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. 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 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.