

Colorado Community Anchor Broadband Consortium (CCABC) – Connecting Colorado’s Middle Mile

A- Opportunity. Provide to middle mile Community Anchor locations, (i) necessary broadband Internet service of up to initially 100 Mbps download and 100 Mbps upload to each Community Anchor location identified in section B, (ii) enable/deliver ten to one-hundred times broadband capacity for growth, to current and new Community Anchors and, (iii) allow non-discriminate access for local Last Mile broadband providers improving their Last Mile broadband service offerings for residential and business customers.

B- Description. CCABC has 12 Regional Service Areas (RSA), each of which has one or more unserved or underserved middle mile location with a Community Anchor site. CCABC will be providing broadband services to 216 Community Anchors located in 177 communities in 63 counties; located in all 7 of Colorado’s congressional districts. Akamai Technologies’ 2009 “State of the Internet” report illustrates the distribution of broadband speeds in the U.S. and Colorado ranks 42nd out the 50 states in terms of broadband connectivity. Broadband surveys conducted in Colorado in 2009 with 178 school districts showed, students access to broadband in schools average 3.5 kbps (1/2 the national average) and 39 library Internet connections were less than 768 kbps per location (unserved). Statewide consortiums in states to the east and west have speeds of 100 Mbps or more. The proposal delivers broadband Internet services to one or more unserved or underserved middle mile Community Anchor site in each of the 12 Region Service Areas; including school districts, libraries and state enacted Boards of Cooperative Educational Services (BOCES). In addition, CCABC will enable additional capacity to serve other Community Anchor locations and provide access to bandwidth for Last Mile service provider upgrades.

C- Households and Businesses. When the build out is complete, this middle mile project will pass 1,174,190 households and 49,385 businesses within Colorado.

D- Community Anchor Institutions. Within the build out phase of the CCABC network in the first thirty-six months, CCABC will provide access to broadband Internet service to 178 School Districts, 26 libraries, 12 BOCES, and allow for access to the Broadband Internet bandwidth to private Middle Mile and Last Mile broadband service providers for distribution to their home and business customers. CCABC will expand its offering to additional underserved Community Anchor locations immediately upon completion, activation and testing of each RSA, to include local and County government administration, health and human services and first responder/public safety entities (approximately 350 locations), non-profit services organizations (approximately 240 locations), private non-profit foundations and housing agencies (approximately 25 locations). CCABC will provision cost sharing access to the State government connection to the commercial Internet and Internet2.

E- Proposed Services. Service offering for Community Anchor Institutions include Commodity Internet, Internet2, broadband long haul and middle mile transport at speeds of at least 20 Mbps per Community Anchor site with additional capacity for expansion; expanded Distance Learning through Community College and University partners; cloud computing services for education anchors and library anchors that expand the ability to deploy evolving technology of

virtualization of servers and implement different types of virtualized end-user solutions, distributed through broadband wire line and wireless networks, activation of smart portals, thin client cloud computing and new messaging and security technologies.

F- Non-discrimination and Interconnection. CCABC will provide access to Internet bandwidth to its participating Community Anchor locations and allow all private sector broadband providers access to bandwidth to provide their end users greater capacities at cost sharing rates. This approach will enhance adoption and promote lawful Internet access to content of choice by home and business users, allow them to run applications and use services of their choice, and allow them to connect legal devices to the network to use the content of the Internet in any legal manner so long as such devices do not harm the network or other users of the network.

G - Type of System. The network solution for CCABC includes a dual 40 Gbps core ring with major nodes in key geographic locations in Colorado. The core ring will have a total of six major nodes with 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 for some of the Community Anchors located in the major metropolitan areas. Additionally, new fiber construction is planned where distances between a particular Community Anchor and the aggregation node are relatively short and where it is economically feasible. For Community Anchors that are further away, the network will utilize an IP based carrier-grade, Ethernet compatible licensed microwave link solution to extend connectivity from the fiber network. This hybrid fiber optical and/or licensed microwave network will provide the most cost effective and efficient broadband solution for the network.

H – Qualifications. CBOCES has been providing technology to K-12 and Higher Education, institutions through its long established roots within the private sector, 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 created a collaborative public/private [REDACTED] statewide Community Anchor Middle Mile service collaborative. This collaborative enabled our Community Anchor focused broadband Internet service model for middle mile Community Anchors and allows for last mile broadband providers to access and distribute low cost Internet bandwidth into the Last Mile communities for home and business adoption. CBOCES/EAGLE-Net secured access to the Internet2 Gateway for Colorado K-12 bandwidth in public, educational and R&D parallel networks at national cost sharing rates and has gained commercial internet access at multi-state/large bandwidth committed rates, to be a collaborative low cost provider in the state. CBOCES/EAGLE-Net is recognized by the American Registry of Internet Numbers (ARIN) as a transport neutral education/non-profit Internet Service Provider, with access to and rights to assign IPv4 and IPv6 IP addresses under its direct control for public entity IP address issuance.

Public and Private Collaboration has been established between Community Anchors and Non-Profit entities in the state include school districts, public libraries, medical and healthcare providers (via the Colorado Tele-health Network), Denver Museum of Natural History, Front

Range GigaPoP, Colorado Community Colleges, Colorado Online Learning, Catalyst@EDU and Poudre Valley Telemedicine. CCABC has also obtained the support of a several educational and governmental entities who have agreed via a collaborative coalition to educate and promote the CCABC project and correlate how their members/affiliates will see direct benefit from the CCABC network. This coalition includes the Colorado Department of Education, Colorado State Library, Governor's Office of Information Technology, Colorado Education Association, Colorado Association of School Boards, Colorado Association of School Executives, Colorado Board of Cooperative Services Association, and the Colorado Hospital Network.

I- Cost – Request of \$178,500,000 on-going cost of \$19,675,000/yr fully sustainable by year 3.

J- Expected Subscribers – Within the first 36 months – 216 identified Community Anchors serving more than 800,000 students; within 60 months an additional 150 to 250 Community Anchors.

K- Number of Jobs - Saved or Created Estimated at up to 800 per year or 2,400 over 3 years spread across all 64 counties in the state.