Obtaining Inexpensive, Comprehensive Travel Time Data

The Proposal

The Federal Highway Administration should make arrangements to purchase a national travel speed data set from a private company. The data specifications will ensure comprehensive, relevant and useful data. Recent experience suggests that the cost of this approach is much less than public sector deployment of speed monitoring equipment. The acquisition cost of the private sector data will be shared by the states and will be much less expensive if acquired as one large procurement.

The Idea

There are at least two companies that provide a large travel speed data set on all roads in U.S. metropolitan regions and major rural highways. FHWA could acquire the travel speed data from one of these companies through a competitive bidding process, assign a road segment to each of the traffic speed data sections and provide that information to every state DOT and MPO.

Annual average traffic speeds are available from both major companies and several smaller companies for freeways and major streets. Some minor streets may also have enough traffic data to be considered statistically reliable. Depending on interests and data availability the dataset may also include reliability performance measures (such as the 80th, 90th and 95th percentile traffic speed for the year). Other descriptive statistics such as daily averages, weekend and weekday averages, special event speeds, weather or incident condition speeds may also be a part of the considerations.

This proposal and the data requested are dependent on the amount of available data. The two large companies and several smaller ones are obtaining data from the many instrumented trucks and passenger vehicles and from the handheld devices that communicate position information with a network. These services have a business model based on a relatively simple premise:

- Customers allow the company to track the speed on their trips, the company converts that data into an anonymous record combines it with all other records on the same road, transit route, sidewalk, or bike path and provides real-time speed information (and perhaps predictive travel times to destinations) back to the user.

The companies have developed contractual agreements with operators of large vehicle fleets that monitor location and speed for their own purposes. Much of the initial datasets were constructed of truck travel time data. This is changing, however, as a variety of in-car and handheld devices have been purchased by individuals who are willing to pay for information about possible travel times. Some of the private sector company travel time data is obtained from the DOT traffic management centers speed and travel time sensors; there are proprietary processes that each company uses to create their datasets. These processes are the intellectual property that the companies are founded on and any data usage agreement that the companies enter have very specific usage arrangements and permissions.

Procurement of private sector travel speed data is a different challenge from a contractual standpoint than deploying traffic sensors. The information technology department of DOTs and

MPOs is usually involved in data service procurements and licensing can be a time consuming discussion. A number of agencies have contracted to obtain traffic speed data and several others are considering agreements to obtain those data for a variety of purposes, from real-time traveler information to longer term planning and design assistance. Each of these efforts are a combination of deciding the needs and desires, identifying constraints (e.g., the speed data does not include volume data that is used in optimizing traffic flow operations), learning about what to ask for from other DOTs and MPOs and fitting requests to agency procurement regulations. While some of this effort is vital to confirming data requirements and uses, each agency is re-inventing the process.

The Opportunity

AASHTO and FHWA could work together to develop a national RFP that meets all of the basic needs for traffic speed information (i.e., planning, real-time 511 services, monitoring) and FHWA could acquire a standard data set that could be provided as a basic data item for all major urban and rural road segments at a much cheaper cost than individual states acquiring this information. The process should be faster with one agency (FHWA) working through the data licensing and intellectual property issues. Obtaining the travel speed information from a private sector data company is much less expensive than procuring, deploying and maintaining speed monitoring equipment which, to date, is principally focused on the freeway network in major cities. This dataset would be a “floor” on which states could build additional data, expanded permission to use the data or analyses as they wish. The requirement could include any number of factors that would allow states and MPOs to use the data for several types of processes and time scales. There would still be a place for premium service aspects to be included in separate contracts between the private sector and government agencies.

Investigations conducted by several Universities and consultants have found the latest generation of traffic speed data to be acceptable for a range of uses. The speed information matches well with public sector data collection devices in the same road and with special probe vehicle studies.

Current Status

There are several efforts that could be used by an RFP working group to define the requirements and specifications. Two state DOTs (New Jersey and South Carolina) have obtained data from Inrix as part of the I-95 Corridor project. Wisconsin and Pennsylvania have separately obtained data from Inrix and Michigan has acquired data from NAVTEQ. The states use that information to provide real-time speed information to travelers on I-95 and nearby roads. Ten other states reported (at the US DOT probe data workshop in Pennsylvania on September 9 to 11, 2009) that they are in some stage of a travel speed data procurement process for a range of area from a few corridors to statewide (Washington, Georgia, Arizona, New York, Colorado, Nevada, North Carolina,). All of the states are, or anticipate, archiving the data to support additional trend reports, evaluations and planning work. The states also anticipate using the data to satisfy requirements for presenting travel time data on roadside message signs (e.g., Section 1201 standards).

In addition to state projects, the FHWA Office of Highway Policy Information is studying the development of a national speed database.