

## **Emergency Data Dissemination in Vehicular Networks using WiMAX**

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### **1. How can new technologies and approaches improve outcomes, reduce costs and/or improve response times for an emergency?**

Traffic accidents are a frequent and unexpected occurrence almost every day and everywhere during our daily life. They may occur on highways where the traffic has to be kept clean; in crowded downtown with high density population, or in suburbs where fewer people and resources can be reached within limited time. Sometimes small accidents can be eliminated quickly by local policemen while big accidents usually have to be rescued with the help of lots of people and disaster management centers. Therefore, if we can disseminate the information rapidly and efficiently, it can help other people avoid the area in order to enhance the rescue operations.

The protocol we are designing is to deliver the emergency alert messages or important traffic information to drivers. Therefore, this approach can definitely broadcast the information so more people can be informed to participate in the rescue activity. By combining WiMAX with our prediction algorithm, this approach can provide a greater performance in the aspect of transmission range, bandwidth and the transmission rate in order to achieve vastly improved performance and information dissemination.

### **2. If you were offered 10-15 minutes to give a short talk, what would it be?**

It would be an overview of the protocol and basic technical idea. Also, it would cover a created scenario in order to deliver the idea of connecting citizens, emergency responders and command centers for a faster and better response.

### **3. What are the most pressing business, process, organization and technical issues?**

By using broadcast to disseminate the information, it will be inefficient due to waste of resources. In addition, we need to set up a lot of broadcast stations in order to achieve the goal. Therefore, we would like to use multicast and geocast to improve this problem. However, it is hard to predict drivers' behaviors and popularity of the location. Analysis of drivers' behavior patterns allows for the use of prediction-based protocols that can reduce the unnecessary transmissions.

### **4. What is the role of university research in this area?**

The role of university research in this area will be based on protocol design and technical issues. The university research should focus on how we can make this protocol effective and practical to be adopted in the situation.

**5. Do you want to propose and help run a new breakout group?**

Not at this time.

**6. What is the most important action the DMI can take?**

DMI can make connections and increase collaboration between academia and the relevant transportation management experts who can provide professional guidance to ensure that practical results are obtained.