

Florida Transportation Modeling Newsletter

September/October 2010

MTF Meeting Scheduled for November 30 to December 2, 2010

The Florida Model Task Force (MTF) recognizes that travel demand models were not originally designed to analyze many of the transportation issues our communities face today. The MTF is continuing to develop more advanced models that simulate real-world travel patterns more closely, while also reliably calculating trip lengths, travel speeds, and internal trip percentages. The MTF made significant progress during the May 2010 meeting in addressing a majority of its priorities and research projects related to developing advanced travel demand modeling practices. The priorities are provided in more detail on page 2.

MTF committees have continued research in support of the most time-sensitive priorities. These committees are ready to present their findings to the full MTF for final discussion and approval. In addition, many Metropolitan Planning Organizations (MPOs) require MTF decisions within the next few months to stay on schedule for developing and calibrating their base-year models in support of long range transportation plan implementation. Therefore, it is essential for the MTF to reconvene and finalize critical decisions on specific elements to be incorporated into the emerging Florida Standard Urban Transportation Model Structure (FSUTMS).

The MTF tri-chairs and committee chairs have scheduled a meeting in Orlando for this November 30 (11:00 AM) to December 2 (4:30 PM). Modeling issues requiring the MTF's attention include the following:

- Developing the capability within the statewide model and several of Florida's regional models to conduct analysis of inter-city passenger travel forecasts for Strategic Intermodal System (SIS) highway facilities and potential future rail facilities.
- Using the newly acquired data from the National Household Travel Survey (NHTS) and infoUSA to improve model accuracy in ongoing model validation projects throughout the state.
- Presenting and voting on findings from projects in land use modeling, time-of-day modeling, and advanced toll modeling.
- Developing a strategy to comply with federal air quality emissions analysis requirements.
- Providing guidance on the Strategic Highway Research Program (SHRP2 C10) for the North Florida TPO, in addition to testing the project's activity-based model structure in Polk County.

A final meeting agenda will be provided by email in the next few weeks.

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MTF Status Update on Priorities and Projects

The MTF has developed a list of the priorities, task products and projected completion dates for use by the tri-chairs and committees. Many new representatives have accepted positions on the MTF to support continued research and model development. A MTF organizational structure is provided as Exhibit 1 on page 3. The MTF welcomes Nellie Fernandez, Jon Weiss, Milton Locklear, Dr. Jack Klodzinski, Neelam Fatima, and Dr. Siva Srinivasan as new members. In addition, the MTF would like to thank those representatives who have served on the task force over the years, including Lina Kulikowski and Dr. Fang Zhao. Additional information on the MTF is available by visiting FSUTMSOnline.net. The MTF representatives may be contacted individually through FSUTMSOnline.net/MTF/Committees.

Priority	Task Product	Projected Completion Date
Intercity Passenger Forecasting	A process to help prepare rail ridership forecasts, measures of user benefits for new riders, and impacts on other travel modes.	Scope under development
Land Use and Transportation Integration	Implementation Plan for incorporating land use scenario tests in FSUTMS.	12/2010
Incorporating Time-of-Day into FSUTMS	Time-of-Day factors from NHTS for different geographic segmentations. Guidelines for incorporating time of day in transit modeling and in model calibration and validation.	11/2010
Advanced Toll Modeling	Conversion of Florida Turnpike's TRANPLAN toll modeling routines into Cube-Voyager.	12/2010
NHTS Data Review	User guide for NHTS data, guidelines for NHTS data analysis, guidelines for developing FSUTMS parameters from NHTS.	12/2010
Dynamic Traffic Assignment (DTA)	Enhancement and integration of DTA tools into FSUTMS.	6/2012
Transit Survey Standards	White Paper and guidelines for conducting transit on-board surveys and ancillary transit data collection for data expansion.	6/2009
Air Quality Post-Processor	Cube-Voyager routines incorporating air quality modeling analysis for conformity determination and Greenhouse Gas emission into FSUTMS.	12/2010
Activity-Based Models in FSUTMS Framework	Guidelines for incorporating activity-based model (ABM) procedures developed under national research funded by the Strategic Highway Research Program (SHRP).	9/2012
Next Generation Freight Models	Framework for next generation of freight models.	Planned for FY 2011/2012 budget
Model Information Exchange System (MIXS)	Standard data exchange platform for socioeconomic and network data.	Planned for FY 2011/2012 budget

Table 1: MTF Priorities, Objectives and Task Products

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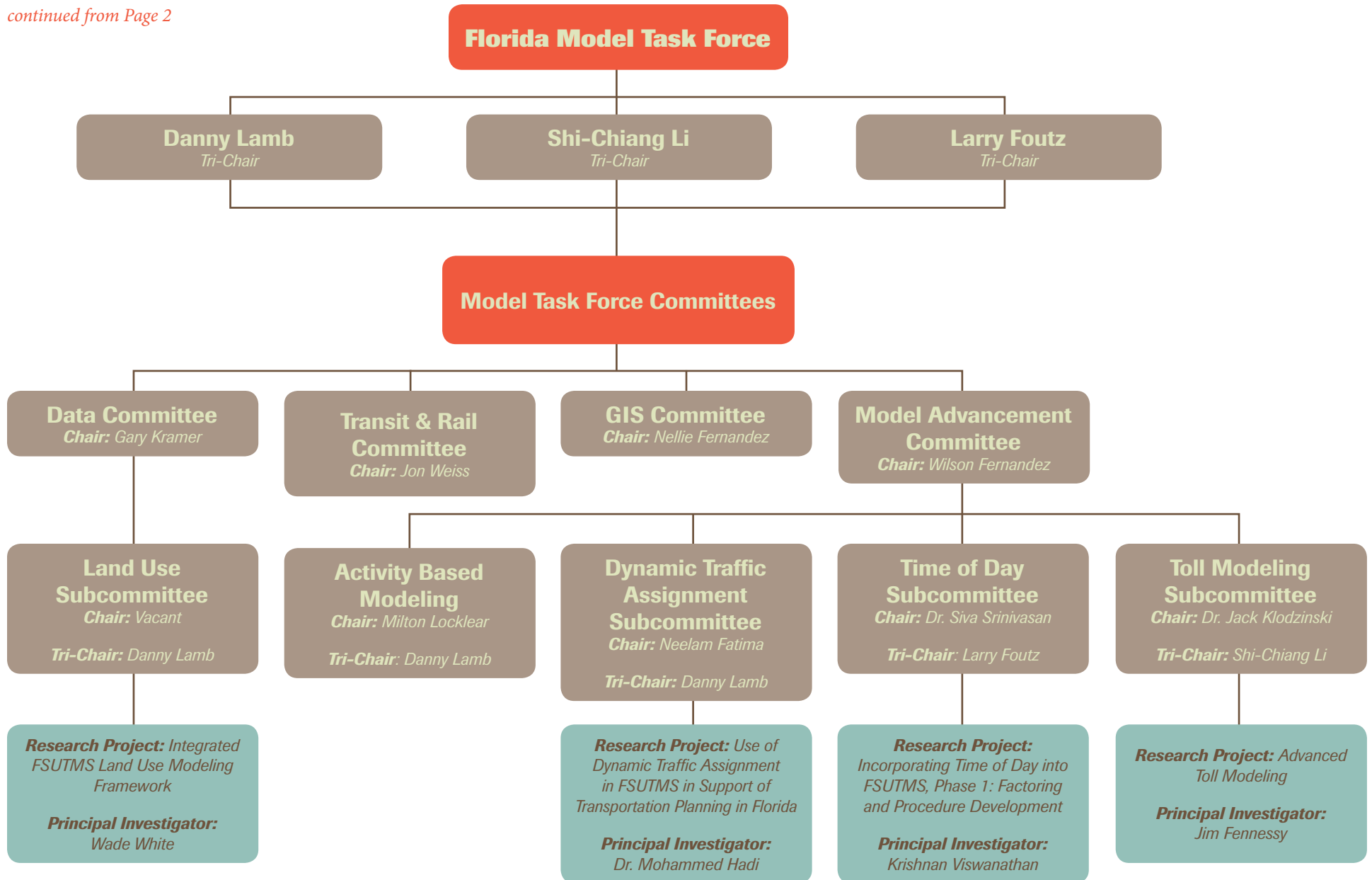


Exhibit 1: MTF Organizational Structure as of October 1, 2010

Travel Demand Data Available Using MDT's EASY Card

By: Larry Foutz, Systems Planning Manager, Miami-Dade MPO and Franco Saraceno, Sr. Project Manager, Gannett Fleming, Inc.

In October 2009, Miami-Dade Transit (MDT) implemented an electronic fare card system called the EASY Card. The EASY Card is an automated fare collection (AFC) system used for fare payments on Metrobus and Metrorail. Metrobus serves 93 routes with a fleet of 816 buses, while Metrorail is comprised of 22.4-miles of heavy rail (commuter rail) with 22 stations.



In January 2010, MDT and the South Florida Regional Transportation Authority (SFRTA), operators of Tri-Rail, entered into an agreement that will enable the use of the EASY Card as a form of payment on SFRTA's service. This integration will allow for a seamless transfer between the two systems.

The implementation of the EASY Card is an effort to streamline both the fare collection system and information technology system with respect to rider and revenue data collection/management. Both goals have been successful. MDT experienced only a minor impact on ridership (approximately -3% in the first half of 2010 relative to the first half of 2009) when the EASY Card was implemented. In addition, MDT has benefited from the enormous supply of revenue and travel data that is collected by the AFC system. The transit agency will use the data for numerous planning purposes, including more accurately tabulating the federally-required annual submittal of financial/operating data to the Federal Transit Administration (FTA) and the optimization of system performance.

The Southeast Regional Planning Model (SERPM) is the travel demand model developed for South Florida. The AFC data is a valuable tool for validation of the SERPM. A 2009 transit on-board survey of Miami-Dade Metrorail users was implemented by the Miami-Dade MPO to collect

ridership data for the SERPM. The Metrorail survey was expanded and analyzed based on sub-aggregate control totals developed from the EASY Card data, as shown in Exhibit 1.

MDT was able to provide the AFC Metrorail data to transportation planners in matrix, or station-to-station trip table format, in distinct time period matrices. The primary usefulness of the data in this context was the comprehensive and multi-dimensional nature of the variables: time period, direction, station level ridership, and number of stations traveled. Planners were able to analyze the survey sample data in a number of ways at a level of detail that, in effect, minimized non-response and other types of survey bias, which was crucial to the validity of survey data.

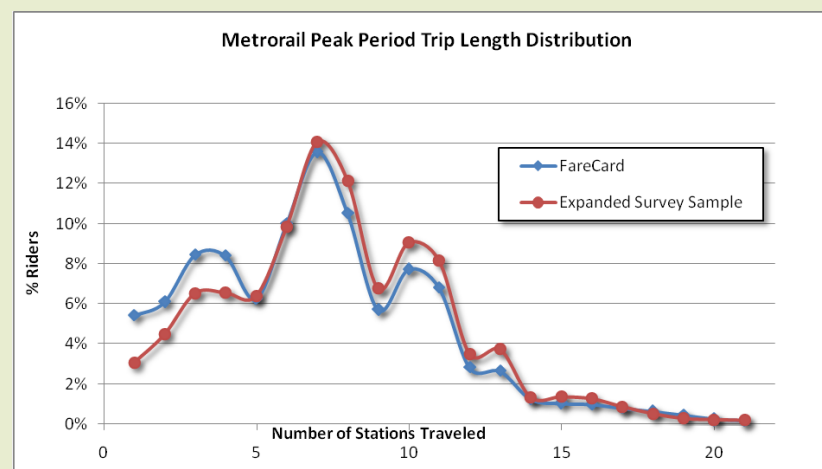


Exhibit 1: On-Board Survey Trip Length Distribution Compared to EASY Card Data

An example of non-response bias that was identified in the Metrorail survey sample was an under-representation of riders whose trips traversed less than five stations. This "short trip" bias is prevalent in on-board surveys, representing a lack (or perceived lack) of time to complete the survey when riding the train for a short period of time. Planners were able to mitigate the short-trip bias by disaggregating the expansion control for the Metrorail survey by number of stations traveled using the EASY Card data.

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Release of the Tampa Bay Regional Planning Model (TBRPM) Version 7.0

By: Florida Department of Transportation, District 7 Systems Planning

The Florida Department of Transportation (FDOT) District 7 office recently unveiled Version 7.0 of the Tampa Bay Regional Planning Model (TBRPM). The latest TBRPM is built on the CUBE 5 software platform and is a result of Phases X and XI of the Tampa Bay Regional Transportation Analysis (RTA).

The FDOT's release of Version 7.0 of the TBRPM marks the twentieth year of the RTA, which focuses on regional long range transportation plan modeling by District 7. The TBRPM encompasses Hernando, Hillsborough, Pinellas, Pasco, and Citrus Counties and the northern portion of Manatee County. The TBRPM is comprised of a 2006 Base Year; a 2014 Year Existing +Committed (E+C) Network; a 2025 Interim Cost Affordable Scenario, and a 2035 Cost Affordable Scenario.

The TBRPM includes the following key enhancements :

- True shape ArcGIS based Highway Network,
- A new Dynamic Area Type Calculator based on Traffic Analysis Zone (TAZ) Activity Density,
- Revised Trip Generation Rates,
- Hotel/Motel Trip Rates based on Activity Density,
- New Truck Validation based on Truck Counts,
- Revised Light- and Heavy-Truck Trip Rates and Friction Factors,
- Recalibration of Friction Factors by Trip Purpose, and
- HTML TranPlan Standard/Additional Reporting.

The TBRPM v7.0 includes a total of 11,300 model network links (representing 3,500 system miles) and 10,400 lane miles of highways. The major north-south travel corridors are I-75, I-275, Veterans Expressway, and US Highway 19. Major east-west corridors are I-4, the Crosstown Expressway, and SR 60. The model area is comprised of 3,000 Internal TAZs (400 new) and 29 External Stations (6 new) that carry traffic in and

out of the modeled area. The model network and major travel corridors are displayed in Exhibit 1 on the next page.

The TBRPM modeling area encompasses a region of 3,275 square miles. Socioeconomic statistics for the TBRPM v7.0 include 2.84 million residents, 1.14 million households, and 1.56 million jobs, with an average of 2.25 persons and 1.84 workers per household.

Based on the TBRPM, projections for the Tampa Bay region show an estimated growth of almost 50% by 2035, increasing the modeled population to 4.24 million residents and 2.35 million workers. Within the TBRPM, Pasco County is expected to have the highest rate of growth, doubling its population over the next 25 years. The TBRPM shows Hillsborough County as the most populous county with 1.73 million people (47% growth) in Year 2035.

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The short-trip bias is only one example of the bias that can be mitigated by the richness of the fare card data. Minimal expense is another important benefit of the EASY Card. The EASY Card data is collected electronically and with little effort, yet it provides critical data to planners with little to no budgetary impact on the agencies who require the data. Cost represents one of the biggest obstacles to the sufficient collection of data to validate travel demand models in order to gain a clear understanding of travel behaviors. The dual impact of saving transit agency resources by automating fare collection and saving planning resources with a robust data source in the fare card data provides significant financial benefit.

The financial and practical implications of electronic fare card systems make them a worthwhile investment in the cost efficient operation of transit systems. The benefits of the AFC system span across the planning, operating, and reporting challenges faced by all transit agencies, providing a one-stop solution to a range of issues.

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The TBRPM v7.0 model and installation instructions are available at the RTA website (<http://www.tbrta.com/downloads.aspx>). The TBRPM download page is shown as Exhibit 2. The TBRPM documentation, including the validation report and procedural guide, will be provided at this site when released.



Exhibit 1: TBRPM v7.0 Model Network

FDOT District 7 and the Tampa Bay Applications Group hosted two (2) one-day training sessions on June 2, 2010 and June 16, 2010. The training sessions were attended by 70 members of the local modeling community and planning agencies. The training material booklet is available for download, including the training presentation and exercise materials.

For more information on the TBRPM v7.0, you may contact Daniel Lamb at daniel.lamb@dot.state.fl.us or provide a comment or question about the TBRPM on the RTA website: <http://www.tbrta.com>.

Home > TBRPM v7.0 Downloads

TBRPM v7.0 Downloads

Cube Model Structure, Programs, and Datasets:

Files	Download	Release Date	Notes
TBRPM v7.0 Cube Voyager FSUTMS	New TBRPM 7.0 Release_20100512.zip (105 MB)	May 12, 2010	Special Note: 2014 is E+C network with no associated ZDATA or EE Trips.
Validation Report (TR1)	Pending	TBA	
Procedural Guide (TR2)	Pending	TBA	

**** New model release now runs under the Cube Voyager 5.0.2 environment.**

Other Documents:

Files	Download	Release Date
TBRPM v7.0 June 16, 2010 Training Workbook	2010 RTA Training_wExer_FINAL.pdf (37.4 MB)	June 25, 2010
TBRPM v7.0 Assignment Volumes Cheat Sheet	TBRPM 7.0 Assignment Volumes Cheat Sheet.pdf (95 KB)	July 2, 2010

Installation:

- Unzip download to C:\ only
The FSUTMS\07\TBRPM_7.0 model directory will be created automatically
This download includes all datasets as well
- All dataset inputs exist only in the scenario folders (under Year_2006_Base directory)
There are no more input directories

Troubleshooting:

- Verify that .CAT files are registered with Windows as Cube files not Microsoft Security Catalog.
- Check Internet Explorer options to verify that HTML executables are allowed.

Exhibit 2: TBRPM v7.0 Download Web Page

On-Site FSUTMS Training Courses

FSUTMS Comprehensive Modeling Workshop: The course will focus on common applications of travel demand models in Florida and the modeling theory behind them. It will provide an overview of the transportation planning process, travel demand forecasting methodologies, FSUTMS modules, and data requirements. Participants will learn to install and execute FSUTMS/Voyager, use the menu systems, interpret and create standard output results, and create and edit networks using Cube GIS.

Duration: 5 days

Date: November 1-5, 2010

Location: Ft. Lauderdale

Level of Difficulty: Basic

Audience: Appliers

FSUTMS Executive Summary Workshop #1: The course will provide an overview of the transportation planning process, travel demand forecasting methodologies, and FSUTMS modules under Cube. Participants will learn the underlying theories of modeling and see the benefits of Cube's abilities to produce presentation graphics for reports and meetings.

Duration: 1 day

Date: January 20, 2011

Location: Ft. Lauderdale

Level of Difficulty: Basic

Audience: Reviewers/Planning
Management

Air Quality Post Processor & MOVES Workshop #1: The course will provide an introduction to the Air Quality Post-Processor Tool for use within the FSUTMS/Cube Voyager platform. Participants will learn how the tool streamlines the emissions calculation process and will calculate emissions to demonstrate conformity on a sample dataset.

Duration: 1 day

Date: February 17, 2011

Location: Tampa

Level of Difficulty: Intermediate

Audience: Appliers

The Environmental Protection Agency (EPA) is expected to publish its final rule for ground-level ozone in November. The FDOT Central Office will notify the modeling community when the EPA publishes its rule in the Federal Register.

Key:

Reviewers - Model Reviewers - Participants who intend to review model results, but not actually run the models themselves.

Appliers - Model Appliers - Participants who will primarily use travel demand models for model applications

Developers - Model Developers - Participants who plan to develop and validate travel demand models.

2010-11 Training Schedule

Transit Executive Summary Workshop #1: The workshop is designed for executives/supervisors and transit project managers to become familiar with the process of transit demand forecasting and transit modeling. The course will also cover the Federal Transit Administration's expectations regarding the Section 5309 Program.

Duration: 1 day

Date: March 15, 2011

Location: Orlando

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

FSUTMS ITS Project Planning Evaluation Tool: The course will provide an introduction to Intelligent Transportation Systems (ITS) strategies used to improve transportation systems efficiencies as a less costly alternative to roadway widening projects. This workshop will provide hands-on training with new ITS sketch-planning evaluation software to evaluate the costs and benefits of ITS alternatives within calibrated FSUTMS/Voyager models.

Duration: 3 days

Date: March 29-31, 2011

Location: Orlando

Level of Difficulty: Basic-Intermediate **Audience:** Appliers

FSUTMS Executive Summary Workshop #2: The course will provide an overview of the transportation planning process, travel demand forecasting methodologies, and FSUTMS modules under Cube. Participants will learn the underlying theories of modeling and see the benefits of Cube's abilities to produce presentation graphics for reports and meetings.

Duration: 1 day

Date: April 12, 2011

Location: Orlando

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

Air Quality Post Processor & MOVES Workshop #2: The course will provide an introduction to the Air Quality Post-Processor Tool for use within the FSUTMS/Cube Voyager platform. Participants will learn how the tool streamlines the emissions calculation process and will calculate emissions to demonstrate conformity on a sample dataset.

Duration: 1 day

Date: April 26, 2011

Location: Orlando

Level of Difficulty: Intermediate

Audience: Appliers

Transit Executive Summary Workshop #2: The workshop is designed for executives/supervisors and transit project managers to become familiar with the process of transit demand forecasting and transit modeling. The course will also cover the Federal Transit Administration's expectations regarding the Section 5309 Program.

Duration: 1 day

Date: May 3, 2011

Location: Tampa

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

Transit Executive Summary Workshop #3: The workshop is designed for executives/supervisors and transit project managers to become familiar with the process of transit demand forecasting and transit modeling. The course will also cover the Federal Transit Administration's expectations regarding the Section 5309 Program.

Duration: 1 day

Date: May 4, 2011

Location: Ft. Myers

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

2010-11 Training Schedule

Development of Regional Impact (DRI) and Traffic Impact Modeling Workshop:

The course will provide an understanding about what DRIs are and why traffic impact analyses are conducted. Alternate methodologies associated with performing traffic impact analyses will be discussed, as well as sources for assumptions.

The course will provide detailed step-by-step and interactive exercises on model applications typical of DRIs, including refinement of the traffic analysis zone structure, transportation network, and socioeconomic data. The course will require students to complete tasks related to both Subarea Refinement and DRI studies and will focus on the model refinement and re-validation efforts.

Duration: 4 days

Date: May 24-27, 2011

Location: Orlando

Level of Difficulty: Basic-Intermediate **Audience:** Appliers/Developers

Transit Executive Summary Workshop #4: The workshop is designed for executives/supervisors and transit project managers to become familiar with the process of transit demand forecasting and transit modeling. The course will also cover the Federal Transit Administration's expectations regarding the Section 5309 Program.

Duration: 1 day

Date: TBA (Jan-April 2011)

Location: Tallahassee

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

Transit Executive Summary Workshop #5: The workshop is designed for executives/supervisors and transit project managers to become familiar with the process of transit demand forecasting and transit modeling. The course will also cover the Federal Transit Administration's expectations regarding the Section 5309 Program.

Duration: 1 day

Date: TBA (Jan.-April 2011)

Location: Jacksonville

Level of Difficulty: Basic

Audience: Reviewers/Planning Management

To check out the newly released training schedule and to register, visit <http://www.fsutmsonline.net>.

2010-11 Training Schedule

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.

The Northeast Florida Transportation Applications Forum

Jointly organized by the FDOT, District 2 Planning Office and the North Florida TPO. The meetings are held at the North Florida TPO facility on 1022 Prudential Drive, Downtown Jacksonville, 32225 from 12:00 p.m. to 2:00 p.m. 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.

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 Bob Crawley, FDOT District 1, by e-mail: bob.crawley@dot.state.fl.us.

The Tampa Bay Applications Group (TBAG)

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.

Southeast Florida FSUTMS Users' Group

Promotes 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 District 4 Headquarter first floor Auditorium from 9:30 AM to noon. For additional information, please contact Derek Miura at FDOT District 4 at (954) 777-4653.

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. to 2:00 p.m. For additional information, please contact Betty McKee by email: betty.mckee@dot.state.fl.us.

Users' Groups

Local FSUTMS users' groups provide a forum to 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. Check for schedule updates on the web at: http://www.fsutmsonline.net/index.php?/user_groups_pages/user_groups_pages/

FLORIDA TRANSPORTATION MODELING NEWSLETTER

is published under contract to the FDOT Systems Planning Office in Tallahassee. All information and materials contained in the newsletter are contributed by FSUTMS users and Model Task Force members. Please contact the editors to submit articles for future issues or to get on the mailing list.

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