Florida Department of Transportation Research

Incorporating Transit Service Decisions into Express Lane Programs

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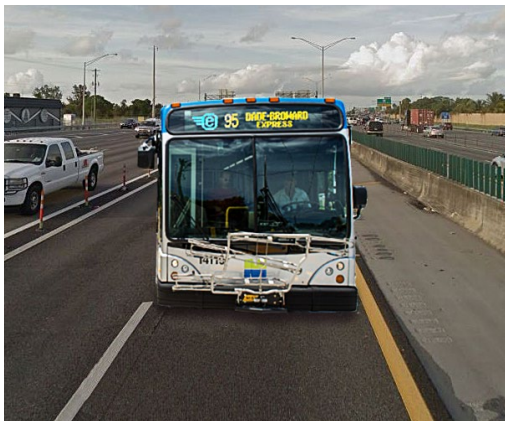
Current Situation

In highly developed areas of the state, additional lanes cannot be added to existing Interstates. To alleviate congestion, FDOT is using other strategies, including managed lanes. I-95 Express is one example. Managed lanes reduce congestion on the adjacent general lanes and increase travel efficiency overall. Increased efficiency also reduces greenhouse gas emissions as well as providing economic and social benefits. Additional benefits have been realized by incorporating express buses into the I-95 Express plan. Express buses provide an alternative for many commuters that further reduces congestion and increases efficiency.



An express bus shares the 95 Express managed lanes with a number of cars.

Research Objectives

Florida International University researchers developed a methodology that can be used by planners to understand when adding express bus service is beneficial to a managed lanes system.

Project Activities

Deciding to add express bus services on managed lanes requires realistic and reliable forecasts of ridership to properly scale services, develop service plans, and estimate capital and operating costs. Specific objectives included identifying an appropriate planning framework and the software and data to support it. The researchers investigated the extensive literature on this topic, including factors that contribute to transit ridership, ridership forecast methods, and the Federal Transit Authority's project review process. They also reviewed the numerous models and software aids available as well as data compilations. Based on these studies, the researchers produced a planning framework that can serve as a guide for the main elements of express bus service planning, including project initiation, market assessment, ridership forecast, alternative evaluation, and design and implementation.

For their quantitative modeling, the researchers selected two software packages with complementary capabilities, primarily STOPS and TBEST. STOPS predicts transit usage and travel patterns and computes the impact on automobile usage. Where STOPS takes a macro view of the transit plan, TBEST takes a micro view, estimating ridership for individual stops, routes, directions, and time periods. These models require information about the proposed stops and routes, the linkages used, and the communities served.

The researchers developed the selected tools into a ridership forecasting methodology specific to express bus service on a managed lane. They then demonstrated the methodology in a real-world case study, specifically, implementing express bus service on the 95 Express managed lanes.

Project Benefits

The methodology developed in this project will give planners more precise means of deciding where and how express bus services could be beneficially implemented on managed lanes systems, with potential benefits to all road users.

For more information, please see www.fdot.gov/research/.