Summary of Final Report BC532
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DEVELOPMENT OF FSUTMS LIFECYCLE AND SEASONAL RESIDENT TRIP PRODUCTION MODELS FOR FLORIDA URBAN AREAS

PROBLEM STATEMENT

The travel demand models used in Florida, like those used in many urban areas in the United States, are four-step models. The first step of such a model consists of trip generation that estimates trip productions and attractions. The most important aspect of trip production is the determination of a set of household trip production rates for different trip purposes. Prior to 1995, trip rates had been solely based on household characteristics, including dwelling type, household size, and vehicle ownership. In the early 1990s, following a national trend, research began in Florida to investigate lifestyle trip production models. Lifestyle models consider family lifestyles and use variables such as the number of adults or workers, retirees, and children and the ages of householders and children in a household to help predict trip production. The development of lifestyle models was undertaken because standard household-size based models overestimate work trips for retired households, which is especially significant for Florida given the large number of retirees living in Florida.

The 1995 Tampa Bay Regional Model and the 1996 Broward County Model became the first models in Florida to adopt lifestyle trip generation models, although they used different variables to forecast trip productions. In the late 1990s, interest among MPOs in using lifestyle models was tempered by the uncertainty of deciding which lifestyle variables to use and by the benefits of switching from a household-structure based model to a household-lifestyle based trip generation model. To address these issues, the Florida Model Task Force initiated a study to look at the conditions under which lifestyle models perform better than the traditional models. Since there were two adopted lifestyle models, the Tampa Bay lifestyle model (which uses working status of a household and presence of children as variables) and the Broward County Model (which uses number of workers and presence of children as variables), the research also focused on determining the suitability of the two models to different demographics.

OBJECTIVES

Researchers took advantage of the household survey data recently made available in several urban areas in Florida, and they examined the benefits of lifestyle models. In particular, the research was focused on answering the following questions:

(1) Do lifestyle models perform better than household-size based models?
(2) What types of urban areas will benefit from the use of lifestyle models?
(3) Are the lifestyle models developed in one urban area transferable to other urban areas?
(4) Do seasonal households have trip generation rates different from those of retired households, thus warranting special treatment?

FINDINGS AND CONCLUSIONS

The results indicate that lifestyle models improved the trip production estimations for the four trip purposes for all three Florida urban regions studied. Areas with a sizable retired population were found to benefit more from lifestyle models when Home Based Work (HBW) trips were concerned. Additionally, based on the Lee County and Tampa Bay survey data on seasonal households, no consistent similarities in the trip rates could be found between the retired and seasonal households.

Based on the results of this study, the researchers concluded the following:

- In deciding whether to switch to a lifestyle model or stay with the current standard FSUTMS model, individual MPOs should consider the size and spatial distribution of the retired and seasonal populations.
- More research needs to be conducted to develop a methodology and the necessary tools for lifestyle variable estimation and forecasting.
- For areas with a large retired and seasonal population, the Tampa Bay model structure is recommended. For areas with a small retired or seasonal population, the HBW trips will be relatively more significant; therefore, the Southeast Florida HBW trip production model is recommended.
- MPOs may compare their urban characteristics with those of other urban areas that share similar demographics, especially the retired and seasonal populations, in deciding which set of trip rates may be borrowed.
- Trip rates for seasonal households should not be stratified by vehicle ownership or household size—i.e., only one trip rate is necessary for each trip purpose.
- To facilitate the development of standard trip rates in the future, survey design should be as standard as possible, at least for the same model structures.

BENEFITS

This research provides evidence of the benefits of lifestyle models and insights into when, where, and which lifestyle models should be considered for a given urban area. It also provides a basis for deciding if seasonal residents need to be treated separately from the rest of the population. The bottom line is that this research will help the MPOs make informed decisions regarding the improvement of their travel demand forecast processes and models.

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