

NECCC

The Northeastern California Connect Consortium



Developing a Northern California Broadband Plan: Focusing on the Northeastern Counties

**A Proposal to
CPUC's CASF Regional Consortia Broadband Planning Program
August 19, 2011**

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I. Executive Summary

A. Overview of the Consortium

The **Northeastern California Connect Consortium (NECCC)** is an extension, expansion, and solidification of the consortium initially formed by the CSU Chico Center for Economic Development to participate in the work of the California Emerging Technology Fund (CETF) (*Sections II, III and V*). It is composed of seasoned and knowledgeable organizations and entities that either have been involved in the delivery of networked telecommunications or have promoted its need for more than four decades, or nearly as long as data networks have been in existence.

The **NECCC** official membership (*Section VI*) is composed of government entities (county, city/town, unincorporated districts, state and federal), Native-American communities, educational institutions, libraries, public safety entities, health delivery facilities, community and non-profit organizations, local businesses, telecommunications providers, electric utilities, and other organizations in the seven counties in the Northeast California area (Butte, Lassen, Modoc, Plumas, Shasta, Siskiyou and Tehama – see Figure 1).

The **NECCC** functions as an “open” Assembly with decisions reached by consensus of the official members of the Assembly (*Section VI*). There is a Steering Committee comprised of representatives from the various member categories to provide advice and counsel to the Consortium Manager. However, all major decisions are made by consensus of the official Assembly members.

Two organizations serve as the management principals for the **NECCC**:

1. The Corporation for Education Network Initiative in California (CENIC)
2. The Center for Economic Development (CED) at California State University, Chico

CENIC is acting as the lead management organization with the overall management and fiscal

responsibilities for this regional consortium. CENIC has assigned a person to serve as the Manager and has dedicated a team of professionals to this effort. CED is partnering with CENIC to help manage the five major activities (*Section VII*). CED has assigned a person to serve as the Associate Manager and has dedicated a team of professionals to this effort.

B. Overview of the Project

The overarching goal of this project (*Section IV*) is to meet the current and long-term middle-mile and last-mile broadband needs of the 570,174 citizens living in the 23 incorporated communities, 139 unincorporated Census Designated Places and rural areas in the seven (7) counties to be served by this infrastructure.

This goal will be achieved by successfully executing the tasks within the five major activity areas (*Section VII*) including:

1. Ensure Community Involvement
2. Develop Broadband Infrastructure Plan
3. Develop and Implement Access Plans
4. Develop and Implement Adoption and Training Plans and Programs
5. Work with Other Regional Consortia to Ensure the Development of a Cohesive Northern California Infrastructure

There are measurable deliverables in each of the three years of the work plan (*Section IX*) including:

Year 1:

- Ensure widespread awareness, buy-in and commitment to the consortium's mission
- Produce the Conceptual Design for the middle-mile portion of the region's infrastructure plan
- Develop a report that identifies existing installed fiber that could be used to serve as a portion of this middle-mile conceptual design and evaluate its availability
- Produce a Conceptual Design for the last-mile component of the infrastructure for each county
- Develop a report identifying currently available last-mile capabilities in each county and evaluate their potential to meet the Conceptual Design
- Prioritize the unmet last-mile access needs in each county
- Issue a report assessing the availability of adoption/training programs in each county
- Work with county and municipal governments to adopt policies and regulations that will promote the deployment and use of broadband
- Collaborate with other regional consortia to ensure an integrated middle-mile infrastructure throughout Northern California

Year 2:

- Continue the strong communications with members and constituents
- Secure the funding to complete the detailed design and environmental assessment and initial capital funding to launch construction of one or more middle-mile projects against the plan

- Facilitate designs and implementation plans for last-mile deployments in each county that will begin to meet access needs
- Assist special groups- County Offices of Education, County Libraries, County Public Access Points, the California Telehealth Network and County Governments develop plans for use of this infrastructure
- Work with CETF to gather information on successful adoption/training programs and secure funding to underwrite plans for this region
- Continue to collaborate with other consortia

Year 3:

- Continue strong communications with members and constituents
- Secure more funding to accelerate the implementation of the middle-mile and last-mile infrastructure
- Monitor projects already in implementation
- Launch a full-scale Training/Adoption Plan and programs throughout the seven (7) counties
- Have an independent evaluation as to the overall effectiveness of the consortium in fulfilling its mission leading to decisions about the future

As a result of executing the tasks associated with the five activities that comprise the work plan several outcomes will be achieved (*Section X*). The outcomes will benefit all citizens, educational institutions, health facilities, public safety services, libraries, local businesses, residences and government agencies.

C. Key Points

In summary, 16 rural counties in Northern California (Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Sonoma, Tehama, Trinity, and Yolo – see Figure 1) remain without a comprehensive, integrated, open access, middle-mile, and last-mile broadband infrastructure.

It is the mission of the **Northeastern California Connect Consortium (NECCC)** to develop and facilitate the implementation of a broadband infrastructure plan that will provide a cohesive, integrated and robust middle-mile and last-mile network infrastructure that will interconnect seven of these counties in Northeastern California (Butte, Lassen, Modoc, Plumas, Shasta, Siskiyou and Tehama) together for the first time. At the same time, **NECCC** will coordinate efforts with three other regional groups (*Section II*) to develop and implement a plan for a comprehensive and cohesive infrastructure that will encompass all sixteen counties.

Having such a cohesive network infrastructure throughout Northern California will have a similar impact as roads and waterways currently have. Without such a comprehensive broadband infrastructure, the over 1.6 million northern Californians living in these counties will continue to be deprived of proper access to the broadband services that are increasingly essential to the quality of life in the 21st century.

Cohesiveness and coordination between efforts is vital as there are many pervasive collaborative resource-sharing activities and services throughout Northern California that cut across county boundaries. These activities and services are related to: 1) economic growth of businesses and industry; 2) enhanced of educational services; 3) access to increased library

services and resources; 4) improved access to quality health delivery; 5) interoperability of public safety services; and 6) online access to all levels of government services. Cooperation and coordination between efforts that touch on these areas is vital to ensure no unnecessary duplication of effort, a stronger voice for advocacy, coordination of communication and messaging, and the ability to take advantage of economies of scale.

D. Budget and Expenditures

NECCC's three-year budget expenditures (*Section XI*) are projected at **\$645,171**. This amount includes **\$449,751** over three years from the California Public Utility Commission's Rural and Urban Regional Broadband Consortia Grant Account and **\$195,751** from other sources. With these funds, the Consortium will vigorously and judiciously pursue its mission.

II. Introduction

A. State and Federal Awareness of the Need for Broadband

In its final report issued in January 2008, **“The State of Connectivity: Building Innovation Through Broadband,”** the California Broadband Task Force recommended seven key actions to help our state achieve fast, reliable and affordable broadband services. The first recommendation was:

“Build out high-speed broadband infrastructure to all Californians.”

In making this recommendation, the Task Force stated, “Advancing new incentives for deployment and improving existing programs will create a world-class broadband infrastructure for California.”

In February 2011, the Federal Communications Commission (FCC) created the **National Broadband Plan (NBP)** wherein the FCC observed that, “Broadband is the great infrastructure challenge of the early 21st century.” The NBP recommends seven long-term goals, of which the first is:

“At least 100 million homes should have affordable access to actual download speeds of at least 100megabits per second and actual upload speed of at least 50 megabits per second.”

B. Past and Present Efforts for Broadband in California

Over the past several years, two organizations have been promoting the needs for accelerating deployment of broadband to these counties. One of these organizations is the California Emerging Technology Fund (CETF), formed in 2006. Over the past five years CETF has provided leadership statewide to close the “Digital Divide”. As part of the CETF’s program rural regional consortia were created to promote the expanded availability of broadband Internet services. Four of these regional consortia are associated with the 16 counties in Northern California. CETF funded these four consortia to undertake studies to determine broadband demand aggregation, supply and existing plans to bring broadband to each of the 16 counties.

The second organization, the Corporation for Educational Network Initiatives in California (CENIC) was formed in 1997 and over the past 14 years has provided advanced network services to the K-12 research and education institutions throughout the state including those in the 16 Northern California counties.

Throughout its history, CENIC has encouraged the development of advanced services networks, not only to serve the university and research environments, but to also serve the general public. In 2002, CENIC launched the “One Gigabit or Bust Initiative” designed to spur the development of one Gigabit broadband throughout California by 2010. Through a series of Next Generation Workshops attended by thought leaders from across California, representing views from both the private and public sector including industry, government, and academia, these workshops increased the awareness of the need for broadband.

As part of the Gigabit Initiative, CENIC engaged the Gartner Group to evaluate the economic

potential of an acceleration of next generation broadband deployment in California. In addition, Gartner was asked to interview many of the top broadband thinkers, policy makers and consumer advocates within California and throughout the United States with a view toward understanding the opportunities and challenges a next generation broadband initiative in California might face. The Gartner report, **“One Gigabit or Bust Initiative: A Broadband Vision for California”**, produced in May 2003, projected a possible \$376 billion upside on gross state product by FY 2010 with the implementation of a focused Gigabit initiative.

While there has not been a focused statewide initiative to bring a Gigabit to all California, over the past three years there have been efforts to move forward on the California Task Force and NBP recommendations. Most notably, the following three projects:

1. The **Central Valley Next Generation Broadband Infrastructure Project** (CVNGBIP, www.cvngebip.org),
2. The **Plumas-Sierra Rural Electric Cooperative** (www.psrec.coop)
3. The **Digital 395 Project** (www.digital395.com)

are currently being implemented with grant assistance from the federal American Recovery and Reinvestment Act Broadband Programs (ARRA) and the CPUC California Advanced Service Fund (CASF), as well as private investment. They will bring significant middle-mile and last-mile broadband capacity and capabilities to 23 counties in the Central Valley and Sierras.

CENIC is a partner with the Central Valley Independent Network (CVIN, LLC) in planning, developing and implementing the CVNGBIP, which will bring a robust, comprehensive integrated fiber-optics middle-mile infrastructure to 18 counties in the Central Valley and Sierras. This new infrastructure will provide direct fiber connectivity to 64 anchor institutions as well as serve businesses and residences.

C. A Focus on Broadband in Northern California

Over the past three years the CPUC has approved CASF funding for several projects in Northern California. One of the most notable is the Route 36 Project being implemented by IPNetworks. This project will provide a middle mile fiber route along Route 36 through Humboldt and Trinity counties connecting the coast to the I-5 corridor. Unfortunately, many of the CPUC approved projects have not been implemented because they did not receive grant funding from the ARRA program.

Hence today, the 16 rural counties in Northern California (Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Sonoma, Tehama, Trinity, and Yolo) still do not have a comprehensive, integrated, open access, middle-mile infrastructure. And, none of the counties have a comprehensive last-mile infrastructure in place. In essence, these counties are underserved. In fact, the Federal Communication’s (FCC) Sixth Broadband Deployment Report reported that eight entire counties in California are unserved. Four of these unserved counties are in the 16 Northern California (Modoc, Siskiyou, Tehama and Trinity).

CENIC believes the timing is right to develop and begin to implement comprehensive **Northern California Broadband Plan (NCBP)** to set the stage for a robust, comprehensive, integrated, and open access fiber-optic middle-mile and a combination fiber-optic and wireless last-mile infrastructure throughout these 16 Northern California counties.

In 2010, the State Legislature passed Senate Bill 1040 increasing funding for the California Advanced Services Fund (CASF) by an additional \$125 million to support broadband deployment statewide and to position California to maximize opportunities under the new National Broadband Plan released by the Federal Communications Commission.

On June 9, 2011, the White House issued an Executive Order creating the White House Rural Council dedicated to rural economic development. Sixteen percent of the American population lives in rural counties that present enormous economic potential for the country. The Council’s role is to find ways to expand access to capital necessary for economic growth, promote innovation, improve access to health care and education, and expand outdoor recreational activities on public lands. Promoting the growth of rural infrastructure, including broadband infrastructure, is among the Council’s key tasks.

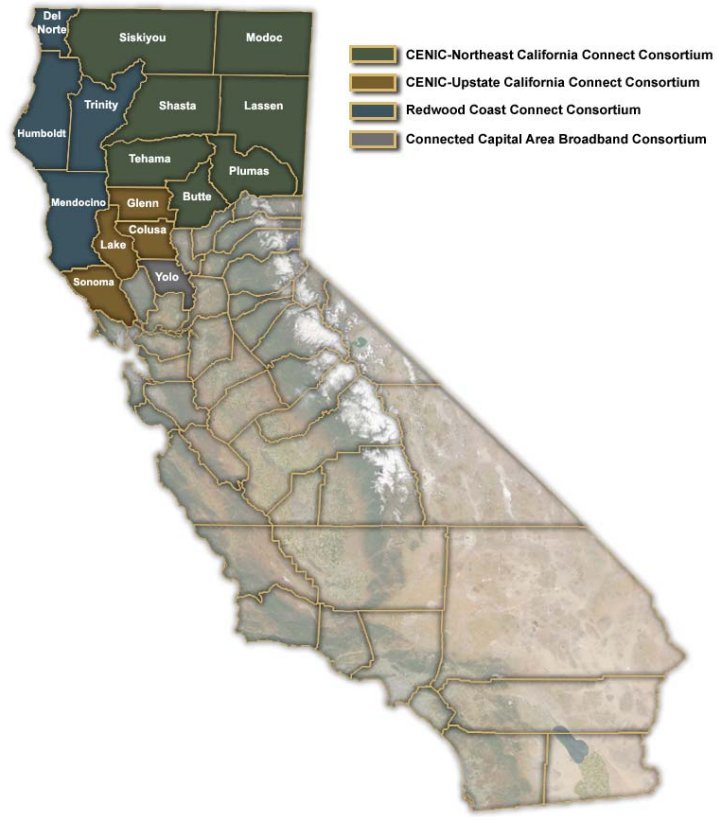


Figure 1: Relevant Regional Consortia

As a result of preparing the NCBP, funds from the CASF and potential funding sources from the work of the White House Rural Council can be pursued and secured to begin putting into place a comprehensive, integrated, open access, middle-mile and last-mile infrastructure that covers the communities in these 16 counties.

Such a new Northern California infrastructure would be linked to the Central Valley Next Generation Broadband Infrastructure Network, the Plumas-Sierra Network Infrastructure and the Digital 395 Network currently being implemented resulting in 36 counties from the most northern counties of Del Norte, Siskiyou, and Modoc as far south as Kern and Inyo counties encompassing counties in the Redwood Coast, Northeastern California, Upstate California, the San Joaquin Valley and the eastern Sierras being linked in a cohesive fashion.

The NCBP for this new Northern California Infrastructure will include direct fiber connectivity to major anchor institutions including K-12 County Office of Education sites, Community College districts and campuses, California State University campuses, major county-based Public Safety Answering Points, and major Hospitals. Equally important this broadband infrastructure will provide robust and cost-effective network access for local, state and federal government agencies, hundreds of businesses and thousands of households throughout the 16 counties.

CENIC, working as part of the existing four regional consortia, and with the involvement of stakeholder groups from the 16 counties, proposes the NCBP be developed through four coordinated regional planning efforts. These regional efforts align as shown in Figure 1:

Redwood Coast Connect Consortium	Del Norte, Humboldt, Mendocino, and Trinity
Northeastern California Connect Consortium	Butte, Lassen, Modoc, Plumas, Shasta, Tehama, and Siskiyou
Upstate California Connect Consortium	Colusa, Glenn, Lake, and Sonoma
Connected Capital Area Broadband Consortium*	Yolo

If these four regional consortia are funded by CPUC’s CASF Regional Consortia Broadband Planning Program, they will be able to develop four regional plans; each can stand-alone and at the same time be integrated with the other three; creating a comprehensive NCBP.

The remainder of this document is the plan of action for one consortium, the **Northeastern California Connect Region Consortium**.

** The Connected Capital Area Broadband Consortium also includes Sacramento, Sutter, and Yuba counties.*

III. Comparative Profile of the Region

The following snapshot profile provides a comparison of the counties in the Northeastern Region to the 16 counties in Northern California, the State of California, and the entire United States. **Appendix A, Table 1.0 provides additional demographic detail.**

A. Geography of the Northeastern Region Counties

As cited above, the seven counties that are part of the **NECCC** cover 16.49% of the land in California. Furthermore, they represent well both the diversity of geography in the northeastern region of the state and the fact that diversity of geography can often create challenges to the deployment of broadband infrastructure.

The two counties that border Oregon – **Siskiyou** and **Modoc** – demonstrate this geographic diversity particularly well. While Mt. Shasta lies at the center of Siskiyou County, the county also features lakes, dense forests, high desert, chaparral, waterfalls, and rivers. Modoc County, also bordering Nevada, is dominated by Medicine Lake Highlands, the largest shield volcano on the West coast, and Warner Mountains in the east with Modoc National Forest on the plateau between them. Large portions of Modoc and Siskiyou are comprised of federal land.

Shasta County lies south of Siskiyou at the northern end the Sacramento Valley, with portions extending into the southern reaches of the Cascade Range.

Lassen County borders Modoc County to the north and the State of Nevada to the east and lies where the Sierra Nevada and Cascade mountains meet the desert of the Great Basin.

Plumas County lies south of Lassen and meets up with the Sierra and Cascade mountain ranges. The county borders Butte and Tehama to the west. 70% of its area, or over 1.0 million acres, are part of national forests, and it boasts 100 lakes and 100 miles of rivers and streams.

Butte County has Feather River and Butte Creek running through it. Part of the county's western border is formed by the Sacramento River. The county lies along the western slope of the Sierra Nevada, the steep slopes.

Tehama County is geographically the center of this project area. The north-south running Sacramento River and Interstate 5 split Tehama County geographically into two roughly equal parts.

B. Land Square Mile Coverage

- California covers 155,959 square miles or 4.4% of the USA
- 16 Northern Counties cover 43,298 square miles or 27.76% of California
- 7 NE Counties cover 25,718 square miles or 16.49% of California

C. Population

- California's populations is 37,253,956 or 12.07% of the USA
- 16 Northern Counties' population is 1,633,967 or 4.39% of California
- 7 NE Counties' population is 570,174 or 1.53% of California

According to Department of Finance statistics in these seven counties there are 23 incorporated cities and towns encompassing approximately 311,978, or 54.7% of the total the Northeastern Region's population. There are 22.2 persons per square mile in the Northeastern region as compared to 238.9 persons per square mile statewide.

D. Number of Households as of 2010

- California households are 12,577,498 or 10.82% of the USA
- 16 Northern County households are 631,402 or 5.02% of California
- 7 NE Counties' households are 224,335 or 1.78% of California

E. Median Household Income

- The USA median household income is \$50,221
- California' median household income is \$58,925 or 17.33 higher than USA
- 16 Northern Counties' median household income ranges from \$33,546 to \$61,985
- 7 NE Counties' median household income ranges from \$34,290 to \$46,377

F. Persons Living Below the Poverty Levels

- 14.3% in the USA
- 14.2% in California
- From 9.5% to 22.1% in the 16 Northern Counties
- From 12.3% to 18.9% in the 7 NE Counties

G. Number of Firms as of 2009

- The USA has 28,524,226 firms.
- California has 3,532,132 firms or 12.4% of the US firms.
- 16 Northern Counties have 151,564 firms, or 4.29% of the California firms.
- 7 NE Counties have 46,962 firms or 1.33% of the California firms.

H. Potential Number of Anchor Institutions

- **16 Northern Counties**
The 16 Northern California counties have 109 potential anchor institutions identified to be part of the NCBP. This number includes 40 Hospitals, 20 K-12 County Office of Education sites 14 Community College sites, 16 County/Main Libraries, 16 Public Safety Answering Points, and three (3) California State University campuses.
Appendix A, Table 2.0
- **7 Northeastern Counties**
The Northeastern California Connect Region has 42 potential anchor institutions identified to be part of the NCBP. This number includes 14 Hospitals, nine (9) K-12 County Offices of Education sites, four (4) Community College sites, seven (7) County/Main Libraries, seven (7) Public Safety Answering Points, and one (1) California State University campus. **Appendix A, Table 3.0**

I. Telecommunications Services

The Center for Economic Development, California State University, Chico (CED) funded by the California Emerging Technology Fund (CETF) program conducted a

research study, the **Northeastern Broadband Demand Aggregation Connect Report**, with the following three objectives:

1. Survey the project area to determine the aggregated demand for broadband service;
2. Outreach to Internet Service Providers (ISPs) and Wireless Internet Service Providers (WISPs) to determine the current and projected availability of broadband service and develop a preferred infrastructure plan for the project area; and
3. Determine the level of jurisdictional policy and procedural support for the expansion of broadband services across the region.

Among the findings of this report are those related to the following three areas listed in the Executive Summary:

- **Demand for Broadband:** The CED report found that 69.4% of households and 82% of small business said Internet access is either extremely important, important or somewhat important. Of those households that have broadband services 55% use DSL. For small businesses 61.3 % of the broadband users have DSL service.
- **Supply of Broadband:** The CED report identified a number of providers serving these counties, **Appendix A, Table 4.0**. The Report found that broadband services are not available to 40.5% of households. The same percent of small businesses do not have broadband services available to them. According to the latest mapping efforts to develop a National Broadband Map, the initial 2010 results show along Route 99 there are pockets in Butte County and one pocket in Shasta that have access to 11-100 Mbps broadband. Outside this corridor the capacity is less than 5 Mbps, **Appendix A, Table 5.0**.
- **Satisfaction with Broadband:** The CED report stated “Calculated as a percentage of the total population aggregated over the entire project area, there are 237,790 households and 5,225 businesses in seven of California’s northeastern counties that: 1) do not have broadband and want it; or 2) have it, and are unsatisfied with their current service; and 3) are willing to pay more for it.”

IV. Mission, Vision, Strategic Planning Framework, and Goals

A. Mission

The Mission of the **NECCC** is to develop and facilitate the implementation of a broadband infrastructure plan that will provide a cohesive, integrated and robust middle-mile and last-mile network infrastructure that will interconnect these seven counties together for the first time.

B. Vision

The Vision of the **NECCC** is the presence and vigorous use of broadband access, at the **National Broadband Plan** minimum standards (100 Mbps download and 50 Mbps upload), for all individuals living, working and going to school in Northern California, especially in the seven counties within this Consortium.

C. Strategic Planning Framework

Figure 2 below depicts the building blocks and path to achieving access to broadband for all in Northern California. As shown, at the foundation there must be a comprehensive integrated middle-mile fiber-based infrastructure that has the capacity needed today and the growth potential for the long-range future.

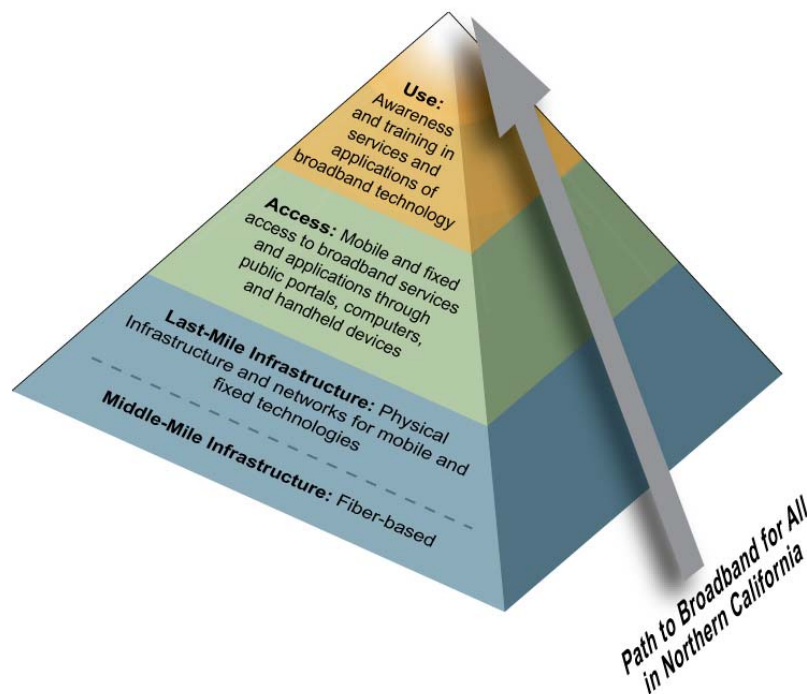


Figure 2: Building Blocks to Broadband in Northern California

Once the blueprint for this foundation infrastructure is known, meaningful deployment can begin and planning and deployment of last-mile infrastructure also can be launched with assurance that end users will ultimately have robust connectivity to the worldwide Internet.

Full and comprehensive access from any location within the seven counties will only be available when the infrastructure is completed and in place. In the meantime, a wide range of temporary

strategies and solutions need to be implemented to maximize access for the greatest number of individuals.

At the apex of the pyramid is the challenge of giving every individual the opportunity to acquire the knowledge and skills needed to effectively gain access to and utilize the data and information readily available over the worldwide Internet that will enable each person to enhance the quality of his/her life. Once the infrastructure and access barriers are removed the tasks of making individuals aware of and becoming trained in the use of the tools should be easier. In the meantime, training programs need to be made available where access is possible.

While the primary thrust of the **NECCC** is to develop a comprehensive plan for middle-mile and last-mile infrastructure, it will also vigorously pursue expanding access and training to increase adoption.

D. Goals

The overarching goal of the **NECCC** is to meet the current and long-term middle-mile and last-mile broadband needs of the 571,284 citizens living in the 23 incorporated communities, 139 unincorporated Census Designated Places and rural areas in the seven counties to be served by the planned infrastructure.

Within this overarching goal is a key objective to directly connect the primary anchor institutions in the seven (7) counties to the middle-mile infrastructure via fiber. Initially, 42 anchor sites will be connected directly by fiber:

- Four (4) Community College Districts and Colleges,
- Nine (9) County Offices of Education sites,
- One (1) CSU university,
- Seven (7) County and Main Libraries,
- Seven (7) major County Public Safety Answering Point sites, and
- Fourteen (14) Hospital facilities.

Appendix A, Table 3.0 provides a list of prospective anchor institutions.

A second key objective is to use the middle-mile infrastructure to help meet the needs and requirements for last-mile connectivity by local, county, state, and federal agencies, businesses and residences, especially in the unserved and underserved areas in these seven counties. Also, via last-mile connections to this middle mile infrastructure K-12 schools, branch libraries, secondary public safety answering points, and a range of health facilities will enhance their connectivity to their respective anchor institutions in the county.

V. Background

A. Consortium History

The **NECCC** is an extension, expansion, and solidification of the consortium created by the Center for Economic Development (CED) at CSU Chico as part of its participation in the CETF programs. Its purpose is to specifically ensure the planning and implementation of a comprehensive and robust broadband infrastructure that would ensure access for and enable adoption by all citizens in these seven counties. Its membership is comprised of organizations and entities that have been engaged in the delivery of networked communications and/or promoting its deployment for over 40 years. The members have joined forces to form this consortium in recognition that the seven counties within the **NECCC** scope, as well as the eight others in Northern California, have been left behind in the deployment of broadband.

In essence, the **NECCC** is committed to achieving the recommendation made by the California Broadband Task Force to have our state achieve fast, reliable, and affordable broadband services by **building out high-speed broadband infrastructure to all Californians**.

B. Inception of the Project

The origins of this project can be traced back a century when individuals in one or more of these counties saw the need to have telephone services and went about creating small rural private telephone companies. Some of these companies still exist and serve customers today.

In the 1980s, the California State University (CSU) had the need to interconnect all of its campuses, including CSU Chico, and created CSUNet. In 1997, the CSU joined together with the University of California, Stanford, Caltech, and USC to form CENIC as Charter Associates in order to ensure that they and by extension the state of California would reap the benefits of advanced networking. By 2000, the California Community Colleges and the K-12 System also became Charter Associates of CENIC. Today, CENIC provides connectivity to 10 million students, faculty, and staff, including those in the seven counties within the scope of the **NECCC**.

Communities beyond the K-20 research and education have seen the need for broadband networking to empower innovation as well. Very recently, the California Telehealth Network (CTN) was created. Other entities such as Libraries and Public Safety Answering Points have also expressed the need to have robust interconnectivity.

Finally, the **Northeastern Broadband Demand Aggregation Connect Report** produced by the CED at CSU Chico in 2010 provides clear evidence of the demand and the shortage of supply of broadband throughout these seven counties.

As result of these events and given the CPUC Regional Consortia Broadband Planning Program, the leaders of various members of this consortium have agreed to pursue this project together to ensure that northern and northeastern California are not left behind as California and the world implement the broadband networking needed to move forward into the 21st century.

C. Importance of the Project

Having such a cohesive network infrastructure throughout Northern California will have a similar impact as roads and waterways currently have. Without such a comprehensive broadband infrastructure the citizens of Northern California will continue to be deprived of proper access and lag in adopting use of the networking capabilities that are increasingly essential to an individual's quality of life in the 21st century.

While each regional consortium focuses on making sure the needs and requirements of its communities and counties are incorporated into the plan, cohesiveness and coordination between regional efforts is vital as there are many pervasive collaborative resource-sharing activities and services throughout Northern California that cut across county boundaries. These activities and services are related to: 1) economic growth of businesses and industry; 2) enhanced of educational services; 3) access to increased library services and resources; 4) improved access to quality health delivery; 5) interoperability of public safety services; and 6) online access to all levels of government services. Cooperation and coordination among the regional efforts that touch on these areas is vital to ensure no unnecessary duplication of effort, a stronger voice for advocacy, coordination of communication and messaging, and the ability to take advantage of economies of scale.

VI. Organizational Structure

A. Purpose of the Consortium

The purpose of the **NECCC** is twofold:

1. To bring together organizations and entities from the seven aforementioned counties in Northeastern California that have a vested interest in having broadband services accessible to all citizens in this region, and
2. Through this consortium, to coordinate efforts among them toward the clearly defined goal of making the January 2008 recommendation of the California Broadband Task Force –“**Build out high-speed broadband infrastructure to all Californians**” – a reality for this region of the state.

B. Consortium Governance Structure and Decision-making Process

The **NECCC** functions as an “open” Assembly with decisions reached by consensus of the official members of the Assembly. There is a Steering Committee, comprised of representatives from the various member categories to provide advice and counsel to the Consortium Manager. However, all major decisions are made by consensus of the official Assembly members. Special ad hoc task forces will be created as needed.

Information will flow freely and often, via the website, a quarterly newsletter, semi-annual in-person meetings in each of the counties, a semi-annual open workshop, open conference calls, and special reports and frequent news releases. **Appendix B** provides a more complete description of the Consortium structure.

C. Composition of the Membership

The **NECCC** membership is composed of government entities (county, city/town, unincorporated districts, state and federal), tribal communities, educational institutions, libraries, public safety entities, health delivery facilities, community and non-profit organizations, local businesses, individuals from the community, and telecommunications companies currently providing services in these counties. The range of consortium members is designed to ensure that all stakeholders have input into the planning and receive benefits from it. **Appendix B** provides a list of the Consortium membership. The Membership Information Sheet for each member is in **Appendix H**, and the letters of support in **Appendix I**.

D. Consortium Management

Two organizations serve as the management principals for the **NECCC**:

1. The Corporation for Education Network Initiative in California (CENIC)
2. The Center for Economic Development (CED) at California State University, Chico

CENIC is acting as the lead management organization with the overall management and fiscal responsibilities for this regional consortium. CENIC has assigned a person to serve as the Manager and has a dedicated team of professionals to serve as the Chief Infrastructure Planner, Chief Technologist and Communications/PR Manager. Other CENIC professionals will provide assistance as needed. **Appendix C** provides brief bios and the roles of the key CENIC persons working this effort.

The CED at CSU Chico is partnering with CENIC to help manage the five activities. The CED has assigned a person to serve as the Associate Manager and has dedicated a team of professionals to serve as the Manager of Research and Analysis and Manager of Adoption/Training Programs. Other CED professionals will provide assistance as needed. **Appendix C** provides brief bios and roles of the key CED persons working this effort.

[About the Corporation for Education Network Initiatives in California](#)

CENIC, a 501(c) 3 founded in 1997, has five Charter members: the University of California, the California State University, the California Community College System, the California K-12 System, and three private universities (Caltech, Stanford, and USC). CENIC provides these members advanced networking serving nearly 10 million users. CENIC currently owns and operates CalREN, a network consisting of over 2,900 miles of CENIC owned-and-operated fiber extending from the Mexican border to Corning and San Diego into Arizona, plus over 300 managed circuits leased from telecommunications carriers.

Today, CENIC is a major player in both the national and international networking arenas and manages the largest and most robust statewide optical network for education in the nation. In addition to supporting its own CalREN, CENIC provides network operations support for a national 12,000-mile fiber-based research and education network infrastructure owned and operated by National LambdaRail Inc.

As stated earlier, CENIC is currently a partner with CVIN, LLC in implementing the \$66 million Central Valley project that will bring a robust, comprehensive integrated fiber-optics middle-mile infrastructure to 18 counties in the Central Valley and Sierras. This new infrastructure will provide direct fiber connectivity to 64 anchor institutions as well as serve businesses and residences.

CENIC is an organization that is very experienced in planning, designing, installing, operating, and managing fiber-optic networks. The Chief Executive Officer, Chief Technology Officer, and Chief Operating Officer, the management leaders in CENIC, are all individuals with over 30 years of experience *each* and share the philosophy of providing robust, cost-effective, state-of-the-art communication networks while working collaborative with the CENIC members to ensure quality services that add value to the members' research and education missions. **Appendix D** provides additional information about CENIC's qualifications to lead this effort.

[About the Center for Economic Development \(CED\) at California State University, Chico](#)

The CED at CSU Chico provides products and services primarily but not limited to Northern California promoting community and economic development. As a non-profit 501(c) 3 community outreach office of the California State University, Chico, the CED's mission is to improve the economic, environmental, health, and social conditions in the North State through support to and education of organizations, communities, and individuals.

As part of this mission, the CED at CSU Chico educates and builds the knowledge and

capacity of California economic development professionals and enhances the well-being of the region's citizens by facilitating sustained, long-term, and coordinated economic development strategies. The CED at CSU Chico achieves this mission by helping communities and businesses in planning, community development, employment generation, natural resource management, workforce development, alternative energy advancement and leadership training.

The CED at CSU Chico took the lead and facilitated both the Northeastern and Upstate California Connect **Broadband Demand Aggregation Projects** and facilitated the development of a statewide broadband adoption strategy. **Appendix D** provides additional information about CED at CSU Chico's qualifications to co-manage this effort.

Appendix D descriptions of CENIC and CED demonstrate how the combination of the two organizations meets and satisfies the criteria the CPUC plans to use to evaluate this proposal.

VII. Activities

There are five major activities in carrying out this effort. Within each activity, there are several tasks to be executed over the three years. The following provides a summary of the tasks within each activity for each phase of the project. The specific tasks are provided in the Work Plan for each phase, **Appendices E, F, and G.**

(NOTE: For budget purposes, the Work Plans are by-year as prescribed by the CPUC requirements. However, the tasks within each activity are aligned by phases of the endeavor and may actually be completed on an accelerated time schedule, and thus may not perfectly align to the budget year.)

1. Activity #1: ENSURE COMMUNITY INVOLVEMENT

1.1. Engage Community Leadership

Phase 1: In each county meet, engage and seek input from County Supervisors and County Management; City, Town, Unincorporated District and Native Tribe Leadership; Anchor Site Leadership and staff; and, Community and Business Groups. Meet and inform community media (newspaper, radio, TV etc) to ensure broad dissemination of the status and progress of the plan.

Phases 2 and 3: Continue to involve these leaders in each county; and, continue to inform the county media of project progress.

1.2. Maintain Community Commitment throughout the Life of the Project

Phases 1, 2, and 3: In each of the counties conduct semi-annual in-person “open” briefing meetings in each of the counties; hold semi-annual Assembly meetings and “open” workshops of the consortium; hold “open” conference calls, as needed; maintain web site; issue quarterly electronic newsletter; issue special reports, as appropriate; issue news releases, as appropriate; and, form ad hoc task forces, as needed.

2. Activity #2: DEVELOP and IMPLEMENT BROADBAND INFRASTRUCTURE PLAN

2.1. Involve Current Telecommunications Providers

Phase 1: Engage Plumas-Sierra Telecommunications and CVIN, LLC, two of the ARRA recipients whose middle-mile infrastructure will have major connection points in Northern California. Meet with current major telecommunications providers and wireless ISP and Cellular providers to in the region to learn of their current “middle and last mile” offerings and future plans to deploy broadband to the communities they serve; determine their interest in cooperating in this project; assess whether or not their assets can be utilized as part of the Plan; and certify those providers that do have assets and willingness to have them used in this project. Do likewise with Power Companies and Cooperatives.

Phase 2: Involve the confirmed providers in detailed planning and design of the “middle-mile and last-mile” infrastructure.

Phase 3: Involve the confirmed providers in implementation of the “middle-mile and last-mile” infrastructure.

2.2. Involve CPUC, ARRA and Caltrans Projects in this Effort

Phase 1: Meet with CPUC, ARRA, Caltrans and other projects (approved and rejected) in the region to learn of their current and proposed “middle and last mile” offerings to deploy broadband to the communities they serve; determine their interest in cooperating in this project; assess whether their assets can be utilized as part of the Plan; and, certify those projects that do have assets and willingness to have them used in this project.

Phase 2: Involve the confirmed projects in detailed planning and design of the “middle-mile and last-mile” infrastructure.

Phase 3: Involve the confirmed projects in implementation of the “middle-mile and last-mile” infrastructure.

2.3. Develop Middle-Mile Infrastructure

Phase 1: Develop Conceptual Design by identifying existing potential routes with existing fiber and/or conduits; current middle-mile long-haul fiber providers; interconnection points; and, all fiber Right to Use (RTU) opportunities. Create preliminary drawings; develop preliminary cost estimate for this conceptual design; review preliminary design and cost estimates with the Consortium Assembly, Community Leaders and participating telecommunications providers; modify preliminary design and costs resulting in the final Conceptual Design; and, produce and share the Conceptual Design.

Phase 2: Develop Detailed Design by affirming routes; determining what existing fiber and/or conduits to use; affirm points; and, secure all fiber Right to Use (RTU) agreements. Create detailed drawings; develop detailed cost estimates; review design and cost estimates with the Consortium Assembly, Community Leaders and participating telecommunications providers; modify detailed design and costs; and, produce and share the Middle-Mile Broadband Plan.

Phase 3: Revise Detailed Design, as needed.

2.4. Environmental Assessment (EA)

Phase 1: Obtain initial input on draft preliminary conceptual design from agencies that must approve EA- State Office of Historical Preservation, Caltrans, State Fish and Games, Federal Fish and Wildlife, National Forest Services, Bureau of Land and Mines, and Army Corps of Engineers; conduct and produce an initial “unofficial” EA; review the “unofficial” EA with the appropriate approval agencies; modify the EA; share and discuss the modified initial EA with Assembly, community leaders and groups, participating telecommunications providers; and, provide results of the report on EA and discussion to the Detailed Design team.

Phase 2: Prepare and secure approval for the “official EA Report.”

Phase 3: Update EA, as needed.

2.5. Develop and Implement a Time-Action Plan for the Middle-Mile

Phase 1: Secure the necessary funding to launch the detailed design phase and environmental assessment; select a firm to do the detailed design and cost estimates; and select a firm to do the “official environmental assessment”. Secure and/or facilitate securing funding to launch one or more middle-mile projects.

Phases 2 and 3: Launch construction of middle-mile projects by prioritizing projects; securing the funds for those projects; issuing RFPs and selecting firms to do the construction; and monitoring the implementation of these projects.

2.6. Develop Last-Mile Infrastructure for Each County

Phase 1: Develop Conceptual Design for each county by Identifying current last-mile providers and the needs for the communities within each county. Create preliminary Conceptual Designs; develop preliminary cost estimates for these conceptual designs; review preliminary design and cost estimates with County and Community Leaders and participating telecommunications providers; modify preliminary designs and costs; and, produce and share the conceptual design for each county.

Phase 2: Develop Detailed Designs for each county by involving certified providers and community leaders; create the detailed designs and cost estimates; review the designs and costs with the county leaders; modify the designs and cost estimates; and produce and share a Last Mile Plan for each county.

Phase 3: Revise the Detailed Designs, as needed.

2.7. Develop a Time-Action Plans for the Last-Mile

Phase 1: Pursue the necessary funding to launch priority projects in each county.

Phases 2 and 3: Launch construction of last-mile projects in each county by prioritizing projects; securing the funds for those projects; issuing RFPs and selecting firms to do the construction; and monitoring the implementation of these projects.

2.8. Facilitate and Monitor the Overall Implementation of the Broadband Plan

Phases 1, 2, and 3: Facilitate and monitor the implementation of the Broadband Plan.

3. Activity #3: DEVELOP, IMPLEMENT and MAINTAIN ACCESS INFORMATION

3.1. Maintain Up-to-date Demand, Supply, and Access Information

Phase 1: With the assistance of providers ascertain the types and levels of service offered to residences and businesses, and services planned to be offered in the future and identify potential revenue generating customers. Update key demographic information on each county. Conduct an independent customer survey to verify provider claims. Maintain ongoing set of Broadband Infrastructure maps to track progress of the project through the work of the CSUC, Geographic Information Center.

Phases 2 and 3: Update projections of services potential revenue generating customers. Update key demographic information on each county. Conduct an independent customer survey to verify provider claims. Maintain ongoing set of Broadband Infrastructure maps to track progress of the project through the work of the CSUC, Geographic Information Center.

3.2. Consult and Assist Major Service Entities Develop Access Plans

Phases 1, 2, and 3: Work with the County Offices of Education (COE), through the K12 HighSpeed Network, to develop and implement a long range plans for providing their school districts and schools access to broadband connections back to the COE and through the COE to CalREN;

Work with the County Libraries (LIBRARY), through the NorthNet Library System, to develop and implement a long range plans for providing their branch libraries access to broadband connections back to the County Library and through CalREN to all the other County Libraries in the NorthNet Library System and statewide;

Work with the County Public Safety Answering Points (PSAP), through the Northern Planning Area of California (NPAC), under California’s Statewide Interoperability Executive Committee (CalSIEC, to develop and implement a long range plans for providing all the PSAPs in each county access to broadband connections back to the County PSAP and through this backbone to all the other County PSAPs in the NPAC and ultimately statewide;

Work with the California Telehealth Network (CTN) to develop an access plan to connect all the health facilities in each county to the CTN major hub in the county and through CTN to all the major facilities in the region and statewide;

Work with all the County and municipal government IT organizations to determine how this infrastructure can assist them collectively.

4. Activity #4: DEVELOP AND IMPLEMENT ADOPTION AND TRAINING PLANS AND PROGRAMS

4.1. Update Data on Existing Adoption and Training Programs

Phase 1: Identify current programs in each county;

Phase 2: Identify currently funded ARRA and CETF adoption programs that might be utilized in these counties; update the assessed need for adoption programs by county; and produce a report that clearly states the need by county.

Phase 3: Update data on Adoption/Training Programs.

4.2. Develop Implementation Plans for Adoption Programs

Phase 1: No tasks,

Phase 2: Develop Base Level Program applicable to all counties; secure funds to underwrite the implementation of the Base Program; and, develop tailored programs appropriate to various levels of users and groups of users.

Phase 3: Implement Training programs in each county.

5. Activity #5: WORK WITH THE OTHER REGIONAL CONSORTIA TO ENSURE THE DEVELOPMENT OF A COHESIVE NORTHERN CALIFORNIA INFRASTRUCTURE

5.1. Share Plans among Consortia as Developed

Phases 1, 2, and 3: Conduct monthly conference calls; hold In-Person Meetings quarterly; and, maintain ongoing set of Broadband Infrastructure maps for all 16 counties in Northern California to track progress of all the projects through the work of the CSUC, Geographic Information Center.

5.2. Address Major Issues Affecting All Regions

Phase 1: Agree on Infrastructure Interconnection points; agree on transit of traffic; and, agree on major policy issues.

Phases 2 and 3: Implement Infrastructure Interconnection points; transit of traffic; and, major policy issues.

5.3. Evaluate the Performance of the NECCC and the overall Northern California Broadband Plan

Phase 3: Conduct independent evaluation of the NECC Consortium and the implementation of the Northern California Broadband Plan.

VIII. Investment Strategy

The **primary part** of the **NECCC's** investment strategy is to drive a coordinated effort to develop a comprehensive, cohesive **Broadband Plan** for the aforementioned seven counties. By sharing a common mission and focusing on shared priorities, the **NECCC** can maximize investments, eliminate redundant efforts, and lower both the one-time capital costs and the ongoing operational costs resulting in lower costs to the end users.

The **second part** of this strategy is for the **NECCC** to serve as the vehicle to coordinate efforts with other groups in Northern California to ensure that an integrated **Northern California Broadband Plan** is developed to serve the 16 counties in this part of the state.

The **third part** of this strategy is to determine and select the best vehicle(s) and projects to actually implement the Plan.

The **fourth part** of this strategy is for the **NECCC** to facilitate the selected vehicle(s) to pursue and secure the funding necessary to implement for one or more projects called for in the Plan, and to monitor the progress of implementing projects.

The **fifth part** of this strategy component is to educate and make the public aware of the benefits of using broadband to advance economic development of the region and enhance the quality of life within the region.

The **sixth and final part** of this strategy is to facilitate the implementation of Adoption/Training programs throughout the aforementioned seven counties to ensure that all citizens have the opportunity to become effective users of broadband services.

IX. Work Plans

The **NECCC** has developed a detailed Work Plan for each of the three years of the project. **Appendices E, F, and G** are the yearly work plans that include the specific tasks, major deliverables, timelines and budget breakdown within each of the five activities.

To maximize our time, effort, and resources, primary foci have been identified in each year. The following is a summary of the tasks and deliverables for each year's work plan.

A. Year 1 Work Plan (Appendix E)

Year 1 Tasks

- The primary focus of the **NECCC** over the first year will be to develop the Conceptual Design (*Activity 2.3*) for the broadband infrastructure plan that will provide a cohesive, integrated, and robust middle-mile and last-mile network infrastructure that will interconnect the aforementioned seven counties together.
- As an integral part of this development, the current telecommunications providers will be engaged to learn of their current middle- and last-mile offerings and future plans to deploy broadband to the communities they serve; determine their interest in cooperating in this project; and to assess whether their assets can be utilized as part of the Conceptual Design (*Activities 2.1 and 2.2*).
- At the same time, it will be important to assess the environmental issues that will need to be addressed to turn the Conceptual Design into a real network infrastructure (*Activity 2.4*).
- By developing a viable Conceptual Design, the **NECCC** believes the stage will be set to maximize investments in future deployment while reducing redundant efforts and lowering costs for deployment as well as costs to the end users for services.
- While the **NECCC** intends to give primary attention to developing the Conceptual Design for the plan, equal effort will go into engaging, informing, expanding awareness, gaining support, and securing commitment to this effort from all facets of the community (*Activities 1.1 and 1.2*).
- During the first year, we also will concentrate on updating the status of access in each county (*Activity 3.1*) and assessing the status of training and adoption programs available across the aforementioned seven counties (*Activity 4.1*).
- Finally, the **NECCC** will collaborate with the other Regional Consortia to make sure our Conceptual Design fits into an overall Northern California Broadband Plan (*Activity 5.1*).

Year 1 Major Deliverables

- Ensure a widespread awareness, buy-in and commitment to the consortium's mission;
- Produce the Conceptual Design for the middle-mile portion of the infrastructure plan;
- Develop a report identifying existing installed fiber that could be used to serve as a portion of this middle-mile conceptual design and evaluate its availability;
- Produce the Conceptual Design for the last-mile component of the infrastructure for each county;

- Develop a report identifying currently available last-mile capabilities in each county and evaluate their potential to meet the Conceptual Design;
- Prioritize the unmet last-mile access needs in each county;
- Issue a report assessing the availability of adoption programs in each county;
- Work with county and municipal governments to adopt policies and regulations that will promote deployment and use of broadband; and
- Collaborate with other regional consortia to ensure an integrated middle mile infrastructure throughout Northern California.

B. Year 2 Work Plan (Appendix F)

Year 2 Tasks

- In the second year, the primary focus will be on securing the funding to turn the Conceptual Design into a Detailed Design while completing the Environmental Assessment. At the same time the **NECCC** will pursue and/or facilitate funding to launch one or more middle-mile build projects (*Activity 2.5*).
- At the same time, the **NECCC** will work with incumbent and potential last-mile providers to assist them in completing designs for areas they currently serve or propose to serve. Part of the **NECCC's** assistance will be to point them to areas needing access. Also, we will work to point them to potential funding sources (*Activities 2.5 and 3.1*).
- During this second year, the **NECCC** will work with groups such as the County Offices of Education, County Libraries, County Public Access Points, the California Telehealth Network, and County and State Government agencies with special networking needs. For instance, County Libraries have branches located throughout the county that must be connected back to the County Library. The objective will be to develop plans for each of these groups that provide functionally effective and cost-efficient solutions utilizing the new infrastructure (*Activity 3.2*).
- The **NECCC** will continue our program of open and continuous communication with all constituents in order to maintain communitywide commitment to our efforts (*Activity 1.2*).
- During this year, the **NECCC** will gather information about training/adoption programs that have been implemented and have been certified as successful in geographic and demographic areas similar to the aforementioned seven counties. The best ones will be secured for use in our region (*Activity 4.1*). We will seek funding to underwrite our plans and programs.
- The **NECCC** will continue to collaborate with the other regions to ensure that our progress is going to achieve the end goal of a comprehensive Northern California broadband infrastructure (*Activity 5.1*).

Year 2 Major Deliverables

- Continue the strong communications with members and constituents;
- Secure the funding to complete the detailed design and environmental assessment and initial capital funding to launch construction of one or more middle-mile projects against the plan;
- Facilitate designs and implementation plans for last-mile deployment that will begin to meet access needs;

- Assist special groups (County Offices of Education, County Libraries, County Public Access Points, the California Telehealth Network and County Governments) develop plans for use of this infrastructure;
- Work with CETF to gather information on successful adoption/training programs and secure funding to underwrite plan for region; and
- Collaborate with other consortia.

C. Year 3 Work Plan (Appendix G)

Year 3 Tasks

- In the third year, the primary focus will be on accelerating the funding and implementation of the middle-mile and last-mile infrastructure as presented in the Detailed Design.
- The **NECCC** will launch a full-scale Training/Adoption Plan and programs throughout the aforementioned seven counties (*Activity 4.2*).
- The **NECCC** will continue our program of open and continuous communication with all constituents in order to maintain communitywide commitment to our efforts (*Activity 1.2*).
- The **NECCC** will continue to collaborate with the other regions to ensure that our progress is going to achieve the end goal of a comprehensive Northern California broadband infrastructure (*Activity 5.1*).
- During this year, the **NECCC** will have an independent evaluation as to the overall effectiveness of the Consortium fulfilling its mission. The results of the evaluation will form the decisions on how to proceed.

Year 3 Major Deliverables

- Continue the strong communications with members and constituents;
- Secure more funding to accelerate the implementation of the middle-mile and last-mile infrastructure;
- Launch a full-scale Training/Adoption Plan and programs throughout the aforementioned seven counties; and
- Have independent evaluation as to the overall effectiveness of the consortium fulfilling its mission leading decisions about the future.

X. Expected Outcomes

As a result of executing the tasks associated with these five activities the **Northeastern California Connect Consortium** is confident the following target outcomes will be achieved. As part of its work plan the **Consortium** will produce an annual report measuring progress against these targets.

A. Overall Outcomes

- Provide citizens in these seven counties access to the minimum broadband speeds called for in the National Broadband Plan and at reasonable costs;
- Have the network infrastructure in place to attract, and retain competitive businesses, entrepreneurs, and residents;
- Improve the quality of life for local residents via online access to information, services and connecting them to family and friends in real-time; and
- Create immediate economic stimulus to the area via the infusion of grant funds to build network infrastructure.

B. Outcomes for Educational Entities

- Provide the connectivity necessary for all campuses and schools to pursue technology solutions that can achieve economies of scale and cost savings through aggregation and centralization, freeing up dollars to be used for other vital needs; and
- Give students access to leading edge resources and programs, thus giving them the necessary skills to compete in a global marketplace.

C. Outcomes for Community Health Facilities

- The potential to expand access to affordable care, increase the efficiency of care provision, reduce unnecessary healthcare costs, prevent medical errors, increase administrative efficiencies, and decrease paperwork (data from Health and Human Services web page on Health Information Technology);
- Use of videoconferencing services to reduce health care costs (CETF report “Green Benefits of Broadband shows a reduction in the cost of follow-up care in health facilities of 42% with overall care cost reduced by 6%); and
- Empowerment of individuals to become active participants in the maintenance of their own health.

D. Outcomes for Public Safety Entities

- A dedicated regional emergency services network which can serve as the keystone to improve integration of the communication systems of the various police organizations, fire, rescue, and emergency units within a county and across county lines; and
- Demonstration of the value of having a dedicated network for such specialized activities.

E. Outcomes for Community Libraries

- Provide the connectivity necessary for all main and branch libraries to pursue service to their patrons and achieve economies of scale and cost savings through aggregation and centralization of library resources; and
- Give patrons access to current library resources and information, improving their quality of life.

F. Outcomes for Local Businesses

- In 2010, the Public Policy Institute of California's report titled "Does Broadband Boost Local Economic Development?" provided a critical analysis of impact of broadband on economic development. Its conclusion is that broadband availability and adoption is a significant booster to local economic development, particularly in unserved and underserved areas.
- Broadband allows rural areas to compete for low and high-end service jobs (the fastest growing sector and most conducive for broadband applications), from call centers to software development; and
- Businesses that adopt e-commerce and Internet practices can improve efficiency and expand market reach thus allowing their business to flourish both locally and regionally.

G. Outcomes for Area Households

- Reduce transportation time and expenses to and from health care providers via telehealth programs and services;
- Allow the option of working from home either as a flexible part of workdays, as systematic telecommuting, or for operating at-home businesses; and
- Improve interaction among students, parents, teachers, and school administrators via online forums/communications for work/job training and certification, and improve ongoing parental involvement in children's education.

XI. Budget and Expenditures

Chart 1 below provides a summary of the projected revenue and budgeted expenditures of the **NECCC** over a three-year period. A more detailed expenditure budget is included in each of the three yearly work plans **Appendices E, F and G**.

A. Revenue

As shown in Chart 1, **NECCC** projects its annual revenue to be \$222,578 in Year 1, and \$211,298 in Years 2 and 3. Just over two-thirds, or \$149,997 in Year 1 and \$149,877 in Years 2 and 3 assume receipt of the grant for this proposal from the CPUC Rural and Urban Broadband Consortia Grant Program. The other one-third, or \$72,580 in Year 1 and \$61,420 in Years 2 and 3 is in the form of in-kind contributions by CENIC and CED at CSU Chico.

B. Expenses

As shown in Chart 1, the expenses are broken out by the CPUC prescribed categories.

Personnel:

In Year 1, the \$168,557 personnel expenses cover the time of the Consortium Manager, PR Communications Manager, Chief Infrastructure Planner, and Chief Technologist provided by CENIC, as well as the Associate Consortium Manager and Director of Research and staff provided by the CED at CSU Chico. Of the total \$99,797 is to be charged to the grant and \$68,760 is in-kind by CENIC.

In Years 2 and 3, a Training/Adoption Manager is added. Of the total \$172,957, \$115,357 is to be charged to the grant and \$57,600 is in-kind by CENIC.

Travel:

In Year 1 travel is projected at \$13,325 to be charged to the grant. In Years 2 and 3 travel is projected at \$10,000, all to be charged to the grant. This covers the travel of staff to perform the work of the **NECCC**.

Training/Educational Supplies:

Beginning in Year 2, projections are to spend \$6,000 each for adoption and training material to be charged to the grant.

Office Supplies and Printing:

Each year it is projected that \$2,500 will be needed for printing and general office supplies to be charged to the grant.

Conferences and Meetings:

Each year, two semi-annual in-person meetings will be held in each county; two semi-annual regional workshops will be conducted; and, one inter-regional consortia meet will be held. The \$9,500 is to cover these meeting costs. The amount is to be charged to the grant.

External Consultants:

In Year 1, a Design Engineer will be engaged to develop the Conceptual Design for the middle-mile. That person will be retained in Years 2 and 3 to provide ongoing advice

and make any modifications as needed. In Year 1, the amount to cover this position will be \$13,875 and \$6,720 in Years 2 and 3. In Year 1, \$11,000 has also been budgeted to engage high-level consultation related to environmental issues. All these amounts are to be charge to the grant.

Other Expenses:

Both CENIC and the CED at CSU Chico are providing space and administrative support totally \$3,820 per year. This amount is considered an In-kind contribution.

Chart 1 Budget			
	YEAR 1	YEAR 2	YEAR 3
REVENUE			
CPUC GRANT	\$149,997	\$149,877	\$149,877
CENIC (In-Kind)	\$71,460	\$60,300	\$60,300
CED (In-Kind)	\$1,120	\$1,120	\$1,120
OTHER	\$-0	\$-0	\$-0
Total Revenue	\$222,578	\$211,297	\$211,297
EXPENSES			
PERSONNEL	\$168,557	\$172,957	\$172,957
TRAVEL	\$13,325	\$10,000	\$10,000
EQUIPMENT	\$-0	\$-0	\$-0
TRAINING/EDUCATIONAL SUPPLIES	\$-0	\$6,000	\$6,000
OFFICE SUPPLIES AND PRINTING	\$2,500	\$2,300	\$2,300
ADVERTISING AND PROMOTION	\$0	\$-0	\$-0
CONFERENCES, CONVENTIONS, MEETINGS	\$9,500	\$9,500	\$9,500
EXTERNAL CONSULTANTS	\$24,875	\$6,720	\$6,720
OTHER EXPENSES	\$3,820	\$3,820	\$3,820
Total Expenses	\$222,577	\$211,297	\$211,297

XIII. Appendices

Appendix A: Statistical Data

Table 1.0	Demographic Profile for Each County
Table 2.0	Potential Anchor Institutions in 16 Northern California Counties
Table 3.0	Potential Anchor Institutions in 7 Northeastern California Counties
Table 4.0	Network Providers by County
Table 5.0	National Broadband Map Showing Network Service Speeds
Table 6.0	Northeastern CA Census Block Groups and ZIP Codes

Appendix B: The NECC Consortium

Description of the Organization and Functions
List of Official Members
Signed Membership Information Sheets
Letters of Support

Appendix C: Key Personnel Bios and Roles

Appendix D: Qualifications of CENIC and CED

Appendix E: Year 1 Work Plan, Project Schedule, & Budget

Appendix F: Year 2 Work Plan, Project Schedule, & Budget

Appendix G: Year 3 Work Plan, Project Schedule, & Budget

Appendix H: Membership Information Sheets

Appendix I: Letters of Support