Design and Deployment of Intelligent Work Zone Systems in Iowa

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There will always be challenges managing and operating work zones and the impacts these work zones have on traffic mobility and safety. The Iowa DOT is embarking on a new effort to identify key construction work zones that qualify as “Traffic Critical Projects”. These projects may require enhanced Transportation Management Plan (TMP) components such as the use of Intelligent Work Zone (IWZ) and/or Traffic Incident Management (TIM) plans and deployments to mitigate the impact the projects have on mobility and traffic safety.

Intelligent Work Zone (IWZ) systems have been evolving over the last 15 years. Early, there were many unknowns, and technologies were undeveloped and unproven, often presenting barriers to deployment of these systems. As these systems have matured they are becoming more flexible, reliable, and affordable. There are many types of IWZ technologies and applications, that when used wisely, can enable addressing work zone mobility and safety challenges.

To address these challenges the Iowa DOT identified thirteen traffic critical projects that will deploy IWZ systems during the 2014 construction season. These IWZ systems focus on providing traveler information such as travel times and incident response and end of queue warning systems that target the reduction of rear end crashes that occur in advance of highway work zones. To accomplish this deployment the Iowa DOT is selecting one or more contractors, using a qualification-based procurement, to provide IWZ systems on these projects for the 2014 construction season. Based on experiences in other states, Iowa DOT has selected a stand-alone procurement that is not incorporated into the contract for the general contractors of each construction project. Whenever possible, these deployments will be integrated into Iowa’s ATMS software, TransSuite, to control and operate these IWZ systems.

Even though IWZ systems have matured, there are still challenges to successful deployments. These challenges include procurement methods, contracting language, defining system requirements, project management, inspection, validation and evaluation of performance.

To address these and other issues, the Iowa DOT is working with the Institute for Transportation at Iowa State University to perform evaluation of these IWZ systems. This evaluation will address challenges including the ability of the IWZ systems to meet performance targets.

This presentation will outline the procurement method used by the Iowa DOT to select the IWZ contractor, what technologies were selected and deployed, the status of the deployment and evaluation, and what the future holds for the use of IWZ systems in Iowa.