

# TBAG

TAMPA BAY APPLICATIONS GROUP

An Open Forum for  
Transportation-Related Issues



Volume 21  
October 2002

## “FROM THE CHAIR”

*Christopher Hatton, P.E., Kimley-Horn and Associates, Inc.  
2002 Chairman for the Tampa Bay Applications Group*

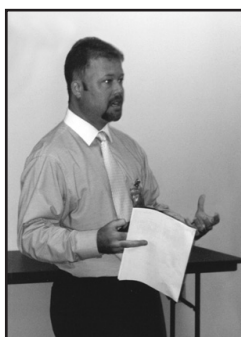
TBAG school was back in session on August 29, 2002 ... and the “Multi-Modal Planning” class was overflowing with 61 “students” in attendance! The third TBAG meeting of the year continued an amazing year of presenters and topics and nearly set a TBAG record for attendees.



*Bob presented on FDOT's Strategic Intermodal System (SIS).*

Leading off the meeting was Bob Clifford (FDOT – District 7) who enlightened us all on the FDOT's Strategic Intermodal System (SIS). Bob's presentation focused on the current status of the SIS, including the following: identifying which facilities and services will be part of the SIS; the schedule for 2002; and its future plans for implementation.

Wade White (Gannett Fleming) led a discussion on using FSUTMS to measure the benefits of multi-modal investments. While Jim Ryan (Federal Transit Administration) was not able to attend, Wade did a great job describing the FTA's latest modeling initiative, referred to as User Benefits (UB), and a



*Wade informs us about SUMMIT and its advantages.*

specialized software package, SUMMIT, to facilitate UB reporting.

In keeping with the TBAG's new initiative of only three presentations at each

## ATTENTION!!!

### TBAG Workshop

October 24, 2002

meeting, Demian Miller (Tindale-Oliver) discussed with the group details of the City of DeLand's efforts to implement the State's first Multi-Modal Transportation District. Specifically, Demian's presentation explained the methods and results of the City's study and described the thresholds, guidelines, and planning philosophy of the Multi-Modal Area-Wide Level of Service Handbook.



*Demian wraps up after his presentation on DeLand's Multi-Modal Transportation District.*

A big “thank you” to each of our presenters for their outstanding presentations and for helping to make this one of the TBAG's best meetings ever! Please remember to join us for our next meeting, our second TBAG workshop of the year, on “New Methodologies” on October 24, 2002! Please check out page 4 for details on our workstation topics, and we'll see you there!



*A full house at the TBAG Meeting.*

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2002 Banquet  
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# TBAG

TAMPA BAY APPLICATIONS GROUP

## 2002 Awards Banquet



Monday, December 9th, 2002  
Landry's Seafood House

Social Hour: 6:00pm to 6:30pm

Dinner and Program: 6:30pm to 8:30pm

### Program:

**Awards Ceremony - Three Winners will be Announced at the Banquet.**

**All TBAG contributors will be recognized during the ceremony.**

**Speaker(s): To be announced in next TBAG Newsletter**

### Registration Form

**Landry's Seafood House - Rocky Point**  
7616 West Courtney Campbell Causeway  
(813) 289-7773

Cost of Buffet is \$22.00.

*Dinner buffet includes Fresh Catch Pontchartrain, Grilled Chicken and Mushrooms, and Shrimp Alfredo, as well as a salad, side dish, dessert and beverage. A vegetarian meal is available upon request.*

Yes, I \_\_\_\_\_ (name) would like to attend the banquet.

*If this registration is for several attendees, please attach the name of each person to this form.*

Make check(s) payable to **Kasey Cursey** (TBAG Coordinator) and mail to Kasey Cursey, Gannett Fleming, Westlake Corporate Center, Suite 150, 9119 Corporate Lake Drive, Tampa, FL 33634.

**RSVP by Check by Wednesday, November 27th, 2002**

Checks will also be accepted at the October 24th TBAG Workshop

*If you have any additional questions, please contact Kasey Cursey at (727) 726-2235 or by e-mail at [kcursey@aol.com](mailto:kcursey@aol.com).*

# FAMOS: Florida's Activity Mobility Simulator

Ram M. Pendyala, University of South Florida Civil and Environmental Engineering



In recognition of the strong move towards the development of activity-based and tour-based model systems, the Florida Department of Transportation sponsored a research project aimed at developing a prototype activity based model system for Florida. It is envisioned that the project will provide an avenue for exploring the benefits, costs, and role of activity-based modeling in the state. In addition, it is hoped that the project will help the state prepare for any potential transition to new modeling systems that are coming from TMIP and the TRANSIMS development and commercialization effort.

The activity-based travel demand modeling system prototype for Florida is being developed by a team of researchers from the University of South Florida Department of Civil and Environmental Engineering and Kyoto University, Japan. The

model system is called FAMOS, Florida's Activity Mobility Simulator. The simulator is intended to serve as a comprehensive multimodal activity-based microsimulation model system that simulates activity and travel patterns at the level of the individual traveler.

FAMOS consists of four main modules. They are as follows:

### HAGS: Household Attributes Generation System

The Household Attributes Generation System, or HAGS, is a model system developed to generate synthetic households. HAGS populates each geographical zone with synthetic households while observing marginal distributions of pertinent variables in census and



other data, and then produces their future demographic and socio-economic attributes for long-range forecasting. HAGS consists of three subcomponents. The *Household Distributor* determines the distribution of attributes of households in the respective zones based on data from the census, travel surveys and other sources using an iterative proportional fitting (IPF) method applied to base-year marginal distributions of pertinent household and person attributes in each zone and their area-wide joint distribution. The *Household Ager* simulates the aging of the base-year households generated by the Distributor

through the horizon year. Simulated events include: birth, death, marriage, divorce, employment, and residential relocation including migration. The third component, called the *Fixed Activity Generator*, determines the locations and beginning and ending time boundaries for activities that tend to be fixed in nature, for example, work and school. These boundary conditions help specify the time-space prism constraints within which people must undertake activities and trips.

FAMOS continued on Page 5

## NEW METHODOLOGIES WORD JUMBLE

Unscramble the letters to see how well you know your New Methodologies?  
If you need a hint, see page 4.

1. ETDM ..... IIFFCEENT TIONAPORTTRANS SIICOEND KAIMGN

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2. FAMOS ..... LADFIOR'S TIITVYAC YTMOBIIIL MIAULTSRO

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3. IDAS ..... SIT OYPMENDETL SYSAIALN TYMSES

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# ATTENTION

## Tampa Bay Applications Group WORKSHOP

OCTOBER 24, 2002



*FDOT District Seven Office from 12:00 p.m. to 2:00 p.m.  
(Auditorium Opens at 11:30 a.m.)*

## NEW METHODOLOGIES & ANALYSIS TECHNIQUES

**Frank Kalpakis and Ruth Roaza (URS)**

***Using the Internet to Support the Efficient Transportation Decision-Making (ETDM) Process***

In response to direction from TEA 21, the FDOT has been partnering with FHWA, FTA and other federal, state and local agencies to develop an improved methodology for reviewing transportation projects in order to reduce the time, effort and cost related to transportation decisions. The ETDM process creates linkages between land use, transportation, and environmental resource planning initiatives through early, interactive agency and community involvement using an electronic database as the main source of information review and exchange.

The Florida Geographical Data Library will be the resource for updating and maintaining all of the necessary data. An environmental screening tool used to perform the necessary GIS analysis has been under development for several months. Once completed, this Internet-based function will become a central source for transportation decision making. This workshop will demonstrate the ETDM screening process using this new database analysis tool.

**Ram Pendyala (USF, College of Civil and Environmental Engineering)**

***FAMOS: Florida's Activity Mobility Simulator***

This workshop will demonstrate the application of an activity-based model system called FAMOS, used for simulating individual activity and travel patterns. The tool simulates modifications made by individuals and households to their activity and travel patterns in response to changes in the transportation system. The workshop will also include a discussion on how the system can be used to develop time use-based quality of life measures. These measures, in turn, can be used to evaluate the benefits of transportation infrastructure investments.

**Christopher Francis (FDOT-Central Office: Systems Planning Office)**

***IDAS: ITS Deployment Analysis System (A new kid in the FSUTMS neighborhood!)***

IDAS is an ITS sketch-planning analysis tool that can be used to estimate the impacts, benefits and costs resulting from the deployment of ITS components. At the April 2002 meeting, the Florida Model Task Force formed an ITS Subcommittee to review and implement IDAS within the framework of FSUTMS. With the Subcommittee's guidance, the development of the FSUTMS/IDAS integration is currently underway, and is being sponsored by the FDOT Systems Planning and ITS Offices.

IDAS operates as a post-processor to FSUTMS models. Although it is a sketch-planning tool, the system implements the modal split and traffic assignment steps associated with an FSUTMS model. These steps are key to estimating the changes in modal, route, and temporal decisions of travelers resulting from ITS technologies. Because IDAS is a sketch planning analysis system, it is intended for use as an alternatives analysis tool and not for ITS operations optimization. This workshop will address the application of the ITS Deployment Analysis System currently under development.



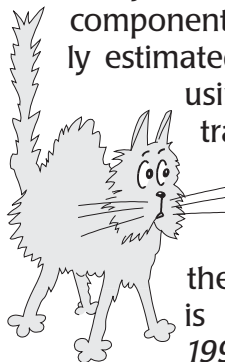
### DEBNetS: Dynamic Event Based Network Simulator

Dynamic Event-Based Network Simulator, or DEBNetS, is a network simulator whose input is individual auto trips generated along time. DEBNetS thus simulates traffic condition on road networks without assuming the presence of equilibrium in network flow. On the contrary, replicating changes in traffic condition over time is the main thrust for the development of this network simulator. In DEBNetS, trips produced by PCATS are loaded onto the network along a continuous time axis, exactly at the clock time when they are supposed to start, and variations in traffic condition are simulated for each link over time. This component of FAMOS is currently under development.



### PCATS: Prism-Constrained Activity-Travel Simulator

PCATS (Prism-Constrained Activity-Travel Simulator) is a system of behavioral models that together simulate individuals' activity and travel. All model components are statistically estimated and adjusted using household travel survey results. The Florida implementation of the PCATS system is based on the 1999-2000 South-



east Florida Travel Characteristics Study Survey. PCATS simulates behaviors of sample households in time and space over a one-day period.

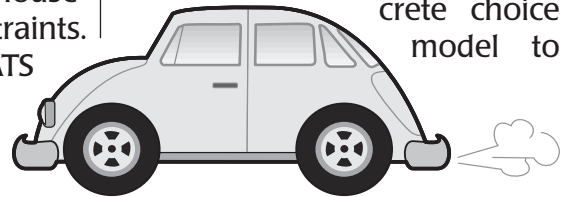
The unique aspect of PCATS (and FAMOS) is that it simulates activity-travel patterns while recognizing institutional, household, and modal constraints. For each person, PCATS identifies blocked or constrained periods that are defined by mandatory and rigid activities and trips such as work and school. For the open or unblocked travel periods, PCATS constructs time-space prisms, the dimensions of which are determined by modal and network characteristics and constraints.

In PCATS, the probability that a particular daily activity-travel pattern will be made is decomposed into a series of conditional probabilities, each associated with one activity bundle and the trip to reach the location where it is pursued. The conditional probability of an activity bundle is further decomposed to yield the following three sets of model components: 1) activity type choice models, 2) destination and mode choice models, and 3) activity duration models. These models are applied repeatedly to simulate activities and trips of an individual. The PCATS model components are estimated using econometric modeling methods applied to the 1999-2000 Southeast Florida Regional Travel Characteristics Study Survey data sets.

### PROG: Policy Response Option Generator

The policy response option generator is intended to serve

as a tool for analyzing changes in travel behavior and travel demand that would occur in response to a transportation policy action. The generator can be used to model the impacts of blanket policies that may be applied on a region-wide basis. PROG uses a discrete choice model to



determine the primary response of a traveler to a transportation policy action and then employs a rule-based heuristic algorithm to generate alternative feasible activity-travel patterns that a person might adopt. A time-use based utility measure is computed for each pattern to determine the most preferred option that is most likely to be adopted by the individual. Thus the generator attempts to mirror the cognitive processes that individuals employ when conducting a search for a new activity-travel pattern. This component of FAMOS is currently under development.

Model calibration and validation is currently ongoing to ensure that FAMOS components are able to replicate base year conditions. The 1996 Southeast Regional Planning Model is being used as a test case to calibrate and validate FAMOS. Software development and implementation is currently ongoing and it is envisioned that the entire activity-based model system will be able to run on a Windows-based PC. The current schedule calls for the development of the first prototype of FAMOS by Fall 2002 with distribution in Spring 2003.

## TRANSPORTATION COURSES AT USF FOR SPRING 2003

### TTE 6930 Transportation Seminar

Mon 11-11:50am CUTR 202 Pendyala

### TTE 6315 Transportation Safety (Online web course)

Mon 5-7:50pm CUTR 202 Lu

### TTE 6835 Pavement Design

Tue 5-7:50pm CUTR 202 Gunaratne

### TTE 6651 Public Transportation (Online web course)

Wed 5-7:50pm CUTR 202 Polzin

### CGN 6933 Traffic Flow Theory

Thur 5-7:50pm CUTR 202 Lu

### TTE 6507 Travel Demand Analysis (Online web course)

Fri 3-5:50pm CUTR 202 Pendyala

The courses are open to all. For more information, call the Civil and Environmental Engineering Department at (813) 974-2275.



The Tampa Bay Applications Group Newsletter is published under contract to the FDOT District Seven Planning Office in Tampa. FSUTMS users and TBAG members contribute all information and material contained in the newsletter. Please contact the editors to submit articles for future issues or to get on the mailing list.

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