A. Opportunities The City of Grover Beach proposes to develop a Middle Mile fiber broadband network to provide connectivity to unserved rural areas. The proposed Grover Beach Municipal Fiber Network (GBMN) would be a public/private partnership between a consortium of local companies and the City of Grover Beach. For the purposes of this grant the network will serve two purposes; provide broadband services to the unserved and to stimulate economic development in the City’s industrial areas and main commercial corridor. Once the infrastructure is in place to meet the objectives the city and can continue to implement the city’s technology master plan. Grover Beach has a unique opportunity to create economic stimulation centered on a fiber optic and wireless network delivering low-cost/high-speed broadband throughout the City of Grover Beach and Oceano. While cable and phone line Internet Service Providers (ISP) are still trying to capitalize on their most recent upgrades, demand for increased bandwidth is forcing to the surface the inadequacies of coaxial and copper lines. Bandwidth intensive applications and video-on-demand (VoD) services are becoming available with increasing frequency but they will not be available to the residents of Grover Beach unless the incumbent carriers upgrade their networks to fiber optics. If a municipality decides to create a broadband utility for the community it takes control of the wiring of the community and can create a technology master plan that will not only provide existing and future services to the community but create an environment conducive to economic development in an ever changing economic and work force landscape. Many cities and towns can point directly to relocated companies for whom access to fiber broadband was a gating factor to moving into the city. In 1999 Pacific Crossing established a trans-Pacific fiber optic cable landing point in Grover Beach. Along with the City of Mukilteo in the State of Washington, the cities of Shima and Hitachinaka in Japan, the City of Grover Beach is one of four landing points that create a very important redundant fiber optic loop carrying data and communications traffic between Asia and North America. 

B. Service Area The “Five –Cities” area of the Central Coastal California is a rural region made up of Grover Beach, Oceano, Arroyo Grande, Pismo Beach, and Nipomo Mesa. The aggregate population is 48,091 with 19,770 households and ~1,175 businesses. The proposed funded service area includes Grover Beach, Oceano, Avila Beach, Sunset Palisades, and Shell Beach for a total of 10,980 residents (87% unserved) and 515 businesses. There are 19 anchor institutions bypassed – City and County Facilities, US Coast Guard, Port San Luis Harbor Patrol, California Polytechnic Marine Institute, and Lucia Mar Unified School District. These organizations will receive IT services such as: o a City administration VoIP system data and SCADA systems o a City police managed surveillance system with fixed and wireless remote cameras o real-time video feeds from fire and other first responders to incidents o integrated public safety communications for both internal operations and for affiliated-agency
interoperability C. Services and applications Following is a list of services: • Internet Service Provider (ISP) for businesses and residents – provide network access to commercial communications services like AT&T, Charter, Verizon, etc. • Video Conferencing and real time interactive gaming • Traditional cable and network television services • Enhanced video security and surveillance systems for public and private safety • High-speed video and telecommunications with local, state and federal agencies in times of emergency • Voice over Internet Phone (VoIP) services Public safety can benefit greatly from a community broadband network. Key components are digital monitoring, exponentially larger communications channels, guest accounts for allied agencies and real-time video incident documentation. High resolution, real time, remotely controlled video for public and private surveillance only works on very high-speed networks. The Pacific Crossing Building and its cables running through the streets of Grover Beach are designated as part of the Department of Homeland Security's National Infrastructure Protection Plan (NIPP) and qualifies for funds for enhanced security. D. Open Municipal Network GBMN is a Middle Mile provider of fiber optic backhaul and collocation facilities. The network will be open to legitimate Internet Service Providers and digital content and entertainment providers. Each will be expected to qualify based on experience, financial stability, and other common vendor qualification criteria. E. Network Architecture For the purposes of the application, we are proposing the network begin with a 1,250 square foot network operations center (NOC) which will house all data and telecommunications equipment needed to provide full internet and communications services. The facility is of sufficient size to take full economic advantage of the capital cost of the building and network equipment. Additionally the City will erect and manage at least three wireless antenna towers. These will provide Middle Mile and last-mile wireless services to Oceano and areas of Grover Beach not covered by the fiber network. Wireless does not have the same right of way constraints laying fiber cable does, so the City's network can expand beyond city limits. Upon completion of Phase 1, the City will own a fully functional high-speed broadband Middle Mile network capable of delivering the most advanced digital communications services. The network includes a collocation facility and fiber optic & wireless backbone. The first step was to place 'shadow conduit' in areas where sewer upgrade projects are taking place. Shadow conduit does not have fiber in it, but is in place for future use. Trenching for placing fiber is very costly, not to mention the inconvenience created for the community. By adopting a policy that requires all projects involving trenching in City right-of-ways are required to place shadow conduit. By this means the City can, over time, create a wider network as segments of shadow conduit come in contact with lit fiber. F. Statement of Qualifications For the purposes of the grant application process, the City could designate Digital West Networks as the collocation management company and Surfnet as the ISP. The grant application weighs heavily on past experience of the team to successfully complete the project. The City has expertise valuable to some areas of the network deployment and operations, but lacks many of the data communications industry professionals to operate such a network. The inclusion of both companies significantly strengthens the project team and increases the chances for grant approval. The operations of the network could be handled by one of the partner companies with a background in datacenter and fiber optic network management. The network would be based on the wholesale model in that GBMN would open the network to qualified service providers of internet, telephony and television. This would stimulate the creation of new companies in the area and allow incumbent carriers to convert their customers over to the network. This would increase competition while decreasing costs to the end user. No one is left out. G. Total Costs Enter Funding
Breakdown in verbal format here. H. Customers

The City has two opportunities for revenue from the network: wholesale bandwidth to service providers and collocation to service providers and other businesses. An industry rule of thumb is a collocation facility should make $1,000 per year per square foot. In this case the revenue potential (based on rentable space) for the City's building is $1,000,000 per year. Analysis based on industry standard assumptions and current service pricing information from AT&T and Charter Communications, the potential revenue for both companies in Grover Beach is estimated to be between $3.3 million and $4.3 million per year. If the City were able to capture this traffic, with AT&T and Charter as network clients, and the wholesale rate on bandwidth was 40%, the City's revenue potential could be $1.3 million to $1.7 million per year. Add on top of this the additional income from Oceano and wireless customers in the Five Cities area. Fiber-to-the-home (FTTH) continues gaining momentum delivering triple-play services to customers, however it may not be the optimal solution for every broadband network deployment. Some municipalities are opting to take fiber to the curb (FTTC) or node (FTTN) as necessary and let paying customers or third party vendors pay to get it to the home. Wireless is a viable alternative when trenching or aerial fiber is prohibitive and should be done in conjunction with a fiber network so that maximum speeds of connectivity can be attained. There is no such thing as a "one size fits all" solution when deciding to build a broadband network. I. Economic Impact

Economic development and redevelopment seek to help existing businesses grow, help new businesses start, and attract business from outside the area to relocate or open satellite offices. Eleutian Technologies could open a 10,000 sqf training center with 6 fulltime employees and 100 to 150 part-time employees comprised of credentialed teachers and retirees with teaching skills. Based upon discussion with Eleutian, Grover Beach is an ideal location except it lacks fiber connectivity. This single business could bring over $3 million per year in salaries into the local economy – money coming from Korea to Grover Beach via the trans-Pacific fiber cable.