MIDWEST SMART WORK ZONE DEPLOYMENT INITIATIVE

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FHWA POOLED FUND STUDY

Report Title	Report Date: 2001

Mobile HAR

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Supplemental Notes

Abstract
This evaluation featured a trailer mounted highway advisory radio transmitter. The mobile maintenance operation during which this device was to be tested was performed in such a way that the device was no longer useful for its intended purpose. Data collection was cancelled. Maintenance procedures related to striping operations in Kansas are not conducive to effective use of HAR.

Addendum: since the completion of this evaluation and the associated report, the Kansas DOT has purchased several mobile HAR units for use at the State Fair, at NASCAR events at the Kansas Speedway, and at other events as needed. Anecdotal reports of the effectiveness of the devices are very favorable and continued use is planned.

Mobile Highway Advisory Radio (HAR)

Description

Highway Advisory Radio (HAR) is a longstanding tool of transportation agencies used to disseminate information to the traveling public. Most frequently, HAR is use in urban areas to provide information on congestion for commuters and in rural areas to provide weather related information such as snow-related road closures. The mobile HAR is a radio transmitter that is mounted on a trailer, allowing it to be easily moved and set up for short time periods, with an accompanying sign instructing drivers to tune their radios to the appropriate station for important information. Possible uses include, work zone, moving maintenance operations, and traffic control during special events.

The system evaluated Solar Max system, manufactured by

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http://www.highwayinfo.com/

The cost of the system when purchased by the Kansas Department of Transportation in 2000 was $38,150. The system is a trailer-mounted, solar powered AM radio transmitter. FCC licensing is required. Figure 1 shows a side view of the entire trailer. Figure 2 shows the transmitter cabinets from the rear of the unit. Figure 3 shows the unit's solar panel and the sign informing motorists of the broadcast frequency.

Study site

The intended location for the evaluation was a striping operation in which a train of vehicles involved in the painting of stripes would create a queue of vehicles (the train moves at about 5 mph). Periodically, the train must pull to the side to allow the queue to pass. When drivers become impatient and pass the train prematurely, they must cross the centerline, thus presenting a safety concern. Additionally, if they pull back into the appropriate lane immediately behind the paint truck, they risk smearing the painted stripes and getting paint splattered on their vehicle (which is invariably blamed on the transportation agency). HAR could be used to inform drivers that the train will pull over every 10 minutes and encouraging them to wait for those opportunities. Knowing the wait will be no longer than 10 minutes would likely reduce the number of drivers that cross the centerline to pass the train.

The corridor identified was a rural 2-lane highway in western Kansas. A similar highway would later be identified to serve as a control.

Figure 1. Highway Advisory Radio (HAR) Trailer (side view).

Figure 2. HAR Trailer (Rear View).

Figure 3. HAR Trailer (front view) showing solar panel (left) and "Road Work / Radio / 1610AM" Sign (right).

Data Collection

The data to be collected comprised two components. First, then percentage of vehicles passing the train at inappropriate times would be determined by counting vehicles passing the train at appropriate and at inappropriate times. Two research assistants were to drive a vehicle on the shoulder 200 ft in front of the train. The passenger would maintain a log of vehicles, their passing characteristics, and the times the train pulled over to allow the queue to pass safely.

The second data component was the number of drivers that heard the warning message over the radio. The message contained instructions to turn on the vehicle's headlights and leave them on until they have passed the train. The research assistants would also record for each

vehicle whether the headlights were on or off. Running lights may cause an occasional false positive, but in most cases they are easily distinguishable from headlights.

Data Analysis

Not available (see Evaluation Results).

Evaluation Results

Regretfully, a miscommunication occurred in the planning of the test. When the research assistants arrived, the unit was available, but the striping process had not been correctly described. In fact, the striping train does not pull over to allow the queue to pass. On roads where paint striping is used, the volumes are low enough that workers in the train can signal drivers when it is safe to pass the train. On roads where the volumes are higher (and such an operation would be unsafe), the volumes dictate that thermoplastic striping be used instead of paint striping. The process for the application of thermoplastic is different enough that the HAR is less useful to those operations. The formal evaluation was discontinued.

Conclusions/Recommendations

The unit that was to be used for the evaluation was one that had been purchased by KDOT for other applications. The unit has been used to augment traffic control during the Kansas State Fair and at other special events, and is thought to be an effective tool for that purpose. Anywhere communicating information to the driver is important, HAR will capitalize on a nearly ubiquitous communication system. Setup and operation is straightforward. Public acceptance is high.

In spite of the failed data collection efforts, the mobile HAR unit is recommended as a general traveler information dissemination tool. However, it's application to particular maintenance activities, such as striping operations, must be carefully considered in light of agency policies and operational procedures.