

Appendix 4

Metro Bus Strategy Evaluation Model

SimBUS has been developed by Steer Davies Gleave for transport authorities to support decision-making and consultation in the design of their bus strategies. The tool is designed as an aid to thinking that quickly provides insights into the complex operational and behavioural interactions that are present in bus business economics. Many of the policy options aimed at improving patronage are complementary and are likely to produce greater impacts when implemented together. However, many of these interventions are costly and may take time to be implemented. Furthermore, it may take time before the benefits are fully materialised. SimBUS uses systems dynamics as an approach to model these complex interactions and feedback processes.

The tool allows users to adjust levers to experiment with changing real fare levels, investment into tendered services, the number of service registrations per year and annual spend on marketing and information provision. The user is also able to introduce a range of service quality improvements including investment into real time information, fleet upgrades and bus priorities.

SimBUS provides a top-down, area-wide appraisal of different policy scenarios in the bus market. Bus patronage in Metro is divided into four main types: adult cash travellers, children and scholars, adult travel card users, and concessionary travellers (old age pensioners and people with disabilities). The bus market can be further segmented into thin and busy markets to reflect the different patronage mix and journey characteristics. The simulation complements other larger network planning models, providing a graphical and interactive way of presenting the relative outcomes of different types of policy intervention or investment decisions.

The top-down appraisal is intended to be broad-brushed, and generates estimates for the magnitude of patronage, revenue, and cost impacts of different policy scenarios. As such, the model is limited in its explanatory and evaluation powers, and results should be interpreted with caution:

- SimBUS treats bus operations in an area as a consolidated single operation, and treats different operators as one entity-it does not model differences in operational characteristics at the operator or corridor level;
- The model estimates for demand changes are elasticity based, and do not use specific origin-destination flows or detailed network characteristics;
- It regards bus operations as a self-contained mode, with no interaction with traffic projections and therefore no congestion feedback;

- The model includes demand elasticities, delay factors, bus industry costs and inflation indices that have been sourced from TRL's report The Demand for Public Transport: a Practical Guide. These elasticities, however, are based on industry-wide research and need to be checked for context before any particular application.
- The model takes into account demographic trends as a driver for bus patronage trends generated by the Public Transport Trends Model (PTTM). The PTTM is validated against census data for the period 1991 to 2001, and projections for the future are based on historical trends and current market characteristics. However, it does not, for example, take into account any recent changes in employment rates, economic activity or land use policies.