Project Description

SEDGWICK COUNTY EMERGENCY MEDICAL SERVICE, Wichita Ks feels that our projects leverage technology, offer new and innovative approaches, improves the Intelligent Transportation System, and could be a model for the State.

Our technology projects help send the closest ambulance by time to a scene location which can result in reducing morbidity and mortality rates, decreasing fuel costs , minimizing wear and tear on the vehicles, and can result in decreased vehicle running time which can help the environment by lessening pollution.

Our Vehicle Data Acquisition - Reporting & Management System monitors and provides reporting and instant feedback to the drivers, which improves safety and reduces the likelihood of motor vehicle collisions.

This system allows our vehicles access to view closed-circuit television (CCTV) cameras and access to WichWay.org.

We feel that the likelihood to succeed is very high since the system is mostly in place but needs updated due to end of life for the current devices.

This project has a huge Rural/Local impact, as it is one of the state's most densely populated and heavily traveled regions that spans 1008 square miles.

Sedgwick County has made a sizable investment and requests grants to fund, maintain, and improve on this existing technology to our citizens 24 hours a day, 7 days a week, 365 days a year.

This grant request in broken up into three parts.

Part A - Secure Vehicle Area Network (VAN) & On-Board Mobile Gateway

This is the heart of the 2-way communications network that allows our ambulances and vehicles to communicate via a 3G air-card located in an onboard mobile gateway (OMG) through a VPN connection and route traffic back to our data center.

These devices support GPS data which is fed into our Mobile Area Routing and Vehicle Location Information System™ (MARVLIS). Marvlis is a family of integrated products designed to reach the bottom line: saving time and money by getting the right resources to the right location at the right time to best meet citizens' needs. Using geographic information system (GIS) technology combined with wireless communication and the Global Positioning System (GPS), MARVLIS is bringing fundamental changes to the management and deployment of time sensitive services for a higher level of performance. It also allows dynamic display of available resources, demand, real-time coverage analysis, and intelligent routing.

This allows dispatchers and EMS supervisors using MARVLIS to make recommendations for resources based on location, time of day, day of week, road construction and closures, thereby reducing the time it takes to select and dispatch the correct ambulance to the scene. We consider this navigational aid like a GPS on steroids as it uses Sedgwick County GIS data, not an out of date 3rd party map set.

On-board real time vehicle engine data including remote engine diagnostics (OBD-II) data is also being sent continuously which allows us to monitor all of our vehicles. When a check engine light appears on the dash of the ambulance, our fleet department receives email notification which allows us the ability to keep our fleet in tip top shape. ,

These devices are in use currently, but have reached the end of the serviceable life and need to be replaced.

Cost: 40 Mobile devices and server $114,910

Part B

Mobile Computer Terminals PC Replacements - In our vehicles we interface with the Computer Aided Dispatch (CAD) via a touch screen notebook computer. These Mobile Computer Terminals (MCTs) were purchased in 2009 with warranty ending in 2012, and a one year extended warranty purchased; now expiring in QTR4/2013

They connect via our Secure Vehicle Area Network (VAN) & On-Board Mobile Gateway, connecting to CAD, Marvlis (in vehicle mapping and routing), Mobile Mapper 2, which displays building level mapping, and on-board real time vehicle engine data including remote engine diagnostics.

Cost: 40 Touchscreen Notebook PCs $3412 ea. $136,480

Part A and B are currently in use and successfully deployed which adds to the likelihood of this grant being very successful, and a short startup to completion time frame.

Part C

Vehicle Data Acquisition - Reporting & Management System

EMS would like to help reduce injuries, save lives, prevent crashes and reduce costs by utilizing vehicle data acquisition technology. This management system would allow near real time vehicle data acquisition (running time, fuel economy, driver performance, etc) and is similar to flight data recorders used by airlines. This management system would reduce maintenance costs, improve productivity, control driver performance, and minimize risk and liability. This allows acquisition of data that was not previously possible, allowing it to be managed from a systems level.

The onboard computer system monitors a number of parameters every second and provides real time auditory feedback to the driver by way of different tones. The parameters monitored include: vehicle speed (against user set limits - both hot & cold), hard acceleration/braking, cornering velocity and g-forces, use of emergency lights and sirens, use of front seat belts, turn signals, parking brake and back

up spotters. Each driver has an individual key "fob". The key fob is a simple device, which must be keyed into a special contact lock on the vehicle dashboard at the time of the vehicle's ignition, and thus identifies the driver of that vehicle.

Installing an on board Vehicle Data Acquisition system will allow EMS to measure and report on driver performance including safety, maintenance, and fuel economy. We will be able to report and act on fleet summary data by group and view fleet performance over time. Data would be transmitted over the existing secure mobile vehicle network and would be stored on a centrally located computer.

Hardware	$220,125
Installation and Training / Travel	$48,500
ZOLL ON-LINE ACCESS YEAR 1	$7,200
Total	$275,825

Related Projects / Interfaces

Wichway.org

Telecommunications Needs / Considerations

Wireless Air card service to each vehicle, - currently in place and use.

Design Needs and Considerations

Parts A and B are in current operation, so no design work or consideration needed. Part C adds new functionality, but will require very minimal design enhancement. Current configurations for part C is with 40 vehicles, and 225 users, but can be expanded as the system grows.

Part A $114,910

Part B $136,480

Part C $275,825

Total $ 527,215