Statement No. 34

Arkansas State Highway and Transportation Department
Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 08/27/2010 | **PROJECT AREA:** Planning

TITLE: Utilization of Bluetooth Devices for Traffic Monitoring

PROBLEM STATEMENT:
As the Department continues to implement Intelligent Transportation Systems (ITS), there is a need to monitor traffic flows so real time speed, travel time and the detection of incidents that effect traffic flow could be disseminated to the public. One economical method to monitor these flows could be to to develop an anonymous probe technique to monitor the travel time on highways based on signals available from point-to-point networking protocol commonly referred to as Bluetooth. A significant number of consumer electronic devices produced today, as well as many vehicles, contain Bluetooth to communicate with other devices in close proximity. A vehicle containing a detectable Bluetooth device could be observed at two stations and the travel time be measured . Bluetooth devices contain a Media Access Control (MAC) address, which provides an identification number for the device. The MAC address and time detection would be logged and the information can be used to obtain travel time for the segment. Observations from multiple vehicles containing Bluetooth devices could provide a highly accurate estimate of traffic conditions.

OBJECTIVES:
The study would perform a literature review to examine any current applications of the technology and an off the shelf system is available to monitor traffic. A small segment of interstate would be instrumented with sensors to measure the travel time. Travel times would be compared to manual measurements conducted at random times throughout the study period as well as traffic counts conducted by the Planning and Research Division.

Form of Research Implementation:
The results of this study would provide an analysis of the technology and its feasibility in regards to cost, accuracy and quality to assist the Department in its operations. If found to be feasible, specifications would be developed for implementation of the Bluetooth monitoring on both a regional and statewide basis.

Total Estimated Cost and Project Duration: **$** 100,000 **and** 24 **months.**

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ADVISORY COUNCIL RANKING	TRC RANKING	Statement Combined with Statement Number(s)
1	__	35, 36

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