

# **Highway Network Validation Using Enhanced Area Types and Facility Types to Integrate 1994 HCM Capacities, the FSUTMS HNET Procedural Enhancement Study**

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## **Abstract**

The Florida Standard Urban Transportation Model Structure (FSUTMS) represents a formal set of modeling steps, procedures, software, file formats, and guidelines established by the Florida Department of Transportation (FDOT) for use in travel demand forecasting throughout the State. The purpose of the HNET Procedural Enhancement Study, funded by the FDOT/Central Systems Planning Office and sponsored by Florida's Model Task Force, is to implement two digit area type (AT) and facility type (FT) methodologies for highway network coding and model validation.

The concept of area types and facility types dates back to the 1979 version of the UTPS travel demand model forecasting package. The rationale was to eliminate (or at least minimize) individual link coding of network characteristics such as speed and capacities, opting for a lookup of area types and facility types. Use of area types and facility types greatly simplified the process of network coding, and enhanced the credibility of network-oriented model validation adjustments.

However, as time has passed since the early days of UTPS, new advances in computer technology, roadway design and the measurement of highway capacity have occurred. FDOT, in particular, has developed its own detailed Level of Service (LOS) manual, based on the 1994 Highway Capacity Manual (HCM), which recognizes the significance of signal density on highway capacity. In order to maximize consistency with FDOT LOS Manual capacities, and model a variety of new roadway concepts, the five standardized single-digit area types and nine facility types have been expanded.

In order to test alternative network methodologies, the coding of two digit area types and facility types was completed for three urbanized areas in Florida. Jacksonville, Pensacola, and Vero Beach were selected as test sites for large, medium and small urban areas, respectively. Initial coding methodologies were based largely on recent efforts in the Tampa Bay area. Newly prepared capacities based on the 1994 HCM and the 1995 LOS Manual, were used as a starting point for validation testing. Initial free flow speeds were based largely on earlier FDOT Model Research with some added assumptions for new AT/FT categories.