



## Project Number

BDV31-977-87

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## Toward a More Efficient Network Structure for Travel Demand Modeling

March 2020

### Current Situation

Growth in population and tourism places heavy demands on Florida's roads. Local, regional, and state agencies all work to understand patterns of travel demand in order to plan for the future. To do this, they use computer models, but agencies may use different models. Also, the models are based on maps, and like paper maps, computer maps can differ. The variety of maps and models can produce different pictures of travel demand, even when different agencies examine the same geographic area. This situation reduces data sharing and increases duplication of effort.

This problem was partly addressed by the Florida Department of Transportation (FDOT) when it created a set of standards called the Florida Standard Urban Transportation Model Structure (FSUTMS). This makes the models used by different agencies more similar, but it does not address the underlying differences in the maps or how models use them.

### Research Objectives

University of Florida researchers identified a more efficient multi-scale roadway network that will enable effective information sharing between the statewide travel demand models and district or local models, while preserving the detailed information provided by the finer network segmentation.

### Project Activities

The research team examined other research efforts concerned with modeling network inconsistency, revealing a critical issue across many states, based on the challenges in database design and deficits in efficient data sharing and interagency cooperation. The researchers closely reviewed FSUTMS models used in different Florida regions. They found little attention to data sharing between regional and state models. To better understand current issues, the research team surveyed district modeling coordinators, model developers, and consultants. They found that by facilitating data sharing, an efficient network database with advanced tools could reduce most data editing tasks for staff in different agencies.

The research team returned to FSUTMS to understand how the proposed software would need to work. They identified elements required to meet the needs of practitioners and work with FSUTMS and used this information to develop a planning network database that is more comprehensive, inclusive, and integrated than any they had reviewed. They validated the database using a study area in Gainesville, FL, demonstrating how the database maintains planning information, supports the modeling network, and updates dynamically during the transportation planning process. Using the proposed database framework, planners can build a functional database to support multi-resolution and multi-scale modeling.

### Project Benefits

Improved data and model compatibility can improve interagency cooperation and the efficiency and accuracy of planning efforts.

For more information, please see [fdot.gov/research](https://fdot.gov/research).



*As traffic increases on Florida roads, understanding and forecasting traffic demand becomes more important.*