Task 8b Active Modes

Scope

The active modes encompass walking and cycling. In a strategic model, average walking distances are such that walk trips will be mainly intrazonal or to the adjacent zone, in both cases implying that the level-of-service measure from the networks would be arbitrary (either the intrazonal or centroid connector costs). Thus the model cannot be sensitive to walk trip level-of-service (even if there were policies designed to change walking times, which seems unlikely).

Cycle trips will be infrequent in the data (1.6% in the 1992 Auckland HTS, 1.1% in the Wellington 2001/2 HTS). This would suggest that we may obtain a sample in the region of 1,000 trips in the HTS. According to the 1992 Auckland data, most are short, less than 7 km, and are strongly related to the younger age groups and particular education trips.

Given this type of data, it does not seem sensible to attempt to calibrate relationships with walk and cycle times/level-of service - indeed this was attempted with WTSM and the poor quality level-of-service data corrupted the other components of the estimation. The approach will therefore involve separating the treatment of active modes from the mechanised modes (private vehicle and public transport) in the model, as follows.

For cycle and walk we propose to develop separate trip rate tables by purpose and person type (t^{m0}_{ps} where m = w or c and 0 refers to 2006). We shall thus be able to forecast region-wide (and zonal) changes in the numbers of walk and cycle trips in relation to changing population characteristics. We will also build into the model the ability to adjust these region-wide trip rates to represent perceived scenario trends (of for example increasing cycle usage) and hypothetical responses to transport strategies i.e. $t^{m1}_{ps} = t^{m0}_{ps} * f^{m1}_{p}$, where f^{m1}_{p} is a mode/purpose-specific factor for scenario '1' (and there may need to be an equivalent, compensating adjustment to mechanised mode trip levels).

We thus have a means of developing and forecasting walk/cycle trip matrices, by applying these zonal changes in trip rates to the observed active mode trip patterns.

As an additional possibility, we could compute the overall logsum cost for the public transport and private vehicle distribution/mode choice models for each segment by production zone and modify the active mode trip rate formulae to allow for a cross-elasticity to changes in the mechanised mode generalised costs.

Thus, despite the separated treatment of active modes, in any of these approaches, active mode shares would be sensitive to population characteristics, changing trip lengths and changing mechanised mode accessibility.

The tasks for active modes are:

- Task 9.1 Active Modes Trip Ends
- Task 9.2 Active Modes Distribution

Task 9.1 Active Modes Trip Rates

Scope

This task develops the active mode trip rates (trip production models).

Inputs

HTS data

Land use data for 2006

Processing

The development of the active mode trip production models will be carried out concurrently with the mechanised mode trip ends leading, as far as reasonably possible, to consistently structured trip rates.

Outputs

Active modes trip end models and note

Task 9.2 Active Modes Matrix Forecasting

Scope

This task develops the active mode distribution models as specified above.

Inputs

Active mode trip ends

Observed active mode matrices from HTS

Processing

Specify the growth factor process and the logsum adjustment procedure, sensitive to mechanised mode composite cost changes.

Outputs

Specification of active mode matrix forecasting implementation