Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program

Submitted Date:	**Easygrants ID: 6832**
Funding Opportunity: Broadband Technology Opportunities Program	**Applicant Organization:** DEPARTMENT OF INFORMATION TECHNOLOGY
Task: Submit Application - BTOP	**Applicant Name:** Mr. Marlin L. Mackey

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	023716181
CCR # (CAGE)	4YS14
Legal Business Name	DEPARTMENT OF INFORMATION TECHNOLOGY
Point of Contact (POC)	CHARLES MARTINEZ 5058270216 Ext. charles.martinez1@state.nm.us
Alternate POC	CHARLES MARTINEZ 5058270216 Ext. charles.martinez1@state.nm.us
Electronic Business POC	CHARLES MARTINEZ 5058270216 Ext. charles.martinez1@state.nm.us
Alternate Electronic Business POC	CHARLES MARTINEZ 5058270216 Ext. charles.martinez1@state.nm.us

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Mr.
First Name	Marlin
Middle Name	L.
Last Name	Mackey
Suffix	
Telephone Number	505-476-3070

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Fax Number	505-827-1607
Email	marlinl.mackey@state.nm.us
Title	Cabinet Secretary

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Mr. Thomas A, McQuillan	5054762160	thomas.mcquillan@state.nm.us
Other Contact	Ms. Victoria B, Garcia	5058414742	victoria.garcia12@state.nm.us

Environmental Point of Contact

Prefix: Mr.
Name: Bachicha, Phil
Suffix:
Telephone Number: 5054763469
Title: Purchasing & Contracts Supervisor

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

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Authorized Organizational Representative	
AOR Name	MARTINEZ, CHARLES
Result	Applicant Authorized

Project Title and Project Description

Project Title: New Mexico Statewide Interoperable Radio Communication Internet Transport System (SIRCITS)

Project Description: This Middle Mile project completes the transition of SONM's statewide public safety microwave system from analog to digital capability allowing broadband access to anchor institutions and allowing SONM and its partners (through sharing agreements) to support broadband service in unserved, underserved and Tribal areas. A Last Mile component will deploy 700 MHz public safety broadband service.

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

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The following items were selected from the Comprehensive Community Infrastructure Components:

Middle Mile

Last Mile Non-Rural

BIP Applicants

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

- No

If Yes, please provide the project title and Easygrants ID number:
Title of Joint BIP Application:
Easygrants ID:

Other Applications

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

- No

Easygrants ID	Project Title

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

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 a unit of a state or local government

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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:

The Opportunity. The State of New Mexico ("SoNM") faces huge hurdles in bringing broadband to local communities and anchor institutions. Due to very low population density it is not economically feasible to deploy broadband through much of the State. Large geographic areas, including tribal lands are unserved or underserved, in part, due to the lack of middle-mile architecture.

This CCI project completes the upgrade of DoIT's statewide 99-tower microwave communications system from analog to digital and concurrently expands the capacity of the statewide backbone to 155 Mb. This pipe will serve anchor institutions throughout the State, and will be used by the State and its partners to serve vulnerable populations, unserved and underserved areas and tribal lands.

SIRCITS' last mile component will deploy 700 MHz public safety grade broadband networks in Albuquerque and Santa Fe that will be linked to the DMW backbone and will become part of the future nationwide 700MHz public safety broadband network.

PFSAs. SIRCITS includes one middle mile - SoNM Digital Microwave (NMDMW) - and two last mile - Albuquerque 700MHz (ALB700) and Santa Fe 700MHz (SF700) – PFSAs.

The NMDMW PFSA spans the State. This PFSA is underserved since the rate of subscribership to broadband services statewide is below 40%. The State's average population density is 16 per mile, with about one-third of its 2.009M people living in the Rio Grande corridor. The State has 741,000 households and over 54,000 businesses. One in six New Mexicans are below the poverty line and one in four children live in poverty. 28% of New Mexicans speak Spanish at home; 9.2% are Native American. 22% of New Mexicans do not have a high school degree. Given these demographics, the State faces significant hurdles in overcoming the shortfall in broadband usage.

By deploying a middle mile broadband backbone throughout the State, SIRCITS will enable broadband access directly to 151 community anchor institutions, and indirectly (with partners) to 1127 anchor institutions, 135 local communities and tribal areas. The backbone will also provide backhaul for the State's planned 700MHz public safety LTE system.

The ALB700 and SF700 PFSAs will deploy last mile 700 MHz LTE service in Albuquerque and Santa Fe. Albuquerque is the State's largest city with almost 522,000 people, over 212,000 households and almost 14,000 businesses. Santa Fe is the State Capital, home to many critical government facilities including the Department of Homeland Security, the Governor's Office and the Capital Building. It has 72,000 people, over 28,000 households and over 3,000 businesses. Public Safety entities in both cities lack access to needed wireless broadband services that can provide reliable public safety grade communications at affordable rates. SIRCITS will deploy a 700 MHz LTE system in these two cities that will provide broadband service to public safety entities, critical infrastructure, and other governmental users and their partners. This LTE deployment is the first stage of a planned statewide public safety grade LTE network.

Non-discrimination/interconnection. As a government, SONM's mission is to provide for its citizens and constituents on a non-discriminatory basis. The State will actively partner through sharing agreements with existing/future last mile providers to bring broadband services to unserved or underserved areas over the statewide DMW system. SoNM will not discriminate against any provider. The State will manage traffic on the network so that public safety traffic that is deemed critical to the life and safety of citizens or first responders will be separate from commercial traffic. The Last Mile 700 MHz LTE network will provide public safety grade services on a non-discriminatory basis to eligible users in accordance with FCC rules governing public safety spectrum.

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Type of broadband system. SoNM/DoIT operates a fiber-optic and point-to-point microwave public safety network providing coverage across New Mexico. Network assets include the operations center, fiber-optic cables, towers, roads, rights-of-way, real estate and buildings. By upgrading this infrastructure to support broadband, the State is providing the most cost-effective and shovel ready approach to expedite broadband proliferation in unserved and underserved areas, while also improving communications for community anchor institutions.

Each tower facility serves as a point-of-presence for extending connectivity to last mile service providers. The service providers can use the tower facilities through sharing agreements and extend connectivity with their preferred technology including fiber, point-to-point microwave, 3.65 GHz WiMax, 2.4 GHz WiFi and other wired and wireless technologies. The network's tower facilities located mostly on mountaintops are ideal for fixed wireless access. There is no more cost effective way to offer broadband service to sparsely populated areas.

The network will be upgraded from analog to digital microwave to support throughput at 155 Mb. Upgrades will rely heavily on the existing towers, transmission lines, shelters and antennas minimizing the required changes to sites. DMW technology provides an easy upgrade path for increasing capacity in increments of 150 Mbps while providing redundancy by using additional microwave frequencies.

The Middle Mile DMW network is complemented by a Last Mile wireless broadband network based on LTE operating on 10 MHz of 700 MHz spectrum in Albuquerque and Santa Fe. This Last Mile component will become part of the planned nationwide interoperable 700 MHz public safety broadband network.

Qualifications. SoNM is well equipped to complete this project. It operates a state-wide radio system on 99 tower sites dating back 50 years. Over the years, the state has gained tremendous expertise in planning, operating, and improving this critical communication network. Staff has extensive experience in-house and working with contractors to resolve network issues due to the topography, terrain, and natural disasters that can impair system functionality.

The state has used a sustainable business model of calculating operating expenses and depreciation and then establishing customer rates based upon federally audited formulas. This model is carried forward to the existing project. DoIT has proven to be a valuable asset to the

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State of New Mexico and with the successful funding of this grant request, our team of experts for network, radio, broadband, and public safety stand ready to deliver.

Cost and matching funds. The total project cost is $55.7 million. These budgeted costs are for a turnkey system, including equipment, installation, engineering, project management and implementation. The State of New Mexico is providing cash and in-kind contributions totalling$17 million for a 30% non-federal match. $5.4 million is in cash and $11.6 million is an in-kind contribution leveraging assets of the State. The middle mile comprises 83% of the funds to be expended and 17% will be used for the last mile component.

Subscriber projections. The SIRCITS project connects the entire state (121,356 sq.mi.) with 155Mb broadband middle mile and deploys last mile 700 MHz public safety interoperable two-way communications for voice, video, and data in Albuquerque and Santa Fe. As a service provider of a sustainable communications network, the state has projected that by year eight (8) of the projects timeline, total revenues with be 7.8 million dollars and that 5 megs of middle mile bandwidth will cost $386 per month. This is truly a fantastic price for delivery of this capacity especially for rural New Mexico. The current subscriber rate for 2-way radio services are $58.52 and the state has calculated that these rates will remain steady for the duration of this project. A cost per mile for middle mile transport has been calculated to be $285.52, demonstrating the tremendous significance and benefit from this project. Due to the economies of scale of statewide deployment, a new era of broadband access to information will be born. New Mexico's 121,356 square miles makes it the fifth largest geographical state and its population of 2,009,671 (2009) makes it one of the sparsest populated states; it is believed that over 70% of the territory is unserved/underserved. Completing the DMW project will allow 151 governmental anchor institutions to connect to the state's middle mile and an additional 1,127 indirect anchor institutions will also be connected over the eight (8) year project timeline. This mushrooming of broadband service meets the FCC's and Congress's goals.

Jobs created or saved

As a result of this project a total of 420 job years will be created or saved through the construction and deployment of the project. Of this total there will be 178 direct jobs, 91 indirect jobs and 151 induced jobs.

Project purpose:

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The SIRCITS project fits squarely within the statutory purposes and objectives of the BTOP program. SIRCITS will complete the analog to digital conversion of SONM/DoIT's statewide 99-tower microwave communications system, expanding its capacity to 155 Mb, and allowing the system to act as a middle-mile backbone for broadband service to un- and under-served areas throughout the State. In this regard, SIRCITS is similar to the "Enhancing Connectivity in Northern Pennsylvania" project that recently received a $28.7 million Round 1 grant. Additionally, SIRCITS deploys last-mile connectivity in Albuquerque and Santa Fe on 700 MHz public safety broadband spectrum to bring much needed affordable public safety grade broadband access to first responders, emergency care providers and anchor institutions.

SONM faces significant challenges in bringing broadband access to its citizens and anchor institutions. With an average population density of 16 persons per square mile, and with about one-third of its approximately two million people living in the Albuquerque area, it is not economically feasible for broadband to be deployed throughout much of the State. Large geographic areas are un- or under-served, in part due to the lack of middle-mile architecture.

SIRCITS addresses this lack of middle-mile capacity by leveraging SONM/DoIT's statewide 99-tower microwave communications system to serve as a broadband pipeline throughout the State. This system currently serves as backhaul for two-way radio communications for the Departments of Public Safety, Game and Fish, Transportation, Corrections, State Forestry, and State Parks. The system operates twenty-four hours a day, seven days a week on a year-round basis providing critical communication for field offices and mobile responders, with the very high level of reliability required for public safety communications. SONM began an analog-to-digital upgrade of the system 10 years ago and the work is 70% complete; the State lacks funds to complete this DMW upgrade and accordingly the project is on hold for the next several years until additional funding is found. SIRCITS will provide the needed funding to complete the DMW upgrade within the next two years, concurrently expanding the capacity of the statewide backbone to 155 Mb. The State and its partners, including local providers through sharing agreements consistent with State law, will be able to utilize these public safety grade broadband facilities for providing services to anchor institutions, including schools, libraries, medical and healthcare providers, community colleges and public safety entities, which, in many areas, would otherwise be un- or under-served. The upgrade will facilitate Last Mile broadband access to consumers in un-served, under-served, economically depressed and tribal areas of the State and to anchor institutions, including public safety first responders. The proposed expansion of SONM/DoIT's network will be critical to meeting the broadband needs of the State.

Among the critical applications the State intends for the upgraded DMW system is the provision of broadband services to anchor institutions for first-responder public safety use. SONM has applied to the FCC for a license to build and operate a public safety grade 700 MHz interoperable broadband network within the State, which will form an integral part of the national interoperable public safety broadband network envisioned by the FCC and Congress. SIRCITS includes a Last Mile component for the deployment of 700 MHz broadband services beginning in the State Capital of Santa Fe and its largest city, Albuquerque, for public safety and other eligible users. This 700 MHz Last Mile deployment will allow broadband communications interoperability among state, county, local, and EMS responders. Anchor institutions will be able to utilize the network for primary public safety applications as well as providing a backbone for tele-health, video conferencing, and data applications. Reciprocal agreements will be executed with local providers covering emergency backup for public safety uses.

The SIRCITS project demonstrates broad significance to SONM and its residents in that it is a statewide solution for bringing broadband access to all parts of the State and for all types of broadband applications, including the connection of anchor institutions. The DMW Middle Mile is critical to future last-mile projects that may be pursued by the State and its partners. Without this infrastructure in place future broadband service to large areas of the State will be much more difficult and costly, if not economically infeasible.

SIRCITS will bring broadband access to both un- and under-served portions of the State. In addition, SIRCITS will link tribal lands including the Navajo nation to the statewide broadband backbone, and will bring broadband services to economically distressed areas of the State. New Mexico is the sixth most sparsely populated State in the nation, with one in four children living in poverty. SIRCITS will not only extend broadband access to economically disadvantaged areas but will help to create jobs and stimulate economic development in these areas through the construction and maintenance of broadband facilities.

SIRCITS satisfies all five BTOP statutory purposes. It will enable Last Mile broadband access to consumers in un-served, underserved, economically depressed and tribal areas of the State as well as to a wide variety of anchor institutions, including schools, libraries, medical and healthcare providers, community colleges and public safety entities. It will also allow fund a critical last mile component providing interoperable 700 MHz public safety broadband service at affordable rates. Without the requested federal funding this project cannot be completed.

Recovery Act and Other Governmental Collaboration:

By statute, the State of New Mexico DoIT has responsibility for operating a statewide telecommunications infrastructure, which utilizes a 99-tower statewide microwave and fiber backbone. DoIT's leadership in establishing this infrastructure is a necessary component of communications ability given the difficulties faced by private sector interests in funding the construction and maintenance of communications networks in very rural geographic areas that predominate through most of New Mexico. This State owned and operated infrastructure, through a series of existing collaborations, serves as the long-standing core communications network used by state and local government agencies, as well as federal agencies such as the FBI and Department of Commerce, for communications. With the current project, these collaborations will continue, as well as relations with the Forest Service and BLM. From a federal perspective, having the ability to provide sites that maximize communications abilities for numerous departments, agencies, authorities and other entities will simultaneously increase efficiencies and leverage existing infrastructure, is a sensible means to best manage costs. For the State, these relationships also keep state costs for DMW sites reasonable so dollars invested go directly into the infrastructure maintenance and enhancement. When the state leases land from federal government, those long term leases cost the state nothing ($0.00) and span 10-20 years. This is a critical savings for the State and the partnership between the federal government and the State allows a sharing of resources that is both cost effective and helps maintain good stewardship of the land.

The State's continued collaboration will help mitigate requests for additional "sitings" by private companies that could strain the land. Through any of the public/private partnerships that the state may be able to enter to allow access to the broadband network contemplated by the SIRCITS project, private providers may co-locate with the state and pay it a fee to do so. Such an agreement creates a "win-win" situation for all parties. The State may be able to collect a fee from private entities that may bargain for use of the infrastructure, and this in turn will help in long-term maintenance; the federal users of the improved communications network will have stronger capabilities and the federal owners of the land may minimize development in environmentally sensitive areas.

Fit with BTOP CCI Priorities:

As set forth below this project meets or exceeds the objectives of all seven of the CCI priorities.

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1. This project will deploy Middle Mile broadband infrastructure to community anchor institutions.

SIRCITS will complete the upgrade of the State's existing microwave public safety analog system to a statewide digital backbone of 155 Mb. This digital backbone will be available for the State and its partners, including local telcos through sharing agreements consistent with state law, for providing services to anchor institutions, including schools, libraries, medical and healthcare providers and public safety entities. A total of 151community anchor institutions throughout the State will have access to digital broadband service as a result of this statewide Middle Mile project. A complete is list of these institutions is provided in attachment 18.4 CCI Anchor Detail and POI.

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.

This project incorporates partnerships among various state government agencies including the Department of Public Safety, the Higher Education Department and the local anchor institutions working with these and other state agencies which have anchor institution facilities throughout the State. SONM/DoIT will also partner with local telcos through sharing agreements consistent with state law, to facilitate "last mile" projects that will bring broadband services to residents, business and anchor institutions in underserved areas of the State. SONM/DoIT is also working with the Navajo Nation to bring broadband access to this tribal community located in the Four Corners area of the state. (18.6 Navajo Nation Support Letter)

3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.

The digital backbone will have a statewide footprint with the capability to connect anchor institutions to broadband services throughout the State. Parts of this footprint will cover economically distressed areas throughout the state. These areas include counties with significant unemployment rates with the expectation that increased access to technology may promote economic development; this is also true for many tribal entities including the Navajo Nation.

4. This project will deploy Middle Mile broadband infrastructure to community colleges.

The digital backbone will allow community colleges throughout the State to have access to broadband services. In all, over 4 community colleges will benefit from the "Middle Mile" broadband infrastructure being deployed by this project. (See attachment 18.4 CCI Anchor Detail and POI for a list of these community colleges).

5. This project will deploy Middle Mile broadband infrastructure to public safety entities.

The statewide digital backbone will serve a dual purpose in meeting the needs of public safety entities throughout the State. The backbone will provide broadband access to a wide range of public safety entities in all areas of the state enhancing existing broadband capabilities for these critical anchors. The backbone will also serve as a backhaul for the 700 MHz public safety "last mile" component that is part of the overall project. The initial phase of the 700 MHz build out for the cities of Santa Fe and Albuquerque will thus be leveraging the "middle mile" infrastructure funded under this project, further enhancing the benefits of broadband to public safety first responders in the largest city in the State, Albuquerque and the State Capital of Santa Fe. The "middle mile" infrastructure will also facilitate the eventual statewide build out of the 700 MHz public safety interoperable network

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.

Pursuant to sharing agreements between the State and local telcos, the telcos will utilize the middle mile digital backbone to bring last mile broadband to underserved areas of the State. For example, one such provider has committed to using the digital backbone to bring broadband service to the Navajo tribal community, an underserved area located in the Four Corners area of the State.

The Navajo Nation will be a partner in DoIT's efforts because the buildout and improvements contemplated will open the doors to more of their citizens receiving enhanced delivery of Broadband Internet services. (18.6 Navajo Nation Support Letter)

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.

The applicant has proposed to contribute over 30.5 percent in matching funds. For this grant request of $38.7 million dollars, the applicant is providing $5.4 million in a cash contribution and an $11.6 million dollar in-kind contribution for a total contribution of $17 million dollars. This $17 million dollars is over a 30% match by the applicant.

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: Sub-recipient
Name: Richardson, Bill
Phone: 505476220
Email: bill.richardson@state.nm.us
Address 1: State Capitol
Address 2: Room 400
Address 3:

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City: Santa Fe
State: New Mexico
Zip Code: 87501
Organization: State of New Mexico
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Denko, John
Phone: 5058273370
Email: john.denko@state.nm.us
Address 1: Post Office Box 1628
Address 2:
Address 3:
City: Santa Fe
State: New Mexico
Zip Code: 87504-1628
Organization: New Mexico Deptartment of Public Safety
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Flores, Viola
Phone: 5054768400
Email: viola.flores@state.nm.us
Address 1: 2048 Galisteo
Address 2:
Address 3:
City: Santa Fe
State: New Mexico
Zip Code: 87505-2100
Organization: New Mexico Higher Education Department
Organization Type: State or State Agency
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Torres, Ron
Phone: 5054629808
Email: mdc@bernco.gov

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Address 1: 100 John Dantis Drive SW
Address 2:
Address 3:
City: Albuquerque
State: New Mexico
Zip Code: 87151
Organization: Bernalillo County Metropolitan Detention Center
Organization Type: County Government
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Hartman, Roy
Phone: 5054629808
Email: rhartman@bernco.gov
Address 1: 100 John Dantis Drive SW
Address 2:
Address 3:
City: Albuquerque
State: New Mexico
Zip Code: 87151
Organization: Bernalillo County Metropolitan Detention Center
Organization Type: County Government
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Shirley, Joe
Phone: 9288717000
Email: btagaban@nntrc.org
Address 1: Office of the President and Vice President
Address 2: Post Office Box 7440
Address 3:
City: Window Rock
State: Arizona
Zip Code: 86515
Organization: Navajo Nation
Organization Type: Indian Tribe
Small business: No
Socially and economically disadvantaged small business concern: No

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

The key partners for this project are: Department of Public Safety (DPS) (DPS Support Letter); Higher Education Department (HED) (NMHED Support Letter); Navajo Nation (tribal entity) ; Telcos: (18.18 NM State Price Agreement)
Partner Information:
The key governmental partners listed are executive branch agencies under the direction of the Governor of the State (see attached letter from the Governor of New Mexico). The Governor has mandated the cooperation of those state entities and other key agencies, such as the Department of Health, in the development and execution of this project. The named partners and other agencies which will join as planning moves forward, have office sites all over the State. Their involvement as members of the Governor's Cabinet will be to work with the Department of Information Technology to ensure that sites are prioritized and communications infrastructure particular to those agencies are planned to best leverage opportunities created with this project in order to serve their constituents. At the direction of the Governor other state agencies, such as Homeland Security and the Department of Health are also expected to join in this effort.
Governmental units/sub-recipients: The Department of Health ("DOH"), though unable to send a support letter before the grant deadline, has public health sites and community clinics in all parts of the state which, in some rural areas (18.18 NM Exec. Order 2009-13) especially, are significant anchor institutions. All of its sites use the state infrastructure to conduct business. DOH will prioritize and identify sites under their auspices as potential recipients of last mile opportunities. This will be critical for their rural tele-health initiatives as well as for the day to day treatment of low income members of the community. These sites are also important from a first responder perspective.

The Department of Public Safety ("DPS") is the entity with authority over the state police. They have offices located all over the state and are most interested in partnering with DoIT for enhanced interoperability opportunities. They will actively participate in planning and cooperate to bring in other significant law enforcement entities from local government. The DPS will play a significant role in both the DMW and 700 MHz build out in Albuquerque and Santa Fe.
The Higher Education Department ("HED") has oversight over all post-secondary institutions and works collaboratively with the different Native American post-secondary institutions so all children in New Mexico are provided optimal education opportunities. DoIT provides the backbone for distance learning to community colleges, colleges and universities located all over the state, including those located in tribal jurisdictions. For some rural areas, these institutions

serve as anchor points for economic development opportunities, study resources for children, and locations for community meetings. As partners, they will participate in the execution of the grant by prioritizing access and working with the state to obtain participation of local telcos for last mile opportunities.

Federally recognized tribal entity/sub-recipient: Representatives of the Navajo Nation have actively participated with the State as part of the State's Broadband working group. They are an important partner in this effort (18.18 NM Exec. Order 2009-13) as they cover a large area of rural landscape in the Four Corners area of the state wherein there is little access to such infrastructure. Enhancing the infrastructure of the state middle mile network creates the very real opportunity for Navajo citizens to improve job skills, enhance job opportunities and create distance learning options currently unavailable. In DoIT's execution of this grant, their participation in the planning and their input will mitigate any potential problems with the state access to tribal land and provide opportunities for tribal government to create job opportunities during the build-out.

Local Telcos/contractors: Representatives of telcos in New Mexico have been part of the Secretary's working group for the DoIT to plan for and obtain dollars to obtain broadband access for New Mexico citizens. Because the state infrastructure exists in very outlying areas throughout the state, it is to their benefit to continue partnering with the state in the continued planning and execution of this project as they are then in position to increase their business through last mile efforts. As permitted by law and pursuant to sharing agreements, the state will also make the upgraded DMW facilities available to telcos located in various service areas throughout the state. The existing price agreements with the state will be expanded pursuant to the Procurement Code to provide the telcos access to the DMW facilities for completion of these last mile projects. Names cannot now be identified as expansion of services for this project will be conducted following the state's Procurement Code.

Involvement of Local Communities: As a statewide project it is expected that local communities throughout the State will be involved with the DoIT and its partners in the development and eventual execution of the project within the local areas. The current proposal has the full support of the Governor and the New Mexico Congressional Delegation for the benefits that it will bring to communities throughout the State.

D. Congressional Districts

Applicant Headquarters

- New Mexico

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Project Service States

New Mexico

Project Service Areas

New Mexico - 1

New Mexico - 2

New Mexico - 3

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

- Yes

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

Jicarilla Apache Nation

Mescalero Apache Tribe

Ohkay Owingeh Pueblo

Pueblo of Acoma

Pueblo of Cochiti

Pueblo of Isleta

Pueblo of Jemez

Pueblo of Laguna

Pueblo of Nambe

Pueblo of Picuris

Pueblo of Pojoaque

Pueblo of San Felipe

Pueblo of San Ildefonso

Pueblo of Sandia

Pueblo of Santa Ana

Pueblo of Santa Clara

Pueblo of Santo Domingo

Pueblo of Taos

Pueblo of Tesuque

Pueblo of Zia

Pueblo of Zuni

Ramah Navajo Chapter

Zuni Pueblo

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

- Yes

E. Service Area Details

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

- No

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Project Details

Service Area Type: Middle Mile
Service Area Name: NMDMW
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: **121,356**
Total Population in Proposed Service Area: **2,009,671**
Total Number of Households in Service Area: **741,399**
Total Number of Businesses in Service Area: **54,288**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **151**
Unemployment Rate in the Service Area: **7**
Median Income in the Service Area: **43,791**
Estimated Percentage of Households with Access to Broadband: **78**
Estimated Percentage of Households Subscribing to Broadband: **35**

Service Area Type: Last Mile
Service Area Name: ALB700
Rural Classification of the Last Mile Service Area: Non-Rural
Service Status of the Last Mile Service Area: Served

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

Total Square Miles in Service Area: **180**
Total Population in Proposed Service Area: **521,999**
Total Number of Households in Service Area: **212,579**
Total Number of Businesses in Service Area: **13,929**
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: **10**
Unemployment Rate in the Service Area: **6**
Median Income in the Service Area: **46,437**

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Estimated Percentage of Households with Access to Broadband: 80
Estimated Percentage of Households Subscribing to Broadband: 50

Service Area Type: Last Mile
Service Area Name: SF700
Rural Classification of the Last Mile Service Area: Non-Rural
Service Status of the Last Mile Service Area: Served

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

Total Square Miles in Service Area: 37
Total Population in Proposed Service Area: 71,831
Total Number of Households in Service Area: 28,217
Total Number of Businesses in Service Area: 3,322
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 10
Unemployment Rate in the Service Area: 5
Median Income in the Service Area: 50,312
Estimated Percentage of Households with Access to Broadband: 80
Estimated Percentage of Households Subscribing to Broadband: 40

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	63
Libraries	0
Medical and Healthcare Providers	22
Public Safety Entities	33
Community Colleges	4

Public Housing	0
Other Institutions of Higher Education	24
Other Community Support Organization	0
Other Government Facilities	5
TOTAL COMMUNITY ANCHOR INSTITUTIONS	**151**
Historically Black colleges and Universities	0
Tribal Colleges and Universities	4
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	12
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	**16**

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	178
How many indirect jobs will be created from this project?	91
How many jobs will be induced from this project?	151

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Methodology used to estimate jobs:

The State of New Mexico selected "Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009" May 2009 report to measure job creation. In that report, estimates for the job-years created by government spending indicate that it takes approximately $92,000 of spending to create one job year. New Mexico's total project is valued at $55.7 million. The State is requesting $38.7 million in federal government BTOP grant funding. Using the government's figure of $92,000/job-year, we arrive at 420 total job-years (38.7 million/$92,000). Per the Council's report, 64% of the job-years represent direct and indirect effects (or 269 job-years for our project), and 36% of the jobs-years are induced effects (151 job-years for our project). Due the expansive construction required in this project, the State projects 2/3 of the 269 direct and indirect job-years will be direct in nature (178), and the remaining will be indirect (91).
It should be noted here, that the State believes these figures are very conservative for several reasons. First, they are based only on the federal spending associated with the project. Second, the historically lower wages and other costs associated with doing a project of this nature within the State of New Mexico. And third, due to the rapid deployment and expansive coverage area associated with this project, we will need a large and focused workforce.

Project Impact:

The SIRCITS project has three major components:

1. Conversion of analog microwave towers to digital
2. Adding 155 Mb backhaul onto the SIRCITS network
3. Adding 700 MHz last mile Public Safety interoperable broadband communication in Santa Fe and Albuquerque

New Mexico has the fifth largest land area of all states and within that land mass are numerous communities that are largely underserved or un-served by broadband deployment. SIRCITS addresses this problem by leveraging the existing statewide 99-tower microwave communications network to provide a middle mile broadband pipeline that will facilitate more economically affordable service to remote, underserved, rural areas of New Mexico.

The State of New Mexico began the conversion of its microwave network from analog to digital about 10 years ago. The system currently serves over 3,400 users in State government. State funding to continue the analog-to-digital conversion has ceased due to the huge deficit in the state's economy. This grant is necessary to allow the State to complete the project in the near future. With this funding, the State will finish deployment within the 24-month window required, which in turn will provide the necessary stimulus to create jobs, spur economic

development, and improve service delivery to citizens of the state, its businesses, visitors and first responders through a coordinated, interoperable communication system.

The benefits provided by this project include: extending broadband service to rural, underserved and un-served areas; lowering the cost of providing last-mile broadband connectivity to these areas; implementing a convergence of services (voice, video and data); and providing reliability, resilience and interoperability for public safety communications.

This project will provide service to 151 anchor institutions through direct connection to the state's 155 Mb backbone network. These anchor institutions include public safety, public education, higher education, government offices, and health/medical facilities. There are 1,127 additional anchor institutions that will have indirect connectivity to the State's broadband backbone as a result of the project. Of the 151 primary anchor institutions, all have expressed a desire to connect to the middle mile project. It is anticipated that by year eight of deployment, all of the 1,127 additional indirect anchor institutions will be connected.

The anticipated success of SIRCITS is due to economies of scale of a statewide middle mile backhaul network utilizing primarily wireless transport, which lower the cost of deployment to rural sites significantly below the cost of service offerings that commercial providers could otherwise justify without access to this broadband backbone. Local Exchange Carriers (LEC's) will be able to leverage access to the statewide digital backbone in order to make more economically feasible service offerings in remote, underserved, rural areas, which in turn will extend the last-mile reach and use of the broadband network.

Third parties identified in this Application have expressed interest in participating in the planning and utilization of this statewide DMW backbone network. For local and state government users, the project will provide common network communications with a convergence of services and reduced cost intrastate transport. The project will enable video-conferencing capabilities that will in turn result in reduced travel expenses for meetings by employees and others, access to video training opportunities, and enhanced employee productivity. The project will facilitate high-speed data services that will make service to the public faster, more efficient and more reliable.

The network will improve public safety first responder capabilities through access to reliable high-speed data connectivity with public safety grade resiliency. Faster access speeds will allow

public safety providers quicker access to criminal and other databases. The network will enhance interoperability among first responder agencies that is vital in emergency deployments as well as day-to-day operations.

Public health facilities will utilize benefits offered through telemedicine capabilities, including faster access to medical information and records, real time medical data exchange between on-site EMS care providers and hospitals/physicians to facilitate the delivery of emergency life saving care, and access to a wider network of medical providers through information exchange and video conferencing services. These resources are particularly vital in remote and rural areas where access to hospitals and medical care are often long distances away.

Public and higher education facilities will benefit through the availability of distance learning opportunities. This will allow for enhanced collaboration between educational institutions. It will provide adult continuing education for the unemployed, thus enhancing economic development opportunities and reducing unemployment rates by having better trained individuals. These resources are particularly important in New Mexico, where so much of the State is rural, and where one in six citizens, and one in four children, live below the poverty line.

Third party service providers including particularly LECs have expressed interest in partnering and interconnecting to the planned broadband pipeline. Through sharing arrangements and in accordance with state law, local providers will interconnect to the statewide DMW middle mile network in order to deliver last mile connection to users within their respective service areas.

By creating a public safety grade digital broadband microwave network that provides benefits to anchor institutions as well as a middle mile point of access to be utilized by local providers in delivering last mile services, the SIRCITS project is provides benefits similar to those provided by the “Enhancing Connectivity in Northern Pennsylvania” project that recently received a $28.7 million Round 1 grant.

Additionally, SIRCITS will provide the necessary pipeline for backhauling traffic on the planned 700 MHz public safety interoperable national broadband network, and will deploy the initial stages of that network in Albuquerque and Santa Fe. This will provide critically needed last mile mobile communications abilities to public safety and government users, as well as their partners. The building of this network is a critical element of the FCC’s broadband plan.

Vulnerable Populations:

New Mexico has a significant vulnerable population within the statewide New Mexico Digital Microwave Service area, who will be beneficially impacted by the SIRCITS project.

New Mexico has two large minority groups represented among its population: Native Americans and Hispanics which together comprise approximately 51.6% of the total population. In 2000, the estimated American Indian population was 173,483 (9.5% of the total population—the 2nd-highest percentage of any state). Altogether, Tribal lands cover 8,152,895 acres (3,299,477 hectares), 10.5% of New Mexico's area (2nd only to Arizona in proportion of Tribal lands).

The Hispanic population, an old one, descends from Spanish-speaking peoples who lived there before the territory was annexed by the United States. In 2000, Hispanics and Latinos (including a small number of immigrants from modern Mexico) numbered 765,386 or 42.1% of the total state population.

As of 2000, an estimated 19,255 Asians, 1,503 Pacific Islanders, and 34,343 black Americans lived in the state.

28% of New Mexico's population speaks Spanish at home; 9.2% of its population is Native American, with 4% speaking Navajo at home. 22% of New Mexicans do not have a high school degree.

The median income for the state populations is $43,791, much lower than the national average. The unemployment rate for New Mexico in 2009 was 6.8%; during the first quarter of 2010, this rate has risen to 8% average unemployment. In some rural counties, the unemployment rate has gone to 15%. One in six people, and one in four children, live below the poverty line.

All of these factors are evidence of New Mexico's disproportionate number of vulnerable populations throughout the state.

Level of Need:
The State began the conversion of its statewide towers from analog to digital about 10 years ago in order to upgrade its infrastructure into a robust middle mile backbone across the state. This is important because rural community anchor institutions to which the state provides telecommunications infrastructure rely on that backbone for such things as community health clinics, colleges and universities which provide distance learning, public safety entities which rely on the state infrastructure and licenses to effect interoperability. The wide flat landscape of

the Four Corners area with its far-flung plateaus, the desert landscape of southwestern New Mexico which borders Mexico, the mountainous areas in varying forested locations, most of these contain the highest concentrations of unserved/underserved communities.

Because of the widespread lack of broadband services throughout the state, the target of this middle mile project is to complete the statewide analog to digital microwave conversion. The area has 33 counties in a state with just over 2 million in population (2009). Except for the few urban areas, which make up the Rio Grande corridor (Albuquerque/Santa Fe), the state is largely rural in makeup with a population density of about 16 persons per square mile.

Thus, the cost of accessing internet backbone networks is critical to the deployment of broadband networks. The costs paid by small local network providers serving a relatively small number of customers will drive significantly the charges and how much capacity they can provide. With 16 local telcos providing last mile services in the state, community anchor institutions relying on the state provider know that their access to last mile services is only as good as the middle mile backhaul delivering information to the internet backbone. Those telcos have limited offerings and much of their potential service area is designated unserved or underserved.

In completing this conversion, the state will enable these last mile providers to enhance their services and their coverage areas by providing points of presence and upgraded facilities. The state will provide a platform to create additional, scalable, and affordable middle mile capacity to accommodate the last mile providers (as appropriate under state law) and, most importantly, public safety critical facilities and community anchor institutions.

Community Anchor facilities benefitted: Public schools (63); public safety (33); medical facilities/community clinics (22). Each of the aforementioned community anchor facilities is located statewide as noted in the uploads (18.4 CCI Anchor Detail and POI).

In 2007, the Governor instituted the IDEAL program to promote distance learning in New Mexico. The goal of the program is to create access to colleges and universities for un-served and underserved citizens of New Mexico who, because of where they live, may lack access to higher education opportunities. This middle mile upgrade will promote broadband connectivity and enhance the opportunities for young people who are the future of New Mexico.

Police and Corrections departments require access to records from other law enforcement and governmental entities. It is essential they have immediate access to such resources for the well-being of those they serve as well as themselves. In some instances, the "beat" of an officer can be well over 200 miles! SIRCITS will facilitate this much needed broadband interconnectivity for public safety.

The state has partnered with some hospitals and medical professionals to expand the opportunities to treat remote populations via telehealth mechanisms. In order to best perform in that atmosphere, including obtaining medical records and performing diagnoses, on-line consultation relies on broadband connectivity. The state department of health has public health clinics throughout the state which are, very much, community anchor institutions.

Increased middle mile points of presence will enhance existing connectivity for these facilities and further expand opportunities for them and the citizens they serve.

SIRCITS will also address the need for a public safety 700 MHz broadband system in New Mexico. This system will utilize LTE wireless technology to bring last mile connectivity to public safety first responders and other state users and their partners. The system will become part of the national public safety 700 MHz interoperable broadband network that Congress and the FCC have determined should be built. Government involvement is essential to the early buildout and deployment of this 700 MHz broadband public safety system to meet the critical needs of public safety users in urban areas such as Santa Fe and Albuquerque as well as the rural regions. (18.18 FCC 700MHz Waiver Public Notice and 18.18 700 State of New Mexico Petition for Waiver). This will be the initial phase of what will become a statewide 700 MHz public safety system, that will utilize the NMDMW backbone for backhauling broadband traffic, and will eventually fully interconnect with the national public safety 700 MHz interoperable broadband network.

H. Technology

Technology Type

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

Wireless - Terrestrial Fixed

Wireless - Terrestrial Mobile

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Other:

Technology Questions

Methodology for Area Status:

SoNM/DoIT has determined in light of available data that the SoNM Digital Microwave service area (NMDMW) is "underserved" based on subscribership being 40% of households or less.

Exact data on broadband subscribership rates does not currently exist for the State. NTIA recently awarded SoNM/DoIT approximately $1.4 million for broadband data collection and mapping over a two-year period and $500,000 for broadband planning over a five-year period in New Mexico. Completing the data collection project is necessary in order to give exact data on broadband subscribership. Accordingly, in determining the status of the SIRCITS service areas SoNM/DoIT is forced to rely on information regarding population demographics and general broadband service availability. Based on this information, SoNM/DoIT has determined that broadband subscribership on a state-wide basis is below 40%.

FCC statistics show that only 78% of New Mexicans have access to DSL service and only 77% have access to cable modem service, well below the national averages of 82% and 96% respectively. In addition to lagging behind the rest of the nation in broadband availability, New Mexico also lags behind in broadband usage. Even assuming a high subscriber rate of 50% among households residing in areas where broadband service is available, this would still result in a usage rate of less than 40%. But a theoretical 50% take rate would far exceed the actual usage rates among New Mexicans. A report by the Kauffman Foundation and the Information Technology and Innovation Foundation shows that New Mexico ranks 46th in percentage of internet users, 49th in e-government, and 36th in broadband telecommunications.

New Mexican's low broadband usage rates are no surprise given the State's demographics. Low income people with less than a high school degree use the internet less than the rest of the population; similarly rural people use the internet less than urban people, and non-English speaking Americans tend to use the internet less than the rest of the population. The FCC's recent broadband plan states that less than 10% of residents on Tribal lands have broadband service. New Mexico is a largely rural state. One in six New Mexicans live below the poverty

line, with one in four children living in poverty. 28% of New Mexico's population speaks Spanish at home; 9.2% of its population is Native American, with 4% speaking Navajo at home. 22% of New Mexicans do not have a high school degree. Given these demographics, the State of New Mexico faces significant hurdles in overcoming the shortfall in broadband usage and deployment throughout the State.

Based on this information, SONM/DoIT has found that the NMDMW service area has less than 40% broadband subscribership on a household basis. Accordingly SONM/DoIT has classified this service area as underserved. Please note, this service area also includes geographic areas that are unserved.

Description of Network Openness:

SONM/DoIT operates a fiber/microwave network extending throughout the State and serving State users on a non-discriminatory basis. The Middle Mile portion of this project will complete the conversion of this backbone network from analog to digital, providing access to Community anchor institutions and commercial carriers, and reaching virtually all underserved and unserved areas of the State. As a government, SONM's mission is to provide for its citizens and constituents on a non-discriminatory basis, in accordance with FCC rules and orders. SONM has no vested interest or incentive to discriminate against any provider.

There is a large amount of excess capacity on the SONM/DoIT middle mile backbone, particularly in unserved and underserved areas, and the State intends to utilize that capacity as a means to help bring broadband service to those areas. The State will actively partner through sharing agreements with existing last mile providers to facilitate the delivery of broadband services to unserved or underserved areas in compliance with the stated goals of the grant. By State statute, no fees can be accepted from commercial enterprises that access the State Middle Mile and access will be provided based on the concept of an access swap of fair market value transport facilities. Under this provision, the State of New Mexico will provide Middle Mile access in exchange for similar value access to commercial broadband facilities and thereby continue to expand the reach, capacity and usability of the Middle Mile throughout the State.

Up to the capacity of the network, the State will not discriminate against any provider. Additionally providers are required to adhere to some specific SONM rules and conditions of use for the network, including a commitment to Net Neutrality. The State will manage traffic on the

network so that public safety traffic that is deemed critical to the life and safety of citizens or first responders will be separate from commercial traffic.

The State will advertise the availability of these Middle Mile services on its web site and other vehicles.

The Last Mile LTE network in Albuquerque and Santa Fe will be built as a public safety grade network serving first responders and government users. Services offered over the LTE network will be provided on a non-discriminatory basis to eligible users in accordance with FCC rules governing public safety spectrum. Additionally, system elements such as base station equipment will be made available on an excess capacity and nondiscriminatory basis to commercial partners through sharing agreements. This network will continue to operate when the commercial networks fail due to overwhelming traffic or during disasters. Experience shows that such hardened public safety networks are the best way to maintain communications during emergencies.

System Design:

SoNM/DoIT operates an existing fiber-optic and point-to-point microwave public safety network operating at 2, 6, 11 and 18 GHz supporting the State Land Mobile Radio (LMR) and State courthouse data transmissions. This network provides extensive coverage across New Mexico– including unserved,underserved rural and remote areas that no other carrier reaches today. The assets of this network include extensive communications equipment, the network operations center, fiber-optic cables, towers,roads, rights-of-way, real estate, buildings, cabinets and other facilities. By leveraging and upgrading this existing infrastructure to support broadband, the State will be able to provide the most cost-effective and shovel ready approach to expedite broadband proliferation in unserved and underserved areas of New Mexico, while also improving communications for public safety, education, healthcare and other community anchor institutions (CAI). The system will serve as the backbone for carrying traffic on the interoperable nationwide 700 MHz public safety broadband network that Congress and the FCC have determined shall be built. The proposed system will provide Middle Mile connectivity enabling equal opportunity for all service providers to reach the unserved and underserved areas of New Mexico. This Middle Mile solution will help eliminate the barriers for local service providers to offer services, while providing the efficiencies of a common infrastructure shared by public safety and multiple commercial service providers.

Each of the 99 tower facilities serves as a point-of-presence for extending connectivity to last mile service providers throughout the State. The service providers can use the tower facilities through sharing agreements and extend connectivity with their preferred technology including fiber, point-to-point microwave, 3.65 MHz WiMax, 2.4 MHz WiFi and other wired and wireless access technologies. While the majority of the anchor institutions will access the network through a local service provider, the Middle Mile will be extended via lateral microwave links to some specific strategic CAI. These microwave tower facilities located predominantly on mountaintops with vast vistas relatively clear of trees are ideally located for fixed wireless access. There is no more cost effective way to offer broadband services of this capacity to sparsely populated areas.

The network is slowly being upgraded from analog to digital microwave to support the transition to IP based Land Mobile Radio. Most of the upgrades to date have been to 155 Mbps, well in excess of what is required by public safety. This project will accelerate the completion of the digital broadband microwave network. Upgrades have and will continue to rely heavily on the existing towers, transmission lines, shelters and antennas minimizing the required changes to sites. DMW technology provides an easy upgrade path for increasing capacity in increments of 155 Mbps while providing some redundancy by using additional microwave frequencies. The Middle Mile bandwidth not allocated for public safety/government services will be dynamically allocated to other users. To manage, direct, shape and allocate traffic each tower location will require a dedicated tower router.

The existing Middle Mile network provides primarily self healing rings of connectivity ultimately routing all traffic to three points of presence on the state spanning fiber-optic network, Santa Fe, Albuquerque, and Las Cruces, where the network will connect to internet facilities. The Network Operations Center (NOC) is located in Santa Fe and is served by redundant fiber and microwave connectivity.

The Middle Mile DMW network is complemented by a Last Mile wireless broadband network based on LTE operating on 10 MHz of 700 MHz spectrum in Albuquerque and Santa Fe. This Last Mile component will become part of the planned nationwide interoperable 700 MHz public safety broadband network. Using existing towers, buildings, fiber, microwave and the NOC, critical infrastructure is already in place. With the addition of digital microwave rings providing redundant LTE backhaul, extending the Middle Mile, and LTE base station equipment in each city, crucial mobile broadband service can be offered to first responders and essential government and CAI. The LTE core switch will be located at the NOC in Santa Fe, and base stations in Albuquerque will be supported over the redundant microwave/fiber-optic cable connection between the two cities. The LTE design will support in-building services to the

central part of each city with site densities increasing to support on-the-street coverage in the periphery of each city. For both in-building and on-the-street coverage the network design is based on providing a minimum of 768 Kbps downstream and 256 Kbps upstream. While this minimum represents the worst case, more typical throughputs approach the 7.5 Mbps maximum downstream throughput available in a given sector. Typical aggregated sustained throughputs average 10 Mbps per site.

Public safety first responders face a critical need for mobile wireless broadband services and the public safety community is underserved by existing technologies. Access to the Last Mile network will be limited to eligible users under the FCC's public safety spectrum rules.

The advantages of the system include:

- Cost-effective, shovel-ready approach by leveraging existing state network and facilities
- Converged broadband backhaul enables providers to deliver broadband to un/ underserved citizens, healthcare, education and public safety
- 155 Mbps Middle Mile statewide network to extend broadband service to un/underserved areas
- Public safety broadband network with better control, flexibility and capacity for all traffic at reduced costs
- Complete logical segregation of different traffic types (public safety, rural broadband, etc)
- Last Mile LTE broadband service to public safety first responders

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	9,450,000	0
Middle Mile	29,249,997	17,000,003
Total	38,699,997	17,000,003

Project Budget Total: $55,700,000

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Match Percent: 30.5%

Projects Outside Recommended Funding Range:

- There are none

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes
Matching cost detail	During the 2010 legislative session, $4.8M was reappropriated to the SONM/DoIT for match to federal dollars that may be obtained to continue the buildout of the State's telecommunications infrastructure, specifically: "…to continue telecommunications infrastructure in the SE quadrant of New Mexico shall not be expended for its original purpose but is reappropriated to expand telecomunication capabilities throughout the state, including the southeast quadrant, and to provide a match for federal broadband technology grants." The second part of the state's cash match is $1M is derived from the Laws of 2009, Chapter 125 & 127, Item 6 wherein $1M was appropriated to plan, design, construct and convert analog microwave towers to a statewide digital microwave network. The amount designated as a cash match is the remainder of the original $1M. Of these appropriations, the State's total cash match is $5.4M. From State FY 1999 through State FY 2009, the legislature made appropriations for the conversion of towers from analog to digital in the amount of just over $27M. In that time, approximately 2/3 of the towers were completed. The net book value of the capital expenditures (assets) will be used as in-kind match. The amount to be used as in-kind match is $11.6M.
Unjust enrichment	The State of New Mexico has neither applied for nor received any federal funds or support for non-recurring costs for any of the new equipment for which the award is sought.
Disclosure of federal	Other than state appropriations being used as already indicated in other documents

and/or state funding sources	attached to the grant application, the State of New Mexico is only using State resources. There are no federal funds derived from any source for this project.
Budget reasonableness	This Middle Mile project completes the transition of SONM's statewide public safety microwave system from analog to digital capability allowing broadband access to anchor institutions and allowing SONM and its partners (through sharing agreements) to support broadband service in unserved, underserved and Tribal areas. A Last Mile component will deploy 700 MHz public safety broadband service. The attached budget is reasonable for the following: Past Experience: the state has already successfully implemented 2/3 of the transition of the statewide microwave system from analog to digital. Independent Quality Control: for large projects in NM, the practice is to use an Independent Verification and Validation contractor to perform independent oversight on projects that have high visibility and have a high risk potential. The state intends to continue to use this best practice. Competitive Bid Process: Any equipment purchased as a part of this grant will be obtained via competitive bid process pursuant to the State Procurement code.
Demonstration of need	New Mexico is, by law, the provider of telecommunications services to state government entities in the state. Coverage includes services to community anchor institutions, such as public health and public safety providers across this very rural state. Because commercial entities in NM find it not commercially viable to reach out in rural areas, large segments of the rural populations in NM are underserved. Thus, the state's equipment upgrade will provide a means for state agencies and the citizens they serve to have access to broadband services by the state partnering with commerical providers as appropriate under state law. Because of its estimated $760M dollar shortfall, the opportunity for

	any build out, without federal support, would be an impossibility. The DoIT did not receive capital appropriations during the FY10 regular and special session that would facilitate completion of the transition. NM would continue to be the last recipient of the broadband opportunities being promoted nationally.

Funds to States/Territories

States	Amount of Federal Grant Request
New Mexico	38,699,997

Funds to States/Territories Total: $38,699,997

J. Historical Financials

Matching Funds			
	2007	**2008**	**2009**
Revenue	7,314,924	2,000,000	242,009
Expenditures	2,500,346	5,258,612	1,092,311
Net Assets	4,765,302	5,936,744	5,086,442
Change in Net Assets from Prior Year	-49,276	9,195,356	5,936,744
Bond Rating (if applicable)	N/A	N/A	N/A

K. Project Readiness

BTOP Organizational Readiness

DoIT has a proven team of experts for network, radio, broadband, and public safety operations and stands ready to deploy and operate the proposed broadband network.

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The New Mexico Department of Information Technology is specifically identified by statute and executive order to provide critical enterprise services to the very diverse and geographically separated group of organizations it serves, including telephony, radio, voice and data systems with over 20,000 devices and a telecommunications network with over 800 circuits.

The State of New Mexico has operated a state-wide analog 2-way radio system on 99 tower sites for over 50 years. The State has used a sustainable business model of calculating operating expenses and depreciation and then establishing customer rates based upon federally audited formulas. This model will be carried forward to the existing project. In light of the DoIT's existing operations, network management, billing, and customer care systems are already in place for the proposed project.

Over the years, the state has gained tremendous expertise in planning, operating, and improving this critical communication network. Staff has extensive experience in-house and working with contractors to resolve network issues due to the topography, terrain, and natural disasters that can impair system functionality. It is anticipated that many of these same contractors will work with the State on the deployment of the proposed project.

The state will use the State's SHARE (ERP) to generate invoices and accounts receivable. The services and network management will be managed through the customer support team that includes a 24-7 network operations center located within the DoIT's Data Center—Help Desk. Operations and provisioning will be managed, where necessary, by increases to existing service contracts. The DoIT is prepared to implement the upgrade to its middle-mile solution using existing resources and will contract with vendors and purchase additional technology with revenues generated from the sale of the network capacity.

Construction and Vendor Contracts

The State has several State Price Agreements (obtained through Requests for Proposals) in place with a number of providers who are able to provide services throughout the state. Approximately 60 (sixty) vendors support the current digital microwave towers.
In addition to the aforementioned price agreements, the State also has price agreements in place with LECs throughout the state that will allow it to connect its middle mile backhaul solution to last mile providers, where appropriate. There are also price agreements for engineering firms with a history of working well with the state. If necessary these contracts will be modified to accommodate the proposed project or if required by law New Mexico will utilize the state

procurement process for services for which it does not currently have contracts. (18.6 SoNM&Local NM Telcos Agreement)

Customer Base

DoIT provides services to 3,400 state entities with offices located throughout the state. In addition to public safety offices these entities include Colleges and Universities throughout the state, public health clinics, correctional facilities, and minority colleges. All of these community anchor institutions are located throughout the state in both rural and urban areas. (18.4 CCI Anchor Detail and POI)

Licenses, Regulatory Approvals and Agreements

Because SIRCITS will leverage SoNM/DoIT's existing 99-tower network, the State has existing ownership and lease rights over nearly all the locations that will be required to implement SIRCITS. The two additional sites being added in Las Cruces and Las Vegas will be acquired through the State's streamlined property acquisition process once final locations are identified. Additionally it is anticipated that the several new sites planned for Albuquerque and Santa Fe will be placed on state-owned buildings.

SoNM has all needed FCC licenses allowing operation of the 99-site DMW system. A list is attached at Exhibit 5. SONM plans to apply for and obtain FCC licenses for additional DMW sites planned under SIRCITS, or otherwise to modify the existing licenses to allow for upgraded throughput on the DMW system. On 07/10/2009, SONM filed a petition with the FCC to allow SONM to build and operate a state-wide 700 MHz public safety broadband system on the 10 MHz of 700 MHz public safety broadband spectrum. The FCC placed SONM's petition, along with similar petitions from other jurisdictions, on public notice on August 14, 2009, and the FCC has indicated it will act on these petitions beginning in June 2010. (18.18 700State of New Mexico Petition for Waiver)

SPIN Number

The State of New Mexico does not have a Spin number.

L. Environmental Questionnaire

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Project Description

SONM/DoIT operates an existing fiber-optic and point-to-point microwave public safety network including 99 existing tower facilities. SIRCITS will complete the upgrade of this network from analog to digital, expanding the capacity to 155 Mb, and will add a last-mile 700 MHz component in Albuquerque and Santa Fe. The middle mile portion of the project covering the statewide SoNM Digital Microwave service area (NMDMW) will leverage the 99 existing site locations, some of which will require renovation, including possible installation of generator, structural modifications to or upgrading of existing towers, upgrading of site capacity, installing of pre-fabricated building, and installation of new site equipment, depending in each case on current site conditions. Two additional sites will be added as part of the middle mile project, one in Las Cruces and one in Las Vegas. The last-mile 700 MHz LTE components will utilize existing SoNM/DoIT microwave tower sites in Albuquerque and Santa Fe, with several new locations to be added; all new sites will be placed at locations already used as tower/transmitter sites so no land use changes will occur.

Maps included with this application in the uploads section show the locations where site work will be needed as part of SIRCITS. Descriptions of changes at sites are set forth in the budget documents and upload sections.

Property Changes

No significant new construction or changes are contemplated other than minor changes to existing sites. Accordingly, land use is compatible with current land use and zoning for each site. There is no land clearing, excavation or fencing planned at any site as part of the project. The majority of existing sites are on federal land, with about one-third on private land. The State has existing leases for sites on Federal Land. Some tower sites may require modification or replacement of tower based on load bearing analysis and current tower age, and some sites may require replacement of out buildings located on the site based on age to accommodate equipment or generator installation. However, physical changes to property or ground will be minimal or non-existent since any modifications will be on existing sites using existing footprints. With regard to the new tower sites planned for Las Cruces and Las Vegas, these will be placed at existing tower locations and buildings. Accordingly no land use changes are contemplated. The several new transmitter locations planned for the Albuquerque 700 MHz and the Santa Fe 700 MHz service areas will be placed at existing tower sites and buildings as well. In all cases site

changes will be approved in advance as per leasing requirements, and will be carried out in accordance with State and Federal laws, as well as SoNM/DoIT compliance procedures and applicable State Administrative Rules.

Buildings

As the state's telecommunications provider, many of SoNM/DoIT's towers and buildings have been in operation for over 20 years or have exceeded their structural lifespan. In light of new tower designs, building materials, technology efficiencies as well as projecting system needs into the future, it is prudent to replace older structures and materials. With regard to buildings, the State uses manufactured buildings that are placed at the site rather than constructed on site. If a new building is required, the old structure will be removed and a new structure will be built at the existing location. Anticipated construction activities are set forth in the budgetary and upload sections. All construction activities will be carried out in accordance with existing leases and in compliance with State and Federal laws as well as SoNM/DoIT compliance procedures and applicable administrative rules.

Wetlands

SoNM/DoIT is not aware of any wetlands present on or near the project sites affected by construction. The project utilizes existing sites and does not contemplate any change from existing land use at any site; any construction and egress will occur on existing sites that have been in place for years. The two new sites planned for Las Cruces and Las Vegas will be within the respective city limits and will be placed on towers or buildings already used for communications facilities; they will not be placed at any location that is near or in a wetlands area. Similarly, the several new transmitter locations planned as part of the Albuquerque and Santa Fe 700 MHz LTE last mile deployment will be placed at existing tower locations or on existing state-owned buildings; they will not include any location that is near or in a wetlands area. In all cases site changes will be approved in advance as per leasing requirements, and will be carried out in accordance with State and Federal laws, as well as SoNM/DoIT compliance procedures and applicable State Administrative Rules.

Critical Habitats

No impact on critical habitats is expected as a result of the SIRCITS project. The project utilizes existing sites and does not contemplate any change from existing land use at any site; any construction and egress will occur on existing sites that been in place for years. The two new

sites planned for Las Cruces and Las Vegas will be within the respective city limits and will be placed on towers or buildings already used for communications facilities; they will not be placed at any location in a way that may effect critical habitats. Similarly, the several new transmitter locations planned as part of the Albuquerque and Santa Fe 700 MHz LTE last mile deployment will be placed at existing tower locations or on existing buildings; they will not include any location that may effect critical habitats. In all cases site changes will be approved in advance as per leasing requirements, and will be carried out in accordance with State and Federal laws, as well as SoNM/DoIT compliance procedures and applicable State Administrative Rules. The SoNM/DoIT communications system includes sites in all counties in New Mexico except Harding County, Debaca County and Los Alamos County. Accordingly, a species list obtained from the U.S. Fish and Wildlife Service's Web site: http://ecos.fws.gov/tess_public for the State of New Mexico is attached.

Floodplain

The SIRCITS facilities and sites are not located within a 100 or 500-year floodplain. SoNM/DoIT is restricted from placing facilities in floodplains. The project utilizes existing sites and does not contemplate any change from existing land use at any site; any construction and egress will occur on existing sites that been in place for years. The two new sites planned for Las Cruces and Las Vegas will be within the respective city limits and will be placed on towers or buildings already used for communications facilities; they will not be placed at any location in a way that may be adversely effected by floodplains. Similarly, the several new transmitter locations planned as part of the Albuquerque and Santa Fe 700 MHz LTE last mile deployment will be placed at existing tower locations or on existing buildings; they will not include any location that may be effected by floodplains. In all cases site changes will be approved in advance as per leasing requirements, and will be carried out in accordance with State and Federal laws, as well as SoNM/DoIT compliance procedures and applicable State Administrative Rules.

Protected Land

No impact on protected lands is expected as a result of the SIRCITS project. The project utilizes existing sites and does not contemplate any change from existing land use at any site; any construction and egress will occur on existing sites that been in place for years. The existing statewide microwave system includes one tower site that is located on Tribal lands pursuant to an existing lease agreement. The project does not include any change that will impact historic preservation concerns at that existing site. No additional sites are planned on Tribal lands as a

part of this project. The two new sites planned for Las Cruces and Las Vegas will be within the respective city limits and will be placed on towers or buildings already used for communications facilities; they will not be placed at any location that is protected land. Similarly, the several new transmitter locations planned as part of the Albuquerque and Santa Fe 700 MHz LTE last mile deployment will be placed at existing tower locations or on existing state-owned buildings; they will not include any location subject to restriction as protected land. In all cases site changes will be approved in advance as per leasing requirements, and will be carried out in accordance with State and Federal laws, as well as SoNM/DoIT compliance procedures and applicable State Administrative Rules.

Coastal Area

The State of New Mexico is not located in a coastal area and there are no sites in coastal areas.

Brownfield

The project does not include sites located within a brownfield site.

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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	18 1 Service Offerings and Competitor Data.xls	Mackey, Marlin	03/25/2010
Network Diagram	18.2 Network Diagram - LTE Network.pdf	Mackey, Marlin	03/25/2010
Network Diagram	18.2 Broadband Grant Network Diagram.pdf	Mackey, Marlin	03/25/2010
Build Out Timeline	18.3 SIRCITS - CCI Build-Out Timeline.doc	Mackey, Marlin	03/26/2010
List of Community Anchors and Points of Interest	18 4 CCI Anchor Detail and POI.xls	Mackey, Marlin	03/24/2010
Management Team Resumes and Organization Chart	18.5 Resume of Thomas A. McQuillan.pdf	Mackey, Marlin	03/22/2010
Management Team Resumes and Organization Chart	18.5 Resume of Charles J Martinez.pdf	Mackey, Marlin	03/22/2010
Management Team Resumes and Organization	18.5 Resume of Marlin L Mackey.pdf	Mackey, Marlin	03/22/2010

Chart			
Management Team Resumes and Organization Chart	18.5 Resume of Philip M. Bachicha.pdf	Mackey, Marlin	03/22/2010
Management Team Resumes and Organization Chart	18.5 Resume of Victoria B. Garcia.pdf	Mackey, Marlin	03/22/2010
Management Team Resumes and Organization Chart	NM Dept. of Information Tech Org Chart.pdf	Mackey, Marlin	03/22/2010
Government and Key Partnerships	18.6 Gov Richardson Support Letter.pdf	Mackey, Marlin	03/23/2010
Government and Key Partnerships	18.6 DPS Support Letter.pdf	Mackey, Marlin	03/23/2010
Government and Key Partnerships	18.6 NMHED Support Letter.pdf	Mackey, Marlin	03/23/2010
Government and Key Partnerships	18.6 SoNM&Local NMTelcosAgreement.pdf	Mackey, Marlin	03/23/2010
Government and Key Partnerships	18.6 DPS Support Letter 2.pdf	Mackey, Marlin	03/24/2010
Government and Key	18.6 DPS Letter of	Mackey, Marlin	03/24/2010

Partnerships	Support 3.pdf		
Government and Key Partnerships	18.6 Navajo Nation Support Letter.pdf	Mackey, Marlin	03/25/2010
Historical Financial Statements	18.7 BTOP2 CCI Guidance Historical Financials.pdf	Mackey, Marlin	03/23/2010
Historical Financial Statements	18 7 Analysis of Cap Proj's_FY07 - FY09_C.pdf	Mackey, Marlin	03/23/2010
Historical Financial Statements	18.7 Verbiage to Historical Financials.pdf	Mackey, Marlin	03/23/2010
Budget Narrative	18 8 Budget Narrative.doc	Mackey, Marlin	03/26/2010
Detailed Budget	18.9 Broadband Grant Budget Overview 18 9 (2).xls	Mackey, Marlin	03/24/2010
Pro-forma Forecast	18.10 CCI Pro Forma Financial Projections.xls	Mackey, Marlin	03/26/2010
Subscriber Estimates	18 11 CCI Subscriber Estimates.xls	Mackey, Marlin	03/25/2010
Dashboard Metrics	18 12 CCI Key Metrics Dashboard.doc	Mackey, Marlin	03/26/2010

Service Area Data	18 13 CCI Service Areas.xls	Mackey, Marlin	03/25/2010
Waivers	18.14 CCI Waivers.pdf	Mackey, Marlin	03/23/2010
Waivers	18 14 Waivers.pdf	Mackey, Marlin	03/23/2010
Network Maps	18.15 Coverage and Data Rates Plots Albuquerque-Santa Fe v2.pdf	Mackey, Marlin	03/24/2010
Network Maps	18.15 NM-Rural+Remote-Areas Map.pdf	Mackey, Marlin	03/26/2010
Network Maps	18.15 NM Native-LandsMap.pdf	Mackey, Marlin	03/26/2010
Network Maps	18.15 LEC Boundaries Map.pdf	Mackey, Marlin	03/25/2010
Network Maps	18.15 Broadband DMW-Fiber map.pdf	Mackey, Marlin	03/26/2010
BTOP Certifications	18.16 Btop Certification.pdf	Mackey, Marlin	03/23/2010
SF-424 C and D	18.17 SF-424C and 424D.pdf	Mackey, Marlin	03/24/2010

Supplemental Information	18.18 700State of New Mexico Petition For Waiver.pdf	Mackey, Marlin	03/23/2010
Supplemental Information	18.18 NM State Price Agreement.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 NM Exec. Order 2008-011.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 NM Exec. Order 2009-13.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 Tribal EO_2009_037.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 1.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 2.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 3.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 4.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 5.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 DMW Site 6.pdf	Mackey, Marlin	03/25/2010

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Supplemental Information	18.18 SUPPORTING STATEWIDE DATA CIRCIUTS-ANCHOR INSTITUTIONS.xls	Mackey, Marlin	03/26/2010
Supplemental Information	18.18 8 Year Projection_Est'd Cust Rates.xls	Mackey, Marlin	03/26/2010
Supplemental Information	18.18 Microwave Radio Network.pdf	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 BTOP Qualification.doc	Mackey, Marlin	03/25/2010
Supplemental Information	18.18 Environmental Questionnaire Species Report.doc	Mackey, Marlin	03/25/2010