Exchanging Traveler Information among States

project summary

Aurora

working to advance road weather information systems technology

RESEARCH PROJECT TITLE
Interjurisdictional Traveler Information Exchange – Aurora Project 2001-01

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PROJECT CHAMPION
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ABOUT AURORA
Aurora is an international partnership of public agencies performing joint research, evaluation, and deployment initiatives related to road weather information systems (RWIS).

Objectives

To determine the best way for Tennessee to develop and implement its own system to collect weather information, share it with other states, and make that information widely available to the traveling public. More specifically objectives were as follows:

- Review research efforts to determine the types of sharing activities that are underway within North America
- Research and review three selected strategies for the development of an RWIS system for the State of Tennessee
- Include information on how each system is organized/structured and how these elements can be improved
- Document the actual cost of each system and determine how systems could be initiated cost effectively

Problem Statement

The process of collecting, assimilating and distributing weather information can be very expensive. Weather data services can offer a cost-effective way to collect data, assimilate the data, and provide information to the state for use in a variety of ways.

Additionally, the sharing of weather information across state lines can be hindered in those states that have unique weather information systems. Many states share data via FTP sites. However, hardware and software compatibility of these unique systems comes into play in the transfer of data and the capability to use that data.

Currently there is no standard for the sharing of information across state lines or even from government agency to government agency. The Federal Highway Administration has been working to standardize data formats through the National Intelligent Transportation Information Protocol (NTCIP) standards development in order to facilitate data sharing among these entities.

Technology Description

Volkert & Associates was hired by the Tennessee Department of Transportation (TDOT) to review and evaluate the Road Weather Information Systems (RWIS) currently in use across the United States. They were also hired to determine the best way for the state to develop and implement its own system to collect weather information, share it with

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other states, and make that information widely available to the traveling public.

Key Findings

Weather data collection varies widely from state to state. Some states have established a road weather information system (RWIS) that they use to assist their road crews with weather maintenance tasks and have also started using the same information for public use in 511 systems and state traveler information websites.

Three RWIS system designs were selected for further research in consideration of the design and implementation of a complete traveler information system. Those systems are Tennessee-Kentucky Road Conditions (Case 1), SafeTravel USA (Case 2), and Southeast Regional Climate Center (Case 3).

For Case 1, Kentucky has a useable FTP site already. The cost of developing a system that would be compatible for sharing information would be considerably less than the retrofit of an existing system.

Weather information processing and distribution are depicted graphically in Figure 1. Figure 1 represents the way in which data would be transferred from Tennessee to Kentucky during the implementation of Case 1.

For Case 2, SafeTravel USA is a weather service provider and thus is one component of the ITS Architecture.For Case 3, when asked about expanding their database to show weather conditions in other states outside their region, the Regional Climate Center's response indicated there was no interest in such a product currently. Also, given that the Regional Climate Center does not work with real time weather data, their services currently do not fit into the scope of work that TDOT has envisioned.

Implementation Benefits

One advantage of sharing weather data would be that travelers could obtain real-time weather information on one site as they plan for their travel. Additionally, the Safe Travel USA website weather information would be processed by one company, so the process of sharing information across state lines would then be eliminated.

The standards for data transfer using National Transportation Communications for ITS Protocol (NTCIP) have not been finalized. When the standards are finalized, they will assist considerably with simplifying data transfers between Traffic Management Centers in different states.

Implementation Recommendations

Through the use of strict specifications and functioning within the limitations of the information provided by a weather service, an effective weather information system can be configured for an individual state. If several states desire to share the information, the weather service providers can take information from a state's existing data collection system and incorporate that data into a larger weather information database.

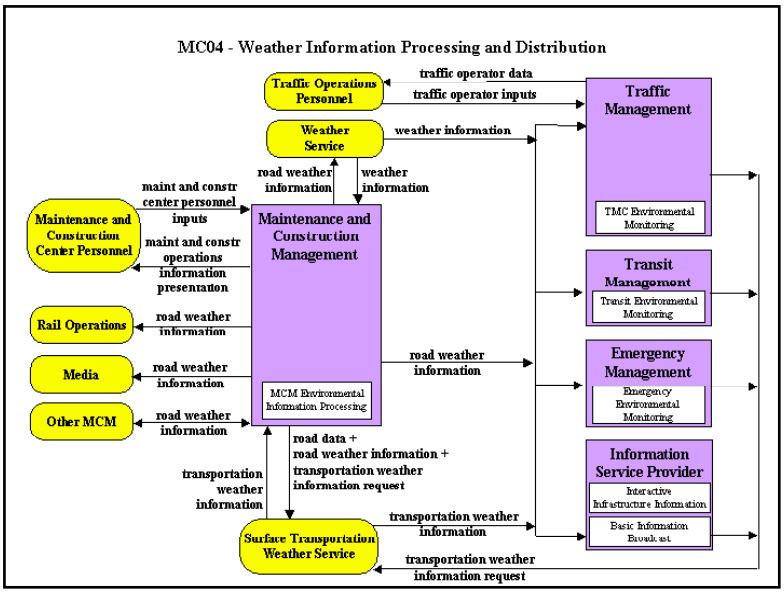

Figure 1. Weather information processing and distribution