ANNUAL PERFORMANCE PROGRESS REPORT FOR SUSTAINABLE BROADBAND ADOPTION

General Information

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Award Identification Number	3. DUNS Number
Department of Commerce, National Telecommunications and Information Administration	06-43-B10584	047120084

4. Recipient Organization

University of California, Davis 1850 Research Park Drive, STE 300, Davis, CA 95618

5. Current Reporting Period End Date (MM/DD/YYYY)	6. Is this the last Annual Report of the Award Period?
12-31-2011	◯ Yes ◉ No

7. Certification: I certify to the best of my knowledge and belief that this report is correct and complete for performance of activities for the purposes set forth in the award documents.

7a. Typed or Printed Name and Title of Certifying Official	7c. Telephone (area code, number and extension)
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7b. Signature of Certifying Official: Submitted Electronically	7e. Date Report Submitted (MM/DD/YYYY): 02-23-2012

PROJECT INDICATORS

1. Does your Sustainable Broadband Adoption (SBA) project foster a particular broadband technology or technologies? If so, please describe this technology (or technologies) (600 words or less).

For healthcare providers to effectively participate in a technology-enabled healthcare system, a reliable and cost effective broadband infrastructure must be developed and sustained. Rural and low-income urban communities frequently do not have the resources or technical expertise to monitor broadband implementation, negotiate ongoing services, and ensure network security and privacy. Successful broadband adoption also requires implementation of broadband-dependent applications that add value to healthcare organizations, businesses and consumers. This requires that clinicians and consumers are broadband application literate.

California is coordinating multiple, funded initiatives that will create a reliance on broadband applications, particularly in rural/low income regions, including electronic health records, telehealth, distance education, e-prescribing, home monitoring, and health information exchange that collectively establish a sustainable business model for providers, insurers, and consumers.

Access to Broadband Network: The core of the project is to leverage a medical-grade network that aggregates demand for broadband and incorporates security and Quality-of-Service features, key to health care and disaster response applications. This technology platform is required for expansive adoption of eHealth applications. The CTN broadband architecture is comprised on an IP-based, MPLS-routed Virtual Private Network with explicit quality of service, privacy and security. It incorporates a 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. The CTN provides state-of-the-art, peer to peer, MPLS, broadband services to healthcare sites (predominately rural and many serving low income consumers), county health offices and academic health centers throughout California and is operated by a vendor, selected through a competitive bid process.

Model eHealth Communities: The eHealth Broadband Adoption Project will establish Model eHealth Communities (MCs) to demonstrate successful transitions to technology-enabled health delivery. The overarching vision for the MCs is to demonstrate a community-based transition model to technology-enabled health delivery. The 15 MC awardees span 26 counties in rural, urban and suburban regions, as well as areas in Northern, Central and Southern California and represents a spectrum of local organizations including rural and urban clinics and hospitals, libraries, county public health departments, mental health departments, public libraries, community colleges, universities, senior and low-inclme housing, and Indian Health programs.

Comprehensive eHealth Adoption Training: The comprehensive training partnership is an innovative collaboration between academia, community-based educators, instructional design experts and tribal representatives. Curriculum will be developed for 60 hours of eHealth related online course content. The courses address telehealth, clinical and consumer informatics, electronic health records and health information exchange, broadband adoption, change management and orientation to the California Telehealth Network.

2a. Please list all of the broadband equipment and/or supplies you have purchased during the most recent calendar year using BTOP grant funds or other (matching) funds, including any customer premises equipment or end-user devices. If additional space is needed, please attach a list of equipment and/or supplies. Please also describe how the equipment and supplies have been deployed (100 words or less).

Manufacturer	Item	Unit Cost per Item	Number of Units	Narrative description of how the equipment and supplies were deployed
Apple	iPad	760	6	Each iPad was sent directly to the Model eHealth Community site. The iPads will be used to enable physicians in Critical Access Hospitals to connect to Regional Health Information Exchange.
Mirth	Health Information Exchange Integration Appliance	3,270	1	The equipment was sent directly to the Model eHealth Community site (hospital). The integration appliance will be used to enable physicians in the critical access hospital to connect to Regional Health Information Exchange.
Hawkings	Wireless Antenna	100	1	The antenna was sent directly to the Model eHealth Community clinic site and will be used to enable wireless access.
Logitech	Webcam	70	1	The webcam was sent directly to the Model eHealth Community clinic site and will be used for video-conferencing.
Canon	Dermatology Camera	345	6	The derm-camera was sent directly to the Model eHealth Community clinic sites (6) to be used for teledermatology.
Hewlett-Packard	Printer	272	1	The printer was sent directly to the Senior Housing partner site for one of the Model eHealth Communities. It will be used to print consumer health information downloaded from internet searches.
Infocus	Projector	1,080	1	The projector was sent directly to the rural hospital partner site for one of the Model eHealth Communities. The projector will be used for consumer health information sessions.
Hewlett-Packard	Laptop Computer	1,833	3	Laptop computers were purchased for CTN staff conducting work in the field.

Manufacturer	Item	Unit Cost per Item	Number of Units	Narrative description of how the equipment and supplies were deployed
Totals		7,730	20	

Add Equipment | Remove Equipment

2b. To the extent you distribute equipment/supplies to beneficiaries of your project, please describe the equipment/supplies you distribute, the quantities distributed, and the specific populations to whom the equipment/supplies are distributed **(600 words or less).**

The iPads were distributed to 1 Critical Access Hospital (4) and the Regional Health Information Exchange (2). The HIE Integration Appliance was distributed to the Critical Access Hospital. Physicians will be using the iPads at the Critical Access Hospital to connect with the Regional Health Information Exchange. Systems Engineers will use the iPads at the Regional Health Information Exchange. Wireless Antenna (1) was sent directly to a community clinic. This will be used to enable wireless connectivity at the clinic which serves low-income seniors, the majority of which are Korean. Cameras (6) were sent directly to community clinics in urban Los Angeles. These will be used by Primary Care Physicians and other medical staff to take photos of patients' skin disorders, for Store-and-Forward Teledermatology. The community clinic serves an ethnically and racially diverse population of under and/or uninsured patients. Printer (1) was sent directly to Senior Housing facility staff. Printer will be used by low-income, senior residents (majority of which are Korean) to print results of Home Health Monitoring readings and consumer health information. Projector (1) was sent directly to hospital that provides critical care for a rural population. Projector will be used for consumer health information sessions.

3. For SBA access and training provided with BTOP grant funds, please provide the information below. Unless otherwise indicated in the instructions, figures should be reported cumulatively from award inception to the end of the most recent calendar year. For each type of training (other than open access), please count only the participants who completed the course.

Types of Access or Training	Number of People Targeted	Number of People Participating	Total Training Hours Offered
Open Lab Access	500	118	0
Multimedia	0	0	0
Office Skills	0	0	0
ESL	0	0	0
GED	0	0	0
College Preparatory Training	0	0	0
Basic Internet and Computer Use	0	0	0
Certified Training Programs	0	0	0
Other (please specify): In Person Telemedicine Education Program	258	234	1,872
Total	758	352	1,872

4. Please describe key economic and social successes of your project during the past year, and why you believe the project is successful thus far (600 words or less).

Receiving the BTOP funding was an economic success. The grant funding provided the resources required to optimize the vision of the California Telehealth Network (CTN). Stabilizing the CTN in this manner addressed a significant economic barrier to success faced by the CTN. Since the awarding of the grant a successful collaboration has been built between academia, community-based organizations and educators, instructional design experts and tribal representatives. The project fosters the continuing collaboration of a number of organizations in California committed to advancing health through broadband enabled healthcare. The collective strengths of the project partners will ensure a robust, accessible training program and a transformation to a technology-enabled delivery system.

UC Davis has historical experience leading large initiatives. This award broadened the awareness of the Universities efforts and provides an incentive for unusual partnerships and the ability to leverage momentum within the state for policy advancement and state, federal and foundation investment.

Access to Broadband Network: The award has brought increased momentum and involvement for California Telehealth Network Board. It has had an influential impact; confirming for some organizations that this was "the real thing"; resulting in new and increased interest by board members and other community members. CTN board is a diverse group; (e.g. health care associations, CMA, PUC, Foundations, etc.) California is the only state to successfully leverage FCC dollars and is viewed as successful by Universal Services Administrative Company (USAC).

As of year end 2011, CTN had successfully enrolled 168 sites for participation in the program which the FCC Rural Health Care Pilot Program confirmed makes the CTN the largest participant in the program based on site enrollment. In addition, CTN successfully activated broadband connectivity to over 100 health care sites around the state of California during 2011 including 30 Corporation for Education Network Initiatives in California (CENIC)/University of California sites. Additional health care sites are being enrolled and activated every month. CTN began monthly discussion groups via webinars to encourage participating CTN members to share best practices and to give the sites the opportunity to drive future development of CTN services and applications that leverage CTN's broadband infrastructure based on participating member site needs .

eHealth Broadband Adoption Training: Extensive training has been made available at no charge to learners. The online training delivery allows remote access.

Model eHealth Communities: The Model eHealth Community (MC) component of the grant provided an opportunity to raise awareness of technology-enabled healthcare. Webinars outlining the MC request for proposal (RFP) process were well attended by diverse groups throughout the state. The RFP process resulted in fifteen Model eHealth Community awards. Plans are under way to adopt such diverse eHealth applications as remote specialty and critical care consultations, telemedicine health management, consumer-health education, continuing education, and health-care workforce development. Early work and the awareness campaign has inspired communities to escalate their thinking about technology based healthcare. For example, a Native American healthcare organization has engaged in specific conversations to prepare to take their eHealth applications to the next level.

5. Please estimate the level of broadband adoption in the community(ies) and/or area(s) your project serves, explain your methodology for estimating the level of broadband adoption, and explain changes in the broadband adoption level, if any, since the project began.

5a. Adoption Level (%):	Narrative description of level, methodology, and change from the level at project inception (600 words or less).
0	Measuring the level of adoption is not applicable for this project. The project is health focused and the metrics for broadband adoption relating to the CTN differ from those noted above.

6. Please describe the two most common barriers to broadband adoption that you have experienced this year in connection with your project. What steps did you take to address them (600 words or less)?

Access to Broadband Network: As stated in the original proposal, funding from the Federal Communications Commission (FCC) was estimated to allow enrollment of 863 Community Anchor healthcare sites to the California Telehealth Network (CTN) for medical grade, secure access. Of these, 575 will be medical and healthcare providers, 262 will be public safety entities, and 26 will be institutions of higher education. In addition to these healthcare sites, 55 community colleges and 480 libraries will be involved with the eHealth Training component.

The most common barriers to broadband adoption continue to be site education of the benefits of a medical grade broadband network and providing the required technical support to enable the sites to install and effectively utilize the services. During 2011, CTN retained site outreach contractors to provide site education and drive awareness of the CTN broadband network. This tactic helped improve CTN adoption. Also during 2011, CTN began providing on site technical support to assist sites with on premise wiring and technical site assessment and preparation issues.

Finalizing equipment lists with a number of the Model eHealth Community sites required significant technical assistance in some instances. Collaboration was needed to determine the most appropriate technology for their customized approach to healthcare delivery. Several organizations changed their initial equipment requests, which required revising purchase orders that had already been approved. Technical assistance resources were provided and the revised purchase orders expeditiously executed.

7. To the extent that you have made any subcontracts or sub grants, please provide the number of subcontracts or sub grants that have been made to socially and economically disadvantaged small business (SDB) concerns as defined by section 8(a) of the Small Business Act, 15 U.S.C. 647, as modified by NTIA's adoption of an alternative small business size standard for use in BTOP. Please also provide the names of these SDB entities. (150 words or less)

No subcontracts with SDB entities have been initiated.

8. Please describe any best practices / lessons learned that can be shared with other similar BTOP projects (900 words or less).

The project fosters the continuing collaboration of a number of organizations in California committed to advancing health through broadband enabled healthcare.

Many Health Care Providers and Non-Profits require an enormous amount of technical assistance in developing telehealth and eHealth programs and interventions. The Model eHealth Community sites need a great deal of technical assistance to select equipment appropriate to their program goals and objectives. They also benefit from operational support as they design and implement the health applications. There is often a communication gap between the program planning and administrative staff, clinical staff, and the technical staff in these types of organizations. Ideally these types of staff need to work together from the outset to design and implement these types of programs. The majority of eHealth equipment has not been distributed to the Model eHealth Communities so

it is still too early to report on the development of specific best/promising practices within the Model eHealth Communities. Over the term of the grant, we anticipate important lessons learned as many of these community-wide approaches to health delivery are unique and the experience will be valuable to many organizations.

The California Telehealth Network (CTN) will be one of the largest FCC awards. Successful implementation of a project of this scope to a diverse and large number of sites within a wide-ranging geographic area requires active leadership involvement and participatory collaboration with other organizations. The CTN leadership is working with other pilot grants and healthcare leaders throughout the state to ensure a successful implementation. Although it is still too early to report on specific best and/or promising practices, the CTN is very collaborative on a national and regional level and will continue to disseminate best practices and share successes.