Applicant Name: UNIVERSITY OF HAWAII SYSTEMS

Project Title: Ke Ala -Ike: Connecting Hawaii's Community Colleges, Universities, Schools and Libraries

Project Type: Comprehensive Community Infrastructure

_______________________ Executive Summary _______________________

Submitted by the community anchors themselves, and with the support of the Governor, this project will ensure gigabit or higher direct fiber optic connectivity at 388 community anchor locations throughout Hawaii including every community college and remote education center, every public school, every public library and every public university in the State. This project will literally serve every community on every island. It will provide 10Gbps connections to all 7 accredited community colleges in Hawaii as well as to their remote education centers on 6 islands along with Hawaii's 3 public universities and key related anchor locations. All of Hawaii's community colleges and public universities are Hawaiian-serving Institutions as defined in federal statute. The project will also provide 1Gbps connectivity to all 302 public schools and public education sites in Hawaii, including the public charter schools, as well as to all 51 of Hawaii's public libraries. While focusing on community anchor institutions, the infrastructure proposed will also enhance the availability of fiber middle mile capacity for some of our most underconnected towns: Hana on Maui and Lanai City on the island of Lanai, both of which are connected by microwave only. 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." Our public partners, the University of Hawaii and its Community Colleges, the Hawaii State Public Library System and the Hawaii Department of Education are all fully committed to this objective. The University of Hawaii (UH) System comprises all of public higher education in the State of Hawaii, from open door community colleges to an R1 research university. As applicant for the partnership, UH has the most experience of any entity in the State in administering federal contracts and grants. In addition, the University will continue to lead the planning, deployment, and support for the technical efforts of all partners. For the community colleges and universities, the upgraded network will be used to support almost every element of education, research and public service. The University of Hawaii System 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. Each community college and remote education center serves as a local gateway into the wider array of program offerings available from other campuses on other islands. This is supported by a single student information system, a single library management system, and all the consolidated support services and policies to enable rich transfer and articulation capabilities, all of which also require high-speed access. A signature new broadband application will be the implementation of a new interactive high-definition distance learning capability at every community college and their remote education centers throughout the State. Upgrading the
current unsupported proprietary legacy equipment to standardized high-definition interactivity across the State will not only provide many citizens with access to education to enhance their ability to compete for jobs, 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. Video, and in particular high definition video, has been identified as a 'killer app' and primary driver for broadband growth and demand. This signature interactive application, which will reach remote locations on all six islands, will not only provide critical direct educational services but also educate the public, providers and policy-makers about the importance of planning not only for high-bandwidth but for bi-directional services. The Hawaii State Public Library System (HSPLS) is the centrally-administered statewide system that operates all public libraries in Hawaii, currently 51 spread across the 6 major islands of the State. HSPLS provides overall support for their network planning, deployment, integration, monitoring, educational and training services, staff, outreach and facilities. A central library information system and shared public Internet access provides the libraries with highly leveraged efficiencies and economies of scale. Their connectivity is needed to meet both internal requirements as well as to provide public Internet access. For the many public libraries relying on sub-megabit frame relay connections, the upgrade to gigabit connectivity will be truly transformational. The public libraries will also have access to Internet2 through the University System. The Hawaii State Department of Education, is a unique single statewide school district with responsibility for all public schools consolidated under a single Superintendent and Board of Education. For the public school system, there are a number of key applications driving the need for more bandwidth. The Department is dramatically increasing the use of online learning, particularly to reach at-risk students and those in smaller schools without a full range of course offerings. Distance learning via interactive video is used both for students as well as for professional development for teachers, particularly to address increasing accountability requirements at the state and federal level. And a new application, that is challenging some of the schools' current cable modem connections, is moving high-stakes student testing from paper to online to reduce costs and improve performance through greater flexibility (e.g. retakes within the rules). And like the community colleges, universities and public libraries, the public schools also rely on centralized administrative and support systems to contain operational costs. All of these systems rely on high-speed connectivity among the public school system. The public schools will also have access to Internet2 through the University System. The individual fiber pairs deployed on each island will be under the direct control of the community anchor institutions for their internal connectivity. Each of the three partners acquires public Internet (ISP) services on the competitive marketplace and provides non-discriminatory access Layer 3 (Internet) access to all sites on their networks, subject only to legal requirements associated with content filtering, e.g. as a provision of accepting E-Rate support. The proposed technology approach is driven by a unique opportunity to obtain dark fiber among all these community anchor institutions. Hawaii currently has one Cable TV provider, which under Hawaii law is issued its franchise by the State Dept of Commerce and Consumer Affairs (DCCA). DCCA requires that the cable provider provision dedicated dark fiber for an institutional network for the State. This is a remarkable capability that enables extremely cost-effective access for the State’s community anchor institutions. By equipping this fiber with WDM technology, we can scalably extend broadband access to every public library, public school, community college and public higher education site on every island. Each enterprise will operate its own IP-layer network over this
optical infrastructure, with interconnectivity between organizations to meet common purposes and share services where appropriate. The community colleges and university and DOE have successfully worked together, with the State Executive branch, to design, provision and support a current WDM network using the same approaches and technologies proposed. This project will enable a dramatic statewide expansion to many more locations and with higher speeds. All of the technologies and public-private partnerships are in place and well-proven, which will ensure project success. The total cost of the project is $42,466,000, including the required 20% matching funds. This is an extraordinary value to provide gigabit or higher connectivity to every community college and their remote education centers, every public school and every public library in an entire state, particularly one with the challenges of Hawaii's island geography. The constituency directly served is over 300,000 students, faculty, teachers and staff - roughly 25% of the state's population. Using the federal government's methodology, it is estimated that 430 job-years would be created by this project including 275 indirect and 155 induced. In addition, the project partners are the key institutions in the State responsible for elevating educational achievement and creating new jobs and workers for a new economy.