Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program

Submitted Date:	**Easygrants ID: 4521**
Funding Opportunity: Broadband Technology Opportunities Program	**Applicant Organization:** SHO-ME TECHNOLOGIES L.L.C.
Task: Submit Application - BTOP	**Applicant Name**: Daniel R. Webster

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	142605331
CCR # (CAGE)	3Q4M9
Legal Business Name	SHO-ME TECHNOLOGIES L.L.C.
Point of Contact (POC)	JOHN RICHARDS 4174682615 Ext. 3040 jrichards@shomepower.com
Alternate POC	DENISE STEVENS 4174682615 Ext. 2250 dstevens@shomepower.com
Electronic Business POC	JOHN RICHARDS 4174682516 Ext. 3040 jrichards@shomepower.com
Alternate Electronic Business POC	DENISE STEVENS 4174682615 Ext. 2250 dstevens@shomepower.com

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	
First Name	Daniel
Middle Name	R.
Last Name	Webster
Suffix	
Telephone Number	417-859-2615

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Fax Number	
Email	dwebster@shomepower.com
Title	Special Projects Coordinator

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Mark W., Keeling	4178592615 2520	mkeeling@shomepower.com

Environmental Point of Contact

Prefix:
Name: Dawson, Peter
Suffix:
Telephone Number: 4178592615
Title: Environmental Specialist

Organization Classification	
Type of Organization	Cooperative or Mutual
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	RICHARDS, JOHN

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Result	Applicant Authorized

Project Title and Project Description

Project Title: MoBroadbandNow "Sho-Me MO" Middle Mile Project

Project Description: The MoBroadbandNow "Sho-Me MO" Middle Mile Network presented by Sho-Me Technologies LLC will supply much needed broadband to the south-central parts of rural Missouri. The network includes 1380 miles of fiber optics passing through thirty counties. Designed to be completed in one year the $38M project will provide fast reliable and affordable access to various telecom transport technologies.

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

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
5662	The Southeast Missouri Comprehensive Communities Project
6519	Northern Missouri Ultra-High Capacity Middle Mile

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

Sho-Me Technologies, LLC is submitting this application concurrently with two other projects in an effort to provide broadband resources to North-Central, South-Central and South-Eastern areas of Missouri. Identified by Easygrant ID 6519, is the application of BlueBird Media. Sho-Me Technologies has come to know BlueBird while working with the State of Missouri toward a common goal to expand broadband communications services and infrastructure, to advance the objectives of the Recovery Act to spur job creation, and to stimulate long-term economic growth and opportunity for our communities. BlueBird has designed a project to construct an ultra-high capacity middle mile network throughout underserved and disadvantaged areas in North-Central Missouri. Their goal is to provide next generation bandwidth speeds at economically competitive

prices. Our hope is to interconnect a compatible South-Central network to BlueBird at key strategic locations in Missouri to provide a seamless, open access, transparent network for all potential users. The locations selected for interconnect points are Sedalia, MO and Washington, MO. We can also, and possibly will, connect in Jefferson City, MO. Identified by Easygrant ID 5662, is the application of Boycom Cablevision, Inc. Sho-Me Technologies has come to know BOYCOM too, while working toward a common goal to expand broadband. BOYCOM has designed a project to construct a similar network throughout underserved and disadvantaged areas in Southeast Missouri. Their goal is to provide next generation bandwidth speeds at economically competitive prices. Our hope is to interconnect a compatible South-Central network to BOYCOM at key strategic locations in Missouri to provide a seamless, open access, transparent network for all potential users. The locations selected for interconnect points are Winona, MO and possibly Alton, MO. In the event, that neither the application by BlueBird nor the application by BOYCOM receives an award, those particular regions of the State will be left in their current situation and the ARRA will not have provided accordingly. In turn, it makes it more difficult to provide wholesale access to project facilities, network elements and interconnections if technically feasible without exceeding capacity limitations cost efficiently. It also fails to encourage multiple providers to serve end-users through competitive pricing and terms. The network is to enable last mile providers and their customers to access the lawful content of their choice, run applications, and enjoy the benefits of real competition among network, application, content and service providers. It fails to improve the connectivity to schools and libraries and accelerated on-line learning. It fails to improve connectivity and interoperability between public safety and other government agencies. It fails to provide broadband infrastructure and transport to foster clean energy through Smart Grid/Green Grid energy management.

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?

- No, Applicant is subject to these requirements

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:

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Name	Title	Employer
Gary Fulks	General Manager	Sho-Me Technologies, LLC
John Richards	Chief Financial Officer	Sho-Me Technologies, LLC
Mark Keeling	Project Manager	Sho-Me Technologies, LLC

B. Executive Summary, Project Purpose and Benefits

Essay Question

Executive Summary of the proposed project:

An integral part of Governor Jeremiah (Jay) Nixon's vision for the State of Missouri's broadband future, the MoBroadbandNow "Sho-Me MO" middle mile project will dramatically increase the prospects for competitive last-mile broadband services throughout rural, underserved and unserved areas of the State where 93% of the proposed service territory is economically distressed. The network operator and Applicant, Sho-Me Technologies, LLC, is pleased to submit this application for the category of Comprehensive Community Infrastructure (CCI) focusing on middle-mile infrastructure funding under the NTIA BTOP program. This project is a public-private partnership, cooperatively developed with and fully supported by the State of Missouri and other key stakeholders in the State. The proposed network exemplifies precisely the type of project the Recovery Act apparently intended the respective agencies to support. The vast majority of Missouri is rural, with numerous small, isolated, rural communities whose very existence is threatened by the lack of affordable broadband services. Many of these areas are in economic decline. With the cooperation of a variety of public and private sector supporters, Applicant intends to create a broadband ecosystem in which broadband competition can flourish, giving previously underserved communities, businesses, and residents the opportunity to acquire fiber-based service at affordable prices. The proposed funded service area was developed in consultation with the State of Missouri and is referred to as "Sho-Me MO". With reference to detailed demographic and other data, Applicant has identified a network footprint that promises to reach areas of Missouri most in need of connectivity and reliability. The network encompasses

the southern central part of the state covering 30 counties by way of 1,380 miles of fiber optic cable. The network, operated by Applicant will provide state-of-the-art data transmission services on an aggressively open-access basis, for all last-mile broadband providers. Of the 229 communities represented in the 30 counties, 136 communities fall within a half mile of the proposed network. The fiber will be lit with Dense Wave-Division Multiplexing (DWDM) and Ethernet technologies. The technical design of the network and the underlying business plan reflect the intended purpose of the network, which is not to limit its use to certain favored entities or applications, but instead to be a pure "open access" network, with the facilities potentially shared among over 66,000 unrestricted business users and 260,000 households. There are over 6,000 health care and social assistance businesses in the service area, as well as, 140 school districts and 69 libraries. Applicant is an interexchange carrier certified by the Missouri Public Service Commission and adheres to the principles contained in the FCC's Internet Policy Statement. The network will not favor any applications and/or content over others, nor will it define the kind of services that can be offered by other providers. The choices of services are determined between the end user and their service provider. Applicant is a subsidiary of Sho-Me Power Electric Cooperative, an electric power generation and transmission cooperative that has served rural Missouri electric service cooperatives for 62 years. Applicant has provided middle-mile communications services in Missouri since 1997, and has a proven track record of success. For years, the network owned by Applicant has serviced the Education Network providing circuits to Missouri's K-12 schools, colleges, public libraries, health care, and affiliated organizations. The project will support and complement several other Recovery Act projects, including the DoE Smart Grid initiatives, the Title XIII health information technology initiatives, and the Title VIII education programs, among others. The network will conservatively connect 100 community facilities, public safety, and anchor institutions and many more via other last mile providers. The overall infrastructure cost of the planned system is $29,200,000. With contributed funds from Applicant, as described in the application, the total grant amount requested is $26,600,000. The value of the total project is $38,000,000 which includes an in-kind contribution from the Applicant of 880 miles of existing route miles of fiber. The population of the proposed funded service area is over 1,000,000 people. The initiative will expand broadband availability geographically to an additional 26% to 29% percent of the State of Missouri. It is estimated that approximately 288 job-years will be impacted by the project in the near term (e.g., fiber installation technicians, construction workers, etc.) and this project is expected to be complete in one year (12) calendar months. Please see attached map of Missouri for proposed coverage area.

Project purpose:

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To provide access to broadband service to consumers residing in "unserved" and "underserved" areas of the country. The thrust of the "Sho-Me MO" proposal is to enable open access fiber optic broadband access for rural Missouri. The network design for this project was developed in partnership with the State of Missouri. Approximately 100 community anchor institutions and critical community facilities will be connected directly to the fiber network while passing through 30 of Missouri's 114 counties. This approach offers an effective solution to the rural problem, and that this model can be effectively replicated to improve future projects. BTOP Priority: To provide broadband access, education, awareness, training, equipment, and support to community anchor institutions. With the active partnership of the State government and higher education, as evidenced by endorsement letters, this project has a decidedly public-sector focus. Schools, libraries, community colleges and other institutions of higher education are among the key stakeholders. By providing reliable connectivity and facilitating the use of broadband for economic development, the project provides an effective means to encourage broadband adoption by vulnerable populations that will help bolster economically challenged rural communities. BTOP Priority: To improve access to, and use of, broadband service by public safety agencies. This project connects 30 counties in Missouri ranging from some of the fastest growing to some of the poorest in the state placing them all on the fiber grid super highway, with overlapping benefits for local government facilities. BTOP Priority: To stimulate the demand for broadband, economic growth, and job creation. No one can say with certainty how many jobs might be created or saved in a given area by virtue of broadband deployment. What can be said is that without broadband, rural communities will not be able to create the sustainable economic future that will allow them to survive. Governor Nixon's MoBroadbandNow vision explicitly recognizes this fact, and has a stated goal of ultimately deploying fiber optic connectivity to every cluster of 50 households throughout the state. The current proposal – of which the State government is a partner -- represents a major step toward ensuring that rural communities across Missouri can and will benefit from the economic growth and job creation broadband connectivity can enable. The estimated number of job-years impacted by "Sho-Me MO" is 288. The MoBroadbandNow team will partner with the Missouri Department of Education to explore ways to extend the Recovery Act's Title VIII Department of Education programs to students and parents over the network. These include Special Education Opportunities funded through the Individuals with Disabilities Education Act (IDEA) and education for the disadvantaged related to Title I of the Elementary and Secondary Education Act of 1965, as well as addressing the Innovation and Improvement section of the Act. Children: The MoBroadbandNow initiative will work with the Missouri Department of Social Services to explore collaboration opportunities to extend the reach of the Recovery Act's Title VIII Department of Health and Human Services

programs to residents using the fiber network, including extending the reach of the Early Head Start program in the proposed service area, and working to improve access to training, technical assistance, and program monitoring.

Recovery Act and Other Governmental Collaboration:

The project supports and complements several Recovery Act projects including the DoE Smart Grid initiatives, the Title XIII health information technology initiatives, and the Title VIII education programs. With the active partnership of the State government and higher education this project has a decidedly public-sector focus. Schools, libaries, medical providers, community colleges and other institutions of higher education are among the key stakeholders. By providing improved connectivity for low-income areas and facilitating the use of broadband for economic development, the State and Sho-Me Technologies will provide an effective means to encourage broadband adoption by vulnerable populations. The proposed network will strengthen the statewide health information technology infrastructure, such as the Missouri Telehealth Network (a project supported by the FCC's Rural Health Care Pilot Program). The network will enable the electronic exchange and use of health information among health care components for the Recovery Act's Title XIII, Health Information Technology section. Of Missouri's 524 public K-12 school districts, 416 (80%) are in rural areas and have fewer than 2000 students. These K-12 systems will be directly aided by the connectivity options presented by this network. Special Education Opportunities funded through the Individuals with Disabilities Education Act (IDEA) and education for the disadvantaged related to Title I of the Elementary and Secondary Education Act of 1965, as well as addressing the Innovation and Improvement section of the Act will be explored. The initiative will work with the Missouri Department of Social Services to explore collaboration opportunities to extend the reach of the Recovery Act's Title VIII Department of Health and Human Services programs to residents using the fiber network, including extending the reach of the Early Head Start program in the proposed service area, and working to improve access to training, technical assistance, and program monitoring. Sho-Me Technologies'parent company, Sho-Me Power Electric Cooperative has helped enable many distribution cooperatives implement a smart grid network. Sho-Me anticipates undertaking more advanced smart grid development as an active participant in other programs as set forth in the federal Energy Independence and Security Act of 2007 and the Recovery Act. In cooperation with the Missouri Department of Transportation and the federal Department of Transportation, the network will provide needed support for the development of intelligent highway initiatives and other projects for which an advanced communications infrastructure is required. The team will work with the Missouri Department of Labor to explore how the network can be used to

extend the Recover Act's Title VIII DoL programs for dislocated workers under the Workforce Investment Act of 1998 and the Community Service Employment Training for Older Americans under the Older Americans Act of 1965.

Fit with BTOP CCI Priorities:

The thrust of the MoBroadbandNow "Sho-Me MO" Middle Mile proposal is to enable open access fiber optic broadband connectivity for rural Missouri that is primarily underserved. The design for this project was developed in partnership with the State of Missouri. At least 100 community anchor institutions and critical community facilities will be connected directly to the fiber network while passing through 30 of Missouri's 114 counties. This approach offers an effective solution to the rural problem and this model can be replicated to improve future projects. With the active partnership of the State government and higher education this project has a decidedly public-sector focus. Schools, libraries, community colleges and other institutions of higher education are among the key stakeholders. By providing reliable connectivity and facilitating the use of broadband for economic development the project provides an effective means to encourage broadband adoption by vulnerable populations that will help bolster economically challenged rural communities. This project connects 30 counties in Missouri ranging from some of the fastest growing to some of the poorest in the state placing them all on the fiber grid super highway with overlapping benefits for local government facilities. No one can say with certainty how many jobs might be created or saved in a given area by virtue of broadband deployment. What can be said is that without broadband rural communities will not be able to create the sustainable economic future that will allow them to survive. Governor Nixon's MoBroadbandNow vision explicitly recognizes this fact and has a stated goal of ultimately deploying fiber optic connectivity to every cluster of 50 households throughout the state. The current proposal represents a major contributory step toward ensuring that rural communities across Missouri can and will benefit from the economic growth and job creation broadband connectivity can enable. The estimated number of job-years impacted by the "Sho-Me MO" is 288. The MoBroadbandNow team will partner with the Missouri Department of Education to explore ways to extend the Recovery Act's Title VIII Department of Education programs to students and parents over the network. These include Special Education Opportunities funded through the Individuals with Disabilities Education Act (IDEA) and education for the disadvantaged related to Title I of the Elementary and Secondary Education Act of 1965 as well as addressing the Innovation and Improvement section of the Act. The MoBroadbandNow initiative will work with the Missouri Department of Social Services to explore collaboration opportunities to extend the reach of the Recovery Act's Title VIII

Department of Health and Human Services programs to residents using the fiber network including extending the reach of the Early Head Start program in the proposed service area and working to improve access to training, technical assistance and program monitoring.

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:

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: Third party in-kind contributor
Name: Fulks, Gary
Phone: 4178592615
Email: gfulks@shomepower.com
Address 1: P.O. Box D
Address 2:
Address 3:
City: Marshfield
State: Missouri
Zip Code: 65706
Organization: Sho-Me Power Electric Cooperative
Organization Type: Cooperative or Mutual

Small business: No Socially and economically disadvantaged small business concern: No
Project Role: Other Name: Blesi, Dan Phone: 5737324415 Email: 732news@crawfordelec.com Address 1: 10301 North Service Rd., P.O. Box 10 Address 2: Address 3: City: Bourbon State: Missouri Zip Code: 65441 Organization: Crawford Electric Cooperative, Inc. Organization Type: Cooperative or Mutual Small business: No Socially and economically disadvantaged small business concern: No
Project Role: Other Name: Greenlee, John Phone: 5737597146 Email: greenlee@yhti.net Address 1: 803 Hwy. 28 S., P.O. Drawer G Address 2: Address 3: City: Dixon State: Missouri Zip Code: 65459 Organization: Gascosage Electric Cooperative Organization Type: Cooperative or Mutual Small business: No Socially and economically disadvantaged small business concern: No
Project Role: Other Name: Singletary, Dan Phone: 4172562131 Email: dsingletary@hoecoop.org Address 1: 6327 N. US 63, P.O. Box 649 Address 2: Address 3: City: West Plains State: Missouri

Zip Code: 65775
Organization: Howell-Oregon Electric Cooperative, Inc.
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Cartwright, Dwayne
Phone: 5736742211
Email: dwayne.cartwright@ieca.coop
Address 1: 102 Maple, P.O. Box 209
Address 2:
Address 3:
City: Licking
State: Missouri
Zip Code: 65542
Organization: Intercounty Electric Cooperative Association
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Miller, Kenneth
Phone: 4175323164
Email: kmiller@lacledeelectric.com
Address 1: 1400 E. Route 66, P.O. Box M
Address 2:
Address 3:
City: Lebanon
State: Missouri
Zip Code: 65536
Organization: Laclede Electric Cooperative
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Carpenter, Jim
Phone: 4179243243
Email: jcarpenter@semano.com
Address 1: 601 N. Bus. 60 Hwy., P.O. Box 318
Address 2:

Address 3:
City: Mansfield
State: Missouri
Zip Code: 65704-0318
Organization: Se-Ma-No Electric Cooperative
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Ashworth, James
Phone: 4173265244
Email: jashworth@swec.coop
Address 1: 1023 S. Springfield, P.O. Box 150
Address 2:
Address 3:
City: Bolivar
State: Missouri
Zip Code: 65613
Organization: Southwest Electric Cooperative
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Houston, Tom
Phone: 4178592216
Email: houston@websterec.com
Address 1: 1240 Spur Road, P.O. Box 87
Address 2:
Address 3:
City: Marshfield
State: Missouri
Zip Code: 65706
Organization: Webster Electric Cooperative
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Hamon, Chris
Phone: 4173359335

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Email: chamon@whiteriver.org
Address 1: East Highway 76, P.O. Box 969
Address 2:
Address 3:
City: Branson
State: Missouri
Zip Code: 65615
Organization: White River Valley Electric Cooperative, Inc.
Organization Type: Cooperative or Mutual
Small business: No
Socially and economically disadvantaged small business concern: No

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

Sho-Me Power Electric Cooperative – Sho-Me Power Electric Cooperative in Marshfield, MO provides service to 126 distribution and transmission substations through 1,428 miles of 69 kV electrical transmission line, 373 miles of 161 kV line and 139 miles of 161 kV line owned by others. Sho-Me Power also operates and maintains 228 miles of AECI owned 345 kV line and three 345 kV substations. Nine Rural Electric Cooperatives own Sho-Me Power. These Rural Electric Cooperatives are a part of the local community, staffed by local people. Sho-Me Power owns a subsidiary called Sho-Me Technologies LLC, which operates an advanced optical network spanning electric transmission lines in Missouri. What began as an upgrade to an extensive internal communications network has grown into a fiber optic system that encompasses over 120 Points of Presence. Sho-Me Power owns the fiber within the electrical service territory. Outside the territory, Sho-Me Technologies owns its own fiber. In this project, Sho-Me Power will be providing 880 miles of its glass as an in-kind contribution to Sho-Me Technologies to be used for stimulus broadband. Sho-Me Power is also the partner supplying the cash match contribution of this project.

Crawford Electric Cooperative, Gascosage Electric Cooperative, Howell-Oregon Electric Cooperative, Intercounty Electric Cooperative, Laclede Electric Cooperative, SEMANO Electric Cooperative, Southwest Electric Cooperative, Webster Electric Cooperative and White River Electric Cooperative are all rural electric cooperatives in Missouri that understand the importance of access to high-speed broadband and the huge impact it makes in the lives of member-owners. While each has had a part in fiber optics over the past thirteen years including designing, installing, maintaining and owning fiber optics into a member's place of business, a

home, or into an electrical substation, one thing is common among all these, more is needed. There are areas in each electrical system where communities have electricity, but they do not have a fiber optic backbone that is accessible and affordable for all to access. Having worked with fiber optics over the years, technical expertise has been acquired and therefore, a project like the MoBroadbandNow "Sho-Me MO" Middle Mile Project can be successful now and for future generations to come. The distribution cooperatives will aid in the construction of new fiber optic lines, will make poles available in order to maximize cost efficiencies of aerial construction, and will provide community involvement/support by being one of the leading organizations in these rural communities. Broadband communications is needed for virtually every industry, and the electric industry is no exception. As a partner with Sho-Me Technologies, the cooperatives have a vested interest in helping rural Missouri maintain quality of life. After stimulus has come and gone, the cooperatives will be left to do whatever they can to help those without. This BTOP project will go a long ways toward filling those holes. The project has been designed to take advantage of what exists and to extend it into areas where it does not exist, and in the process strengthening the system for everyone. Reliability is key and that is why the distribution cooperatives can support this design since so many rings are formed that can provide ultimate reliability for all applications. It is not just about keeping the lights on any more. It is about keeping everything on. Maintaining a constant supply of Internet access is vital toward keeping the communications open at all times minimizing the impact of emergencies and broadening awareness. Electricity and telecommunications go hand in hand these days and Smart Grid is a prime example. The partnership between all these entities will be able to achieve that which is desired, a network that enables.

D. Congressional Districts

Applicant Headquarters

- Missouri

Project Service States

Missouri

Project Service Areas

Missouri - 4

Missouri - 6

Missouri - 7

Missouri - 8

Missouri - 9

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

Project Details

Service Area Type: Middle Mile
Service Area Name: Sho-Me MO Middle Mile
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

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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: **20,011**
Total Population in Proposed Service Area: **1,042,225**
Total Number of Households in Service Area: **260,574**
Total Number of Businesses in Service Area: **66,926**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **8,996**
Unemployment Rate in the Service Area: **89**
Median Income in the Service Area: **31,036**
Estimated Percentage of Households with Access to Broadband: **70**
Estimated Percentage of Households Subscribing to Broadband: **61**

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	31
Libraries	36
Medical and Healthcare Providers	5
Public Safety Entities	2
Community Colleges	3
Public Housing	0
Other Institutions of Higher Education	5
Other Community Support Organization	0
Other Government Facilities	18

TOTAL COMMUNITY ANCHOR INSTITUTIONS	**100**
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?	66
How many indirect jobs will be created from this project?	118
How many jobs will be induced from this project?	104

Methodology used to estimate jobs:

The methodology used to produce the job-years estimate was taken from the Council of Economic Advisor's guide to job creation estimates. The Direct job-years was calculated by adding the number of full time employees (FTEs), which is 3, to the number of contractors hired to perform the construction, which is 30, and multiplied this by the number of years remaining until the end of 2012 to give a total of 66 Direct job-years. The number of Direct and Indirect job-years equals 64% of the total job-years. The number of Induced job-years equals 36% of the total job-years.

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Project Impact:

The impact that Sho-Me Technologies has made in rural Missouri over that last decade has been tremendous. The proposed project applied for in this grant will continue to comprehensively meet the needs of the communities, businesses, schools, governments and other anchor institutions located in the proposed funded area. This will be accomplished by providing open access to existing customers seeking to expand broadband services into the newly funded area and also providing new customers with the same access to new and expanded broadband services.

As an existing telecommunications and data carrier, Sho-Me Technologies has an existing infrastructure, experience in providing broadband services and the interconnections with other broadband providers necessary to fulfill the needs for rural broadband service offerings by bringing fiber optic based middle mile facilities to the proposed service area. The five primary industries currently served by the Sho-Me Technologies fiber optic network are education, government, healthcare, banking and telecommunications carriers. If the proposed project is awarded, we will continue to work with these anchor institutions along with other carriers and last mile providers to bring high-speed broadband services into under-served and non-served areas.

Sho-Me Technologies will provide an open access, middle mile fiber optic network, expanding our existing network already in place. This expanded network will provide the needed bandwidth for other middle mile providers, last mile providers and end users to add new services The network proposed will utilize Dense Wave Division Multiplexing equipment capable of delivering forty 10 Gigabit per second optical wave length channels. On day one of completed implementation, five 10 Gigabit per second channels will be available. This will provide ample availability for the projected bandwidth needs in the new markets, plus a robust growth plan. The points of access planned for this network far exceed any available access points currently operating in the proposed funded area. Most points of access for a network of this caliber are located in large cities and are collocated with central offices and Telco hotels. Although the Sho-Me Technologies network has Points of Presence in these types of facilities, we operate the vast majority of our network access points in rural communities. The network upgrades and expansions planned for the proposed funded area are no different. Most of the locations that the Points of Presence will be located in are small, rural communities that would be classified as under-served and non-served.

Another advantage to the existing Sho-Me Technologies network and the proposed area expansion is the availability of Ethernet services. Sho-Me Technologies has been providing long-haul Ethernet services since 1999. These services greatly enhance the ability to carry data over

the network. Currently, Sho-Me Technologies carries Ethernet circuits for banking, education, healthcare, Internet Service Providers, small business and government entities. This enhanced service is scalable, robust, less expensive than tradition transport and the first choice of most of our customers.

Internet Service Providers such as Your Home Town Internet (YHTI) can create an Ethernet environment on our network that makes it possible to share bandwidth among multiple locations. This creates an environment of dynamic bandwidth allocation. Not only does this increase the ability to provide Internet bandwidth when needed, it also reduces expenses by reducing the need for dedicated services that may not be utilized at all times. By expanding the Sho-Me Technologies network into the proposed area, we will be able to offer existing Internet Service Providers expansion into more areas and make it possible for new Internet Service Providers to begin offering their services by utilizing new, open access Points of Presence. As a result of this application, YHTI has requested Sho-Me Technologies provide service to thirteen new service areas if the grant is awarded.

Educational institutions such as the University of Missouri's MOREnet system utilize the Sho-Me Technologies Ethernet network to deliver their services to schools and universities in much of southern Missouri. In the past, MOREnet used multiple DS-1s bonded together to provide higher bandwidth circuits. By using Ethernet, the circuits can be scaled very easily and the costs are not linear as with DS-1s. By expanding the Sho-Me Technologies network into the proposed area, we will have the ability to provide more of these types of circuits for MOREnet, expanding their reach to schools and colleges, reducing their costs and improving their service offerings. By expanding the existing network into the proposed funded area, Sho-Me Technologies will be able to add twenty-seven school districts to the MOREnet network.

Government anchor institutions such as the Office of State Courts Administrator (OSCA) for Missouri utilize the Sho-Me Technologies Ethernet network to deliver their services to 114 county courthouses in the state along with other court facilities. OSCA is very excited about the possibility of Sho-Me Technologies providing fiber optic based Ethernet services to more county courthouses. Currently, in locations where Sho-Me Technologies does not have backbone and last mile facilities, last mile copper connections must be used. These connections are the least reliable part of the network and do not offer the scalability and cost savings Ethernet provides. By expanding the existing network into the proposed funded area, Sho-Me Technologies will be able to add four court houses to the OSCA network. These additions will allow the court system of those counties to realize the same reliability and high bandwidth availability other counties that are currently connected to the Sho-Me Technologies network enjoy.

Another anchor institution Sho-Me Technologies works with is the Missouri Department of Transportation (MODOT). Currently, Sho-Me Technologies provides both lit fiber optic services and dark fiber for MODOT. We receive requests on a regular basis to provide additional services for MODOT, but many of these requests are for areas that fall outside of our current footprint. There are ten MODOT district offices in the state of Missouri. Three of these are currently service with fiber facilities. With the addition of the proposed coverage area, four more MODOT district offices can be service with fiber optic facilities.

In addition to the above mentioned anchor institutions, another area where Sho-Me Technologies excels in providing fiber optic service is in the Cellular industry. Currently Sho-Me Technologies provides fiber optic services to over 390 cellular towers. The majority of these towers are located in rural areas where adequate copper facilities are barely available.

This fiber optic connectivity is of great value to the cellular industry. With the advent of data applications provided over the cellular network, more and more bandwidth is required at the cellular towers. The only logical way to provide this high bandwidth is over fiber optic facilities. Sho-Me Technologies is asked almost on a daily basis to reach more towers with our network. Many of these requests are for cellular towers that are outside of our current network. Providing reliable, high bandwidth, fiber optic facilities to cellular towers has not only improved the service that cellular providers can offer their customers, it has also greatly improved reliability which improves public safety and boosts telecommunications and data activities in the rural areas. By expanding the existing Sho-Me Technologies fiber optic network into the proposed funded area, we will have the ability to add at least sixty-three more cellular towers to the our fiber optic network.

As part of the proposed area project, Sho-Me Technologies will also be interconnecting to two other middle-mile providers in the state, BlueBird Media and Boycom Cablevision. Both of these companies are expanding their middle-mile networks in parts of the state where Sho-Me Technologies does not operate. This interconnection, along with existing interconnections Sho-Me Technologies has with other service providers, will afford the opportunity for last mile providers to have continuity in their networks creating ubiquitous coverage across most of the state of Missouri.

As demonstrated above, Sho-Me Technologies has the knowledge and experience needed to provide high-speed, fiber optic delivered broadband services into the proposed funded area. Since we already operate a 100% fiber optic based network, it is a logical choice to expand this network into the adjacent proposed funded area allowing Sho-Me Technologies to offer these broadband services to more un-served and under-served communities, business, schools, governments and other anchor institutions.

Vulnerable Populations:
The project covers almost 30% of the land base of Missouri. Within that area of geographical region is 30 counties, 229 communities, over 260,000 households and approximately 66,000 businesses. All the counties, except two, are rural and economically distressed which reprsesents 93% of the service territory proposed.

Level of Need:
In 1997, Sho-Me Technologies began offering fiber optic broadband services to rural Missouri. The reason for beginning this endeavor was simple: offer the people in the communities we serve access to services that were either not available or were so cost prohibitive they were not feasible. The result was a phenomenal response from businesses, schools and government for high quality, fiber optic based data and telecommunications. The ability to acquire these services from Sho-Me Technologies has resulted in increased economic growth, higher quality service offerings from new and existing businesses, the ability to compete with like industries located in urban areas and retention of a high quality work force located in rural Missouri.
These are results, not projections. Real success stories which have been produced over and over during the past decade. There has been and still is a tremendous desire from the communities we serve for access to the same high quality broadband which is available in more urban areas. Our reach into these communities has been an incredible success, but our work is not done. We have found that as we reach further into the rural areas, the need is still great and there are still un-served and under-served communities which have not been fully reached.
As Sho-Me Technologies has grown; we have found there are five primary industries that have greatly benefited from the broadband services we provide: banking, healthcare, education, government and telecommunications carriers. Each of these industries has a far reach into rural Missouri, no matter how small the communities are and they all have a positive impact on the economic growth and strength in the areas they serve. Due to the stability and permanency of these types of broadband users, these industries have by default become the anchor institutions of Sho-Me Technologies.
When Sho-Me Technologies began offering services, the first users to come forward needing access to broadband were three rural school districts, a rural telephone company, an Internet Service Provider needing to provide service for three small communities without Internet access and two small-town banks. Even though our beginning was small and humble, these early adopters of our network put trust in us to come to their communities and bring them the broadband they desperately needed. It wasn't long until word grew concerning the successes of Sho-Me Technologies and what we were doing in rural Missouri.

Since our beginning, word-of-mouth has been the primary method for businesses and individuals to learn about our services. This is a true testament to our success in doing what many thought was impossible: making fiber optic services available to businesses in rural Missouri even before those services were readily available in the urban areas. As time passed, more and more businesses were asking how they could get on our network. There were several cases where people would actually follow our construction crews and ask them how to get in touch with us. This is how desperate the need was. Even though our methods for reaching new prospective users has become more organized over the years, people needing high-speed broadband still seek us out for services.

There are several success stories surrounding Sho-Me Technologies and how we have brought high-speed, fiber optic broadband to rural Missouri. There are schools which have access to the Internet in ways not possible in many urban communities, hospitals with telemedicine applications, Internet Service Providers offering broadband to small communities and businesses which have grown due to broadband access. All of these stories have one thing in common, access to fiber optic facilities provided in rural areas.

Success Story #1

Sho-Me Technologies was approached by the Richmond-Monroe Group in Kimberling City, MO. Kimberling City is a small town of about 2,400 people with a primary industry of tourism. The area provided Richmond-Monroe Group with an available employee base, while allowing them to escape the urban environment.

The owners of Richmond-Monroe Group were in the process of building a new call center and needed access to high-speed Internet and low cost telecommunications services. They had heard about Sho-Me Technologies after talking to a local equipment reseller. Sho-Me Technologies was recommended because we could help with the services they needed and we had an excellent reputation for doing so.

During the first meeting with the owners, the question was asked, "What does Richmond-Monroe do?" The answer wasn't what was expected. Since Richmond-Monroe performs document research pertaining to real estate transactions all over the United States, the expected response would have been something promoting their line of business. However, the owner said that what they do is provide good jobs and benefits for 200 full time employees. This speaks volumes coming from a business owner who operates in an area dependent upon seasonal tourism.

Since Sho-Me Technologies owned fiber optic facilities within just a few yards of the proposed new building site and with the connection we had to Internet and telecommunications services, a natural fit was found. Sho-Me Technologies started providing high-speed Internet bandwidth

over fiber optic facilities, along with services provided by a Competitive Local Exchange Carrier. Combining these two services provided Richmond-Monroe Group with the reliable service and edge they needed to compete with their urban peers, while remaining in the rural area where they had chosen to locate their business.

Success Story #2

Commercial Sewing is located in Phillipsburg, MO, population 226, where they produce boat covers for several area boat manufacturers. In 2005, the owners of Commercial Sewing were notified that in order to continue providing their products to one of their customers, they would need to have high-speed Internet. This connection would be used to facilitate ordering, specification changes, delivery, etc. The only problem was, there was no high-speed Internet available in Phillipsburg.

The owners looked at several options for broadband Internet. Some options would not work and others were far too expensive. As a contingency plan, the owners of the facility were looking at relocating to a city 15 miles from their current location. This move would be costly, but they could not afford to lose the revenue from such a large customer.

The plant manager approached the local electric cooperative and asked if there was anything they could do. Working with Sho-Me Technologies and a local Internet Service Provider, fiber optic facilities were built and a high-speed Internet connection was established. Commercial Sewing was able to meet the requirements of their customer and continue to operate in the rural community where they began.

Success Story #3

Texas County Memorial Hospital is a small regional hospital located in Houston, MO. They operate a small clinic in Licking, MO, approximately 15 miles away. Even though this is just a few miles, from a telecommunication standpoint, it may as well have been hundreds of miles away.

In order to pass patient records, the hospital required a data connection between the two facilities. The two towns are divided by a LATA (Local Access and Transport Area) boundary. This required the hospital to purchase a circuit that was carried by an Interexchange Carrier and the circuit had to go though Kansas City. This was very expensive and was also unreliable at times.

The hospital approached the local electric cooperative to see if they could help since they knew fiber optic facilities were being installed in the area. Sho-Me Technologies worked with the hospital to develop a solution for their data needs. In 1999, at a point when Ethernet over fiber optics was scarcely available in large cities, Sho-Me Technologies provided the hospital with a

10 megabit per second Ethernet connection between the two facilities. This high-speed connection was 180 times faster than their previous solution and it actually cost them less. This connection was a milestone for Sho-Me Technologies as it was the first long distance Ethernet connection between two commercial locations.

Since that time, Texas County Memorial Hospital has grown their operation to include clinics in Cabool and Mountain Grove, MO. Both of these locations, along with the location in Licking, now have 100 megabit per second circuits between them. These connections are 1,800 times faster than the original circuit between Houston and Licking, cost less than the traditional connection did and create a data environment where all four locations operate as if under one roof allowing physicians and patients alike to reap the benefits of the technology.

Level of Need

So how does this affect the degree of need in our application? As stated before, the work of Sho-Me Technologies is not done. During the past 12 years, over 2,500 miles of fiber optic cable has been placed. Schools, hospitals, businesses and governments have been served and thousands of people in rural Missouri have been positively impacted by the work of Sho-Me Technologies. This work has increased the quality of education, government efficiency, patient care, economic growth and development and helped move rural Missourians into the information age.

Sho-Me Technologies is seeking to continue this growth into adjacent areas of the state of Missouri and to reinforce our fiber optic backbone in order to expand high-speed broadband coverage to even more un-served and under-served areas. We continually have Internet Service Providers and other data and telecommunications users request connections into areas we currently do not serve. Many of these areas are very close to our current coverage area and are included in this application.

The rural areas where we are proposing expansions are much the same as the areas we have already covered. Access to high-speed, fiber optic delivery of broadband services is very limited if not impossible to obtain. This is obvious by the number of potential users who approach us on a regular basis requesting we carry them into these proposed service areas. Wireless Internet Service Providers such as Your Home Town Internet of Washington, MO, are continually seeking to expand their service area and offer high-speed Internet, but are limited by the available bandwidth facilities and the cost of deployment. State and local governments and education institutions have requested services from Sho-Me Technologies into these proposed funded areas due to the lack of other viable options for high-speed bandwidth. This lack of available bandwidth is evident when incumbent local exchange carriers (ILEC) have contracted with Sho-Me Technologies to deliver middle mile, fiber optic services into the very exchanges they serve in order to provide high capacity backbone connections to the Internet. If these

facilities were readily available, the ILEC would use their own means for bringing the middle mile connection, however, in many cases it is just not available except through what Sho-Me Technologies has accomplished.
Since Sho-Me Technologies has already deployed a fiber optic based network and has operated this network for over a decade, expanding this existing infrastructure is the most efficient means to increase high-speed, broadband middle mile capabilities to adjacent un-served and under-served areas. With the success rate and experience already gained in providing rural data and telecommunications, the expansion of an existing network is the best and most logical choice for further proliferation of broadband services into rural Missouri.

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:

Substantial data exists regarding the current access to Internet service and the acquisition of broadband Internet services among different economic and demographic segments of the U.S. Population.

- Mediamark Research and Intelligence (MRI), for example, regularly track Internet access and use in the United States. It also tracks key economic and demographic data for survey respondents, and can correlate adoption of broadband Internet service to these key influences.
- Another example is the Pew Center which regularly tracks the adoption of broadband Internet use in the United States. Its 2009 study indicates that 63 percent of U.S. homes have broadband Internet, up from 57 percent in the previous year. The Pew Center studies also provide correlations between broadband Internet access and key economic, demographic, and geographic characteristics.

While the information above provides detailed and statistically-valid results at the U.S. level, it does not provide detailed results for individual communities, census tracts, or smaller geographic

areas. The challenge is to estimate broadband Internet access and acquisition data at a small geographic area, such as a census block group, without completing a census of each and every block or a block group. A census effort would be extremely time consuming and economically infeasible.

The decennial U.S. census provides detailed economic and demographic data for U.S. households and publishes that information at the census block group (BG) level. A number of services, including Demographics Now, provide estimates of this data on an annual basis in the intervening years between censuses.

As an alternative to an infeasible census of every block or block group to determine current broadband access and acquisition data, the application of statistically-valid correlations between Internet access and local demographics and economics can provide reasonable estimates of broadband access at a small geographic level (such as block groups) for planning and policy making purposes. Furthermore, completion of field studies for a small number of block groups or blocks within a block group can validate the results of this methodology or identify adjustments that may be required.

The process of applying validated data from a sample of sub-segments to the broader population is somewhat akin to the process of matching early voting returns to exit polling to validate polling results and predict election results. This process uses complete data from a small sample of geographies to verify that the exit polling samples are providing accurate results for the broader population.

Additionally information has been secured from OSEDA.com and MERIC-the Missouri Economic and Research Center.

Description of Network Openness:

Applicant is an interexchange carrier certified by the Missouri Public Service Commission. The technical design, as well as the underlying business plan, reflects that the intended purpose of the network is not to limit its use to certain favored entities or applications, but instead to share this resource among an unrestricted numbers of users. The network is commercially available to both public and private entities. It adheres to the principles contained in the FCC's Internet Policy Statement. It does not show favoritism to any applications and/or content over others, nor does it define the kind of services that can be offered by other providers. The choices of services are determined between the end user and their service provider, not this Applicant. However, Applicant will not be a party to service-based network management. Instead, Applicant merely provides the infrastructure, network, and other related facilities to allow those connections to be made. This Applicant is not a service provider, but is a carrier of transport infrastructure which

operates in accordance with all applicable statutes, rules and regulations. The network management and open access policies are publicly available on the Applicant's website, and are set forth within the terms and conditions provided to users requesting access to the network. These policies state that Applicant agrees to submit to binding arbitration for any disputes relating to these network management and open access policies. As a final point, Applicant is presently interconnected with several other carriers and has Points of Presence (POPs) in major Telco Hotels in Missouri.

System Design:

The network is designed for the purpose of serving rural underserved areas of Missouri with middle mile access. Approximately 500 miles of fiber will be constructed and 880 miles dedicated in forming the network. Along the routes, telecom shelters will be placed where space does not currently exist to house the electronic equipment which enables DWDM and Ethernet utilization. Sho-Me Technologies, LLC is not a service provider, but is a carrier that provides neutral, open access to other service providers and users.

The fiber optic middle mile project is critical for delivering a backbone from which other service providers can deploy advanced telecommunications. Sho-Me Technologies has business relationships with the majority of telecom companies in the State of Missouri and also has interconnected ties into seven other surrounding states. With connectivity also present in the major "Telco Hotels" in the state, a multitude of services can be made available to most of rural Missouri through the fiber optic backbone.

Sho-Me Technologies has chosen to propose a fiber optic network to serve the needs of the service area because of the flexibility and capacity of fiber optics. The amount of bandwidth available over fiber far outweighs that of other mediums such as copper, coax, or wireless. Having the fiber and additional capacity will allow those institutions that need more bandwidth than the average user to readily obtain it.

The fiber construction is comprised of both aerial and underground installation. The aerial portion will consist of approximately 20 miles optical ground wire and 190 miles of all dielectric self supporting cable hung on electric utility poles. The underground portion of the construction will consist of about 290 miles.

The routes were selected in order to steer clear of non-rural areas and to focus on the underserved areas of Missouri. However, it is necessary to pass through some of the served areas to close in routes for the best network design. Based on the attached census data map, the purple color represents areas where 10% or less of the population is served. The green represents areas where between 10% and 50% of the population is served. The red are those areas where more

than 50% of the population is served. Most of the land mass of Missouri is clearly underserved. The data was gathered from maps provided by the State of Missouri. The fiber route selected by Sho-Me Technologies is also an extension of 13 years experience in the state delivering telecommunications to rural areas. There is still much to do and the ARRA simply expedites the process.

Dense Wavelength Division Multiplexing (DWDM) enables Sho-Me Technologies to accommodate many hundreds of aggregated services of any sub-rate protocol. It is therefore the choice for the highest-bandwidth applications, such as 10GbE, 40G, and 100G in the future. It is also the technology necessary for regional transport. The ADVA FSP 3000 provides a multi-haul solution for high-capacity optical transport over regional and nationwide distances. Multiple reconfigurable node configurations support flexible network topologies at 10G and 40G per optical channel. The DWDM has been designed in a mesh topology to allow for DWDM traffic to have added redundancy and to be traveling over every fiber span and give multiple access points. Sho-Me Technologies will install approximately 31 DWDM sites forming 39 span segments passing through 30 counties covering a surface area of 20,011 square miles in Missouri. This equates to 29% of the state. This also includes 229 communities, of which, 136 fall within 1/2 mile of the fiber route. The population is 1,042,295 based on the 2000 Census. The DWDM network will be deployed with capability of 40 lambdas at 10 Gb/s on each span. Five channels will be utilized to offer a mixture of Gigabit Ethernet, OC-48 SONET, and 10 Gigabit Ethernet or OC-192 SONET services to the anchor institutions or other services providers. In the event that all the existing ports will be used up, the network can be expanded simply by adding more modules to utilize the remaining lambdas. Should future services such as 40 Gb/s and 100 Gb/s be needed, the only things needed will be the modules and possibly some amplifier and/or dispersion compensation change outs. The existing chassis and modules can still be utilized.

The Telco Systems T5C line of Ethernet switches provides high performance in a super-compact enclosure. This versatile product family is ideal for regional and metro access rings supporting applications such as video, VoIP, and data aggregation. Deployment of Regional and Metro-Ethernet rings becomes increasingly popular due to its efficiency, costs savings, and flexibility. Ring architecture allows for multiple services to be consolidated, transported, and dropped/inserted as needed. The inherent redundancy, resiliency, and re-routing capabilities of the ring technology will result in increased reliability and high availability of the network.

The Gigabit Ethernet network will be utilized to offer sub-gigabit services. At some point the utilization of this network will reach a point where adding more customers/bandwidth to it will cause a decline in the service that is offered. Sho-Me Technologies will be closely monitoring

the network and when that point is getting close, an additional Gigabit Ethernet network can be deployed using additional channels on the DWDM network.
The network will pass about 100 anchor institutions. The fiber route will be constructed so that these sites lay right on the path. Fiber will be ran into the building thus bringing the anchor institutions "on-net" and allowing services to be easily delivered to them. Each location will have an Ethernet switch installed and actively running as part of the Gigabit Ethernet network. For those locations that need more bandwidth, additional fibers can be used back to the closest point-of-presence to access the DWDM network.

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	26,600,000	11,400,000
Total	26,600,000	11,400,000

Project Budget Total: $38,000,000

Match Percent: 30.0%

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	Applicant is providing a cost match of 30 percent of the total eligible

	cost of the project. The match is shared between a cash contribution of almost 7% of the total eligible cost of the project and an in-kind contribution of 23% of the total eligible cost of the project. The cash match will be provided by Sho-Me Power Electric Cooperative. The amount is $2,600,000. The cash match will reside in a financial account held by Applicant and will be used as directed by the program. The in-kind match of 880 route miles of 4 dark fibers will be provided by Sho-Me Power Electric Cooperative and will be set aside or dedicated to the project to support the stimulus DWDM and Ethernet connectivity to the CCIs and others. The value of the in-kind match is based on a real case scenario where a pair of dark fibers for a similar distance was awarded to an educational institution in the form of an IRU for $10,000 per route mile. Here, Sho-Me Power is providing two pair or 4 fibers for a similar value. The in-kind contribution of dark fiber is eligible as part of the CCI project since it is required to provide broadband services to the CCIs identified within the application and serves as connecting spans to the newly constructed and acquired fibers. The contribution does not provide excessive additional capacity to the project, but only that amount which is warranted. The in-kind contribution adheres to the rules for eligible costs provided for in the NOFA. This Applicant will have all the matching funds on hand if a grant is awarded.
Unjust enrichment	This project is not receiving, nor has this Applicant applied for, any Federal support for non-recurring costs.
Disclosure of federal and/or state funding sources	This project is not receiving, nor has this Applicant applied for, any Federal or State funding, for activities or projects related to this application.
Budget reasonableness	This Applicant has been actively engaged in the telecommunications industry since 1997. In that timeframe, fiber optic cable and associated hardware/networking systems have been installed by Applicant in the south central part of the State of Missouri. The benchmarks used for unit prices have therefore come from local norms, competitive bids, past experience, and vendor published prices. The units of quantity have been determined by accurately mapping the proposed routes into a GIS based system such that Applicant is able to identify which components of fiber construction will be aerially

	installed on Applicant's associated poles and which components will be constructed along state highways and ROW. The number of network devices is based on the number of CCIs that are intended to be initially connected. The telecom shelters have been positioned at key intersections along fiber routes and strategic populous areas. The in-kind contribution quantities have been derived by calculating the amount of dark fiber that is required to be set aside for this project. And, the Network Management Tools include the software for management systems along with appropriate licensing required per network element. The costs for underground and overhead construction of fiber optic cable is based on the type of terrain, the depth and height of the attachments, the number of road crossings, permitting, easements and underground bores required, the type of weather observed during construction, the expedient delivery of materials and hardware. This project does not include a last mile component, but based on the number of communities potentially impacted by the system, the cost per household is approximately $102.
Demonstration of need	Sho-Me Power Electric Cooperative, the single member of Sho-Me Technologies, LLC, began the process of building a fiber-optic network to control its power system in 1997. The initial investment did not contemplate the need to build rings everywhere on the Sho-Me system, therefore much of Sho-Me's network was built on a collapsed ring design. Without commercial contracts to financially support closing those rings, the system reliability that South Central Missouri deserves will be delayed indefinitely unless Federal assistance can be secured. Without BTOP funding this project will not reach profitability for over ten years, if it all, and some profit is necessary to be able to operate and maintain such a network for years to come. By calculating the NPV without inflating the Terminal Value by 8, the actual NPV produces slightly more than a negative $22 million. Any evaluation to build this with internal funds would not include an increase of the 8th terminal value, as being able to re-sell such a network (the only justification for using a terminal value of 800% of the 8th year free cash flow) is most unlikely. These assumptions produce a more realistic justification for funding a $38 million project

	with $26.6 million of Federal funding dollars. When evaluating if this project would eventually be built without Federal assistance, removing the 800% adjustment to the Terminal Value would again need to be utilized. Even if a discount rate of 8% was used, the NPV of this project without Federal assistance would approach a negative $28 million, making a private investment more than highly unlikely, and proves the value of the $26.6 million Federal investment.

Funds to States/Territories

States	Amount of Federal Grant Request
Missouri	26,600,000

Funds to States/Territories Total: $26,600,000

J. Historical Financials

Matching Funds			
	2007	**2008**	**2009**
Revenue	14,731,646	18,603,918	19,585,823
Expenditures	13,664,310	16,277,441	17,190,365
Net Assets	8,903,946	12,775,576	17,946,528
Change in Net Assets from Prior Year	5,668,078	3,871,630	5,170,952
Bond Rating (if applicable)	n/a	n/a	n/a

K. Project Readiness

BTOP Organizational Readiness

Applicant has provided private point-to-point, non-switched telecommunications transport primarily over fiber optics for the past 13 years. Applicant is already collocated with most major Telco providers in St. Louis, Kansas City and Springfield, Missouri. Applicant owns a six thousand square feet Network Operations Center (NOC). From the NOC, the system can be monitored, in addition to those of others. Using a full line of optical innovations including Ethernet and Wavelength services, Applicant can deliver a wide range of connectivity. With optical technology in place, other services, which require the high bandwidth demands of the latest data communications, are available through electronic upgrades. The main goal of this project is to expand on the existing fiber optic infrastructure currently in place by adding an additional 500 miles of cable route to an existing 880 mile system. Applicant has already contacted vendors for equipment and materials to expedite delivery should an award be made. Applicant has already set up an on-line bidding method for posting and awarding construction contracts. Also, Applicant has some fiber and equipment "in stock" so that progress can begin immediately.

Construction and Vendor Contracts

Applicant is ready to commence work. Applicant's employees perform all spicing, testing, and electronic installations. Subcontractors are used for boring, trenching and overhead cable installations. Applicant has an excellent relationship with several different overhead installers, and frequently uses BBC, Midwest Fiber Optics Inc., M & L fiber Optics, Sellenreik Construction, and Ervin Cable Construction. Applicant's underground sub-contractors include Ridenhour Construction, Sellenreik, Excell Communications, and Kelly Construction. Much of Applicant's directional boring takes place on state highway ROW and MoDOT has been very satisfied with past performance. They know any future jobs will be done right and with satisfactory cleanup from the contractors. In the event that any of these subcontractors are unable to complete a job, Applicant has crews that can step in and can complete the job with its own employees and equipment, with the exception of directional boring. Applicant has worked with all the recommended equipment vendors in this project under past projects and has an existing relationship established. Purchase orders have previously been provided to all the Applicant's vendors. Engineering and design work has already been performed and some follow up tweaking will be required, but equipment orders can and will be placed in the first quarter of implementation. Terms and conditions have already been reviewed and approved and contracts should be able to be expedited.

Customer Base

The proposed funded service area represents over 66,000 businesses. Those businesses include approximately 11,000 wholesale; 20,000 retail; 4,000 real estate, rental and leasing; 6,000 professional, scientific and technical services; 3,000 administrative and support, waste management and remediation services; 6,000 health care and social assistance; 1,000 arts, entertainment and recreation; 9,000 accommodation and food services; and over 7,000 other businesses except public administration. Historically, Applicant has predominantly served education, healthcare, wireless, government and financial institutions. Applicant's largest users are the rural electric cooperatives.

Licenses, Regulatory Approvals and Agreements

Applicant is already registered and certified with the Missouri Public Service Commission. Based on past experience, the proposed project will require the following permits, approvals, and agreements: MoDOT permit for use of right-of-way, City permits, Pole attachment agreements, ONE CALL compliance for all underground work, and a dark fiber in-kind contribution from Sho-Me Power Electric Cooperative for 880 route miles. One key beneficial aspect of the State government's partnership in this project is the State's assurance that State ROW permits will be expeditiously approved for the new 290 miles of underground construction. Virtually all of the pole attachments required for the 210 miles worth of aerial construction will involve rural electric cooperatives with whom Applicant already has agreements and productive working relationships.

SPIN Number

Sho-Me Technologies, LLC
Applicant SPIN Number is 143004637.

L. Environmental Questionnaire

Project Description

The project will consist of 210 miles of aerial construction, 290 miles of underground construction, and 15 building sites. Route miles shall use construction methods that have traditionally proven to result in a minimal impact. The construction of buried cable will utilize

trenching an minimum of 30" deep and less that 24" wide by pulling a plow behind a small dozer or boring main roads and other locations that plowing is not feasible. Some locations will require excavation with a backhoe to expose existing buried utilities. Personnel supervising these activities shall be trained in Land Disturbance and SWPP techniques.

Property Changes

Property changes associated with this project will utilize methods that have traditionally proven to result in the least impact upon the surrounding environment. All fiber route miles will be located within existing utility rights of way, such as highways or aerial facilities with a minimum impact on existing land usage. Fenced and disturbed areas associated with new buildings are designed to impact as little area as possible. These impacts include the installation of pre-fabricated buildings, fencing, gravel, generator, and drives. Local zoning issues will be followed for all buildings associated with this project. The imprint is usually 50'x50' graveled and fenced area with a 12'x20' impervious footing for the pre-fabricated building as well as a minimal pad for a corresponding generator.

Buildings

Fiber Routes: fiber routes will be constructed wholly on existing and previously disturbed rights of way, and may be either aerial or underground. Short segements of new build may be necessary to tie from existing ROW to existing ROW. Installation will consist of trenching and placement of conduit and shall be stabilized immediately.

Building sites will consist of a 50'x50' fenced and graveled area which contains a 12'x20' building, grounding grid, and associated generator. This may be found in the system diagrams.

Wetlands

Wetlands occur naturally across much of Missouri's expanse, therefore Sho-Me will dedicate what resources are necessary to mitigate the effects this project would have upon them. Sho-Me commits to corresponding with the following agencies to delineate and determine what mitigation measures are needed: USFWS, USACE, NRCS, Missouri Dept. of Conservation, and Missouri Department of Natural Resources. Sho-Me will obtain any required federal permits (Sec. 404, NWP 12 etc) as well as and corresponding State permits (i.e. 401 water quality certification).

Critical Habitats

The following is an exhaustive list of the candidate, endangered, or recovered species in the thirty counties that the project will extend through. Sho-Me Power shall work in accordance with Missouri Department of Conservation and U.S. Fish and Wildlife Service to ensure appropriate measures are taken.Arctic peregrine Falcon (Falco peregrines tundrius) Recovery: in all counties. Indiana bat (Myotis sodalist) Endangered; Stone, Taney, Oregon, Shannon, Texas, Christian, Wright, Laclede, Phelps, Crawford, Camden, Cooper, Gasconade, Franklin counties. Gray bat (Myotis grisescens) Endangered: Stone, Taney, Ozark, Howell, Oregon, Shannon, Texas, Douglas, Christian, Greene, Wright, Dallas, Laclede, Phelps, Crawford, Maries, Miller, Camden, Benton, Morgan, Cole, Osage, Gasconade, Franklin, and Hickory counties. Ozark big-eared bat (Corynorhinus (Plecotus townsendii ingens) Endangered: Stone county. Ozark cavefish (Amblyopsis rosae) Threatened: Stone and Green counties. Niangua darter (Etheostoma nianguae) Threatened: Greene, Webster, Polk, Dallas, Maries, Miller, Camden, Benton, Osage, and Hickory counties. Topeka shiner (Notropis Topeka (tristis)) Endangered: Pettis, Morgan, Cooper, Moniteau, and Cole counties. Pallid sturgeon (Scaphirhynchus albus) Recovery: Cooper, Moniteau, Cole, Osage, Gasconade, and Franklin counties. Ozark hellbender (Cryptobranchus alleganiensis bishopi) Candidate: Ozark, Howell, Oregon, Shannon, Texas, Douglas, and Wright Counties. Tumbling Creek cavesnail (Antrobia culveri) Endangered: Taney County. Spectaclecase (mussel) (Cumberlandia monodonta) Candidate: Texas, Laclede, Phelps, Crawford, Maries, Miller, Cole, Osage, Gasconade, and Franklin counties. Scaleshell mussel (Leptodea leptondon) Endangered: Wright, Laclede, Crawford, Maries, Osage, Gasconade and Franklin counties. Sheepnose mussel (Plethobasus cyphyus) Endangered: Laclede, Crawford and Franklin counties. Pink mucket (pearlymussel) (Lampsilis abrupt) Endangered: Maries, Miller, Cole, Osage, Gasconade and Franklin counties. Winged mapleleaf (Quadrula fragosa) Endangered: Franklin County. Hine's emerald dragonfly (Somatochlora hineana) Endangered: Shannon, Phelps, Crawford, and Morgan counties. Running buffalo clover (Trifolium stoloniferum) Endangered: Taney, Ozark, Texas, Christian, Laclede, Phelps, Crawford, Maries, Benton, Cooper, Moniteau and Cole counties. Decurrent false aster (Boltonia decurrens) Threatened: Howell and Franklin counties. Virginia sneezeweed (Helenium virginicum) Threatened: Howell, Shannon, Texas, Webster and Wright counties. Missouri bladderpod (Lesquerella filiformis) Threatened: Christian and Greene counties. No common name (Geocarpon minimum) Threatened: Greene and Polk counties. Western prairie fringed orchid (Platanthera praeclara) Threatened: Greene county. Mead's milkweed (Asclepias meadii) Threatened: Polk, Benton, and Pettis counties.

Floodplain

Due to the terrain many designated floodplains exist throughout the Ozarks. Local State Emergency Management Agency representatives will be consulted in each affected county before any land disturbance occurs. In the event that a floodplain is identified Sho-Me Power shall work in accordance with Missouri Department of Natural Resources and U.S. Army Corps of Engineers.

Protected Land

Sho-Me Power will take appropriate measures to ensure that no historic or tribal properties are disturbed during the proposed project life. Consultation shall be made with the Missouri Department of Natural Resources; State Historic Preservation Office to ensure there will be no impact on protected lands on or adjacent to the proposed project area. No THPOs currently exist in Missouri.

Coastal Area

Missouri is not a state covered by the Coastal Zone Management Act and this project, located wholly within the state of Missouri, does not therefore constitute coverage under said Act.

Brownfield

Sho-Me Power shall utilize the Environmental Protection Agency 'Cleanups in My Community Mapping' software to identify brownfields in the project area and properly address concerns. In the event that a structure will disturb or encroach upon a brownfield Sho-Me Power will consult Environmental Protection Agency, Region 7 and Missouri Department of Natural Resources to ensure appropriate measures shall be followed.

Submitted Date:	**Easygrants ID: 4521**
Funding Opportunity: Broadband Technology Opportunities Program	**Applicant Organization:** SHO-ME TECHNOLOGIES L.L.C.
Task: Submit Application - BTOP	**Applicant Name:** Daniel R. Webster

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	Service Offerings and Competitor Data.xlsx	Webster, Daniel	03/23/2010
Network Diagram	Block.pdf	Webster, Daniel	03/22/2010
Build Out Timeline	CCI Build-Out Timeline.pdf	Webster, Daniel	03/19/2010
List of Community Anchors and Points of Interest	CCIAnchorDetailPOI.xls	Webster, Daniel	03/23/2010
Management Team Resumes and Organization Chart	Management Team Resumes and Organization Chart.pdf	Webster, Daniel	03/22/2010
Government and Key Partnerships	Osage County School District.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	OSCA Combined.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	Blue Bird Letter.pdf	Webster, Daniel	03/25/2010

Government and Key Partnerships	Edgar Springs.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	Eldon Schools.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	Sho-Me Power Electric Cooperative Letter.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	Member Cooperatives.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	Boycom to Sho-Me Support.pdf	Webster, Daniel	03/25/2010
Government and Key Partnerships	McCaskill's Sho-Me Letter of Support.pdf	Webster, Daniel	03/26/2010
Government and Key Partnerships	State of Missouri Letter of Recommendation.pdf	Webster, Daniel	03/26/2010
Historical Financial Statements	Historical Financial Statements.pdf	Webster, Daniel	03/23/2010
Budget Narrative	CCI Budget Narrative.pdf	Webster, Daniel	03/19/2010
Detailed Budget	CCI Detailed Budget.xls	Webster, Daniel	03/19/2010
Pro-forma Forecast	CCI Pro Forma Financial	Webster, Daniel	03/23/2010

	Projections.xlsx		
Subscriber Estimates	CCI Subscriber Estimates.xlsx	Webster, Daniel	03/23/2010
Dashboard Metrics	CCI Key Metrics Dashboard.doc	Webster, Daniel	03/25/2010
Service Area Data	CCI Service Areas.xlsx	Webster, Daniel	03/22/2010
Network Maps	Sho-Me MO Network Map.pdf	Webster, Daniel	03/24/2010
BTOP Certifications	BTOP Certifications.pdf	Webster, Daniel	03/19/2010
SF-424 C and D	SF-424.pdf	Webster, Daniel	03/22/2010