2018 Research Project Abstract

Project Title: Data Fusion for Signalized Arterial Performance Measurement (Project N2)

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ABSTRACT: According to the Federal Highway Administration, there are more than 330,000 traffic signals in the US (EDC-4 ATSPM Report). Over 75% of these signals could be improved by updating their equipment or timing plans (FHWA-HRT-05-002). Poor traffic signal timing accounts for nearly 300 million vehicle-hours of delay on major roadways alone (TTI Urban Mobility Report). Traditional maintenance and operations methods rely on local knowledge, driver feedback/complaints, and long-range planning with more recent applications incorporating performance-based management. However, as agencies access more and more data sources for performance measurement, there is difficulty in ensuring each source is appropriately utilized. Agencies must consider cost, availability, accuracy and accessibility of data sources and often are not fully informed of most factors aside from a cost estimate when deciding which data to use. This project will review these data sources including ATSPM, connected and instrumented vehicles, commercial probe data and Bluetooth/WiFi data and develop a framework in which combined performance measures can be created through data fusion. These measures will be validated using simulation and NGSIM datasets and summarized for use by local and state agencies with various data sources available.