Task 2.1 Review of Performance of Present Model

Background

It has been found that the existing model does not predict a level of future traffic growth on the motorway system that would be consistent with past traffic growth rates. The predictions are too low.

The critical issues which we need to understand are:
- what have been the road traffic and rail passenger growth rates in the past and how well does the current model reproduce them?
- how consistent with reasonable expectations are the model forecasts of growth?

A previous analysis examined 24 hour road traffic trends by year, road capacity, the evidence for rail patronage, and the previous model forecasts. The analysis was incomplete in a number of respects:
- given the constrained road capacity, it might expected that there would be a constraint on peak period growth rates in future, but no such constraint at other times; indeed we might expect peak-spreading to occur enabling peak traffic growth demands to be satisfied; this was not explored;
- there is conflicting evidence on rail patronage growth, and this too is not split into peak and off-peak time periods.

Inputs

Previous analyses
Historic road traffic flows split into peak and other times
Seek similar rail data
Historic car ownership, demographic (and employment) data relating to the region over the counting period

Processing

Data Processing
The purpose of the processing is to seek measures of the following:
- historic rates of road traffic growth in peak and off-peak periods
- evidence for peak spreading
- reconciliation of the conflicting evidence on rail passenger growth

Review of Capacity
Given the up- and down- stream bottlenecks on the Wellington motorway system we need to ensure that our approach to measures of capacity is rational.

We also need to obtain historic data on increases in road and rail capacity and service levels which have occurred over the counting period, and consider how these might have influenced traffic growth.

Planning information
Similarly we need to obtain aggregate population statistics and car ownership statistics to understand how these factors may have contributed to traffic growth.

Outputs

An assessment of actual travel trends in key corridors in different time periods against the main explanatory factors (demographic and economic) covering, for the motorway corridors:

- historic road traffic growth rates, peak and off peak;
- historic rail passenger growth rates, peak and off peak;
- historic trend in the length of the peak periods (peak-spreading);
- historic trends in population and car ownership in the motorway corridors;
- assessment of road capacity and record of changes in road and rail level-of-service over the counting period;
- with the above data, it should be possible to comment on:
  - unconstrained traffic growth rates (in the off-peak);
  - potential constrained traffic growth (in the peaks);
  - significance of peak-spreading;
  - whether these growth rates appear to be explained by demographic trends and level-of-serve improvements.

An assessment of the model's performance in reproducing these changes and conclusions as to model specification developments which might improve the representation of these trends:

- if the trends can apparently be explained then we may reasonably expect the updated model to be able to reproduce them, providing the relevant explanatory factors are incorporated;
- if not, then we need to consider what other explanation of the trends might be feasible;
- if the unexplained growth is in the off-peak then there may be explanations associated with income-related growth in leisure travel.

A report.