

Rethinking Transport:

The Melbourne Activity and Agent Based transport Model (MABM)



The Melbourne Activity and Agent Based transport Model (MABM) is a new strategic transport model for Melbourne. Built around people, not trips.



How does it work?

The primary purpose of strategic models is to assess how travel behaviour might change in response to changes like new transport projects or policies. Traditionally, strategic transport models in Victoria use a trip-based approach, which considers the characteristics of individual trips.

The MABM is different. It uses an advanced approach developed over the last 25 years by researchers. The MABM is customer centric - it considers the characteristics and behaviours of individuals, rather than trips. The MABM is a significant first for Australia and is in line with international leading practice.



Puts the customer at the centre, being person-based rather than trip-based

The basic unit of analysis for traditional models is a 'trip' (i.e. journey). Traditional models represent all motorised trips, their purposes and their times of day. The unit of analysis for the MABM is a 'person'. The MABM represents each person in Melbourne and their daily travel plans, including when, where and how they will access their various activities. It also includes their demographic characteristics such as age, income and household composition. This means that the MABM is more suited than traditional models to understanding user profiles, and therefore equity impacts of transport interventions in greater detail.



Able to consider peak spreading impacts

Unlike traditional models, the MABM uses a continuous timescale. As congestion grows people tend to change the times that they travel to avoid congestion. This is known as 'peak spreading'. The MABM is ideally suited to modelling and understanding the impacts of peak spreading. By not considering the impacts of peak spreading, we risk investing in the infrastructure that may not meet our requirements in the future.



Able to model the impacts of future transport technology

The MABM is also more suited to modelling behavioural responses to complex changes to the transport landscape that are likely to occur in coming years including connected and autonomous vehicles, zero emission vehicles, car sharing services, ride-hailing services and demand responsive transport and Mobility-as-a-Service.



Focussed on plans and activities rather than journeys

Traditional models seek to optimise the travel choice (mode or route) for each individual trip. As a result, these models do not consider how trip choices made across the entire day are interrelated. The MABM considers all journeys and activities taken by person in a day. This means that the MABM is able to more realistically represent traveller behaviour. For example, if you need to pick your child up from school after work, you might bring your car even if public transport would have been faster. The MABM is able to account for these complex choices.

How can I found out more?

Further information about the MABM, its development and its calibration and validation can be found in the Model Calibration and Validation Report, 8 December 2017, available for download on Infrastructure Victoria's website.

A short video showing how the MABM model works is available at: <https://youtu.be/P9dtgLP4h8>.

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