



Opportunity the proposed system seeks to address: Broadband service in many communities across the State of Illinois is often limited in coverage, bandwidth constrained, or priced beyond the means of many organizations. Broadband is frequently limited to 1-2 Megabits per second (Mbps) per facility in many rural communities. Yet our community anchor institutions need to leverage broadband to enhance the delivery of their services, lower operational costs, and improve the quality of their offerings. They lack affordable access to high speed broadband services capable of supporting everyday 21st Century applications. More schools are moving to online learning. Healthcare increasingly needs to use sophisticated health IT records. Public safety requires enhanced 911. Rural communities need broadband connectivity to seek and retain businesses and people that drive economic growth. For all of these purposes, bandwidth-intensive applications require stable, synchronous connections with quality-of-service guarantees. Current broadband services are asynchronous, best-effort solutions. The fiber infrastructure will interconnect with the Illinois Century Network (ICN), the State's educational network. The ICN is an Internet2 Sponsored Educational Group Provider, which is the gateway for K-12 schools, libraries, and non-research higher education institutions to access Internet2.

The Illinois Broadband Opportunity Partnership - East Central Region (IBOP-EC) fiber-optic network will connect 3,138 anchor institutions, including 21 community colleges across 55 counties in the eastern, central and northern portions of Illinois. The network will support speeds ranging from 10 Mbps (about 2 to 3 times faster than the typical residential broadband offering) to 10 Gbps. Residential broadband service providers will be able to affordably extend their services into unserved or underserved communities with a potential to reach an additional 5,861 community anchors, 285,410 businesses and 3,931,975 households. Nine third-party service providers have provided letters of intent to use this project's middle-mile infrastructure and discussions continue with additional providers.

The project combines the strengths of five regional fiber-optic networks, and many community proposals, to provide a comprehensive statewide broadband infrastructure. Collectively, the projects will directly connect all 48 community colleges to the Illinois Century Network. The projects will interconnect networks and share fiber infrastructure, providing network redundancy, while also avoiding duplication. A key component of the proposal is a community-driven initiative to extend broadband connections to 241 anchor institutions in McLean, Woodford, Livingston, Logan, Piatt, and DeWitt counties. Led by Illinois State University, the Central Illinois Regional Broadband Network (CIRBN) project builds fiber in a number of communities and has developed a governance structure to ensure the long term viability and expansion of the network. The CIRBN model can easily be replicated in more communities in the future.

IBOP-EC will leverage existing state assets to maximize the reach and impact of the proposed network. The Illinois Department of Transportation and the Illinois State Toll Highway Authority are providing access to existing fiber. The Illinois Century Network has existing network facilities, many located on university campuses, throughout the state that can be used for the optical equipment and network access points. The Illinois Department of Transportation has pledged its assistance in expediting the

permitting of rights-of-way to ensure the project is completed as quickly as possible – and providing community anchor institutions with timely access to broadband.

General description of the proposed funded service areas:

Forty-seven of the 55 counties in the proposed service area are underserved with residential broadband subscriptions less than 40%. Thirteen counties are economically distressed with above average unemployment rates and low median incomes.

Number of households and businesses passed: The proposed funding service areas includes: 3,931,975 households and 285,410 businesses.

Number of community anchor institutions passed and/or involved with project: The proposed network will pass 8,999 community anchor institutions of which 3,138 will be directly connected including 1,143 K-12 schools, 21 community colleges, 189 higher education institutions, 58 healthcare facilities, 294 libraries, 106 public safety entities and 1,327 other sites This project includes the active participation of and matching funds from 41 partners, including 19 K-12 school districts, 1 community college, 2 higher education institutions, 10 municipal and public safety entities, 8 commercial organizations, 2 healthcare organizations, 1 non-profit organization, and the State of Illinois.

Proposed services and applications for the proposed funded service areas and users: The proposed network will provide broadband speeds ranging from 10 Mbps to 10 Gbps, as well as leasing dark fiber and wave services for businesses and third-party service providers. The network will provide access to the Internet, private peering points, Internet2 and the National Lambda Rail. Nine commercial service providers have already provided letters of intent to use the middle mile infrastructure to deliver broadband services to residents and businesses throughout the service area.

Approach to addressing the non-discrimination and interconnection obligations: The network includes 322 interconnection points ensuring easy access for third-party services providers. IBOP-EC fully embraces the non-discrimination and interconnection obligations and has designed the network and service offerings accordingly. IBOP-EC will make all elements of the network available to other service providers including dark fiber, wave services, and point-to-point Ethernet services.

Type of broadband system that will be deployed: The backbone network is designed as a DWDM architecture operating over a combination of new, existing and leased fiber spanning 2,248 miles. New fiber construction consists of 144 strands of single mode fiber covering approximately 1,026 miles. Existing fiber covers 1,096 miles and includes 4 or more strands of single-mode fiber. Leased fiber covers 126 miles. Within the Central Illinois Regional Broadband Network (CIRBN) metropolitan area the network design includes 288 strands of single mode fiber due to the higher node density found in metro environments.

Qualifications of the applicant that demonstrate the ability to implement and operate a broadband infrastructure, and/or be a sustainable system: Central Management Services (CMS) has been providing broadband services to more than 7,000 community anchor institutions for more than 10 years via the ICN. The ICN is an internet protocol network running multi-protocol label switching with 15 points-of-presence. Through the Illinois Broadband Opportunity Partnership, the State of Illinois has assembled a team of fiber and broadband resources to assist with the network design and implementation.

Collectively, these resources have installed and operated more than 1,000 miles of fiber. These fiber experts include representatives from the Illinois State Toll Highway Authority, Northern Illinois University, University of Urbana-Champaign, Illinois State University, Metropolitan Research &

Education Network, and I-WIRE. The CMS and ISU operations include a team of network engineers and a 24x7 network operations center to manage the project implementation and ongoing operations. CMS has established back office systems to support ordering, billing, inventory, and technical support operations. Once implemented, Illinois State University and the founding members of CIRBN plan to form a non-profit, Limited Liability Company to assume ongoing operations of the community fiber network.

Overall infrastructure costs of the broadband system: Total project cost is \$96,382,028. IBOP-EC is providing a cash match of \$30,538,950 or 31.69% and \$3,947,796, or 4.1%, as an in-kind contribution; for a total local match of \$34,486,746, or 35.79%. More than 40 partners have contributed to the local match.

Overall expected subscriber projections: The estimated number of direct subscribers by year eight is 3,377 community anchor institutions, 127 businesses, and 61 third-party service providers.

Number of jobs estimated to be created or saved: According to a report released by the Council of Economic Advisers, *Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009*, we estimate the proposed project will create 1,057 job years which can be further broken out into 676 direct and indirect jobs and 381 induced jobs.