

## WORKSHOP REMIT

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<b>Presentation topic</b>	<b>Please check the box to identify your topic area:</b>		
	1. Traffic management		<input checked="" type="checkbox"/>
	2. Road and roadside design for safety		<input type="checkbox"/>
	3. Meeting needs of principal road user groups		<input type="checkbox"/>
	4. Integrating transport infrastructure and land-use		<input type="checkbox"/>
	5. The transportation profession		<input type="checkbox"/>
<b>Presentation title</b>	Are the forecast route choices in microsimulation models stable enough to make good decisions on future network needs?		

### Presentation Remit

With the advent of microsimulation models being used more for strategic and longer term studies, as opposed to detailed and short term traffic studies, this modelling approach is often perceived by many clients and consultants as the 'panacea' to all traffic modelling and forecasting needs.

At present the industry worldwide only have limited consensus regarding the calibration and validation statistics for microsimulation models, these often are based on macroscopic modelling theory. This approach becomes even more complex when microsimulation models are used for long-term forecasting. The reason being that the temporal stability of the variables in base year calibration is nowhere near as robust as the traditional 4-stage aggregate models. The latter is based on econometric and deterministic traffic flow theory.

Microsimulation models rely heavily on the psychological behaviour of the driver population, which is not well explained by econometric theories, as well as the performance characteristics of the vehicle fleet. Both of these behaviours can be highly variable over relative short periods of time. In particular the representation of route choices in future models may be questionable and very subjective the further we move from the calibrated base year.

Route choices that are represented in macroscopic and mesoscopic modelling philosophy are based on temporally stable factors such as time, distance and cost and these have a far higher degree of stability (robustness) suitable for long-term forecasts. (I.e. 15 years +)

Microsimulation route choices on the other hand, are represented by both the generalised cost components found in macro and mesoscopic models, but also have a whole array of new psychological variables that influence drivers' route choices. Research studies conclude that these choices vary with the population demographics of income, gender, age, driving experience and degree of network knowledge. To date these variables cannot be collected using traditional traffic flow surveys, these can only be collected using questionnaire-surveying techniques. Furthermore the calibrated driver population proportion can be very variable over relatively short periods (< 5yrs).

Two questions arise w.r.t. models that have route choices:

- Should route choices be a calibration coefficient, or should they also be a variable input value that will differ over time, similar to the varying of the trip demand in forecast years? For instance, the proportion of familiarity, feedback and perceived costs are all very variable over time for the same population, as the population matures they acquire better network knowledge, leading to more variation in route choices.
- Do practitioners and clients really understand the need to collect route choice data through sampling of the study area driver population as opposed to using traffic flow observations as a proxy to calibrate route choices?