Task 2.2 Initial Tabulations to Verify Proposed Segmentations

Data Source

Household Survey (expanded and unexpanded sample)
Other data sources as required

Processing

Time Period Segmentation

Additional data sources:
- traffic counts by time of day
- bus and rail counts by time of day

Expanded household survey graphs/tables:
1) for all modes combined, for each trip purpose tabulate/graph the % of travel by time of day in 15 minute time periods, for 3 different time definitions: trip start time, midpoint time and arrival time;
2) repeat 1) for car (driver+passenger) and public transport separately, with purposes aggregated to HBW, HBEd[1] and all other (referred to below as 'super purposes');
3) Repeat 1) for origin sectors (zones grouped into 3 or 4 large sectors covering the study area based on distance from the CBD[2]) using super-purposes as 2).

Plot road and public transport count data by 15min time periods for different parts of the networks (specifically: near CBD then moving away from CBD).

Review what is done in other models.

Some arguments:
- superficially, the midpoint time would tend to even out the errors in time period allocation across the network;
- if we assume that it is the arrival time that has the lowest variance (ie people are all trying to get to work at similar times), then the endpoint time is likely to represent the peak flow anywhere on the network, BUT it means that the flows across the network are not for exactly the same times of day, as the peak will occur earlier outside Wellington; this will pose some potential difficulties for validation?

Then decide on modelled time periods, between:
- start time
- midpoint time
- end time
- am start time, pm end time, interpeak the rest

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[1] Home based work, home based education
[2] Central business district

Decision will rest on:
- ❑ what is traditionally done and the arguments for it,
- ❑ how closely the household survey distributions match the count distributions (in terms of the times of the peaks and the proportion of daily travel in the peaks);
- ❑ the extent to which different time period definitions correlate with the time profiles of each trip purpose;
- ❑ which time period definition is least erroneous (and it seems likely that midpoint might be best).

Trip Purpose

Expanded (unless otherwise stated) household survey tabulations/graphs:
- ❑ % of trips by each proposed purpose (include commercial vehicles as a separate purpose); checking for very large or very small proportions
- ❑ average trip length and trip length distribution (using crow fly distance) by purpose, checking for systematic distribution differences
- ❑ % of trips by mode for each purpose, checking for systematic mode share differences
- ❑ previous analysis will give us time period differences by purpose
- ❑ number of sample trips by purpose/mode, checking their adequacy for model calibration
- ❑ roughly compute zonal trip productions and attractions by purpose, then compute correlations between individual purposes; where high correlations are apparent, graph them, checking for merits of separating purposes for trip end models.

We are not at this stage ready to determine the treatment of escorts – so all we should do is choose some convenient classification.

Depending on the results of these initial tabulations we may want to explore further: either by combining purposes if we have some small segments or splitting purposes further.

Understanding Person and Family Structure

Use expanded distributions, and graph by age for men and women separately:
- ❑ % persons by education status
- ❑ % persons by employment status
- ❑ % by driving licence status

Also, % households by car ownership level: 0, 1, 2 , 3 or more.

Definitions of Car Availability

Using expanded distributions tabulate:
- ❑ for each purpose, the trips and mode shares (car driver+pax, public transport, slow modes) cross-classified by household car ownership (0,1,2,3+) and number of adults in household (1,2,3+);
- ❑ repeat the above replacing number of adults by number of persons with a driving licence;
- ❑ for each purpose, the trips and mode shares (car driver+pax, public transport, slow modes) by the adult-based car availability categories in the table below;
- ❑ repeat the above replacing number of adults by number of persons with a driving licence (precise definition of which is to be agreed);
- ❑ for each purpose, the trips and mode shares (car driver+pax, public transport, slow modes) cross-classified by the number of cars/adult in the household (suggested categories of cars/adult (c/a): 0, $0<c/a<0.5$, 0.5, $0.5<c/a<1$, 1, $1<c/a$).

Captive	trips by residents of non car owning households
Competition	trips by residents of households where no. of cars < no. of adults
Choice	trips by residents of households where no. of cars in household ≥ no. of adults

Outputs

Conclusions on segmentations.
Report.