

The new MPO tour-based model structure builds upon the existing trips-based model. Travel decisions are modeled as three integrated processes: tour generation, destination choice, and mode choice.

Tour generation and destination choice (analogous to trip-based trip generation and distribution steps) are simultaneously computed using Matrix operations.

MATRIX OPERATIONS

Destination / mode choice calculation for a tour (HWOH)...

HW	Z(W)	0	100				
Q		1	2				
93	1	0	93				
0	2	0	0				
0	3	0	0				

Auto NOT exchangeable along tour

WO	Z(O)	0	70										
Q		1	2										
0	1	HW(auto)	1	2	3	HW(bike)	1	2	3	HW(transit)	1	2	3
93	2	1	0	46.5	0	1	0	23.25	0	1	0	23.25	0
0	3	2	0	0	0	2	0	0	0	2	0	0	0
0		3	0	0	0	3	0	0	0	3	0	0	0

Bike & transit exchangeable along tour

OH	Z(H->Anchor)	1	0	0									
Q		1	2	3									
0	1	WO(auto)	1	0	0	WO(bike)	1	0	0	WO(transit)	1	0	0
65.1	2	1	0	0	0	1	0	0	0	1	0	0	0
27.9	3	2	0	32.55	13.95	2	0	2*(8.1375)	2*(3.4875)	2	0	2*(8.1375)	2*(3.4875)
		3	0	0	0	3	0	0	0	3	0	0	0

OH(auto)	1	2	3
1	0	0	0
2	32.55	0	0
3	13.95	0	0

OH(bike)	1	2	3
1	0	0	0
2	16.275	0	0
3	6.975	0	0

OH(transit)	1	2	3
1	0	0	0
2	16.275	0	0
3	6.975	0	0

Thought Leader

Join Us at the
TRB - National Transportation Planning Applications Conference
Raleigh, NC

Path to Enlightenment

1:30 - 3 pm, Tuesday, May 16, Sheraton Raleigh Hotel, 421 S. Salisbury St, Raleigh, NC 27601

A Bridge to Activity-Based Modeling: Development of an Advanced Tour-Based Model by the Pikes Peak Area Council of Governments

The Pikes Peak Area Council of Governments (PPACG), the Colorado Springs, Colorado Metropolitan Planning Organization (MPO) has identified limitations in their current modeling suite in addressing current and emerging planning issues. Development of the new tour-based model was completed in less a year by a blended MPO staff – consultant team. The new model retains the general structure of the four-step model, implementing enhancements to take full benefit of a tour-based approach. The tour-based model retains selected four-step model elements, including the trip-based visitor, truck and airport sub-models, although tour-based updates of these elements are anticipated as future development activities. This proposes session will address:

- Selling the Project – how MPO staff convinced decision-maker to support the model update
- The Vision - how taking small steps recognized resource constraints and avoided “throw-away”
- The Model Framework – how the unique approach, model framework and expansion-ready design of the model will support eventual migration to a full activity-based model while continuously the ability of the modeling suite to support ongoing MPO planning functions

Presentation by project team member Mary Lupa, WSP

A Path to DTA for a Resource-Limited MPO: Dynamic User Equilibrium (DUE) Module Implementation within a Four-Step Model

The Pikes Peak Area Council of Governments (PPACG), an MPO located in Colorado Springs CO, has identified limitations in their current modeling suite in addressing current and emerging planning issues, particularly at the project and corridor levels. This proposed session addresses:

- The role of DTA/DUE in the MPO planning process which will include: measuring the impact of capacity changes to roadways and intersections by time of day; evaluating and ranking construction sequencing scenarios; conducting evacuation planning; special events planning; incident recovery; and screening projects for inclusion in the MPO’s fiscally constrained Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).
- The methodology and tactics used to launch DTA within the existing four-step model which will include a quick overview of DTA/DUE theory, an overview of network and time of day preparation, and a summary of outputs such as speed and queues in 10-minute intervals for the a.m. peak period.
- Four preliminary test applications which will include a regional summary of roadway speeds and queues (baseline), and tests of link outflow, traffic signal enhancement and land use. A comparison of congestion outputs from four-step vs. DUE will also be provided.

Presentation by Maureen Paz de Araujo, AICP, CTP, CEP, Project Manager, Wilson & Company

Maureen is a senior transportation planner with over 30 years of experience in transportation planning, specializing in travel demand forecasting, micro-simulation based traffic operations analysis and transportation air and noise impact modeling/analysis.



maureen.pazdearaujo@wilsonco.com

5755 Mark Dabling Boulevard, Suite 220 | Colorado Springs, CO 80919



discipline | intensity | collaboration | shared ownership | solutions