Regional Emergency Broadband Access ('REBA') is a new mesh satellite and wireless network that delivers emergency broadband communications (the 'REBA Service') to local first responders and other local community anchor institutions when terrestrial communications infrastructure ('land lines and/or cell phone towers') are compromised by an emergency or disaster. The REBA Service enables local first responders to communicate directly with each other and with any working telephone or computer anywhere in the world when their regular communications services are disrupted. There is no such emergency communications service available to local first responders in Missouri or any other community in America. BTOP funding will create a REBA network in Missouri and demonstrate that REBA is a reliable, simple and affordable way to deliver emergency communications to local first responders and community anchor institutions throughout the U.S. ODN is seeking $4,821,618 in BTOP funding to install REBA at seventy-four (74) Proposed Funded Service Areas (the 'REBA Cells') in Missouri. The REBA Cells are located in Tornado Alley and the New Madrid Seismic Zone. They cover a cross section of Missouri demographics and include rural areas, urban areas and underserved areas. There are 312 public safety entities, 50 medical healthcare providers, 15 community colleges and 49 universities in the REBA Cells, each of whom will have the opportunity to receive REBA Service. ODN and REBA users will make an in-kind contribution of $2,068,000 in services, equipment and operating leases for a total budget of $6,889,618. The cost to create a REBA Cell is less than $80,000. The capital cost to deliver the REBA Service to all of the REBA Cells is less than $18 per household. ODN's application is supported by the Missouri Department of Transportation ('MoDOT'), Mineral Area College, Missouri Southern State University and the University of Missouri Police (the 'Partners'). The Partners have agreed to host or negotiate to host REBA Sites at their facilities, pay for REBA Service and promote it to first responders, medical care providers and others in their local communities. There are three components to REBA; 1) a satellite mesh network; 2) a REBA Hub Site; and 3) a REBA Remote Site. The satellite mesh network provides satellite communications that are 'meshed' by ODN's equipment at a secure teleport in Georgia (the 'Teleport'). The Teleport has a direct connection to the public switched telephone network ('PSTN') and Internet. Mesh enables the very small aperture terminals ('VSAT's') in a multi-user satellite network to communicate with the Teleport or directly with each other using one (1) round trip to a satellite. Mesh enables all of the participants in a multi-user VSAT network to use satellite bandwidth for IP applications and thus become part of the Internet. A REBA Hub Site consists of 1) a VSAT that is constantly connected to the satellite; 2) back up power; 3) a router that enables the mesh link to operate; 4) a military grade wireless transmitter and router (the 'Wireless Unit'); and 5) a VoIP telephone. A REBA Hub Site is selected based on the host being able to 1) provide 'high ground' for
the Wireless Unit antenna; 2) emergency electricity; and 3) a willingness to promote REBA in the community. The Wireless Unit has an omni-directional range of seven (7) miles and a point to point range of thirty (30) miles. It can securely serve up to one hundred (100) REBA Remote Sites and also has a mesh capability, i.e., Wireless Units can communicate directly to each other at speeds of up to 10Mbs (secured) and 23Mbs (unsecured). A REBA Remote Site consists of 1) a Wireless Unit; 2) a Cisco router and 3) a VoIP telephone. A REBA Remote Site connects to the satellite and the outside world through a REBA Hub Site. Or it can communicate with other REBA Remote Sites in the REBA Cell through the Wireless Units. BTOP funding will enable the installation of 222 REBA Remote Sites. For a $250 monthly service fee, REBA delivers 24/7 VoIP, 24/7 broadband access at 1024 Kbs upstream and 512 Kbs downstream and 24 hours a month in satellite time in three (3) eight (8) hour blocks. Each REBA user can buy additional satellite time. REBA works with any IP device. REBA is on 24/7 and very simple to use. End users can be trained to use REBA in less than an hour. By far the biggest impact REBA can have is that it will change the way emergency communications services are delivered to local first responders and other local community anchor institutions. Mesh technology enables VSAT's in multi-user satellite networks to communicate with each other and the outside world using Internet protocols, i.e., become part of the Internet. Emergency communications are now simple, reliable and inexpensive. The implications are huge. Emergency communications systems have traditionally been the province of the military and large government agencies. Those systems are closed, expensive proprietary systems dedicated to implementing the mission of the agency that owns them. As a consequence, local communities rely on those large agencies to respond to emergencies because the large agencies are usually the only entity able to communicate effectively during an emergency. The results are not always optimal, as the experience with FEMA during Hurricane Katrina demonstrates. REBA makes effective emergency communications systems reliable, simple and affordable at the local level. Local first responders -- police, fire and EMS -- can now use REBA equipped VSAT's to create their own emergency communications network, i.e. a REBA Cell. This means local first responders can communicate in an emergency with each other and the outside world using VoIP, computers and any other IP application they chose. They do not have to rely on state or federal agencies for their emergency communications. They will not have to wait until the telephone company restores service or the FEMA trailers arrive and they can fully function -- a wait measured in lives and misery. BTOP funding will showcase REBA and give local decision makers the incentive and confidence to adopt mesh satellite/wireless technology for their emergency communications needs.