

Special Update Workshop discusses future of FSUTMS

by Terrence Corkery and Huiwei Shen, FDOT Systems Planning Office

The 1999 FSUTMS Special Update Workshop, held in Tampa on June 21st and 22nd, was attended by a standing-room-only gathering of transportation planners. The Special Update Workshop is sponsored annually by the Florida Department of Transportation to present new planning applications and software enhancements using the Florida Standard Model.

Land use legislation was the first topic as the workshop kicked off Monday afternoon with a presentation by Rob McGee of the FDOT Office of Policy Planning (shown below). Rob discussed the history and makeup of the legislative-appointed Transportation and Land Use Study Committee, and highlighted key recommendations regarding the transportation planning processes used in Florida. House Bill 17, recently passed by the Florida Legislature, addressed five of the 40 committee recommendations including multi-modal level of service, multi-modal districts, and changes to concurrency requirements. More changes are likely during the 2000 legislative session.

Improved visuals for FSUTMS was then presented by Larry Seiders of the Urban Analysis Group. Larry demonstrated several features of VIPER (VISual Planning EnviRonment) a geographical display package for Tranplan designed to replace the NIS program. These features included unlimited “undo” capability, log files for saving sets of edits for application to other networks, isochronal displays of travel time radiating out from a zone, and rubber-sheeting of model networks to GIS networks.

Automated calibration techniques was the final topic of Monday’s afternoon workshop session. The Automatic Model Calibration System was presented by Ken Kaltenbach of the Corradino Group. The AMCP software, developed as part of the Treasure Coast Model Validation Study, was designed to automate certain aspects of model validation, iterating with variable model parameter settings until set tolerance levels are achieved. Model parameters available for automated adjustment include external-internal attractions, trip production rates, auto occupancy factors, CTOLL, friction factors,



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terminal times, BPR exponent, and speeds (first-digit area types and facility types only). The analyst's skill is in determining the order of model parameter adjustments. The software is presently limited to "highway-only" applications.

FSUTMS research projects were discussed as the Special Update Workshop continued Tuesday morning. Bob McCullough of the FDOT Systems Planning Office elaborated on the status of the Florida Standard Model. After describing the relationships among FDOT Central Office, the FDOT Districts, and the Model Task Force, Bob described a number of research projects underway or programmed to occur in the near future. Key projects include research on seasonal resident modeling, lifestyle trip generation variables, time-of-day modeling, highway freight model development, statewide model enhancements, developing nested logit calibration factors, and transit access coding enhancements.

National modeling activities, specifically the latest developments in the federal Travel Model Improvement Program (TMIP) were reported by Ram Pendyala of the University of South Florida. For further information on this topic, please see the accompanying article by Ram Pendyala (see page 3).

Freight Movement Studies were presented by Dan Macmurphy of URS Greiner Woodward Clyde. Dan spoke on goods movement in the Tampa Bay and Sarasota-Manatee areas. The Tampa Bay Goods Movement Study includes both short-range and long-range elements with subtasks such as short-range operational studies, corridor evaluations, origin-destination surveys, modeling tools, purchase of Reebie Associates freight flow data, and development of new databases. Examples of freight "hot spots" were displayed along with maps depicting truck trip movements in the Sarasota-Manatee area.

Land use forecasting methodologies was the last presentation of the Tuesday morning session, with Mike Brown demonstrating the Urban Land-use Allocation Model (ULAM). This model uses forecasted control totals to allocate future growth in FSUTMS dwelling unit and employment data to the TAZ level. ULAM uses FSUTMS highway skims files as input in measuring accessibility to each TAZ and produces ZDATA files in standard GEN, District 4 Lifestyle, and District 7 Lifestyle model formats. ULAM is fully integrated with ArcView and uses geographic data such as allowable development densities, location of approved developments, and concurrency restrictions as input during the allocation process. Arrangements are

presently being made for FDOT support of ULAM, including a training program (see page 6).

Additional GIS technology for FSUTMS was the topic at the start of the Tuesday afternoon session. Jim Fennessy (Fennessy Associates) and Mike Doherty (URS Greiner, et al.) demonstrated the process of constructing FSUTMS networks from GIS. The presentation described new programs under development to automate this process and overcome some of the pitfalls typically encountered when making a conversion of network data from a GIS database to the required formats of travel demand forecasting model networks. These new programs include GIS2TP (converts GIS network to TRANPLAN format), GISTEDIT (automatic conflation or editing of GIS/TRANPLAN networks), and INTRFACE (generates DBF files). In addition, a number of utility programs have been developed to address issues related to linking FSUTMS and GIS databases.

Applying GIS to the Orlando Model, Arturo Perez of Leftwich Consulting Engineers gave a presentation on using VIPER to update networks in an MPO model (OUATS). This effort included updating the zonal structure, adding two-digit area types and facility types, developing a traffic count database, and rectifying the network configuration to GIS using County Centerline files and TIGER/Line data.

DRI traffic modeling was the final presentation of the workshop, made by Rob Schiffer of PBS&J's Tallahassee office. Rob spoke on new techniques for modeling developments of regional impact, based on recent experiences with the Southwood DRI in Tallahassee and included materials used in a recent Advanced FSUTMS Workshop on DRI Traffic Impact Modeling. Key features of the modeling approach for Southwood included delineation of a detailed highway network and zone system, replicating ITE trip generation through use of the ZDATA3 file, generating a PM peak directional trip table for DRI trips, simulating agreed-upon internal capture rates, and isolating trip impacts by land use type.

For further information on the Special Update Workshop and other FSUTMS training workshops, please contact Huiwei Shen, in the FDOT Systems Planning Office, at (850) 488-4642. (Page 7 of this issue shows the latest schedule of FSUTMS training workshops.) For further details or questions on specific presentation topics, it is recommended that the presenters be contacted directly. The FDOT Systems Planning Office has a database of telephone numbers for reference to the appropriate individuals.

TMIP moving from research to reality

Plans unveiled for early deployment of new modeling tools

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

Bob McCullough, Florida Department of Transportation, Systems Planning Office

The April conference in Philadelphia of the federal Travel Model Improvement Program (TMIP) provided the latest developments in the world of transportation modeling. New modeling tools known as TRANSIMS were presented along with a wide range of other topics including emerging concepts as well as new and familiar applications:

- Activity-based travel modeling methods
- Computer-based intelligent interviewing systems
- Integration of GIS/GPS technologies
- Experiences with microsimulation
- Integrated land use-transportation modeling
- Feedback in travel demand models
- Transportation network data preparation
- Freight transportation modeling
- Statewide travel demand modeling
- Modeling non-motorized travel

Plans are being made by TMIP for deploying TRANSIMS in the real world. But first, let's catch up on what TMIP and TRANSIMS are all about.

TMIP is a multi-year multi-track initiative aimed at improving transportation modeling through a series of research and development projects. ISTEA of 1991 and the Clean Air Act Amendments of 1990 raised policy issues that motivated the enhancement of modeling methodologies. This initiative is jointly sponsored by the U.S. Department of Transportation's FHWA, FTA, and Office of the Secretary, U.S. Environmental Protection Agency, and the U.S. Department of Energy.

The TMIP track dedicated to the development of new integrated transportation and air quality modeling tools is being spearheaded by researchers at the Los Alamos National Laboratory (LANL) who have developed a new transportation modeling system called TRANSIMS (Transportation Analysis and Simulation System). This system is intended to address a wide range of operational, policy, and modal conditions. Over the past few years, various modules of TRANSIMS have been developed and tested and plans are now underway to move TRANSIMS towards real-world implementation.

There is a lot more to TMIP than just TRANSIMS. For more information about TMIP, visit their website at <http://tmip.tamu.edu>. By visiting the website, you can get on their mailing list, join the TMIP listserv e-mail list, order TMIP publications, and learn more about TRANSIMS.

TRANSIMS Early Deployment Program

The Transportation Equity Act for the 21st Century (TEA-21) authorized support for the completion and deployment of TRANSIMS. The goals of the TRANSIMS Early Deployment Program (EDP) of TMIP are to:

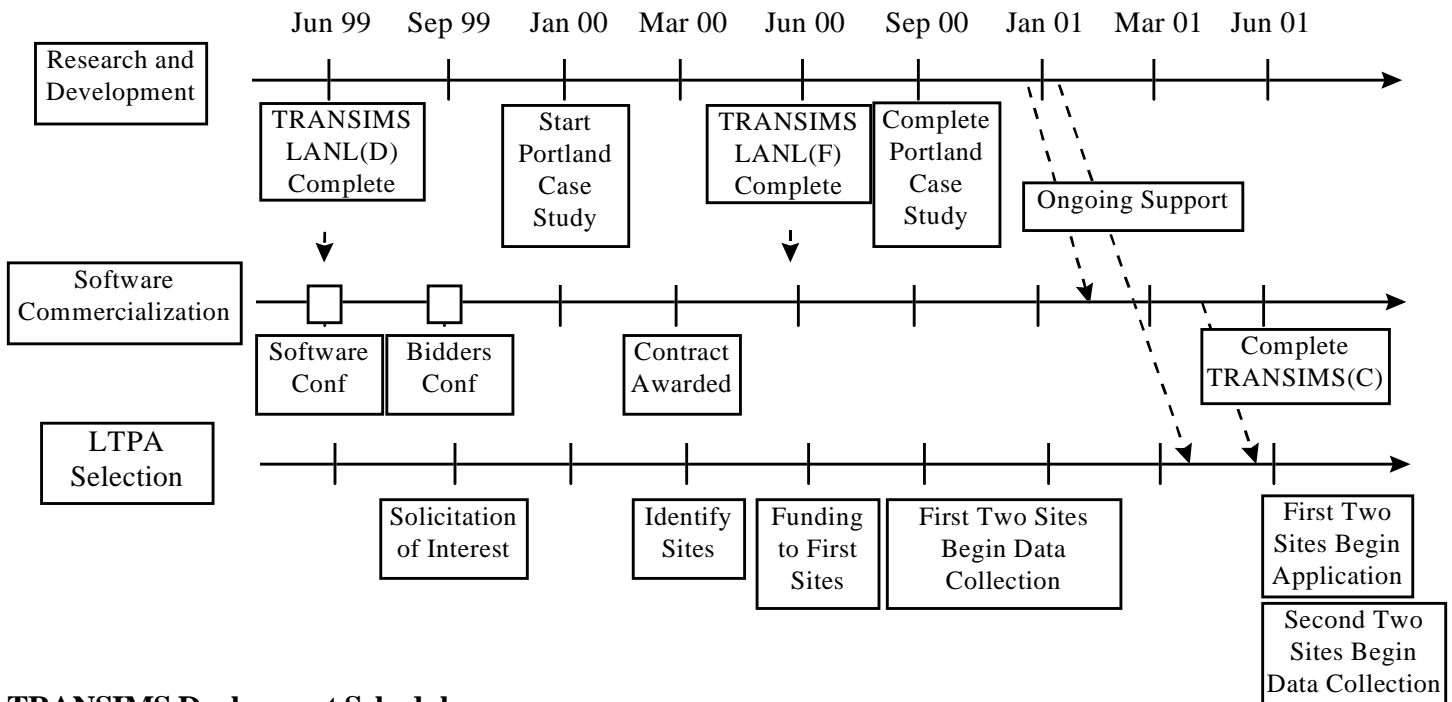
- Implement TRANSIMS in several diverse settings including areas with differing population, geography, and planning issues
- Demonstrate TRANSIMS capability to analyze a wide range of policies
- Develop a base of experienced TRANSIMS users including consultants, universities, and MPO planning staff who can provide support as additional areas convert to TRANSIMS
- Identify data problems and opportunities for TRANSIMS applications
- Field-test early TRANSIMS commercial versions.

In keeping with these goals, USDOT will be selecting local transportation planning agencies to serve as TRANSIMS deployment sites. To serve as a deployment site, an agency should satisfy two criteria. First, it should be qualified to implement TRANSIMS and second, it should contribute to the diversity goals of the EDP. A two-phase selection process is anticipated. First, pre-applications from agencies will be evaluated for technical and fiscal feasibility. Second, agencies that make the short-list will be asked to submit refined proposals for final selection. And when is all of this going to happen?

The deployment schedule for research and development, software commercialization, and LTPA (local transportation planning agency) selection is shown in the following figure. Here are a few acronyms to help clarify the figure:

- TRANSIMS-LANL(D): This is a draft research version of TRANSIMS released by LANL and available on a limited basis in June 1999.
- TRANSIMS-LANL(F): This the final research version of TRANSIMS to be released by LANL and anticipated to be available in June 2000.
- TRANSIMS(C): This is the first commercial version of TRANSIMS to be released by a vendor and anticipated to be available in June 2001.

TMIP moving from research to reality *Continued*



TRANSIMS Deployment Schedule

Software commercialization

The above software commercialization timeline shows two interesting conferences planned in 1999. Commercial firms were invited to the June conference in Santa Fe, New Mexico to receive limited licenses allowing them to examine the TRANSIMS-LANL(D) software. A second conference scheduled for later this year will bring together those firms interested in bidding for the contract to commercialize TRANSIMS. The final research version of TRANSIMS will be released by LANL in June 2000. This version, TRANSIMS-LANL(F), will be provided to selected vendors for the preparation of the first commercial version by June 2001. The commercial version, i.e., TRANSIMS(C), will then be deployed in the LTPA sites.

Local transportation planning agency (LTPA) selection

Local transportation planning agencies interested in serving as deployment sites will be asked to submit applications by the end of the year. Six agencies will be provided funding for TRANSIMS deployment over a three-year period.

Florida's consideration to apply as a deployment site is bolstered by our ongoing research efforts to keep pace with the fast-

moving developments at the federal level. Our present direct involvement in TMIP and TRANSIMS testing makes us a favorable candidate to participate in this venture. Future articles in this newsletter will keep you up-to-date regarding this potential opportunity.

As TMIP and TRANSIMS move towards deployment, most FSUTMS workshops will include TMIP/TRANSIMS presentations as an integral part of their agenda. In keeping with the goals of the FSUTMS Special Update Workshop to inform the practicing modeler about the latest model developments, selected modules of TRANSIMS were presented at the June workshop in Tampa.

Future newsletter articles about TMIP and TRANSIMS will provide answers to some burning questions such as:

- How do the TRANSIMS modules work?
- What happened at the June Commercialization Opportunity Conference in Santa Fe?
- Florida: A TRANSIMS Deployment Site?

Stay tuned!

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Conference recap:

TRB holds national conference on transportation planning methods

by Robert G. Schiffer, AICP, PBS&J, Inc.

The Seventh Conference on the Application of Transportation Planning Methods, sponsored by the Transportation Research Board, continued a tradition of relevant topics and thought-provoking presentations. This year's conference was held in Boston, Massachusetts March 7-11, 1999. This article highlights some of the themes and presentations of importance to the art of travel demand modeling.

As with previous conferences, a recurring model theme emerged and this year it was "destination choice" models. In fact, during the Travel Forecasting II session alone, four of the five presenters were discussing models that included a destination choice component. Destination choice is an alternative to the gravity model for trip distribution. Destination choice models follow a probabilistic logit formulation that identifies the likelihood of a trip linkage based on a variety of factors (rather than the relative attractiveness measures found in the gravity model). Some destination choice models include mode choice as part of the formulation. One presentation even included a simultaneous generation, distribution, and mode choice model for Southeast Alaska.

Several presentations were made on interactive, feedback models that include loops between two or more of the "four steps" in the modeling process. A presentation was made on "multi-point" assignments, using TMODEL software, whereby percent trip splits can be assessed for each centroid connector from a specific zone. Two presentations were made on statewide models: the Maine model fully incorporates the state's three urbanized area model networks and zone systems, while the Nebraska model is a logistics model developed solely for estimating freight movements. International modeling presentations included the development of a travel demand forecasting model for Shanghai (using direct mode choice during trip generation) and an integrated disaggregate model system for intercity travel demand estimation on a bridge corridor between Argentina and Uruguay.

One of the most interesting presentation topics was entitled *Why We Are Returning to the Traditional Four-Step Modeling Process*. This presentation, by a staff member from the Ada Planning Association in Boise, Idaho, described their dissatisfaction with the activity-based model developed for their region a few years back. Chief criticisms of the

activity-based approach centered on inflexibility. For example, because the programs were hard-coded based on observed trip chains, it was impossible to split zones later in the process. Another related problem was forecasting trip movements in emerging/high-growth areas where travel patterns are likely to change significantly in the future. The only way to address some of the activity-based model shortcomings would have been to execute a continuing contract with the consultants responsible for developing the model.

As usual, there were some interesting presentations on data collection techniques. One of the more intriguing presentations was on an Internet-based travel characteristics survey of students at Indiana University in Bloomington. This fully electronic survey approach was found to be cost-effective (\$3.48/survey) and time-sensitive (the entire survey was completed within 30 days). Other data presentations included an evaluation of video technology for license tag origin-destination surveys, a heavy-duty truck activity survey using global positioning system (GPS) technology, and a discussion of data reconciliation for model validation and calibration based on efforts in the Dallas-Fort Worth area.

One conference session was devoted to the status of TRANSIMS including a summary of each model component, case studies, and schedules for early deployment. As discussed at the recent FSUTMS Special Update workshop, demo versions of TRANSIMS are being handed out at a conference in Santa Fe, New Mexico during the week of June 28, 1999. A vendor will be selected to commercialize TRANSIMS in early 2000 with the first commercial product release anticipated in the summer of 2001. Six MPOs will be selected (two at a time) to participate as TRANSIMS deployment sites based on applications for funding consideration submitted in the Fall of 1999.

Other session topics included geographic information systems (GIS), intelligent transportation systems (ITS), transit travel forecasting and planning, traffic simulation, statewide planning, land use/transportation modeling, household/travel surveys, planning processes, freight planning, corridor/subarea planning, and project evaluation. Evening sessions included *Census 2000, MPOs: The Next Ten Years*, and a software/consultant vendor reception. While it was interesting to hear representatives of large MPOs from around the U.S. discuss their concerns related

TRB holds national conference *Continued*

to planning and modeling, this forum could use more input from small- and medium-sized MPOs who are experiencing somewhat different challenges. Other presentations included a discussion of planning, engineering, and construction of Boston's monumental Central Artery project.

Florida-related presentations at the conference included the following (in the order presented):

- *Short-Term Model Improvements in Four-Step Travel Models in Florida* by Ken Kaltenbach
- *Path-Based Intersection Turning Movement Projections* by Bill Cross and Brian Fowler
- *Alternative Procedures for Estimating Employment* by Rob Schiffer and Mike Brown
- *Access Management and Median Projects* by Warren Merrell

- *Use of Facility-Specific Volume-Delay Functions* by Ken Kaltenbach and Sunil Saha
- *Lee County Variable Pricing* by Mark Burris and Chris Swenson

In addition, Jerry Faris and Rob Schiffer served as session moderators on travel forecasting.

The Eighth Conference is planned for 2001 in Corpus Christi, Texas. For further information on the 2001 conference, please contact Julie Dunbar at (817) 695-9260. Rick Donnelly can be contacted, at (505) 883-0055, to inquire about receiving a CD copy of papers and abstracts presented at the 1999 conference.

FDOT ULAM98 license agreement implemented

by Mike Brown, Transportation Planning Services, Inc.

A new forecasting tool has been added to the FSUTMS toolbox. The Florida Department of Transportation Systems Planning Office in Tallahassee has signed a license agreement with Transportation Planning Services, Inc. (TPS) to use and distribute the ULAM98 Urban Land-use Allocation Model - Land Use Planning Package. The ULAM98 package will be distributed to the members of the Statewide Model Task Force (MTF) Land Use Sub-Committee for review and testing starting in July and August. After all comments are received from the MTF members, modifications and enhancements will be made to the software which will then be the ULAM99 package. ULAM99 will be

distributed to the local government agencies in Florida currently receiving the Florida Standard Urban Transportation Modeling System (FSUTMS) software. Future versions of the ULAM software with enhancements will then be provided along with the FSUTMS software from the FDOT Systems Planning Office. Once the ULAM99 package is finalized, TPS will then make the ULAM99 package available under separate individual licensing agreements to the consulting industry. Some separate stand-alone modules of the ULAM package are available now to the consulting industry such as the module to compare existing ZDATA files.

FDOT Land Use modeling training courses now available

The Systems Planning Office will offer two land use modeling training courses during fiscal year 1999/2000. The first land use modeling course will be held during the month of October 1999 in Orlando. The second land use modeling course will be held during the month of January 2000 in Jacksonville. The exact location and time of the training courses are to be released at a later date. If you would like a registration form please contact: Huiwei Shen, FDOT Systems Planning Office (850) 488-4642

FSUTMS Training Workshop Schedule 1999

The **Basic FSUTMS Workshop** is designed for transportation professionals with little or no experience in travel demand modeling. The workshop gives participants an overview of the transportation planning process, travel demand forecasting methodologies, FSUTMS modules and file formats. Participants will learn to install and execute FSUTMS, interpret output files, create standard plots, and execute the Visual Planning Environment (VIPER) to edit highway networks. An overview of the GIS-TM (GIS for Transportation Modeling) software which bridges FSUTMS and ArcView is also included.

The workshop will start at 1:00 PM on August 9 and end at 12:00 PM on August 13, 1999. A block of rooms has been reserved for \$84 per night at the Embassy Suites located on 1100 SE 17th Street, Ft. Lauderdale. The hotel telephone number is (954) 527-2700.

There is no registration fee for this workshop. However, to assist us with preparations, all participants are required to register with the FDOT Systems Planning Office. Registration deadline for this workshop is August 6, 1999. Workshop attendees are responsible for making their hotel reservations. Hotel registration deadline is July 30, 1999.

The **FSUTMS Model Calibration Workshop** is designed to provide attendees with interactive instructions on FSUTMS model calibration and validation. Workshop instructions provide details on good calibration/validation techniques, criteria, procedures, and accepted standards in Florida. A guest modeler with extensive model calibration experience is invited to help prepare and teach this course. Discussions on High Occupancy Vehicle (HOV) and toll modeling techniques are also included. The completion of the Basic FSUTMS Workshop is not required but strongly recommended.

The workshop will start at 1:00 PM on September 13 end at 12:00 PM on September 16, 1999. A block of rooms has been reserved for \$81 per night at the Tampa Airport Hilton located on 2225 Lois Avenue, Tampa. Hotel telephone number is (813) 877-6688. Please make your hotel reservations as soon as possible to get this special rate.

There is no registration fee for this workshop. However, to assist us with preparations, all participants are required to register with the FDOT Systems Planning Office. Registration deadline for this workshop is September 10, 1999.

TENTATIVE WORKSHOP SCHEDULE

Land Use Modeling Workshop #1

October 1999, Orlando

DRI Modeling Workshop

November 1999, Daytona

Basic FSUTMS Workshop # 2

December 1999, Daytona

Land Use Modeling Workshop # 2

January 2000, Jacksonville

Fundamentals of Transit Modeling Workshop

February 2000 Orlando

Freight Modeling Workshop

March 2000, Orlando

Advanced FSUTMS Transit Modeling Workshop

April 2000, Daytona

Florida Modeling Application Conference

May 2000, Clearwater

Basic FSUTMS Workshop #3

June 2000, Tallahassee

For more information on training please contact:

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FDOT employees should register via TRESS (contact your training coordinator) and mail, fax, or e-mail registration information to Huiwei Shen.

Update on FSUTMS users' group meetings

CENTRAL FLORIDA FSUTMS USERS' GROUP

The Central Florida FSUTMS Users' Group held a meeting on **July 21, 1999** from 1:30-3:30 PM at the FDOT District 5 Office at 5151 Andanson Street in Orlando. At the July meeting ITS was presented by Grant Zammit, FHWA and Kurt Eichin, FDOT. For more information about future meetings call Ms. Susan Sadighi at (407)623-1085 or Suncom: 334-1085.

TAMPA BAY FSUTMS USERS' GROUP

A Tampa Bay FSUTMS Users' Group meeting will be held on **August 25, 1999** at 11:30 AM at the District 7 Office at 11201 N McKinley Drive, Tampa. The meeting will be about several interesting Corridor Studies recently conducted in the Tampa Bay Area. For more information call Chairman, Christopher Hatton at (813) 620-1460.

SOUTHEAST FSUTMS USERS' GROUP

The Southeast FSUTMS Users' Group will hold its next meeting on **September 16, 1999** at 1:30 PM at the District 4 Office at 3400 West Commercial Blvd in Fort Lauderdale. The topic of the meeting is to be announced at a later date. For more information call Shi-Chang Li at (954)777-4601 or Suncom: 436-4601.

SOUTHWEST FSUTMS USERS' GROUP

The Southwest FSUTMS Users' Group held a meeting on **July 14, 1999** at 10:00AM in Charlotte County Airport MPO Meeting room at 28000 Airport Road in Punta Gorda. The meeting focused on the Interim Plan Updates. For more information about future meetings call Jim Baxter at (941) 519-2562 or Suncom:557-2562.

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