

RECOMMENDATIONS FOR ACTION



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Broadband has the power and potential to transform the classroom and educational experience of Alaskan youth, to open global windows of learning to the most rural, bush landscape, to empower teachers in their craft of educating and enlightening, to enrich, preserve, and pass on culture and traditions in the most remote Native Villages, and to be a beacon of enlightenment and connectivity for communities across Alaska.

Unfortunately, without being ubiquitous and fully integrated into the educational experience, broadband also has the potential to divide. Teaching without broadband technology will soon be like teaching without a textbook, and the move to on-line assessments and testing is only a first step. In most schools in Alaska and throughout the country, instructional spaces will transform substantially to this new environment over the next few years. Students in disconnected schools that do not offer this learning atmosphere will fall increasingly behind.

The Alaska School Broadband Audit has shown that there are significant and considerable gaps in broadband connectivity of K-12 schools in the state. The vast majority of schools are not on pace to meet national benchmarks for connectivity, and there are significant variations in connectivity and distribution of connected devices among regions of the state. There are also substantial differences in prices paid for similar services that cannot solely be explained by geography. And schools serving the most-vulnerable populations – those with high poverty rates, remote schools that serve all grades K-12 in one facility, and those with predominant Native American populations – are the least-connected schools in Alaska.

This section outlines several recommendations for action and suggests areas of further study. This list is not meant to be exhaustive, but it represents the viewpoint of Connect Alaska staff that spent months traveling schools throughout the state, gathering and verifying data, and analyzing the results.

1. Alaska schools should work to maximize use of E-rate funds available for broadband connectivity both to and within schools

As discussed in the E-Rate and Alaska Education section of this report, Alaska schools appear to have responded overwhelmingly to the FCC's 2014 changes to the E-rate program, increasing their requests for funding by over 40%. This process should continue, and Alaska schools should continue to be aggressive in their pursuit of E-rate funds.

2. The state and Alaska school districts should actively seek to establish a "special construction" state funding program that would qualify Alaska schools for an additional E-rate discount of up to 10%. Failure of the state to implement a program would leave important E-rate funds on the table.

Beginning next year the FCC will make additional E-rate funds available to help offset upfront "special construction costs," such as the cost of digging and installing fiber or building a wireless microwave tower, to schools. The FCC has found that even with standard E-rate discounts, upfront costs of construction can still be a barrier. As a result, the FCC will offer to have E-rate pay an

additional discount on these costs for upgrades – but only if the state provides matching funds. These additional matching funds will be available from the E-rate beginning in 2016.

The state and Alaska school districts should work together to create a program that would take advantage of this new funding opportunity. As discussed above, the new FCC program will contribute up to 10% of a project cost through this program. With special construction charges for high-speed connectivity frequently costing tens of thousands of dollars, those savings could be substantial. Moreover, investing in higher upfront network capacity has the potential to lower the cost of service down the road. As a result, in the long run a state program designed to take advantage of this FCC program could both close the broadband gap and save a considerable amount of money for Alaska schools.

The Alaska School BAG program could have served as the starting point for such a program. As discussed above, the Alaska School BAG program would have closed the near-term broadband connectivity gaps in many schools were it funded beyond June 2015. With most of the recipient 27 districts that received School BAG grants in high E-rate discount rate categories, School BAG funds over \$39 million in additional E-rate funds for the state – more than double what Connect Alaska estimates that the E-rate pays for broadband in Alaska schools today.

3. The state and Alaska schools should investigate, explore, and advance alternative procurement processes, such as joint or regional bidding, or increased technical assistance to school IT purchasing managers. Changes might help resolve some of the significant cost variability found for similarly situated schools and districts. Better purchasing processes may also increase incentive for high-discount schools to have more cost-effective procurements.

The regional analysis section demonstrates that there are wide variations in the cost per megabit of broadband service between schools, districts, and regions, even among those similarly-situated. This suggests that purchasing and procurement procedures might be improved to help bring additional buying power to Alaska schools. Alaska schools and the state should explore opportunities to improve these procedures, encourage or facilitate statewide, joint, or regional purchasing arrangements, and provide more technical assistance to Alaska schools with their IT purchasing processes.

One potential model for a statewide or regional initiative is the Online With Libraries Program, or Alaska OWL. The Alaska OWL Program began as a federal grant program through NTIA and helps 97 libraries in the state procure broadband bandwidth through a collaborative purchasing arrangement. Alaska OWL, which has been state-funded for the last two years, makes state contributions to library connectivity under the pretense that OWL recipients apply for E-rate funding. Additionally, the program negotiates state and regional prices for library broadband upgrades.

For the last two years, the Alaska OWL Program has been funded directly by the state. In doing so, the project has facilitated strong increase in the purchase and use of broadband at Alaska libraries. Moreover, the Alaska OWL Program has provided a substantial return on the state's investment, as it has resulted in a significant increase in the amount of E-rate funding that has been directed to Alaska libraries, from less than \$500,000 per year in 2010 to well over \$2 million by 2013. With a current budget of \$761,000, the program pays for itself in E-rate funds for libraries in Alaska that

likely would not otherwise get E-rate funding. While funding for Alaska OWL Program is included in the current budget, as of this writing, that budget has not yet been approved by the Legislature.²⁰

The FCC E-rate program also has made rule changes to facilitate consortia applications for funding, such as giving consortia applications funding priority reviews and to allow for the use of designated master contracts, and allowing a consortium to seek individual service bids for its members even if the consortium is not the ultimate purchasing agent. Districts and the state should explore these new joint purchasing opportunities as a way to increase the bargaining power of district purchases of connectivity and to lower administrative costs.

4. The state and schools should continue to collect data on connectivity, track Alaska school and library responses to the FCC e-rate rule changes, and update this report on an annual basis. Alaska school districts should review their investments in technology, including WANs on a yearly basis.

Beginning next year, the FCC and USAC state that they will be releasing more data on e-rate utilization by schools and libraries. In its reform efforts, the FCC has promised to make more data about the use of E-rate funds by schools and libraries available in an open and electronic format. When that data is made available, the Audit website and dataset could be updated with this new data, so as to provide an ongoing picture of connectivity at Alaska schools.

Yearly technology reviews, particularly with regard to exploring the potential for WANs to save costs, should be part of an ongoing data collection project. Collection of data and yearly reviews will allow school E-rate funding requests to be based on the network structure that best serves the long-term needs of the institution. With microwave and other network technologies dramatically dropping in cost year to year, annual reviews may be particularly important for many rural, historically high-cost districts.

5. Further research should be conducted on the actual use of digital curricula, electronic text books, and connected devices in Alaska schools. The Audit did not explore, for instance, the number of hours of "digital instruction," the nature and quality of digitally-enabled instruction, impact on test scores, and the quality of online test experience.

The goal and scope of the Alaska School Broadband Audit was on the “connectedness” of schools and classrooms in Alaska – a technical assessment of IT capabilities and processes. While visiting schools to gather this information, Connect Alaska staff encountered a wide range of uses and applications of broadband and digital education tools, an array as diverse as the state itself.

Further research on **how** educators and schools are using technology would be an important area of study, particular if one seeks to fully understand the educational impact of technology. How many hours per day are connected devices used in education? What are the most-used educational applications and services in the state? How readily are electronic textbooks being used in K-12 classrooms? Research on these questions would help advise educators and the state on the ways to maximize the impact of broadband on educational outcomes.

²⁰ For more information, see <http://library.alaska.gov/dev/owl.html> and *OWL Connects Alaskans*, available at http://library.alaska.gov/pdf/anc/owl/OWL_infographic.pdf.

6. Study the effect of off-campus connectivity for education and explore off-campus connectivity solutions.

A child's education does not stop at the classroom door. As schools move increasingly toward digital curricula and connected devices as key learning tools, the extent to which students may not have access to those tools once they leave school will become increasingly important.

Every day in Alaska – indeed, nationwide – educators are faced with the challenge about whether to give homework assignments that require broadband connections for research and content. For students with computers and broadband at home, completing these assignments is relatively easy. For students without, completing that same assignment might require a nighttime visit to the library or squatting at a local free Wi-Fi spot. In rural and bush areas, off-campus connectivity beyond certain locations may be virtually non-existent or costly.

The state and Alaska schools should explore opportunities to bridge this gap. In areas of the state with wireless broadband coverage, schools could purchase off-campus connectivity on those networks for school-provided devices, thus offering a way for students to take those devices home and connect back to the school network. Another alternative would be for schools or local libraries to purchase wireless broadband Wi-Fi hubs and make them available to qualifying students for check-out, which would allow temporary provision of broadband at home to complete an assignment. Local businesses could be encouraged to offer “school spots,” Wi-Fi connections that would tunnel directly back to school networks. Service providers could work collaboratively with schools, communities, and local businesses to overcome this challenge.