Demand modelling: tools to shed light for decision makers

How much traffic congestion? How many passengers? What are the consequences of a range of policy initiatives? Every aspect of transport planning raises such questions. Demand modelling provides answers to enable robust decisions to be taken.

The issues

Transport policy must address not just today's issues but those of the future. For transport infrastructure, future generations will experience the effects of today's decisions. To ensure decisions will meet future needs in a cost-effective way, robust demand forecasts are essential.

Our contribution

Robust demand modelling is at the heart of our transport consultancy. Alan Voorhees, who founded MVA, created many innovative analytical methods. We have followed his pioneering lead with a series of innovations applied successfully over many years. Our quest for robust approaches has produced:

- Major metropolitan multi-modal models, including the London-wide model LTS
- Pioneering use of stated preference methods
- High level integrated models for strategic analysis - START
- Successful land-use/transport interaction models
- Models for high-speed rail and airport access
- Models specifically for road pricing and parking policy - APRIL and TRAM

Our competence and commitment contribute strongly to meeting decision-makers' needs.

mvaconsultancy

Our experience

We maintain and run the LUTI (Land Use Transport Interaction) model of Edinburgh, the Lothians and south Fife. This state-of-the-art LUTI model comprises a transport demand model in our TRAM software, a DELTA land use model and detailed TRIPS based assignment models for highway and public transport. It enables forecasts of the effects of transport proposals to be made systematically within the context of local planning policy. The model has been used in numerous high-profile commissions such as Congestion Charging in Edinburgh, the three proposed Edinburgh tram lines, and the Edinburgh Airport Rail Link.

Since 1987 we have developed and maintained the London Transportation Studies model (LTS) covering the entire area within the M25, and a 15km 'collar' around the M25. The model has been continuously improved to widen the range of issues that it can address. LTS includes a slow mode (walk or cycle) for short distance journeys and crowding effects on bus and rail services. More recent modifications include congestion charging modelling and bus speed modelling. For Transport for London, LTS was used in the Transport 2025 analysis. It also provides network and travel data for other transport models in London.

For almost ten years we have developed and maintained Transport Model for Scotland (TMfS).- a multi-modal model which includes over 85% of the population. The latest version includes peak spreading, macro time of day choice, high occupancy vehicle modelling and an improved method for modelling road tolls. The model has been used for a wide range of highway and public transport scheme and policy appraisals.

We developed the Greater Manchester Strategy Planning Model (GMSPM) to assist strategic planning in Greater Manchester and to increase understanding of the potential role of individual policy instruments in achieving transport policy objectives. It is a strategic multi-mode transport/land-use modelling system, linked to detailed highway and public transport network models. Based on our START software, it is linked to a DELTA land use model. Together they constitute a 'dynamic' land use transport interaction system. This design won the Institute of Logistics and Transport Award for Achievement in Transport Planning.

For Milton Keynes Council we created a multi-modal model to support development of a transport strategy for the next 20-30 years. We enhanced existing transport models to encompass full public transport and demand modelling based on new interview survey data for public and private transport users.

The Government Office for Yorkshire and the Humber commissioned us to carry out the South and West Yorkshire Multi-Modal Study (SWYMMS). The objectives of SWYMMS were to reduce congestion on regional motorways and the A1, to re-establish the primary role of the trunk road network for strategic traffic, to facilitate sustainable economic regeneration of depressed areas and to sustain economic growth in other parts of the study area. The project included development of a detailed model of road usage and a strategic demand model to test and appraise costs and benefits of transport strategies.