



Florida Department of Transportation Research

Tracking Costs of Alternately Fueled Buses in Florida

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In an effort to address rising fuel costs and environmental concerns, many transit agencies across Florida have introduced alternative fuel technologies to their traditional diesel-powered fleets. Fuel types include biodiesel, compressed natural gas, hybrid-electric, battery-electric, hydrogen fuel cell, and other technologies. These advancements have resulted in increased capital and operating costs for some fixed-route operators and created challenges for the wide-spread adoption of advanced transit technologies.

In this project, the Florida Department of Transportation (FDOT) engaged researchers from the University of South Florida to establish a mechanism to capture relevant field data on the performance of alternately fueled transit vehicles in Florida. The power plants of these vehicles require special repair and maintenance methods, so FDOT tasked the researchers with investigating the costs for modifying transit maintenance facilities to make them suitable for servicing alternative fuel buses.

The researchers worked closely with the FDOT Transit Office to develop a data reporting tool for agencies to use in collecting information on the costs and reliability of their alternative fuel vehicles. The data collection template was produced as a spreadsheet table, to be filled by the transit operators, covering various parameters of transit vehicles and the historic costs associated with operating them. The template was designed to minimize additional data gathering and reporting without compromising project goals.

Once the data collection tool was finalized, the researchers mailed requests to all the fixed-route transit agencies in Florida, seeking their assistance in collecting data. Agencies were asked to report quarterly on their entire fleet, both traditionally and alternately fueled. Mailed requests were followed by phone calls to encourage submissions. Regular reminders were sent to the agencies in coordination with the project manager. In



Gainesville's Regional Transit System bus fleet includes many vehicles powered by biodiesel fuel.

addition, the principal investigator maintained regular contact with the agencies to address questions and concerns about data collection and submission. Five agencies, representing over 70 percent of Florida's transit fleet, provided relevant maintenance and cost data for their fleets: Broward County Transit, Regional Transit System (Alachua County), Miami-Dade Transit, Palm Tran (Palm Beach County), and StarMetro (Leon County).

Efforts to obtain similar information from agencies regarding paratransit services were unsuccessful. Florida's statewide vehicle procurement system, provided inventories of paratransit vehicles, but no more specific information.

The researchers also investigated and documented the potential costs associated with modifying transit bus maintenance facilities to accommodate alternately fueled vehicles. A review was conducted of previous research, common practices, and other agencies' experience with operating alternative fuel vehicles to identify typical requirements and cost implications related to retrofitting transit maintenance facilities for the safe handling of alternative fuels.

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For more information, visit <http://www.dot.state.fl.us/research-center>