Title: Automated Work Zone System Specifications, Components, and Estimates

Problem Statement:
The Automated Work Zone Information System (AWIS) special provision has required frequent revisions over the last few years. ArDOT recognizes the importance of AWIS in reducing end of queue crashes. However, concerns have arisen because of occasional inaccurate speed messaging, or message boards not placed to give sufficient queue warning. Also, new and evolving technologies related to Smart Work Zones (SWZ) may benefit motorists in Arkansas. Contractors are usually responsible for AWIS device placement and messaging, subject to approval of the Engineer. ArDOT staff must specify and estimate AWIS costs, often as final plans are being prepared.

A better understanding of AWIS/SWZ technologies is needed, and institutional barriers to applying and using these new technologies should be considered in AWIS/SWZ design, estimating, and deployment in Arkansas. Systematic consideration of traffic impacts early in the project development process would better inform decisions, especially within corridors or on parallel routes. Furthermore, a national architecture is being established for connected work zones, which may change how vehicles and infrastructure communicates.

Potential Solution to Problem:
A decision tree regarding when to use AWIS/SWZ systems earlier in the project development process - perhaps at 30% to 60% design - would be helpful in system design and estimating. An ArDOT consulting contract to develop Transportation Systems Management and Operations protocols is currently underway and may eventually offer opportunities to integrate individual AWIS project components. Additionally, this research would provide an avenue to better deploy existing technologies and test new technologies. The benefits of this AWIS/SWZ research that could be realized include reduced end of queue crashes and more efficient and timely information to drivers.

Estimated Project Duration: 24 Months

Prepared By: Kim Romano and Jacob Giffin

Agency: Arkansas Department of Transportation

Phone: (501) 569-2195