

Broadband USA Applications Database

Applicant Name: Regents of the University of California

Project Title: California Telehealth Network Expansion and Enhancement Initiative - NTIA/BTOP Infrastructure

Project Type: Middle Mile

Executive Summary

Opportunity Addressed: The California Telehealth Network (CTN) was established in 2007 with a grant from the Federal Communications Commission's Rural Health Care Pilot Program (RHCPP) for \$22.1 million and matching funds of \$3.6 million. This application applies for federal funds to expand the CTN to add 1,137 additional sites to the system to bring broadband services to 2,000 community anchor institutions. Broadband technology provides the opportunity to redistribute health care resources to underserved regions and to use technology to establish new models of care delivery. In the health care arena, newer applications that improve quality of care require greater bandwidth with explicit quality of service, privacy and security. For many California anchor institutions in rural and low-income urban communities access to this level of service does not exist at affordable rates. For health providers to effectively participate in technology enabled health care, a reliable, cost-effective and well-supported broadband infrastructure must be in place. The CTN seeks to dramatically expand the availability and adoption of broadband among health care community anchor institutions, a critically important segment of California's economy. Through this effort, CTN will stimulate job growth both through direct hiring and creation of new allied health positions in the areas of telehealth and health information exchange. Through funding requested from the BTOP Sustainable Adoption (BTOP SA) program, the CTN will provide network-based, value-added health care, educational and referral services that will enhance quality and availability of health care for low-income, rural, and disadvantaged populations. The goals of the proposed expanded CTN project are fully consistent with the strategic goals of the NTIA ARRA program, under category (4) of the Guidelines: "undertaking such other projects and activities as the Assistant Secretary finds to be consistent with the purposes for which the program is established." This proposal leverages existing CTN funding and the momentum that already exists to expand the core network. This project uses a financing model designed to meet the objectives of the BTOP /NTIA infrastructure NOFA. Whereas the FCC program uses monthly subsidies to offset recurring costs to allow for the amortization of upfront infrastructure costs to build out in hard to reach areas, this project proposes to capitalize the initial infrastructure expenses for the selected vendor through BTOP funding. This will significantly reduce the financial barriers for the telecomm service provider to expand service to these previously underserved markets. Service Area: The aggregate Service Area for the CTN is comprised of a collection of non-contiguous, non-funded Service Areas and a single, contiguous Funded Service Area that collectively encompass the entire State of California. The proposed CTN Funded Service Area is composed of over 1,100 contiguous census tracts that fully or largely encompass 35 of the 58 counties distributed statewide. The Funded Service Area encompasses most of the counties in

the eastern regions of the state and includes all rural counties that are characterized as being largely unserved or underserved by broadband services. Every census block and census block group defined within each included census tract is also included in the proposed CTN Funded Service Area. While largely rural in nature, the service does not meet the 75% threshold required for funding under the BIP program.

Number of Households and Business Passed: An effort has been made to obtain quantitative data to identify the number of households and businesses passed. For a statewide service area of this size obtaining accurate and realistic counts was challenging. The total estimated number of households included in the CTN Service Area is 2.1 million, based upon Year 2000 Census Data extrapolated to Year 2008 estimates by the California Public Utilities Commission.

Number of Community Anchor Institutions, Public Safety Entities, and Critical Community Organizations Passed or Involved: We anticipate that a total of 2,000 CTN sites will be fully or partially funded through the BTOP grants. Based upon membership rosters maintained by various state government and industry trade groups, we estimate that a total of approximately 9,000 health care-related anchor institutions will be passed.

Proposed Services and Applications: The CTN will be a true peer-to-peer network within which each site will have access to all available services and applications. Each customer will receive a broadband connection to the CTN Virtual Private Network (VPN) that will provide direct, medical-grade connectivity to all other CTN sites, plus connection to a wide host of external networks and services. The architecture and service offerings are designed such that every potential customer, regardless of location, can obtain service. The CTN VPN will enable the delivery of a wide variety of eHealth applications, including electronic health records, telemedicine, distance learning and health information exchange.. The CTN vision is to provide managed, sustainable, medical grade broadband access to community anchor institutions throughout California, specifically to hospitals, clinics, skilled nursing facilities, pharmacies, tribal facilities, and senior centers in an effort to optimize the health of the communities they serve. These institutions, connected together through a high speed network to academic centers, data centers, application service providers and insurers, form the basis for a technology enabled health care system. This project will establish and preserve jobs and have a positive economic impact on communities and business throughout the state. The network will be sustainable in the long term through the addition of value-added services and cost reduction, making it an attractive delivery option for application service providers and others seeking to use broadband to reach California's health institutions in an effective way.

Approach to Addressing the Non-discrimination and Interconnection Obligations: Through the establishment of three foundation principles of equitable operation and diverse access, the CTN will promote the standards of non-discrimination and interconnectedness, as specified in the NOFA. First, network design will incorporate an "open" network architecture that intrinsically supports unrestricted peer-to-peer communications. Second, through establishment of both logical and physical peering points with external networks, such as National Lambda Rail and CENIC, access to external networks will be uniformly provided to all CTN sites. Third, CTN will establish administrative and fiscal management practices that promote diverse, cost-effective participation. Further, CTN will adhere to all relevant interconnection obligations as specified in the BTOP NOFA and, as applicable to our intended service offerings.

Type of Broadband System that Will be Deployed: The CTN architecture is comprised of an IP-based, MPLS-routed VPN incorporating a very high speed, high capacity fiber core network that connects to multiple ILEC/CLEC/ provider-based landline local loop services. Access to external networks is provided through peering points with various regional, statewide and national network service

providers. In aggregate the CTN constitutes a Medical Grade network providing 1) End-to-end Quality of Service and 2) any-to-any VPN Security. Most sites will be more than adequately served by the standard 1.5 mbps service. Multiple hospitals and high volume clinics will receive 6 – 20 mbps service, while extremely rural sites that are inadequately served by ILEC/CLEC landline service will be provided with 1 mbps satellite service. Thus, regardless of physical location, CTN participants will be provided with service. All customers, regardless of connection speed, will receive identical network services and will be an equal participant in a true peer-to-peer, any-to-any network. Applicant Qualifications: The University of California (UC) is the Lead Agency for the CTN and will be legally and financially responsible for the implementation of the activities proposed in this application. The UC System operates the largest health sciences instructional program in the nation, is statutorily designated as California's research university, and has a long history of accountability and responsibility for management of both system-wide and statewide initiatives. California was awarded the largest single-state award by the FCC (at \$22.1 million). Overall Infrastructure Cost of the Broadband System: The five year cost of the fully implemented CTN system is \$75.4 million, consisting of \$37 million in grant and matching funds requested under BTOP infrastructure, \$18.4 million in grant and matching funds requested under BTOP SA, and \$25.7 million received from the FCC and matching funds. A total of \$29.6 million is requested in grant funding from BTOP Infrastructure. Overall Expected Subscriber Projections: In aggregate there are at least 9,000 health care-related anchor institutions that are passed by the CTN within the proposed Funded Service Area. Using site selection criteria already established by the CTN, 2,000 anchor institutions will be connected within three years. Number of Jobs Estimated to be Created or Saved: The operation of CTN will create jobs for 200 eHealth coordinators at anchor institutions and 26 positions for CTN operations, technical and training/education staff. Further, the broadband services vendor selected for constructing the network will establish jobs to fulfill the scope of work. Given there are thousands of sites to link in a short period of time, this will be a significant project for the vendor.