

UTC Project Information	
Project Title	MPC 442- Improving Rural Emergency Medical Services (EMS) through Transportation System Enhancements- Phase II
University	South Dakota State University
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Funding Agencies	USDOT, Research and Innovative Technology Administration
Agency ID or Contract Number	DTRT12-G-UTC08, Modification No. 1
Project Cost	\$58,185
Start and End Dates	January 1, 2013- December 31, 2013
Project Duration	1 Year
Brief Description of Research Project	<p>Phase I of the project summarizes the SD EMS data from the geographic (e.g. counties in SD) and temporal (e.g. time of day, day of week, and month of year) perspectives and concentrates on several time- and distance-dependent variables such as response time, en-route time, on-scene time, and transporting time as well as the distance to and from the incident scene. The macroscopic-level of analysis did not find apparent outstanding issues with the service. The 911 call volume does not display a strong pattern of spatial clusters. Each of the three EMS regions (East, Center, and West) seems to have a mixture of counties with high, intermediate, and low demand. After accounting for the county population, the demand per capita by county changes moderately, as East region which includes Minnehaha County and Lincoln County has a relatively low EMS demand per capita. It is noteworthy that the average distance between the EMS station and incident scene is only 5.51 miles and the median distance is less than 2 miles. On the other hand, the average distance between the incident scene and receiving agency is 13.74 mile and the median distance is 6 miles. The comparison suggests an excellent EMS coverage and confirms a relatively low density of receiving hospitals. Considering SD is a predominant rural state and many EMS tasks rely</p>

	<p>on volunteer community members, the network of first responders, paramedic personnel, or volunteers, appears to be well connected.</p> <p>However, In phase I we were not able to distinguish between the demand in urban and rural areas as well as travel distance and time. It has been well recognized that wide disparity exists in the delivery of EMS in rural areas compared with urban areas due to many causes, including geographic barriers, lack of professional and paraprofessional, inadequate financial resources, aging or inadequate equipment, absence of specialized EMS care and local medical facilities (1). These discrepancies have been reflected at the average EMS response time. 2011 National average EMS response time for fatal crashes is 37.22 minutes in urban areas compared with 54.49 minutes in rural areas (2), which is almost the end of the ‘golden hour’ — the critical first hour from incident to hospital treatment. Therefore, it is important to define and establish the criteria for classifying EMS into rural and urban according to the area setting and compare the two. Among all type of EMS dispatch complaints, traffic incidents are of particular interest because they are random in location, not restricted to homes or work places, and present a great challenge for accessing and transporting the victims from the accident scene to the emergency room. In this phase, we will intensively investigate the EMS services responding to traffic incidents under the rural and urban setting, respectively.</p> <p>Research Objectives: Two objectives will be achieved in this phase 1) perform survival and route of choice analysis to identify key variables contributing to the time intervals during an EMS process; 2) address potential issues and concerns; and recommend appropriate countermeasures. Moreover, given location information, we are able to predict service delivery more accurately and establish more specific, data-driven, and performance-based measures.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	

Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none">• Reports• Project Website	