

# Tech Brief

## Multiple Approaches to Real Time Route Information

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### BACKGROUND

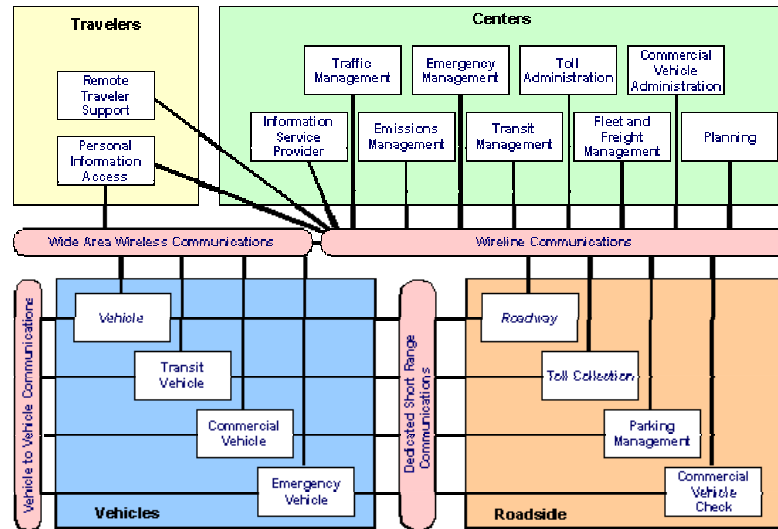
- Highways and railways serve as the medium for travelers to access all regions of this country. However, traveling on these roads is not always as peaceful or serene as the destinations they reach. Over time, drivers have been plagued by congestion, accidents, and other transportation related incidents that increase travel times, stress levels, overall travel costs, and may sometimes even cost lives.
- Congestion, and the resulting delay and confusion created, is a consequence of traffic demand exceeding the capacity of the transportation system at specific points
- Federal government agencies, specifically the USDOT and the Federal Highway Administration (FHWA), have developed the Intelligent Transportation System (ITS) program to increase mobility by using the advanced technology. The National ITS System Architecture (NSA), the backbone of the ITS program, is designed to alleviate the transportation dilemmas facing the U.S.
- Within the NSA lies the Advanced Traveler Information System (ATIS) subsystem, which is a system designed to alleviate traffic congestion, and help reduce the number of accidents and fatalities on domestic roads and highways.

### HERE'S THE PROBLEM

- NJDOT, and various other transportation agencies such as the New Jersey Turnpike Authority (NJTPK) and the New Jersey Parkway Authority have already gathered large quantities of traffic data from field equipments. Unfortunately, this data set is used primarily for statistical analysis, rather than being implemented into a well-defined plan.
- This data set is not stored in a central location and not disseminated in an efficient manner. For example, the NJTPK already gathers real-time data concerning travel times along particular segments of the turnpike, but yet, this data are not released to the public.
- A statewide Advanced Traveler Information System can address these issues effectively.

## OBJECTIVES...

- Design a high-level ATIS architecture geared towards utilizing the existing transportation infrastructure and resources available in New Jersey. National ITS architecture subsystems and communications chart is shown below.
- Utilize the NSA to develop a statewide standard for collecting, processing, and disseminating traffic and transportation information.
- Obtain the information that is necessary to create these high-level system architecture diagrams via surveys and interviews of the major public and private transportation agencies.



## HERE IS WHAT WE DID...

- The existing literature regarding ATIS, the existing implementations of ATIS systems were reviewed, and the existing traveler information providers in New Jersey were discussed.
- The NSA and its components, and the benefits of using the NSA were explored to develop a high-level ATIS system architecture, and survey existing regional system architectures.
- Surveys and interviews were conducted with transportation agencies in New Jersey. These agencies are NJDOT Traffic Operations North, TRANSCOM, NJTK, New Jersey Turnpike Authority, Port Authority of NY & NJ (Tunnels & Bridges Division) and NJDOT Traffic Operations South.
- The results were incorporated into an agency resource database, which provides a concise, detailed description of each agency assets that were interviewed. Analysis of this database revealed the existing capabilities of each agency, which was used to generate the high-level system architecture.
- Next, Traveler Information Service Scenarios were generated based on the developed Architecture to determine the effectiveness of the architecture in realistic situations, the role that NJDOT should play in these cases, and future needs of NJDOT in terms of collection, processing, and dissemination.

- Finally, based on the analysis results, NJDOT was given recommendations on its role in ATIS in New Jersey, both from a financial and operational perspective.

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