Alternative to Traditional Highway Advisory Radio

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Advanced Traveler Information Systems (ATIS) dispense relevant information to motorists that may include locations of incidents, weather and road conditions, optimal routes, recommended speeds, and lane restrictions. Highway Advisory Radio (HAR) is a core component to an ATIS. HAR serves as a means of providing highway users with information in their vehicles through the AM radio receiver in their vehicles by a prerecorded message. HAR is an effective tool for providing timely traffic and travel condition information to the public by being able to communicate with any persons in their broadcast range. The information broadcast over a HAR will provide more comprehensive information than other ATIS components such as a Changeable Message Sign (CMS), which can be costly to install and maintain. The information is continually repeated and always accessible to motorists traveling in the broadcast range. This offers a particular advantage in rural areas where the availability of information over a wider geographical region offers more bang for a buck than a CMS that only provides information to motorists that drive past the CMS. In the operation of a HAR messages are broadcast in the field from transmitters that play stored messages. These messages are transmitted to the field from a "central" location, typically a traffic control center. From the traffic control center a central message distribution system is used to record new messages, store pre-recorded messages, and distribute messages to the transmitters. This system is a similar setup used by many agencies across the United States. One of the biggest disadvantages to the deployment of a HAR system is the initial equipment cost. The equipment for single HAR site is approximately $20,000. This cost proves to be a limiting factor in deploying a widespread HAR network across an agency's jurisdiction. TransCore has developed a low cost solution that cuts out the high equipment costs by utilizing a low cost single board computer (SBC) paired with a transmitter to create a HAR installation. This solution has an equipment cost of approximately $5,000.

This solution uses commercially available equipment that is assembled to perform the same functions as the specific HAR equipment sold by various vendors. The SBC solution uses a linux based operating system that will store the audio files transmitted via ftp from the central system. The SBC will then accept commands from the central system to play and stop messages as desired just as a typical HAR installation. The primary requirements for this solution to work is having a reliable communication connection to the site and a permanent power source (which are requirements of any HAR installation). The communication only requires any low-speed IP connection via a range of alternatives including DSL, spread spectrum radio, cellular modem and fiber optics. An added value for rural deployments, where communication may be inconsistent, is that this solution does not require a constant communication connection. A connection is only required to download a new or updated message set and to receive system commands (i.e. start or stop broadcast). This solution can be paired with existing ITS installations that an agency may already have (i.e. CCTV, Traffic Monitoring Station, Changeable Message Sign) or be a standalone installation. This low cost alternative can allow for a larger deployment of HAR systems to provide traveler information to underserved areas where other ATIS installations may prove cost prohibitive.
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