



Florida Department of Transportation Research

Developing a Technique That Predicts the Impacts of Transportation Demand Management (TDM) on a Transportation System

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Adding lanes is one solution to congestion; however, it is a costly one with many impacts, such as air and environmental quality and more parking at destinations. Shrinking government budgets and increasing environmental concerns can make transportation demand management (TDM) a better solution. TDM is a suite of actions that reduce congestion by reducing demand on roadways, such as by discouraging single-occupancy travel to work by incentivizing carpools through special parking or employer subsidies.

A TDM predictive tool would allow agencies to develop cost-effective approaches for achieving their goals. The National Center for Transit Research (NCTR) at the University of South Florida and the Florida Department of Transportation (FDOT) produced a framework, the TDM Assessment Procedure (TDMAP), to facilitate development of this predictive capacity. TDMAP incorporates TDM into the transportation planning process by modifying mode split tables to reflect the impact of a TDM strategy or mix of strategies in specific corridors over time. The framework has been implemented in the Trip Reduction Impacts for Mobility Management Strategies (TRIMMS*), a practitioner-oriented sketch planning tool that estimates the impacts of a broad range of TDM initiatives and provides program cost-effectiveness measures. To advance this work, FDOT contracted with researchers at NCTR to identify data that could be used to understand the relationship between costs of employer-based TDM programs and impacts on local transportation systems. The researchers also analyzed this data for possible empirical relationships to add to TRIMMS.

The researchers reviewed the literature to learn how TDM benefit-cost analyses had been conducted and how the underlying cost and benefit data were estimated. They found that employer-based TDM programs reduced traffic and improved air quality, but these impacts were measured retrospectively, not prospectively.

* TRIMMS software ©2007 University of South Florida

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Infrastructural incentives such as bus-only or carpool-only lanes can promote a reduction of the number of single-occupancy vehicles, a primary strategy of Transportation Demand Management.

Few studies developed enough cost data for use in this project, but the Washington State Department of Transportation Commute Traffic Reduction (WSDOT CTR) database was a rich potential resource. Further analysis revealed missing financial data and insufficient quality control of some cost data, but CTR data had been collected for purposes and according to protocols other than those which would be ideal for their project. Nevertheless, careful examination and data filtering provided researchers with useful insights from the data. Better understanding of which TDM strategies were most cost-effective and important directions for future studies were established. For example, data collected on the effectiveness of employer trip reduction programs should include corporate culture indicators such as employment composition and Employee Transportation Coordinator's experience, support, and level of effort. Surveys should also measure access to high-quality transit and sidewalks/bike paths. The collection of employer cost data will be important in cost-effectiveness estimates of commuter assistance programs.