MTF Toll Subcommittee Meeting Notes
December 10, 2009

Attendees

- Terry Corkery (FDOT)
- Vladimir Majano (FDOT)
- Jim Fennessy (Fennessy Associates)
- Betty McKee (FDOT D5)
- David Schellinger (Systra Mobility)
- Fang Mei (RSH)
- Kazem Oryani (WSA)
- Wilson Fernandez (Miami-Dade MPO)
- Rob Schiffer (Cambridge Systematics)
- Jack Klodinski (Turnpike)
- Hugh Miller (Turnpike)
- Arturo Perez (Leftwich)
- Fang Zhao (FIU)
- Krishnan Viswanathan (Cambridge Systematics)

Introduction and Preliminaries

Vladimir Majano provided the agenda and handed over the meeting to Fang Zhao. Fang Zhao indicated that the purpose of the meeting was to talk about the Advanced Toll Modeling scope and also to learn about the work being done by Florida's Turnpike Enterprise and Systra Mobility.

Toll Modeling Scope of Work

Jim Fennessy gave a brief background of the work he has been doing developing the Turnpike Toll modeling and how it will be transitioned to Cube Voyager. Six items have been put into toll modeling at the Turnpike using the TRANPLAN version of FSUTMS but were not available in FSUTMS-CUBE.

- Open road tolls - No delay at the toll plaza. As per Jim it is easy to put this into FSUTMS
- Distance based toll – Jim did this in Tranplan for both the Turnpike and the Southern California Association of Governments (SCAG)
- Discrete toll
- Hot lanes – Again as per Jim it is easy to put in FSUTMS
- Ramp to ramp - Not been tested out of consultant arena and lacks certain reporting facility
- Congestion pricing – It was developed inside TRANPLAN and development was just complete when the economy tanked

The purpose of this scope of work was to bring Turnpike enhancements into the FSUTMS-CUBE framework. Wilson Fernandez asked if the intent of scope was to transform the model or enhance the capabilities to bring Turnpike features into FSUTMS. Vladimir Majano mentioned that the intent was to bring capabilities of the Turnpike model into FSUTMS-CUBE and enhancements will be done in future phases of the project.

As per Vladimir Majano and Jim Fennessy the work is tasked for 10 months but they expect to have it done by the spring/summer of 2010. A question was raised as to whether a model was selected and it depends on model features and other proprietary issues.

Systra Mobility

David Schellinger from Systra Mobility gave an overview of the approach taken by Systra Mobility to develop toll models. Systra does toll choice within the assignment process rather than as part of the mode choice process using customized techniques in CUBE. The reason for doing it within assignment is that it allows for a lot of flexibility and get away from having one value of time for all trip purposes. In addition, as per David Schellinger, it allows the analyst to distinguish between incomes for different zones. Also, tolls paid by people in less frequent basis impacts diversions and doing toll choice as part of the assignment process captures these diversions.

The Systra approach keep trips in PA format after mode choice and allows them the capability to trace back to the trip generation. Keeping the trips in PA format allows Systra to audit and pick up income characteristics of the zone in addition to having access to the production zone of the trip. Arturo Perez raised the issue of how some people are willing to pay a toll during the home to work trip but look for parallel non-toll facilities during the return trip from work to home. People are willing to pay toll in the morning but take parallel facility in the evening to avoid tolls. David Schellinger mentioned that this type of behavior is accounted for in the toll choice equations. Systra also found while income has a bearing on toll usage, business purposes do not have an impact on toll usage because invariably business trips like trips for landscaping activities are either built into the cost of services or the tolls are expensed by the driver.

David Schellinger mentioned that all choice equations are in the assignment process. While in Texas, Systra had to do Origin-Destination studies to calibrate the model, on Florida the ability to calibrate is better since there are a lot toll facilities operating. Jim Fennessy mentioned that it is necessary to have time of day (TOD) before implementing Systra's approach. David Schellinger responded that is useful to have TOD but not absolute. Arturo Perez asked how to recognize the other trips on the road. David Schellinger mentioned that all vehicles are captured in congested travel time and assignment is done combined (SOV, HOV, and trucks).

Fang Zhao asked how the toll model works with mode choice. She mentioned the new Miami HOT lanes where cars and buses have access to the HOT lanes. David Schellinger mentioned that in such instances, it might be necessary to bring weighted toll rate by mode to the mode choice model and then bring it back to assignment. Jim Fennessy suggested interfacing transit with HOT lanes and measure the impacts of V/C. Kazem Oryani mentioned that the NYMTC model has interfaced transit and toll and are facing issues. Fang Zhao if congestion pricing was based on some kind of toll scale or completely dependent on congestion to model congestion pricing. David Schellinger responded that it is completely driven by V/C and automatically done in assignment.

Florida Turnpike Enterprise

Jack Klodzinski gave an overview of the Turnpike's toll modeling. The Turnpike treats traffic forecasts and model applications differently for design versus revenue. As per Jack Klodzinski, the analysis is dependent on the focus of the model. The Turnpike checks the model for validation and if necessary does a corridor level validation. The Turnpike has found it necessary to do post model adjustment and a lot depends on data availability. While design projects have a longer term focus, revenue projects are looking for a reliable opening year.

The Turnpike has different strategies based on model needs. It depends whether they are looking for answers regarding project feasibility or the ability to have variable pricing and different kinds of toll rates. The Turnpike does include TOD and applies additional computation to break down by hour.

In case where PPP are involved the forecast requirements are up to 75 years into the future and having an integrated land use (LU) model is useful. The LU model allows to take a look at forecast years past the typical 20 or 30 year study. The Turnpike has developed algorithms to forecast out to 75 years. Ramp to Ramp is useful to look at OD patterns on toll roads. The Turnpike is also looking at how to apply ODME to forecast in future.

The Turnpike rarely has ability to create stand alone application. Data and value of time is critical and they always try to do data collection. The Turnpike uses Tranplan or CUBE Voyager depending on the model. Highway choice modeling has been done for Miami, Tampa etc. and the Turnpike is looking at those approaches.

Other Issues

Fang Zhao raised a question regarding the TOD work schedule. Krishnan Viswanathan mentioned phase 1 that it should be completed in late 2010.