Today’s Emergency Medical Response communications systems are no longer adequate to serve the needs of the United States in the 21st century. The current communication system is outdated, expensive and difficult to maintain. The National Highway Traffic Safety Administration has reported that over 90% of all states have inadequate EMS communication and information systems. In addition, the National Association of EMS Physicians report "EMS of the Future" calls for a major overhaul of the emergency medical information and communications infrastructure. Current EMS communications systems are frequently incapable of meeting the needs of day-to-day operations, let alone responding to natural disasters or multi-casualty medical emergencies caused by terrorist attacks on the homeland. The U.S. lacks a comprehensive prehospital syndromic surveillance system that monitors real-time paramedic patient medical data. EMS-Net provides prehospital detection of emerging infectious diseases or bioterrorism events to provide the earliest possible warning, thereby safeguarding the community, first responders and preserving the medical integrity of hospital and emergency departments. Current systems, either in place or planned, do not use wireless prehospital data for the detection of emerging infectious disease. The existing paper based EMS patient encounter results in delayed and missed reimbursement. With today’s fiscal crisis, cities are forced to reduce fire and paramedic services. A digital wireless prehospital data collection system will provide for more rapid and complete billing, increasing revenue, allowing the retention of paramedic and fire staff. EMSAT will integrate a wireless syndromic medical surveillance system into the day-to-day operations of first responders. Paramedics capture patient data, and wirelessly transmit such data to a command and control hospital, which relays the information to the receiving hospital. Secure, HIPAA compliant transfer of the patient data is through an internet data-center architecture that uses the data for immediate, real-time syndromic surveillance. The EMS-Net solution is a true innovation in that it is designed to 1) wirelessly collect and transmit data at the first entry into the medical system, 2) integrate commercial off-the-shelf technology for paramedic-to-hospital mobile video stroke and cardiac response 2) provide pre-hospital and emergency department data for detailed trend and syndromic surveillance, 3) provide a field based emergency medical services alert system, and 4) provide a medical education and interactive protocol capability to enhance the detection of rapidly evolving situations, 5) provide a robust, low cost wireless communication router capability for the response ambulance, fire engine responding to a medical or trauma emergency, and 5) use the installed wireless communication router as a mobile ad-hoc wireless mesh network capable of responding to multi-casualty incidents, wild fires, natural disasters and public health emergencies. Furthermore, the data collection system has
demonstrated increased care reimbursement allowing the system to generate increased revenue and provide a self-sustaining business model. The EMS-Net solution will be designed to provide field-based patient data to designated authorities, such as the Department of Homeland Security, the CDC or NIH for command and control purposes. The early detection of potential problems will allow the command and control authority to take swift action to stem an escalation of the problem, thus averting costs in the millions, possibly billions of dollars. The project directly addresses three of the core statutory purposes. The project will provide access, equipment and support to public safety fire and paramedic services, integrating community emergency departments, trauma and stroke centers for rapid and cost effective day-to-day response and care. The project directly supports public safety agencies.

Furthermore, it is a model for the cost effective use of wireless broadband in a way that saves lives, creates and saves jobs, and is self-sustaining. The nation currently does not have a system such as EMS-Net that leverages advanced and emerging wireless technologies for the purpose of safeguarding first responders and medical facilities, improving patient care, and enhancing national security. The Los Angeles County Fire Chiefs Association is the advisory body for the 31 Fire Departments of Los Angeles. It was their cooperation and efforts that brought forward the five participating fire departments. Their intent was to demonstrate and encourage the adoption of digital data capture and wireless data transfer. This project is to demonstrate the added value and return on investment of broadband communications. The Director of the Los Angeles County EMS Agency has added the full weight of her office to support this project and to encourage digital data capture and broadband data transfer. EMSAT has been active in applying mobile and wireless technologies in the field of Emergency Medical Services for over a decade. Emergency physicians and nurses from Huntington Memorial Hospital, Pasadena CA, fire department paramedic captains from the Pasadena Fire Department and others from the Los Angeles emergency medical community, and engineers from the Jet Propulsion Lab formed EMSAT in 1991. EMSAT: Advanced Technology for Emergency Medical Services was incorporated in the summer of 1992 and received non-profit IRS 501c3 status on October 9, 1992. The EMSAT team is composed of experienced professionals from the medical, paramedic, telecommunications, engineering, and business management fields. The organization is governed by a Board of Directors and supported by an Advisory Board of members from the medical and EMS fields. In addition, the team continues to receive support from dedicated members of the community and industry. This project’s impact the county employment is measured in: 1) direct jobs created, 2) jobs saved, and 3) the return of individuals to higher skill tasks. Jobs created are in three areas: 1) information and communications support, maintenance, and upgrades 2) software development for the end user applications, 3) data center support and operations, and 4) data analysis and analytics. As a result of this project direct employment will increase by 16 jobs, 22 indirect jobs and 14 induced jobs. The project will have a great impact on jobs saved. Local budget cuts are increasing the fire and paramedic services reductions; 100’s of paramedic and fire service jobs can be saved. The project will result in a large number of critical life saving public services jobs saved. The total cost of this project is $3,472,481 over the course of the next two years.