Now Available: Full 2007-2008 FSUTMS Cube Voyager Training Schedule – page 7

MODEL TASK FORCE LAUNCHES NEW COMMITTEES

As many of you are aware, at its last full meeting in December 2006, the Florida Model Task Force announced that four new committees would replace the old committee structure. The four new committees are Transit, Geographic Information Systems (GIS), Model Advancement, and Data. Both voting and non-voting members of the task force are eligible to serve as members on the committees. Each committee has approximately 10-20 members. If you are interested in contributing to the committees, please contact the committee chair. Details on each committee and their corresponding contact information are provided below.

Transit Committee

The mission of the Transit Committee is to assist the Model Task Force (MTF) in developing and recommending enhancements to transit-related elements of the FSUTMS modeling framework. The primary goal of the committee is to maintain a state of continual improvement to the model by supporting research and projects that address changes in technology (i.e., hardware/software), modeling or data collecting procedures, and federal and state transit planning requirements. The work of the committee will include reviewing and recommending new transit modeling standards, approaches, and best practices in the areas of mode choice, on-board surveys, transit network editing, transit access, and training.
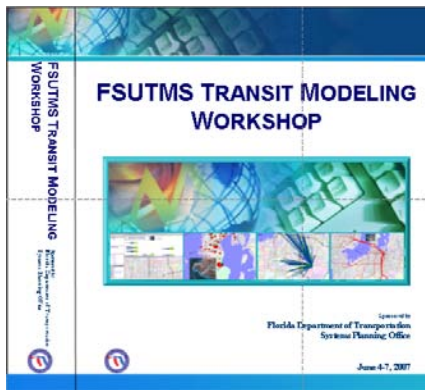
The Transit Committee had its initial internal kick-off meeting in March 2007 to develop the committee's draft mission statement, finalize committee membership, and discuss the next steps for the committee. The committee held a breakfast meeting in May 2007 during the TRB Planning Applications Conference for those attending the conference. Meeting attendees received an outline of the *FSUTMS Transit Modeling Workshop* workbook for review and comment. Systems Planning provided a full version of the workbook to the committee for informational purposes shortly before the *FSUTMS Transit Modeling Workshop* held in June 2007. The next steps of the Transit Committee will be to begin coordinating and providing feedback on the transit modeling framework currently under development by FDOT Systems Planning.

For additional information on the Transit Committee, please contact the committee chair, Larry Foutz at the Miami-Dade MPO, via email at **lfoutz@miamidade.gov**.

GIS Committee

The GIS Committee will have its initial kick-off meeting after the release of Cube 5.0. At that time, the committee will draft a mission statement, review committee membership, and discuss the committee's next steps.

For additional information on the GIS Committee, please contact the committee chair, Lina Kulikowski at the Broward County MPO, via email at **lkulikowski@broward.org**.

In This Newsletter:

Model Advancement Committee

The mission of the Model Advancement Committee is to assist the MTF in developing enhancements to the current FSUTMS modeling framework and to pursue and support research to move the Florida modeling community into the 21st Century. This may include reviewing and recommending new modeling approaches and best practices in model development, calibration and validation, and applications within Florida.

The Model Advancement Committee had its initial internal kick-off meeting in February 2007 to develop the committee's draft mission statement, finalize committee membership, and discuss the next steps for the committee. The Systems Planning Office distributed the *FDOT Model Validation and Calibration Standards, Phase II Literature Review Technical Memorandum* to the committee for review and comment in early May. The full committee held their first meeting in late May 2007 to discuss comments on the technical memorandum, as well as the proposed committee mission statement and the MTF 5-year work program. The next steps of the committee will be to review and provide comments on FDOT's *Recommended Approach to Delineating TAZs in Florida* white paper in August 2007.
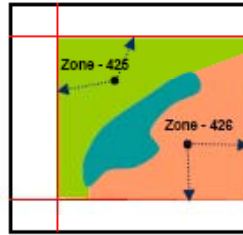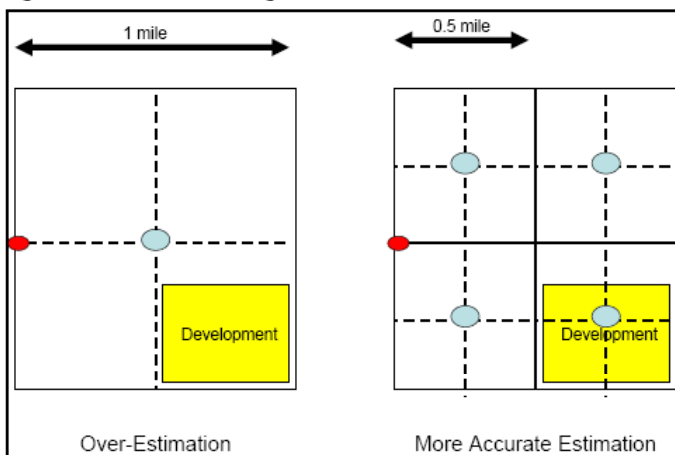

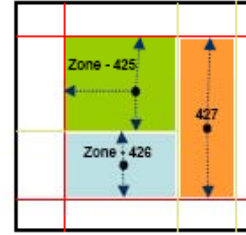Figure 3.2a indicates zones being delineated using boundaries of water body.

Figure 3.2b indicates zones being delineated using major roads as boundaries.
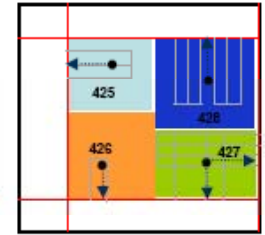
Figure 3.2c indicates zones being delineated using connectivity depicted by local roads.

The Model Advancement Committee will also begin discussing potential research opportunities, including activity-based modeling.

For additional information on the Model Advancement Committee, please contact the committee chair, Mike Neidhart at the Volusia County Metropolitan Planning Organization (MPO), via email at **mneidhart@co.volusia.fl.us**.

Data Committee

The mission of the Data Committee is to provide guidance to the MTF and the Florida transportation modeling community regarding modeling data needs to assist members in developing better models through data collection, analysis, archiving, and modeling information management.

The Systems Planning Office distributed the *National Household Travel Survey (NHTS) Sampling Plan* to the Data Committee for review and comment in early May 2007. The committee held their first meeting in late May 2007 to discuss the sampling plan and a proposed mission statement, finalize membership, and discuss the committee's next steps. The committee suggested changes to the sampling plan and in late June 2007 reviewed the revised plan. The next steps of the committee will be to submit additional questions that should be included in the NHTS survey. Another task that the committee will undertake is to review and provide comments on FDOT's *Recommended Approach to Delineating Traffic Analysis Zones (TAZs)* in Florida white paper in August 2007.

For additional information on the Data Committee, please contact the committee chair, Gary Kramer at the West Florida Regional Planning Council, via email at **gary.kramer@wfrpc.org**.

Figure 3.11: Over-Estimating Walk Access to Transit

TRANSIT FRAMEWORK FREQUENTLY ASKED QUESTIONS
by: David Schmitt, DMJM Harris/AECOM and Yongqiang Wu, FDOT Systems Planning Office

The new transit modeling framework was unveiled to the Model Task Force at the December 2006 meeting in Tampa. The new framework utilizes Public Transport (or PT for short), FSUTMS-Voyager's public transportation module. Central Office is conducting a broad outreach effort, which includes workshops, detailed documentation, as well as programs and scripts. Users should check Florida's modeling web portal (**fsutmsonline.net**) on a regular basis to keep abreast of the latest information.

Several additional tasks are planned for this fiscal year. Efforts are already underway to refine the new standards and develop more convenient tools for users. A workshop on the new standards was held in June 2007 and two more workshops are being planned. In addition, a Frequently Asked Questions list (or FAQ) was recently developed to help answer some of the basic questions about the new framework. A complete list of the questions can be found on FSUTMSOnline's web page (same link as above) on the new framework.

Why do we need this new framework?

The previous transit modeling framework needed a re-evaluation for two reasons. First, the Florida Model Task Force voted to migrate to the FSUTMS-Voyager platform in 2004. Voyager's transit module, Public Transport (PT), is quite different from Tranplan in its format and operation – so different, in fact, that maintaining the existing framework in its entirety was not a viable option.

Second, the Federal Transit Administration's (FTA's) oversight of forecasts related to the New Starts program over the past five years have provided a number of adjustments to transit model "state of the practice" concepts. Modeling insights gained from FTA indicate that many ideas initially considered good practice in fact have many bad or undesirable properties during forecasting. In fact, they may render the model results inexplicable. Consequently, FTA has released recommended model properties and other findings to the modeling community in the hopes that future modeling systems will avoid these practices (or continuing them in some cases). The previous framework did not include some of these model properties, making them vulnerable to FTA scrutiny. Re-evaluating the transit modeling framework offered the opportunity to develop a new system with these properties in mind.

How was this framework developed?

The new framework was developed with four goals in mind:

1) maintain the existing standards to the extent possible,
2) meet user and planner needs,
3) maximize the features and capabilities of Voyager and PT and
4) be consistent with all known New Starts/Small Starts & FTA guidance.

The initial draft of the framework was developed in summer 2006 and was based on all PT-related work experience at the time. It was refined as the result of consultations with the FDOT staff, Federal Transit Administration (FTA), Citilabs, and the Model Task Force Working Group. Many enhancements and features were made to the PT programs throughout the development process. The latest draft framework was tested using simple network setups. The results of those tests were shared with the FTA in November 2006, when the framework was formalized.

What are the key differences between this framework and the previous one?

It should be noted that other than the differences outlined here, the new framework is essentially the same as the previous one. A major goal was to maintain the existing framework elements to the extent possible.

The most obvious difference is that it uses the PT and

Additional information about this framework can be found at http://www.fsutmsonline.net/index.php?/transit_modeling/ comments/new_fsutms_transit_modeling_framework/

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FSUTMS-Voyager software instead of FSUTMS-Tranplan. PT uses a leg-based storage system, where a leg is defined by a boarding and alighting node. FSUTMS-Tranplan is uses a link-based storage system, where a link simply had to have two nodes. This subtle difference is the main reason for the re-evaluation of the previous framework; the link-based access and transfer connectors were incompatible with PT.

Other key differences include:

- Stronger integration with the highway network; transit-only links and station data are coded directly onto the highway network, which is now effectively a transportation network,
- Fixed-guideway (e.g., rail) stations are micro-coded, with separate nodes for bus and rail platforms,
- A new mode numbering system has been developed,
- The AUTOCON program has been revised to include station-specific costs in addition to drive-access time,
- Many areas will notice a new mode choice modeling structure,
- New mode choice coefficients and transit path-building weights,
- A new REWALK program that effectively replaces WALKCON, and
- A new transit assignment program TAREPORT that mimics FSUTMS-Tranplan's TADLOD and reporting procedures.

What documentation is available on this new framework?

There are two companion documents that summarize the new transit modeling system for FSUTMS-Voyager. The Theoretical Framework document describes the theoretical underpinnings and coordination between the modeling elements. It mentions some of the key features of PT and summarizes the rationale for some of the new procedures and practices. In contrast, the purpose of the Application Framework is to describe how the elements of the FSUTMS-Voyager Transit Model are applied in PT and FSUTMS-Voyager. It contains many of the details and specifics, including settings for many of the PT control statements and keywords.

There are documents of the three FORTRAN programs. Each describes the program's history and purpose, logic, and input and output files. The format of the input and output files is also provided.

The workbook of slides from the June 2007 Transit Modeling Workshop are also available for download. This was the first workshop that detailed the new framework.

Are there any programs or routines available? If so, where?

While many of the traditional customized programs have been converted to FSUTMS-Voyager scripts, some programs had to be maintained and/or revised to address unique needs. Summary documentation has been created for each program that describes the program's history and purpose, logic, and input and output files. The format of the input and output files is also provided. At this time, there are three customized programs:

- AUTOCON develops the drive-access connectors,
- REWALK coordinates the walk-access connectors generated by PT with the percent walk data produced by GIS procedures, and
- TAREPORT reads the PT-generated loaded link files and produces two transit assignment reports.

It is hoped that these programs can be converted to scripts in the near future. Efforts are now underway to convert REWALK to a scripted application. AUTOCON and TAREPORT likely require additional enhancements to Voyager and/or PT software before they can be easily converted.

There are sample factor files and scripts for transit paths for almost all models. There is a set for Tier A areas, those with modest transit service, and a set for Tier B and C areas, which are more robust service.

There is also a full-fledged transit model setup for Olympus, FDOT's training model. It includes a sample setup for transit

IF YOU BUILD IT, HOW MANY WILL COME?:
PREDICTING NON-MOTORIZED TRIPS AT THE CORRIDOR LEVEL
by: Peyton McLeod & Theo Petritsch, Sprinkle Consulting, Inc.

Background

"If you build it, will they come?" This question applies not only to baseball fields in Iowa, but also to bicycle and pedestrian facilities. The answer, of course, is "yes." The more pertinent question in the minds of transportation planners and engineers is, instead, "If you build it, how many will come?"

Ongoing research by FDOT District Seven is providing valuable answers. When the research is complete, the methodology and resulting models will enable public agencies to estimate usage of planned bicycle and pedestrian facilities, select the best facility type for a given corridor, determine the resulting improvement in bicycling and walking conditions, and assess the benefits relative to the investment.

> *The more pertinent question in the minds of transportation planners and engineers is: "If you build it, how <u>many</u> will come?"*

The recently completed first phase of the project involved an intensive data collection effort on more than a dozen corridors programmed to receive non-motorized facilities (bike lanes, paved shoulders, sidepaths, and sidewalks) in the near future. The data collection effort used mail-back intercept surveys of all modes.

Survey forms, distributed at signalized intersections, collected a variety of trip data (origin/destination, purpose, travel time) from travelers. Roadway information (geometry, frequency of intersections, multi-modal levels of service for the study corridor and the surrounding area) and demographic information for the residents of the surrounding area (population density, income, and car ownership) supplemented these data.

Intercept Survey Procedure

Conducting the multi-modal intercept surveys and thereby capturing traveler characteristics was a critical component of the modeling effort and proved to be the most logistically complex aspect of the project. To safely administer an intercept survey that includes motorists, the survey must be performed at a signalized intersection. Because this study is interested in traveler characteristics along a corridor, the selected intersections were typically located near the midpoint of

the proposed bicycle facility improvement project. A hypothetical sampling point representing the exact mid-point was selected and survey questionnaires were offered only to those travelers who would cross that theoretical sampling point (a sample is shown to the right). As a result, some turning movements at the survey intersection were covered while others were not. The survey team reviewed available intersection turning movement counts and allocated questionnaires according to their expected volumes. This step ensured that particular origins and destinations were not over- or under-represented.
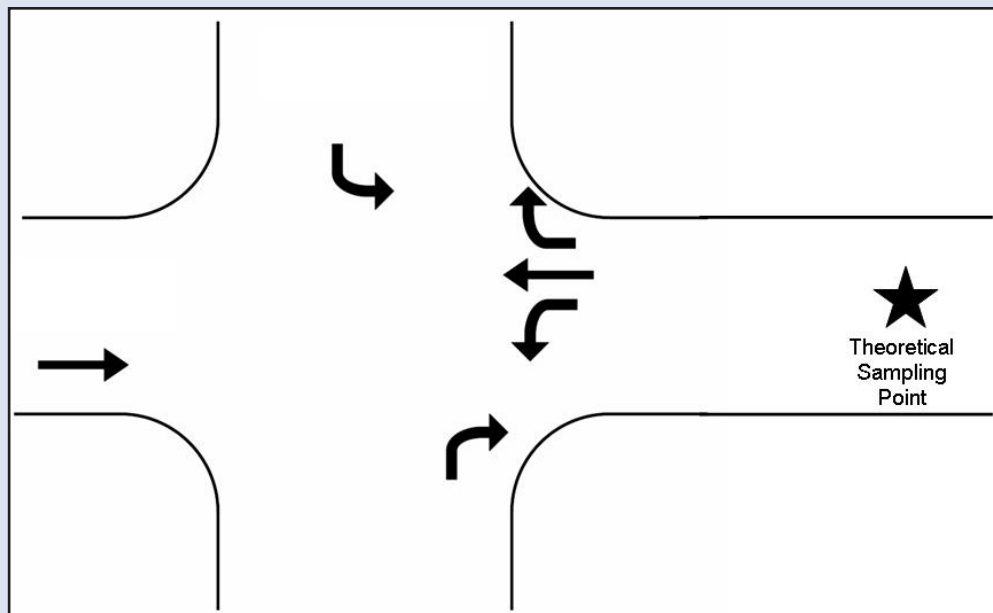
Safety was naturally of utmost importance during the survey procedure. Extensive safety briefings were given regarding when surveyors should and should not enter the intersection. In no instances were surveyors asked to cross more than one lane of traffic to reach the targeted lane. To make this requirement more feasible, intersections with raised medians were given preference. For safety reasons and to improve the acceptance rate, FDOT variable message signs were used whenever possible to alert travelers to the upcoming survey.

While the in-roadway component of the intercept survey captured the motor vehicle, bicycle, and pedestrian modes, a separate effort was needed to survey transit riders. For those study corridors served by transit (approximately half), on-board surveys were conducted at a time corresponding to the in-roadway survey. Upon receiving permission from the transit agency, a researcher boarded the vehicle at one end of the corridor, offered the questionnaire to all riders on board as the vehicle passed the theoretical sampling point, disembarked, waited for the next transit vehicle traveling the opposite direction, and then repeated the process throughout the survey period.

Theoretical Sampling Point

As an incentive to prospective respondents, prize drawings for gift certificates to local businesses were advertised. While no statistics were kept as to the questionnaire acceptance rate, anecdotal evidence suggests that more than 75% of travelers who were approached took the form. Of these, the response rate was just over 20%, yielding more than 1200 returned questionnaires from which data were used to build the models described below.

Modeling Effort

Non-motorized trips made on new facilities comprise two primary trip types: mode shift and induced recreational travel. The collected data (from the intercept surveys, windshield surveys, and Census research) have enabled preliminary logit and regression models to be developed that predict how many of each type of trip will be made on proposed facilities based on certain corridor characteristics. The logit model evaluates the user-perceived utility of each mode of travel (car, bus, bike, walk) to predict the mode splits along a given corridor. The regression model predicts the induced recreational bicycle ridership along a corridor that would be created by providing improved bicycle facilities.

The preliminary models, which will be refined following the collection of "after" data for the same study corridors, include such variables as trip length along the corridor, the population and employment density surrounding the facility, and the level of bicycle/pedestrian accommodation provided by the surrounding streets. The models are being further refined based on similar data collected for the FDOT Central Office *Conserve by Bicycle Program Study*, the results of which will enable users of the models to translate new users (both mode shift and induced) into quantifiable health and energy-savings benefits.

Ultimately, it is expected that the finished models (expected to be released by mid-2008) will provide the profession with a vital, yet currently lacking, aspect of the non-motorized transportation planning environment.

For more information about this research, please contact the authors at Sprinkle Consulting, Inc. at 813.949.7449.

NCHRP SYNTHESIS 358: STATEWIDE TRAVEL FORECASTING MODELS

This NCHRP synthesis describes statewide travel forecasting models designed to address planning needs and provide forecasts for statewide transportation, including passenger vehicle and freight movement. It discusses the types and purposes of models being used, integration of state and urban models, data requirements, computer needs, resources, limitations, and overall benefits. Five case studies are included, two that focus on passenger components, two on freight components, and one on both passenger and freight.

http://www.dot.state.fl.us/planning/library/briefs/070207.htm
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_358.pdf

West Central Florida
CORRIDOR TRAVEL SURVEY

We at the Florida Department of Transportation are working to provide you **the best** transportation system. To help accomplish this, we need to better understand travelers' characteristics along this roadway corridor.

Please help us out by taking a couple of minutes to fill out this brief survey regarding your present trip. Then simply fold it, **seal it**, and drop it in the nearest mailbox – it's pre-addressed and postage paid. Thank you for your valued time and help!

What is today's date?   ____/____/2006

Tell us about yourself...

1. Are you male or female?

☐ Male   ☐ Female

2. What is your age?

☐ Under 16   ☐ 16-21   ☐ 22-49   ☐ 50-64   ☐ 65+

3. What do you consider to be your current employment status (check all that apply)?

☐ Full   ☐ Part   ☐ Unemployed   ☐ Retired   ☐ Student

4. If employed outside the home, which of the following best describes your job?

☐ Managerial/Administrator/In-House Sales
☐ Professional/Technical
☐ Clerical
☐ Craftsman/Mechanic/Manufacturing/Laborer
☐ Sales
☐ Equipment Operator/Trucker/Driver
☐ Service Worker
☐ University or College Faculty/Staff
☐ Military
☐ Other (Please Specify) _____

Tell us about your present trip...

5. What is the primary **purpose** of your **present** trip (please check only one response)?

☐ Work
☐ Work-Related (meetings, etc.)
☐ Shopping
☐ Errands (dry cleaning, banking, etc.)
☐ Personal Business (doctor, dentist, etc.)
☐ Social (visit family or friends)
☐ Recreation (exercise, gym, park, etc.)
☐ Return Home (from work)
☐ Other (Please Specify) _____

6. What is the **closest intersection** of streets to where you **began** your present trip and the name of the business there, if applicable?

_____ / _____
Name: _____

7. What is the approximate **duration** of your present trip (to the nearest 5 minute increment)?

____ minutes

8. Of this duration, approximately how many minutes will you spend **in your present vehicle**? ____

9. What is the **closest intersection** of streets to the **destination** of your present trip and the name of the business there, if applicable?

_____ / _____
Name: _____

10. How many people are presently traveling with you?

☐ 0   ☐ 1   ☐ 2   ☐ 3 or more

11. **If part of your present trip involves riding a bus**, how many **bus transfers** will you make?

☐ 0   ☐ 1   ☐ 2 or more

Tell us about your household...

(please include yourself in all responses)

____ Number of persons age 16+
____ Number of licensed drivers
____ Number of employed (full or part) persons
____ Number of children age 0-4
____ Number of elementary school aged children
____ Number of middle school aged children
____ Number of high school aged children
____ Number of working motor vehicles at your home
____ Number of working bicycles at your home

Thank you for participating in this survey!

2007 FSUTMS CUBE WORKSHOPS & SCHEDULE
For workshop descriptions and to register, visit
http://www.fsutmsonline.net/modeling_training.aspx

FSUTMS modeling training workshops are offered by FDOT to the Florida transportation modeling community. Live workshops focus exclusively on the new FSUTMS powered by Cube Voyager. A desktop computer-based training (CBT) program for the Tranplan version of FSUTMS is available for download.

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.

There is no fee to attend the workshops; however, registration is required. An automated e-mail will be sent confirming your registration. A seat assignment will be sent at a later date.

FHWA Mining Data for Transportation Planning
Date: September 5-6, 2007
Times: Weds. 1:00 p.m. – Thurs. 5:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $88/night
Group Code: FDOT Workshop
Res. Deadline: 8/22/07

FSUTMS Executive Summary Modeling Seminar
Date: September 7, 2007
Times: Begins at 8:30 a.m. & ends at 5:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $88/night
Group Code: FDOT Workshop
Res. Deadline: 8/22/07

FSUTMS Comprehensive Modeling Workshop
Date: October 15-19, 2007
Times: Mon. 1:00 p.m. – Fri. 12:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $99/night
Group Code: FDOT Workshop
Res. Deadline: 10/1/07

FSUTMS Transit Modeling Workshop
Date: November 5-8, 2007
Times: Mon. 1:00 p.m. – Thurs. 12:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $99/night
Group Code: FDOT Workshop
Res. Deadline: 10/22/07

Advanced FSUTMS-Cube & Scripting Workshop
Date: January 28-31, 2008
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 Workshop
Res. Deadline: 1/14/08

FSUTMS Model Calibration Workshop

Date: February 18-21, 2008
Times: Mon. 1:00 p.m. – Thurs. 12:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $99/night
Group Code: FDOT Workshop
Res. Deadline: 2/4/08

FSUTMS Comprehensive Modeling Workshop

Date: March 3-7, 2008
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 Workshop
Res. Deadline: 2/18/08

FSUTMS Transit Modeling Workshop

Date: April 28–May 1, 2008
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 Workshop
Res. Deadline: 4/14/08

Advanced FSUTMS-Cube & Scripting Workshop

Date: May 19-22, 2008
Times: Mon. 1:00 p.m. – Thurs. 12:00 p.m.
Location: Homewood Suites
               2233 Ulmerton Rd.
               Clearwater, FL 33762
Reservations: 1-727-573-1500
Rate: $99/night
Group Code: FDOT Workshop
Res. Deadline: 5/5/08

For further information please contact:

Terrence Corkery, Systems Planning Office
Mail Station 19
605 Suwannee Street
Tallahassee, Florida 32399-0450
(850) 414-4903
FAX (850) 414-4876
terrence.corkery@dot.state.fl.us
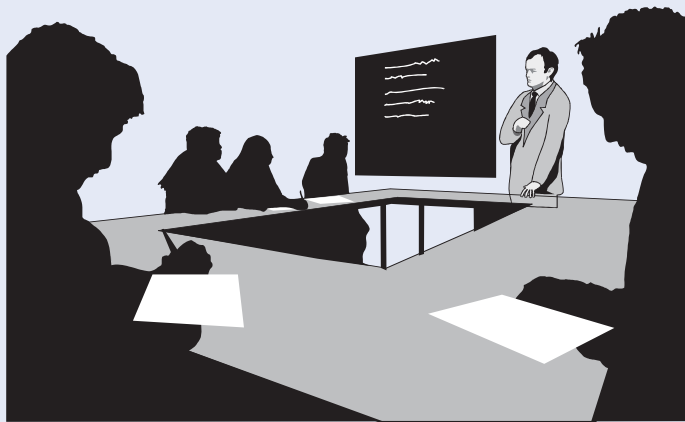
USERS' GROUP PAGES

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 presentations. Year 2007 meeting dates are provided below, or check out the web address above for future dates and meetings.

The **Central Florida Traffic Data Users' Group** meets at the FDOT-District 5 Orlando Urban Office from 2:00 to 4:00 p.m. For additional information, please contact **Jon Weiss** 407-482-7881.

The **Northeast Florida Transportation Applications Forum** meets at the First Coast MPO office at 1022 Prudential Drive. For additional information, please contact **Karen Taulbee** (904) 360-5652 or **Jeanette Berk** (904) 823-8982. Meeting date are listed below:

Thursday, September 20, 2007

The **Panhandle Transportation Applications and FSUTMS Users' Group** meets at the Washington County Public Library in Chipley from 1:15 p.m. to 3:00 p.m. For additional information, please contact **Linda Little** at (850) 638-0250.

The **Southeast Florida Users' Group** meets at the FDOT-District 4 Auditorium. For additional information, please contact **Min-Tang Li** at (954) 777-4652. Meetings are tentatively scheduled to be held at the FDOT-D4 Headquarters Auditorium from 9:30 AM to noon on the following dates:

Friday, November 2, 2007

The **Southwest Florida Users' Group** meets at the Charlotte County Airport at 2800 A-6 Airport Road, Punta Gorda. For additional information, please contact **Jim Baxter** (863) 519-2562.

The **Tampa Bay Applications Group** meets at the FDOT-District 7 Tampa Office from 12:00 p.m. to 2:00 p.m. For additional information, please contact **Danny Lamb** (813) 975-6437. Meeting dates are listed below:

Thursday, August 23, 2007
Thursday, November 1, 2007
Monday, December 3, 2007

For up-to-date information on upcoming meetings and minutes check out www.FSUTMSOnline.net.