

Broadband USA Applications Database

Applicant Name: University of Hawaii

Project Title: Hawaii Broadband Initiative: Education and Library Infrastructure

Project Type: Middle Mile

Executive Summary

The 2008 Hawaii Broadband Task Force Report recommended that "Government lead by example in demonstrating the value of broadband to our citizenry, deploying broadband services to the public, and ensuring that we do not leave behind the economically disadvantaged members of our communities who may be inhibited from full participation in the 21st century. The Hawaii Broadband Initiative: Education and Library Infrastructure proposal is the major statewide initiative to connect anchor institutions as called for in the ARRA. It is submitted by the University on behalf of Hawaii's single statewide Public K12 school district, Hawaii's single statewide public library system, and Hawaii's single statewide public higher education system, which includes community colleges. As shown in the letters of support, this proposal also has the full support of the Governor as well as these institutions. Broadband networks and access to the Internet have become an essential component of today's public library and educational services. At a time when millions of people have been laid off and have had to make do with less, many have had to give up the "luxury" of their Internet service access subscriptions. Because many employers are publishing job openings and accepting applications only via the Internet, the newly-unemployed, the newly disenfranchised, and others who traditionally have had no private access to the Internet are increasingly looking to public computer centers in libraries and schools for this access. Hawaii's public educational institutions, including the public libraries, are where the education of the next generation of innovators, workers, consumers and leaders are developed. By investing in the educational infrastructure today, student's experience with high bandwidth connectivity will drive the future adoption of broadband and develop the knowledge and skill set needed to thrive in tomorrow's ever connected global community. This project will provide fiber optic connectivity with a minimum 1Gbps connection in every public library on all islands for the State of Hawaii and a minimum of 10Gbps connection in every public community college, university, learning center and state innovation center. Distance learning systems at the University would be upgraded to standardized high definition technology to enhance the educational opportunities for all in our geographically challenged State and wireless connectivity will be incubated in public libraries and public schools. Through this proposal, the State of Hawaii will position itself to provide the greatest opportunity for its citizens, its children, its consumers and its future leaders to understand and benefit from the positive impacts of universal high-speed broadband services. A related companion project, the Hawaii Broadband Initiative: Public Computing Centers, seeks to supply new public access computers at the public libraries and will rely on this project to provide the necessary bandwidth to the end locations. With its statewide scope and broad reach into every public school and public library and public higher education, this proposal will address the entire State of Hawaii including all islands, all communities and all citizens. With direct

impact on hundreds of thousands of students and library clients, the impact will be immense. Those few citizens who may not directly benefit will be touched through the improvement in services available to their children and grandchildren. The network architecture is flexible enough to provide future support and inter-connectivity with other anchor institutions including health care. The project Principal Investigator has been working closely with the State Health IT Leadership (public and private) to ensure that as the State develops its Health IT Plan the broadband infrastructure requirements can be met. Key services in schools will be informational access and online learning. The State Department of Public Education has identified improved network connectivity as a key requirement for implementing their statewide plans for improved education performance, as greater use of online learning will be a key enabler for equitable access to education throughout the State. Within public education, the new connectivity will also support enhanced professional development for teachers so they can support the educational improvements goals of the nation and the State. Improved broadband connectivity is essential for Hawaii's public libraries, many of which suffer under 384Kbps connections today. Public access will be enhanced with current facilities and especially through the State's companion Public Computing Centers proposal. The new connectivity will also enable new information services through the library system's own centralized information system and services. For higher education, the enhanced connectivity will support student and faculty access to information resources and collaboration capabilities within the University and beyond. Hawaii has an aggressive program of STEM education in order to advance our economy and prepare for the 21st century. Many of the project-based learning activities require substantial broadband access for students and faculty. The signature broadband application will be the implementation of a new standardized high-definition distance learning system throughout the State. The University has long been a national leader in distance learning as a means of providing equitable access to high quality education in all communities on all islands. The upgrade in connectivity and new broadband equipment to support standardized high-definition interactions will not only provide many citizens with access to education, but will showcase a major broadband application in all communities and help stimulate greater understanding of and demand for advanced broadband services in homes and businesses throughout the State. All anchor institutions connected through this project will provide access to the public Internet. The network will be designed to provide fiber connectivity to all locations. WDM technology will be deployed in a manner that provides ample flexibility and future upgradeability along with extensibility to additional locations including future anchor institutions such as health care facilities that participate in the State's Health IT program now being planned. Network interfaces will be Ethernet to maximize flexibility and minimize costs. The University of Hawaii, under the leadership of the Principal Investigator for this project, has been the lead institution within the State of Hawaii in developing statewide networks for two decades. The University led the State's transition to IP-based networks in the 1990s and led the transition from SONET to WDM when it became apparent that SONET alone would not be expandable and flexible enough to meet future needs. Since the inception of the Internet, the University has been engaged statewide, nationally and internationally in both implementation/operations as well as innovation. The total cost for Hawaii's statewide anchor institution proposal to connect every public school in Hawaii, every public library in Hawaii and every higher education facility in Hawaii, including providing gigabit access or more with incubation of wireless at schools and libraries and implementing a signature application of standardized high-definition distance learning over broadband is \$43,870,250. Job

creation will primarily be through the construction of the infrastructure. In addition, the substantial purchase of equipment from U.S. providers will stimulate their workforces. And most importantly, this project will touch the lives of everyone in Hawaii and help prepare the entire state for the jobs of the future, which will be based on pervasive broadband infrastructure and services.