

# Real Time Traveler Information

21<sup>ST</sup> CENTURY OPERATIONS USING 21<sup>ST</sup> CENTURY TECHNOLOGIES

## TRAVELER INFORMATION CHALLENGES

Transportation system operations in the 21<sup>st</sup> century require efficient management to reduce congestion, delay, and air pollution. Providing real-time information to travelers allows them to reschedule or re-route trips away from traffic incidents, construction zones, road closures, and transit service changes, thereby improving travel time reliability, safety, and the quality of life. The ideal traveler information system lets travelers access consistent, real-time information pre-trip and en-route through a variety of methods and devices across the nation.

## WHY WE ARE CONCERNED

In many locations, real-time traveler information systems are underutilized. The exchange of traveler information data between the public and private sectors is beneficial and can be made easier by using open exchange standards.



Infrastructure-based traveler information equipment can be used more effectively to convey real-time conditions. There are benefits to the operation of surface transportation systems when transportation agencies develop a traveler information system in their city, region, or State.

## WHAT WE'VE LEARNED

Applications of traveler information systems have demonstrated clear benefits. In San Antonio, Texas deployment of dynamic message signs combined with an incident management program, resulted in a 2.8 percent decrease in crashes. In Glasgow, Scotland a survey found 40 percent of respondents changed route as recommended by dynamic message signs.

Interagency cooperation to provide multimodal traveler information can help promote public transportation and reduce congestion. Making real-time data collected by the public sector available to information service providers allows traveler information to be personalized, thus increasing the value of this information for travelers.

Public demand and use of telephone services for traveler information increases when systems use 5-1-1, the 3-digit telephone number designated for traveler information. Systems that have converted existing telephone numbers to 5-1-1 have experienced a 300 to 500 percent increase in call volume.

For example, although market penetration was low, 45 percent of San Francisco travelers who received information from the Travel Advisory Telephone System changed their travel plans, and 81 percent of travelers receiving specific route information from the TravInfo® Internet site changed their travel behavior. This compares to 25 percent of travelers altering their plans based on television or radio broadcasts.

A simulation study in the Washington, DC metropolitan area found that individuals using traveler information services could improve their on-time reliability and reduce the risk of running late. Individuals using traveler information improved their on-time reliability by 5 to 16 percentage points when compared to travelers not using the service.

## FUTURE DIRECTIONS

The Federal Highway Administration (FHWA) has defined priority areas for attention and near-term action. These priority areas include congestion mitigation and safety. Traveler information is a very important element in many programs aimed at mitigating congestion and improving safety—a real application of FHWA's vision of "21<sup>st</sup> Century Operations



using 21<sup>st</sup> Century Technologies." Current, or real-time, traveler information about work zones, traffic incidents, and other causes of congestion allows travelers to make more informed decisions about their travel route or mode. Similarly, if travelers encounter delays while en-route, traveler infor-

mation can let them gauge the delay and decide whether to call colleagues or family members to let them know of the expected late arrival.



In the near-term, FHWA expects that travelers will receive the most current information available through a variety of techniques. Dynamic message signs and highway advisory radios will provide information that is meaningful to travelers at the location where they view or hear it. Real-time traveler information about highway and public transportation conditions will be widely available through 5-1-1. Web sites will present real-time traveler information that represents regional, multimodal travel conditions in ways that users can easily understand.

The FHWA envisions that future traveler information systems will provide users with time-based information about the transportation network such as travel times or delay times. Conditions will be known about all major routes and transit facilities so users can make the best choices about their available alternatives. Traveler information will be available 24/7 through various methods including personal digital assistants and telematics-equipped vehicles. Traveler information services will be capable of providing users with predictions of the transportation conditions they might expect ahead on their trips or even for future trips. Information and data will be easily exchanged among jurisdictions, agencies, and companies using accepted standards so travelers can get the best information based on comprehensive, areawide conditions.

To achieve this vision, the FHWA is taking the following actions:

- Sharing guidelines and lessons learned from the deployment of 5-1-1 traveler information telephone services to encourage more State and regional transportation agencies to develop and implement 5-1-1 services (to see the States currently deploying 5-1-1 systems, visit: [www.fhwa.dot.gov/trafficinfo/511state.gif](http://www.fhwa.dot.gov/trafficinfo/511state.gif))
- Developing data exchange standards in cooperation with standards development organizations to allow agencies and firms to easily share information
- Encouraging State and local transportation agencies to provide time-based travel information to travelers through various methods including dynamic message signs, Web sites, and 5-1-1 services



- Conducting research into predicting travel conditions as events occur that impact the transportation network to allow traveler information services to offer information about future conditions
- Encouraging transportation agencies to gather information from all major routes so systems can be operated based on the performance of the entire transportation network and thereby develop real-time databases to provide better regional traveler information
- Conducting research with vehicle manufacturers and telecommunications firms to provide enhanced traveler information services through mobile devices

In response to traveler query the system generate real time information to guide travelers towards optimal decisions concerning their travel routes to avoid congestions and delay. This system incorporates unbiasedness (best output) and consistency (expected output) into its core operations. Block Diagram of the system. Shows the historical information of particular day (automated mode). Test on web based media for text based output. Test on web based media for map based output. The developed system provides information about basic facilities in Hyderabad City. Hasnat et al. (2006) developed a similar system using web and wireless communication technologies. Real-time travel-time information is an essential element of modern traffic management systems. It enables drivers to make detours in their routes to less congested ones or to adjust their trip schedules to avoid traffic jams. With the development of wireless communication technologies coupled with the increased market penetration of relevant on-board units, probe-based travel-time systems are being deployed worldwide due to their ability to directly obtain link travel times. Real-Time Traveller is a travel diary, with notes and tips, DIY guides, ideas and hopefully loads of inspiration. Seen 134 times. More Reviews Energy Savings through Integrated Personalized, Real-time Traveler Information and Incentive Scheme Washington DC-Baltimore, Metropolitan Downtown Area, USA The project aims to reduce energy use of vehicular travels by incentivizing individual travelers to adjust travel choices and driving behaviors. Real-time information can enable travelers to adapt to changing traffic conditions and make better routing decisions in uncertain networks. In this paper, a generic description of real-time online information is provided based on three schemes using partial online information and one scheme with no online information. A theoretical analysis shows that more error-free information is always better than (or at least as good as) less information for optimal adaptive routing in flow-independent networks. Expand. View via Publisher. Download a PDF of "Real-Time Traveler Information Systems" by the National Academies of Sciences, Engineering, and Medicine for free. TRB's National Cooperative Highway Research Program (NCHRP) Synthesis 399: Real-Time Traveler Information Systems explores the needs and expectations of travelers, the current status of a variety of traveler information systems in the United States, available and emerging data sources, and business models for sustaining traveler information. Topics. Transportation and Infrastructure Data and Information Technology. Transportation and Infrastructure Operations and Traffic Management. Suggested Citation. National Academies of Sciences, Engineering, and Medicine. 2009. Real-Time Traveler Information Systems.