4.2.3 Development & Deployment of a Regional Road and Weather Information Supporting 511 Traveler Services

Presenter
Leon F. Osborne
Univ. of N. Dakota Reg. Weather Info.Center
leono@rwic.und.edu

Co-Presenter
David Huft
South Dakota DOT

In the summer of 1995 an innovative program was begun that six years later resulted in the nation's first statewide 511 traveler information system. The Advanced Transportation Weather Information System is a research and deployment project sponsored by the Federal Highway Administration with support from the North Dakota and South Dakota Departments of Transportation and the University of North Dakota Regional Weather Information Center. The initial goal of the project was to apply advanced weather forecasting technology to develop a site-specific source of traveler weather and road information. The challenge of providing the appropriate site-specific information to travelers across North Dakota and South Dakota was met through the use of interactive voice recognition (IVR) coupled with a detailed geospatial referencing system. The IVR system permits users to select the appropriate road and weather information from mile reference marker or landmark inputs that relate to geocoded entries within a dynamic road and weather information database. The original technology, known as #SAFE, was deployed across North Dakota, South Dakota and Minnesota in the late 1990's and was used as the foundation of the Nebraska statewide 511 system deployed in late 2001. Since late 2002, the North Dakota and South Dakota #SAFE systems have been converted to 511 and expanded to include Montana. Recent external evaluations have shown these 511 system to be a popular and effective method of providing advanced traveler information.

Using the geospatial concepts developed for the site-specific applications of 511, new research was begun in 2002 to bring improved decision support to highway maintenance activities. Known as the multi-state Maintenance Decision Support System (MDSS), the states of South Dakota, North Dakota, Minnesota, Iowa and Indiana are working with Meridian Environmental Technology, Inc. to demonstrate that weather, road condition and maintenance activity information can be combined in a geospatial framework to produce maintenance treatment recommendations for specific highway segments during winter maintenance activities. Detailed geocoded weather forecast data are stored in a relational database where they are combined with location-based road condition reports. Knowing the location and extent of maintenance activity provides input to the pavement condition prediction system, which then recommends future pavement treatments based upon the combined weather forecast and road condition database. An operational demonstration of this MDSS across the participating states is planned for the 2004-05 winter maintenance season.