



Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program

Submitted Date: 3/26/2010 1:26:25 PM	Easygrants ID: 6681
Funding Opportunity: Broadband Technology Opportunities Program	Applicant Organization: NORTHERN ILLINOIS UNIVERSITY INC
Task: Submit Application - BTOP	Applicant Name: Dr. David Stone

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	001745512
CCR # (CAGE)	2H667
Legal Business Name	NORTHERN ILLINOIS UNIVERSITY INC
Point of Contact (POC)	DAVID STONE 8157531581 Ext. asosp@niu.edu
Alternate POC	DARA LITTLE 8157539285 Ext. asosp@niu.edu
Electronic Business POC	DARA LITTLE 8157539285 Ext. asosp@niu.edu
Alternate Electronic Business POC	DAVID STONE 8157539282 Ext. asosp@niu.edu

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Dr.
First Name	David
Middle Name	
Last Name	Stone
Suffix	
Telephone Number	815-753-1581



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Fax Number	815-753-1631
Email	asosp@niu.edu
Title	Director, Office of Sponsored Projects

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Ms. Dara C, Little	8157531581	asosp@niu.edu
Other Contact	Dr. John , Lewis	8157530936	jlewis@niu.edu
Other Contact	Mr. Herb , Kuryliw	8157537220	hkuryliw@niu.edu

Environmental Point of Contact

Prefix: Mr. Name: Swenson, Roger Suffix: Telephone Number: 8157538943 Title: Senior Research Associate
Prefix: Name: Mooberry, Scott Suffix: Telephone Number: 8157533908 Title: Safety Officer

Organization Classification

Type of Organization	State or State Agency
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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	STONE, DAVID
Result	Applicant Authorized

Project Title and Project Description

Project Title: Illinois Broadband Opportunity Partnership Northwest Region

Project Description: IBOP-NW is a partnership between government and private business for the development of broadband in Illinois. IBOP-NW will deliver unrestricted fiber optic links for schools, healthcare, government, libraries, agriculture, prisons and higher education. Private businesses partnerships create an economic driver for providing wholesale broadband over fiber optics to local businesses and ISPs.

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



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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:

Middle Mile

BIP Applicants

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

- No

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

Title of Joint BIP Application:

Easygrants ID:

Other Applications

Is this application being submitted in coordination with any other application being submitted during this round of funding?

- Yes

Easygrants ID	Project Title
2823	DeKalb Advancement of Technology Authority Broadband
4317	Illinois Broadband Opportunity Partnership Western Region
4243	Illinois Broadband Opportunity Partnership East Central Region
4250	Illinois Broadband Opportunity Partnership Southern Region



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

The Illinois Broadband Opportunities Partnership (IBOP) is a state-wide coalition that was established to ensure that all communities in the State have access to affordable and sustainable communication services required to meet a wide range of critical needs, including those related to education, economic development, health care, public safety, and quality of life. To obtain these objectives, this partnership is engaged in multiple forward-looking activities focused on developing policy, creating inter-organizational and community partnerships, providing broadband technology assessment and guidance, creating rigorous financial plans, and communicating with constituencies. To continue to progress in these areas, the Illinois partnership has developed this proposal in response to the opportunity made possible by the American Recovery and Reinvestment Act Broadband Technology Opportunities program. This proposed initiative will be a catalyst that will allow the Illinois partnership to profoundly improve communications for underserved communities throughout the State. One key objective of this initiative will be to implement a State-wide core broadband foundation, based on optical fiber, that will connect multiple communities in the State in the near term and that will be used for additional development and expansion in the future. Similarly, each of the key regions participating in the Illinois partnership will implement core broadband foundation resources to meet near and long term needs.

Each of the key regions is developed to perform independently in the event that other proposals are not funded. A collaborative effort was pursued for each of the regions to include one or more points of intersection between plans, thereby creating a statewide plan. This plan allows for an efficient means of interconnection between projects. As a result of the collaboration, the IBOP coalition has prevented the State of Illinois from wastefully overlaying projects and provided the best broadband coverage within the State of Illinois.

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?

- Yes, Applicant is exempt because it is an accredited college or university



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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:

OPPORTUNITY THE PROPOSED SYSTEM SEEKS TO ADDRESS:

Northern Illinois University (NIU) is pleased to submit this proposal to the U.S Department of Commerce, National Telecommunications and Information Administration for the Recovery Act Broadband Opportunities Program (BTOP).

NIU has worked throughout the State of Illinois creating partnerships for the development of broadband over fiber optic networks the past 7 years. In this proposal we have gathered outstanding institutions throughout northern Illinois to become participants in the consortium called the Illinois Broadband Opportunities Partnership – Northwest Region (IBOP-NW). This organization of technologists has been coordinating a broadband plan for the region to promote low cost, high speed broadband solutions for not-for-profits while creating an environment that will allow for-profits to take advantage of low-cost broadband services and fiber. The consortium was created as a result of the lack of infrastructure to support high-speed, low-cost broadband solutions in the northern Illinois region. Several of the supporting institutions are limited to less than 2Mbs or T-1 speeds, hindering the development of education, healthcare and business models that require broadband in much greater and flexible capacities. The IBOP-NW proposed broadband model will create a fiber optic network throughout the region allowing for



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unrestricted speeds over dark fiber for anchor institutions and dark fiber and gigabit speeds for businesses.

We are committed to bringing connectivity to rural areas throughout the Northern Illinois region and assisting communities, schools, libraries, healthcare and the private sector with technology which will transform these areas with affordable broadband high speed connectivity now and for the future.

The objectives of the IBOP-NW consortium include the following applications:

- 1) To execute a public/private relationship with local businesses and providers of broadband services to deliver complete broadband service or dark fiber optic connectivity in a non-discriminating business model. Execution of the IBOP-NW model will allow small business Internet Service Providers to develop residential solutions at a low cost.
- 2) To utilize existing not-for-profit networks and technologies and leverage what is already created.

These networks include: DeKalb Advancement of Technology Authority (DATA) (Public/Private) Round 1 Easygrant #2823; Northern Illinois University Regional Network (NIUNet) (Public Only); Northern Illinois Technology Triangle (NITT) (Public/Private); Illinois Municipal Broadband Communications Association (IMBCA) (Public/Private); TriRivers Health Organization network (TriLightNet) (Public/Private); Northwest Municipal Broadband Authority (NMBA) (Public Only); Illinois Century Network (ICN) (Public Only); Illinois Rural HealthNet (IRHN) (Public/Private Medical); Internet 2 (Public Only).

These networks will allow public and private entities to connect to state-of-the-art terabit networks for wholesale transport services or bulk internet services from bulk rate service providers.

- 3) To connect school districts and colleges locally with a dark fiber solution allowing the schools to upgrade speeds locally, when required, without renegotiation of costly contractual services agreements. The IBOP-NW model will allow school districts to interconnect at gigabit and greater speeds. The model allows sharing of data resources and services between schools over a backbone network that will be created over a dark fiber regional backbone. The schools will



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connect either to NIUNet or the ICN where they can obtain high speed broadband services from Internet 2 as required by the needs of the districts.

4) To create a cooperative of farmers that will allow the sharing of resources and reduced costs of broadband to the farming community. Farmers will be allowed to interconnect so they can monitor and obtain services required between facilities. Through a cooperative sharing of services with the local farm bureau, farmers will be allowed to transfer data from the farm to suppliers for analytical processing in obtaining proper quantities of supplies for maximum yield of agricultural products. The expanded plan includes the distribution of wireless services from strategically placed fiber optic locations to reach out to rural residential consumers where dialup services are the only available options.

5) To interconnect municipalities and county governments to provide a backbone infrastructure for emergency services and disaster recovery. The connectivity will allow municipalities to integrate with county services and provide the required transport speeds to deliver GIS imaging and data backup services.

6) Create a secure network for judicial facilities that include municipal prisons, the Thompson Federal Prison and the Sheridan State prison.

NUMBER OF BUSINESSES AND HOUSEHOLDS TARGETED FOR GRANT PROPOSAL:

The IBOP-NW region has partnerships with over 10 communications providers in the region. These partners include regional telephone companies, cable providers and service providers that are local to the IBOP-NW region. The IBOP-NW plan has the potential to deliver broadband services to over 16,904 businesses and 282,797 households in the area.

NUMBER OF COMMUNITY ANCHOR INSTITUTIONS PASSED AND/OR INVOLVED WITH THE PROJECT:

The IBOP-NW consortium seeks to connect 195 K-12 schools, 126 government facilities, 96 public safety sites, 63 healthcare providers, 43 library locations, 1 farm bureau, and 7 community colleges.



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PROPOSED SERVICES AND APPLICATIONS FOR THE PROPOSED FUNDED SERVICES AREAS AND USERS:

The ultimate goal of IBOP-NW is to create a fiber optic system throughout the region that can be used for state-of-the-art high speed broadband connectivity. The consortium is working with public and private organizations in a cooperative to share the costs of a 144 count fiber optic system whereas the public sector will own 48 fibers allowing for increased broadband technology within the Northern Illinois region. Partners in the IBOP-NW consortium include 3 cable TV companies, 1 telephone company and several broadband companies. The consortium plans to offer: dark fiber services, lambda services, broadband services from 10mb to 10Gigabit, and wireless services, which will reduce the cost of broadband connectivity for public and private organizations.

TYPE OF BROADBAND SYSTEM THAT WILL BE DEPLOYED:

The primary system deployed for the IBOP-NW region will be a dark fiber middle-mile network. Provisions for a DWDM network capable of terabit speeds have been designed within areas for use by the public and private sectors. A minimum of 1 Gigabit or dark fiber has been allocated to each anchor institution.

APPROACH TO ADDRESSING THE NONDISCRIMINATION AND INTERCONNECTION OBLIGATIONS:

The IBOP-NW consortium is comprised of 3 regions in Northern Illinois that have created interconnection points throughout the fiber optics system. In the event of other Illinois BTOP grant awards, interconnection points have been created as part of the Illinois Broadband Technology Partnership state wide initiative. It is the intent of the IBOP-NW consortium to create an open access environment allowing fiber optics and services available to anyone that requires services. The public sector can also allow services to be obtained in a non-discriminating offer under Illinois Public Act 095-0684.

QUALIFICATIONS OF THE APPLICATION THAT DEMONSTRATE THE ABILITY TO SUSTAINABLE MODELS:



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NIU has worked in the development of broadband consortia for the past 7 years creating more than five successful broadband initiatives that have been sustainable for public and private use. This is a model that NIU has successfully developed.

OVERALL INFRASTRUCTURE COSTS OF THE BROADBAND SYSTEM:

The proposed IBOP-NW consortium is requesting \$69,594,431 to build a fiber optic network over the next 2 years. The projected costs will include over 705 miles of fiber, communications equipment that will provide services for all of the listed entities and wireless infrastructure to further reach outside of the populous area.

OVERALL EXPECTED SUBSCRIBERS PROJECTIONS FOR THE PROJECT AND JOBS ESTIMATED TO BE CREATED OR SAVED:

The construction of the fiber optic cable will result in the creation of 303 jobs over the next 2 to 3 years. The anticipated indirect jobs are 182 and after the completion of the stimulus funding, it is anticipated that many of these jobs will be retained for the continued expansion of the fiber optic network. As the network expands, it is anticipated that the IBOP-NW area will add as many as 272 jobs to support the connectivity for public and private businesses.

Project purpose:

A. PROJECT ADDRESSES COMPELLING PROBLEM OR PRESENTS AN OPPORTUNITY CONSISTENT WITH THE BTOP STATUTORY GOALS:

The IBOP-NW consortium was formed to resolve a deficiency in affordable high-speed network connectivity throughout the northern Illinois region. Northern Illinois University has combined the needs of local governments, schools, libraries, higher education, healthcare, emergency services, agriculture and private business to explore the benefits and related costs of forming a regional high-speed fiber optic network. Over 75% of the IBOP-NW region does not have affordable or high-speed broadband. The IBOP-NW consortium partners initially explored the possibility of deploying a fiber network of their own, but the capital cost of running fiber optics through a predominantly rural area in the IBOP-NW region was higher than anticipated, and the consortium partners concluded the project was too costly to attempt without external funding. The long-term benefit for ongoing low yearly maintenance and ultra high speed broadband remained an incentive to continue seeking opportunities to fund this plan. Given our current



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economic environment and declining revenue for both government and business, this network will NOT be implemented and the benefits NOT gained without additional funding.

B. PROJECT OFFERS AN EFFECTIVE SOLUTION TO THAT PROBLEM OR ADDRESSES THE OPPORTUNITY:

The IBOP-NW plan will provide the not-for-profit members with fiber optic connectivity at the cost of a shared maintenance for the fiber to each facility anticipated to be equivalent or less than what they are paying annually for low-speed connectivity. The fiber network will inter-connect to over eight major not-for-profit networks that can provide low-cost broadband at wholesale rates to these members. Private businesses will have the opportunity to expand the fiber network and obtain high-speed wholesale rate broadband. The plan integrates a sustainable model to reduce the costs for the not-for-profit agencies as private businesses utilize the network. The network has been designed with capacity to meet future growth requirements and expansion.

PROPOSED SOLUTION DEMONSTRATES BROAD SIGNIFICANCE AND INCLUDES DEVELOPMENTS THAT CAN BE REPLICATED TO IMPROVE FUTURE PROJECTS:

The IBOP-NW model follows the DATA model (Easygrant #2823), with the cooperative agreements between government and the private sector. A similar model has been sustained in local municipalities, allowing the government access while allowing business to grow. To ensure the continued success of the IBOP-NW model, Northern Illinois University will create a 501(c)3 organization through the Northern Illinois Research Foundation (NIRF) that will embrace the three partnerships in the region, as well as the DeKalb County DATA grant. Coordinated efforts will be made through this consortium to develop further interconnection points and expansion of the network under the proposed model.

D. WHETHER THE PROPOSED FUNDED SERVICE AREA IS IN AN UNSERVED OR UNDERSERVED AREA:

The IBOP-NW area is over 75% underserved with large population areas that are unserved based on the guidelines defined in the NOFA and BTOP application. The IBOP-NW project is providing dark fiber, lambda, 100Mb/100Gb opportunities for its members and private business that is NOT available in this area. The area covers a large rural farming area where currently only dialup services are available. Two county areas in the proposed plan are also



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topographically challenged with unserved "pockets" creating less incentive for private sector entities to develop broadband in this area. Under the IBOP-NW plan, agricultural facilities along the path will have access to the network, providing the same opportunities for farmers.

E. THE EXTENT TO WHICH THE PROJECT ADDRESSES MORE THAN ONE STATUTORY PURPOSE:

The IBOP-NW project addresses all five of the BTOP statutory guidelines. It will provide access to broadband service to consumers in the unserved areas of the IBOP-NW region by providing high-speed broadband for not-for-profit and for-profit business, allowing these entities to expand at low cost. The project provides improved services and access to broadband to consumers in the underserved areas of the IBOP-NW region by providing dark fiber and high-speed services for not-for-profit and for-profit business allowing these entities to upgrade and expand services at lower costs. It also provides broadband education, awareness, training, access, equipment and support to several organizations including the entrepreneurs and investment club that uses broadband for seminars.

The IBOP-NW consortium connects schools, healthcare, libraries, higher education, local government and emergency services. Northern Illinois University, in partnership with many of these not-for-profit organizations, plans to develop applications for education, training and awareness for the region. All of these entities support a combined population area of approximately 282,979 households that can take advantage of broadband services for education, training, and job seeking. In addition, medical facilities will seek to use this network for improved medical records and the development of improved doctor to patient access for mental illness. The project improves the use of broadband service by public safety agencies by providing a fiber optic link between PSAP's and communication towers. The network can be used to deliver a reliable service to this system. In addition, the network will allow local government to provide offsite backup and storage for disaster recovery at cost effective high speed broadband. It allows for the creation and retention of jobs in the business area as a result of construction and costs saving to local business. The plan includes promoting high speed connections to recruit new business to locate in the region.

Recovery Act and Other Governmental Collaboration:

The IBOP-NW network has worked in cooperation with and is modeled on the DeKalb Advancement of Technology Authority (DATA) project (Easygrant #2823). In collaboration



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with this project, there have been two major interconnection points that utilize the services that the DATA project can offer for both the public and private sectors as defined in the IBOP-NW grant. The most northern interconnection point is in Kirkland, IL, where the City of Rockford and Belvidere connect to and obtain services from providers in the DATA project. Another connection point in the most southern region of the DATA project in Earlville, IL, will allow LaSalle County to connect to the services for transport of low cost services from providers defined in this project. These connections also create a large fiber optical ring that can be used both by the DATA project and the IBOP-NW project, creating a reliable network model. Included in part of the methodology of the grant is the Illinois Rural HealthNet (IRHN). The IRHN is a federally funded backbone network (\$22 million; FCC docket number 02-60). The IBOP-NW network will assist in the advancement of a federally funded health care network by offering opportunities for clinics and hospitals to connect to the IRHN backbone. This connectivity adds more facilities not originally included in the original IRHN grant proposal. Northern Illinois University was recently awarded a \$7.5M federal grant as a Health Information Technology Regional Extension Center (HITREC), a program to move clinics to an electronic health record format. The IBOP-NW project will provide the infrastructure to develop this program further.

IBOP-NW has been in collaboration to develop a comprehensive network infrastructure for the State of Illinois that will not overlap other BTOP efforts supported by the State of Illinois. Each of the five regions in the Illinois Broadband Opportunities Partnership represents a separate project seeking its own funding and designed not to overlap other regional projects. However, interconnections were planned at key points in each region, to allow for staging and phased development if only some of the projects are funded in this round. This ensures that a comprehensive state network has been designed to maximize the funding available to this region. The other areas are: IBOP Western Region (Easygrant ID: 4317), IBOP East Central Region (Easygrant ID: 4243), IBOP Southern Region (Easygrant ID: 4250), and Smart Chicago (Easygrant ID: 7314).

Fit with BTOP CCI Priorities:

1) THIS PROJECT WILL DEPLOY MILE BROADBAND INFRASTRUCTURE TO COMMUNITY ANCHOR INSTITUTIONS. The IBOP-NW project is primarily a dark fiber middle mile project with several hundred community anchor institutions connected. There will be 48 of the 144 fibers proposed in the construction plan to be allocated for public use and



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anchor institutions. In most cases equipment is supplied to allow for the connection to a public or private ISP.

2) THIS PROJECT WILL DEPLOY MIDDLE MILE BROADBAND INFRASTRUCTURE AND AS INCORPORATED A PUBLIC/PRIVATE PARTNERSHIP AMONG GOVERNMENT, NON-PROFIT AND FOR PROFIT ENTITIES, AND OTHER KEY COMMUNITY STAKE HOLDERS. The overall project is driven by not-for-profit organizations. These organizations have created partnerships with over 17 other private companies in the region. These partnerships allow the public sector to reduce the cost of broadband to taxing bodies while allowing the private sector to profit without cumbersome government involvement.

3) THIS PROJECT WILL DEPLOY MIDDLE MILE BROADBAND INFRASTRUCTURE TO ECONOMICALLY DISTRESSED AREAS. Seven of the counties in the IBOP-NW region are covered by two Economic Development Districts designated by the Economic Development Administration (EDA) of the U.S. Department of Commerce. This includes the counties of Carroll, Jo Daviess, Lee, LaSalle, Ogle, Stephenson and Whiteside. These counties also have regional Comprehensive Economic Development Strategies (CEDS) that have also been approved by EDA. These two Economic Development Districts currently receive planning program funds from EDS for the implementation of their CEDS.

The Counties of Winnebago and Boone have a regional CEDS awaiting EDA approval. These counties are also considering applying to EDA for designation as an Economic Development District. Also according to the Economically Distressed Areas Map, eight of the nine counties are considered distressed.

4) THIS PROJECT WILL DEPLOY MIDDLE MILE BROADBAND INFRASTRUCTURE TO COMMUNITY COLLEGES. In cooperation with the State of Illinois's Illinois Century Network (ICN), the IBOP-NW has included over five community colleges that will have the ability to join the ICN 10 Gigabit network through the IBOP-NW dark fiber initiative.

5) THIS PROJECT WILL DEPLOY MIDDLE MILE BROADBAND INFRASTRUCTURE TO PUBLIC SAFETY. The IBOP-NW project connects over 92 public safety facilities throughout the IBOP-NW region.



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6) THIS PROJECT WILL DEPLOY MIDDLE MILE BROADBAND INFRASTRUCTURE AND EITHER INCLUDES A LAST MILE INFRASTRUCTURE COMPONENT IN UNSERVED AND UNDERSERVED AREAS OR HAS RECEIVED COMMITMENTS FROM ONE OR MORE LAST MILE BROADBAND ISP'S ETC. There are over 7 wireless ISP providers that support the IBOP-NW project. IBOP-NW is dependent on these ISP providers to extend the middle services to the last mile. Small provisions in the grant have been made to connect the anchor institutions as last mile as well as some agriculture businesses.

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. IBOP-NW partners have committed 32.2% of the total project cost, either in cash or in-kind contributions.

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

- No

Is the applicant delinquent on any federal debt?

- No

If Yes, justification for delinquency:

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

- No

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

- No

C. Partners

Are you partnering with any other key institutions, organizations, or other entities for this project?

- Yes

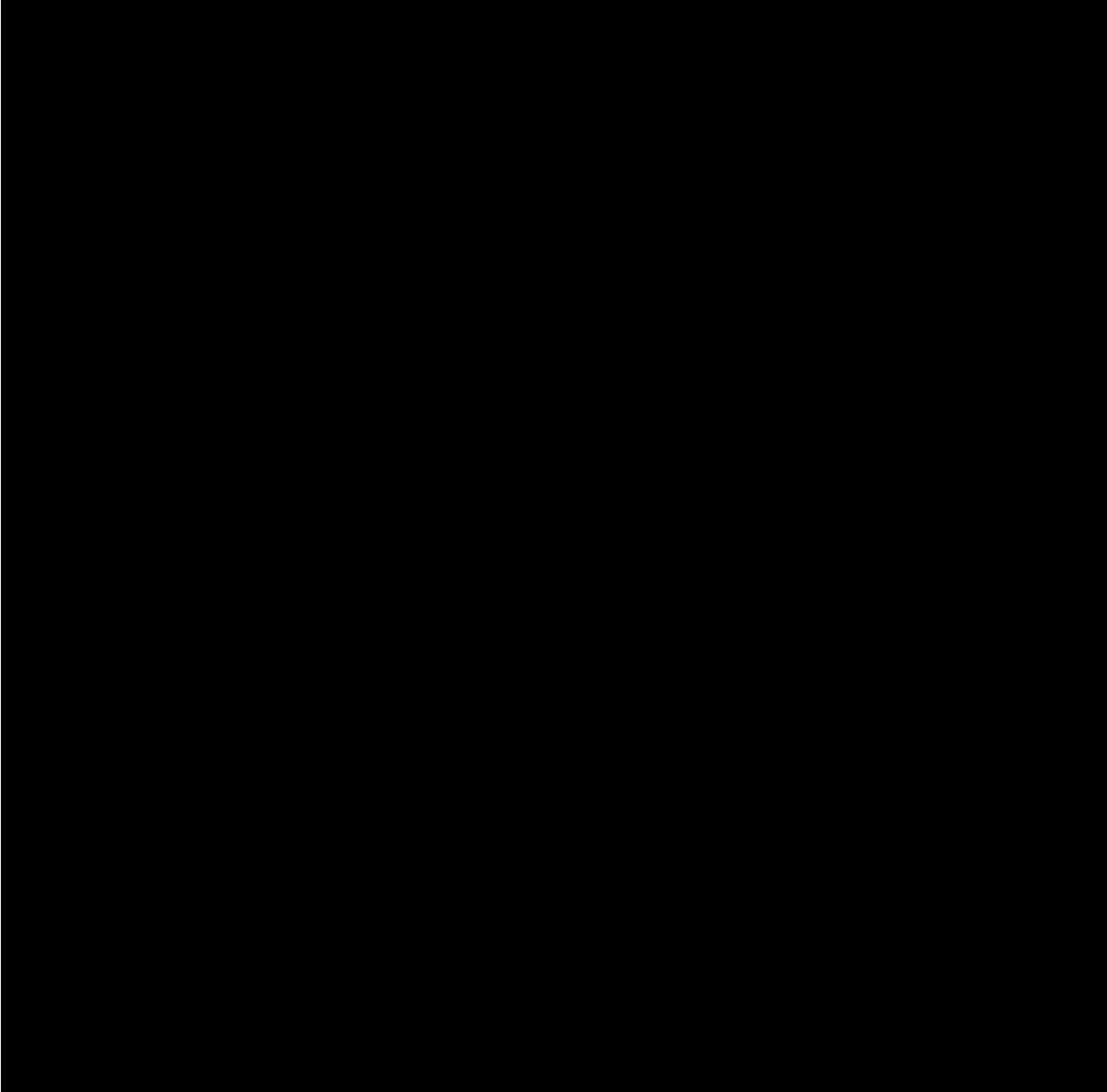
If YES, key partners are listed below:

Project Role: Contractor



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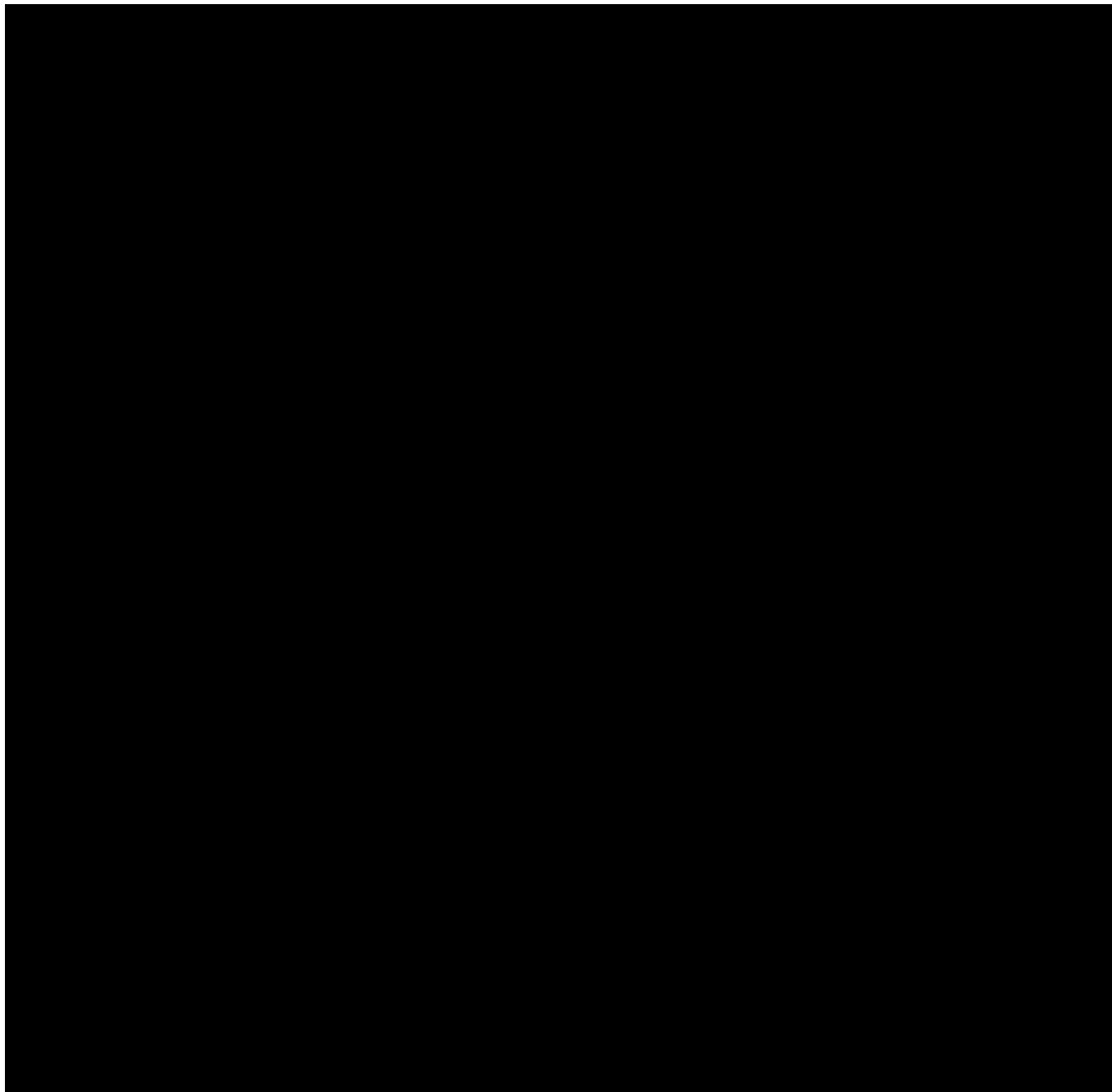
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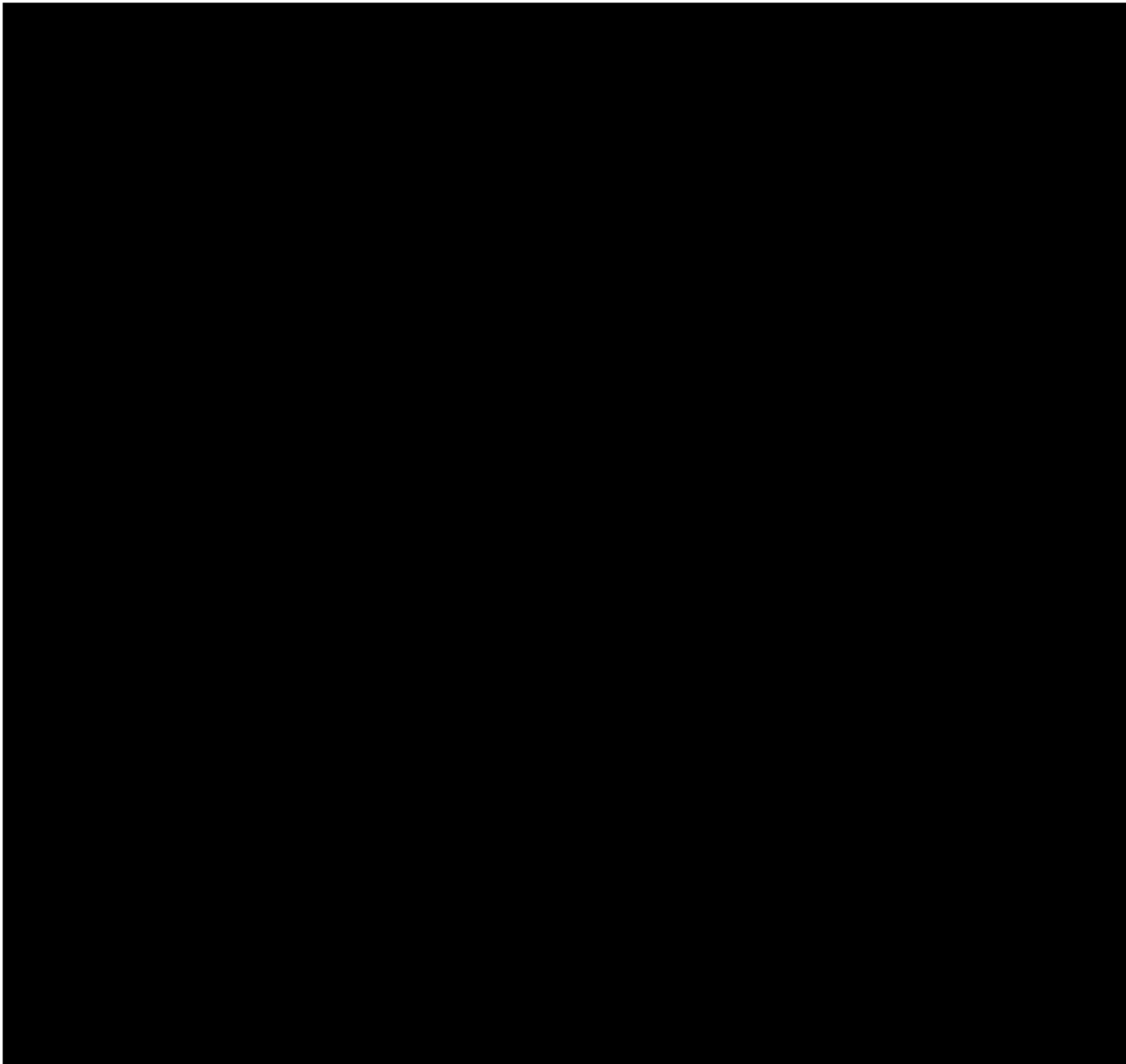
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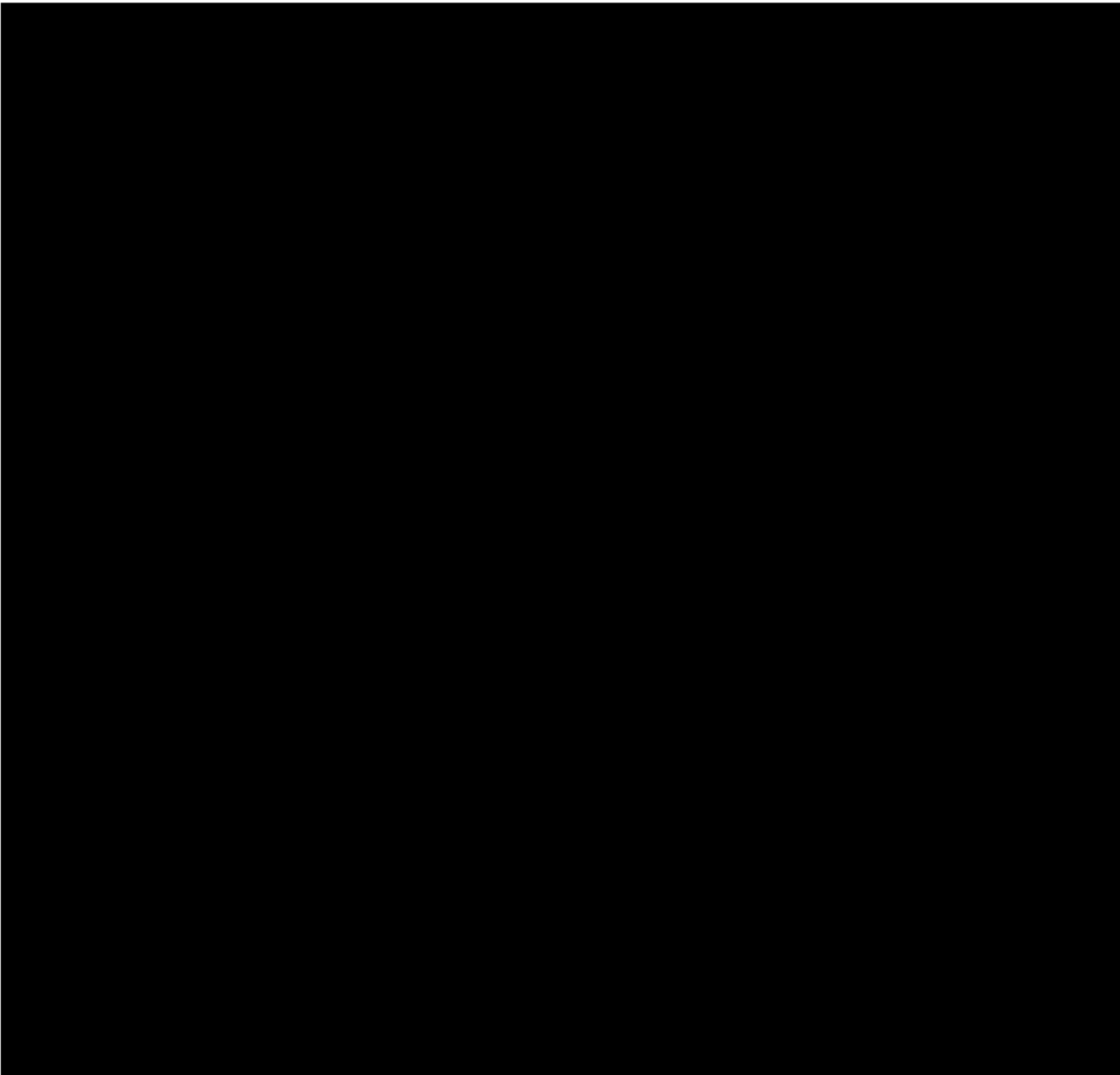
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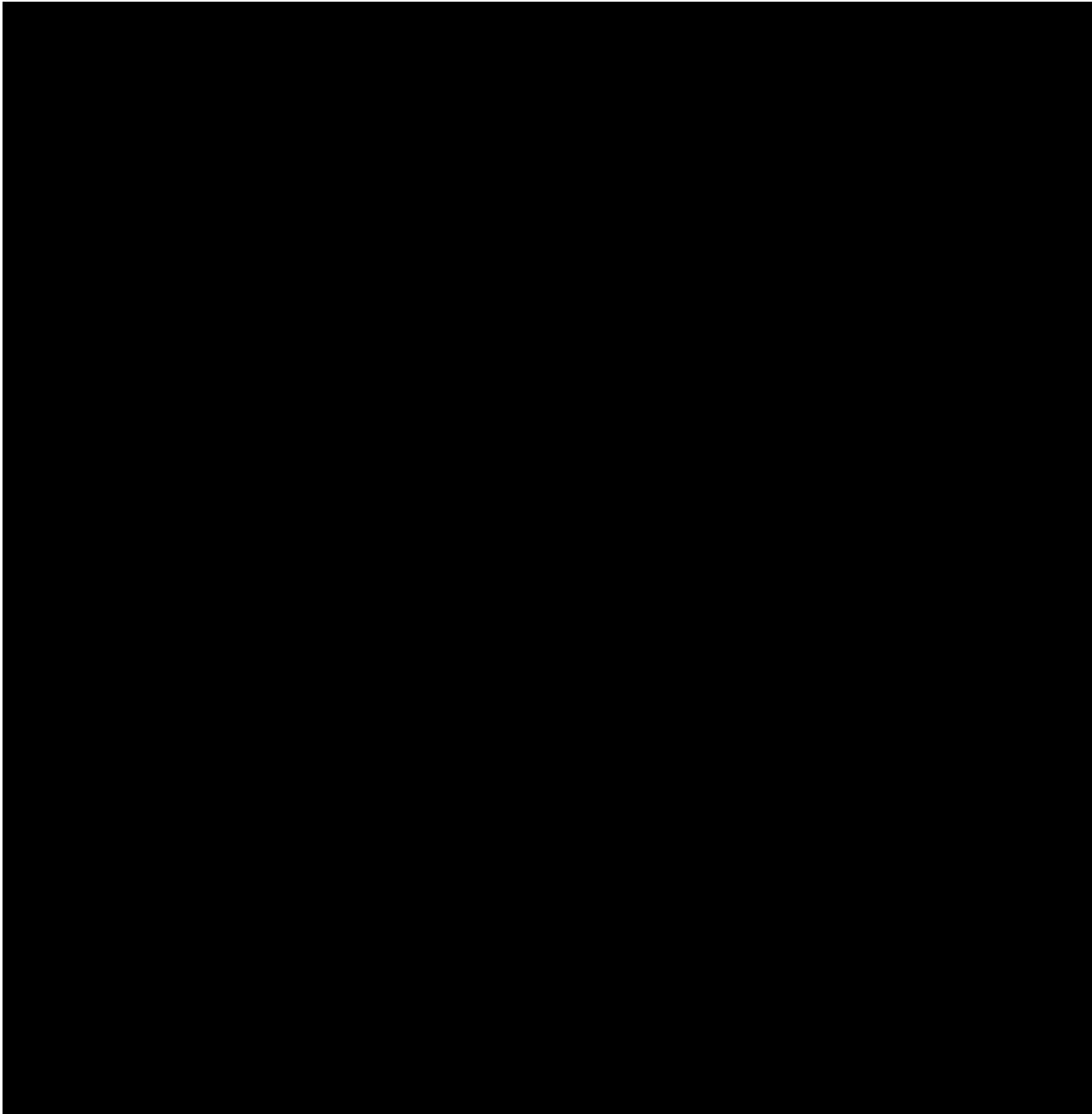
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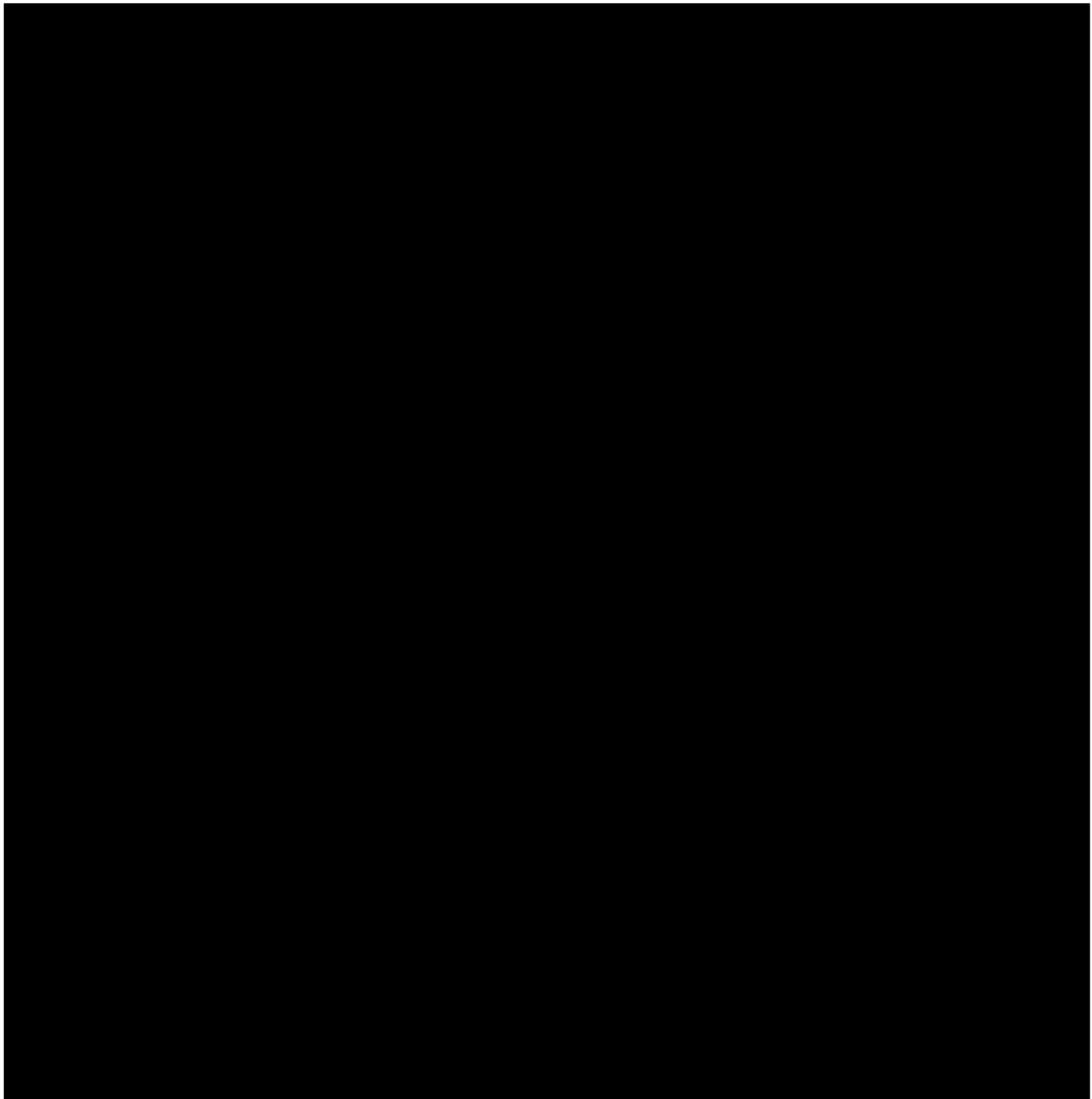
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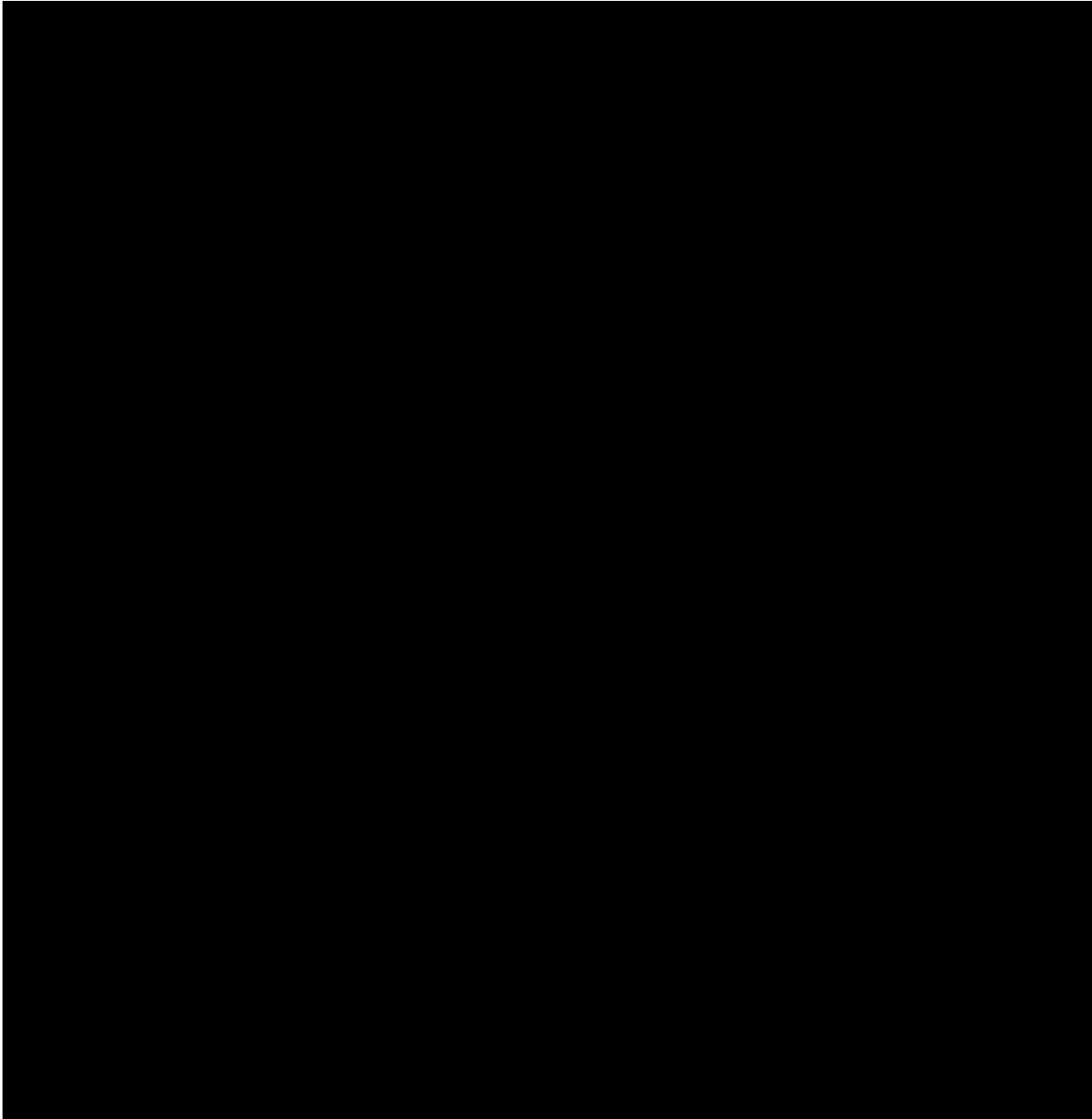
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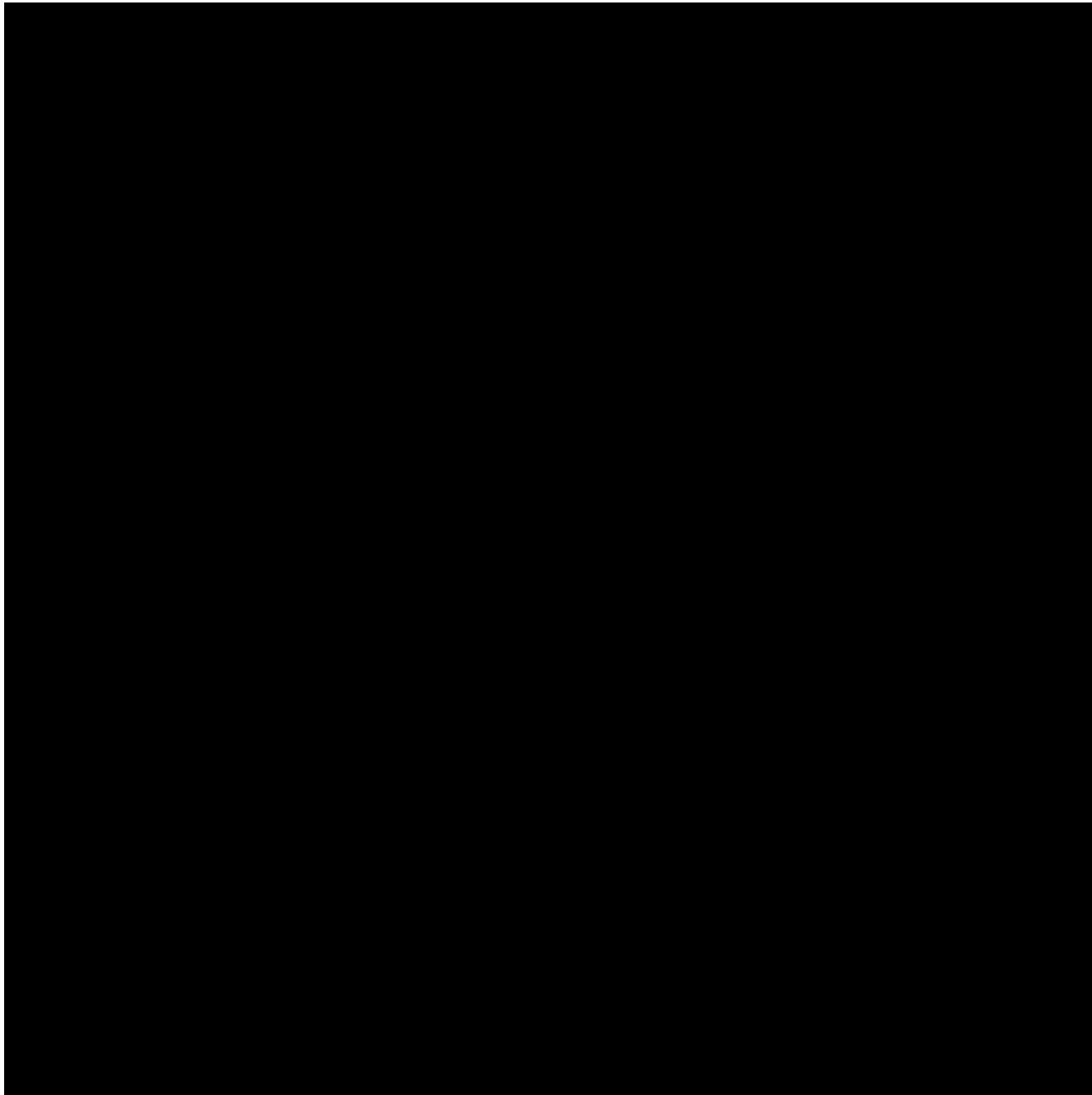
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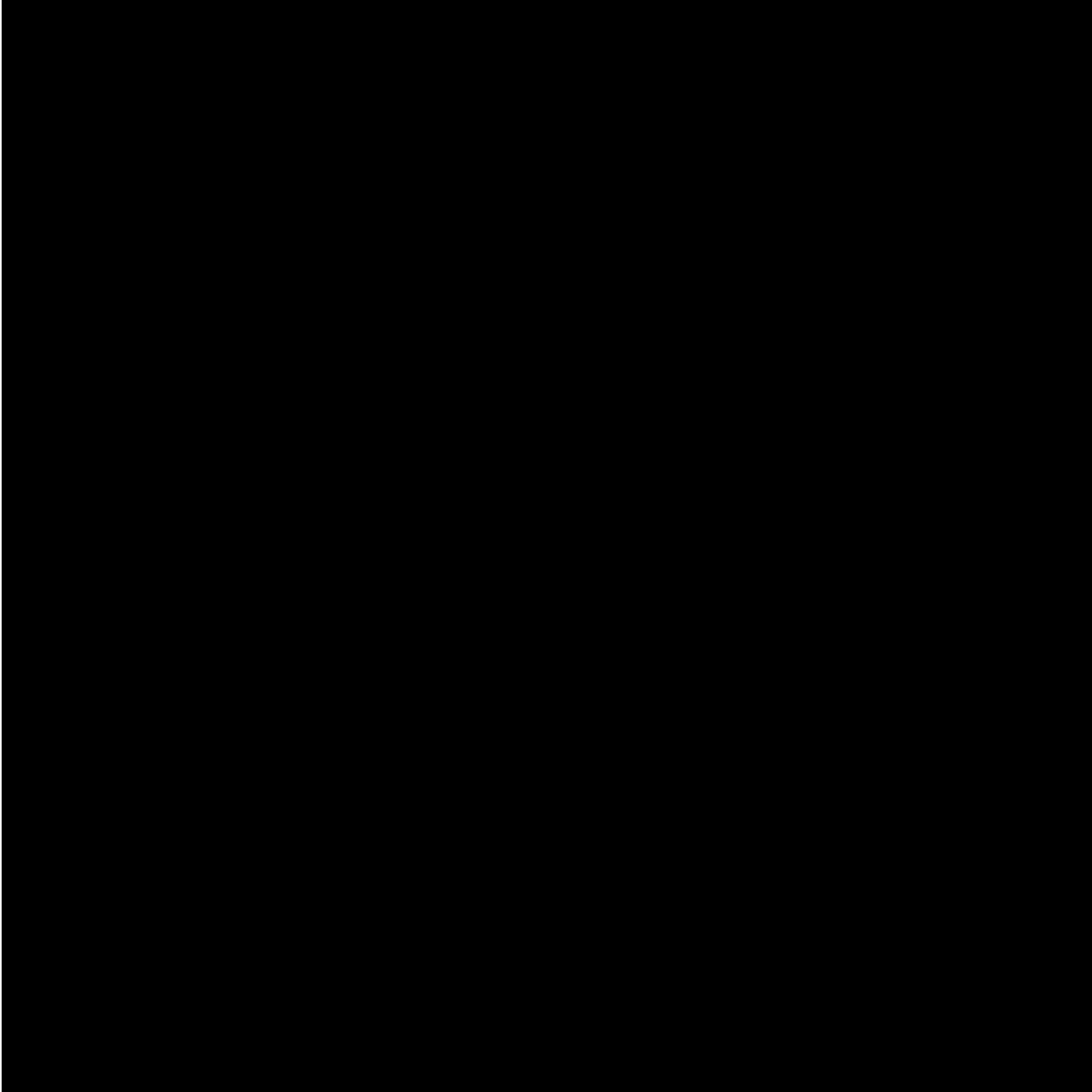
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[REDACTED]

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

The IBOP-NW project involves the applicant institution (Northern Illinois University) and three key subrecipient partners (Blackhawk Hills RC&D, LaSalle County Broadband Initiative, and the City of Rockford). Each of these subrecipient partners also includes a number of key partners (listed above) who represent significant players in their respective regions who have agreed to work cooperatively to move the project forward. Many of them are contributors of cash and/or in-kind resources that will be vital to the success of the project. Others are providing access to facilities, ductwork and/or fibers, and other physical resources that represent substantial cost savings to the project.

Each of the three key subrecipient partners will have primary responsibility for planning and coordinating the network buildout in its respective service areas. These partners will work closely with key partners in their respective areas to perform the work, provide connectivity to anchor institutions and between regions, all as specified in the project work plan.

If the project is funded, the applicant institution plans to establish a 501(c)(3) organization (name to be determined) through the Northern Illinois Research Foundation (NIRF). This organization, with representatives from the applicant institution and the three key subrecipient partners, would, once the grant period has ended, assume full responsibility for the project's governance and management as the work goes forward.

D. Congressional Districts

Applicant Headquarters



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- Illinois

Project Service States

Illinois

Project Service Areas

Illinois - 11

Illinois - 14

Illinois - 16

Illinois - 17

Illinois - 18

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

- No

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

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

- No

E. Service Area Details

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

- No



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Project Details

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

If Service Status is "Underserved" please select at least one applicable option from this list.
 No more than 50% of the households in the proposed funded service area have access to facilities-based, terrestrial broadband service at greater than the minimum broadband transmission speed;

Total Square Miles in Service Area: 5,604
Total Population in Proposed Service Area: 697,013
Total Number of Households in Service Area: 282,797
Total Number of Businesses in Service Area: 16,904
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 667
Unemployment Rate in the Service Area: 15
Median Income in the Service Area: 32,200
Estimated Percentage of Households with Access to Broadband: 48
Estimated Percentage of Households Subscribing to Broadband: 46

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	195
Libraries	43
Medical and Healthcare Providers	63
Public Safety Entities	96
Community Colleges	7



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Public Housing	6
Other Institutions of Higher Education	4
Other Community Support Organization	54
Other Government Facilities	126
TOTAL COMMUNITY ANCHOR INSTITUTIONS	594
Historically Black colleges and Universities	0
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	0

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	303
How many indirect jobs will be created from this project?	182
How many jobs will be induced from this project?	272



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Methodology used to estimate jobs:

The methodology used is the one prescribed in the Council of Economic Advisors Estimates of Job Creation in the American Recovery and Reinvestment Act of 2009.

Project Impact:

RESIDENTIAL SERVICES, BUSINESS SERVICES AND ISP'S. The IBOP-NW project is a comprehensive partnership of public and private companies working together aiming to provide a reliable high-speed comprehensive network to all institutions within the service area. The proposal has the support of three cable companies, one telephone company and over six service providers. These companies are all working in a cooperative manner to expand business within and beyond the proposed service areas. This is a successful model for the private sector because it creates an environment using a cloud network concept that seeks competitive strategies for ISPs as well as cooperative strategies. These synergies will allow service providers to deliver not only straight bulk bandwidth to businesses and households but content and voice services as well. The IBOP-NW project dramatically reduces the costs of transport services for internet service providers and content providers, allowing them to expand both their content and their service regions. Two methodologies make this expansion possible. First, dark fiber services will be readily available to qualified wholesalers to develop local strategies that fit not only the business model of the service provider also the business community as a whole. Second, the service providers have access through all the partnerships of the northern Illinois region to obtain extremely low cost bandwidth from large carrier hotels that are located in the Chicago area. One example of this cost reduction is that an ISP in this proposal will be able to obtain a dark fiber to the Northern Illinois Technology Triangle, a not-for-profit cooperative, to the City of Rockford where transport of a one gigabit connection will cost \$600/month to a POP location on the NITT ring. The provider can obtain ISP services for \$20/Mb from this location or obtain transport directly into Chicago carriers. This represents a cost reduction of more than 75% for a small business to obtain the services they need to provide and expand services.

SUPPORT OF ANCHOR INSTITUTIONS. The IBOP-NW plan connects several hundred anchor institutions in the defined service area. The condition under which the IBOP-NW works is the public sector will always have 48 or more fiber strands in any fiber cable installed for the IBOP-NW project. There are no conditions placed on the use of the fiber for these institutions, allowing the public sector to develop a comprehensive network that meets its distinctive needs. This assists the public sector to upgrade facilities under a capital budget when they require faster speeds rather than limited contractual agreements for transport. Anchor institutions will have the ability to simply upgrade the equipment on the end of the fiber and obtain higher speeds without restrictions of a transport carrier. The model allows all of the schools listed to inter-connect and



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access the Illinois Century Network (ICN), an Illinois state education network, and NIUNet, a NIU research network, at gigabit or faster speeds. This plan includes the ability for community colleges to connect at 10 Gigabit speeds over their own dark fiber to join the ICN community college network being develop as part of the IBOP initiative. There are many more examples that fit this model: hospitals and clinics have the ability to develop electronic healthcare models with the Illinois Rural HeathNet; Counties and 9-1-1 services will have better communication structures and local city services will have high speed communications between municipal facilities. This model also supports more options for the private sector to provide services to the anchor institutions. The fiber will be owned by the public sector, removing the uncompetitive restriction of only one provider or carrier having access to a facility. The public sector can join the private sector cloud network offering many new options to obtain services for private broadband and content businesses. Currently many institutions are supported by local service providers. These providers are often limited in what they can offer anchor institutions due to the limited transport and options available for them. With the IBOP-NW model these institutions will now have the ability to have VOIP service for more than one provider as well as more options for additional internet services. They can provide remote services and maintenance to the public sector under contractual agreements with a reliable, high speed backbone infrastructure between them. This model will strengthen the relationships between the local providers and anchor institutions.

TRANSPORT AND WHOLESALE SERVICES. Over the past seven years Northern Illinois University has been researching and developing an infrastructure in Northern Illinois to provide a core network of transport for the public and private sectors. The IBOP-NW project utilizes and extends two networks that have been developed for this specific purpose: (1) NIUNet, a high-speed DWDM, terabit scale, network developed by Northern Illinois University to provide speeds from 100Mb to 10Gigabit or higher for transport between facilities or to carriers within the Chicago region. It was developed as a base for the NIU Broadband development group to facilitate technology in Northern Illinois to schools, colleges, municipals and healthcare institutions. (2) Northern Illinois Technology Triangle (NITT), a duplicate model of NIUNet designed to interconnect county and municipal manufacturing and technology parks for private sector business. There are currently five designated locations for a point of presence for the NITT network. The emphasis behind the NITT network is to allow counties and city to attract business with offerings of high-speed, low-cost transport services. To this date the NITT has successfully attracted two data centers to the region, creating \$210M in construction and thirty new jobs. This model will be extended in the IBOP-NW region.



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Vulnerable Populations:

No populations residing in the IBOP-NW region have been designated as vulnerable.

Level of Need:

Within all of the service areas defined in the IBOP-NW region, there are no dark fiber resources which are available for public or private uses. Within the public network, dark fiber is a source of communication that is essential to keeping the cost of government low. One prime example of this is our local schools. Currently connections between the schools are 1.5Mb or less. As a result of these slow broadband options, schools are forced to maintain servers and services locally within each building or school. With dark fiber options, the schools can centralize their servers, resulting in the reduction of costs for equipment, for maintenance and for software licenses for servers.

Real examples of the saving to anchor institutions are:

1) The consolidation of servers from distributed environment to centralized environment will reduce the cost by over 50% for schools, municipalities and counties. The elimination of the maintenance of multiple servers to one in hardware and software results in significant savings. The savings for local schools in the DeKalb area using this model was over 50% and now with virtualization of servers the costs are further reduced. Other costs such as maintenance on battery backup systems, electricity and backup procedures are also reduced. These types of savings can be obtained with gigabit or greater speed using dark fiber.

2) Video security for schools and municipalities has become a significant part of the operations of a public entity. Whereas currently a school district will have to place a video server in each building, services can now be centralized and high definition security video can be stored on one server. With the fiber optic network, schools can now interact with local police where live video streams from a location can be obtained. Municipalities in the region also rely heavily on video security for areas throughout the community. High definition video streams can result in 4Mb streams per camera. A robust gigabit network over dark fiber is required to make this possible. The ability to centralize these video storage units can save over \$10,000 per site plus yearly maintenance reductions.

3) A consortium group in Illinois is currently developing a virtual server environment for education that will allow schools to obtain services over a high speed network. The computing cloud currently being developed is designed to offer substitutes for educational institutions to



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obtain educational video services like Learn 306, Discovery Education and United Streaming over high speed networks. This eliminates the need for schools to purchase hardware and share in the costs of licensing of the products. Another benefit is that through the Illinois Century Network and its IBOP network, schools will not have to use their commodity internet to obtain these services as they are required to do today. However, this goal cannot be realized without a high-speed fiber optic backbone.

4) Phone services contracts cost anchor institutions thousands of dollars a month. Over a high-speed network not only can services be added but costs reduced by using voice over IP (VOIP). In the DeKalb School District 428 the high school was paying over \$2,000 monthly for telephone services for administration support. With the fiber optic line, the costs were reduced to \$480 monthly and every classroom now has a phone for several reasons, mainly for 9-1-1 purposes. The Sycamore School District 427 implemented a similar model and saw an \$8,000 monthly bill reduced to \$2,000 monthly. These benefits are currently not available in the IBOP-NW region. With the partnerships we have created with Areo Group and T-6 Broadband, this model can be available to all anchor institutions in the IBOP-NW region as well as the IBOP statewide plan. However, with the current infrastructure, this is not possible.

5) Having the appropriate broadband connection between facilities can promote cost savings in different ways. Security, door access and alarming to a central location are now possible with video screening. This avoids the replacement of keys and locks on a routine basis and maintains control over access to facilities by knowing who has keys that are operational. HVAC systems can be monitored and controlled over a reliable network, resulting in the large savings on energy bills for public institutions. With the connections available in the IBOP-NW region, this is not always possible as a result of unreliable and slow connectivity. Private businesses are clearly benefactors for having the availability of dark fiber between facilities.

The savings just discussed for public-sector institutions apply to private businesses as well. Dark fiber services are not available in any business to business throughout the IBOP-NW region. Private business requirements differ from the public in that they may require connectivity spanning longer distances or to a large population center like Chicago. The IBOP-NW model includes dark fiber routes that will connect into fiber links that route to large population centers in the north-east region of Illinois including Chicago. Currently this functionality is not available in this region. This puts communities in the IBOP-NW region at a disadvantage as many of the



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applications to attract business to the areas require a check mark for dark fiber access. Dark fiber now gives these communities a chance to compete for business in their region.

DeKalb Fiber Optic, LLC (DFO), through existing public/private relationships (i.e. Illinois Municipal Broadband Communications Association (IMBCA)), has demonstrated a reduction in cost for access in the City of DeKalb and City of Sycamore area. DFO's current retail rates for customers within reasonable distance of its existing fiber path are 50-65% less than other enterprise class services. In reference to Attachment A - Service Offerings and Competitor Data, these rates reflect over 60% savings with respect to wholesale rate to qualified wholesalers of broadband services. The proposed IBOP-NW network represents a new trend in broadband services where broadband speeds are defined terms of application requirements rather than available conventional telecommunications options. By utilizing dark fiber, participants can budget for the equipment speed that satisfies their current needs, secure in the knowledge that should those needs increase, they only need to upgrade their endpoint equipment

In a cooperative schematic, the ISPs in the region have committed to expanding services beyond their current offerings today. This is possible as a result of the middle mile project being offered in this proposal. Through the traditional telecommunication providers in the area, a T-3 which is a 45Mb link is one of the highest speed service offerings available. These traditional slow speed links cost between \$5,000 and \$8,000 monthly for an ISP to connect to another source for commodity internet which is another cost above and beyond the T-3 cost. These links not only are slow but overpriced. In the IBOP-NW model, an ISP will have access to dark fibers or gigabit speed that will connect them to the NITT network where the cost is \$600 monthly for gigabit transport and commodity internet will cost \$20 a megabit per month. This will allow the local ISP to deliver a fast and reliable service to their customers. Currently a small business in Elizabeth, Illinois, is struggling with an unreliable fixed wireless network that is slow. They develop software under government contracts and currently employ over 20 people. However, with increasing demand for their product this company is considering re-locating. If the IBOP-NW project were funded, their current ISP would be able to deliver a high speed fiber network to this business and expand their internet allocation where this business will be able to expand and thrive in this region.

Overall the IBOP-NW region is not competitive in the broadband market with best offerings being residential services in large population centers while 80% of the region has even less options. The current model offers a weak business network to sustain any long-term relationships with corporations. The IBOP-NW region is in danger of losing, and has lost, businesses and jobs



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to other areas as a result of its current broadband infrastructure which is for the most part non-existent and not competitive. The model presented in this application clearly represents a model that will service anchor institutions for decades with low costs. The IBOP-NW model is promoting business growth in the area with more options available to businesses and their customers. With an application driven model, businesses can take advantage of the asset this grant will offer to the area.

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

Other:

Technology Questions

Methodology for Area Status:

Two primary methods were used in determining that, on average, this area is underseved. However, there are parts of the IBOP-NW region that have been analyzed as having near 80% unserved areas. IBOP-NW is a middle mile project with much of the analysis on offerings from middle mile service providers and availability of fiber and high speed services. Evidence of the problem and analysis of the data came from the local ISPs in the service areas. The conclusion of this analysis was that ISPs were able to obtain fiber optics or gigabit speeds at rates to sustain a profitable business.

Two other sources were used in determining general broadband availability in the service areas. Maps from the Illinois Connect project that included the area wireless service providers, DSL and cable providers were overlaid on each of the service areas. Data from the Illinois Commerce Commission (ICC) that is mapped by ZIP code showing areas with poor broadband access was used as well. Sample calls to areas designated as unserved by broadband services refined and verified the data.



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In reference to the service area maps, service areas 1 and 7 had near 80% unserved areas under the ICC's definition. Using these data, we concluded that 90% of the households in these two areas do not have access to speeds greater than 200kbps.

In reference to the service area maps, service areas 5,6,8 and 9 have average unserved areas of 46%-60%, with many population centers underserved. It was determined that no more than 50% of the households in these areas have access to facilities-based, terrestrial broadband service at greater than 768 kbps down and 200 kbps up. The second definition fit these areas as well in that no fixed or mobile broadband service provider advertises a broadband service of 3 mbps.

Description of Network Openness:

The proposed IBOP-NW network is divided into a public and private side. On the public side, access to the network is permitted and controlled by one of the three subrecipient organizations organized under the authority of the IBOP-NW project: LaSalle County Broadband Initiative, Blackhawk Hills RC&D, and the City of Rockford. These organizations have the authority to choose, deploy, and upgrade the equipment to provide connectivity to public side participants. The fundamental circuit element is a dark fiber link to the participant, with a technical committee selecting the proper hardware for the participants' need.

On the private side, private companies will enter into contractual commitments with an IBOP-NW sub-recipient to provide wholesale access at a maximum scheduled price to any and all qualified providers who request access. The interconnection will be via Ethernet technology or dark fiber. Ethernet speeds of 10Mb/s, 100Mb/s 1Gb/s, and 10Gb/s will be available. Within the network footprint, flat-rate Ethernet ports will be available for wholesales in both point-to-point and multi-point configurations. This open-access design leverages standards-based Ethernet technology for maximum flexibility and minimal vendor lock-in.

NON-DISCRIMINATION OBLIGATIONS. Partners will be expected to adhere to the minimum non-discrimination requirements as set forth in the NOFA and to display the nondiscrimination practices in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.

INTERCONNECTION OBLIGATIONS. Partners will be expected to: adhere to the minimum interconnection requirements as set forth in the NOFA; display the interconnection policies in a prominent location on the service provider's web page, and provide notice to customers of



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changes to these policies; commit to offering wholesale access to network components and services such as wavelength or fibers at reasonable rates and terms; and commit to binding private arbitration of disputes concerning interconnection obligations.

System Design:

The IBOP-NW consortium consists of several networks that run over a shared fiber optic network for all members. Each network system is designed to meet the specific needs of the community, whether it is dark fiber, transport services or ISP services. The IBOP-NW network system consists of five networks overlaid on the fiber optic system, an education and library network, healthcare network - community service network, agriculture network, local government and emergency services network, and a private business/economic development network.

Services to the end user of the network are either dark fiber or ethernet based, providing a minimum of 100Mb and maximum of 10Gigabit services with the possibility of upgrading to 100Gigabit service if required. The architecture is based upon DWDM, CWDM, PON and Ethernet. The IBOP-NW network services will originate from several POP locations to provide maximum services for the network:

- 1) DeKalb, IL, using the DATA network Easygrant #2823 at Northern Illinois University;
- 2) Rockford, IL, where a POP location is located for access into the Northern Illinois Technology Triangle (NITT), where a DWDM network can transport services from the DuPage National Technology Park (DNTP) located in West Chicago, IL;
- 3) Rochelle, IL, where a POP location is located for access into the NITT where a DWDM network can transport services from the DNTP located in West Chicago, IL;
- 4) Dubuque, IA, where the TrilightNet partnership will transport a 10Gigabit Lambda into a carrier hotel where public entities can obtain services from the west;
- 5) Freeport, IL, where a POP located with TriglightNet can provide carrier services to Dubuque, IA, or to the POP location in Rockford, IL, where the NITT is located;
- 6) DuPage National Technology Park, where a carrier hotel is located that the NITT, IMBCA, DATA and NIUNet extend services into. The hotel provides ISP services and transport services to 700 partners in Chicago, IL; and
- 7) Rockford and DeKalb, IL, where the Illinois Century Network provides services for colleges and schools throughout Illinois.



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Whereas roughly 90% of the project is installation of new fiber optics, the IBOP-NW network will utilize or upgrade existing fiber optics, primarily in the Peru, Freeport, Rock Falls, Rockford and Rochelle areas. A current DWDM network called TrilightNet has also been integrated into the plan. The IBOP-NW proposal includes the necessary fiber or equipment to provide a gigabit transport service to a main communications location and dark fiber to each of the buildings. The fiber is designed to allow local entities to connect facilities creating a private WAN that is unrestricted in its use allowing these facilities to upgrade services by replacing the end equipment on the fiber. An example of this network architecture can be found in the Network Diagrams attachments. A metro network that will connect facilities back to the core network will utilize lower cost CWDM equipment at gigabit speeds. The backbone connection will come through one of the two planned DWDM networks designed for public use only. The agriculture network is a pilot project in LaSalle County that allows farmers to obtain high-speed services for agricultural uses. The network design is based around a residential service using gigabit passive optical networks (GPON). Services over a dark fiber system can be delivered to farmers along the fiber optic route. The DWDM backbone network will carry a gigabit service to the local farm bureau where a COOP of Internet services for farmers will be organized allowing farmers maximum services for low costs. The private sector can offer services to customers over the IBOP-NW network system through dark fiber services (where required by businesses), lambda or ethernet based services that can be delivered up to 10Gigabits. The IBOP-NW network has been developed to extend the services of the NITT, a not-profit system run by local government used for economic development in the private sector to deliver low cost services to underserved areas. The IBOP-NW network is primarily a fiber optic network with limited wireless. Middle mile point-to-point wireless connections have been included to serve a few remote public anchor institutions due to budgetary considerations. The overall plan is to implement a 400Mb full duplex Dragon Wave system that is 11GHz or 18Ghz Dual Channel, single radio. The area has been inspected by Urban Communications, Inc. and the topology reviewed to ensure proper antenna placement and height. The fiber optic backbone is designed as a middle mile project to support local ISPs with low cost high volume services that will incubate private business to deliver services to underserved or unserved areas. The IBOP-NW project involves development of a superhighway that can be used to deliver services to regional areas that private business would otherwise find unprofitable. The value of fiber for the long term supersedes the value of wireless options that typically only last for five years before the complete backbone infrastructure needs upgrading. The research development of fiber-based solutions continues to be developed and networking capacities over fiber in the past 20 years have now reached terabit network capacities. The installation of fiber clearly allows for the investments of BTOP funding



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to be used for decades to come making this a long-term cost effective solution. Since the IBOP-NW network design is based off a dark fiber solution, upgrades to the system are done by simply replacing the equipment on each end of the fiber network. The capacities of the DWDM network can be increased into the terabit range allowing for the continued expansion for government and business. To further extend this technology in the future, NIU plans to create a 501(c)(3) organization under the Northern Illinois Research Foundation (NIRF) that will oversee the development of the IBOP-NW partners.

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

No

I. Project Budget

Project Budget		
	Federal Grant Request	Match
Last Mile	0	0
Middle Mile	47,749,877	23,047,388
Total	47,749,877	23,047,388

Project Budget Total: \$70,797,265

Match Percent: 32.6%

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	[REDACTED]



Broadband USA

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	<p>[Redacted text block containing approximately 32 lines of obscured content]</p>
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	[Redacted content]
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Unjust enrichment	Northern Illinois University has not requested nor will it use any other Federal support for the broadband infrastructure projects related to the IBOP-NW broadband network.
Disclosure of federal	Northern Illinois University has not requested nor will it use any other



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and/or state funding sources	Federal support for the broadband infrastructure projects related to the IBOP-NW broadband network. Northern Illinois has a commitment of \$14 million toward the project cost in matching funds from the State of Illinois.
Budget reasonableness	<p>The IBOP-NW Consortium was formed as a technical group to leverage the expertise of several technologists in the northern Illinois region. This consortium is comprised of several experts in communications, server management, application management and other technologies. A key partner to the IBOP-NW organization is Northern Illinois University (NIU). The project team for NIU has designed and managed the installation of over 240 miles of terrestrial high-speed wireless networks and 175 miles of fiber optic networks.</p> <p>In reference to Attachment I - Detailed Budget, each facility is allocated \$10,000 for two local gigabit switches or one large switch that will run a CWDM service. This allocation is a onetime expense that is reasonable for gigabit connectivity for facility. These switches are to interconnect buildings locally as well as to the regional network. This cost is based on industry standard pricing for this type of equipment.</p> <p>Portions of the IBOP-NW network will employ state-of-art networking using DWDM throughout the county. Based on per location and expansion of services, these transport switches will allow for the expansion of services for broadband in the terabit ranges. The pricing model used is the average cost of one transport switch equipped with sixteen lambdas with a 10Gig service. This type of switch will be required to deliver high-speed services for all constituents using the network as well as secure future expansion of network services.</p> <p>The cost of fiber, duct and conduit is based upon the experience of Northern Illinois University in developing regional fiber networks. The cost is based on averages using prevailing wages for underground cable placement. The average includes a combination of ground</p>



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	<p>terrain and urban area restoration of concrete. Included in the costs is the average cost to place a rigged conduit under the rail system. These costs have been isolated from general costs due to the complexity and costs of boring under a rail system. Each rail site is estimated to cost up to \$20,000 with permitting, bonding, right-of-way and construction.</p> <p>The overall project is reasonable in costs for the area that it covers and the services it offers. This fiber network will provide a starting point for expanding networks further into rural areas in the IBOP-NW region. The capital expenditure of this network results in very low yearly costs to members of the IBOP-NW network resulting in costs saving for government and stimulating economic development for the region.</p> <p>The IBOP-NW project is a Middle Mile project with 282,979 households in the IBOP-NW Region. The total project cost is \$70,797,265 to create a fiber optic network of 816 miles, including 711 miles of new construction. The total cost per mile (middle mile) is \$99,549; total cost per household (last mile) is roughly \$498.</p>
Demonstration of need	<p>The IBOP-NW organization is comprised of mostly public sector organizations. These organizations are experiencing a very challenging economic environment. This is occurring while citizens, students, libraries, patients, businesses and others require an increasing level of service. State funding is down, property tax revenue is declining due to the housing crisis, revenues from other user charges and fees are declining and the combined impact is creating a downward financial spiral. Many member organizations have had expenditure cutbacks, some organizations have reduced headcount and all organizations are facing, at best, a flat budget for the upcoming years. In addition, the December 2009 unemployment rate reached fifteen percent (15%) or greater in many of these areas. Seven of the nine counties in the region fall under the Economic Development Administration's (EDA) definition of distressed by having an average unemployment rate 1% higher than the national average over a twenty-four month period. Several of the counties in the IBOP-NW</p>



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	<p>region are among the hardest-hit by the recession in all of Illinois. Attempts to combine resources in a complex environment of public institutions did not cover the region required or even a small segment of the IBOP-NW region.</p> <p>The only viable option for moving the IBOP-NW network forward is to seek funding through the American Recovery and Reinvestment Act of 2009. Given the IBOP-NW organization's current financial status, the network will not be feasible unless the organization can attract significant grant funding that allows smaller underserved/unserved communities to interconnect to a larger community. Our collaborative business model indicates that there are significant and ongoing operational savings to be realized through a shared high-speed network. These savings will not be realized without a major investment in broadband infrastructure, however.</p>
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Funds to States/Territories

States	Amount of Federal Grant Request
Illinois	47,749,877

Funds to States/Territories Total: \$47,749,877

J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue	443,988,000	465,295,000	490,432,000
Expenditures	433,016,000	463,145,000	484,375,000
Net Assets	213,655,000	215,805,000	221,862,000
Change in Net Assets from Prior Year	10,972,000	2,150,000	6,057,000



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Bond Rating (if applicable)	A2	A2	A2
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K. Project Readiness

BTOP Organizational Readiness

IBOP-NW is utilizing Northern Illinois University (NIU) as a lead agent in developing structure for the overall plan of the IBOP-NW consortium. IBOP-NW is comprised of three key sub-recipient partners that have been organized to work cohesively together to create a nine-county fiber optic network in northern Illinois. Each of these three organizations will oversee the service areas within its specific region. With the unique partnership of public and private organizations working together, each of these organizations will rely on the private sector to market, sell and maintain the fiber network. The public sector will oversee the anchor institutions and bill maintenance of the network proportionally to each institution. A brief overview of these partners and affiliates follows. (1) LaSalle County and the North Central Illinois Council of Governments (NCICG). LaSalle County is a full-standing member of NCICG. The NCICG has written and administered federal grants for LaSalle County (public infrastructure improvements); worked on efforts to receive funding for emergency services, developed a solid waste management plan for the County; worked to establish a grants tracking system for the County Chairman and Auditor's Office. In addition, NCICG has provided direct professional assistance for the municipalities in LaSalle County. Some of the most frequent activities include: economic development; mapping; data & demographic work; grant writing and administration; parkland projects; utility projects; planning and zoning; ordinance codification; disaster recovery assistance; emergency services grants, and more. LaSalle County will administer the billing and coordination efforts of this area using current billing system guided by the NCICG expertise. (2) City of Rockford and (3) Blackhawk Hills RC&D. The City of Rockford represents the highest level of authority by the participating organizations and is entrusted with the review and official ratification of all matters of the fiscal or organizational policy. The City of Rockford will perform the overall organizational tasks: Construct the annual budgetary requirement for the network and assure that financial obligations to sustain the fiber optic network are covered over each fiscal year; distribute the cost fairly and evenly to all participants of the network; enter into agreements with new members under an equal term used for all participants not impacting higher costs for existing members of the network; provide the required procurement contracts, finance, accounting, reporting, grant requirements and other support services required to complete the



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network in the required time frame. NIU intends to create a 501(c)(3) organization through the Northern Illinois Research Foundation (NIRF) with representation from the three key partners toward the end of the grant period, for managing the network after the award period ends. The organization would also include the DATA network project Easygrant #2823.

Construction and Vendor Contracts

The three key sub-recipients will enter into agreements with private partners; all of the letters of intent and memoranda of understanding are included with this grant proposal. The private businesses included are: MediaCom, Geneseo Communications, Aero Group, Tri-Rivers, Pirtano Construction, UrbanCom Communications, LRA Savanna Depot, Leaf River Communications, and DeKalb Fiber Optic, LLC (DFO). DFO will be used for some of the installation, most of the maintenance, and access to the fiber optic system. A framework for the proposed agreements based on the DFO agreement is included as an upload. Requirements for installation of higher-level equipment (i.e., DWDM and CWDM equipment) will be contracted for as part of purchase agreements with the equipment manufacturers along with a five-year maintenance agreement.

Customer Base

The IBOP-NW network will have a public- and private-managed process. The sub-recipients will do management for the anchor institutions that will include contracting, changes, additions and removals of anchor institution customers. A majority of the IBOP-NW fiber network will be managed by a single private company, DeKalb Fiber Optic (DFO), to oversee the long-term care of the fiber and to organize the changes, moves, additions, and records for the fiber network. DFO does not currently have a customer base in the IBOP-NW service region. Equipment maintenance and operations for the private sector partners will be maintained under their current programs, whereas the public side will contract for maintenance. For the private sector, T-6 maintains a network for 4500 households, 300 businesses, and 20 anchor institutions in the proposed service area.

Licenses, Regulatory Approvals and Agreements

License agreements and permits for public right-of-way will be obtained from the cognizant municipal, county, and state entities. These licenses and permits have not been applied for. Agreements for IRUs on some duct and fiber will be obtained as needed and have not been applied for.



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SPIN Number

Northern Illinois University: 143031566
DeKalb Fiber Optic: 1430334181
Areo Group: 143010090
TrilightNet: 143032448

L. Environmental Questionnaire

Project Description

This project covers a nine-county area, involving installation of over 700 miles of fiber optic cable, either underground or on existing utility poles. We have identified a path that avoids wetland areas, flood plains, and critical habitats, following existing rights-of-way through already disturbed soil. Wireless systems will be used where user populations are low. Our surveys show that most wireless transceivers can be placed on existing water towers, though some locations will require a new tower (100 feet or less in height, with a 10-foot concrete foundation) to be placed on public property for the wireless link. In most cases, a small dish antenna will be attached to an existing location or placed on the new antenna mast. No new buildings will be built. A small handhole placed near existing buildings will provide access to the backbone cable, with lateral cable running from there through disturbed ground using existing utility access points. No internal building modifications are anticipated. The cable will terminate in a patch panel providing a connection point for user-owned equipment. The same general approach will be used for wireless connection, with cable running to the nearby transceiver. No buildings were found to have historical significance. However, during our detailed design we will request that each building be evaluated for historical or architectural significance so we may take appropriate action as needed.

Property Changes

The Savanna Army Depot, reported as Federal property, has been donated to the Jo-Carroll Depot Local Redevelopment Authority, which is a partner in this proposed project. A minimal amount of property is to be cleared, excavated, fenced, or otherwise disturbed. Currently, all affected land is municipally owned or available as a right-of-way area.



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The backbone cable will be placed through plowing or boring. Plowing separates the earth, places the duct and cable at the bottom of the cut and allows the earth to fall back into place. In our experience, this process leaves minimal signs of construction after the first rain. In boring, a small pit is excavated, usually at the location for a handhole (a connection point, splice point or cable storage location by an intersection), and the boring bit creates a hole through the earth. This is used to place the cable under driveways, roads, streams, rivers and rail tracks. Upon completion, all evidence of the boring process is removed during the restoration process.

Cable may be placed on some structures in pipe, such as a bridge. In most cases, this is coordinated with the Illinois Department of Transportation and installed according to State standards.

Our partners may obtain permits for lateral runs of fiber optic cable from the right-of-way area adjacent to the street into their facilities. Each of these runs will be documented during the design process and evaluated by local zoning officials on a case-by-case basis.

Buildings

No new buildings will be built as part of this project. Connections will be made between existing municipal structures. Each of the existing municipal buildings will be accessed through the current service entrance used to provide existing utilities (such as electrical and telephone service) access into the building. These existing buildings include city or village halls, police and fire stations, school buildings, colleges and universities, libraries, and recreation centers. Each of these buildings will have a small handhole, approximately two-by-three feet and one foot deep, which will be placed in front of each building in the right-of-way area adjacent to the street. This handhole will provide access to the main fiber optic backbone cable, with a lateral cable running from this handhole into the facility. Each lateral cable shall be run through existing grounds using a boring or plowing approach.

All cable paths have been surveyed and will be placed in previously disturbed earth along an existing road, for the backbone cable, or using existing utility space to a building, for the local lateral cable.

Wetlands



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The proposed cable path will take the duct and cables it contains through some wetland areas. See the wetland maps that have been uploaded, showing the places where the cable is adjacent to a wetland area.

The cable will be placed along the existing road surface where the earth has been previously disturbed. The cable installation process will be performed using plowing or boring methodology. Both approaches create minimal spoils during construction when the cable is placed in the ground. Measures will be taken to control and contain any spoils that are created to ensure they do not run into any adjacent wetland area.

Critical Habitats

As part of our survey we have identified the endangered and threatened species and critical habitats within each of the nine counties participating in the grant. Reference the attached Endangered & Threatened Species map and the Endangered Species List for the State of Illinois. During our initial design process we have not entered any of the mapped habitats identified by the State of Illinois in the proposed area covered by the grant. During our detailed design process we will work with the State of Illinois Department of Natural Resources to identify and clearly delineate the sensitive areas in each county so they are not disturbed by the construction of the network.

Floodplain

No new buildings or structures are proposed to be built as part of this grant. Cable related infrastructure will pass through some of the flood plain area shown in the detailed maps that we have included with our proposal. The maps included for the six county Blackhawk Hills area are the most current State of Illinois maps that are available from the website <http://gismaps.sws.uiuc.edu/ArcGIS/services> that shows the 500 year floodplain in relation to our proposed fiber optic cable infrastructure. The Rockford and LaSalle county maps were created from the county GIS systems for the floodplain areas.

Fiber optic cables will be run underground through flood plain areas, usually as the cable crosses streams and rivers that are the source of the floodplain. All cables will be run in a manner well below the river bed and away from the banks so the cable is not subject to the effects of a flood event.



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Should an existing building be located in a floodplain area, we will work with local officials to place the cable in a manner that does not adversely affect the structure of the building during a flood event. In general, the fiber optic cable is not sensitive to the presence of water unless the running water causes physical damage to the cable.

Protected Land

Our preliminary surveys indicate that none of the buildings proposed for inclusion in this project is listed in or eligible for listing in the National Register of Historic Places, nor does the project impact property within or adjacent to a National Historic Landmark. During our detailed survey, we will request that each community review the status of all impacted buildings and if any are found to have historical relevance, all necessary and appropriate measures for protecting the integrity of these buildings will be taken. The project is not located on tribal lands.

Coastal Area

Not applicable to this project.

Brownfield

During our initial design process we have identified the brownfield areas within each of the nine counties participating in this grant (two of which, Jo Daviess and Lee counties, have neither brownfield nor Superfund sites within their borders). We have designed our middle mile network in such a way as to avoid disturbing any of the identified areas that may have the presence or potential presence of a hazardous substance, pollutant, or contaminant. In addition, we have provided lists, maps and the locations of sites, facilities and properties that have been contaminated by hazardous materials and are being, or have been, cleaned up under EPA's Superfund, RCRA and/or brownfields cleanup programs. See the list of locations for each county of the identified locations in our supplemental upload.



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Uploads

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

Upload Name	File Name	Uploaded By	Uploaded Date
Service Offerings and Competitor Data	CCI Service Offerings Competitor Data-1.xls	Stone, David	03/24/2010
Network Diagram	Network diagram.pdf	Stone, David	03/25/2010
Build Out Timeline	CCI Build-Out Timeline.pdf	Stone, David	03/26/2010
List of Community Anchors and Points of Interest	CCI Anchor Detail and POI Attachment.xls	Stone, David	03/24/2010
Management Team Resumes and Organization Chart	Management Team Resumes and Org Chart.pdf	Stone, David	03/24/2010
Government and Key Partnerships	Government and key partnerships.pdf	Stone, David	03/26/2010
Historical Financial Statements	NIUHistoricalFinancials.pdf	Stone, David	03/22/2010
Budget Narrative	IBOP-NW Budget Narrative.pdf	Stone, David	03/26/2010



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Detailed Budget	IBOP Detail of Project Costs.xls	Stone, David	03/26/2010
Pro-forma Forecast	NW BTOP pro formas.xls	Stone, David	03/25/2010
Subscriber Estimates	CCI Subscriber Estimates.xls	Stone, David	03/24/2010
Dashboard Metrics	IBOP-NW Dashboard Metrics.pdf	Stone, David	03/26/2010
Service Area Data	CCI Service Areas Attachment.xls	Stone, David	03/24/2010
Network Maps	Network map.pdf	Stone, David	03/25/2010
BTOP Certifications	BTOP Authentication and Certifications.pdf	Stone, David	03/24/2010
SF-424 C and D	SF424C.pdf	Stone, David	03/26/2010
Supplemental Information	Supplemental.pdf	Stone, David	03/26/2010