the Minnesota Partnership for Collaborative Curriculum, and other sources. Public libraries provide access to downloadable audiobooks and ebooks, as well as electronic magazines, from remote locations to customer devices.
10. Internet-based audio and videoconferencing technology is used to connect educators, librarians and peers across the globe.

Students, teachers, librarians and administrators use broadband access to collaborate on curriculum development and library applications, conduct meetings, participate in professional development, and access information beyond the geographic and resource limitations of their communities.

According to data collected in 2015 by Education Superhighway (<http://www.compareandconnectk12.org/>) 80% of Minnesota schools have the fiber connections needed to meet national bandwidth targets. Additionally, most K-12 schools in the state have access to the Internet bandwidth they need. They just need to pay for it. That is to say, for school districts in our state, this issue isn't about access to bandwidth, it is all about **affordability**. Following are three examples taken from Education Superhighway data obtained in 2015 from federal E-rate data and in consultation with members of the Minnesota Educational Technology Networks (<http://www.metn.k12.mn.us/>)

- The cost per Megabit (Mb) of Internet access for Anoka-Hennepin schools is \$0.73. The district purchases 10Gb or 10,000Mb to serve their staff and nearly 38,000 students. The cost is \$7,252 per month. That equates to \$2.31 per student, per year, or about 0.04% of the basic general education formula aid provided by the state.
- In Braham, less than 50 miles north of the Anoka-Hennepin district, the cost per Mb is \$11.00, which is still \$2.00 below the state average. The Braham district purchases 100Mb to serve their 839 students which equates to \$16.16 per student, per year or about 0.2% of the formula aid.
- In West Central Minnesota, the Herman-Norcross district spends \$58 per Mb of Internet access. They purchase 45Mb for their staff and 92 students at an average cost of \$2,610 per month. The cost per student, per year is \$340.43 or about 5.5% of their formula aid.