

**EVALUATION TOOLS TO SUPPORT ITS PLANNING PROCESS: DEVELOPMENT OF A SKETCH
 PLANNING TOOL IN THE FSUTMS/CUBE ENVIRONMENT**

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Intelligent Transportation Systems (ITS) planning requires the use of tools to assess the performance of ITS deployment alternatives relative to each other and to other types of transportation system improvement alternatives. ITS Deployment Analysis System (IDAS) is the most widely used sketch planning tool for ITS evaluation. However, IDAS requires FSUTMS (Florida’s standard model) data to be reformatted in a form acceptable to IDAS before it can be used in Florida. IDAS includes internal models and parameters that are different from the calibrated FSUTMS models. Evaluation and forecasting methods prove inconsistent when comparing the IDAS and FSUTMS models. In addition, IDAS modules, algorithms, and interfaces can be

improved to better evaluate ITS deployment alternatives taking into consideration recent research findings and advancements in modeling technology.

In 2004, the Florida Model Task Force selected the Cube software environment as the FSUTMS software engine. In 2007, the FDOT initiated an 18-month research project to develop tools and procedures to perform sketch-planning evaluations of the costs and benefits of ITS alternatives within the FSUTMS/Cube software environment. Developing an ITS evaluation capability as part of FSUTMS will allow a more powerful, user-friendly, and consistent

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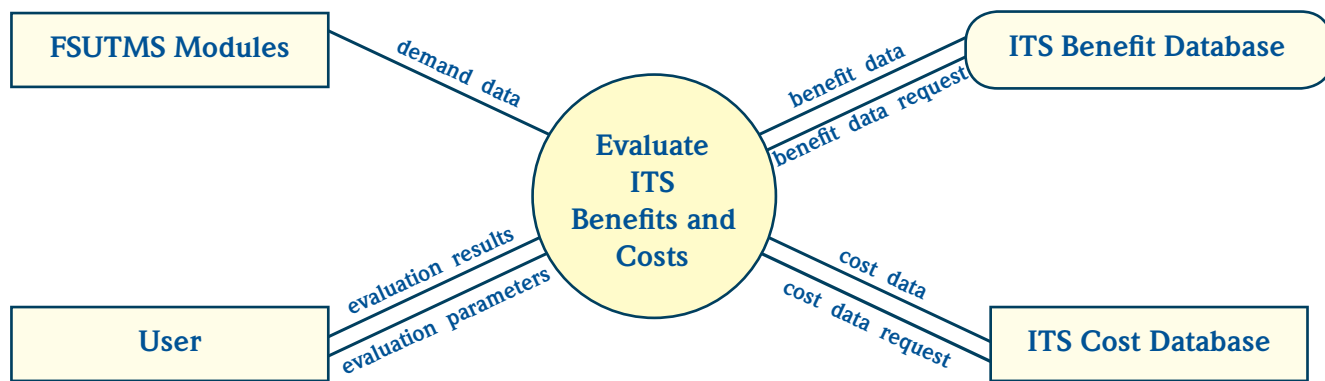


Figure 1. Overview of the Evaluation Tool Processes

In This Newsletter:

American Community Survey Handbook	3	FSUTMS Users’ Group Meeting Dates	7
The Florida NHTS Add-On Program Update	4	2008-2009 FSUTMS Cube Workshops & Schedule	8
infoUSA Employment Data	5		

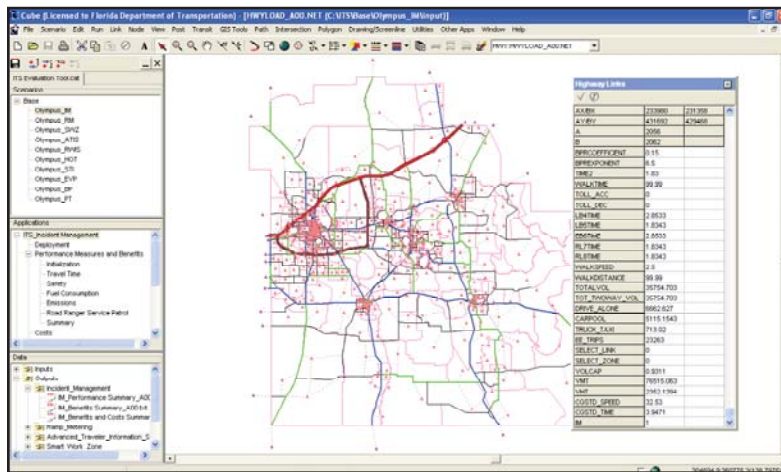
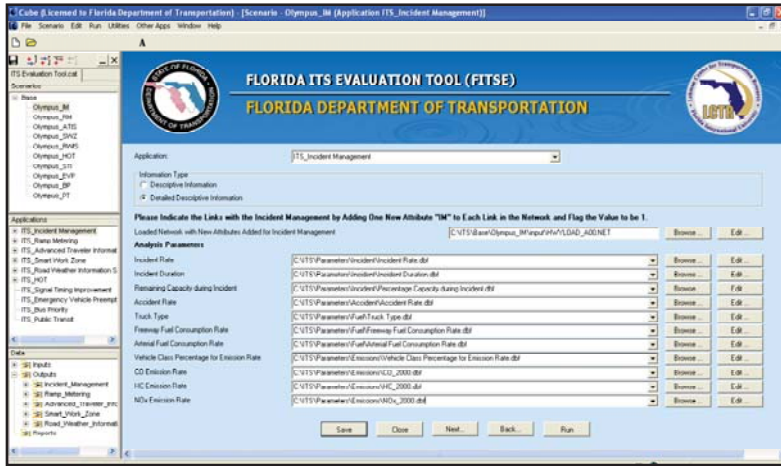


Figure 2. Examples of the User Interface of the Developed Evaluation Tool

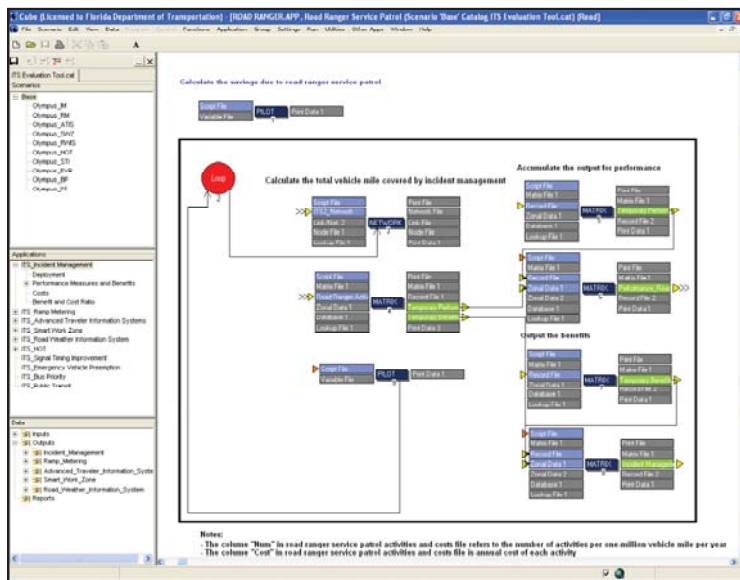


Figure 3. Utilization of Cube Modeling Environment in the ITS Evaluation Tool Development.

continued from page 2

evaluation of ITS deployment alternatives. The Lehman Center for Transportation Research at Florida International University (FIU) is conducting this project.

The Cube script language is the basis for the evaluation tool procedures. Figure 1, shown on page one, presents an overview of the evaluation tool processes.

The current version of the evaluation tool evaluates the following types of ITS deployments:

- Ramp metering
- Incident management systems
- Highway advisory radio (HAR) and dynamic message signs (DMS)
- Advanced travel information systems
- Managed lanes
- Signal control
- Transit vehicle signal priority
- Emergency vehicle signal priority
- Monitoring and management of fixed route transit
- Transit information systems
- Transit security systems
- Transit electronic payment systems
- Smart work zones
- Road weather information systems (RWIS)

continued on page 3

continued from page 2

The evaluation tool produces various performance measures depending on the types of the evaluated ITS deployments. Possible performance measures are listed below:

- Vehicle miles of travel (VMT);
- Vehicle hours of travel (VHT);
- Average speed;
- Number of accidents: fatalities, injuries, property damage only
- Fuel Consumption (gallons)
- Monetary benefits to users agencies
- Emissions: hydrocarbon, carbon monoxide, oxides of nitrogen

The tool utilizes the user interface and modeling capabilities of the Cube software environment as shown in Figures 2 and 3, on page two.

Figure 4 presents an example of an evaluation report produced by the tool.

The Systems Planning Office will present the ITS Tool to the Model Task Force for review before any implementation for statewide use. Pending task force approval, the tool will be available for testing by FSUTMS users in January 2009. Each FSUTMS regional model will require adaptation because of the differences in the structures and variables of FSUTMS. The project principal investigator is Dr. Mohammed Hadi and he is available for questions by phone (305)-348-0092 or email: hadim@fu.edu. The FDOT project manager is Mr. Vidya Mysore, and he is available for questions by phone (850)-414-4924 or by email: vidya.mysore@dot.state.fl.us.

AMERICAN COMMUNITY SURVEY REFERENCE MATERIALS

The Census Bureau just released the first of a series of handbooks aimed at helping data users negotiate their way through American Community Survey (ACS) data. This first handbook, “What General Data Users Need to Know,” will help general audiences understand the basics of the ACS, its opportunities and challenges, and how to access and use the ACS data on the Census Bureau’s Web site. The handbook can be found at <http://www.census.gov/acs/www/Downloads/ACSGeneralHandbook.pdf>.

The handbook itself is part of a much broader suite of e-learning ACS materials that can found at http://www.census.gov/acs/www/UseData/Compass/compass_series.html.

In addition, NCHRP Report 588, “A Guidebook for Using the American Community Survey Data for Transportation Planning,” is a MUST HAVE for the transportation planner. It can be found on-line at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_588.pdf.

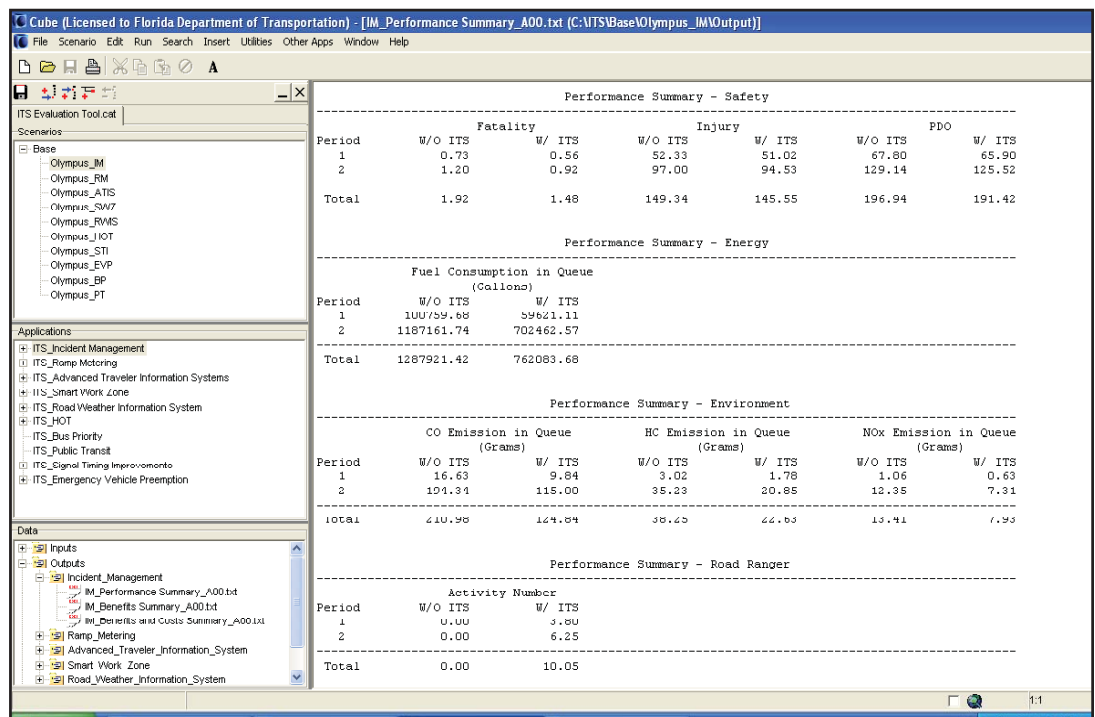


Figure 4. Report Produced by the Developed Evaluation Tool

THE FLORIDA NHTS ADD-ON PROGRAM UPDATE

By: FDOT Systems Planning Office, Tallahassee

The National Household Travel Survey (NHTS) focuses on gaining a better understanding of travel behavior. Florida is participating in the NHTS Add-On program to achieve a statistically valid sample of current travel behavior throughout the state and to gain a greater level of confidence in assessments of future travel patterns and more defensible transportation projects for federal and state funding.

The NHTS is a tool for the urban transportation planning process. The NHTS provides data on personal travel behavior, trends in travel over time, a source of four-step model parameters, national benchmarks for reviewing against local data, and data for a wide range of transportation planning applications. Additional information on Florida’s participation in the add-on program is available in the February 2008 issue (Vol. 37) of the *Florida Transportation Modeling Newsletter* (available through FSUTMSOnline).

This article provides the current data collection status.

The Sampling Plan

Figure 1 shows the recommended stratification for the 2008 NHTS Florida Add-On sample after review by FHWA and the Model Task Force Data Committee. The sample size stratification ensures each of the proposed regions has a minimum sample size of 1,200 and the regions generally conform to existing FDOT districts. Table 1 shows the original and revised sample size for the seven regions and the confidence intervals at the 95-percent confidence level. Table 1 shows (in theory) that for 19 cases out of 20, the overall results will differ by no

TABLE 1. NHTS ADD-ON SAMPLE SIZE

Region	No. of Households	Sample Size		Confidence Interval (95% CL)	
		Original	Revised	Original	Revised
1	545,158	1,096	1,200	± 3.0%	± 2.8%
2	613,890	1,234	1,234	± 2.8%	± 2.8%
3	424,149	852	1,200	± 3.4%	± 2.8%
4	2,150,666	4,322	4,116	± 1.5%	± 1.5%
5	1,040,095	2,090	2,000	± 2.1%	± 2.2%
7	1,196,954	2,406	2,250	± 2.0%	± 2.1%
8	370,209	2,000	2,000	± 2.2%	± 2.2%
Total	6,341,121	14,000	14,000	± 0.8%	± 0.8%

more than the confidence interval that surveyors would obtain by seeking out all households in the region. This allocation and sharing among districts is not adversely affecting the confidence interval and helps ensure that regions 1 and 3 receive at least 1,200 samples.

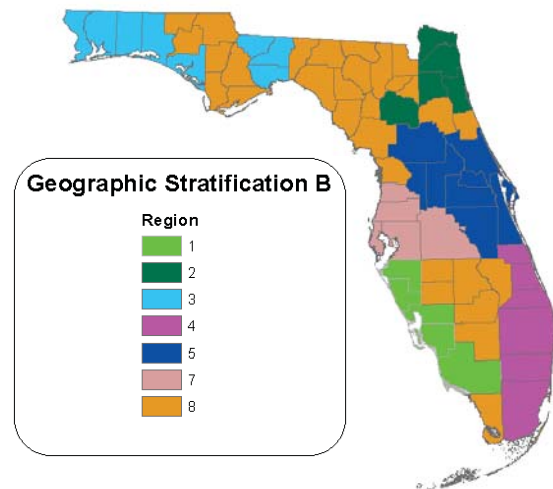


Figure 1. Proposed Geographic Stratification

Data Collection Procedure

The NHTS is a random digit dialing telephone survey, using Computer-Assisted Telephone Interviewing (CATI) technology. The data collection contractor, Westat, randomly pre-assigns a day of the week to survey each telephone number in the sample. During the household interview, each household is assigned a specific date as a “Travel Day” and a four-week “Travel Period” for which detailed data on travel is collected.

continued on page 4

continued from page 4

The NHTS team sends some households (those that are associated with an address through their sampled telephone number) an advance letter containing a pre-survey monetary incentive to participate, and then follows up with a telephone interview about a week later. Westat contacts the remaining households first via telephone. After the first telephone interview, referred to as the household screener interview, the NHTS team mails travel diaries and an additional monetary incentive to the household so that each household member can record travel on the assigned travel day. The NHTS team makes reminder calls to each household on the day before the assigned travel day. Surveyors contact household members by telephone during a six-day window beginning with the day following the travel day to complete a person interview and provide travel data.

Current Status

The 2008 National Household Travel Survey is in the 27th week of the data collection phase. In conjunction with the national study, the State of Florida Add-On program has been underway for data collection since mid-March 2008. The data collection phase includes a multi-stage process consisting of mail-out operations, telephone recruitment interviews, telephone retrieval interviews for multiple household members, online and interactive geocoding, appointment scheduling, and repeated contact attempts across various time periods.

Table 2 shows the current status of the household interview process. As of October 5, 2008, Westat has interviewed or is interviewing 41 percent of the sample households and three out of every four households contacted are cooperating in the data collection effort.

TABLE 2. NHTS ADD-ON CURRENT OVERALL STATUS

Category	Region	
	Total	FL
Total Target Sample Size	14,000	14,000
Useable Households (as of 10/5/08)	5,939	5,939
% of Completion Goal	42.4%	42.4%
Extended (Retrieval) HH Cooperation Rate (%)	74.3%	74.3%

The Sampling Plan goal is to ensure that each MPO has adequate statistically significant samples. Figure 2, shown on the next page, illustrates the completion percent by MPO, as well as for rural counties. As of October 5, 2008, the Lake-Sumter and Charlotte County-Punta Gorda MPOs achieved close to 70 percent of their total sample households. The Miami-Dade Urbanized Area and Broward MPOs have achieved fewer than 30 percent of their target sample households as of October 5, 2008. For rural counties, the NHTS team has interviewed around 62 percent of the total rural sample households.

continued on page 6

INFOUSA EMPLOYMENT DATA AVAILABLE FROM THE STATE

The FDOT Systems Planning Office would like to remind model developers of the availability of February 2007 infoUSA employment data for the entire state. This data set is a valuable aid in developing base-year employment zonal data (formerly known as ZDATA2). FDOT purchased the data for use statewide for transportation planning projects. Please contact your local FDOT district modeling coordinator for more information:

- District 1:** Jim Baker (james.baker@dot.state.fl.us)
- District 2:** Milton Locklear (milton.locklear@dot.state.fl.us)
- District 3:** Linda Little (linda.little@dot.state.fl.us)
- District 4:** Min-Tang Li (min-tang.li@dot.state.fl.us)
- District 5:** Betty McKee (betty.mckee@dot.state.fl.us)
- District 6:** Phil Steinmiller (phil.steinmiller@dot.state.fl.us)
- District 7:** Danny Lamb (daniel.lamb@dot.state.fl.us)

For more information, contact Terry Corkery at the Systems Planning Office: terrence.corkery@dot.state.fl.us.

continued from page 5

The NHTS survey effort completion date is April 2009. Upon completion of the survey, the data will undergo further analysis. The completed product will be available to users in October 2009. For more information on the NHTS Florida Add-On project, contact Vidya Mysore: 850-414-4924, vidya.mysore@dot.state.fl.us.

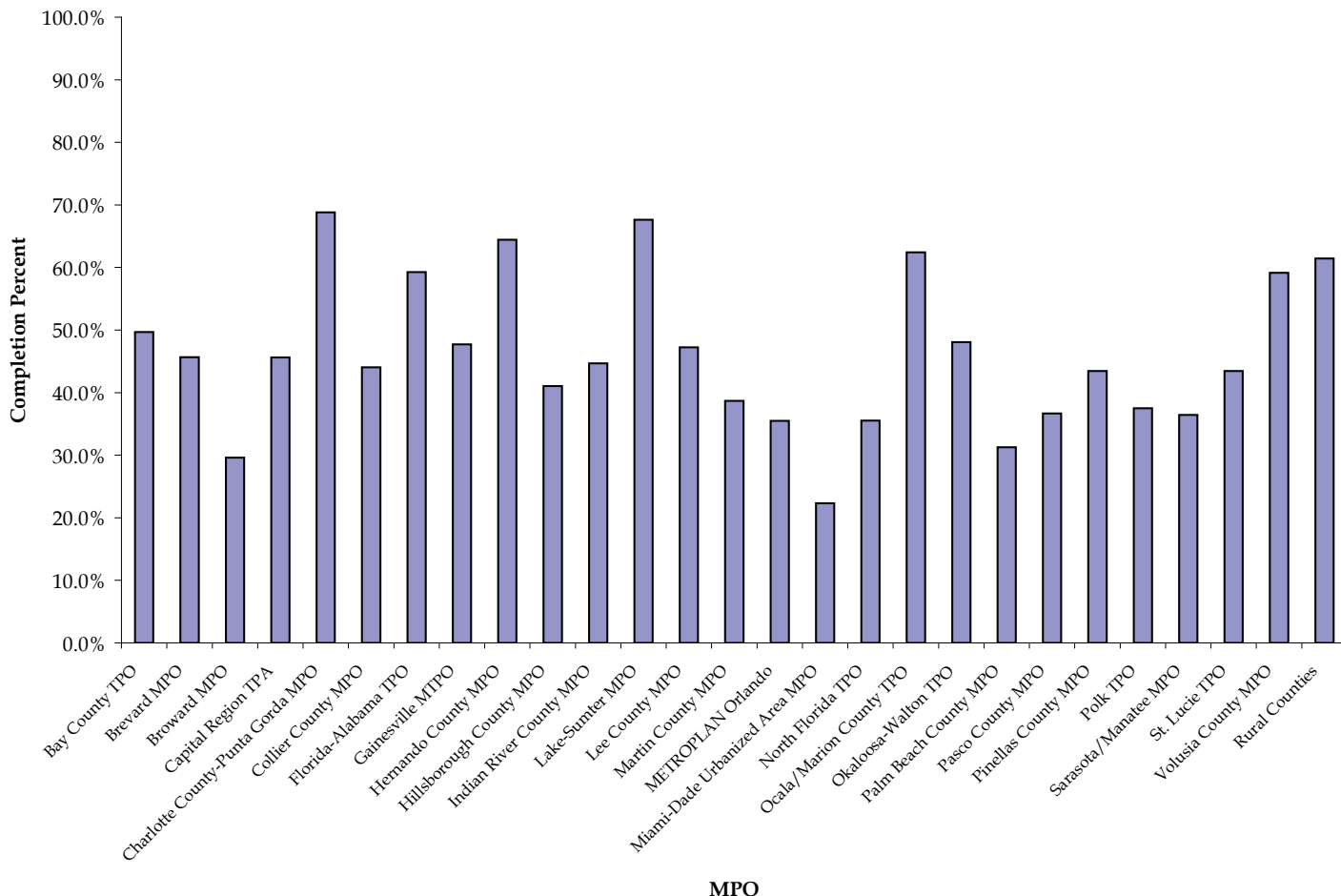


Figure 2. Data Collection Completion Percent by MPO and for Rural Counties

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FSUTMS USERS' GROUP MEETING DATES

http://www.fsutmsonline.net/index.php?/user_groups_pages/user_groups_pages/

Local FSUTMS users' groups have been formed to provide a forum to facilitate and promote understanding and proper application of the models. These groups maintain mailing lists and hold regular meetings that usually feature one or more guest presenters. Meeting dates are provided below.

The **Panhandle Transportation Applications and FSUTMS Users' Group** resides in the Panhandle of Northwest Florida. Sixteen counties are represented, including four MPO/TPO urban areas and two planning councils. Meetings, when scheduled, are usually held on the same day as the quarterly MPO meetings and are held at the Washington County Public Library, 1444 Jackson Avenue (U.S. Hwy. 90), Chipley, FL from 1:30 p.m. to 3:00 p.m. A notice will be sent to members prior to users' group meetings. For additional information, please contact **Linda Little** by email: linda.little@dot.state.fl.us. No meetings are scheduled at this time.

The **Northeast Florida Transportation Applications Forum** is jointly organized by the FDOT, District 2 Planning Office and the First Coast Metropolitan Planning Organization. The meetings are held at the First Coast MPO facility on 1022 Prudential Drive downtown Jacksonville. The meetings are open to the public and private sector. Professionals are encouraged to either bring their own lunch or order pizza by the slice. For additional information concerning the Forum, please contact **Milton Locklear** by email: milton.locklear@dot.state.fl.us. Scheduled meeting dates:

Thursday, May 21, 2009

Thursday, September 24, 2009

The **Central Florida Transportation Planning Group** meets quarterly to provide presentations on travel demand modeling, transportation planning, and growth management topics. The meetings are brown bag and all are welcome. The meetings are held at the FDOT, District 5 Urban Office, Lake Apopka Conference Room, 133 South Semoran Boulevard, Orlando, Florida 32807 from 12:00 p.m. 2:00 p.m. For additional information, please contact **Betty McKee** by email: betty.mckee@dot.state.fl.us.

The **Southwest Florida Users' Group** meets at the Charlotte County-Punta Gorda MPO, 1105 Taylor Road, Suite G, Punta Gorda. For additional information, please contact at **Jim Baxter** (863) 519-2562.

The **Tampa Bay Applications Group (TBAG)** is a transportation planning users' group which meets quarterly to hear speakers address technical issues on travel demand modeling and project applications. Previous meeting topics, newsletters and presentations are available on the www.tbrta.com website under TBAG Archives. The meetings are brown bag and are held at the Florida Department of Transportation, District 7 Office, 11201 N. McKinley Drive, Tampa, Florida, 33612 from 12:00 p.m. to 2:00 p.m. The meetings are free and open to all transportation planning professionals. If you are interested in receiving meeting notices, the TBAG newsletter and other users' group information, please contact **Danny Lamb** by email: daniel.lamb@dot.state.fl.us. Scheduled meeting dates:

Monday, December 8, 2008

The primary objective of the **Southeast Florida FSUTMS Users Group** is to promote understanding and proper application of FSUTMS to the solution of transportation planning and engineering problems. The goal of the group is to enhance the accuracy and reliability of local travel demand models. Membership shall be granted any time during the year to interested individuals involved in FSUTMS applications. General membership meetings will be held quarterly. Special meetings may be held at such other times as considered necessary by the members. Meetings are tentatively scheduled to be held at the FDOT-D4 (Headquarter or Ft. Lauderdale Operations Center) Auditorium from 9:30 AM to noon. For additional information, please contact **Min-Tang Li** at FDOT District 4 at (954) 777-4652. Scheduled meeting dates:

Friday, Feb. 6, 2009 (D4 HQ 1st Floor Auditorium)

Friday, May 8, 2009 (D4 HQ 1st Floor Auditorium)

2008-2009 FSUTMS CUBE WORKSHOPS & SCHEDULE

For workshop descriptions and to register, visit
http://www.fsutmsonline.net/modeling_training.aspx

FSUTMS/Voyager modeling training workshops are offered by FDOT to the Florida transportation modeling community. All workshops are offered on-site in either Orlando or Clearwater. Additionally, the Executive Summary Modeling Workshop will be offered on-line within the next year.

Training workshops qualify for professional development hour (PDH) credit for Florida professional engineers. The number of PDH credits for each workshop is equal to the number of classroom hours. If you would like to obtain PDH credits, please provide your PE registration number to the Systems Planning Office prior to the workshop. Currently, AICP CM credits are not provided. There is no fee to attend the workshops; however, registration is required. **An automated email will be sent confirming your registration. A seat assignment will be sent at a later date.**

Executive Summary Modeling Workshop

Date: December 10, 2008
 Times: Wednesday, 8:00 a.m. – 5:00 p.m.
 Location: Seminole State College, Seminole State Court
 Reservations: 1-888-697-8745
 Rate: \$99/night
 Group Code: FDOT
 Hotel Deadline: 11/20/08

This Workshop is filled. To register for future offerings or to get on a waiting list please go to:
www.fsutmsonline.net

ITS Evaluation Tools Modeling Workshop

Date: May 4-7, 2009
 Times: Mon. 1:00 p.m. – Thurs. 12:00 p.m.
 Location: Homewood Suites
 8745 International Drive
 Orlando, FL 32819
 Reservations: 1-888-697-8745
 Rate: \$99/night
 Group Code: FDOT
 Hotel Deadline: 4/20/09

FSUTMS Comprehensive Modeling Workshop

Date: March 23-27, 2009
 Times: Mon. 1:00 p.m. – Fri. 12:00 p.m.
 Location: Homewood Suites
 8745 International Drive
 Orlando, FL 32819
 Reservations: 1-888-697-8745
 Rate: \$99/night
 Group Code: FDOT
 Hotel Deadline: 3/9/09

Executive Summary Modeling Workshop

Date: Late May/Early June 2009
 Times: 9:00 a.m. – 5:00 p.m.
 Location: Tallahassee
 Address to be determined

For further information please contact:
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 Mail Station 19
 605 Suwannee Street
 Tallahassee, Florida 32399-0450
 (850) 414-4903
 FAX (850) 414-4876
terrence.corkery@dot.state.fl.us

Executive Summary Modeling Workshop

Date: April 21, 2009
 Times: Tues. 9:00 a.m. – 5:00 p.m.
 Location: Homewood Suites
 2233 Ulmerton Rd.
 Clearwater, FL 33762
 Reservations: 1-727-573-1500
 Rate: \$109/night
 Group Code: FDOT
 Hotel Deadline: 4/7/09

