Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program

Submitted Date:	**Easygrants ID: 5390**
Funding Opportunity: Broadband Technology Opportunities Program	**Applicant Organization:** IOWA COMMUNICATIONS NETWORK
Task: Submit Application - BTOP	**Applicant Name:** Mr. David Michael Swanson

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	943058925
CCR # (CAGE)	1V8P1
Legal Business Name	IOWA COMMUNICATIONS NETWORK
Point of Contact (POC)	MARLA GIBBONS 5157254646 Ext. MARLA.GIBBONS@IOWA.GOV
Alternate POC	MARLA GIBBONS 5157254646 Ext. MARLA.GIBBONS@IOWA.GOV
Electronic Business POC	MARLA GIBBONS 5157254646 Ext. MARLA.GIBBONS@IOWA.GOV
Alternate Electronic Business POC	BRIAN CLAYTON 5157254616 Ext. BRIAN.CLAYTON@IOWA.GOV

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Mr.
First Name	David
Middle Name	Michael
Last Name	Swanson
Suffix	
Telephone Number	515-725-4726

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Fax Number	
Email	david.swanson@icn.state.ia.us
Title	Project Director

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Mr. Joseph , Cassis	5157254600	joseph.cassis@iowa.gov

Environmental Point of Contact

Prefix: Mr.
Name: Swanson, David
Suffix:
Telephone Number: 5157254726
Title: Project Manager

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

Authorized Organizational Representative	
AOR Name	GIBBONS, MARLA

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Result	Applicant Authorized

Project Title and Project Description

Project Title: Bridging the Digital Divide for Iowa's Communities

Project Description: Iowa Communications Network proposes to modernize its state-owned network to provide 10 Gbps Points of Presence in each of Iowa's 99 counties. The Middle Mile network will provide 1Gbps symmetrical Ethernet for 1,036 educational facilities, hospitals, libraries, public safety, workforce development, and other Community Anchor Institutions in served, underserved and unserved areas throughout Iowa.

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.

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:

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Middle Mile

Last Mile Rural

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?

- Yes

Easygrants ID	Project Title
7294	Iowa Healthcare Plus Broadband Extension Project
6793	ICN Broadband Adoption and Awareness: Connecting Iowans Project
6734	Iowa Broadband PCC Initiative
6328	Red Earth Public Computing Center

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

Iowa Health System (IHS) 7294 and ICN 5390 are the two largest non-traditional carrier networks in Iowa. This project will create a 5,000 mile public purpose network that dramatically increases CCI for anchor institutions, including community colleges, hospitals, clinics, and physicians, public libraries, K-12 schools, & municipal, county, state & federal

agencies. These applications link 2 distinct Middle Mile networks at both the physical infrastructure level (i.e. huts, towers, and lightwaves) & the logical level (VLANs & IP services) by creating common Network Access Points (NAPs) interconnected to national NAPs in Chicago & Denver. The projects will create a new public / private partnership (ICN Public / IHS Private) that reaches every community college in Iowa, creates 21 new towers for wireless services, establishes 2 new IP exchange NAPs, & reaches every county seat in Iowa with a minimum of 10 Gbps broadband backbone middle mile to stimulate economic development in rural settings. ICN has worked closely with IHS & currently provides connectivity to a number of IHS clinics in areas where ICN has fiber facilities but IHS does not. IHS also has fiber facilities where ICN does not & serves customers that ICN cannot serve under its statutory authority. ICN & IHS are collaborating for Round 2 BTOP grants that will benefit all citizens of Iowa. The synergies are apparent by viewing a map overlaying IHS' network on ICN's network (map attached)
ICN & IHS networks also currently provide access & backbone connectivity to numerous hospitals & public health entities through active participation in the FCC's RHCPP. The complimentary connectivity created by these proposed network initiatives provides additional synergies & further enhancements of the RHCPP efforts.
6793
This project is intended to extend advanced, affordable broadband access to all Iowans, especially rural, unserved, underserved, & vulnerable residents. Broadband video conferencing will be available in 720 schools, libraries, health care, public safety, & government offices. Broadband awareness & outreach will extend access to targeted vulnerable groups. ICN's Middle Mile infrastructure project 5390 will enable access contemplated by EasyGrant 6793.
6734
This project is a statewide community-college led project to establish 58 Public Computer Centers to serve targeted areas of need in 54 counties. Centers providing access & curriculum will be located at community colleges, libraries, & community organizations. Digital literacy, employment skills, job placement, & Internet safety will be delivered. ICN's Middle Mile infrastructure project 5390 will enable access contemplated by EasyGrant 6734.
While all of the applications are complementary, there is no critical dependency of any application on the other. The absence of approval for any of the applications eliminates potential synergies & network interconnection benefits as well as the combined reach of the projects.

Individual Background Screening

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

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- 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:
Iowa is predominantly a rural state, heavily dependent on farming with few metro areas (the largest is Des Moines at 200,000 pop). As with any predominantly non-metropolitan area, providing network connectivity is difficult and expensive. The opportunity presented by the BTOP funding would allow rural Iowan's to overcome the distance penalty inherent in non-metropolitan areas, and enhance educational, healthcare, employment and government service opportunities for the entire state.
The particular opportunity available with coordinated BTOP initiatives is leveraging of Federal funds by combining the capabilities and reach of the existing, state-owned fiber optic network established in 1993 with the largest purpose built healthcare network in Iowa. Due to growing capacity demands both of these networks have a significant need of upgrading and modernization.
b. SERVICE AREA
The existing Middle Mile network reaches all 99 Iowa counties, and was originally established in 1993 as the Iowa Communications Network (ICN). The network consists of 3000 miles of state-owned fiber plus 3500 miles of fiber from local telephone companies and national carriers.

BTOP funding would enable a significant capacity upgrade to the network throughout the state, and allow the authorized users such as community colleges and healthcare facilities to catalyze the creation of expanded Last Mile services to their end users.

c. HOMES & BUSINESSES PASSED

There are 1,149,276 homes and 244,211 businesses in Iowa. Because the Middle Mile network reaches all of Iowa's 99 counties, there is potentially ubiquitous coverage of all homes and businesses to the extent that Last Mile Providers can build on the services to be made available by the new Middle Mile network capacity.

d. COMMUNITY ANCHOR INSTITUTIONS PASSED

ICN serves 2617 statutorily-defined authorized users (all Community Anchor Institutions) located in all 99 counties including all 362 school districts totaling 584 K-12 locations, 15 community college districts , five major hospital healthcare networks serving 185 health care providers, 64 libraries, 318 public safety entities, and 14 state and federal government departments comprising 1076 locations.

e. PROPOSED SERVICES & APPLICATIONS

The proposal is for a Middle Mile network, with the end users making the determination of what applications they desire to use on the network. Through partnerships with education, public safety, healthcare, the judicial system, state and federal government agencies, and the National Guard, ICN currently brings video, video over IP, voice, data, WAN connections, and high-speed Internet Services to its users. The grant funds would be used to significantly upgrade the capacity of the network to 21st century standards, with a 10 Gbps backbone and 1 Gbps capacity to all CAI users, thus enabling them to provide state-of-the art services to their end users through their Last Mile facilities.

f. NON-DISCRIMINATION & INTERCONNECTION

There are no restrictions on ICN service for authorized users of the Network. ICN represents an open system to state government and quasi-governmental institutions as a public resource through strong and sound interconnection and non-discrimination BTOP-aligned practices, as well as to Internet and Internet2 networks. To maximize service access to CAI entities, ICN's network management policies and practices provide services on an equable, non-discriminatory, statewide basis.

g. TYPE OF SYSTEM DEPLOYED

ICN intends to deploy standards-based (IEEE) wide-area, open access, carrier neutral Ethernet transported on underlying Dense Wavelength Division Multiplexing (DWDM), with network extensions that may include standard telecommunications carrier circuits.

h. QUALIFICATIONS OF APPLICANT

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ICN has been operating the state-wide network since 1993. ICN is a recognized FCC common carrier, operates a 24-hour Network Operations Center service (NOC) and has provided secure, reliable broadband access to thousands of users on a 24x7 basis for 17 years.

i. OVERALL COST OF INFRASTRUCTURE

The estimated total cost of the project is $23,867,544

j. SUBSCRIBER PROJECTIONS

All of the current Middle Mile customers (2,617 CAI) are expected to maintain and increase their usage of the system. Last Mile customers enabled by this Middle Mile Project is potentially 3,000,000, the entire population of the State; at 5% penetration the potential subscribers could reach 150,000.

k. JOBS CREATED

ICN estimates the project will create, directly and indirectly 257 jobs utilizing the Council of Economic Advisor's guide for determining job creation.

Project purpose:

a. PROBLEM ADDRESSED

Applications drive bandwidth requirements. New applications are far more bandwidth intensive, thus driving the need for greater capacity. CAI require high bandwidth (at least 100 Mbps) connectivity. To provide that connectivity, wide-spread deployment of Middle Mile infrastructure is necessary to enable greater bandwidth connectivity at fair & reasonable prices. Two specific, & representative examples of the problems to be addressed by this project are the Sac & Fox of the Mississippi in Iowa tribe & United Community Schools:

As with many tribal jurisdictions in the country, the Sac & Fox of the Mississippi in Iowa have extremely high unemployment & very little broadband connectivity available to them. For the tribal area the specifics are:

Total Sq Miles - 1
Total Population - 1300
Total Households - 396
Total Businesses - 7
Total # of CAI & PS Entities - 11
Unemployment Rate - 47.8%
Median Income - $35,658

Schools are also underserved in a predominantly rural state such as Iowa, where there are many small towns widely disbursed across the state. For United Community Schools the specific issues they face are similar to what most rural schools face: totally insufficient connectivity to

even use the limited local assets they own. United Community School is the only grade school in Iowa participating in the Apple One to One Program, providing laptops & online content to every student & teacher.
•Total student population K-6 (147)
•Current connection to the Internet 1.5Mbps
•At Christmas time only 3 students could use the districts Internet connection & access online content. As the fourth student began the application all applications would slow to a halt.
•During rainy days the T-1 from one of the largest carriers in Iowa providing Internet service fails
While the ICN reaches every county, existing bandwidth is completely inadequate to meet the needs of its users. Applications drive bandwidth requirements & a wide variety of additional applications exist today that did not exist at the inception of the network. New applications are far more bandwidth intensive, driving the need greater capacity on the single fiber pairs of the ICN network. Optical fiber has potentially unlimited capacity; electronics do not. ICN must upgrade network electronics to meet the ever growing needs of its users. ICN's rates are subject to statutory limitations set to cover operating costs; upgrades require new legislation &/or the State budgeting process. Under the current adverse economic climate there is no state funding for needed infrastructure upgrades or even for the replacement of obsolete (& vendor unsupported) equipment.
The current network has about 763 locations/nodes, many serving multiple CAI's. Given the current forced reliance on obsolete, unsupported equipment the ICN finds it increasingly difficult to scale equipment to the demands of the infrastructure, which adversely impacts the CAI users & increases operational costs. Because costs must be passed on ratably, rural CAIs located in vulnerable, underserved areas are severely impacted. This project contains three underserved distressed areas that include Iowa's highest poverty & unemployment rates.
b. SOLUTION PROVIDED
The solution is a new network design utilizing 21st century technology to increase capacity & eliminate obsolete equipment, & to leverage that network by collaborating with IHS in its linked BTOP application. This project would create Middle Mile infrastructure with 10 Gbps capable Points of Presence in all 99 Iowa counties, providing 1 Gbps symmetrical Ethernet service to 1036 CAI in Iowa. This includes:
The project has two goals: (1) to enhance a ubiquitous, modern network to locations not otherwise adequately served without grant support; & (2) for economic development, to support schools, community colleges & other CAI, thus supporting job creation throughout Iowa.

c. SIGNIFICANCE & REPLICATION

This project has statewide significance & will enhance the effectiveness of BTOP grant funds by extending broadband connectivity to 2617 CAI now seriously underserved by existing, obsolete electronics & infrastructure. The combination of the IHS & ICN applications will create a new 5,000-mile public purpose network that dramatically increases comprehensive community infrastructure for CAI. The promise for future replication & collaboration between IHS & ICN to benefit Iowa residents is probable.

There were no Round 1 BTOP grants awarded in Iowa. This project provides a backbone framework for ubiquitous extension of fiber & wireless Last Mile services in substantially all of Iowa. The linkage between IHS' application & ICN's application establishes a model for future public-private partnerships to meet the broadband needs of Iowa's citizens.

d. UNDERSERVED & UNSERVED AREAS

This Middle Mile project does not serve any unserved areas, although Last Mile providers connecting to the facilities to be provided by this project may extend their services to such areas. This project does include three underserved, economically distressed areas that include Iowa's highest poverty & unemployment rates.

e. STATUTORY PURPOSE

This project addresses four of the BTOP statutory priorities. Specifically it (1) enhances broadband service offerings in underserved areas through fiber infrastructure; (2) improves opportunities for broadband education, awareness, training, access, equipment, & support to healthcare and other CAI, through the support of advanced applications, provision of direct, dedicated connections to major markets in Chicago & Denver, & connections to Internet2 & National Lambda Rail via the partnership with IHS; (3) enhances broadband service offerings to public safety organizations; & (4) furthers economic growth & job creation in a rural state for Middle Mile infrastructure & its enabler & multiplier effect on CAI, last mile providers & the general public.

Recovery Act and Other Governmental Collaboration:

Federally Funded Initiatives – Current and Planned

Iowa Rural Health Telecommunications Program (IRHTP), was awarded $9.95 million under the FCC Rural Health Care Pilot Program, and involves providing 1 Gbps of Ethernet access to 85 hospitals and critical care facilities, with the goal of connecting 100. This FCC pilot program project was submitted by the Iowa Hospital Association, but is managed collaboratively by the ICN.

IHS, a project partner, has also received a $7.8 million grant from the FCC's Rural Healthcare Pilot Program. That project works with existing carriers to create last mile access connections to rural healthcare providers and to make that network available to any healthcare-related entity.

State Funded Initiatives

The federal American Recovery and Reinvestment Act (ARRA) stimulated the 2009 Iowa Legislature to pass IJOBs, or bonding bill SF376, containing a $25 million appropriation to assist Iowa organizations in matching federally funded broadband programs. I-JOBS is the State of Iowa's equivalent to NTIA's BIP and BTOP, and will directly assist Iowans with their cash match requirement.

Result of Federal and State Funded Projects

These projects will, in turn, further leverage a federal grant application to be submitted by the Iowa Department of Public Safety to upgrade its grounding/protection of equipment used for public safety communications at six locations ($160,000); a Video Conferencing/ Distance Learning Springbook Conservation Education Center project to be submitted by the Iowa Department of Natural Resources ($500,000) and wireless network implementation in Iowa's state parks ($3,300,000); an application from the Iowa Division of Criminal Investigation (Internet Crimes Against Children Task Force) for funds to enhance investigative responses to predators using the Internet or other technology to sexually exploit children ($574,077); and an Iowa Department of Human Services grant application for an advanced electronic health information collection and retrieval system.

Fit with BTOP CCI Priorities:

CHECKED BOXES 1, 2, 3, 4,5, 6, and 7

BOX 1 - Middle Mile broadband infrastructure to community anchor institutions.

For over 16 years, ICN has provided connectivity to all 99 Iowa counties and was established with a primary goal of supporting distance learning in order to provide equal opportunities to all students throughout the state. The Network supports 2617 CAI, including K-12 education, libraries, community colleges, universities, community centers and life-long learning programs. Services have grown to support hospitals and clinics, public safety and judicial processing as well as to enhance governmental services for unemployment, family services and disasters. This project, when joined with IHS' linked grant application, will extend the much higher speed Middle Mile infrastructure to CAI's in all 99 counties in Iowa.

Education

With enhanced broadband services available more school districts will be able to provide Advanced Placement courses at high schools. Sufficient, usable broadband enhances the sharing

of applications including payroll, security monitoring, administrative systems, video streaming, 3-D design development , and laboratory experimentation with specialized facilities throughout the state, and potentially throughout the world. The premise is to provide equal educational opportunities regardless of where the student lives in the state for costs that can be reasonably be absorbed by small, rural communities.

Economy

Broadband spurs growth. It also eliminates the distance penalty for rural states such as Iowa by allowing rural citizens to have the same access to network connectivity as those living in metro areas. Business and economic success also depend heavily on educational opportunities, and those opportunities are greatly enhanced by the availability of broadband services.

Businesses require broadband capabilities to operate. Today, many employers have acquired their work force through the Internet using various cyber tools, whether that includes web sites, social networking applications, employment firms, governmental agencies and referral programs.

Health Care

Family physicians and specialists are moving toward e-health applications, whether it is for specialty treatments, therapy or patient monitoring at home or in an ICU. Exchange of patient records from one facility to another saves time and money, and in some cases, lives. Real-time diagnostics of patients through technology that could only be available at the larger metropolitan hospitals can now be offered to small clinics in areas that do not have the population to sustain large medical facilities. ePharmacy is available but not in all parts of Iowa, which would reduce the amount of recordkeeping, potential abuse, and increase convenience for citizens. And increased connectivity also means an increased ability to deal with regulatory and reporting requirements now necessary in an integrated healthcare environment.

Government

Online availability of government services is especially valuable to users in rural areas, as well as allowing government to control costs while maintaining essential services needed for the well-being of society. Public Safety and Homeland Security have growing needs for robust communication capabilities and training for the communities throughout the State. With enhanced broadband, more of these applications are available to ensure immediate support during times of peril. The Judicial Branch and Corrections use the ICN for parole hearings and other court proceedings, saving time and money for the citizens while reducing security issues. Because ICN's statutory authority is limited to serving governmental entities with a "state purpose" it does not serve local government entities such as cities and counties. By IHS' linked application it proposes to serve all the governmental entities within reach of its network that ICN

cannot serve. IHS, via direct connection to these CAI's, or via its partnership with one or more Last Mile providers, will provide services to those ICN-ineligible entities.
BOX 2 - Incorporated public-private partnership.
This project will create a new public / private partnership (ICN Public / IHS Private) that reaches every community college in Iowa, creates 21 new towers for wireless services, establishes 2 new IP exchange NAPs, & reaches every county seat in Iowa with a minimum of 10 Gbps broadband backbone middle mile to stimulate economic development in rural settings.
BOX 3 - Economically distressed areas
There are 21 counties identified as economically distressed areas in Iowa. This project will provide expanded broadband in these counties, and in conjunction with the linked IHS application, counties will be have access to enhanced Middle Mile services.
BOX 4 - Community colleges
The project will upgrade broadband capcity at all 15 Iowa community college districts who serve more than 417,000 students. In conjunction with the linked IHS application, each main campus will have wireless, high-speed broadband access.
BOX 5 - Public safety entities
The project connects over 200 public safety locations including homeland security, local police departments, sheriffs' offices, state highway patrol, fire stations, and PSAPs.
BOX 6 - Last Mile infrastructure component in unserved or underserved areas
The project includes deployment of a last mile FTTH project to 196 homes on the tribal lands of the Sac & Fox of the Mississippi in Iowa. Also, in conjunction with the linked IHS application this project will deploy Middle Mile broadband infrastructure that either includes a Last Mile infrastructure component in unserved and underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components.
BOX 7 - 30 percent or more in non-federal cost match
The ICN is providing a cash match of $7,637,425 or 32% of project costs. There is no "in-kind" contribution.

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

- No

Is the applicant deliquent on any federal debt?

- No

If Yes, justification for deliquency:

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

- Yes

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: Sub-recipient
Name: Smith, Lucas
Phone: 6414844678
Email: cco.fiscal@meskwaki-nsn.gov
Address 1: 349 Meskwaki Rd
Address 2:
Address 3:
City: Tama
State: Iowa
Zip Code: 52339
Organization: Sac & Fox Tribes of the Mississippi
Organization Type: Indian Tribe
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Rosener, Sabra
Phone: 5152413390
Email: rosenesk@ihs.org
Address 1: 1200 Pleasant St
Address 2:
Address 3:
City: Des Moines
State: Iowa
Zip Code: 50309

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Organization: Iowa Health System
Organization Type: Non-profit Corporation
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Lensch, Brian
Phone: 5633875302
Email: lenschb@winmedical.org
Address 1: 901 Montgomery St
Address 2:
Address 3:
City: Decorah
State: Iowa
Zip Code: 52101
Organization: Winneshiek Medical Center
Organization Type: County Government
Small business: No
Socially and economically disadvantaged small business concern: No

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

The ICN has worked closely with Iowa Health System, and currently provides connectivity to a number of IHS clinics in areas where ICN has fiber facilities but IHS does not. IHS also has fiber facilities where ICN does not, and serves customers that ICN cannot serve under its current statutory authority. ICN and IHS are collaborating in submitting Round 2 BTOP applications that will benefit all citizens of Iowa. The potential synergies are apparent by viewing a map overlaying IHS' network on ICN's network (map attached).

As a state-owned common carrier the ICN serves state and federal agencies, institutions, libraries, educational facilities and healthcare facilities. ICN can and does provide services, including Middle Mile connectivity to over 2000 authorized CAI throughout Iowa's 99 counties. In turn those CAI provide various services to their constituents.

The goal of the complementing applications is to allow ICN and IHS to interconnect their facilities where appropriate, enable Middle Mile services at a more granular level, provide direct connectivity to CAI and enable Last Mile providers to reach all Iowans within reach of the project networks with access to broadband services.

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ICN proposes to modernize its state-owned network to provide 10 Gbps Points of Presence in each of Iowa's 99 counties. The Middle Mile network will provide 1Gbps symmetrical Ethernet for 1036 (including 476 directly connected) educational facilities, hospitals, libraries, public safety, workforce development, and other CAI in served, underserved and unserved areas throughout the State.

IHS proposes to create new and extend its existing network to underserved healthcare providers and to create a Middle Mile foundation for (i) extension of healthcare services directly to patients; and (ii) Middle Mile, open access, carrier neutral infrastructure available for other broadband-based services throughout the State.

ICN will gain a new core DWDM network on 3000 miles of dark fiber making transport capacity available for the ICN for their statutorily eligible users, health care access, and dark fiber to replace leased DS3 and T1 last mile connections, 23 new LMAPs, new 10 Gbps capacity on the IHS network for expanded access to any public purpose ICN eligible end point on the network, or through any tower connected to the IHS network using a Last mile Provider, and new redundant paths to existing end points available using the IHS "dedicated ICN" capacity.

IHS will gain a new core DWDM network on 2000 miles of dark fiber making transport capacity available for (i) health care, (ii) a separate 10 Gbps wave for commercial use,(iii) use by the ICN and its eligible users, (iv) 23 new LMAPs to add/drop traffic on the new network, (v) 21 new towers (priority placement on community college campuses) for Last Mile providers to serve healthcare entities including ICN public purpose entities (education, healthcare, public safety, etc.), private entities, and (vi) new 10 Gbps Capacity on the ICN network for expanded access to any healthcare end point on the network, or through any tower connected to the ICN using a Last Mile provider.

Both networks will establish common Network Access Points where physical cross-connects can create logical network interconnection (Point to Point logical VLANs and IP).

IHS will provide access capacity (5 Gbps) for long haul transport connecting Chicago and Denver NAPs to the statewide NAPs.

Each party will continue to manage, fund and operate its own network as it has been doing for many years. Interconnection and use of each network will be managed using telecom industry-standard operating procedures in the same manner as individual telecommunications carriers manage their networks today; from an operational standpoint this project is an expansion of the existing, working relationship between ICN and IHS.

As a non-profit healthcare provider, IHS is not limited in providing services to customers, but does not have sufficient network infrastructure to reach all areas of Iowa where it has customers. IHS can and does provide connectivity to healthcare providers within reach of its fiber network.

Because the BTOP grant requirements include a showing of project sustainability (i.e., the ability to cover operating costs without using government funds), both the ICN and IHS increase the utilization of their respective networks by being able to interconnect, to provide each other transport services, produce additional revenue by broadening network use and availability and reduce operating costs by being able to share some services (e.g., purchasing Internet access in Gbps units at Chicago or Denver NAP's at substantially reduced costs).
A second partnering relationship has been established with Decorah, IA to construct a metro network connecting the local school district, hospital, private college, public works, and municipal and county government to provide enhanced services to its citizens. Approximately 7.9 miles of fiber will be constructed in a redundant ring to connect the backbone of the network to these Community Anchor Institutions.
A third partnering relationship was established with the Sac & Fox Tribe of the Mississippi in Iowa to build a 4.2 mile fiber route and create middle mile access for a Fiber to the Home (FTTH) project on tribal lands. Additionally 13.0 miles of distribution cable and 196 fiber drops will be installed to create last mile access paths to the headend which will be terminated on the backbone access fiber. This build-out will provide an area with 0 broadband access and almost 48% unemployment with a much needed tool for economic growth.

D. Congressional Districts

Applicant Headquarters

- Iowa

Project Service States

Iowa

Project Service Areas

Iowa - 1

Iowa - 2

Iowa - 3

Iowa - 4

Iowa - 5

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

- Yes

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

Sac & Fox Tribe of the Mississippi in Iowa

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?

- Yes

Project Details

Service Area Type: Middle Mile
Service Area Name: Service Area 1 - Northwest Iowa
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.
No fixed or mobile broadband service provider advertises broadband transmission speeds of at least 3 mbps downstream in the proposed funded service area;

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Total Square Miles in Service Area: **6,625**
Total Population in Proposed Service Area: **166,649**
Total Number of Households in Service Area: **67,228**
Total Number of Businesses in Service Area: **16,569**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **191**
Unemployment Rate in the Service Area: **6**
Median Income in the Service Area: **44,726**
Estimated Percentage of Households with Access to Broadband: **70**
Estimated Percentage of Households Subscribing to Broadband: **48**

Service Area Type: Middle Mile
Service Area Name: Service Area 2 - North Central Iowa
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Served

If Service Status is "Underserved" please select at least one applicable option from this list.

Total Square Miles in Service Area: **7,365**
Total Population in Proposed Service Area: **221,530**
Total Number of Households in Service Area: **92,528**
Total Number of Businesses in Service Area: **20,425**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **240**
Unemployment Rate in the Service Area: **8**
Median Income in the Service Area: **45,163**
Estimated Percentage of Households with Access to Broadband: **70**
Estimated Percentage of Households Subscribing to Broadband: **49**

Service Area Type: Middle Mile
Service Area Name: Service Area 3 - Northeast Iowa
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Served

If Service Status is "Underserved" please select at least one applicable option from this list.

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Total Square Miles in Service Area: **11,818**
Total Population in Proposed Service Area: **882,579**
Total Number of Households in Service Area: **342,886**
Total Number of Businesses in Service Area: **69,694**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **589**
Unemployment Rate in the Service Area: **8**
Median Income in the Service Area: **49,814**
Estimated Percentage of Households with Access to Broadband: **85**
Estimated Percentage of Households Subscribing to Broadband: **54**

Service Area Type: Middle Mile
Service Area Name: Service Area 4 - Southeast Iowa
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.
No fixed or mobile broadband service provider advertises broadband transmission speeds of at least 3 mbps downstream in the proposed funded service area;

Total Square Miles in Service Area: **4,048**
Total Population in Proposed Service Area: **311,568**
Total Number of Households in Service Area: **119,706**
Total Number of Businesses in Service Area: **24,184**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **232**
Unemployment Rate in the Service Area: **7**
Median Income in the Service Area: **50,658**
Estimated Percentage of Households with Access to Broadband: **77**
Estimated Percentage of Households Subscribing to Broadband: **56**

Service Area Type: Middle Mile
Service Area Name: Service Area 5 - Central Iowa

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Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Served

If Service Status is "Underserved" please select at least one applicable option from this list.

Total Square Miles in Service Area: **8,985**
Total Population in Proposed Service Area: **840,467**
Total Number of Households in Service Area: **311,645**
Total Number of Businesses in Service Area: **67,881**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **794**
Unemployment Rate in the Service Area: **7**
Median Income in the Service Area: **51,742**
Estimated Percentage of Households with Access to Broadband: **85**
Estimated Percentage of Households Subscribing to Broadband: **53**

Service Area Type: Middle Mile
Service Area Name: Service Area 6 - Southern Iowa
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.
No fixed or mobile broadband service provider advertises broadband transmission speeds of at least 3 mbps downstream in the proposed funded service area;

Total Square Miles in Service Area: **7,902**
Total Population in Proposed Service Area: **173,807**
Total Number of Households in Service Area: **71,342**
Total Number of Businesses in Service Area: **14,995**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **250**
Unemployment Rate in the Service Area: **9**
Median Income in the Service Area: **38,336**
Estimated Percentage of Households with Access to Broadband: **70**
Estimated Percentage of Households Subscribing to Broadband: **40**

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Service Area Type: Middle Mile
Service Area Name: Service Area 7 - Western Iowa
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Served

If Service Status is "Underserved" please select at least one applicable option from this list.

Total Square Miles in Service Area: **9,532**
Total Population in Proposed Service Area: **371,223**
Total Number of Households in Service Area: **143,941**
Total Number of Businesses in Service Area: **30,503**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **321**
Unemployment Rate in the Service Area: **7**
Median Income in the Service Area: **46,315**
Estimated Percentage of Households with Access to Broadband: **85**
Estimated Percentage of Households Subscribing to Broadband: **49**

Service Area Type: Last Mile
Service Area Name: Sac & Fox Tribe of the Mississippi
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: **1**
Total Population in Proposed Service Area: **1,300**
Total Number of Households in Service Area: **396**
Total Number of Businesses in Service Area: **7**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **11**
Unemployment Rate in the Service Area: **48**
Median Income in the Service Area: **35,658**
Estimated Percentage of Households with Access to Broadband:

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Estimated Percentage of Households Subscribing to Broadband:

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	584
Libraries	64
Medical and Healthcare Providers	185
Public Safety Entities	318
Community Colleges	94
Public Housing	0
Other Institutions of Higher Education	198
Other Community Support Organization	98
Other Government Facilities	1076
TOTAL COMMUNITY ANCHOR INSTITUTIONS	**2617**
Historically Black colleges and Universities	0
Tribal Colleges and Universities	1
Alaska Native Serving Institutions	0
Hispanic Serving	0

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Institutions	
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	**1**

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	82
How many indirect jobs will be created from this project?	82
How many jobs will be induced from this project?	93

Methodology used to estimate jobs:

The primary calculation technique used in the reporting of job years data listed above would be the Council of Economic Advisor's guide to job creation that estimates $100 billion of government spending creates 1,085,355 job-years. For government spending, this equates to $92,000 for the creation of one job year – 64% represents direct and indirect jobs and 36% represents induced jobs. Based on these metrics the ICN project will create about 257 jobs.
A second method of calculation comes from the Information Technology and Innovation Foundation, a technology think tank, and Speed Matters, the campaign of the Communications Workers of America . These groups have created studies that estimate for every $5 billion dollars invested in broadband, 250,000 jobs are created, including 100,000 direct and indirect jobs from telecom and IT equipment spending plus another 150,000 in network effects? spurring new online applications and services. This translates into 50 jobs per one million dollars of investment in broadband. Using this measurement 1175 total jobs (470 direct and 705 indirect) would be created due to the investment of $23.867M of broadband investment.

Project Impact:

ICN currently provides broadband services to all 99 counties in Iowa, but does so by using two separate network architectures that severely limit the capacity effectively available and keep the costs at a relatively high dollar amount per Megabit. The current system does not provide sufficient capacity to allow connected CAI's to effectively serve their customers with Last Mile

services. Because the project is primarily the creation of Middle Mile infrastructure connecting CAI, ICN expects the project to have a broad, synergistic impact on economic activity in the areas to be served. It will help reduce the distance/remoteness penalty on citizens for employment opportunities, healthcare and education. As Last Mile projects develop, it should also reduce the distance/remoteness penalty on general business activity, including reduced environmental impact from commuting based on increased availability of telecommuting.

The legacy architecture provides bandwidth via an ATM switched technology while a new IP/MPLS platform, in the very early stages of deployment, will provide a native Ethernet platform for WAN services. The maintenance, repair, and spare part inventory for the two separate networks represent additional costs that are reflected in ICN's bandwidth pricing methodology.

The proposed project will allow ICN to migrate to a single Ethernet/IP backbone, update optical amplifiers and H.323 video codecs, increase the Middle Mile network capacity sufficiently to create 10 Gbps Points of Presence in each of the 99 counties, with 1 Gbps connections to each CAI allowing them to meet the business and residential broadband needs of their communities. The connected CAI can then create service opportunities for other broadband service providers, providing them with cost effective Middle Mile services and thus enabling the creation and delivery of high bandwidth, cost efficient broadband services to their customers. This transformational change will create opportunity, jobs and reduce the rural distance penalties for all Iowans.

There is much evidence available that establishes the stimulative effect of lowering rates on bandwidth consumption. Lower rates increase bandwidth usage and increase the types of applications being offered. The efficiencies gained by implementing this project will further reduce the cost of broadband and increase the affordability and attractiveness of broadband products and services.

Currently, ICN works with more than 45 telecommunications vendors to provide Last Mile service to its customers/CAIs. These vendors include cable providers, smaller independent telco (Iowa has over 150 telecommunications providers), municipal utilities, as well as larger telecommunications providers such as Qwest.

ICN has served critical community facilities, public safety, and other CAI as part of its mission for over 16 years. This project directly connects 476 CAI of the total 2617 CAI locations currently served by the ICN. Of the directly connected group, 490 are currently served with T-1 or lower bandwidth connections. Through this project these location will experience a significant bandwidth increase of up to 1 Gbps. Of these interconnections, 229 (34.4%) are located in the

three underserved areas of the state where just over 23 percent of the state‘s population is located.

Public Safety Entities:

Public safety points include state public safety regional offices and their local public safety contacts including sheriffs‘ offices, local police, and regional communications services that are vital to ensure the safety of all Iowans. The importance of the transmission of vital data, especially capacity-driven video relating to a crime, natural or other disasters is crucial to saving lives especially in unserved areas.

Hospitals and Clinics

The Iowa Hospital Association is in the process of developing a network to use the ICN‘s DWDM backbone to deliver e-services to patients in rural and underserved areas. Rural Intensive Care Units (ICUs) are challenged by a shortage of intensivists, high operational costs, and quality concerns. Using e-ICU, a centralized off-site command facility is established with ICU physicians and RNs monitoring 100 to 150 remote patients 24/7. Critical care staff members conduct virtual rounds, monitor vital signs and lab results, review digital patient images/scans, perform assessments through audiovisual feeds, and receive alerts if a patient‘s condition deteriorates. Rural Iowa patients can stay closer to home with better access to their families, local community support systems, and under the care of their “trusted” primary care physician. Finally, the most fragile patients can have local access to specialized healthcare workers and 24/7 monitoring regardless of the size of the community, geographic location, or the patient‘s ability to pay.

Transportation (County Offices including Driver License Stations):

The Department of Transportation (DOT) has at least one office in most of Iowa‘s 99 counties. High speed broadband data-sharing and Internet, both within the DOT network as well as with other critical community facilities such as law enforcement, aids in criminal investigations and in times of disaster.

Workforce Development (County Offices):

Iowa‘s Department of Workforce Development (IWD) and their local offices are lifelines to Iowans especially in this time of high unemployment. Besides coordinating employment and workers compensation benefits, IWD provides assistance to employers as they strengthen their workforces by providing a designated employer portal. High speed access at Iowa‘s Workforce Development Offices provides a means for unemployed Iowans to search for work online even if they don‘t have a computer or broadband connection at home. Broadband is vital to serving the computer stations at IWD offices.

Human Services:

The Iowa Department of Human Services, county offices, and partners provide assistance to Iowa's most vulnerable populations. Data pertaining to food stamps, Hawk-I health insurance for childrens program, and Medicaid assistance for the disabled or elderly are transmitted quickly and securely using ICN. E-programs using broadband in public computer centers like those found in Iowa's libraries and community colleges provide Iowans quicker access to various assistance.

K-12 Schools:

ICN has provided dedicated broadband circuits to schools for 17 years to ensure that advanced or specialized distance learning is available to students no matter where they live within the state. Through broadband video, schools can share classes between themselves, access community dual credit courses, or experience on-line courses. School personnel can meet with their district peers without traveling or receive required training. With this new type of connection schools will have less complex and more economical video services and access to higher speed Internet connections.

Extension Services:

Iowa State University (ISU) provides a number of services to Iowans statewide through its Extension services whether it is information for farmers regarding the latest corn blight, information on hail damage and how to apply for financial assistance for crop damage, or provide advice on how to manage in tough times. The Extension service also assists in business development and community economic development. Most services are provided via the web, including videos and distance learning, which are of high importance.

Public Libraries:

During this economic crisis, Iowa's public libraries have become the link for those who do not have access to a computer or broadband at home to access information regarding employment strategies and financial benefits available. Reference librarians are experts in knowing how to access job information. Electronically submit resumes are vital to workforce recovery. During FY 2008, on a daily average, Iowa's Public Libraries assisted 11,387 Iowans in accessing the Internet.

Judicial:

The Iowa Court system relies heavily on electronic court records, juror registration, remote video depositions, and court testimony to ensure that all Iowans receive judicial services. Statewide efficient, secure data sharing is essential for the shared use of law enforcement and judicial records. As the funding for personnel in the state court system decreases, the ability to share court resources remotely via broadband will become an even more integral element of the Iowa justice system.

Vulnerable Populations:

Vulnerable population – rural, elderly, & medically underserved – are over-represented in the proposed service area. The project's ability & plan to serve these groups justifies the investment of federal funds.

Rural & Tribal Lands: Iowa is a rural agricultural state with almost 3 million residents. Iowa ranks 35th in the country in terms of population density. Of Iowa's 99 counties, only 20 counties are classified as metropolitan areas. Physical distance leaves rural residents geographically vulnerable. In addition, pre-recession indicators from 2007 show that non-metro incomes were 84.6% of metro incomes (a difference of $5000 per capita) & that all counties with unemployment rates in excess of the national average were classified as rural. High-speed broadband service can negate some distance barriers. A clear example of dire broadband need by a vulnerable population that is being addressed by the project is found in the last mile component. FTTH is being deployed on Sac & Fox of the Mississippi of Iowa tribal lands. Currently the population effected by this deployment exhibits a 47.8% unemployment rate & 0% broadband availability.

Elderly: Iowa's residents are among the oldest in the nation. In 2007, 14.7% of Iowans were at least 65 years of age (5th in the US) & 2.59% were at least 85 years old (3rd in the US). The continued aging of Iowa is projected to increase at a rate higher than the national level. By 2030, 22.4% of Iowans will be seniors & 84 Iowa counties will have at least a 20% senior population. Elderly disproportionately reside in rural areas, comprising 25.4% of residents. Elderly populations are vulnerable – many are on fixed incomes, have physical & mental limitations & require supplemental services for daily living activities. Affordable access to high-speed broadband supports services for seniors & their specific needs.

Medically Underserved: High-speed broadband service permits expanded use of distance learning, telehealth services, & electronic medical records sharing. Broadband will provide direct healthcare services & assist with recruitment & retention of healthcare professionals. The need for direct health services is great. In Iowa, 38% of residents have at least one chronic disease (Lewin Group, 2007). Iowa's mortality rates for the top three chronic conditions (Heart Disease, Stroke, & All Cancers) exceed national averages (CDC, 2007). Other notable chronic health indicators for Iowans include colorectal cancer mortality, COPD mortality for age 45 & older, mental disorder mortality, & obesity. These acute conditions often require emergency care, hospitalization & follow-up care.

Of Iowa's 99 counties, 56 counties are classified in whole or in part as medically underserved areas, & only 6 are metropolitan counties (HRSA, 2008). In total, there are 80 designated

medically underserved areas in Iowa. Iowa ranks 44th overall in providing access to primary care physicians & in the lower 10% for certian specialists.

Level of Need:

Competitive Landscape:

Iowa has over 150 rural telephone companies serving rural areas. Qwest is the largest telco, providing services predominately in cities and towns. Mediacom is the largest cable TV (MSO) provider in the state along with a few smaller companies and municipal-owned providers. Iowa is not the focus of any major investment by large carriers (e.g., Verizon, Comcast).

Historical Relevance to Broadband:

Based on the high number of telephone companies and the fact that Qwest serves most cities, it would seem that "Broadband" is well served. This is simply not the case. Because the state infrastructure has been developed by the 150 rural companies, there has been no ability to focus capital on a working infrastructure for broadband deployment in the state. No single entity can profit from a middle mile infrastructure, so very little development has been invested. Broadband infrastructure must be ubiquitously available and widely connected to be effective. Because the focus of infrastructure in this state has been historically developed as a response to a legacy "service territory" environment, each of the individual companies has focused its resources on its "territory". Therefore, very little infrastructure has been developed that provides for an overarching interconnection among all companies and all areas. The ability to connect to Network Access Points for the Internet has been left to large carriers such as Qwest and long-haul companies such as AT&T. They largely focus their capital resources in higher population areas such as Denver, Minneapolis, and Des Moines. With no wide area coverage, any request for substantial broadband capacity requires that the provider develop new infrastructure, which creates an unprofitable project investment and a multi-company joint effort. Because the outcome places so many uncontrollable factors into the project, investments are never made. As a result, no competitive pressure is felt by any provider in the state, and consequently, price structures remain high.

Current Broadband Infrastructure:

Most of the broadband available in the state is dialup, DSL and cable modems, and much of the telecommunications infrastructure is still copper-based, especially in rural areas. Many companies do have fiber for internal transport as well as interconnection with the telecom network, but none of this fiber is available as dark fiber for lease by anyone outside the telco world. In general the interstate network connectivity options available in Iowa are few and expensive, making rural areas such as Iowa an island of limited access.

Variations Among Service Areas:

There are variations based primarily on population density and providers. Customers of Qwest and Mediacom generally have more available choices at better prices than customers of smaller companies; although both these providers charge significantly more for services in rural areas than in metro areas.

Failure of Current Providers to Meet Needs:

Iowa is a largely rural state, with correspondingly high costs per subscriber for broadband services. Current providers do not find it profitable to serve rural areas at costs that consumers in those rural areas consider affordable. For rural CAI, connectivity is limited in availability, with T-1's (1.5 Mbps) at $500 to $1000 per month, with higher rates in rural, as compared to lower rates in major metro areas. Big broadband connections at 1 Gbps to 10 Gbps are simply not available at reasonable cost. Many healthcare applications, including transmission of MRIs and CT scans, require fiber with more capacity than non-medical applications.

Underserved Areas:

In most rural areas broadband is limited to dial up or DSL services provided by rural carriers. The definition of "underserved" (less than 3 Mbps downstream capacity advertised) is applicable to most rural areas, although there are pockets of services that are at least advertised as meeting these requirements.

General Factors Impacting Need:

There is a complete lack of the availability of dark fiber from incumbent service providers. While high capacity services are available in limited areas, there is little pricing competition (basically a duopoly for the majority of Iowa), and the installation and monthly service costs are prohibitively high in rural areas for any entity that does not qualify for e-rate support. In addition, there are lengthy delays for installation, since any high-capacity circuits are often built to suit only upon execution of long-term contracts.

The incumbent carriers do not make the required investment in rural Iowa because of their analysis of how long it would take to pay off the capital investment and meet the needs of their shareholders. Without government investment such as the NTIA BTOP program, the network proposed in this application could not be built. With government investment providing the initial capital, however, it is possible to create a sustainable network and build sufficient reserves for equipment renewal and upgrades for future services (see IRR and NPV analysis attached).

ICN has, and continues to, contract for network connectivity services with various legacy communications companies for areas where it does not have its own network. The negotiations required, the long-term commitment required, and the upfront costs for installation and contributions in aid of construction have made it clear that there is no economical way to provide the needed 21st century connectivity but for ARRA funding under the BTOP program

ICN' proposed network will be operated by ICN in much the same manner as its current network is operated. Because much national security, education and healthcare data is highly confidential, and because its use and dissemination is tightly controlled by state and federal rules and regulation, ICN believes that the public network, especially the public Internet, lacks many of the security and reliability elements necessary for such critical services.
As discussed below in General Economic Conditions, the current market conditions significantly inhibit the ability of community anchor institutions to obtain needed broadband services at reasonable prices. ICN analysis of current pricing, and its own negotiations with carriers for specific network connections make it clear that CAI in the proposed funded service areas cannot afford the costs being charged for the limited services offered on the non-redundant, low-security public telecommunications network.
General Economic Conditions:
Recent flooding and the national recession continue to significantly impact the State of Iowa and its residents. In June 2008, flooding across the state reached catastrophic levels to become the worst natural disaster in the state's history. As a result, Iowa Governor Chet Culver declared 85 of Iowa's 99 counties disaster areas and damage is estimated at approximately $10 billion. The effects of the floods include: 40,000 Iowans were displaced; whole towns and 4 million acres of tillable acres were covered in water; 125 miles of state roads were washed out; agricultural buildings, acreage, stored grain and equipment sustained significant damage (between $2.3 and $3 billion). In Cedar Rapids alone, 9.2 square miles in the downtown area were flooded. In 2010, rebuilding efforts are continuing across the state.

While the flooding disproportionately affected Iowa, it occurred during a period of national economic crisis – a recession. Recently Iowa has seen steady declines in state revenue. During the past two years, the State of Iowa has faced budget shortfalls. In October 2009, the Governor implemented a mid-year 10% across-the-board cut in state government spending, and while this measure "saved" approximately $564 million, the 2010 Legislature still needed need to raise/cut another $415 million. In addition, it is projected that the State will face another shortfall of roughly $1 billion for FY2011.

It is no surprise that the floods and national recession have negatively impacted Iowans. This is demonstrated by workforce indicators and insurance rates. In The State of Working Iowa 2009, authored by the nonprofit Iowa Policy Project, the following workforce indicators were summarized:

o Unemployment – 2009 rates had almost doubled in 18 months to 6.5%. This 6.5% rate represents a 23-year high in Iowa's unemployment level. For residents with without a high-school education, unemployment has remained at 11% since the 2001 recession.
o Underemployment – The 2008 rate was 7.6%.
o Manufacturing jobs – 23,600 (9%) jobs have been lost from 2000 to 2008. This number has more than doubled in 2009. These lost jobs were often high paying and included benefits.
o Declining job quality – Since the 2001 recession, the job base increased by job quality declined. In particular, three of the four job sectors where jobs declined from 2001-07 were also among the four top-paying job sectors.
o Wages remain low – Iowa ranks 32nd nationally at $14.97 in 2008, which is 77 cents below the U.S. average. While Iowa ranks in the top half in pay for low-wage workers, it ranks 39th at the high-wage comparison. In general, low and median wages have fallen since 2001, with high wages showing little growth over this period.

Also affecting residents and working families is the increase in residents without health insurance – 9.4% (Kaiser Family Foundation, statehealthfacts.org). Given the fact that Iowans have an elevated level of chronic diseases, it is likely that uninsured residents will not seek preventive or timely health care. In addition, Iowans with health insurance have also experienced disproportionate increases in premiums. From 2004 to 2008, the average Iowa family insurance premium increased 34% (Kaiser Family Foundation and Health Research and Education Trust, Employer Health Benefits 2009 Annual Survey). Higher insurance premiums combined with low wages also affect one's propensity to seek preventive or timely care.

The economic conditions do not suggest a robust recovery – the state and private sector in Iowa are still struggling. Funding to jumpstart this broadband initiative will help to stimulate the economy and provide needed infrastructure for high-speed Internet access and economic growth. In sum the project will provide cost-effective, high quality connections open to all users; the opposite of the traditional carrier model, thus connecting Iowa to the rest of the 21st century world.

H. Technology

Technology Type

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

Wireline - Fiber-optic Cable

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Other:

Technology Questions

Methodology for Area Status:

This statewide project contains three underserved areas that were identified through methodology based on print, non-print advertisement assessment and analysis of areas where no fixed or mobile broadband service providers advertise broadband transmission speeds of at least three Mbps downstream in the proposed funded service area.
On January 28, 2008, the Iowa Utilities Board (IUB) released its report, "Assessing High-Speed Internet Access in the State of Iowa: Sixth Assessment." (http://www.state.ia.us/government/com/util/docs/reports/InternetAccess_2008.pdf). The measures within the report regarding broadband access mirrored that of the FCC definition of high speed, namely, that communities are listed as having broadband when their corresponding speed definitions do not meet BTOP/NOFA standards. The Iowa report did not include penetration in its analysis. The report considered a community to have broadband service if one zip code entity had access.
To augment its search for area status information in underserved areas, ICN gathered storefront information and monitored both print and non-print advertisements from AT&T, Verizon, Team Mobile, US Cellular and other wireless providers within the state. ICN staff members also queried wireless providers via web searches and follow-up phone calls. ICN's action-oriented research approach extracted pertinent information and also the need to persevere in identifying and monitoring those providers who did not indicate specific speeds or coverage areas in their advertisements.
Although the ICN provides broadband access to its users on a statewide basis, for the purposes of this project, an underserved service area is also identified as one that possesses targeted demographic elements that help ensure service to vulnerable rural populations.

Description of Network Openness:

ICN Interconnection NOFA-aligned practices
The network is interconnected with the Internet, Internet2 and other telecommunications providers to enable interconnection for both private and public data networks. ICN service level agreements with CAI allow full access to lawful Internet content as prescribed by NTIA. ICN employs technical measures to provide quality service levels to all customers in areas of caching, application-neutral bandwidth allocations, and measures to address spam and denial of service

attacks. ICN policies and practices, and those of CAI, also provide strong monitoring and technological devices to block access to illegal or harmful activities. ICN will prominently post NOFA's Interconnection and Non-Discrimination policies on its website.

ICN non-discrimination NOFA-aligned practices

ICN is a recognized FCC common carrier and does not discriminate in the provision of access to telecommunications services via broadband to its customers. ICN non-discrimination practices and network interconnection obligations meet NTIA/BTOP standards.

ICN provides services to law enforcement agencies and is CALEA compliant. In all cases, ICN agrees to display non-discrimination practices in a prominent location on its web page, various physical sites across the state, and provide notice to customers of changes to these policies. In the same manner, ICN will disclose any practices in place to block access to illegal or harmful content.

ICN NOFA-aligned management practices

To maximize services access to CAI, ICN's network management policies and practices provide that maintenance will be completed during non-business hours when and where possible, outages will be addressed within standard timeframes, and service turn-ups will be provided expediently. The level of broadband access provided by ICN is self-determined through capacity purchases, not user category. The ICN serves all parts of the state—urban or rural—with strict equity on a non-discriminatory, postalized rate basis as stipulated by State of Iowa Code Chapter 8D.

The proposed project will provide continue to provide CAI with an ability to adjust capacity (and corresponding adjustable rates) to meet their requirements.

Wholesale price access is available. ICN is committed to wholesale access to network components and services such as wavelength or fibers at reasonable rates and terms as has been demonstrated in previous sections of this application. In addition, ICN proposes to construct infrastructure and implement a business plan which would allow more than one provider to serve end users in the proposed funded service areas. This represents standard ICN operating management policy and practice.

System Design:

This design develops a middle mile network focused on increasing capacity to the communities served by the target CAIs. The current SONET system can only supply enough capacity to serve the CAIs connected by the system, and in aggregation becomes limited in capacity. This issue is addressed by replacing the SONET system with a 40 gigabit DWDM backbone connected via 10 gigabit links to Ethernet Aggregation Switches. These Ethernet Aggregation Switches are connected to Ethernet Distribution Switches via gigabit Ethernet. From the Distribution

Switches, Ethernet Access Switches are connected to CAI locations via gigabit Ethernet, enabling full gigabit capacity at the edge of the network. At these Ethernet Access Switches, direct service is delivered to the CAI, and other CAI connections are served via alternate Last Mile network connections.

The topology covers the geographic area of the state using 5 DWDM rings each of which is connected to two adjoining rings in diverse locations. These rings comprise the backbone which is used to transport aggregated Ethernet traffic among the aggregation points, and to IP Exchanges. At the IP Exchanges, traffic can be directed to other networks, including the Internet and Internet 2. Because traffic is connected through the IP Exchanges, local traffic can be directed to local connections, reducing traffic and congestion on the Internet. Any CAI can interface with another CAI, or with other networks connected to the backbone.

The network components chosen for these capabilities include the following:

Connecting the five rings and the aggregation switches, DWDM Multiplexors will initially carry 40 gigabits of traffic between the access points and the interconnected destination networks. These multiplexors will be capable of growing up to 400 gigabits of capacity using current transponders. Because DWDM systems passively direct light waves, as new and higher capacity products are developed, the DWDM platform remains current. By simply adding new transponders, new technology can be used in this backbone as it is developed and becomes commercially available.

Existing Ethernet Aggregation Switches will be upgraded with sufficient optical capacity to serve the 105 distribution points in the network. These switches provide MPLS and QoS controls, as well as port level capacity management to enable connection management and control required to combine multiple sub-gigabit traffic streams. The aggregation switch provides a layer in which oversubscription can be used to manage traffic growth.

New Ethernet Distribution Switches will be placed to serve dark fiber connections from Aggregation Switches to Distribution Points. The switches will provide 24 - one gigabit ports and 2 - ten gigabit ports for use as network uplinks. This enables growth in the network while controlling initial investment. The distribution switch provides port level traffic controls, and can be used as an oversubscription point.

New Ethernet Access Switches will be placed to provide capacity to CAI endpoints. These switches will provide QoS controls, as well as port level capacity controls required to enable insertion of multiple connections. 8 – one gigabit and 4 - SFP ports are available at capacities up to 1 gigabit.

This combination of network components will provide substantial capacity across the state, and will present that capacity for use to public and private purposes. This approach ensures that connectivity in the middle mile is addressed at the destination end via links to IP Exchange points, and at the source end by ensuring that excess ports are available for expanded use at all Ethernet switching sites.

SPECIFIC ADVANTAGES OF CHOSEN TECHNOLOGY

The chosen technology assembles a Middle Mile Network capable of connecting a full range of capacity products to virtually any endpoint in the state. This Middle Mile Network will connect to IP Exchange points to allow CAI to connect to the internet, and to other public and private networks available in the state. DWDM technology provides extensive growth by enabling the addition of new wavelengths in any path. DWDM also insulates the user from technology obsolescence by enabling new wavelength forms as they develop. The use of Ethernet as a transport ensures that development of capacity in this network can be groomed and managed using more efficient QoS and MPLS tagging techniques. The use of switches capable of both one gigabit and ten gigabit transport ensures that the outer edges of the network can be supplied with cost efficient expandable capacity.

UPGRADE PATHS

Each system is built with capacity upgrade in mind. On the DWDM backbone, 28 remaining wavelengths will allow at least 280 gigabits of capacity growth on the backbone. While initially deployed at 1 gigabit, all distribution links will have available 10 gigabit ports for expansion, enabling 10 X growth. At the access switch, multiple ports will provide a means by which multiple sub-gigabit connections can be integrated in to a single gigabit uplink.

CENTRALIZED FACILITIES AND POI

The system is developed with 105 points of interest. These POIs are located in CAI, in carrier collocations, and in Data Centers where Last Mile providers can interconnect.

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	653,195	279,941
Middle Mile	15,576,923	7,357,485
Total	16,230,118	7,637,426

Project Budget Total: $23,867,544

Match Percent: 32.0%

Projects Outside Recommended Funding Range:

-

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes
Matching cost detail	Cash Match: a. Source: ICN (applicant) b. Funding Amount: $7,637,425 representing 32% of the total budget c. Type of Funding: internal cash d. Use of Funding: infrastructure and working capital e. Conditions: none, except award of grant

	In-Kind Match: NA a. Source: ICN (applicant) b. Match Value: $_____, representing _____% of the total budget c. Nature of Contribution: _____ d. Eligibility of Contribution: _____ (based on NOFA criteria) e. Non-applicant Contributor: No.
Unjust enrichment	The ICN has also submitted an SBA grant request for $5,250,000 (plus $2,250,000 cash match for a project total of $7,750,092) titled "ICN Broadband Adoption and Awareness" This project connects Iowans extends advanced, affordable broadband access to all Iowans, especially rural, unserved, underserved, and vulnerable residents. Broadband video conferencing will be available in 720 schools, libraries, health care, public safety, and government offices. Broadband awareness and outreach will extend access to targeted vulnerable groups. The ICN has not requested any federal support for any other non-recurring costs associated with this proposed BTOP project.
Disclosure of federal and/or state funding sources	ICN has two main sources of revenue that allow for investment in infrastructure. The first source is state appropriations that will amount to $7.3 million in fiscal year 2010. These funds are committed to specific network needs of the State Capitol Complex redundancy, network generator replacement, and telephone system upgrades. The second source is customer revenues projected at approximately $1 million per year greater than operating expenses (not including depreciation reserves). ICN operates as a not-for-profit entity though it is a state agency through the authority of the governor-appointed commissioners, the Iowa Telecommunications and Technology Commission (ITTC). ICN is also collaborating with the Iowa Hospital Association in the implementation of the Iowa Rural Health Telecommunications

	Program (IRHTP). The Hospital Association applied for and was awarded $9.95 million from the FCC's Rural Health Pilot Program to provide 1 Gbps of Ethernet capacity to 85 hospital and critical care facilities with a goal of connecting 100 institutions by 2011. The IRHTP project does not share any cost components with this proposed project. ICN is a common carrier and an eligible carrier for Universal Service Funds (USF) and provides relevant services to schools and libraries that are also eligible for these funds. ICN's total amount of USF reimbursement on behalf of schools and libraries was $1.4 million during July 1, 2008 through June 29, 2009. This USF reimbursement is dedicated to schools and libraries that use ICN resources.
Budget reasonableness	The most appropriate measure of budget reasonableness is the price per unit of broadband capacity needed to cover costs. For a Middle Mile network such as this project the price must be at a level that will allow users to provide services to their customers at levels that are reasonable, comparable or better to alternatives, & are sufficient to cover their costs. ICN's proposed network will provide up to 10 Gbps of Middle Mile capacity in each of Iowa's 99 counties. Because much of the area is rural, the cost to provide services there without BTOP grant funding is difficult or impossible. Making 10 Gbps access points available in each of the 99 counties at a total cost of approximately $23.87M will result in 1036 CAI each having access to 1 Gbps of capacity at $2100 per Gbps per month, a rate that is substantially lower than current costs, while at a level sufficient for ICN to cover its costs under this project. A per-unit cost of bits delivered in a data stream involves a comparison between the costs of delivery in existing provider networks & the cost of delivering data in the purpose built network defined by this project. To that end, average unit costs of delivery by local carrier networks is computed using the average costs of T-1 & T-3 circuits in Iowa. This average is then divided by two to allow for the cost of first & middle mile delivery, & the result is divided by the bit rate of the circuit & then multiplied by 60 months to arrive at an average five year cost of bit delivery in existing Carrier networks.

	Average (Lowest Cost+Highest Cost)/2 x (1/Bit Rate of Circuit) x 60 = Average Delivery For T-1 circuits & for T-3 circuits : T-1: Average ($100+$750)/2 = ($425/2)x60 months = $12,750/1,544,000 = $0.00826 per bit–5 year cost T-3: Average ($1200+$7500)/2 = ($4,350/2)x60 months = $130,500/44,736,000 = $0.00291 per bit–5 year cost These represent reasonable charges for data delivery in Iowa based on ICN experience with buying circuits where needed & available. ICN assumes these numbers reflect a reasonable cost & include a profit margin for the provider. To compare the delivered network costs, the following calculation takes the total cost of network deployment & divides that number by the number of bits delivered. Network Cost / Bit Rate of Network $23,867,544/40,000,000,000 = $0.0005967 per bit–5 year cost The results of these comparisons is a 13X cost improvement versus a T-1 & 5X cost improvement versus a T-3 over current circuit pricing when limiting the project Pro Forma to five years. In terms of total number of units required to deliver this project, we have conservatively projected we will serve 476 CAI by year 8 of operation. This estimate is based on a detailed sustainability plan which is summarized in the Pro Forma attachment. The goal of the proposed Middle Mile network is not to replace carrier circuits but to enable carriers & service providers to provide better Last Mile pricing to their end users.
Demonstration of need	This project could not be implemented without federal assistance due to the lack of funding for the initial cost of the project and unacceptable project NPV. The $23,867,544 initial cost of the project is 70% of the ICN's annual operating budget. The ICN operates using a cost recovery funding model in which annual revenues support only the operational expenses of the ICN. There is no state general fund appropriation support. Even though the state of Iowa has an AAA bond rating, state code prohibits ICN from generating cash using debt funding sources. Therefore, the availability of funds for the project is limited to the current cash balance. The matching funds for the project

	reflect the maximum available cash for the project (32% of the project's initial costs). The need for federal funding to support this network is also established by ICN and IHA's successful grant application to the FCC's Rural Healthcare Pilot Program. This grant focused on last mile infrastructure for rural healthcare providers. BTOP funds would extend the network beyond RHCPP funding areas and focus on needed middle mile infrastructure. The necessity for BTOP funds is clearly demonstrated in the Net Present Value Analysis. The project's NPV without BTOP funds is -$1,038,868.59 even with ICN's extremely low discount rate (1%), which reflects only the ICN's opportunity cost of interest earned on cash balances. The IRR is -0.08%, which is unacceptable regardless of the organization's discount rate. The level of funding requested is appropriate. The price per bit of network capacity is approximately 20% less than current carrier pricing for comparable products.

Funds to States/Territories

States	Amount of Federal Grant Request
Iowa	16,230,118

Funds to States/Territories Total: $16,230,118

J. Historical Financials

Matching Funds

	2007	2008	2009
Revenue	35,243,000	33,849,000	36,667,000
Expenditures	40,193,000	38,906,000	38,718,000

Net Assets	46,488,000	41,431,000	39,380,000
Change in Net Assets from Prior Year	-4,950,000	-5,057,000	-2,051,000
Bond Rating (if applicable)	AAA	AAA	AAA

K. Project Readiness

BTOP Organizational Readiness

The Iowa Legislature created ICN in 1993 to establish Iowa as the recognized leader among states in promoting and providing quality services using electronic connectivity, helping to make Iowa unsurpassed as a place to live, work and pursue individual, family and community goals. The Iowa Telecommunications and Technology Commission (ITTC) is the governing body of the ICN. The legislation provides for an executive director to administer the programs and services of the Commission in compliance with Iowa Code and rules adopted by the Commission. The rules establish the offices of Deputy Director, and Directors of Finance, Operations, Engineering and Service, Delivery-Sales and Marketing.

ICN‘s Business Development group coordinates the organizational goals with engineering, individual sites, and authorized users. It searches for new ways to implement services, consults with users to meet changing organizational needs, and develops new services in a changing market. This group is responsible for the CCI project application and will be responsible for the creation and operation of the project facilities should the grant be approved.

ICN has 17 years of experience in serving 2617 statewide CAI through the expertise of 84 ICN staff members. A BTOP Senior Administrative Team will provide governance overview and compliance with NTIA and a BTOP Project Team, dedicated to project planning and implementation detail. This project will also benefit from a Project Steering Committee comprised of CAI representatives to ensure clear communication, customer input, and outcomes to constituent items of interest.

As a full service FCC common carrier, ICN is equipped with an in-house engineering department with design, configuration, site preparation, cutover, scheduling, and hardware change capabilities. ICN‘s engineering design capacity enables it to service requests effectively and creatively. These efforts are supplemented by Paetec, a publicly traded telecommunications company that provides contractor services to ICN, and that operates a 24x365 monitoring center at Camp Dodge, a fortified National Guard facility north of Des Moines. Paetec provides timely

response to system upgrades, network outages, and emergency repair for the statewide network. ICN directs and monitors the activity of its contractors through its Operations Bureau..
ICN provides customer care services for all organizations with its Sales, Customer Support, and Finance departments. Account Consultants help to translate current networking trends and ICN capabilities into functional WAN designs to meet each customer‘s organizational needs. ICN Customer Service, Project Management, and Finance teams provide customer feedback loops to the organization and rely on automation and standard processes to ensure timely installation, upgrade, repair, and billing of all ICN services.

Construction and Vendor Contracts

As a full service FCC common carrier, ICN is equipped with an in-house engineering department with design, configuration, site preparation, cutover, scheduling, and hardware change capabilities. These efforts are supplemented by Paetec, a publicly traded telecommunications company, with a multiyear contract to provide telecommunication services for the ICN and operate the ICN Network Operation Center. Paetec’s trained telecom field staff also install new systems, implement system upgrades, repair network outages, and coordinate customer service turn-ups for the statewide network. The ICN will utilize its current Engineering, Data Operations, and Paetec staff to implement all hardware and circuits requested to complete this application.
The ICN also has current contracts with major telecommunications manufacturers including but not limited to Alcatel-Lucent, Ciena, and Brocade, and contracts with distributors to purchase Juniper, Siemens, and RAD, and further contracts to purchase all the necessary cabling and consumables required to run a telecommunications network. The ICN, however, will maintain flexibility and will follow the BTOP/federal government procurement requirements as they are identified. ICN will also follow state contracting requirements and use RFP’s where appropriate. ICN has developed excellent relationships with contractors during its 17 year history and can contract with qualified vendors to augment ICN staff services if required.

Customer Base

ICN’s current customer base includes 2617 CAI located in all 99 counties in Iowa. Customers include K-12 schools,libraries, hospitals and clinics, public safety agencies, community colleges, the State Regents, private colleges, and state and federal agencies including Workforce Development, Human Services, Department of Transportation, Economic Development, the

Judicial Branch, Department of Corrections, Homeland Security, Iowa National Guard, and other executive agency departments (30+).

The potential end user base of services at all of the CAI is the entire population of the State of Iowa, approximately 3 million people.

Licenses, Regulatory Approvals and Agreements

This proposal will not require any licenses or regulatory approval. Any organization providing fiber IRUs that require construction will be responsible to meet all state and federal codes and regulations including obtaining city construction permits and public right of way. Upon BTOP award, each LEC, CLEC, MSO, or contractor will pursue construction permits in their awarded locations in construction is required. This application does not seek to overbuild fiber networks if cost effective dark fiber leases are available.

SPIN Number

ICN is an eligible common carrier for Universal Service Fund (USF), providing services to schools and libraries, which are also eligible for USF, and must apply as individuals or as a consortium. ICN's SPIN is 143003005, our legal registered SPIN name is "State of Iowa, Iowa Telecommunication & Technology." ICN's total amount of USF reimbursement on behalf of schools and libraries that subscribe to its broadband video conferencing service is $1.4 million for the July 1, 2008 through June 29, 2009 year.

ICN works closely with the Iowa Department of Education (IDoE) to bring distance learning to more than 1,500 public schools across the state. Its partnership represents state efforts on technology education, training and distance learning for K-12. In order to streamline the FCC Universal Service Fund E-rate program's filing and reimbursement process for Iowa's small, rural schools, the IDoE represents K-12 grade public schools as a consortium. This increased efficiency results in more rural schools participating in the USF program.

L. Environmental Questionnaire

Project Description

Construction activities in this project are limited to two geographic areas in which new fiber construction will be executed. Construction activities are designed to be built on previously disturbed routes minimizing environmental impact issues.
In Decorah, IA, a new fiber route of 7.9 miles will be constructed to connect the backbone of the network to Community Anchor Institutions in town. Where possible, this construction will consist of attachments to existing poles with suitable strand and lashing to support 72 count cable. In those areas that poles do not exist, and in areas where entrances need to be built to buildings, underground construction will be completed, consisting of boring in conduit.
The second area of construction is on the tribal lands of the Sac & Fox Tribe of the Mississippi in Iowa, where a fiber route of 4.2 miles will be built underground to create middle mile access for a Fiber to the Home (FTTH) project. In addition to the backbone access route, 13.0 miles of distribution cable and approximately 196 fiber drops will be installed to create last mile access paths to the head end, which will be terminated on the backbone access fiber. The Tribal Chairman for the Sac & Fox Tribe of the Mississippi in Iowa, Adrian Pushetonequa has approved the partnership activities required to comply with both Federal and Tribal regulations for this project including access to Tribal rights-of-way for the deployment of the required network facilities.

Property Changes

This project will not require land to be excavated or cleared. It is planned to be built in existing rights-of-way that have been previously been disturbed.
For the Decorah portion of the project, 7.9 miles of underground route are designed.
For the Sac & Fox Tribe of the Mississippi in Iowa portion of the project, 4.2 miles of backbone route will be built on previously disturbed rights-of-way. The last mile distribution plant is designed for 13.0 miles of both underground and aerial construction on previously disturbed ground and rights-of-way.
Project partners are controlling interests owners for Rights of Way in the two construction zones and no known issues related to the studies below are of concern.

Buildings

The entire length of the Decorah portion of the project will be built on previously disturbed rights of way.
The entire length of the Sac & Fox Tribe of the Mississippi in Iowa portion of the project will be built on previously disturbed rights of way.

Wetlands

In a study of the Decorah portion of the project, there are two river crossings that will pass through existing wetlands designated areas. One of these crossings will be bored under the river, and the other will be bridge attached or on an existing pole line. For the bridge attached segment, there will be no need to disturb the wetlands area. For the bore project, all efforts will be made to place the bore ends outside of the wetlands area to avoid disturbing this area.
For the Sac & Fox Tribe of the Mississippi in Iowa portion of the project, wetlands are near the expected routes, but there are no routes directly through designated wetlands.
Both projects portions were verified using the above website. The routes are designed to be built on previously disturbed rights-of-way.

Critical Habitats

Studies for both the Decorah and Sac & Fox Tribe of the Mississippi in Iowa portions of this project were examined under the fish and wildlife website. There were no critical habitat issues flagged for either project portion

Floodplain

For both Decorah and Sac & Fox Tribe of the Mississippi in Iowa segments of the project there are portions of the linear route that pass across flood plains. This is unavoidable, as the routes must connect to capacity on the opposite sides of a river.
In the Decorah portion of the project, river crossings will be done via bore and attachment allowing these segments to survive flood situations.(FIRMette map attached)
In the Sac & Fox Tribe of the Mississippi in Iowa portion of the project, one creek crossing is required that will be bored protecting this route from the adverse affects of flood situations. It is common for fiber to traverse waterways, and best practice construction efforts will be used to protect the investment. The deployment of facilities will be in compliance with Federal and Tribal installation requirements.(FIRMette map attached)

Protected Land

In Decorah, IA, the construction activities will pass within two blocks of Registered Historic Places. It does appear that two blocks of clearance are available, and this construction is limited to typical utility construction so no expected conflict should occur.
For the Sac & Fox Tribe of the Mississippi in Iowa portion of the project, the Tribal Chairman of the Sac & Fox Tribe of the Mississippi in Iowa has approved and provided construction

assurances dated March 15th, 2010 and access to the specific rights of way on Tribal land as a partner in the project.

Coastal Area

No coastal zone management areas are involved.

Brownfield

There is a Brownfield cleanup site located on the Sac & Fox Tribe of the Mississippi in Iowa land within one block of the project. This area is described as a storage shed. Cleanup has not been started, so this site will be avoided as the routes are built for this portion of the project. No other Brownfields were identified on the Sac & Fox Tribe of the Mississippi in Iowa portion. There were no Brownfield areas indentified on the routes related to the Decorah, IA portion of the project.

Submitted Date:	**Easygrants ID: 5390**
Funding Opportunity: Broadband Technology Opportunities Program	**Applicant Organization:** IOWA COMMUNICATIONS NETWORK
Task: Submit Application - BTOP	**Applicant Name:** Mr. David Michael Swanson

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	ICN Easygrant ID 5390 CCI Service Offerings and Competitor Data Attachment (Final2).xls	Swanson, David	03/26/2010
Network Diagram	ICN CCI Easygrant ID 5390 Network Diagram (Final).pdf	Swanson, David	03/26/2010
Build Out Timeline	ICN CCI Easygrant ID 5390 Build-Out Timeline Attachment (Final).doc	Swanson, David	03/26/2010
List of Community Anchors and Points of Interest	ICN Easygrant ID 5390 CCI Anchor Detail and POI Attachment (Final).xls	Swanson, David	03/22/2010
Management Team Resumes and Organization Chart	ICN Easygrant ID 5390 CCI Resumes and Org Chart (Final).pdf	Swanson, David	03/25/2010
Government and Key Partnerships	ICN EasyGrant ID 5390 CCI Letters of Commitment & Support.pdf	Swanson, David	03/26/2010

Government and Key Partnerships	ICN Letters of Commitment & Support.pdf	Swanson, David	03/26/2010
Historical Financial Statements	ICN Easygrant ID 5390 CCI Financial Statements FY07 - FY09.pdf	Swanson, David	03/24/2010
Budget Narrative	ICN Easygrant ID 5390 CCI Budget Narrative (Final).docx	Swanson, David	03/26/2010
Detailed Budget	ICN Easygrant ID 5390 CCI Detailed Budget (Final).xls	Swanson, David	03/26/2010
Pro-forma Forecast	ICN Easygrant ID 5390 CCI Pro Forma Financial Projections Attachment (Final).xls	Swanson, David	03/26/2010
Subscriber Estimates	ICN Easygrant ID 5390 CCI Subscriber Estimates Attachment (Final).xls	Swanson, David	03/26/2010
Dashboard Metrics	ICN Easygrant ID 5390 CCI Key Metrics Dashboard Attachment (Final) .doc	Swanson, David	03/26/2010
Service Area Data	ICN Easygrant ID 5390 CCI Service Areas Attachment (Final).xls	Swanson, David	03/22/2010
Waivers	Meskwaki_Last_Mile_Waiver_CCI_Waiver_Request.docx	Swanson, David	03/26/2010
Network Maps	ICN CCI Easygrant ID 5390 Network Maps (Final).pdf	Swanson, David	03/26/2010

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BTOP Certifications	BTOP Authentication and Certification.pdf	Swanson, David	03/24/2010
SF-424 C and D	SF 424 C and D Form v2 (Final).pdf	Swanson, David	03/26/2010
Supplemental Information	Decorah & Sac-Fox Environmental Maps.pdf	Swanson, David	03/26/2010