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Implementation and Testing of the Travel Time Prediction System (TIPS)	May, 2001
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16. Abstract

The Travel Time Prediction System (TIPS) is a portable automated system for predicting and displaying travel time for motorists in advance of and through freeway construction work zones, on a real-time basis. It collects real-time traffic flow data using roadside non-contact sensors, processes the data in an on-site personal computer, calculates estimated travel time between different points on the freeway, and displays travel time information on several portable, electronic changeable message signs positioned at pre-determined locations along the freeway. TIPS was implemented and tested on I-75 work zone in northbound direction in Montgomery County, Dayton, Ohio during the freeway construction period of July 14, 2000 until November 4, 2000. The system operated for a minimum of 15 hours a day, from 5AM until 8PM, seven days a week. TIPS was configured to update the travel times on all CMSs at four-minute increments. The monitoring and operation of TIPS indicated that the system was highly reliable as initially put in place, with only minor adjustments being necessary to the initial hardware configuration. The hardware of the system including radios, micro-controllers, antennae, sensors and trailers performed reliably in all weather conditions (including severe thunderstorms). The TIPS software performed well during the period of deployment. In addition to providing real-time travel time information to motorists, TIPS also provided valuable assistance in the management of incidents on freeways. When an incident was reported by enforcement officers, an "ACCIDENT AHEAD" message was remotely displayed on each changeable message sign. The Ohio Department of Transportation (ODOT) hired Dr. Helmut Zwahlen, Russ Professor Emeritus at Ohio University, to conduct an independent evaluation of the Travel Time Prediction System (TIPS). He reported that about 88% of the actual times recorded for each sign, and for all the signs combined, were within a range of ± 4 minutes of the predicted time. Almost 97 % of surveyed motorists felt that a system to provide real-time travel information in advance of work zones is either outright helpful or maybe helpful.

17. Key Words	18. Distribution Statement
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