Connex USA seeks to deploy its Broadband WiMesh Network to provide affordable broadband services to rural citizens of the North East Oklahoma, specifically the rural areas of Mayes County, Craig County and Ottawa County. Since 2004, Connex USA has been providing communications services to its customers with the goal to serve the public first by meeting customer expectations, operating with integrity, providing reliable and prompt service and to maintain the lowest price possible. A migration to a wireless broadband system will ensure that high-speed access will be available to rural customers and consumers in the North East parts of Oklahoma. Connex USA intends to bring choices to this area, by allowing the customers a choice between dial-up or high-speed access. Connex USA will offer high speed access and quality service at an affordable price. Through this expansion of service, Connex USA will be able to provide public safety, educational, medical, governmental and other community and faith-based institutions and organizations with a higher quality, lower priced broadband service. It will create a more “economic development friendly environment” for new and existing businesses, ultimately providing economic growth and new job opportunities for local citizens. The proposed Connex USA service territory covers a majority of North East Oklahoma, specifically the Counties of; Mayes, Craig and Ottawa. The service area is comprised of 16,397 households; 1,803 businesses; and 12 community institutions, public safety entities and critical community organizations.. Approach to addressing the non-discrimination and interconnection obligations: Connex USA already adheres to a strict set of non-discrimination policies to ensure all of its customers are provided high quality service. These same policies and standards will apply to its expanded territory. Connex USA adheres to all of the guidelines of the FCC’s broadband policy, provides neutral traffic routing and has implemented network management policies that ensure its Internet services are available to all consumers and other entities in its service area. Also, Connex USA has a dedicated department, which manages its network management policies and communications with customers of its Internet services. All of the policies and terms of service for Connex USA’s Internet services are posted on their website, www.cnxusa.com, and e-mailed directly to its customers when there are modifications to the service agreements or network use policies. Connex USA has a proven track record of working with consumers and other entities to ensure they have access to the public Internet using its services. Connex USA will deploy a Broadband WiMesh Network – a multi-layered hierarchy comprised of a network operations layer, core backbone layer, broadband mesh layer, broadband access layer and client access layer. Each system layer provides communication throughout the network. It uses a distributed mesh architecture design to improve reliability and achieve system redundancy. The system is standards based open architecture, enabling Connex USA to adhere to compatibility with NIST’s (National Institute of Standards and Technology) emerging IEEE
802.16 Broadband Wireless Access interoperability standards and protocols. It has the ability to provide high bandwidth, and its scalability will enable Connex USA to provide greater capacity to the system, as Connex USA’s Broadband WiMesh Network (CNXWN’s) customers grow. The CNXWN is designed for an operating life in excess of 20 years. Each component is conservatively designed, will be thoroughly tested, and closely monitored during installation and initial operation. The network is non-proprietary, open architecture which is modular in style with I/O expansion and communications on separate boards. It can be easily scaled upward or downward through the addition/removal of components within the system infrastructure. The CNXWN network design will consist of 216 super nodes and 3,132 basic nodes, rated NEMA4x and IP65/66. These basic nodes will communicate back to the super nodes. The super nodes use sector and parabolic antennas to wirelessly connect multiple basic nodes to the wide area network (WAN) and are directly connected to the microwave infrastructure to complete the communications network backhaul. The basic nodes consists of the router enclosure (10”x10”x6”) with several omni antennas which offer almost zero wind resistance and their typical weight is around 10 pounds. These nodes offer very high wind resistance and are completely sealed die cast boxes secured by multiple screws with weather tight seals. These nodes would have to be physically cracked to leak. Each node also contains a desiccant system that removes any moisture present in the air, keeping humidity to zero in the enclosure to maximize the life of contained components. A significant advantage of the CNXWN is that it is component based, allowing for a communication card or the CPU to be changed out, eliminating the need for a complete replacement of the system to provide a new radio frequency or faster processor. The wireless nodes will transmit to one another over a mesh infrastructure at a 5.8 GHz frequency band. Wireless nodes will be integrated into the network through a connection into the microwave infrastructure that will exist throughout Connex USA’s service territory. Connex USA’s microwave infrastructure will of over 18 microwave units on 9 strategically-placed towers, designed and configured to “self-heal” during a failure and capable of Gigabit network speeds or greater. The network is designed into Virtual Local Area Networks (VLANs) to provide for a highly secured network. Connex USA has been providing its customers with Internet services since 2004, focusing primarily on businesses. The Connex USA technical, operational and financial departments are experienced at providing Internet services for its customers. These years of service in the broadband arena has prepared Connex USA to be a successful residential and commercial broadband provider for North East Oklahoma. As a result of approved BIP funding, Connex USA estimates that there would be approximately 2,576 residential and commercial customers the first year broadband service would be offered, growing to 9,368 residential and commercial customers by the fifth year. Connex USA is properly staffed to handle the marketing of its new broadband service, connecting existing and new users to the system, and tracking system usage, making needed adjustments to the broadband system and then providing customers with accurate and timely billing. The management structure is well established and successful. The Information Technology Services department is a highly skilled technical group, and they are easily capable of implementation and management of the communications network. The Billing and Customer Service department has demonstrated technical and people skills to successfully work with customers on a daily basis. For the deployment of the Broadband WiMesh Network, Connex USA will partner with ISInets. Since 1999, ISInets has been an independent provider of outsourced communications and systems engineering and integration services and other technical services for the communications industry, federal, state and local government, and enterprise
customers. The principal services they provide include the design, deployment, integration, and the overall management of communications networks. They also provide communications systems engineering, systems integration, and the outsourcing of technical services such as operational test and evaluation, project market evaluation and program management. During the construction period of the broadband wireless mesh project deployment, over 45 individual jobs are expected to be used to install, configure and implement the broadband technology. Various manufacturers will need to supply equipment for CNXWN such as wireless nodes, servers and other equipment requiring them to maintain or increase their staffing to fulfill their obligatory parts of the project. The anticipated length of construction is 6-12 months. There will be several jobs either created or retained for sales, maintenance and support due to the broadband wireless mesh technology being implemented. The proposed cost to develop and implement the Connex USA WiMesh Network is $56,134,016.