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Evaluation and Enhancement of the Florida Statewide Model

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Current Situation

The large population of Florida, the steady influx of new residents, and the dynamic nature of business and housing that results make transportation planning a critical activity for the Florida Department of Transportation (FDOT), which must constantly look five, 10, and 30 years into the future. Planning, prioritizing, financing, and building new construction projects take years, and to develop insight into future trends, FDOT has developed the Florida Statewide Model (FLSWM) over the past 20 years, to incorporate the latest methods and computing capabilities. FLSWM and the process that accompanies it have proven very successful and helpful, not only in planning, but in communicating among a project's many stakeholders.

Research Objectives

Florida International University researchers reviewed the Florida Statewide Model as well as trends in travel demand modeling to develop a roadmap for short-term, medium-term, and long-term improvements to FLSWM.

Project Activities

The researchers reviewed the applicable literature to identify planning applications and issues in statewide travel demand modeling. They found that among the 40 states with statewide models, most were either trip-based (like FLSWM) or activity-based. Several states have adopted new data sources and analysis techniques to improve model capabilities, such as deriving origin-destination tables from cell phone data. Integrating national and statewide models has been explored to add long-distance travel. Statewide models are also taking advantage of the vast data available from commercial sources.

FLSWM was evaluated by modeling specially designed scenarios that included long distance travel, transportation planning in rural counties, and evaluation of traffic impacts from adoption of automated, connected, electric, and shared-use (ACES) vehicles. This testing revealed areas of possible improvement for FLSWM. Model capabilities and limitations were matched to Florida's planning needs by examination of the latest Florida Transportation Plan (FTP) update. Areas of needed improvement included long distance business trips, visitor trips, congestion relief, and emission reduction.

Recommendations for possible improvements were laid out in short-term, medium-term, and long-term stages. As an example of a short-term improvement, the researchers recommended focusing on breaking daily trip tables into more time segments which would give FLSWM a better understanding of peak hours. A mid-term improvement was transitioning FLSWM to an activity basis, which would allow FLSWM to better address behavioral and demographic aspects that are important for public transit issues. A long-term enhancement of FLSWM would include data on home, work, and school choices that would help FLSWM comprehend the connection between transportation accessibility and land use.

Project Benefits

Continuing development of the FLSWM can assist Florida transportation planners in responding to populations and development trends in the state with an increasingly efficient and safe roadway system.

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



Transportation planning must anticipate trends occurring over 5, 10, or 20 years.