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Dear Nick,

**Wellington Regional Transport Models WTSM and WPTM:  
Peer Review of Update to 2013 Base Year**

***Introduction***

The 2011 Wellington Transport Strategy Model (WTSM) and Wellington Public Transport Model (WPTM) have been updated to a 2013 base year by Greater Wellington Regional Council (GWRC), along with Traffic Design Group (TDG) and Prism Consulting. The re-basing of WTSM and WPTM has been documented in a series of Technical Notes (TNs) written over the course of the project.

In my role as peer reviewer of the Regional Models I have reviewed, and commented on, all the TNs that were produced during the development of the updated 2013 models. A list of these Notes is appended. I have commented on each of the TNs and discussed a number of aspects of each of them with you and your colleagues. I have not been involved with the physical “hands on” aspects of model development.

***Key Changes for 2013***

The nature of the updates has been appropriate, given that there is only two years between the two model years. Nonetheless considerable effort has gone into the update and I discuss below what I believe are the four major areas of change.

1: Development of a CV model: a completely new model has been developed, using a synthetic approach to trip end generation and trip distribution. This was based on observed movement data from truck monitoring software such as eRUC, and built on similar work by TDG in other cities. The model forms were derived using linear regression. I believe the new approach to the modelling of CVs represents a major improvement to the overall WTSM model.

2: Updated inputs: the following have been brought up to the date of March 2013:

- Most importantly, the land-use data such as population and employment has been completely revised using the 2013 census. This is a major improvement on the 2011 model, which had to rely on estimates in the light of the planned 2011 census being postponed.
- Validation data set: counts and travel time data have been updated using a new approach and the results reviewed and sense-checked
- Base Year Networks: the necessary incremental changes to the road and PT networks have been made, along with some new functionality such as modelling bus rapid transit
- Input parameters such as the value of time and parking charges, now and for future years, have been updated using sources such as EEM.

**3: Validation and Testing:**

- The 2013 validation of WTSM is generally good and realistically the main issues arising can only be corrected by a model recalibration. The level of correctness is similar to that found with the 2006 and 2011 models and also to the two other main urban models in NZ. I consider it to be appropriate for a strategic level model.
- WPTM validation: there was little change in PT in Wellington between 2011 and 2013 and the validation is as good as it was before
- A range of sensitivity tests has been carried out on both models in a similar way to that done for 2011. It showed that the models behave as expected and display the expected values of elasticities, e.g. between PT demand and fares.

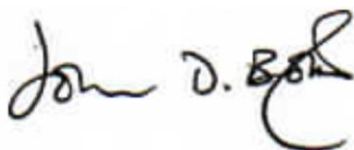
**4: Forecasting:**

- The Future Year demographics which are input to WTSM have been completely reviewed, starting with the 2013 census data and taking inputs from sources such as Statistics NZ and the regional TAs. This provides a much more robust base for the forecasting of trip patterns.
- Baseline forecasting with WTSM, using sample future scenarios varying a range of inputs, has shown that the model behaves as expected. It also serves to highlight those areas where further consideration may be needed when using the model.
- Tests with WPTM have confirmed that in forecasting mode the forecast demands are being applied correctly, although this is less true of the IP than the AM peak.

**Conclusions**

In the light of the above I am able to confirm that I am satisfied that the 2013 model update of both WTSM and WPTM has been carried out appropriately and robustly. I would be happy to discuss my conclusions further with you if required.

Yours sincerely,



**John Bolland (Dr)**  
Director

**Appendix: Technical Notes reviewed**

<b>Number</b>	<b>Subject</b>
1	Data Collection
2	Observed Commercial Matrix Vehicle Development
3	Development of Base Year Networks
4	Commercial Vehicle Model
5	Model Input Parameters
6	(Not produced)
7	Production of Land Use Data
8	WTSM Validation
9	WPTM Validation
10	WPTM & WTSM Sensitivity Testing
11	Baseline Forecasting
12	Demographic Report
13	WPTM Forecasting