



**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

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|--|---|
| Submitted Date: 3/15/2010 1:44:26 AM | Easygrants ID: 4871 |
| Funding Opportunity: Sustainable Broadband Adoption | Applicant Organization: UNIVERSITY OF CALIFORNIA, DAVIS |
| Task: Submit Application - Sustainable Broadband Adoption | Applicant Name: Dr. Thomas S. Nesbitt |

Table of Contents

- A. General Application Information**
- B. Executive Summary, Project Purpose, and Benefits**
- C. Partners**
- D. Congressional Districts**
- E. Community Anchor Summary**
- F. Demographics**
- G. Project Budget**
- H. Historical Financials**
- I. Program Benefits**
- J. Project Readiness**
- K. Environmental Questionnaire**
- L. Uploads**



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A. General Application Information

| 1. Applicant Information | |
|--|---|
| Name and Federal ID for Applicant | |
| DUNS Number | 047120084 |
| CCR # (CAGE) | 1CBG4 |
| Legal Business Name | UNIVERSITY OF CALIFORNIA, DAVIS |
| Point of Contact (POC) | KATHLEEN HASS 5307578525 Ext. kxhass@ucdavis.edu |
| Alternate POC | JAMES RINGO 5307528140 Ext. jaringo@ucdavis.edu |
| Electronic Business POC | AHMAD HAKIM-ELAHI 5307477687 Ext. vcresearch@ucdavis.edu |
| Alternate Electronic Business POC | KEITH YOUNG 5307578317 Ext. kyoung@ucdavis.edu |

| 2. Name and Contact Information of Person to be Contacted on Matters Involving this Application: | |
|--|---------|
| Prefix | Dr. |
| First Name | Thomas |
| Middle Name | S. |
| Last Name | Nesbitt |



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| | |
|-------------------------|----------------------------------|
| Suffix | |
| Telephone Number | 916-734-1358 |
| Fax Number | |
| Email | thomas.nesbitt@ucdmc.ucdavis.edu |
| Title | Associate Vice Chancellor |

3. Additional Contact Information of Person to be Contacted on Matters Involving this Application:

| Project Role | Name | Phone | Email |
|----------------------------|----------------------|------------|----------------------------------|
| Secondary Point of Contact | Ms. Jana , Katz-Bell | 9167341361 | jana.katz-bell@ucdmc.ucdavis.edu |

4. Other Required Identification Numbers

| | |
|--|---|
| Easygrants ID | 4871 |
| Funding Opportunity Number | 500001 |
| Catalog of Federal Domestic Assistance Number | BTOP CFDA Number: 11.557 BTOP CFDA Title: Broadband Technology Opportunities Program |

5. Organization Classification

| | |
|---|-----------------------|
| Type of Organization | State or State Agency |
| Is the organization a small business? | No |
| Does the organization meet the definition of a socially and economically disadvantaged small business concern? | No |



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6. Authorized Organizational Representative

| | |
|---------------|----------------------|
| AOR | HAKIM-ELAHI, AHMAD |
| Result | Applicant Authorized |

7. Project Title and Project Description

Project Title: California Telehealth Network eHealth Broadband Adoption

Project Description: This project supports sustainability of California’s FCC-funded broadband network, creates wide spread reliance on broadband applications by delivering multi-faceted training in partnership with libraries, community colleges, health organizations and public safety sites, and establishes best practice Model eHealth Communities to demonstrate the transition to technology-enabled health delivery.

8. Other Applications

Is this application being submitted in coordination with any other application being submitted during this round of funding?

- No

| Easygrants ID | Project Title |
|---------------|---------------|
| | |

If YES, please explain any synergies and/or dependencies between this project and any other applications.

9. Is the Applicant exempt from the Department of Commerce requirements regarding individual background screening in connection with any award resulting from this Application?

- Yes, Applicant is exempt because it is an accredited college or university

If the answer to the above question is "No," please identify each key individual associated with the Applicant who would be required to complete Form CD-346, "Applicant for Funding Assistance," in connection with any award resulting from this Application:



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| Name | Title | Employer |
|------|-------|----------|
| | | |

B. Executive Summary, Project Purpose and Benefits

Essay Question

10. Executive Summary of the proposed project:

Statement of the Problem: Broadband and associated broadband applications provide tools enabling new models of health care delivery and education leading to healthier communities. These new models include applications such as telemedicine which bring critically needed services such as specialty care to underserved and low-income areas. These broadband applications can save money, improve health and, in areas such as emergency medicine, save lives. The healthcare industry represents a critical business sector of most communities but it has typically been a late adopter of broadband-enabled technologies. In addition, though healthcare consumers are increasingly using healthcare content available on the internet, many struggle to apply it effectively to manage their own health. Healthcare providers urgently need assistance in effective telehealth and eHealth technology application implementation, including the workforce and workflow changes that must be made to meet those challenges. Finally, public safety entities, including county health offices and public safety agencies, need to effectively utilize broadband applications to support disaster preparedness efforts, opportunities that are currently underutilized.

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 technology-literate.

California is coordinating multiple, funded initiatives that will create a reliance on broadband, particularly in rural/low income regions. These applications include electronic health records,



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telehealth, distance education, e-prescribing, home monitoring, and health information exchange that collectively establish a sustainable business model for providers, insurers, and consumers. Comprehensive training programs are necessary to maximize the potential of these priority initiatives.

Overall Approach: More than \$26M of funds from the FCCs Rural Health Care Pilot Program and FCC match partners has established the California Telehealth Network (CTN). Led by a statewide consortium, the CTN is a high-priority, visible initiative that will bring broadband to underserved regions in the state and serve as a critical resource for disaster preparedness and response to the State. A vendor for the CTN has been selected and construction will begin in April 2010. The CTN will provide state-of-the-art, peer to peer, MPLS, broadband services to healthcare sites (predominately rural and low income consumers), county health offices and academic health centers throughout California. The proposed SBA project complements this substantial infrastructure investment with funding to support the initial implementation of the CTN management services, technical training for member sites, and transition to the long term sustainability model filed with the FCC.

The proposal includes an extensive training program to raise broadband application literacy of healthcare providers, community college instructors, public safety/county health officers and local librarians. This project will also establish Model eHealth Communities (MCs) selected to demonstrate successful transitions to technology-enabled health delivery. Healthcare and public safety anchor sites in MCs will receive eHealth equipment to accelerate the adoption of broadband-reliant applications. In these communities, community college faculty will incorporate technology adoption as a curricular thread for their healthcare workforce courses and offer consumer health courses. Libraries will serve as anchor institutions to support consumer healthcare broadband literacy. Healthcare providers will have skills to teach people to effectively utilize web-based tools to manage their health. Addressing the issue of consumer literacy is core to creating sustained adoption. According to the FCC report “Broadband Adoption use in America” dated February 2010, 35% of homes do not use broadband and 22% of the non-adopters indicate issues related to digital literacy.

Training partners in this project will include UC Davis Extension Program, UC Davis Agriculture and Natural Resources, UC Davis Health Informatics and California Health Information Partnership and Services Organization (CalHIPSO – the HITECH Regional Extension Center), community colleges, and local libraries. The California Rural Indian Health



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Board will collaborate to prepare culturally inclusive materials to specifically-met the needs of tribal communities.

Innovation and Sustainability: The proposed approach addresses the historic barriers to sustained broadband adoption with an innovative, cost-effective broadband architecture, the provision of eHealth equipment, and a collaborative training partnership.

First, the CTN broadband network represents an aggregation of demand for broadband with features required in eHealth applications. This strategy offers a purchasing advantage, thus decreasing the individual site’s eventual sustaining monthly cost. The CTN operations team will assist its members in identifying and applying for on-going state and federal broadband subsidy programs which further reduces the cost of sustained adoption. The technical architecture of the CTN – including medical-grade security features and affordable WiFi to resolve last-mile access coverage – provides an innovative platform for industry and providers that will advance broadband adoption.

The second element proposed is the strategic placement of broadband-dependent equipment in MC health care and public safety/county health facilities to establish telehealth, distance learning, and eHealth. In addition to the telehealth/eHealth equipment provided through the proposed SBA program, technology partners such as the National Coalition for Health Integration (NCHI) will advance health information and image exchange within these communities. Future communities will have the opportunity to replicate these models of care and education further increasing broadband adoption.

Finally, the collaborative training partnership leverages the experience of a consortium of recognized eHealth and broadband adoption educators. The comprehensive curriculum includes on-line, on-site, and community-based modalities. It will be available to healthcare providers, public safety officers, librarians, community college faculty and consumers (community college students, patients, library patrons).

Areas to be Served: The service area for the CTN includes 57 of the 58 counties of California -- 56% of the CTN sites are in “broadband adoption underserved” regions based on the work of the California Broadband Mapping Task Force. On-line training materials will be available for all 863 healthcare, public safety, as categorized by USAC, and academic sites within the CTN, all community college instructors all librarians in the state, and the nearly 7000 providers working



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with CalHIPSO to implement EHRs (to encourage adoption of broadband technologies in addition to EHR “meaningful use”). Additional consumer-based education and equipment will be provided within 15 MCs that will be distributed throughout the state based on criteria consistent with the BTOP and FCC program goals.

Applicant Qualifications: The University of California (UC) system is the Lead Agency for the CTN and for this proposal. UC has a record of success in the development and management of telemedicine and eHealth programs and the management of large grant programs. The training partners are recognized leaders in their fields. The community college system, under the California Master Plan for Higher Education, provides essential workforce development programs and will serve to meet the local need for a technology-literate healthcare workforce. Libraries, recognized as community resources, will complete the training program by supporting the efforts to reach consumers.

Jobs will be created within the 863 CTN sites, through the training program and in the CTN operations team. It is estimated that 63 direct and indirect jobs will be saved or created and 36 jobs will be induced. The overall cost for the CTN Sustainable Broadband Adoption is \$14M. An additional \$26M is leveraged to support broadband infrastructure via the FCC Rural HealthCare Pilot and funding partners: the University of California, the California Emerging Technology Fund, the California Teleconnect Fund, the National Coalition for Health Information, the California HealthCare Foundation, and United Healthcare.

11. Project purpose:

Significance of the Problem: Broadband and associated applications provide tools enabling new models of health care delivery and education leading to healthier communities. The healthcare industry represents a critical business sector of most communities but it has typically been a late adopter of broadband-enabled technologies. Also, although healthcare consumers are increasingly using healthcare content available on the internet, many struggle to apply it effectively and appropriately to manage their own health. Healthcare providers urgently need assistance in effective telehealth and eHealth technology application implementation, including the workforce and workflow changes that must be made to meet those challenges. Finally, providers who partner with county health offices and public safety entities to prepare for disaster response, such as pandemic events, need to effectively utilize broadband applications to support these efforts.



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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. Comprehensive training programs are necessary to maximize the potential of these priority initiatives.

Solution to the problem: Led by a statewide consortium, the CTN is a high-priority, visible initiative that will bring broadband to underserved regions in the state. The vendor selected for the CTN will begin construction in April 2010. The CTN will provide 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. The proposed SBA project complements this substantial infrastructure investment with funding to support the initial implementation of the CTN management services, technical training for member sites, and transition to the long term sustainability model filed with the FCC.

The response to the problem includes an extensive, multifaceted training program to raise broadband application literacy of healthcare providers, community college instructors, public safety/county health officers and local librarians. This project will also establish Model eHealth Communities (MCs) selected to demonstrate successful transitions to technology-enabled health delivery. Healthcare and public safety anchor sites in MCs will receive eHealth equipment to accelerate the adoption of broadband-reliant applications. In these communities, community college faculty will incorporate technology adoption as a curricular thread for their healthcare workforce courses and offer consumer health courses. Libraries will serve as anchor institutions to support consumer healthcare broadband literacy. Healthcare providers will have skills to teach patients to effectively utilize web-based tools to manage their health. Addressing the issue of consumer literacy is core to creating sustained adoption. An FCC report “Broadband



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Adoption use in America” dated February 2010 states that 35% of homes do not use broadband and 22% of the non-adopters indicate issues related to digital literacy. The criteria for selection of Model eHealth Communities is described in the Technical Strategy section.

Fit with the BTOP Statutory Purposes: This project has five components that all advance the BTOP Statutory Purposes: 1) and 2) The CTN will provide broadband into many unserved and underserved communities in California. The service area for the CTN includes 57 of the 58 counties of California -- 56% of the CTN sites are in “broadband adoption underserved” regions based on the work of the California Broadband Mapping Task Force. 3) A core deliverable of this grant is to provide education and training to a number of constituents to create new and sustained users of broadband-reliant technologies. Equipment will be provided to MCs sites to support broadband applications combined with greatly expanded access through the CTN infrastructure. Partnerships with the libraries and community colleges facilitate the outreach to communities, and a partnership with the California Rural Indian Health Board will prepare targeted outreach to tribal communities. 4) The CTN infrastructure includes 262 public safety entities, as categorized by USAC, that will have access to training and broadband to support disaster preparedness initiatives. 5) The entire proposal is designed to increase demand for broadband-reliant technology, which will stimulate economic growth, create health delivery efficiencies, a more broadband-literate workforce. Jobs will be created and saved as healthcare organizations transition technology-enabled health delivery.

Project Reinforces Other Program Categories: The program is based on enhancing healthcare delivery and education (through the partnership with the community colleges to enrich curriculum with a health technology emphasis). Children are also specifically supported by this proposal since telehealth is a demonstrated solution to provide outpatient and inpatient care for children.

12. Recovery Act and Other Governmental Collaboration:

Many agencies and organizations in California are drafting proposals or have received funding under the American Recovery and Reinvestment Act (ARRA). Representatives from many of these entities serve on the Advisory Council for the CTN, and have been working together closely to coordinate efforts. While funding is being sought from a range of ARRA sources, the major efforts with which the proposed project will coordinate include:

Agency: California Health and Human Services Agency



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Funding Program: Health Information Technology for Economic and Clinical Health (HITECH) Act (DHHS/CMS)

Funding Awarded: \$31,247,420

Area of Collaboration: Health Information Technology Regional Extension Centers to leverage outreach and training.

Agency: California Public Utilities Commission

Funding Program: Broadband mapping (NTIA)

Funding Awarded: \$2.3M

Area of Collaboration: Building on the work of the CA Broadband Task Force to create current, detailed maps of broadband availability and adoption

Agency: California Health and Human Services Agency

Funding Program: Office of the National Coordinator for Health Information Technology (DHHS/ONCHIT, DoE, DoT)

Funding Awarded: \$38,752,536

Area of Collaboration: Health Information Exchange that will leverage the broadband available through the CTN and training opportunities included in this SBA proposal

Agency: California Department of Labor

Funding Program: Workforce training programs (DoL)

Funding Awarded: \$30M

Area of Collaboration: Job training for healthcare

Agency: Corporation for Education Network Initiatives in California (CENIC)

Funding Program: NTIA/RUS -Infrastructure

Funding Requested: Estimated \$65M

Area of Collaboration: Additional broadband infrastructure in the Central Valley and the addition of new CTN sites that can leverage the SBA training

Although it does not represent an ARRA funding opportunity, the state's Business, Transportation and Housing (BTH) Agency has established Regional Economic Recovery Workplans in twelve California regions that prioritize local and regional economic development strategies. The proposed project will continue to coordinate closely with these and other agencies and organizations, and will seek to leverage funding from a variety of non-ARRA



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federal and state sources, all of which will promote greater efficiencies within this project, and expand California’s capacity for eHealth activities and broadband-enabled healthcare delivery.

13. Technology Strategy:

CTN is taking a multi-faceted approach to promoting broadband adoption through 1) Low cost access to a state-of-the-art statewide managed, medical grade broadband network; 2) Coordinating a robust, community-based modular training program focused on broadband dependent technologies; 3) Strategic placement of eHealth equipment; and 4) Establishing Model eHealth Communities (MCs) that will maximize the adoption of broadband providing an example to others striving to achieve comprehensive and sustained broadband adoption.

The CTN broadband architecture is comprised of an IP-based, MPLS-routed Virtual Private Network with explicit QOS, 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 will be operated by a vendor that was selected through a competitive bid process. Construction of the network is scheduled to begin in April 2010. All features of the network will be enforced through strict service level agreements.

Broadband infrastructure for up to 863 CTN sites is provided through the FCC program, however, critical operational positions funded by this proposal will ensure that the architecture is effective and supported. Simultaneously during the first six months the CTN staff and partners will create an on-line training program (60 hours total) using proven instructional design methodology that supports adult learning. Telehealth on-site training modules will also be developed. All curricula will be leveraged by project partners for consumer education through public libraries, community colleges and the local extension centers. A subset of end-user sites will be selected as broadband adoption MCs to support this mission. Each of the 15 MCs will receive eHealth technology that matches the community need.

The selection criteria of a MC will include engagement of the local community colleges who will incorporate technology adoption as a curricular thread for healthcare workforce courses; engagement of the local libraries, as anchor institutions to support consumer healthcare broadband literacy; areas where current broadband adoption is low (less than 40% broadband adoption penetration based on work from the California Broadband Task Force, as updated by



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the California Public Utilities Commission); and areas that include CTN health care and public safety anchor sites. Extra consideration will be given for Native American sites, and for rural communities in keeping with the FCC funding priorities. It is through this model that a technology-literate community of health care workers and consumers will be achieved.

14. Innovative Approach:

This project is innovative on multiple levels with the ultimate goal to create healthier, broadband application-reliant communities. Effectively, this project blends key issues of national prominence – broadband adoption, healthcare redesign, and job creation – all supporting economic recovery.

The core of the proposal 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 innovative technical architecture offers a purchasing advantage, thus decreasing the individual site’s eventual sustaining monthly cost. The operations team proposed for this project will assist CTN members in applying for on-going state and federal broadband subsidy programs. This will further reduce the cost of sustained adoption. The technical architecture of the CTN also includes affordable WiFi to resolve last-mile access coverage –offering an innovative platform for industry and providers that will advance broadband adoption. Finally, much of the expense of the infrastructure, particularly to unserved and low income communities, is being subsidized through FCC funding which may allow for expanded broadband availability at reduced costs to other segments of these communities.

The comprehensive training partnership is an innovative collaboration between academia, community-based educators, instructional design experts, and tribal representatives. The ARRA-funded Regional Extension Center (CalHIPSO), the community colleges and the libraries will dramatically increase success in delivering this training. The curriculum developed as part of this project will be available state-wide with enhanced community outreach to public safety entities, particularly in Model eHealth Communities (MC). The MCs will also receive eHealth equipment and targeted training, accelerating the transition to a broadband-reliant healthcare delivery system and becoming replicable examples for the nation.

Finally, the CTN has an unprecedented level of support from an advising council that includes members of the governor’s executive staff, foundation executives, and senior staff in stakeholder



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organizations. The CTN Advisory Board is highly-engaged in the success of the CTN and knowledgeable about broadband adoption issues. This team has collaborated closely with the University for almost two years regarding community engagement and sustainability. The CTN management team will also collaborate with our state’s Health Information Exchange efforts which will create the opportunity for state-of-the-art health information exchange; an innovative cloud computing model; centralized health data management; and advanced, low cost image exchange technologies increasing the quality health care delivery in the participating communities.

15. Is the applicant seeking a waiver of the Buy American provision pursuant to section x.Q of the NOFA?

- No

16. Is the applicant delinquent on any federal debt?

- No

If Yes, justification for delinquency:

- .

17. Are you seeking a waiver of any requirement set forth in the NOFA that is not mandated by statute or applicable law?

- No

C. Partners

18. Are you partnering with any other key institutions, organizations, or other entities for this project?

- Yes

If YES, key partners are listed below:

| |
|--|
| Project Role: Sub-recipient Name: Russell, Barry Email: brussell@cccco.edu Address 1: 1102 Q Street Address 2: Address 3: |
|--|



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City: Sacramento
State: California
Zip Code: 95811
Organization: California Community Colleges
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Aldrich, Stacey
Email: saldrich@library.ca.gov
Address 1: Library and Courts II Building
Address 2: 900 N Street
Address 3:
City: Sacramento
State: California
Zip Code: 95814
Organization: California State Library
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Sams, Robert
Email: rwsams@ucdavis.edu
Address 1: 1111 Franklin Street
Address 2: 6th Floor
Address 3:
City: Oakland
State: California
Zip Code: 94607-5200
Organization: UC Agriculture & Natural Resources
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Catron, Susan
Email: sdcatron@ucdavis.edu
Address 1: 1333 Research Park Drive
Address 2:
Address 3:



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City: Davis
State: California
Zip Code: 95618
Organization: UC Davis Extension
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Avram, Speranza
Email: [REDACTED]
Address 1: 555 12th Street
Address 2:
Address 3:
City: Oakland
State: California
Zip Code: 94607
Organization: California Health Information Partnership & Services Organization
Organization Type: Non-profit Corporation
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Yellowlees, Peter
Email: peter.yellowlees@ucdmc.ucdavis.edu
Address 1: 2450 48th Street
Address 2: Suite 2800
Address 3:
City: Sacramento
State: California
Zip Code: 95817
Organization: UC Davis Health Informatics
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Crouch, James
Email: james.crouch@cribb.net
Address 1: 4400 Auburn Blvd.
Address 2: 2nd Floor
Address 3:



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City: Sacramento
 State: California
 Zip Code: 95841
 Organization: California Rural Indian Health Board Inc.
 Organization Type: Indian Tribe
 Small business: No
 Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
 Name: Laws, Margaret
 Email: mlaws@chcf.org
 Address 1: 1483 Webster Street
 Address 2: Suite 400
 Address 3:
 City: Oakland
 State: California
 Zip Code: 94612
 Organization: California HealthCare Foundation
 Organization Type: Non-profit Foundation
 Small business: No
 Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
 Name: Ohren, Angela
 Email: Angela.Ohren@nchiconnect.org
 Address 1: 11755 Wilshire Blvd
 Address 2: Suite 2300
 Address 3:
 City: Los Angeles
 State: California
 Zip Code: 90025
 Organization: National Coalition for Health Integration
 Organization Type: Non-profit Corporation
 Small business: No
 Socially and economically disadvantaged small business concern: No

Project Role: Other
 Name: Monk, Nancy
 Email: Nancy.Monk@uhc.com
 Address 1: 5995 Plaza Drive
 Address 2:
 Address 3:



**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
| Submitted Date: 3/15/2010 1:44:26 AM | Easygrants ID: 4871 |
| Funding Opportunity: Sustainable Broadband Adoption | Applicant Organization: UNIVERSITY OF CALIFORNIA, DAVIS |
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City: Cypress
State: California
Zip Code: 90630
Organization: United HealthCare, West Region
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

19. Description of the involvement of the partners listed above in the project.

The collective strengths of the Project Partners will ensure a robust, accessible training program and a transformation to a technology-enabled healthcare delivery system.

Training partners include:

-- California Community Colleges (represents 111 sites). As the largest higher education system in the nation, the California Community College system is comprised of 111 colleges and enrolls more than 2.9 million students. Community college faculty will have access to the comprehensive on-line eHealth curriculum to integrate the content into health workforce courses. Health consumer courses can also be developed and delivered. Support for the faculty to update and development curriculum is included in the project plan.

-- California State Library (represents 1199 branches). A public research institution, the California State Library provides its customers with the accurate, up-to-date information they need to do their jobs easily, quickly, and confidently. The California State Library serves the people of California through 1199 local branches. Librarians will have access to the training curriculum and will be able to serve as resources to local patrons. Additionally, space will be available for community-based training of consumers for courses on using the internet for self-management and wellness.

-- University of California Agriculture and Natural Resource (ANR). ANR is a statewide network of researchers and educators dedicated to the creation, development and application of knowledge in agricultural, natural and human resources. Experts in community-based education based directly on the needs of the consumer, ANR will provide audience-specific consumer education by synthesizing the curriculum available on-line. ANR staff collaborated on the training curriculum plan and funding is included in the project plan to support this effort.



**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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-- University of California, Davis Extension. The UC Davis Extension program is an internationally-recognized leader in educational outreach for individuals, organizations and communities. UC Extension staff were instrumental in the design of the training program proposed in this grant and will contribute instructional design and technical support for the development of the on-line curriculum. Funding to support these efforts is included in the project proposal.

-- California Health Information Partnership and Services Organization (CalHIPSO). A not-for-profit joint venture between the California Primary Care Association, the California Medical Association, and the California Association of Public Hospitals and Health Systems created CalHIPSO. CalHIPSO contributed to the training plan design for this proposal and funding is included in the project plan to adapt the EHR curriculum for the broader eHealth curriculum and to expand the approach with the nearly 7000 physicians expected to register with CalHIPSO for achieving meaningful use.

-- UC Davis Health Informatics. The UC Davis Health Informatics will contribute curriculum to prepare clinicians to provide care in an information rich environment. The Health Informatics faculty will also prepare a consumer course for those who want to use the internet to improve their health and better communicate with healthcare providers. Faculty from the Health Informatics program contributed to the planning process for this grant and funding is provided in the project plan to support these efforts.

-- The California Rural Indian Health Board, Inc., (CRIHB). Dedicated to the needs and interests of the Indians of rural California, CRIHB is a network of Tribal Health Programs which are controlled and sanctioned by Indian people and their Tribal Governments. CRIHB is a national leader in Indian self-determination for health care and will collaborate to prepare culturally-inclusive training.

Technology partner and funding partner:

-- National Coalition for Health Integration (NCHI). The goal of NCHI is to make health information more available to all who need it while at the same time making that information more secure and private. The NCHI coalition creates a collaborative organization dedicated to transform healthcare by enhancing the availability, privacy and integration of health information



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| | |
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across the country. In addition to a technology collaboration to advance health information exchange, NCHI is providing match dollars to support the CTN SBA proposal.

Funding partner:

-- The California HealthCare Foundation (CHCF). A philanthropy committed to improving the way health care is delivered and financed in California, the CHCF focuses its effort in three program areas: 1) Improving the quality of care for Californians with chronic disease. 2) Promoting greater transparency and accountability in California's health care system. 3) Reducing barriers to efficient, affordable health care for the underserved. Under this last priority area, CHCF has been a founding partner in the CTN and has committed match dollars to support this proposal.

Additional collaborations to advance eHealth in California:

-- United HealthCare. An operating division of UnitedHealth Group, which is the largest single health carrier in the United States, United HealthCare is a recognized leader in the health and well-being industry. United HealthCare has committed \$4.4 million for collaborative telehealth efforts, of which \$1.75M to support community needs that will complement this proposal.

-- California Telemedicine and eHealth Center (CTEC). CTEC is one of six federally designated Telehealth Resource Centers around the country. CTEC offers extensive technical support for telemedicine development.

D. Congressional Districts

20. Applicant Headquarters

- California

21. Project Service States

California

22. Project Service Areas

California - 1

California - 2



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Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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California - 3

California - 4

California - 11

California - 17

California - 18

California - 19

California - 20

California - 21

California - 22

California - 25

California - 41

California - 51

23. Will any portion of your proposed project serve federally recognized tribal entities?

➤ Yes

24. Indicate each federally recognized tribal entity your proposed project will serve.

Colusa Rancheria

Coyote Valley Reservation

Guidiville Rancheria

Hopland Reservation

Inaja-Cosmit Reservation



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| | |
|--|--|
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Karuk Tribe of California

La Jolla Band of Luiseno Indians

Laytonville Rancheria

Los Coyotes Reservation

Mesa Grande Band of Mission Indians

Pala Band of Mission Indians

Pauma/Yuima Band of Mission Indians

Pinoleville Reservation

Potter Valley Rancheria

Redwood Valley Reservation

Rincon Band of Mission Indians

San Pasqual Band of Diegueno Indians

Santa Ysabel Band of Mission Indians

Sherwood Valley Rancheria

Agua Caliente Band of Cahuilla Indians

Augustine Band of Mission Indians

Bear River Band of Rohnerville Rancheria

Benton Paiute Tribe

Big Lagoon Rancheria

Big Pine Paiute Tribe of the Owens Valley

Big Valley Rancheria



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Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|--|
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Bishop Paiute Tribe

Blue Lake Rancheria

Bridgeport Indian Colony

Cabazon Tribal Business Committee

Cahuilla Band of Mission Indians

California Valley Miwok Tribe

Cloverdale Rancheria

Dry Creek Rancheria

Elem Indian Colony

Elk Valley Rancheria

Federated Indians of Graton Rancheria

Fort Bidwell Reservation

Fort Independence Reservation

Grindstone Rancheria

Habematolel Pomo of Upper Lake

Hoopa Valley Tribal Council

Lone Pine Paiute-Shoshone Reservation

Lytton Rancheria

Manchester - Point Arena Band of Pomo Indians

Mechoopda Indian Tribe of the Chico Rancheria

Middletown Rancheria



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Morongo Band of Mission Indians

Paskenta Band of Nomlaki Indians

Pechanga Band of Mission Indians

Ramona Band of Cahuilla

Resighini Rancheria

Robinson Rancheria

Round Valley Reservation

San Manuel Band of Mission Indians

Santa Rosa Band of Mission Indians

Scotts Valley Rancheria

Smith River Rancheria

Soboba Band of Luiseno Indians

Susanville Indian Rancheria

Table Bluff Reservation - Wiyot Tribe

Timbisha Shoshone Tribe

Torres-Martinez Desert Cahuilla Indians

Trinidad Rancheria

Tule River Reservation

Tuolumne Rancheria

Twenty-Nine Palms Band of Mission Indians

Yurok Tribe



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25. Have you consulted with each of the federally recognized tribal entities identified above?

Yes

E. Community Anchor Summary

| 26. Community Anchor Institution | |
|--|------------|
| Schools (k-12) | 0 |
| Libraries | 1 |
| Medical and Healthcare Providers | 575 |
| Public Safety Entities | 262 |
| Community Colleges | 1 |
| Public Housing | 0 |
| Other Institutions of Higher Education | 26 |
| Other Community Support Organization | 0 |
| Other Government Facilities | 0 |
| TOTAL COMMUNITY ANCHOR INSTITUTIONS | 865 |
| 27. Minority Serving Institutions | |
| Historically Black colleges and Universities | 0 |
| Tribal Colleges and Universities | 0 |
| Alaska Native Serving Institutions | 0 |



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| | |
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| | |
|---|---|
| Hispanic Serving Institutions | 0 |
| Native Hawaiian Serving Institutions | 0 |
| TOTAL MINORITY SERVING INSTITUTIONS | 0 |

F. Demographics

28. Will your proposed project be specifically directed to serve vulnerable population groups?

- Yes

If "Yes" which vulnerable population groups will your proposed project serve? Check as many as apply:
Native American or Native Alaskan

Low Income

Other

Other: Unserved and Underserved

29. Vulnerable Populations

Serving rural communities and providing access to vulnerable populations is not only inherent in the FCC Rural Health Care Pilot Program requirements, but is also a core component of the CTN's focus and a value of the University of California. From inception, the CTN drew interest from a broad spectrum of sites that primarily provide healthcare to the underserved and low-income populations of the State. These health care sites, mostly community clinics, rural and public hospitals, and small private physician practices, do not have sufficient resources to pay for broadband and frequently lack the knowledge to achieve comprehensive and sustained adoption. However, through the CTN, access will be made available at a low cost, fostering broadband adoption for eHealth purposes.



**Broadband Non-Infrastructure Application
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| | |
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Model eHealth Communities will be selected to include these target populations and will receive intensive provider training and equipment necessary to transform to a technology-enabled healthcare community – creating a sustained adoption of broadband. Educational opportunities on the use of the internet for self-management and appropriate to inclusion of vulnerable populations, will be available for library patrons, students in community colleges and health consumers (e.g. patients in clinics), leveraging expertise of UC Davis Agriculture and Natural Resources. ANR has a long history of success designing and implementing training content in a manner that reaches consumers in unserved and underserved communities, as well as adapting it to address issues such as lower literacy rates.

At the outset of the CTN, an initial target was set to sign up 319 sites through the RHCPP program. Staff launched a campaign to explain the program and garner interest. This involved the rural sites having to submit a letter of agency (LOA) authorizing the University to seek funding on their behalf. The interest for broadband and eHealth activities was staggering. Responses were received from more than 1000 sites and the interest is still growing. Thirty-two percent (32%) of the CTN sites are in rural/frontier communities as defined by USAC, which are predominately low-income. Additionally, 57 of the CTN sites serve tribal communities. California is home to the largest number of Native Americans in the county. To better serve the Native American population and rural communities, we have built into the Model eHealth Community selection criteria that extra consideration be given to these regions. Culturally appropriate and inclusive training materials will be prepared in collaboration with the tribal communities and organizations such as the California Rural Indian Health Board.

Examples of Model Communities based on the selection criteria have been uploaded as an attachment for reference.

30. Accessibility

- Not applicable to this project.

31. Other Languages

- Not applicable to this project.

G. Project Budget



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| | |
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| 32. Project Budget | |
|------------------------------|--------------|
| Federal Grant Request | \$9,145,027 |
| Total Match Amount | \$4,677,269 |
| Total Budget | \$13,822,296 |
| Match Percent | 33.8% |

33. Projects Outside Recommended Funding Range:

- Not applicable to this project.

34. Sustainability:

Sustainability is directly related to value of and ability to use broadband applications and the degree to which the costs and the features of the network create an advantage. Our strategy consists of five key elements described below. The CTN operational staff proposed in this project are vital to achieving elements 1, 2 and 3. Elements 4 and 5 will be accomplished through the training partnership and strategic eHealth equipment deployment. Please also refer to the FCC Sustainability Plan in the Supplemental Upload section.

1) Reduce the cost of broadband by aggregating demand for services leading to “large purchaser” discounts. The CTN negotiated statewide pricing equivalent to those offered to State agencies, resulting in savings to individual members, particularly those in areas that have traditionally been underserved by broadband. This strategy brings the price for the average subscriber well below individual commercial rates. In exchange, affordable membership fees will be paid to the CTN to support operations after the network is launched and the value is realized by members.

2) Maximize the use of existing telecommunications subsidy programs following the pilot program. Many of the sites qualify for programs such as the traditional FCC Rural Health Care program and the California Teleconnect Fund. The CTN operations team includes staff to educate users and assist them in accessing these programs to reduce their monthly broadband service fees.

3) E-Health application service providers have expressed interest in this aggregated market and will pay for access to the CTN, creating a diverse revenue model to keep costs affordable to end-



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| | |
|--|---|
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users. The CTN is desirable for the delivery of health applications because of its superior level of privacy and security and the explicit Quality-of-Service using MPLS.

4) The training curriculum available to anchor institutions and consumers supports the statewide implementation of the CTN and elevates broadband application literacy and adoption.

5) Accelerated adoption of broadband-dependent applications through the establishment of Model eHealth Communities. The value proposition realized by health care and public safety anchor sites that achieve the transition to broadband applications will be an incentive to continue broadband use and be replicable to other communities. The use of telemedicine has already been demonstrated to reduce health care costs, increase quality, improve pandemic response, and decrease the need for patient transfers (keeping health care dollars in the community). Under newly proposed reimbursement models, technology-enabled health care dependent on broadband will become even more cost effective. Broadband will be a necessity once the transition has been made to a technology-enabled health care system in these communities.

| 35. Matching Funds | |
|--|--|
| Applicant is providing matching funds of at least 20% towards the total eligible project costs? | Yes |
| Describe the matching contributions | <p>The following is a list of matching funds committed to date on the proposed project. Letters of commitment are included in the upload documentation for Key Partners.</p> <p>Cash Matches:</p> <p>National Coalition for Health Integration Funding Amount: \$1,927,269; 14% Type of funding: Grant Match Use of funding: Support CTN expansion and operations; match will be applied to support CTN personnel and internet connectivity. Key financing terms and conditions: Support totaling \$2 million has been provided for CTN expansion through state initiatives. Only costs eligible under the BTOP SBA program are applied to this match.</p> |



**Broadband Non-Infrastructure Application
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| | |
|--|--|
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|---------------------------------|--|
| | <p>California HealthCare Foundation Funding Amount: \$2,000,000; 14% Type of funding: Grant Match Use of funding: Purchase broadband dependent equipment to be used for telehealth and support the development and delivery of the training curriculum. Key financing terms and conditions: Support provided for eHealth broadband expansion.</p> <p>University California Office of the President Funding Amount: \$750,000; 5% Type of funding: General obligation voter-approved bond funds. Use of funding: Purchase broadband dependent equipment to be used for telehealth and distant learning by selected anchor institutions. Key financing terms and conditions: Support totaling \$1 million has been provided for CTN expansion through state initiatives. Only costs eligible under the BTOP SBA program are applied to this match.</p> |
| <p>Unjust enrichment</p> | <p>CTN is the recipient of an FCC subsidy award under the Rural Health Care Pilot Program (RHCPP), in the amount of \$22.1 million. These funds will support recurring and non-recurring expenditures required in order to establish and maintain network services for 863 health care sites throughout the state for a period of at least three years. The funds requested in this application, in addition to the operational support for the CTN, are intended to support the establishment of an extensive, multifaceted training program to raise the broadband adoption and technology literacy of health care providers, health care facility staff, community college instructors and local librarians. Consequently, the areas of expenditure under the two programs will be complementary, but will not overlap. There will be no duplicative federal funding resulting from CTN receiving awards under both the NTIA-BTOP and FCC-RHCPP programs.</p> <p>If awarded, a subrecipient of the CTN eHealth Broadband Adoption</p> |



**Broadband Non-Infrastructure Application
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| | |
|--|---|
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| | <p>Program will be the California Health Information Partnership and Services Organization (CalHIPSO). As the ARRA HITECH Regional Extension Center for nearly all regions in California, CalHIPSO supports physician meaningful use. CalHIPSO will serve as a curriculum training partner through the CTN eHealth Broadband Adoption Program. There will be no duplicative federal funding resulting from the awards under NTIA-BTOP and HITECH Regional Extension Centers.</p> |
| Disclosure of federal and/or state funding sources | <p>The funding provided by the FCC under the RHCPP provides for subsidies for monthly recurring charges for eligible health care providers. These funds are part of the Universal Service Fund program operated by the Universal Service Administrative Corporation under the FCC Rural Health Care Program. The funds will pay for 85% of the monthly service charges, and CTN or the end-user must pay the remaining 15% of these monthly costs.</p> <p>In addition, every site connected to CTN is eligible for the California Teleconnect Fund (CTF) a universal service program operated by the California Public Utilities Commission. The CTF will provide 50% of the cost of connection to a variety of telecommunications services, including broadband. CTF will pay 7.5% of the 15% of the costs of the Rural Health Care Pilot Program sites.</p> <p>It is important to note that neither of these programs pay for operational or training costs associated with managing and sustaining the CTN.</p> |

| 36. Budget Narrative | |
|-----------------------------|--|
| Budget narrative | <p>The California Telehealth Network (CTN) eHealth Broadband Adoption will manage a comprehensive sustainable adoption program designed to promote utilization of eHealth training and technology over broadband. Our broadband adoption strategy is to stabilize the operations of the CTN as an essential broadband platform for the healthcare community and expand, via training, broadband user base and adoption in communities surrounding the CTN.</p> |



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| | |
|--|---|
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| | |
|--|---|
| | <p>Personnel (\$2,477,258) Curriculum Development and Training (7.88 FTE Yr 1; 4.44 FTE Yr 2): Curriculum development and training for on-line and on-site courses.</p> <p>CTN Operations (15.1 FTE): Operation of the CTN will require support for management, finance, administration, data, web, technical, vendor management and targeted outreach to new users.</p> <p>Fringe Benefits (\$743,177): Benefit rate (30%) includes health, dental and vision insurance; workers compensation, disability, social security, and retirement benefits.</p> <p>Travel (\$180,000): National meetings for two team members (3 trips year at \$3,000/trip/person); equipment installation (200 sites X \$600/site); and regional trainings and meetings (40 trips at an estimated cost of \$600/trip).</p> <p>Equipment (\$4,443,170): Standardized end-user equipment, necessary to provide eHealth and HIE services over the broadband infrastructure (\$30,000 per site for 200 sites).</p> <p>Supplies (\$76,800): Laptop computers for training and operational staff (24 at \$3,000 each); on-site training participant materials print costs (\$800/course for six quarterly courses) based on vendor quotes and historical costs for similar materials.</p> <p>Indirect Costs (\$1,224,623): UC federal negotiated rate for on-site, non-research projects is 35% of modified total direct costs (MTDC) (35.5% for Year 2). MTDC consists of all salaries, benefits, supplies, services, travel and up to the first \$25,000 of each subcontract.</p> <p>Spending Plan (Timeline): The spending plan will follow closely with the project timeline outlined in Section 15. Hiring of necessary CTN Training and</p> |
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| | |
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| | <p>Operations staff will commence upon receipt of funding. Training programs are scheduled to begin in April 2011 – June 2011. Installation of eHealth equipment and the development of training curriculum and distance learning modules will coincide with this timeline.</p> |
| Budget reasonableness | <p>As a public institution, the University of California cannot outbid the private sector; as a result, we are required to ensure that programs are developed in a cost-effective manner. The costs outlined in the budget are based on historical costs and established institutional allowances, based on 12 years of experience in establishing and managing approximately \$26 million in broadband infrastructure deployment and operations.</p> <p>UC has an established Personnel Title and Pay Plan. Personnel costs included in the project budget are based upon position descriptions and standardized salary levels currently used by UC and represent responsible estimates of prevailing community standards. Personnel projections include staff positions necessary to support the training, management, technical, and financial administration of the project. The number and classification level of staff positions are based on staffing models for projects of this size and scope.</p> <p>Benefits are based on a historical rate average (30%) and are compliant with UC regulations. The rate includes health, dental, and vision insurance; workers compensation, disability, social security and retirement benefits.</p> <p>Travel costs are calculated on comparable historical costs and are in line with the federal guidelines for domestic travel. Travel costs for national meetings and conferences include estimated air fare for travel to the east coast, lodging (3 nights) and associated meals and ground expenses. In-state travel is estimated based on costs for similar distances and includes transportation costs (car rental or air fare), gas and lodging and meals (if applicable).</p> |



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|------------------------------|---|
| | <p>Equipment costs are based on historical costs, established institutional allowances and vendor quotes. A limit of \$30,000 per site has been established to pay for eHealth equipment.</p> <p>Supply costs are based on historical and comparative costs for supplies necessary to support the development and implementation of a technology based training. These include laptop computers for staff, and print costs for on-site training materials.</p> <p>Contracts will be initiated to assist with eHealth education and are designed to promote utilization of eHealth technology over broadband. Education programs will help secure broadband utilization and sustainability in underserved communities.</p> <p>Other costs are based on UC Davis Extension 2009-2010 established production rates. The UCDE has delegated authority to establish rates based on historical costs, competitive and like services.</p> <p>The University of California 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. Experience with similar programs and the assessment of historical costs indicate that the costs outlined here are sufficient to carry out this project and are eligible for funding under the SBA program.</p> |
| Demonstration of need | <p>Funding from BTOP is vital to realize the vision of CTN as an infrastructure to support a sustained adoption of broadband-dependent application. The CTN currently has funding from the FCC and the California Emerging Technology Fund to pay for the installation costs associated with bringing broadband to 863 end-user sites. The FCC funds explicitly state that this funding cannot be used to pay for operating (including training) costs. Critical functions such as contract compliance, network performance monitoring and ensuring interconnections with other HIE applications are currently not funded. In addition, staff needed to manage member site relations, market to</p> |



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Submission to NTIA – Sustainable Broadband Adoption**

| | |
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| | <p>new potential sites, facilitate between the vendor and the sites, and provide administrative oversight are not funded by the FCC project.</p> <p>CTN has diligently pursued additional funders to help pay for the operational costs associated with the project, and thus far has secured some operational funding from United HealthCare (\$600,000). This start-up funding, while helpful, does not allow the CTN to engage in the intensive broadband adoption training efforts envisioned by this proposal that are essential for sustainability. Foundations in California are partners of the CTN, but the economic decline has also impacted their ability to provide operational and training support at the level needed to maximize the potential of the CTN broadband adoption.</p> <p>There are no general state operating funds available to help with this effort. California faced an approximate \$20 billion budget gap in FY 2009-10 and anticipates at least a \$20 billion deficit in FY 2010-11. These budget cuts have impacted the University system, resulting in a net loss of \$800 million in revenue to the university (an overall budget cut of 20%). Community colleges, a key training partner, will not be able to introduce health technology curriculum to support the goal of technology-enabled health delivery without the SBA support; the California Community College has sustained a budget reduction of over \$500 million in the current year.</p> <p>Many of the CTN anchor institutions are safety-net health care providers who provide health care primarily to the uninsured and underinsured population of the state. These providers, mostly community clinics, rural and public hospitals, do not have sufficient resources to pay for initial costs associated with connecting to CTN or for training necessary to fully adopt healthcare broadband applications.</p> <p>In sum, given the fact that CTN funding associated with the FCC project does not pay for broadband operation or training costs, combined with the recent round of multibillion-dollar budget cuts</p> |
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**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
| Submitted Date: 3/15/2010 1:44:26 AM | Easygrants ID: 4871 |
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| | affecting California’s community anchor institutions, including the UC system, CTN eHealth Broadband Adoption cannot be completed without significant funding assistance from the American Recovery and Reinvestment Act. |
|--|---|

37. Funds to States/Territories

| States | Amount of Federal Grant Request |
|------------|---------------------------------|
| California | 9,145,027 |

Funds to States/Territories Total: \$9,145,027

H. Historical Financials

38. Matching Funds

| | 2007 | 2008 | 2009 |
|---|-------------|---------------|---------------|
| Revenue | 947,632,000 | 1,029,175,000 | 1,077,367,000 |
| Expenditures | 881,503,000 | 976,766,000 | 1,019,452,000 |
| Net Assets | 680,300,000 | 748,319,000 | 793,945,000 |
| Change in Net Assets from Prior Year | 68,745,000 | 68,019,000 | 45,626,000 |
| Bond Rating (if applicable) | N/A | N/A | N/A |

I. Program Benefits

39. Jobs

| | |
|--|----|
| How many direct jobs-years will be created from this project? | 22 |
| How many indirect jobs will be created from this project? | 41 |



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| | |
|---|----|
| How many jobs will be induced from this project? | 36 |
|---|----|

40. Methodology used to estimate jobs:

Job estimates are based on the Council of Economic Advisers guidelines, “Estimates of Job Creation From the American Recovery and Reinvestment Act of 2009, May 2009”. The following methodology and assumptions were used to arrive at these estimates:

- \$92,000 of government spending creates 1 job year
- 64% of the job-years represent direct and indirect effects
- 36% of the job-years are induced effects.

Definitions:

1. Direct Jobs: Job-years created in the government-sponsored project;
2. Indirect Jobs: Job-years created at suppliers who make materials used in the project;
3. Induced Jobs: Job-years created elsewhere in the economy; increases in income from direct government spending lead to additional increases in spending by workers and firms.

Estimates are calculated as follows:

- Total request for federal participation (\$9,145,027) represents approximately 99 FTEs ($9,145,027/92,000 = 99$ FTEs).
- 64% of the total FTEs equal direct and indirect effects; represents approximately 63 FTE ($99*64\% = 63$ FTE/jobs, direct and indirect)
 - 22 of the 63 FTEs are direct job years; (22 direct job years = 21 CTN Ops and 1 CTN Training)
 - 41 of the 63 FTEs are indirect job years; (41 indirect job years = 63 direct/indirect jobs - 22 direct jobs).
- 36% of the total job years are induced effects which represents 36 FTE job years ($100*36\% = 36$ FTE induced job years).

| | |
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| 41. Adoption Metrics | |
| How many total new home subscribers (household accounts) to broadband do you expect to generate through use of BTOP funds over the entire life of the program funded? | 0 |



**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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| | |
|---|----------|
| How many total new business and/or institutional subscribers to broadband do you expect to generate through use of BTOP funds over the entire life of the program funded? | 863 |
| How many total users of broadband in public computer centers or users of broadband outside the home (e.g., in a community college) do you expect to generate through use of BTOP funds over the entire life of the program funded? | 52845 |
| What is the total cost of your project per new subscriber (household, individual, or institutional) or new end-user? | \$258.00 |

42. Measuring Adoption Impact:

The premise of the CTN eHealth Broadband Adoption program is that it is critical to engage both new subscribers and current users of broadband who are not yet full and sustained adopters of healthcare broadband applications. It is only through the comprehensive implementation and expansion of a suite of broadband technologies that we will achieve ubiquitous reliance on broadband and also healthcare transformation. It is estimated that 863 healthcare anchor institutions and 52,845 broadband users will be impacted by this project as follows:

New and sustained comprehensive institution/business subscribers:

--CTN clinics and hospitals – assume 863 new and emerging adopters

Users of broadband for healthcare delivery and self-management:

--People attending community-based classes taught by UC ANR (estimate 1200)

-- Community college faculty and students (estimate 18,045)

-- Library patrons healthcare resources (estimate 10,500)

-- Patients receiving telehealth consultations at CTN sites in Model eHealth Communities (MC) (estimate 22,500)

-- CalHIPSO registered physicians (600)

Measuring the impact of this program will occur in the following ways:

--A baseline broadband penetration will be assessed via the CPUC broadband mapping resource;

--Prior to implementation of the CTN, an assessment will be made regarding adoption of healthcare broadband applications and recorded as “no adoption,” “limited adoption” or “comprehensive adoption”;

--At the conclusion of the 2 year program, an assessment will be made regarding the adoption healthcare broadband applications at CTN sites;



**Broadband Non-Infrastructure Application
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| | |
|--|---|
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- The on-line modules will ask each learner several assessment questions to measure health broadband literacy levels before proceeding to the coursework;
- Collaboration with local broadband providers in the MC to assess changes in broadband usage at the one year mark and the end of the 2 year grant;
- Collection of data from consumer courses and library patrons regarding broadband adoption in the homes and healthcare literacy levels.

In addition to directly measuring the institutions and users of broadband as noted above, an extensive “halo” effect of this project is anticipated. While it will not be possible to measure a direct causal relationship with the CTN SBA initiative, we will continue to collaborate with the CPUC Broadband Mapping Task Force to examine the general adoption in the MC. Examples of potential new home subscribers include:

- Patients who have encounters with health broadband literate clinical staff who convey the value of broadband for self-care and provider/patient communications are more likely to adopt broadband in their homes;
- Working community college students learning to apply broadband technology in their professional lives will be more likely to adopt in their homes;
- Healthcare consumers taking a class in how to use of web-based tools for self-care will be likely to become home subscribers.

| 43. Broadband Training Programs | |
|--|-------|
| If you intend to provide training or education, how many people in total will your program(s) reach? | 56168 |
| How many hours of training do you expect to provide per person on average for each participant in your training program(s), through completion of training for that individual? | 4 |
| How many Full time employee (FTEs) instructors or facilitators will you employ for broadband and digital literacy training purposes? | 16 |

44. Describe their qualifications (training and experience):

The success of broadband reliance and implementation of a technology-enabled healthcare environment will not be realized without a cadre of instructors to provide training to health care providers and consumers. As information technology becomes more integral to healthcare, the



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Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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demand for health professionals and patients who can fully utilize broadband and related eHealth technology is critical.

The CTN training team will include 16 FTE staff and faculty members who will develop and teach the curricula for the six training modules offered by CTN: Change Management (8 hours of training), Broadband Adoption (2 hours of training), CTN Broadband Orientation (2 hours of training), EHR/HIE adoption (12 hours of training), Telehealth Certificate Program (24 hours of training), Consumer Health Informatics (6 hours of training) and Clinician Health Informatics (6 hours of training).

The faculty and staff positions include eHealth and clinician educators who have significant experience in teaching eHealth adoption methods to adult learners at the University level and/or in formal eHealth programs. Faculty will include a multidisciplinary group from the Schools of Medicine and Veterinary Medicine, the College of Engineering, the Health Sciences Library and the Betty Irene Moore School of Nursing. Full resumes are provided as attachments in the Management Team Upload for the following key faculty: Thomas Nesbitt, Jana Katz-Bell, Peter Yellowlees, Shelley Palumbo, David Harry, Robert Sams, Speranza Avram, and Susan Catron. A comprehensive training program spanning all areas of eHealth requires a deep understanding of public health, health informatics, telehealth, healthcare policy, legal and regulatory matters, and healthcare operations. The collective skills and experience of this group provides the knowledge and expertise to develop such a program.

The State of California is currently finalizing a State Health Information Exchange Strategic Plan. Included in this plan will be an educational strategy designed to mobilize California's community colleges, state universities, and private training providers to expand health information training capacity to meet anticipated demand for new eHealth workers. CTN will coordinate its training efforts with other training programs in the state to achieve maximum efficiency and effectiveness.

| 45. Equipment Affordability Programs | | |
|---|----------------|--------------|
| What is the total up-front cost of this equipment? | \$6,072,000.00 | |
| If you are providing an equipment purchase or loan program, for how many households, businesses and/or institutions do you expect to provide equipment or computers? | 0 | Households |
| | 0 | Businesses |
| | 200 | Institutions |



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| | |
|--|--|
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| | |
|--|--------|
| If you are employing a loan program for purchases of service or equipment, what will be the total cost to the typical customer you assist over the life of the loan, including all interest and fees? | \$0.00 |
| How many broadband-related equipment units (e.g. computers, wireless devices) do you intend to purchase overall? | 224 |

| 46. Broadband Awareness Programs | |
|---|--------|
| If you are conducting an awareness campaign, how many people do you expect your campaign will reach in total per year? | 320996 |

47. Awareness Campaign Methods: Briefly describe the targeting, media, and messaging strategies your awareness campaign will employ.

The project team has significant experience for what is required in a media campaign for a project of this scale. Immediately following the media coverage of the FCC funding, CTN identified organizations that could benefit from participating in the network. A broad awareness campaign was initiated and, by July 1, 2009 organizations representing over 1000 sites had signed and sent a Letter of Agency (LOA) allowing the CTN to enter into contract with the telecommunication vendor on their behalf, versus the initial target of 319. Of those, 863 sites were certified as eligible for receiving connection subsidies by the FCC and included in the Request for Proposals for a telecommunications vendor. This is, by far, the largest project of all of the FCC RHCPP.

The project's awareness campaign will include a number of proven strategies to inform key stakeholders and the public to increase broadband adoption. A new CTN position for a communications officer is included in the CTN operations in recognition of the importance of timely, accurate, and accessible information. Details of the awareness campaign follow:

- a) Continue CTN web site to provide information to potential sites and listservs. This medium will be updated, at minimum, on a quarterly basis reaching an estimated 20,712 members.
- b) Presentations by key leaders to advance transformation to technology-enabled healthcare, specifically to local medical society meetings in potential model communities. A total of six presentations per year is expected, connecting with approximately 1500 individuals.



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| | |
|--|---|
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- c) The CTN’s Advisory Board Member Organizations, such as California Hospital Association, California Primary Care Association, and The California Rural Health Association will continue to distribute instrumental information to their constituents, including a presence at their annual conferences. Five presentations per year would result in outreach to 1000 individuals or more.
- d) Three media outreach activities per year, such as press releases, print stories, newsletters, and television spots with partner organizations (CalHIPSO and State Libraries) will connect with an estimated 18,780 potential eHealth adopters.
- e) Print and television media will continue to play a role in raising general awareness and the momentum toward technology-enabled healthcare and new broadband users. Major newspapers in California including the Los Angeles Times, the Sacramento Bee, and a number of other publications in smaller markets that cover Model eHealth Communities will be accessed. Broad coverage at least four times over the course of the project is expected. A media campaign of this scale will reach, at minimum, 600,000 potential broadband and eHealth adopters.

At minimum, it is estimated that this awareness campaign will reach 655,800 individuals. Communication efforts will create much greater awareness among California’s people about the benefits of telehealth enabled by broadband.

48. Measuring Campaign Impact: Describe how you will measure the impact of the awareness campaign.

An initial measurement of the awareness campaign’s success will be the on-going addition of sites that submit a Letter of Agency to participate in the CTN, especially sites located in unserved and underserved rural, urban and tribal communities. Over 1,000 sites have already submitted a Letter of Agency and CTN will continue to conduct outreach efforts to substantially increase this number.

Another measure of success within the first 12 to 24 months will be the number of sites in these target demographics that enter into a Memorandum of Understanding (MOU) with the CTN to install broadband via the CTN. The Letter of Agency permits the CTN to contract for services on the agency’s behalf, but the MOU outlines the requirements of both organizations (site readiness, service expectations, subscription fee, reporting requirements, etc.) for partnership in the CTN.

Additional program metrics that will be tracked indicating success of broadband adoption include:



**Broadband Non-Infrastructure Application
Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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- a) The number of healthcare providers and consumers participating in the online and onsite education through the UC program;
- b) The number of community colleges that incorporate the training materials and concepts into their curricula;
- c) The number of libraries that offer the broadband training modules;
- d) The number of individuals enrolling in eHealth training through community colleges and libraries in Model eHealth Communities;
- e) An increase in the number of providers engaged in eHealth activities and health information exchange;
- f) An increase in the number of healthcare provider sites receiving telemedicine consultations;
- g) Number of patients receiving other eHealth services; and
- h) A business model that sustains the operations and expansion of the CTN.

J. Project Readiness

49. Licenses and Regulatory Approvals

Not applicable to this application.

50. Organizational Readiness

In collaboration with the University of California Office of the President, UC Davis Health System (UCDHS) is the lead agency for CTN and this proposal. The five UC academic health centers use broadband applications for healthcare delivery, including UC Davis which has had a broad telehealth program since 1995 and employs a team of experts in eHealth technology, network design, and eHealth operations. In 2006, the UC Davis Center for Health and Technology (CHT) was awarded the American Telemedicine Association President’s Award for their advancement of telemedicine. UC has a long history of accountability and responsibility for management of system wide and statewide initiatives.

California received \$22.1 million from the FCC for the RHCPP, the largest single state amount awarded. CTN staff worked with the FCC to execute a rigorous vendor selection process in compliance with FCC policies and in strict accordance with the University bid requirements. A vendor has been selected to build and manage the FCC-funded network and implementation will begin in April 2010. The vendor is an international telecommunications provider with one of the largest customer bases in the world. The contract will specify service level agreements relative to



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Submission to NTIA – Sustainable Broadband Adoption**

| | |
|--|---|
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system performance, quality of service, data privacy and security to ensure that the broadband network performs at optimum levels. Network performance monitoring will be performed by CTN technical staff. Thus, the partnership between the vendor and UC Davis represents demonstrable experience in managing and operating networks and projects as proposed for SBA funding. UC Davis will also oversee the comprehensive training program in partnership with established experts in the fields of informatics, telehealth, EHR, community-based education, and on-line education. A full description of these training partners is provided in the Project Partners narrative.

The total federal, foundation and state funding managed by UC Davis Center for Health and Technology (the lead unit) is \$46 million over the last 13 years. This includes a \$5M grant from DHHS to examine the role of telemedicine in disaster preparedness, consistent with the BTOP statutory purpose. In addition, members of the leadership team have managed over \$100M of grant funding in their careers.

The University of California is collaborating with a CTN Interim Advisory Board to transition the governance of the CTN to a new public-private, not-for-profit organization. This will provide flexibility for CTN to develop and respond to business opportunities designed to sustain and expand the network in the long-term. UC executive leadership will remain as leaders in the governance structure through participation at the board level. All CTN management, operational, and training functions remain with the University unless specific approval is granted from the FCC and NTIA, should a BTOP award be made.

51. Project Timeline and Challenges

The Training initiative will occur in two simultaneous phases. Phase 1 will focus on the transition to eHealth through the build out the broadband infrastructure associated with the FCC project. During this phase, CTN will also expand its operational capability to oversee network construction, monitor network operations, develop its billing and customer care capability, and expand its marketing and communications programs.

In Phase 2 CTN will initiate the major elements of its broadband adoption training program: development of the eHealth training curricula, selection of Model eHealth Communities (MC), deployment of eHealth equipment, and training of the CTN sites and other broadband consumers.



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| | |
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PHASE 1 - OPERATIONALIZE BROADBAND NETWORK INFRASTRUCTURE

- a) Construction of CTN Network (funded through other sources)
 - Award FCC contract to build 863 sites (2010 Q1)
 - Begin construction of initial CTN sites (2010 Q2)
- CTN live and operational with first 250 sites (2011 Q2)
 - Network construction continues with additional sites (2011 Q3-2012 Q2)
 - 863 sites fully constructed (2012 Q2)

- b) Operations of CTN Network (funding requested)
 - Hire CTN operational and technical staff (2010 Q4-2011 Q1)
 - Develop CTN operational systems (customer management and billing) (2010 Q4-2011 Q1)
 - Implement CTN operational systems (2011 Q2)
 - Monitor network operations (2011 Q2 and ongoing)

PHASE 2 - IMPLEMENT SUSTAINABLE ADOPTION TRAINING PROGRAM

- a) eHealth Training Program
 - Secure CTN eHealth Faculty for content development (2010 Q4)
 - Sign partnership agreements with off-site eHealth training facilities (2010 Q4- 2011 Q1)
 - Develop eHealth training content (2010 Q4-2011 Q1)
 - Selection of Model eHealth Communities (2011 Q1-Q2)
 - Launch and implement CTN eHealth training modules (2011 Q2-2012 Q1)
- Minimum of 25 eHealth MC Super Users trained each quarter (100 total)
- Enhance training content for Community Colleges, Libraries, Public Safety Sites, and CalHIPSO (2011 Q2-Q4)
 - Community College training available (2011 Q4 and ongoing)
 - Library training available (2011 Q4 and ongoing)
 - Public Safety Site training available (2011 Q4 and ongoing)
 - CalHIPSO training available (2011 Q4 and ongoing)

- b) Deployment of eHealth equipment stipends (2011 Q1-2012 Q1)
 - Deploy 40 eHealth units at MC sites each quarter (200 total)

Potential challenges center around the ability of Model eHealth Community sites engagement in the transformation of healthcare delivery that they must balance with current commitments



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| | |
|--|---|
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during this challenging economic time. To mitigate this risk, the CTN will hire staff with strong communication and change management skills who are able demonstrate value added elements of broadband applications.

52. SPIN Number

Not applicable to this application.

K. Environmental Questionnaire

53. Does the proposed action involve the procurement of materials? If so, will the materials be installed, stored or operated in an existing building or structure? If yes, please click "Add" to include the list of equipment and peripherals to be procured.

Yes

Equipment includes: 24 laptop computers; standard telehealth end user equipment for 200 sites. Each end user equipment unit consists of 1 high definition videoconferencing codec with camera, and general exam camera; 1 integrated medical cart; 1 20" LCD monitor; and peripherals.

54. Does the proposed action involve procurement of electronic equipment? If yes, will the equipment be disposed of in an environmentally sound manner at the end of its useful life?

Yes

55. Does the proposed action involve construction, remodeling, or renovation? If so, will these activities be limited to only minor interior renovations to a structure, facility, or installation? If yes, click "Add" to include a description of the proposed renovations with your project summary.

No

56. Does the proposed action involve the production and/or distribution of informational materials, brochures, or newsletter?

Yes



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| | |
|--|---|
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57. Does the proposed action involve training, teaching, or meeting facilitation at an existing facility or structure? If yes, click "Add" to explain.

Yes

On-site training will take place at existing facilities at the UC Davis Medical Center campus, as well as public libraries and community colleges throughout the state.

58. Does the proposed action involve ground or surface disturbance to accommodate new fiber optic cable? If yes, please click "Add" to include a description of the extent of service upgrade, a list of the permits required, and linear footage of underground fiber optic cabling required.

No

59. Does the proposed action involve an upgrade of broadband service to an existing facility or structure? If yes, please include a description of the extent of service upgrade, a list of the permits required, and linear footage of underground fiber optic cabling required?

Yes

The broadband service upgrades (speed and capacity) provided by this proposal will not require underground fiber optic cabling or permits.



**Broadband Non-Infrastructure Application
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| | |
|--|--|
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Uploads

The following pages contain the following uploads provided by the applicant:

| Upload Name | File Name | Uploaded By | Uploaded Date |
|--|--|--------------------|----------------------|
| Management Team Resumes and Organization Chart | 1. Management_Team_and_Org_Chart.pdf | Nesbitt, Thomas | 03/15/2010 |
| Government and Key Partnerships | 2. Key_Partners_2010.03.12.pdf | Nesbitt, Thomas | 03/15/2010 |
| Historical Financial Statements | 3. UCD_2009_Medical_Center_AFS_Upload.pdf | Nesbitt, Thomas | 03/15/2010 |
| Community Anchor Institutions Detail | 4. Community_Anchor_Institution_Detail_Attachment_2010.03.12.xls | Nesbitt, Thomas | 03/15/2010 |
| BTOP Certifications | 5. BTOP_Certification_Signed.pdf | Nesbitt, Thomas | 03/15/2010 |
| Detailed Budget | 6. SBA Detailed Budget Attachment_2010.03.13.xls | Nesbitt, Thomas | 03/15/2010 |
| SF424 A | 7. SF424A Budget 2010.03.13.pdf | Nesbitt, | 03/15/2010 |



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|--|---|
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| | | | |
|---|---------------------------------------|--------------------|------------|
| Budget | | Thomas | |
| SF424 B Assurances - Non- Construction | 8. SF_424_B_Assurance_Signed.pdf | Nesbitt, Thomas | 03/15/2010 |
| Supplemental Information | 9. Supplemental Upload 2010.03.13.pdf | Nesbitt, Thomas | 03/15/2010 |