**Applicant Name:** MESA, CITY OF

**Project Title:** City of Mesa, AZ TOPAZ Regional Wireless Cooperative 700 MHz LTE Public Safety Broadband Network

**Project Type:** Comprehensive Community Infrastructure

_______________________ Executive Summary _______________________

The Opportunity The City of Mesa, as Administrative Manager of the TOPAZ Regional Wireless Cooperative (TRWC), is submitting the enclosed application for funding of a regional wireless system to provide broadband services to the region's public safety agencies. The City of Mesa recently applied, and received, a waiver from the FCC to begin deployment of a 700MHz LTE Public Safety Broadband network. There is an urgent need to provide reliable, affordable, and prioritized wireless broadband data service to first responders, infrastructure partners and supporting agencies. The current usage of commercial broadband wireless networks does not provide adequate coverage or the reliability needed for public safety users. Commercial broadband wireless service is expensive to the agencies and has shown more delays with the advent of increased private consumer web application usage. For the past several years, the City of Mesa and TRWC have operated a mission-critical 800 MHz P25 interoperable voice system in addition to a UHF mobile data system. Due to bandwidth limitations, the UHF data system has been providing only the most basic mission critical data needs such as Computer Aided Dispatch and Automatic Vehicle Location. The aging UHF mobile data system has become obsolete and is in desperate need of replacement. The manufacturer of the infrastructure and mobile subscriber equipment no longer supports the equipment. Because voice and data communications are an integral part of a public safety system, the City of Mesa and TRWC are dedicated to regional cooperation in building and operating an interoperable public safety communications infrastructure to provide the highest feasible level of prevention, protection, response and recovery from acts of terrorism and other catastrophic events in the region.

Background The TRWC Region covers over 280 square miles in the Southeast Phoenix/Mesa Standard Metropolitan Statistical Area and represents over 750,000 citizens. Members of the TRWC include the City of Mesa, the City of Apache Junction, the Towns of Gilbert and Queen Creek, and the Apache Junction Fire District. Within this area there are 263,917 households, 20,239 businesses and 175 community anchor institutions (schools, hospitals, clinics, etc.). The TRWC network itself would connect 19 public safety agencies (Law Enforcement, Fire/Rescue, Emergency Medical, and Emergency Management), Mesa Community College, Mesa Public Schools and the City of Phoenix Water Department. Proposed System The proposed public safety broadband network will utilize the 700 MHz spectrum and will increase the interoperable broadband communication capabilities of first responders and public safety agencies by improving the ability of public safety entities to utilize applications made possible by broadband technologies. In addition, it will provide a dedicated broadband capacity for public safety uses and create a statutorily required interoperability framework for use across the United States. There are many potential benefits in building a 700 MHz Broadband...
LTE system, including: allowing police officers to exchange mug shots, fingerprints, photographic information and enforcement records; allowing firefighters to have access to floor and building plans and real-time medical information; providing high resolution photographs and real-time video monitoring of crime scenes to incident command centers. There are also several advantages of the proposed 700 MHz Broadband LTE network over using commercial grade networks. A public safety controlled network will have better reliability, security, and coverage. Commercial networks are designed to be where the customers are, not necessarily where the emergencies occur and generally become overloaded and unusable during major events and disasters. Non-Discrimination The issue of Network Openness is not applicable to the current project. As outlined in the BTOP FAQs published on May 28, 2010, the requirements of Network Openness are subject to the needs of law enforcement and reasonable network management. For single-purpose 700 MHz public safety networks, such as the current proposed project, NTIA has concluded that the 'needs of law enforcement and reasonable network management' exception effectively exempts 700 MHz public safety applicants from compliance with the nondiscrimination and interconnection obligations. With respect to such public safety networks, applicants, including public safety applicants, will have the ability to deploy secure private networks and prioritize traffic as they deem necessary. (Second NOFA at V.D.3.b.) Technology The current proposal for a 700 MHz Broadband LTE network that is being submitted by the City of Mesa and TRWC maximizes the use of the City's existing 38 tower sites while adding 31 new sites. The system will have the ability to support up to 300 concurrent active users. The system coverage is modeled to provide on-street coverage using a portable or hand-held device with an average data rate up to 800 Kbps in the uplink direction and an average data rate of 3 Mbps in the downlink direction within the primary service area and 200 Kbps in the uplink direction and an average data rate of 768 Kbps in the downlink direction in the outlying service area. Qualifications The City of Mesa is the Administrative Manager of the TRWC. Both the City of Mesa and TRWC will be responsible for the deployment and management of their 700 MHz Broadband LTE public safety network. The TRWC operates the voice and data radio systems utilized by multiple jurisdictions to maximize public safety and service-oriented communications to promote interoperability. By working together, the TRWC fosters regional efficiencies that ultimately better serves its citizens. The City of Mesa Communications Department already provides critical enterprise services to the TRWC partners, including a 700/800 MHz 2-way voice and a UHF mobile data system. The voice radio system supports over 4000 subscriber units. The existing mobile data system supports over 600 mobile units. The City of Mesa staff provides technical support, maintenance and preventative maintenance services for the entire voice, mobile data and microwave radio network infrastructures for all of the partners of the TRWC. The organization is prepared to implement the 700 MHz Public Safety Broadband Network solution using existing communications staff and additional resources. Budgeted Cost Current budget cost for this project is $49,882,294. The City of Mesa and TRWC will be providing cash and in-kind matches of 22.2% ($11,084,679). These budgeted costs are for a complete turnkey system, including equipment procurement, system installation, system engineering, project management, system implementation and operation. Subscriber Projections By the end of year 8, the City of Mesa/TRWC estimates a total of 4,000 end-user public safety subscribers to the LTE network. Job Estimates Using the Council of Economic Advisor's methodology, the City of Mesa predicts that this proposal will create 181 direct and indirect job years and 102 induced job years.