



Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program

Submitted Date: 3/26/2010 9:54:24 PM	Easygrants ID: 5090
Funding Opportunity: Broadband Technology Opportunities Program	Applicant Organization: CENTENNIAL BOARD OF COOPERATIVE EDUCATIONAL SERVICES
Task: Submit Application - BTOP	Applicant Name: Ms. Denise Atkinson-Shorey

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	070388426
CCR # (CAGE)	4PYT8
Legal Business Name	CENTENNIAL BOARD OF COOPERATIVE EDUCATIONAL SERVICES
Point of Contact (POC)	[REDACTED]
Alternate POC	
Electronic Business POC	
Alternate Electronic Business POC	

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Ms.
First Name	Denise
Middle Name	
Last Name	Atkinson-Shorey
Suffix	



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Telephone Number	303-809-1403
Fax Number	303-776-0504
Email	denise.shorey@co-eaglenet.net
Title	EAGLE-Net Chief Information Officer

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Mr. Perry , Movick	3037724420 2215	pmovick@cboce s.org

Environmental Point of Contact

Prefix: Mr. Name: Movick, Perry Suffix: Telephone Number: 3037724420 Title: Asst Director - Technology Services
Prefix: Mr. Name: Sohrabnia P.E., Kevin Suffix: Telephone Number: 8037419108 Title: Terracon Consultants

Organization Classification	
Type of Organization	State or State Agency
Is the organization a small business?	No
Does the organization meet the	No



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definition of a socially and economically disadvantaged small business concern?	
--	--

Authorized Organizational Representative	
AOR Name	BUSWELL, TERRY
Result	Notify

Project Title and Project Description

Project Title: Colorado Community Anchors Broadband Consortium - Connecting Colorado's Middle Mile

Project Description: The CCABC Connecting Colorado's Middle Mile Project provides high-speed broadband services to 216 Community Anchor Institutions including K-12 School Districts, Community Colleges, Libraries, BOCES, and higher education. The Network (EAGLE-Net) will pass through 177 communities and will provide the opportunity to expand service to as many as 3,000 to 4,000 additional Community Anchor locations.

CCI Priority Checklist

The following items were selected from the CCI Priority Checklist:

1. This project will deploy Middle Mile broadband infrastructure to community anchor institutions.
2. The project will deploy Middle Mile broadband infrastructure and has incorporated a public-private partnership among government, non-profit and for-profits entities, and other key community stakeholders.
3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.
4. This project will deploy Middle Mile broadband infrastructure to community colleges.
5. This project will deploy Middle Mile broadband infrastructure to public safety entities.
6. This project will deploy Middle Mile broadband infrastructure and either includes a Last Mile infrastructure component in unserved or underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components. Any Last Mile components in rural areas do not exceed 20% of the total eligible costs of the project.



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7. This project will deploy Middle Mile broadband infrastructure and the applicant has proposed to contribute 30 percent or more in non-federal cost match.

Comprehensive Community Infrastructure Components

The following items were selected from the Comprehensive Community Infrastructure Components:

Middle Mile

BIP Applicants

Have you also applied to BIP for funding in the sample proposed funded service area?

➤ No

If Yes, please provide the project title and Easygrants ID number:

Title of Joint BIP Application:

Easygrants ID:

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.

Individual Background Screening



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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 a unit of a state or local government

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:

Name	Title	Employer

B. Executive Summary, Project Purpose and Benefits

Essay Question

Executive Summary of the proposed project:

A- Opportunity.

Historically, it has been economically unfeasible to construct a ubiquitous all fiber optical broadband network in Colorado. The State's physical geography is the most demanding physical geography in the lower 48 states; unusually diverse, encompassing both rugged mountains and vast plains. Because of the out-of-market broadband construction costs in Colorado (1 linear mile of distance could equate to 3-6 miles over rugged terrain), the fiber optic networks built by various utility companies serve only the major cities resulting in the creation of rural underserved broadband islands throughout Colorado with no competitive middle mile high bandwidth connectivity. The middle mile build out will not be completed by the private sector because the costs are too great to reach too few customers. Our Community Anchor schools, community colleges, libraries, and public safety entities have few competitive broadband options. Left to pure market forces, Colorado will continue to have inferior broadband coverage or none at all.



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This application addresses statutory goals by improving access and affordability for education, healthcare, public safety, community institutions, and last mile providers. High-speed broadband access and connectivity are vital for Colorado’s economic growth, global competitiveness, innovation, and education of its population. The Colorado Community Anchor Broadband Consortium (CCABC) strategy begins with the expedient and sustainable expansion of the existing EAGLE-Net network; building out of an “open” network middle mile solution that will provide fiber where economically feasible and/or FCC licensed microwave connectivity to critical middle mile Community Anchor locations statewide. Bandwidth distribution will first support the public Community Anchor tenants and then private connectivity. This high quality middle mile addresses the public/private middle mile needs of major portions of Colorado; will promote last mile completion of broadband deployment, and will provide a full range of interconnectivity to meet provider, carrier and end user requirements.

B- Description.

A detailed assessment was undertaken of Colorado’s schools, community colleges, higher-educational institutes, libraries, healthcare facilities, public safety institutes, and emergency responders to determine those Community Anchor Institutions (CAI) without adequate broadband infrastructure. CCABC has received service confirmation from existing EAGLE-NET CAIs as well as new anchor institutions. The proposed project is shovel ready and is supported by a \$24.6M cash match and a \$18.5M in-kind match. This middle mile solution will push high-speed broadband into parts of the state that are unserved or underserved, thus creating the opportunity to expand broadband to homes, businesses, and other public institutions currently without access.

This project builds a sustainable middle mile network that touches unserved or underserved portions of all 64 Colorado counties. The network is designed as a layered solution with the primary emphasis is to build the physical connections to the Community Anchor locations first. This will create the middle mile distribution facility to a broad range of groups and provide ubiquitous connectivity to the EAGLE-NET Internet/Internet 2 facilities that can supply current and future Tier 1 Internet bandwidth to CAIs and Last Mile service providers. The initial middle mile network will connect all 12 of Colorado’s Regional Service Areas (RSA), providing broadband access to 234 Community Anchors in 177 communities throughout the State.

C- Households and Businesses.



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The CCABC network will provide in excess of 4,954 miles of direct access to an estimated in 1,623,852 households and 50,077 businesses.

D- Community Anchor Institutions.

The CCABC Project will initially provide broadband Internet service to 178 School Districts, 26 Libraries, 12 BOCES, 15 Community Colleges, and 3 Higher Educational entities, and allow for access to private Middle and Last Mile broadband service providers for distribution to their residential and business customers. CCABC will expand its offering to other CAI locations immediately upon completion of each individual RSA, to include local and County government administration, health and human services and first responder/public safety entities (approximately 350 locations), municipal entities (approximately 400 locations), non-profit services organizations (approximately 240 locations), private non-profit foundations and housing agencies (approximately 25 locations).

E- Proposed Services.

Service offerings include broadband transport of Commodity Internet, Internet2, and managed services at speeds of 20 Mbps-1Gbps per CCI with additional capacity for expansion.

F- Non-discrimination and Interconnection.

CCABC will provide access to its participating Community Anchors and allow all private sector broadband providers access to bandwidth to provide their end users greater capacities at cost sharing rates. The network will provide open access interconnect points in each of Colorado's 64 counties. CBOCES/EAGLE-Net has established policies that are fully consistent with the BTOP NOFA's nondiscrimination and network interconnection obligations. Any middle or last mile provider or wholesaler within the CCABC service areas are eligible to connect at reasonable rates and terms.

G- Type of System.

The Middle Mile network includes a fully meshed Core Network with major nodes in key geographic locations in Colorado. The Core Network will have a total of six major nodes with



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two locations in Denver and one location in Fort Collins, Grand Junction, Durango, and Pueblo respectively. From the core major nodes, aggregation sites extend in a hub and spoke topology architecture into the various sub-regions of the state. The Edge/Access Network consists of a hybrid network solution that utilizes existing fiber optical infrastructure, new fiber construction, and IP based carrier-grade, Ethernet compatible FCC licensed microwave solution to extend connectivity from the fiber network. This hybrid fiber optical and/or FCC licensed microwave network will provide the most cost effective and efficient broadband solution for the network.

H- Qualifications.

CCABC is a public/private venture for the statewide expansion of the existing EAGLE-Net network. EAGLE-Net will leverage existing agreements and is currently negotiating agreements with Conterra Telecom Services, BNI Solutions, and Adesta, LLC for the implementation of this project. These companies are leaders in the field of Internet access, telecom fiber and wireless construction including: network engineering, integration and testing, field installation, training and physical maintenance/support. EAGLE-Net also has an existing Customer Agreement with IBM to provide overall systems integration / project management guidance, volume pricing discounts, and will interface with the private partners to insure implementation and grant compliance.

CBOCES has been providing technology to K-12 and Higher Education institutions for 40 years. CBOCES/EAGLE-Net provides network services; transport and technical help desk/on-site support for member school districts and non-member school districts/BOCES in Colorado. CBOCES/EAGLE-Net has secured access to the Internet2 for Colorado K-12 School Districts and other governmental and non-profit entities.

Conterra designs, builds, operates and maintains broadband networks for K-20, healthcare and government entities; wireless carriers and select enterprises primarily in rural and geographically challenged areas utilizing hybrid fiber optical and FCC licensed microwave transport networks. BNI will assist with network engineering, integration and testing, field installation and network monitoring. Adesta is a major telecommunications constructor/integrator of fiber and wireless hybrid networks. Adesta has deployed over 2 million fiber miles. Conterra has begun the process of registering to become a CLEC in Colorado.

I- Cost.



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CCABC will build a \$143.8M middle mile network consisting of terrestrial fiber optic cable, existing and new build where economically feasible, with additional fixed FCC licensed microwave connectivity. The proposed project is shovel ready and is supported by a \$24.6M cash match and an \$18.5M in-kind match.

J- Expected Subscribers.

Within the first 36 months – 376 identified Community Anchors serving more than 1,000,000 K-12 students, teachers, and administrators; within 60 months an additional 450 Community Anchors.

K- Number of Jobs.

Saved or Created jobs Estimated at up to 659 Direct Job-years, 371 Indirect Job-years, and 549 Induced Job-years using guidelines referenced by BTOP.

Project purpose:

Service providers have not historically provided broadband access to unserved and underserved areas of Colorado due to the cost of building infrastructure to reach those areas. Colorado's geographic topology, rugged mountains and vast plains, present severe engineering and economical barriers in extending middle mile broadband infrastructure to the unserved and underserved areas of the State. One linear mile of distance could equate to 3-6 miles up and over Colorado mountains. High-speed broadband access is generally available only in the major urban areas. This has resulted in creating pockets of broadband access in Colorado with no competitive middle mile high bandwidth connectivity. This middle mile build out will not be completed by the private sector because the costs are too great to reach too few customers. Our CCI's including schools, community colleges, libraries, and public safety entities have few competitive broadband options. Left to pure market forces, Colorado will continue to have inferior broadband coverage or none at all.

High-speed broadband access and connectivity are vital for Colorado's economic growth, global competitiveness, innovation, and education of its population. The current state of Colorado's broadband access and connectivity measured against national averages is inadequate. This



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condition continues to negatively impact our schools, our public libraries, our health agencies, and the citizenry they serve. Schools in Colorado average 3.5kbps of Internet bandwidth per student. This is 55% of the national average of 6.4kbps and the cost to deliver this service is 10 times that of states to both the east and west of Colorado. In addition, according to the 2007 National Digital Schools survey, the need for Broadband connectivity in schools will increase more than 7 times by the year 2011.

The CCABC Project intends to meet all of the Statutory Objectives as outlined in the NOFA:

- Provide broadband service to unserved and underserved consumers and businesses in all areas of Colorado
- Provide broadband service to underserved Community Anchor Institutions such as schools, libraries, medical and healthcare providers, community colleges and higher ed, public safety, court houses, jails and other community support organizations in all areas of Colorado
- Provide broadband education, awareness, training, access, equipment and support for Community Anchor Groups such as schools and libraries throughout Colorado
- Provide improved access to broadband services in remote areas for public safety agencies
- Stimulate development through broadband penetration, creating economic growth and job creation in local communities

This project expands the current EAGLE-Net Network, building a sustainable middle mile network that touches unserved or underserved portions of all 64 Colorado counties. The primary emphasis in this application is to build the physical connections to Community Anchor locations first. This step will create the middle mile distribution facility to a broad range of groups and provide ubiquitous connectivity to the CBOCES/EAGLE-NET Internet/Internet2 facilities that can supply current and future Tier 1 Internet bandwidth to Community Anchor Institutions and Last Mile service providers. The initial middle mile network will connect all 12 of Colorado's Regional Service Areas, providing broadband access to Community Anchors, including 178 K-12 School Districts, 15 Community Colleges, 26 Libraries, 12 BOCES, and 3 Higher Education Institutions. Community Anchors will be offered from 10 Mbps to 1 Gbps of broadband service. We anticipate expansion of service to as many as 4,000 additional Community Anchor locations.

Upon completion of the middle mile distribution, it will be utilized by other CAI's, communities, and private entities to enable additional service layers on the network. The EAGLE-Net Network has been engineered utilizing a hybrid fiber optical and FCC licensed microwave design that is cost effective and rapidly deployable, a mandatory design given the nature of Colorado's



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topology. Spectrum has been pre-determined to be available for what is required and strategic vertical infrastructures (towers) have been engineered in the network design. This infrastructure can be used to provide interconnection to fixed and mobile wireless Last Mile service providers, public safety agencies, forest services, cellular carriers, and for homeland security applications. This design represents an “open-access” model that creates the ability for each community anchor group to design a virtual private network (VPN) across the state.

The CCABC Project has coordinated its network design with other public organizations including the: Centennial BOCES/EAGLE-Net; Colorado Department of Education; the Governor’s Office of Information Technology; Colorado Association of School Boards; Colorado Association of School Executives; Colorado Education Association; Colorado Board of Cooperative Educational Services Association, Colorado State Library System, Colorado Telehealth Network, Colorado Community College System and school districts throughout the State.

We have also modeled our project after successful statewide non-profit consortiums, such as Utah Education Network, Network Nebraska, MoreNet in Missouri, CENIC in California and many more. This project is a shovel ready solution. In addition to expanding on existing infrastructure, CBOCES/EAGLE-Net will be utilizing ratified teaming and operating agreements that are currently in place with both public and private partners to ensure project implementation will be immediate. The proposed carrier grade network (EAGLE-Net) is designed to be rapidly expanded and deployed and will support data, voice, and video simultaneously in a converged environment. The network speed and capacity are easily scalable and can be replicated and extended to improve future projects.

Recovery Act and Other Governmental Collaboration:

The CCABC Project leverages both the Recovery Act program and other state and federal programs. Specifically, EAGLE-Net will continue its efforts to provide E-Rate eligible Internet Services so CCABC participating school and libraries can continue to qualify for E-Rate programs. Currently in Colorado, Colorado schools pay \$6 Million Annually for Internet Access. Without improvements to broadband infrastructure in Colorado, over the next 5 years, the annual cost for school access to the Internet could grow to more than \$80 million. Colorado could spend over \$400 million versus the projected \$250 million to be spent in capital and operating costs over the same 5 year period if the network is expanded through the BTOP program.



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Department of Education Applications in progress - Race to the Top \$4.58 Billion available, Submission for Colorado's Longitudinal Growth Model of \$377 Million, combines new DOE software projects that can utilize the broadband access of the CCABC to deliver real time information to educational Community Anchors, parents, and students. Colorado is one of 16 selected finalists for Round One and will be using EAGLE-Net infrastructure and bandwidth to deliver 21st Century Education Applications to the students in Colorado.

Title II-D Enhancing Education Through Technology - CBOCES EAGLE-Net received and completed an Award of \$850,000 to pilot an online Technology Literacy Assessment Program (TLAP) for eighth grade students. This Colorado Department of Education statewide assessment ensures compliance with National standards for technology literacy and will use broadband infrastructure to deliver it to school districts across the state.

FCC Rural Health Care Pilot Program - A total of \$10 million in two separate grants for the Colorado Telehealth Network to provide new private broadband network connectivity to over 200 rural hospitals and clinics in Colorado EAGLE-Net is provides their IP addressing and will provide bandwidth to sites not named in the original grant. CoHRIO will use the services

USDA-DLT Grants - East Central BOCES, Northeast BOCES, and Southeast BOCES have received funds in past years totaling more than \$500,000 for Distance Learning within each individual BOCES. A new project leveraging previous DLT grants is the Tri-Area Learning Opportunity Network (TALON) which enables a new distance learning set up across CBOCES, Northeast BOCES and East Central BOCES. This is the first phase in providing a statewide distance learning network via EAGLE-Net. TALON provides access for 49 school districts to enroll students in more than 50 different courses with high school and Post-Secondary Education Options for dual College credit delivered from the Community Colleges.

Colorado Department of Transportation Partnerships - Public to Public cost sharing for access to long haul fiber optic connections allowing schools and other public entities to access large bandwidth at low price points.

Fit with BTOP CCI Priorities:



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The CCABC BTOP Grant Application fully intends to meet or exceed the seven CCI Priorities in the NOFA.

This project initially deploys Middle Mile broadband infrastructure to 234 Community Anchor Institutions and will be able to provide connectivity up to 4,000. We have included Letters of Support from many of these to show the broad based need in Colorado. The state and public and private constituents in Colorado are fully committed to developing a strategic plan for broadband delivery that aggregates bandwidth and shares infrastructure.

This project will deploy Middle Mile broadband infrastructure through-out the state and has incorporated a public-private partnership among government, non-profit and for-profit entities, and other key community stakeholders. Listed below is a sample of the groups and agencies currently working collaboratively together to implement broadband infrastructure in Colorado:

Public

--K-12 Schools, Libraries, Community Colleges, Higher Education including University of Colorado, Colorado State University, University of Northern Colorado, Air Force Academy, Colorado College, the Front Range GigaPoP (FRGP) Regional Optical Network (RON), Colorado Tele-Health Network (Healthcare), ADCom 911 (Public Safety), Colorado Online Learning, Colorado State Library, Colorado Historical Society, Colorado State University, and Denver Museum of Natural History

Private--

Adesta LLC, BNI Solutions, Bresnan, Comcast, Confluent, Conterra Telecom, IBM, KCI, Level3 Communications, Plains Telephone, PC Telecom, Pinpoint Communications, Qwest, SECOM, US Cable, & Viaero, Sun Wireless, Tri-State, tw telecom, UNITE Private Fiber Networks, Zayo, and the rural telco's represented by CTA

Government --

Governor of Colorado, Colorado General Assembly, Colorado's Federal Congressional Delegation, and Colorado's Department of Education, Office of Information Technology, Department of Transportation, Department of Public Safety, Department of Labor and Employment, State Internet Portal Authority; Wyoming Department of Education, Longmont Power & Communications, and Platte River Power Authority



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Key Community Stakeholders --

Rotarians, Colorado Association of School Boards, Colorado Association of School Executives, Colorado Board of Cooperative Services Association, and Colorado Education Association

This project will deploy Middle Mile broadband infrastructure in all 34 economically distressed counties in Colorado. The Middle Mile infrastructure will provide improved access for schools, healthcare, libraries, public safety, businesses and homes will be available under the open access and net neutrality tenets of the BTOP program. Furthermore, EAGLE-Net will be working with the Colorado Department of Labor and Employment and Rotarians in communities across the state. A Letter of Support is included from Executive Director of Labor and Employment has been included in this application.

This project will deploy Middle Mile broadband infrastructure to 15 of the 16 Community Colleges in Colorado. (The 16th Community already has a high speed broadband connection to the FRGP.) A Letter of Support from the President of the Community College System is included. EAGLE-Net currently works with three BOCES to provide Distance Learning, dual credit courses from three community colleges to school districts in the Northeast part of the state. Additional courses are currently limited by the lack of broadband available to rural schools in the eastern plains. This project will correct the available bandwidth and also allow students from across the state access to this collaborative broadband application.

This project will deploy Middle Mile broadband infrastructure to public safety entities, creating a robust governmental public safety backbone connecting local, state and national data information communications system. A Letter of Support from the Department of Public Safety is included and we are already working with cities and municipalities.

This project will deploy Middle Mile broadband infrastructure and either includes a Last Mile infrastructure component in unserved or underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components.

EAGLE-Net has entered into Memorandums of Understanding from several Last Mile providers including Viaero, Open Range Communications, CTA, Wiggins Telecommunications, and ComNet to show their commitment to the CCABC Project once it is funded.



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This project will deploy Middle Mile broadband infrastructure-- applicant has already secured a 30% match. Current match amounts and percentages include the following:

- Cash Match \$24,625,000 - 17.1%
- In-Kind Match \$18,525,657 - 12.9%

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

- No

Is the applicant delinquent on any federal debt?

- No

If Yes, justification for delinquency:

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

- No

Is the applicant a current recipient of a grant or loan from RUS?

- No

C. Partners

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: Contractor Name: Snowdan, Van Phone: 7049361800 Email: vsnowden@conterra.com Address 1: 2101 Rexford Address 2: Suite 200E Address 3: City: Charlotte State: North Carolina Zip Code: 28211
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<p>Organization: Conterra Telecom Services Organization Type: For-profit Entity Small business: No Socially and economically disadvantaged small business concern: No</p>
<p>Project Role: Contractor Name: Rhyne, Gerleyne Phone: 4804591320 Email: gjones@us.ibm.com Address 1: 1 New Orchard Road Address 2: Address 3: City: Armonk State: New York Zip Code: 10504 Organization: IBM Organization Type: For-profit Entity Small business: No Socially and economically disadvantaged small business concern: No</p>
<p>Project Role: Third party in-kind contributor Name: Catlin, Margaret Phone: 3037579208 Email: peggy.catlin@dot.state.co.us Address 1: 4201 E Arkansas Ave Address 2: Address 3: City: Denver State: Colorado Zip Code: 80222 Organization: Colorado Department of Transportation Organization Type: State or State Agency Small business: No Socially and economically disadvantaged small business concern: No</p>

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

EAGLE-Net has developed strategic collaborations for participation and support with government, public, non-profit and private sector institutions in Colorado. A diverse group of



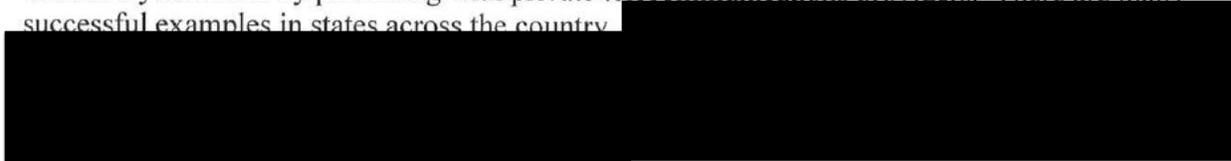
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Community Anchors have come together as a united coalition to provide a strategic and integrated approach to deliver broadband infrastructure to Colorado and replace the patchwork approach that has hampered the state in the past. Each group brings their strengths to the partnership, for some that is in the form of match either cash or in-kind. A second group of partners bring applications, resources and services that will use the new infrastructure and encourage the adoption of broadband. Still a third group brings a most important ingredient to the long term success of EAGLE-Net—leadership and a strong voice in the belief that a robust, integrated broadband infrastructure touches all aspect of Colorado and promotes growth and success in the years to come.

Community Leadership and the involvement of each local community is a key success factor. EAGLE-Net has partnered with the State-wide Rotarian Membership; their 100 year anniversary project for the state involves delivery of resources from the Colorado Historical Museum across EAGLE-Net broadband infrastructure. These are leaders in the more than 140 of the communities across the state and their match is untold hours of volunteer time talking about broadband and the value of collaborative, shared networks.

The successful design, development and operation of a large statewide network can be most cost effectively achieved by partnering with private telecommunications providers. There are many successful examples in states across the country.



The state of Colorado and the Colorado Department of Transportation have partnered with EAGLE-Net to share rights of ways, network designs and engineering (valued at more than \$10,000,000) and EAGLE-Net will be providing access for the Department of Transportation to communities around the state. Together we can build and share a single network and reduce costs and provide more broadband access to communities across the state.

Three of our telecommunications infrastructure providers, Zayo, Tri-State Electric Cooperative and a facilities based network/Tier One services provider located in Colorado, have come together to work with EAGLE-Net each of these each providing a cash or in-kind match. EAGLE-Net will be sharing fiber and services with these providers in a mutually beneficial



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collaboration to better provide broadband access for Community Anchor and Last Mile home and businesses customers across the state.

Three for-profit EAGLE-Net vendors IBM, Tripp-Light and Cisco are providing match to the project. The Higher Ed Community through the Front Range GigaPoP and Colorado State University in Colorado, along with the University of Wyoming have contributed [REDACTED] cash and in-kind match to provide interconnection to the new Super-Computing Center that is being built in Wyoming, the Universities and the Internet/Internet2 Gateway. This strengthens the K-12 bond between Higher Ed in two states along with the largest K-12 district in Wyoming as a first phase effort between regional K-12 environments.

Our healthcare community through the Colorado Hospital Association, Colorado Tele-Health Network and Colorado Regional Health Information Organization will provide necessary guidance for the purpose of establishing secure network interconnection capabilities between non-profit and public health systems and private doctor, nursing and clinic facilities for coordinated electronic health information exchange.

Local Colorado Community Anchors are participating through the collaborative support by becoming alliance members to purchase Middle Mile Connectivity and high speed broadband Internet and Internet2/National Lambda Rail access for educational content, distance learning and teaching within the state and across the globe. The Colorado Department of Education will additionally utilize this Middle Mile service to deliver educational assessment and testing capabilities to all 178 school districts without bandwidth contention or inconsistent connections. Through our Community College Alliance we will expand a current distance learning pilot between three community colleges and three BOCES to become a state wide distance learning environment connected via the Middle Mile broadband service and Internet and Internet2 connections. This will also leverage programs provided by Colorado Museum of Nature and Science for high-definition two way interactive field trips to distant locations.

The Colorado Department of Public Safety will participate through Middle Mile broadband access established at both local and regional PSAPs and enforcement/support environments and will coordinate secure Public Sector interconnections with schools and other Community Anchor points of interconnection.



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Private sector organizations include but are not limited to IBM, BNI Solutions, Conterra Ultra Broadband, Adesta LLC, Level 3 Communications, tw telecom, Cisco, and 3Com. These firms are supporting CBOCES/EAGLE-Net by providing network planning, engineering and design, technical support, project management, and network management. This team with other subcontractors (some of which are small business and/or disadvantage business enterprises) will work with EAGLE-Net management to manage and implement network infrastructure within two years of the initial award and operate and maintain network functionality with EAGLE-net for the remaining six years of the business plan.

D. Congressional Districts

Applicant Headquarters

- Colorado

Project Service States

Colorado

Project Service Areas

Colorado - 1

Colorado - 2

Colorado - 3

Colorado - 4

Colorado - 5

Colorado - 6

Colorado - 7



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

- Yes

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

Southern Ute Tribe

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

- Yes

E. Service Area Details

Is the applicant seeking a waiver for providing less than 100% coverage of a service area?

- No

Project Details

Service Area Type: Middle Mile
Service Area Name: RSA-01
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

<p>If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the proposed funded service area is 40% of households or less.</p>
--

Total Square Miles in Service Area: 13,862
Total Population in Proposed Service Area: 3,595
Total Number of Households in Service Area: 1,686
Total Number of Businesses in Service Area: 1,909
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 240



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Unemployment Rate in the Service Area: 7
Median Income in the Service Area: 36,500
Estimated Percentage of Households with Access to Broadband: 65
Estimated Percentage of Households Subscribing to Broadband: 26

Service Area Type: Middle Mile
Service Area Name: RSA-02
Rural Classification of the Last Mile Service Area:Rural
Service Status of the Last Mile Service Area: Unserved

If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 7,929
Total Population in Proposed Service Area: 459,535
Total Number of Households in Service Area: 181,973
Total Number of Businesses in Service Area: 7,117
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 477
Unemployment Rate in the Service Area: 10
Median Income in the Service Area: 33,846
Estimated Percentage of Households with Access to Broadband:
Estimated Percentage of Households Subscribing to Broadband:

Service Area Type: Middle Mile
Service Area Name: RSA-03
Rural Classification of the Last Mile Service Area:Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the proposed funded service area is 40% of households or less.



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Total Square Miles in Service Area: 7,980
Total Population in Proposed Service Area: 42,498
Total Number of Households in Service Area: 18,427
Total Number of Businesses in Service Area: 1,217
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 204
Unemployment Rate in the Service Area: 6
Median Income in the Service Area: 31,333
Estimated Percentage of Households with Access to Broadband: 70
Estimated Percentage of Households Subscribing to Broadband: 35

Service Area Type: Middle Mile
Service Area Name: RSA-04
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 11,840
Total Population in Proposed Service Area: 132,120
Total Number of Households in Service Area: 55,407
Total Number of Businesses in Service Area: 4,301
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 401
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 40,903
Estimated Percentage of Households with Access to Broadband: 80
Estimated Percentage of Households Subscribing to Broadband: 39

Service Area Type: Middle Mile
Service Area Name: RSA-05
Rural Classification of the Last Mile Service Area: Rural



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Service Status of the Last Mile Service Area: Unserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 9,518
Total Population in Proposed Service Area: 4,748
Total Number of Households in Service Area: 2,193
Total Number of Businesses in Service Area: 3,717
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 367
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 50,385
Estimated Percentage of Households with Access to Broadband:
Estimated Percentage of Households Subscribing to Broadband:

Service Area Type: Middle Mile
Service Area Name: RSA-06
Rural Classification of the Last Mile Service Area: Non-Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 3,919
Total Population in Proposed Service Area: 2,412,699
Total Number of Households in Service Area: 984,933
Total Number of Businesses in Service Area: 16,065
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 640
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 56,815
Estimated Percentage of Households with Access to Broadband: 50
Estimated Percentage of Households Subscribing to Broadband: 26



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Service Area Type: Middle Mile
Service Area Name: RSA-07
Rural Classification of the Last Mile Service Area: Non-Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 2,687
Total Population in Proposed Service Area: 537,484
Total Number of Households in Service Area: 212,790
Total Number of Businesses in Service Area: 4,530
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 268
Unemployment Rate in the Service Area: 9
Median Income in the Service Area: 35,972
Estimated Percentage of Households with Access to Broadband: 50
Estimated Percentage of Households Subscribing to Broadband: 26

Service Area Type: Middle Mile
Service Area Name: RSA-08
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 9,883
Total Population in Proposed Service Area: 47,359
Total Number of Households in Service Area: 18,227
Total Number of Businesses in Service Area: 1,109



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Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 192
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 30,481
Estimated Percentage of Households with Access to Broadband: 70
Estimated Percentage of Households Subscribing to Broadband: 37

Service Area Type: Middle Mile
Service Area Name: RSA-09
Rural Classification of the Last Mile Service Area:Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
 The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 7,667
Total Population in Proposed Service Area: 27,763
Total Number of Households in Service Area: 12,669
Total Number of Businesses in Service Area: 3,634
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 186
Unemployment Rate in the Service Area: 11
Median Income in the Service Area: 30,486
Estimated Percentage of Households with Access to Broadband: 75
Estimated Percentage of Households Subscribing to Broadband: 38

Service Area Type: Middle Mile
Service Area Name: RSA-10
Rural Classification of the Last Mile Service Area:Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
 The rate of broadband subscribership for the proposed funded service area is 40% of households or less.



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Total Square Miles in Service Area: 8,197
Total Population in Proposed Service Area: 46,180
Total Number of Households in Service Area: 22,380
Total Number of Businesses in Service Area: 1,117
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 228
Unemployment Rate in the Service Area: 11
Median Income in the Service Area: 23,780
Estimated Percentage of Households with Access to Broadband: 80
Estimated Percentage of Households Subscribing to Broadband: 34

Service Area Type: Middle Mile
Service Area Name: RSA-11
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
 The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 11,810
Total Population in Proposed Service Area: 219,704
Total Number of Households in Service Area: 92,829
Total Number of Businesses in Service Area: 3,628
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 295
Unemployment Rate in the Service Area: 9
Median Income in the Service Area: 23,750
Estimated Percentage of Households with Access to Broadband: 50
Estimated Percentage of Households Subscribing to Broadband: 23

Service Area Type: Middle Mile



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Service Area Name: RSA-12
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
 The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 8,795
Total Population in Proposed Service Area: 46,933
Total Number of Households in Service Area: 20,338
Total Number of Businesses in Service Area: 1,733
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 265
Unemployment Rate in the Service Area: 5
Median Income in the Service Area: 24,911
Estimated Percentage of Households with Access to Broadband: 70
Estimated Percentage of Households Subscribing to Broadband: 36

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	190
Libraries	26
Medical and Healthcare Providers	0
Public Safety Entities	0
Community Colleges	15
Public Housing	0
Other Institutions of Higher Education	3
Other Community	0



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Support Organization	
Other Government Facilities	0
TOTAL COMMUNITY ANCHOR INSTITUTIONS	234
Historically Black colleges and Universities	0
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	0

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	659
How many indirect jobs will be created from this project?	371
How many jobs will be induced from this project?	549

Methodology used to estimate jobs:

To determine the number of job-years created by the CCABC Project, CBOCES/EAGLE-Net utilized the methodology from the “Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009” issued in May 2009 by the Council of Economic Advisers.



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Project Impact:

Over the next three years EAGLE-Net will build and deliver Middle Mile broadband connectivity in 12 Regional Service Areas (RSAs) interconnected to a core network that can supply affordable current and future Internet bandwidth to Community Anchor Institutions and last mile service providers. Community Anchor Institutions will connect to this network through dedicated Middle Mile connections at 178 K-12 School Districts, 15 Community Colleges, 26 Libraries, 12 BOCES, and 3 Institutions of Higher Education.

In each RSA EAGLE-Net has identified one or more locations that are unserved and / or underserved. Community Anchors access and connectivity in the RSAs is woefully inadequate. The broadband needs for Community Anchor Institutions have been underserved or constrained by lack of bandwidth availability or lack of access and affordability for increasing bandwidth requirements at the last mile. Community Anchor bandwidth is the critical link to managing community services and supporting the citizenry.

Limited broadband access negatively impacts schools, community colleges, public libraries, health agencies, and public safety agencies. Schools in Colorado average 3.57 kbps of Internet bandwidth per student. This is only 55% of the national average of 6.48 kbps as reported by the America's Digital Schools 2008 Internet Bandwidth Report. Bandwidth in 39 public libraries in Colorado is less than the minimum broadband speed of 768 kbps making many of these sites unserved. Exacerbating this situation further is while Colorado schools are underserved in delivery of broadband; the cost to deliver this service is 10 times that of states to both the east and west of Colorado. According to America's Digital Schools, the broadband connectivity need in schools will increase more than 7 times by the year 2011.

Without the intervention and assistance of the public/private broadband BTOP grant initiative to improve Colorado's broadband infrastructure, Community Anchor Institutions, households, and businesses will continue to compete for limited or unavailable bandwidth. Schools, libraries, community centers, municipalities, public and private healthcare and public safety locations will not have the ability to keep pace with the ever growing requirement to effectively utilize rigorous technology-infused broadband tools, applications, and resources.

An intergovernmental alliance will guide/advise EAGLE-Net in the oversight of the construction and operations of Middle Mile network to fulfill the needs of Community Anchor locations in the rural and urban RSAs. This alliance will be comprised of advisors and participants from K-12



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/ community college / higher education institutions / Front Range GigaPoP (FRGP); Colorado Department of Transportation; Department of Public Safety; Department of Labor and Employment; Colorado Hospital Association; Housing Authorities; and local government.

The following are service and business goals identified by EAGLE-Net and its public advisors/participants required to deliver Middle Mile broadband connectivity to the Community Anchor locations:

- Provide no less than 20 Mbps downstream/upstream up to 100 Mbps or more of high speed Middle Mile broadband Internet connectivity to the initial Community Anchor institutions inclusive of Internet2 service.
- Provide additional scalable broadband Internet bandwidth to additional Community Anchor locations either directly or in collaboration with Last Mile service providers.
- Provide an interface for Last Mile service providers and other broadband carriers to access excess capacity for serving residential and business customers.
- Provide wholesale transport access to interstate carriers and other governmental collaborators for fulfilling state to state higher education and transportation initiatives.
- Provide secure and reliable connectivity with the assistance of private broadband service providers to ensure education, healthcare, and public safety confidence in utilization of network in the fulfillment of their public service.
- Provide physical maintenance and support of the points of interconnection, collocation, and monitoring and repair of the network with private sector support.

In addition to the public governance structure, EAGLE-Net has an existing public/private network construction and operations team committed to building and managing the network. The network is a cost effective hybrid network solution of existing core fiber-optic infrastructure, new fiber-optic construction where feasible, and carrier-grade, fast IP based Ethernet compatible FCC licensed microwave services to extend lateral connectivity from the existing or new fiber backbones. This hybrid fiber-optic / FCC licensed microwave network will provide an effective and efficient broadband solution. It will enable EAGLE-Net to deliver broadband Internet and



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Internet2 access to Community Anchors. It will also provide cost effective Last Mile service provider access to Tier 1 commodity Internet service connections from multiple Internet Drains geographically located at EAGLE-Net core nodes which will remove distance barriers to broadband adoption in rural and remote areas of the state.

The Middle Mile network architecture includes core facilities utilizing existing EAGLE-Net infrastructure, existing fiber infrastructure, and existing telecommunications services from local providers. Community Anchor Institutions will be connected to the network through a combination of RF Microwave and fiber optic connections constructed and maintained by BNI Solutions, Conterra Telecom, and Adesta, LLC. EAGLE-Net adheres to the FCCs Nondiscrimination and Interconnection Policies for the provision of equal access to broadband backhaul capacity. This positions rural local exchange carriers and cellular providers with the ability to expand their service offerings due to lower cost backhaul provided by EAGLE-Net. The public/private partners have identified that this broadband Middle Mile and interconnected Last Mile network will enhance services to the community by:

- Enabling the delivery of additional media rich educational content to schools
- Allowing access and use of remote applications and other interactive materials
- Providing for multi-point Intra-state and Interstate distance learning and exploration at schools and libraries
- Becoming the nerve system capable of managing virtual desktop computing
- Creating a robust governmental public safety backbone connecting local, state and national data information communications systems
- Providing the foundation for shared applications across government and education hosted environments
- Enabling a platform to provide for the secure transfer of patient information between public/non-profit and private healthcare /hospital facilities
- Improve Last Mile broadband services to homes and businesses



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Each of the benefits and enhancements described above also serve to facilitate sustainable adoption through the innovative uses that will be realized by public and private sector entities when bandwidth constraints are lifted.

During the first 36 months, the CCABC Project will provide high speed Middle Mile broadband to 177 communities across the state. Upon network completion, the network will pass an additional 844 community anchor locations and 2,703 non-profit locations. By the end of the 8th year of the plan, Middle Mile service and Internet/Internet 2 will be in a total of 440 Community Anchors and 435 non-profit locations in the 12 RSAs. The network will be able to provide Middle Mile capacity and commodity Internet access to Last Mile provider networks passing 1,623,852 homes and 50,077 businesses. This project will create 615 direct job years, 346 indirect job years and 541 induced job years.

Public and Private Collaboration Entities include the following:

Adesta LLC, BNI Solutions, Bresnan, Catalyst@EDU, Colorado Association of School Boards, Colorado Association of School Executives, Colorado Board of Cooperative Services Association, Colorado Community Colleges, Colorado Dept of Education, Colorado Dept of Public Safety, Colorado Dept of Transportation, Colorado Education Association, Colorado Governor’s Office of Information Technology, Colorado Online Learning, Colorado State Library, Colorado Rotarians, Colorado State University, Colorado Tele-Health Network, Comcast, Confluent, Conterra, Denver Museum of Natural History, El Pomar, Front Range GigaPoP, IBM, KCI, Level 3, Longmont Power & Communications, PC Telecom, Pinpoint Communications, Plains Telephone Cooperative, Platte River Power Authority, Qwest, SECOM, SIPA, Sirius, State of Wyoming, Sun Wireless, Tri-State Energy, tw telecom, UNITE Private Fiber Networks, University of Colorado, University of Northern Colorado, US Cable, & Viaero, Wiggins Telephone, Zayo.

Vulnerable Populations:

Vulnerable populations including; Hispanic, African-American, Asian, Native American, English as a Second Language, Disabled, Low Income Unemployed, Special Needs, Senior Citizen and Youth and Migrant Families will benefit from broadband connectivity to 216 Community Anchor Institutions in Communities across the State. A sample of the ways EAGLE-



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Net will bring benefits and opportunities to Vulnerable Populations within Colorado are as follows.

Colorado's Migrant Family population can be as much as 40% of the school population in some communities; this population experiences language barriers, high mobility, limited health care and education opportunities that are frequently disrupted by moves to find work. EAGLE-Net's broadband infrastructure to communities across the state will help improve healthcare provision with improved access to electronic medical records regardless of the patient's location. English is often difficult to learn in a rural community since qualified staff is hard to find. Broadband access will allow students and parents to use distance learning / video conferencing to improve their language skills, education, and job prospects.

More than 33% of the children in Colorado qualify for the National Free and Reduced Lunch Program, meaning more than 215,000 children are considered to be living in low income households. Currently, access to Internet and Broadband opportunities are out of reach for many of them. EAGLE-Net will provide access to the Internet at Community Anchor Institutions and will also offer local telecommunications providers Internet at affordable rates for residential and business sites.

Senior Citizens living in an assisted living community will be able to take advantage of cloud computing, virtual desktop Internet Access at affordable rates, and improved reliability through EAGLE-Net programs offered in partnership with local housing authorities.

34 counties out of 64 in Colorado are designated as economically distressed areas. EAGLE-Net will bring diverse job training opportunities to communities for their residents, allow for small business entrepreneurship, and allow businesses requiring robust telecommunications infrastructure to live in communities of their choice. For example, the TALON project in Northeastern Colorado connects interactive video conferencing with over 45 school districts in three BOCES. One of the offerings provides Medical Prep courses for dual high school/college credit to students using instructors from the local community college. These Medical Prep classes prepare students for jobs in the community in the healthcare field.

More classes would be used this way, but the lack of bandwidth into the schools limits the school from offering multiple classes simultaneously. In one district connected to the TALON project,



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the school is forced to shut down access to the Internet (preventing students from doing research) during the distance learning class.

Level of Need:

CBOCES/EAGLE-Net intends to provide Middle Mile Broadband Internet service in 12 proposed Service Areas in the state. The 12 Service Areas identified match Regional Service Areas (RSAs) defined by the Colorado Department of Education. Each RSA has one or more unserved or underserved Middle Mile locations with a Community Anchor site. Each RSA spans and incorporates the boundaries of multiple counties incorporating all 64 Colorado Counties within the 12 RSA structure. The RSA structure helps in the design of the EAGLE-Net state wide network by maximizing the aggregation of known users and populations around geographic and economically challenging areas in the state.

The strategic RSA design allows EAGLE-Net to extend high-speed broadband Internet coverage beyond former private sector build end points and enable service to a larger geographic footprint. Aggregation and sub aggregation points, allow for Middle Mile backhaul access and Last Mile service provider interconnection, decreasing the overall distances to core network access. The network design is also a key to sustaining broadband services to Community Anchor locations while growing broadband service adoption, by increasing access and capacity to high-speed broadband service from the Middle Mile interconnections. EAGLE-Net and its public/private partners will achieve expansion in areas that were previously economically unfeasible to provide large bandwidth access. The design will also eliminate market isolation due to small population clusters lacking adequate community anchor, homes and business customer potential.

In 2009, Colorado completed stage one of its broadband assessment and mapping project. The Final Report from Connect Colorado identifies Middle Mile infrastructure in Colorado as the lacking component for broadband deployment. The report provided the following statements in describing obstacles to broadband development, specifically in regards to the technology and Middle Mile infrastructure:

“”The availability, or lack thereof, of necessary infrastructure (backhaul); and/or the additional transport of that infrastructure to locations in need of last mile services.””

“”In many instances, providers that were interviewed noted that while infrastructure was generally existent in the immediate area (a) backhaul circuits were often located where they could not be easily accessed (due to the distance from the closest network point-of-presence); or



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(b) in some cases the infrastructure was located on private property with no right of access. As mentioned above, instances currently exist where a broadband provider has deployed 100 mbps fiber to the home, yet must rely on bundled T-1s as the single source of backhaul.””

Colorado Statewide Internet Portal Authority provided information from an assessment it has performed with regard to public and private development of broadband infrastructure in the state;

“”However, the Colorado government has not had the necessary funding to deploy new infrastructure or upgrade the infrastructure that is available throughout the state and therefore some areas of Colorado are still without broadband service and others do not have adequate speeds or capacity for the needs of today. The private sector has continued to make investments in Colorado, but their focus is on population centers or high volume routes and with Colorado’s terrain and population distribution there are many places in need of appropriate broadband service.””

By the end of year 3, CCABC Project will initially connect 234 Community Anchors located in 177 communities. These communities are distributed across the EAGLE-Net 12 Regional Services Areas. Upon network completion, the network will pass an additional 844 community anchor locations and 2,703 non-profit locations. By the end of the 8th year of the plan, Middle Mile service and Internet/Internet 2 will be delivered to at least 440 Community Anchors and 435 non-profit locations in the 12 RSAs. The network will be able to provide high-speed Middle Mile broadband backhaul capacity and commodity Internet access to Last Mile provider networks passing 1,623,852 homes and 50,077 businesses. This project will create 615 direct job years, 346 indirect job years and 541 induced job years. The following shows specific market detail per each of the 12 RSAs:

RSA 1- 13,862 sq. miles, 3595, 1686, 1909, 240: RSA 2- 7,929 sq. miles, 459535, 181973, 7117 477: RSA 3- 7,980 sq. miles, 42498, 18427, 1217, 204: RSA 4- 11,840 sq. miles, 132,120, 55407, 4301, 401: RSA 5- 9,518 sq. miles, 4748, 2193, 3717, 367: RSA 6- 3,919 sq. miles, 2412699, 984933, 16065, 640: RSA 7- 2,687 sq. miles, 537484, 212790, 4530, 268: RSA 8- 9,883 sq. miles, 47359, 18227, 1109, 192: RSA 9- 7667 sq. miles, 27763, 12669, 3634 186: RSA 10- 8,197 sq. miles, 26180, 22380, 1117, 228: RSA 11- 11,810 sq. miles, 219704, 92,829, 3682, 295: RSA 12- 8785 sq. miles, 46933, 20338, 1733, 265.



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The broadband bandwidth provided at the initial 234 Community Anchor locations will support the designated Community Anchor site plus provide additional bandwidth to other Community Anchor locations (i.e., health care, public safety, community centers, libraries, community colleges, and higher education) not initially connected. Each Community Anchor point will become a point of interconnection for access to Middle Mile backhaul bandwidth by Last Mile and other Carrier Services for delivery of Tier 1 commodity Internet service. EAGLE-Net will provide Internet Drain points geographically connected to its core nodes. This structure assists in removing the many distance barriers to broadband adoption in rural and remote areas of the state.

EAGLE-Net Tier 1 Middle Mile transport and Internet/Internet2 broadband service continues as the basis for the Community Anchor cost sharing model. As more locations are connected during the build schedule, more bandwidth is enabled across the Core and the cost of the bandwidth is lower via the Middle Mile into the Tier 1 access point. Community Anchor and Last Mile services providers desiring to buy bandwidth can leverage the increased bandwidth demand to reduce overall costs for the network.

Each of the 12 RSAs have distinct characteristics including challenging terrain, extreme seasonal weather fluctuations, large distance spans between populated areas, highly remote energy related industry sites (including oil and gas and mining production areas, electric generation and transmission facilities), challenging transportation and highway maintenance and support, and remote water storage sites all that make them each very unique. Also each RSAs labor/work force availability, healthcare access, economic development capabilities and economic sustainability are directly influenced by the lack of necessary and affordable broadband communications services. The following reflects the economic conditions within each of the 12 RSAs:

RSA1- 6.8; 36,500: RSA2- 9.7, 33,846: RSA3- 5.8; 31,333: RSA4- 8.1; 40,903: RSA5- 8.4; 50,385: RSA6- 8.4; 56,815: RSA7- 8.9; 35,972: RSA8- 7.9; 30,481: RSA9- 10.5; 30,486: RSA10- 11.2; 23,780: RSA11- 9.3; 23,750: RSA12- 4.6; 24,911.

As of February 5, 2010, the Bureau of Economic Affairs and the Bureau of Labor and Statistics classified the following Counties within all or part of their respective RSAs as economically depressed areas:



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RSA 1 Upper Grand; RSA 2 Morgan and Weld; RSA 3 Logan, Phillips and Washington; RSA 4 Delta, Hinsdale and Montrose; RSA 5 Chaffee and Lake; RSA 6 Adams; RSA 8 Kit Carson and Lincoln; RSA 9 Dolores and Montezuma; RSA 10 Alamosa, Archuleta, Conejos, Costilla, Mineral, Rio Grande, and Saguache; RSA 11 Custer, Fremont, Huerfano and West half of Las Animas; RSA 12 Baca, Bent, Crowley, East half of Las Animas, Otero, Pueblo and Prowers.

The following are service and business goals EAGLE-Net and its public advisors/participants will deliver via Middle Mile broadband connectivity to the Community Anchor locations:

- Provide no less than 20 Mbps downstream/upstream up to 100 Mbps downstream/upstream bandwidth or more, of high speed Middle Mile broadband Internet connectivity to the initial Community Anchor institutions inclusive of Internet2, and National LambdaRail service.
- Provide additional scalable broadband Internet bandwidth to additional Community Anchor locations either directly or in collaboration with Last Mile service providers.
- Provide an interface for Last Mile service providers and other broadband carriers to access excess capacity for serving residential and business customers
- Provide wholesale transport access to interstate carriers and other governmental collaborators for fulfilling state to state higher education and transportation initiatives.
- Provide secure and reliable connectivity with the assistance of private broadband service providers to ensure education, healthcare and public safety confidence in utilization of network in the fulfillment of their public service.
- Provide physical maintenance and support of the points of interconnection, collocation and monitoring and repair of the network with private sector support.

EAGLE-Net is working with incumbent Local Exchange providers, franchised cable operators, rural telephone cooperatives, cellular and other fixed wireless providers to effectively coordinate interconnection/offerings from Middle Mile to Last Mile service areas. In this regard, EAGLE-Net has contacted and in the process of negotiating interconnection commitments with or has obtained agreements to provide capitalized use of provider infrastructure or interconnection with:

- 14 Incumbent Local Exchange Carrier (ILEC) / Rural Local Exchange Carrier (RLEC) / Competitive Local Exchange Carrier (CLEC)
- 3 interstate fiber network providers
- 3 Franchised Cable Operators (FCO)
- 4 Cellular, fixed Wi-Fi and fixed WiMax (Wireless) Operators



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- 12 Governmental / Education Networks (Last Mile and Long-haul Institutional Networks)

It is EAGLE-Net’s intent to cooperatively access and utilize existing and available public and private communications infrastructure where possible, including fiber optic cables, underground conduits, towers for the placement of licensed high-speed broadband microwave radio equipment (for point to point and point to multi-point spectrum) for geographically challenging areas of the state and as well, for the purpose of including frequency allocation and coordination with public safety frequencies.

Through the CCABC Project, the EAGLE-Net public/private partners have identified that this broadband Middle Mile network will enhance services to the community by:

- Enabling the delivery of additional media rich educational content to schools
- Allowing access and use of remote applications and other interactive materials
- Providing for multi-point Intra-state and Interstate distance learning and exploration at schools and libraries
- Becoming the nerve system capable of managing virtual desktop computing
- Creating a robust governmental public safety backbone connecting local, state and national data information communications systems
- Providing the foundation for shared applications across government and education hosted environments
- Enabling a platform to provide for the secure transfer of patient information between public/non-profit and private healthcare/hospital facilities
- Improving Last Mile broadband services to homes and businesses

Each of the benefits and enhancements described above also serve to facilitate sustainable adoption through the innovative uses that become available to public and private sector entities when bandwidth constraints are lifted.

H. Technology

Technology Type

Indicate the technology that will be used to deliver last mile services. The following items were selected:

Wireline - xDSL



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Wireline - Coaxial Cable

Wireline - Fiber-optic Cable

Wireline - Broadband Over Power Line

Wireline - Hybrid System

Wireless - Terrestrial Fixed

Wireless - Terrestrial Mobile

Other

Other: Last mile providers may use any of the above

Technology Questions

Methodology for Area Status:

CBOCES/EAGLE-Net utilized a combination of methods to determine broadband access within Colorado related to the needs of Community Anchor Institutions and to determine the status of unserved and underserved locations.

EAGLE-Net reviewed results from the Colorado state broadband survey and mapping project that was completed in November 2009. Describing obstacles to broadband development in regards to Middle Mile infrastructure the report indicated the following:

“The availability, or lack thereof, of necessary infrastructure (backhaul); and/or ...

... the additional transport of that infrastructure to locations in need of last mile services. In many instances, providers that were interviewed noted that while infrastructure was generally existent in the immediate area (a) backhaul circuits were often located where they could not be easily accessed (due to the distance from the closest network point-of-presence); or (b) in some cases the infrastructure was located on private property with no right of access. As mentioned



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above, instances currently exist where a broadband provider has deployed 100 mbps fiber to the home, yet must rely on bundled T-1s as the single source of backhaul.”

“Basic broadband speeds will allow certain applications to be utilized, but enhancing current infrastructure deployment in many communities will certainly be necessary for residents to take advantage of important online services.”

Completion of a statewide survey of school district connectivity in the spring of 2009 commissioned by the Colorado Department of Education and the Colorado BOCES Association - Bandwidth per student in Colorado was measured using a formula developed by America’s Digital Schools Survey (a national survey conducted annually) and the resultant state average for all K-12 students in Colorado is 3.5 kbps, or approximately one-half the national average of 6.48 kbps.

A Statewide Colorado survey conducted by the Bill and Melinda Gates Foundation for Public Library Bandwidth showed that 39 library sites had connectivity of less than 768 kbps.

EAGLE-Net conducted an online canvassing of broadband service providers covering wire line and wireless broadband last mile offerings in the twelve CCABC Regional Service Area’s (RSA). EAGLE-Net determined that there were one or more unserved or underserved communities in each RSA. Information obtained by CCABC for making this determination of unserved and underserved communities included:

Information obtained from the Colorado Cable Telecommunications Association, The Colorado Telecommunications Association, Colorado Broadband Wireless ISP’s geographic service area information and actual telecommunications and broadband service provider websites, sales brochures and documentation, verbal inquiry, and review of each provider’s Internet website for qualified service availability and speeds by local addresses and phone numbers for residential and business uses.

Description of Network Openness:

In its current network operations, CBOCES/EAGLE-Net adheres to the Nondiscrimination and Interconnection Polices contained in the FCC’s Broadband Policy Statement (FCC 05-151



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adopted Aug. 5, 2005). This policy is displayed on the EAGLE-Net Web Site (www.co-eaglenet.net).

Existing and new points of interconnection are located at vendor neutral facilities, including co-location facilities, carrier hotels, tower, and facilities on public property. Any interconnection locations utilizing central office and cable headend locations are negotiated with open access provisions. Where EAGLE-Net is not able to negotiate for open access in these locations, the point of interconnection is extended to a Community Anchor location where open access can be provided.

EAGLE-Net has an Acceptable Use Policy (AUP) that defines unacceptable uses for the network and Internet usage, including illegal and harmful content. This policy is displayed on the EAGLE-Net Web Site (www.co-eaglenet.net). Since EAGLE-Net has a SPIN and participates with K-12 Schools and Libraries that utilize the E-Rate program we are familiar with web content filtering and offer that as an additional service interested entities.

With EAGLE-Net's current Points of Interconnection (PoI) and with 177 new PoI's at neutral access locations, the EAGLE-Net approach leverages the power of cost sharing by public sector entities who become the anchor tenants in this model (due to their large bandwidth to requirements at minimal numbers of locations). This approach allows for (i) a minimum of broadband Internet Service of 20 Mbps up to 100 Mbps download and 20 Mbps up to 100 Mbps upload at each Community Anchor location initially, (ii) growth capacity to enable/deliver additional bandwidth (multiple 100 Mbps, 1 Gbps, multiple 1 Gbps, and 10 Gbps as needed) and, (iii) non-discriminate access for local Last Mile broadband providers to allow them to obtain additional bandwidth for upgrading and improving their Last Mile service offerings for residential and business customers.

System Design:

The CBOCES/EAGLE-Net network uses a combination of a core network with six (6) major node locations along with nineteen (19) aggregation nodes and aggregation networks located throughout the state. The major nodes and aggregation nodes will have open access interconnection capabilities to provide broadband services to up to 4,000 other Community Anchor Institutions and private sector partners.



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Two of the major nodes and two of the aggregation nodes are existing sites on the current EAGLE-Net network. From these existing nodes, EAGLE-Net currently provides Internet Access, network services, transport, and technical support services to Community Anchor Institutions, including over 200 schools.

Internet (ISP) services for EAGLE-Net are currently provided by the Front Range GigaPoP (FRGP). In 2009, CBOCES/EAGLE-Net secured access to the Internet2 for Colorado K-12 School Districts and other governmental and non-profit entities at the FRGP. The FRGP will be the primary Internet/Internet2 access location for Anchor Institutions. The existing EAGLE-Net network includes multiple paths to the FRGP.

For commercial Internet traffic (offered by other Last Mile and Middle Mile providers connected to the network) Commodity Internet will also be provided at the FRGP. However, EAGLE-Net has identified and will enable Commodity Internet access (Internet Drain) as needed at three other major node locations, in differing geographic locations in the state.

The network has been designed to allow for a minimum bandwidth of 40 kbps per student (America's Digital Schools 2008 Internet Bandwidth Report projected requirement by 2011) and is scalable to handle future growth requirements.

The network solution includes a 10 Gbps core network with major nodes in key geographic locations in Colorado. The core network will have a total of six major nodes with two locations in Denver and one location in Fort Collins, Grand Junction, Durango, and Pueblo. The network core's physical topology will consist of point-to-point fiber circuits connecting the six major nodes. All major nodes will have dual carrier access to provide carrier and path diversity for each major node site, achieving resiliency consistent with this type of high-speed complex statewide network.

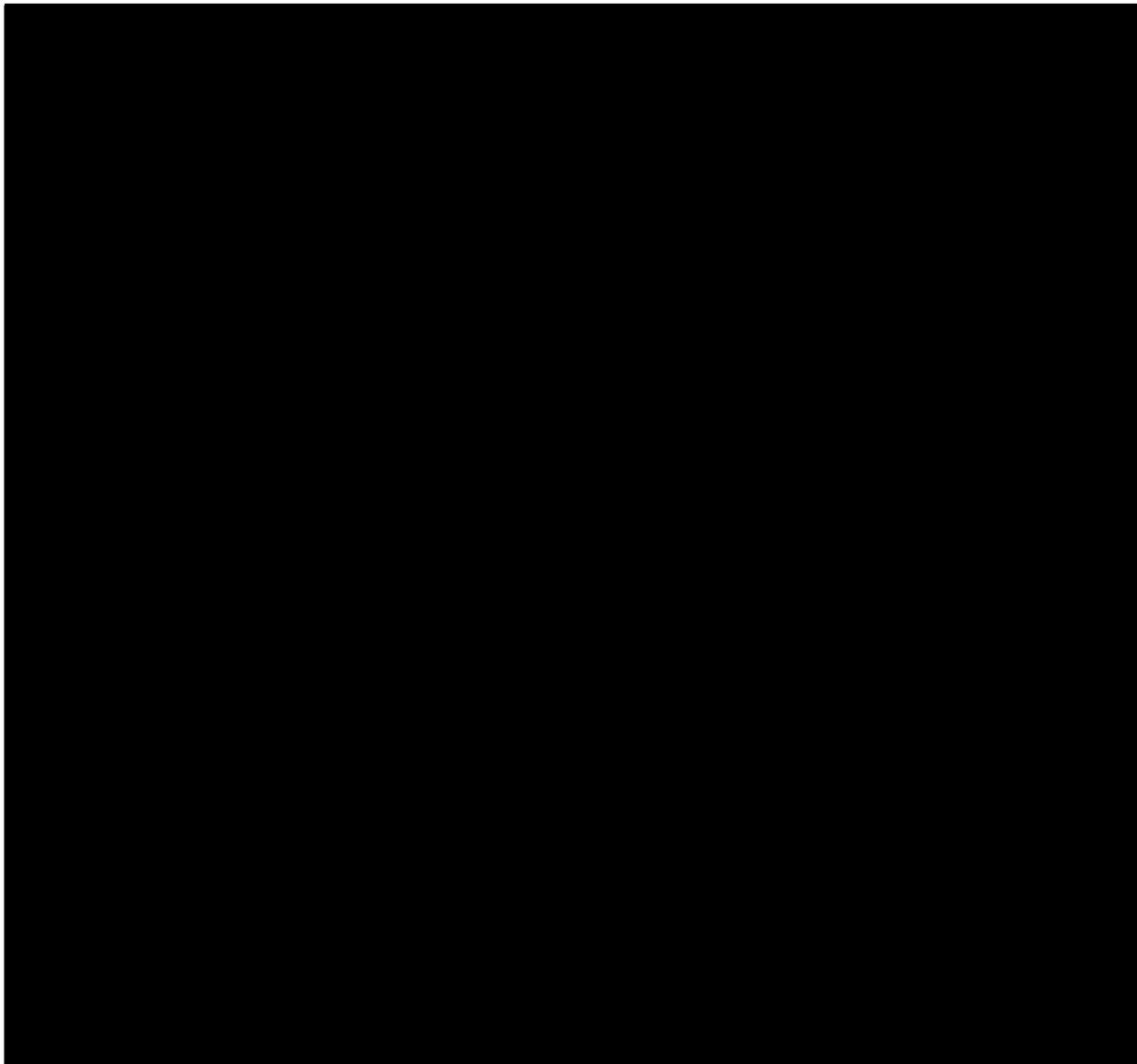
From the core major nodes, aggregation sites extend in a hub and spoke topology architecture into the various sub-regions of the state. Based on location, groups of Community Anchors are aggregated into either an aggregation node or a major node. Aggregation nodes are connected at the projected bandwidth utilization and can be scaled to 1 Gbps, multiples of 1 Gbps, or 10 Gbps links depending on the actual bandwidth required. Community Anchors will serve as the Point of Interconnection for additional Community Anchor and Last Mile provider connections to the network. In communities where there is more than one proposed Community Anchor site, the



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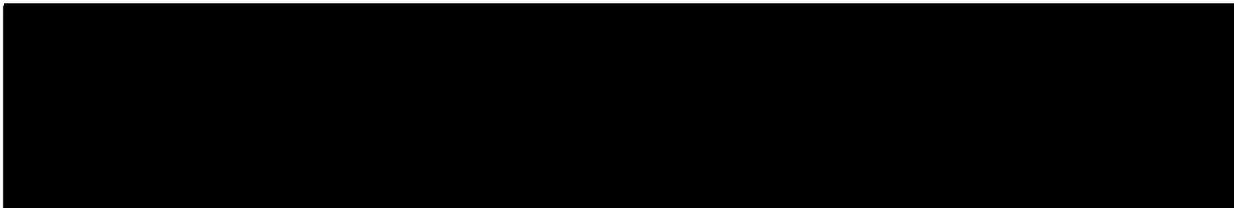
location that has the capability to provide the best Open Access to the network will be selected as the Point of Interconnection.





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Is the applicant seeking a waiver pursuant to section IX.C of the NOFA so as to sell or lease portions of the award-funded broadband facilities during their life?

No

I. Project Budget

Project Budget		
	Federal Grant Request	Match
Last Mile	0	0
Middle Mile	100,635,190	43,150,657
Total	100,635,190	43,150,657

Project Budget Total: \$143,785,847

Match Percent: 30.0%

Projects Outside Recommended Funding Range:

- This project is within the indicated range in the NOFA

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes
Matching cost detail	Matching Cost Detail Cash Match 



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	<p>Funding Amount: \$25,000.00 Type of Match Cash Use of Funding: Equipment Key financing terms/conditions: Available to EAGLE-Net with matching funds</p> <p>[REDACTED]</p>
	<p>Funding Amount \$ 1,200,000.00 Type of Match: Cash Use of Funding: Equipment Key financing terms/conditions: Technology Initiative Rebate Program</p> <p>[REDACTED]</p>
	<p>Funding Amount: \$1,000,000.00 Type of Match: Equity Use of Funding: Construction-Working Capital Key financing terms/conditions: Contingent on Zayo's approval on final fiber route design and specific route selection</p> <p>[REDACTED]</p>
	<p>Funding Amount : \$2,000,000.00 Type of Match: Equity Use of Funding: Working Captial Key financing terms/conditions Funding of EAGLE-Net Grant application, conduit/interdict asset on route and Tri-State Board Approval</p> <p>[REDACTED]</p>
	<p>Funding Amount: \$ 3,000,000.00 Type of Match Debt Use of Funding: Professional Services Key financing terms/conditions: Subject to Vendor Financing Approval and Grant award</p>



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	<p>[REDACTED]</p> <p>Funding Amount: \$7,000,000.00 Type of Match: Debt Use of Funding: Equipment Key financing terms/conditions: not more than 13% of Purchase Price</p>
	<p>[REDACTED]</p> <p>Funding Amount: \$ 10,000,000.00 Type of Match Debt Use of Funding: Construction Key financing terms/conditions: Subject to Review of Revenue Projections and Final Business Plan, Vendor Financing Approval and Grant award</p>
	<p>[REDACTED]</p> <p>Funding Amount: \$ 200,000 Type of Match Cash Use of Funding: Construction Key financing terms/conditions</p>
	<p>[REDACTED]</p> <p>Funding Amount: \$100,000.00 Type of Match: Equity Use of Funding: Construction Key financing terms/conditions: Pending Grant Approval and final design approval</p>
	<p>[REDACTED]</p> <p>Match Value: \$ 3,000,000.00 Nature of In-Kind: IRU Explanation of eligible fund qualification: Description of Benefit</p>



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	<p>[REDACTED]</p> <p>Match Value: \$ 100,000.00 Nature of In-Kind: Construction Explanation of eligible fund qualification Description of Benefit</p>
	<p>[REDACTED]</p> <p>Match Value: \$50,000.00 Nature of In-Kind: Construction Explanation of eligible fund qualification Description of Benefit</p>
	<p>[REDACTED]</p> <p>Match Value: \$ 10,000,000.00 Nature of In-Kind: Rights of way, Engineering and Environmentals Explanation of eligible fund qualification Description of Benefit:</p>
	<p>[REDACTED]</p> <p>Match Value: \$ 108,000.00 Nature of In-Kind: Equipment Explanation of eligible fund qualification Description of Benefit</p>
	<p>[REDACTED]</p> <p>Match Value: \$4,397,000.00 Nature of In-Kind Explanation of eligible fund qualification Description of Benefit</p>
	<p>[REDACTED]</p> <p>Match Value: 1,020,349.00 Nature of In-Kind: Network assets Explanation of eligible fund qualification</p>



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	Description of Benefit
Unjust enrichment	CBOCES/EAGLE-Net is not receiving and has not applied for any Federal support for non-recurring costs in the area where we are seeking an award for this application.
Disclosure of federal and/or state funding sources	<p>For the E-Rate Funding Year 2009-2010, the Total (Undiscounted) Amount for Service per FRN for CBOCES is \$518,558.80. The Discount Amount to be Billed to SLD is \$352,697.79.</p> <p>There are no other additional Federal or State Funding Sources that apply to this project.</p>
Budget reasonableness	<p>Costs shown in the Colorado Community Anchors Broadband Consortium (CCABC) detailed budget are based upon the fulfillment of connecting 234 Community Anchor Middle Mile locations across the state located in 177 communities. There are 6 core nodes connected to the Internet/Internet2 EAGLE-Net Gateway that will be connected to 19 strategic aggregation points, which will establish service connections within 12 Regional Service Areas.</p> <p>CBOCES/EAGLE-Net has completed several levels of background data gathering to establish a baseline of access, use, and need to determine how to achieve affordable pricing for Colorado schools, libraries, and other Community Anchors. Comparing existing services for residential and community anchor institutions in Colorado to other neighboring states that have enabled cost sharing consortiums, EAGLE-Net has determined:</p> <p>School districts on the plains of Colorado pay as much as \$800.00 per month for 1 Mbps of Internet Service according to surveys done by CBOCES in both 2007 and 2009. Current Internet Cost per student per year in Colorado is \$7.50 per student or \$2.10 per kbps per student per year (\$0.18 / kbps per student per month). Estimated Internet costs for 2008 is \$6 million per year for 3.5 kbps per student from information obtained through USAC's E-rate applications for the state.</p> <p>At this rate to meet the 40 kbps per student (which equates to a</p>



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	<p>statewide total of 32 Gbps) needed by 2011, Colorado K-12 schools would have to pay \$80 million per year. The cost for estimated bandwidth needed by 2015 (estimated to be 400 Kbps per student) will grow to over \$800,000,000 per year to deliver the required bandwidth. Comparing this to rates in states with cost sharing non-profit statewide consortiums (paying \$80 per mbps bandwidth + transport) the cost for the same 32 Gbps of bandwidth (to meet 40 Kbps per student needs) would be \$30 million annually.</p> <p>Nebraska (who has been applying the cost sharing consortium concept since 2003) has been able to provide verifiable results which provide validation of both cost effectiveness reasonableness in this type of model for the delivery of broadband services to public entities:</p> <p>The CCABC solution has been designed to accomplish this through a process of combining new access to formally unavailable broadband networks and extending to Middle Mile Community Anchor locations. By way of the capitalization and operating plan CCABC has developed, CCABC will be able to provide both the capacity required to fulfill its Community Anchor participant needs and provide excess capacity to Last Mile provider to assist them in increasing their consumer and business broadband capacity growth. By extending services to additional strategic Community Anchors, the price per Mbps will decrease similar to what can be seen in states adjacent to Colorado.</p>
Demonstration of need	<p>Without the intervention and assistance of the public/private broadband BTOP CCI grant initiative to improve Colorado's broadband infrastructure, Community Anchor Institutions, households, and businesses will continue to compete for limited or unavailable bandwidth in Colorado. Schools, libraries, community colleges, community centers, municipalities, public and private healthcare and public safety locations will not have the ability to keep pace with the ever growing requirement to effectively utilize rigorous technology-infused broadband tools, applications, and resources.</p>



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	<p>EAGLE-Net has exhausted all of the current funding possibilities it has in an effort to meet this higher bandwidth need for Community Anchors and will be limited to continuing to expand its capabilities on a slow growth rate curve. The state of Colorado is currently experiencing a \$1.4 billion dollar deficit and expects additional shortfalls in the coming months. School districts and BOCES have had budgets cut in 2009 and expect additional cuts in 2010 (the two years of detailed financial statements that are included in this application will also support the current financial downturn). Thirty-four of Colorado's 64 Counties were recently classified as economically depressed areas by the Bureau of Economic Affairs/ Bureau of Labor and Statistics, with four of the EAGLE-Net RSAs experiencing unemployment rates at 9% or greater. Limited/inadequate broadband access at Community Anchor locations negatively impacts our schools, community colleges, public libraries, health agencies, and public safety agencies.</p> <p>Under the current budget and pro-forma this project will provide for completion within 36 months to having a Net Present Value of \$147,237,791, showing full sustainability.</p> <p>EAGLE-Net has worked to develop a public/private governance structure that aligns multiple Community Anchor broadband needs today, with increased requirements for future programs, in an effort to provide greater efficiencies through cost sharing of resources and other day to day services. This CCABC Project is the foundation element for providing the necessary broadband connectivity to allow these shared services to be accessed and utilized within municipal, public safety, healthcare and education environments. The CCABC Project will also provide for extended connection to k-12, community college/higher education and transportation networks in the State of Wyoming furthering this collaborative cost sharing capability with these public institutions. The CCABC Project creates 615 direct job</p>
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	years, 346 indirect job years and 541 induced job years, most of which will be located in the rural areas of the State.
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Funds to States/Territories

States	Amount of Federal Grant Request
Colorado	100,635,190

Funds to States/Territories Total: \$100,635,190

J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue	19,500,386	17,257,223	16,628,142
Expenditures	19,356,759	17,362,165	17,275,937
Net Assets	6,047,884	5,942,942	5,295,147
Change in Net Assets from Prior Year	143,627	-104,942	-647,795
Bond Rating (if applicable)	n/a	n/a	n/a

K. Project Readiness

BTOP Organizational Readiness

This project is a shovel ready solution. All elements are in place to execute this strategy upon funding award. CBOCES/EAGLE-Net has been providing ISP services to K-12 School Districts since 1999 and has systems in place supporting network management, billing, and customer care. EAGLE-Net has vendor agreements in place to support and maintain the current network.



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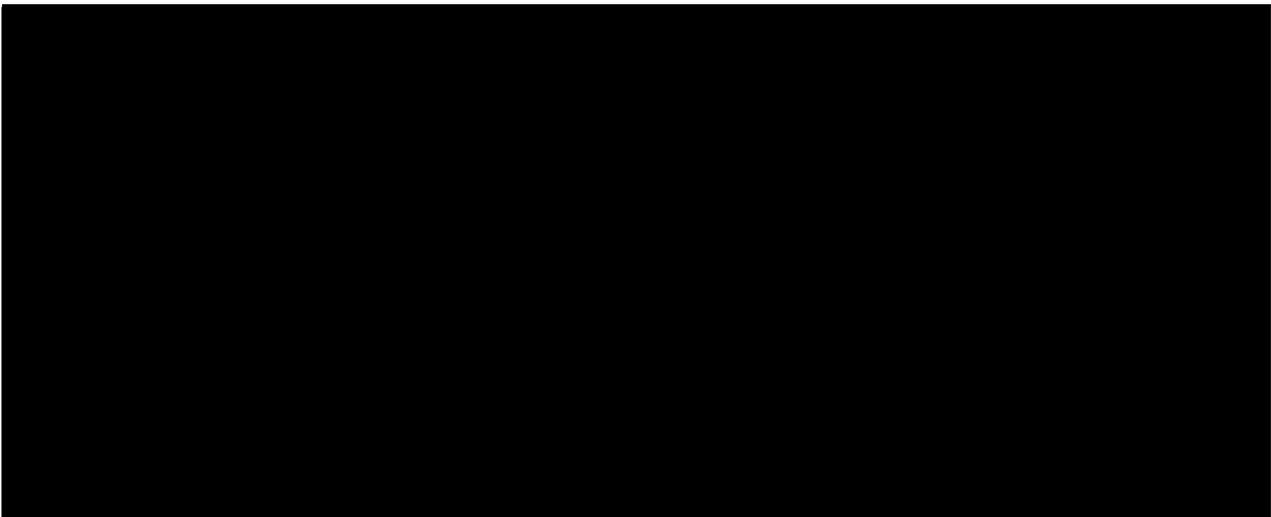
EAGLE-Net has implemented a new Intergovernmental Agreement (IGA) to shift oversight of the network to a statewide organization from its current regional board. The IGA includes a Network Advisory Board (NAB) made up of private/public technology leaders from across Colorado. The IGA also provides a management structure that is aligned similar to a corporate structure to allow for rapid growth of the network.

Included in the NAB will be representation from the Front Range GigaPoP (FRGP). EAGLE-Net works closely with the FRGP to ensure consistency with network build-out, design, and policies.

EAGLE-Net will also benefit from the State's commitment to the project as evidenced by their large in-kind match.

Recognizing the significant expansion of the network infrastructure in this application EAGLE-Net is currently negotiating new agreements with public/private partners ensuring project implementation will be immediate upon receipt of funding. These agreements include the following:

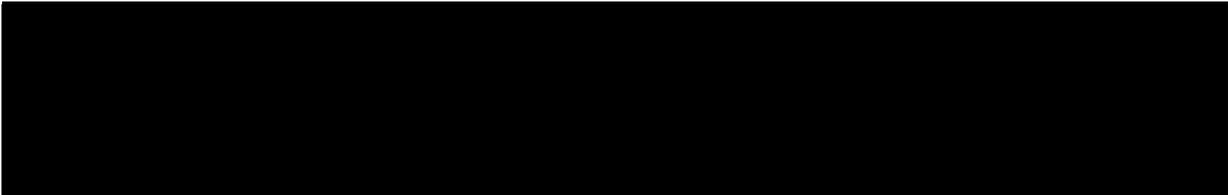
EAGLE-Net has an existing Customer Agreement with IBM to provide their project management organization and expertise, volume purchasing discounts, interface with the private partners to insure on time network construction, implementation, and grant compliance.





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Construction and Vendor Contracts

CBOCES/EAGLE-Net will use a combination of contracts with current vendors and new agreements to deploy the network facilities identified in the application. Existing agreements, that have been competitively bid as part of CBOCES procurement policies as a governmental entity, include fiber lease agreements with Longmont Power & Communications, Platte River Power Authority, and Boulder Valley School District. EAGLE-Net has existing agreements / relationships for broadband transport with Qwest, tw telecom, Level 3 Communications, and Reliance Globalcom. EAGLE-Net has also entered into Memorandums of Understanding with local telephone companies on delivery of middle mile infrastructure for this project.



Customer Base

CBOCES has been providing technology to K-12 and Higher Education institutions for 40 years and since 1999 has been providing Internet Access, network services; transport and technical support for school districts / BOCES in Colorado. In 2009, CBOCES/EAGLE-Net secured access to the Internet2 for Colorado K-12 School Districts and other governmental and non-profit entities. CBOCES/EAGLE-Net provides service to community anchor institutions, primarily K-12 School Districts (with service to over 200 schools). In 2010 CBOCES/EAGLE-Net began offering services to other community anchor institutions, including municipal, library,



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and public safety organizations. We work closely with the Front Range GigaPoP to coordinate offering of services for K-12 School Districts.

We have an agreement with the Colorado Telehealth Network to provide IP Addressing for up to 400 healthcare facilities and are working on an agreement to offer services to these facilities. We currently have an ISP agreement with Boulder County, and an agreement with one of the states leading public safety organizations, Adcom. Several Agreements are in process with additional Community Anchor locations, including additional City, County, and other governmental entities. In addition, a wholesale/commercial Marketing Agreement has been executed with Conterra (provider of services to over 1,000 entities) to assist with connecting Colorado's other 3,000 - 4,000 Community Anchor locations.

Licenses, Regulatory Approvals and Agreements

This project involves construction throughout the entire State, and as such, will require a variety of permits; federal, state and local. Because this is an expansion of an existing network, many approvals already exist. Others to be obtained and the expected time frames for approval are:

- NEPA Reviews: 120 to 180 days
- Phase I Environmental Review: 90 to 120 days
- FCC Part 101 Frequency Coordination and Conditional License: 40 days
- FCC Permanent License: +30 to 90 days
- FCC Antenna Structure Registration [ASR] (structures over 200 feet tall or near an airport): 45 – 120 days
- Federal Aviation Administration (FAA) determination of non-hazard for structures (Aeronautical Study) – non-extended study instances - 90 days minimum
- Railroad crossing permits
- Highway crossing permits
- Joint use/pole attachments permits for any aerial cable attachments
- Local Zoning review and permits for new Structures with Town/City and/or County Planning Commission approval required: 60 to 180 days
- Local Building Permit for antenna installation on existing structure or to build a new structure (following Planning and Zoning approval): 30 to 60 days
- As evidenced by the response in this application to the Environmental section and the Supplemental Report, CBOCES/EAGLE-Net and its partners have a thorough understanding of



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environmental impacts and associated permitting for this project. Please refer to the Supplemental Report for detailed information.

SPIN Number

The Centennial Board of Cooperative Educational Services (CBOCES) FCC Universal Service Provider Identification Number (SPIN) is SPIN#: 143026147.

L. Environmental Questionnaire

Project Description

The Colorado Community Anchors Broadband Consortium – Connection Colorado’s Middle Mile Network Design project consists of a network of wireless telecommunications tower and fiber optic connections.

One hundred and twenty five of the end locations will be new Self Support Tower Structures built to varying heights.

Thirty six of the new installations will be placed on the rooftops of existing buildings at end user locations. These 36 installations will utilize typical telecommunications equipment including standard antenna and roof mounts, with co-axial cable running from the roof to additional Network equipment located inside the building.

The project includes the use of ninety one “Intermediate Sites” on which new Network equipment will be collocated. These sites are predominately existing wireless telecommunications sites. These locations consist of existing towers that site inside of fenced compounds currently housing equipment shelters and/or cabinets for other wireless service providers.

The initial design of this project calls for 55 sites to be connected to the long-haul network by fiber optics.



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A detailed "Environmental Questionnaire" has been completed by Terracon Consulting Engineers & Scientists. The Terracon report, including Figures and Tables referenced in the following narratives, has been included as Supplemental Information for this application. Upon request there are also topographic site maps, appx 400MB, available for review.

Property Changes

Property Changes will consist of new structure end user locations, roof top end user locations, intermediate sites, and fiber optic cable construction. The following is a brief summary of the proposed changes. Further detailed information can be found in the Environmental Questionnaire submitted in the Supplemental Information.

New structures will be built on a standard pad and pier reinforced concrete foundation. Each foundation will be specifically engineered for the exact soil conditions and antenna loading requirements based on location specific final engineering. Each structure will be erected by OSHA qualified contractors per the sealed engineered drawings.

Roof top installations will utilize typical telecommunications equipment including standard antenna and roof mounts, with co-axial cable running from the roof to additional Network equipment located inside the building and will comply with local zoning/permitting requirements.

The zoning/permitting for the intermediate sites will comply with local municipal regulations.

The initial design of this project calls for sites to be connected to the long-haul network by fiber optics. The fiber build portion of the project will be installed linearly exclusively within previously disturbed public rights-of-way.

Buildings

New structures will be built on a standard pad and pier reinforced concrete foundation with the finished elevation of the top of the piers being four (4) inches above existing finished grade elevation. Each foundation will be specifically engineered for the exact soil conditions and antenna loading requirements based on location specific final engineering.



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Typical new structures will be three legged Self Supporting structures of varying heights and will be fabricated to EIA/TIA 222 rev G per the ruling body for telecommunications standards.

Each structure will be erected by OSHA qualified contractors per the sealed engineered drawings. Each structure will support microwave antenna and other network telecommunications equipment as well as co-axial cable running down the tower to either an outdoor cabinet (placed on a 3' X 3' pre-cast pad on existing grade) or run directly into an existing building at the end location.

Selected installations will be placed on rooftops of existing buildings at end user locations. These installations will utilize typical telecommunications equipment including standard antenna and roof mounts, with co-axial cable running from the roof to additional Network equipment located inside the building.

Equipment at Intermediate Sites will be collocated utilizing existing telecommunications facilities and structures.

Wetlands

The National Wetland Inventory data file for the State of Colorado is depicted in Figure 2. Based upon GIS analysis, none of the School or Intermediate sites fall within a NWI wetland, nor does the proposed fiber route impact such wetlands. An environmental consultant will review the final fiber alignment. In any areas where a wetland is identified, a formal survey will be completed of the site, and environmental permitting documents will be filed with the USACE and/or the applicable local authorities with jurisdiction over the wetlands. Once all environmental permits are received, construction will commence.

Critical Habitats

A review of the U.S. Fish and Wildlife Service's (USFWS) website revealed that Colorado is part of the Mountain-Prairie Region. Table 1 (included in the Environmental Questionnaire in the Supplemental Information) lists the Threatened and Endangered Species within this region (taken from http://ecos.fws.gov/tess_public/SpeciesReport.do?lead=6&listingType=L).



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The Colorado Division of Wildlife website was also reviewed for information pertaining to critical environmental habitats, as well as threatened, endangered, and candidate species. Table 2 (in the Environmental Questionnaire) shows the Threatened and Endangered species listed by the State of Colorado (taken from <http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/ThreatenedEndangeredList/ListOfThreatenedAndEndangeredSpecies.htm>).

For the fiber optic cable construction routes, an environmental consultant will review the final fiber alignment. In any areas where possible critical habitats are identified, a formal survey will be completed of the site, and permitting documents will be filed. A formal plan must be developed for any site that may impact candidate species to minimize any potential impacts. Once the plan is approved, and all permits are received, the construction will commence.

Floodplain

Due to the nature of the Federal Emergency Management Agency’s “FIRMette” maps, a review of the flood maps at the location of each of the proposed sites was not possible. Further investigation of flood hazards in relation to the individual sites will be conducted as part of the next phase of this project.

Protected Land

A copy of the National Register of Historic Places Google Earth data file for the West region of the United States was downloaded from the National Register of Historic Places webpage of the National Park Service website (<http://nrhp.focus.nps.gov/natreg/docs/Download.html>). This file was uploaded into the project GIS in order to display the locations of NRHP sites (Figure 3). Employing a location function; no proposed project sites fall atop any of the NRHP sites.

Information regarding state-recorded historic properties, including archaeological and above-ground resources, in relation to the proposed sites will be gathered during the next phase of this project. Specifically, the State Historic Preservation Office (SHPO) will be contacted regarding the impacts upon historic properties by the proposed project during the next phase of this project. A full evaluation of Historical Properties and Cultural Resources will be evaluated once the final site locations are locked down. All sites will adhere to Section 106 of the National Historic Preservation Act.



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Three of the proposed school sites fall within the bounds of tribal lands (Figure 4). Specifically, the Ignacio Library District, the Durango Public Library, and the Ignacio 11 JT project sites lie within the Southern Ute Indian Reservation. The Tribal Historic Preservation Officer for the Southern Ute Indian Reservation will be contacted regarding these sites during the next phase of this project.

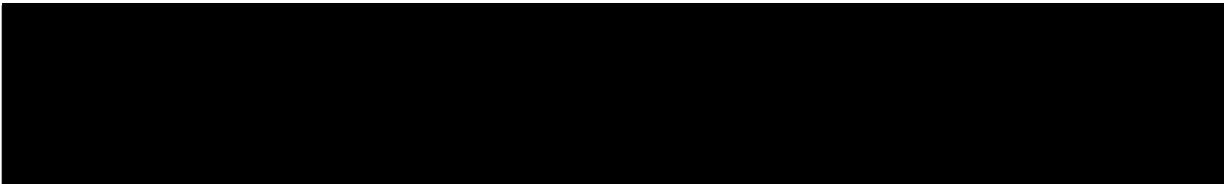
Coastal Area

A review of the National Oceanic and Atmospheric Administration’s Office of Ocean and Coastal Resource Management website (<http://coastalmanagement.noaa.gov/mystate/welcome.html>) reveals that the project is not within the boundaries of a coastal zone management area (CZMA).

Brownfield

The Environmental Protection Agency’s website was visited for information regarding the presence or potential presence of a hazardous substance, pollutant, or contaminant. This search led to the Colorado Department of Public Health and Environment website, which has GIS files for the statewide distribution of superfund, solid waste, hazardous waste, and uranium mill tailing sites (<http://www.cdphe.state.co.us/HM/hmgis.htm>). Figure 5 shows the brownfield sites in relation to the project sites.

A spatial analysis of the distribution of the brownfield sites in relation to the proposed project sites was conducted. No project sites fall within the bounds of solid waste, uranium mill tailing, and hazardous waste sites (including the large quantity generator, small quantity generator, and treatment, disposal, and storage sites).





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Uploads

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

Upload Name	File Name	Uploaded By	Uploaded Date
Service Offerings and Competitor Data	CCI Service Offerings and Competitor Data Attachment.xls	Atkinson-Shorey, Denise	03/25/2010
Network Diagram	CCI Network Diagrams.pdf	Atkinson-Shorey, Denise	03/26/2010
Build Out Timeline	CCI Build-Out Timeline.pdf	Atkinson-Shorey, Denise	03/26/2010
List of Community Anchors and Points of Interest	CCI Anchor Detail and POI Attachment.xls	Atkinson-Shorey, Denise	03/25/2010
Management Team Resumes and Organization Chart	Management Team Resumes and Organization Chart.pdf	Atkinson-Shorey, Denise	03/25/2010
Government and Key Partnerships	Government & Key Partnerships.pdf	Atkinson-Shorey, Denise	03/26/2010
Historical Financial Statements	2008-09 Centennial BOCES Financial Statements.pdf	Atkinson-Shorey, Denise	03/24/2010



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Historical Financial Statements	2007-08 Centennial BOCES Financial Statements.pdf	Atkinson-Shorey, Denise	03/24/2010
Budget Narrative	CCI 18-8 Budget Narrative Attachment.doc	Atkinson-Shorey, Denise	03/26/2010
Detailed Budget	CCI Detailed Budget.xls	Atkinson-Shorey, Denise	03/26/2010
Pro-forma Forecast	CCI Pro Forma.xlsx	Atkinson-Shorey, Denise	03/26/2010
Subscriber Estimates	CCI Subscriber Estimates Attachment.xls	Atkinson-Shorey, Denise	03/26/2010
Dashboard Metrics	CCI Key Metrics-Dashboard Attachment.doc	Atkinson-Shorey, Denise	03/26/2010
Service Area Data	CCI Service Areas Attachment.xls	Atkinson-Shorey, Denise	03/24/2010
Network Maps	CCI Network Maps.pdf	Atkinson-Shorey, Denise	03/25/2010
BTOP Certifications	CCI BTOP Certifications.pdf	Atkinson-Shorey, Denise	03/26/2010
SF-424 C and D	CCI SF 424C - 424D.pdf	Atkinson-Shorey, Denise	03/26/2010



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Supplemental Information	Environmental Questionnaire Report - Terracon.pdf	Atkinson-Shorey, Denise	02/27/2010
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