



Florida Department of Transportation Research Comparison of Methods for Measuring Travel Time at Florida Free- ways and Arterials BDV32-977-02

Travel time is an important measure of highway efficiency. Travel time expectation is a major reason that drivers choose one route over another. However, accurately measuring travel time is not straightforward, and many methods are used with varying results.

In this project, University of Florida (UF) researchers collected field data along several highways to evaluate travel time measurements from several sources: STEWARD, BlueTOAD, INRIX, and HERE. STEWARD (Statewide Transportation Engineering Warehouse for Archived Regional Data) is a central repository maintained by the Florida Department of Transportation (FDOT), which collects data from FDOT Traffic Management Centers. STEWARD's flow and speed data can provide travel times based on spot measurements. BlueTOAD (Bluetooth Travel-time Origination and Destination) detects anonymous Bluetooth signals from passing vehicles; detection of the same signal by two widely spaced BlueTOAD units can be used to obtain travel times. INRIX is a company that collects traffic information worldwide as the basis for a number of applications related to road travel; INRIX can provide real-time or archived travel time data. HERE, formerly NAVTEQ, is a product of the communications company Nokia; to derive information, including travel times, HERE brings together a number of mapping and data collection services, including real-time data from GPS, smart phones, and consumer and commercial sources.

In previous work, the researchers had developed several models related to travel time. In this work, they looked at travel time data more broadly, collecting field data and comparing it with data from sources listed above and model data. Through various analyses, the accuracy of the various methods and sources was evaluated.

To make sure that data could be reasonably compared, data were drawn from the same highway segments at the same time of day,



Travel time is an important measure of the operational quality of a highway.

year, etc. Data were collected on both urban freeways and arterials at locations determined by identifying overlapping sections from various travel time data sources, focusing on heavily traveled corridors in Jacksonville and Tampa.

Field travel times were collected using an instrumented vehicle owned by the UF Transportation Institute (UFTI). Vehicles were equipped with mobile digital recording which used forward- and rear-facing cameras to capture video of traffic and highway features. A portable GPS receiver documented travel routes and times.

Comparison showed that HERE traffic data provided better freeway travel time estimates. HERE traffic was more accurate for oversaturated conditions. However, for analysis of uncongested freeway segments, STEWARD, INRIX and BlueTOAD performed better. Lastly, no method was accurate for arterial sites, but sample size was relatively small, especially during oversaturated runs.

Travel time analysis is critical in evaluating the efficiency of existing highways and as a basis for planning. Projects like this one provide a more reliable basis for those efforts and help to ensure that Florida's highways will keep up with Florida's growth.