Appendix C

Modelling Analysis

AECOM

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1.0 Introduction

Forecasts from the Wellington Transport Strategy Model (WTSM) have been analysed to provide person trip demand for the 2031 morning peak (AM) peak two hours. This analysis has focussed upon the number of trips and the mode of travel into potential public transport corridors within the Wellington Central Business District (CBD). The analysis is intended to provide background information to assist in the Long List evaluation process for the Wellington PT Spine Study.

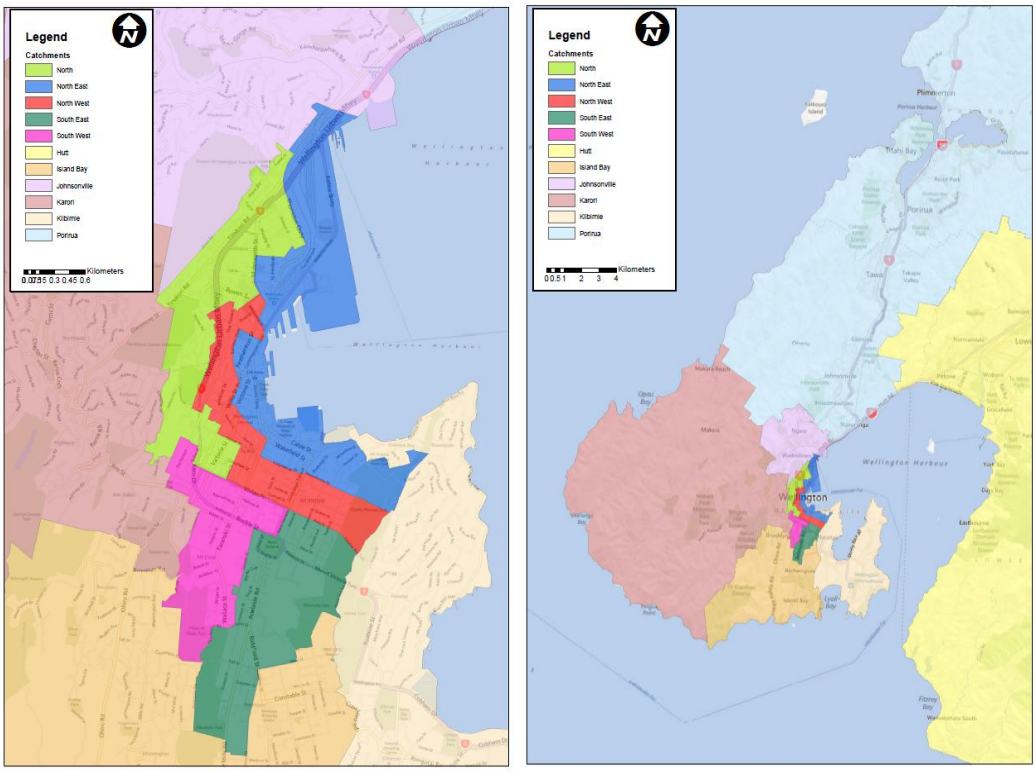
The 2006 WTSM with updated land use forecasts has been used for this analysis. This version of the model was developed to be used for a range of projects including the Wellington PT Spine Study and Roads of National Significance (RONS) studies. The model scenario used includes a do-minimum network without major projects such as the RONS. Only results from the morning peak period model have been analysed. This is not a detailed analysis of potential options and it was felt that considering more than one model period would provide little benefit.

2.0 Analysis of Person Trip Demand

2.1 Demand Catchments

Figure 1 displays the model catchments used in the analysis of access by mode into the Wellington CBD. The CBD has been split into five areas which represent potential corridors for PT options. The wider geographic area has been split into six areas which represent the catchments served by public transport facilities.

Figure 1 Model Catchments

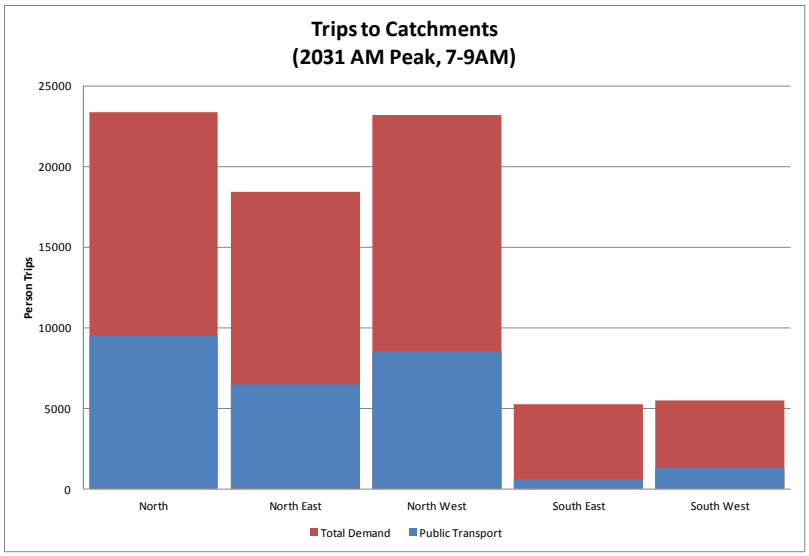


2.2 Analysis of Total Trips

Figure 2 displays an analysis of the total demand for trips to the CBD catchments extracted from the 2031 AM peak transport model. The figures shown represent the two hour morning peak (7-9AM) demand. This shows that the northern catchments are the focus of trips in the morning, each with approximately 20,000 trips. By comparison there are only approximately 5,000 trips to each of the southern catchments.

The analysis also shows that there is a high use of PT to access the northern catchments with approximately 35-40% of travel by public transport. In comparison the southern catchments have a much lower use of PT.

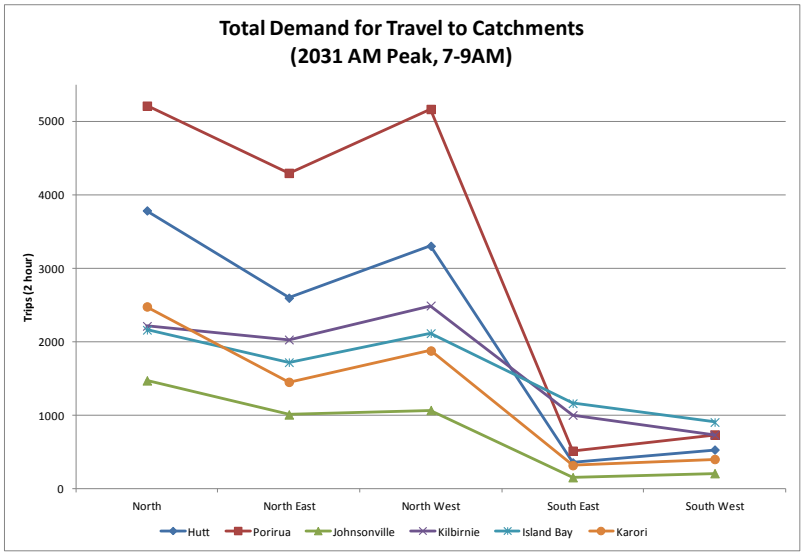
Figure 2 Analysis of Trips to Central Catchments



2.3 Analysis of Origins of Trips

Figure 3 displays the origins of trips travelling into the CBD during the morning peak. The highest predominance of trips to the Northern catchments is from the Porirua catchment.

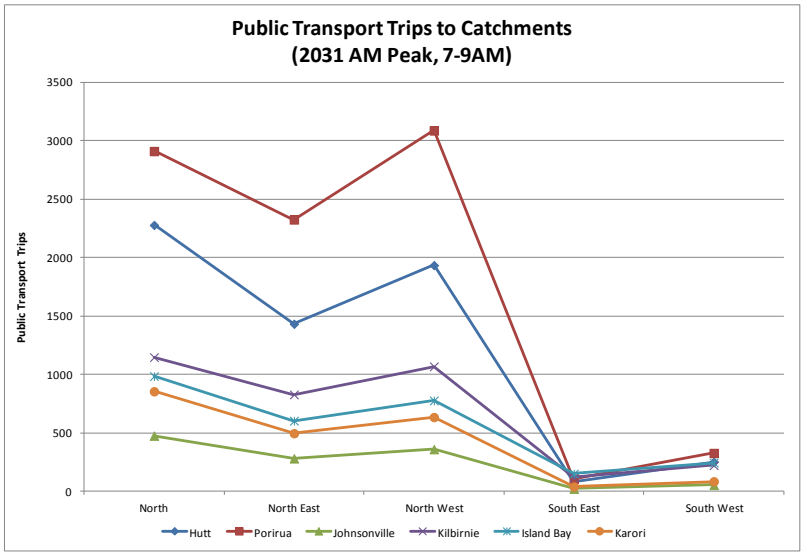
Figure 3 Analysis of Origins of Trips to Central Catchments



Analysis of Origins of Trips

Figure 4 displays public transport trips into the CBD from catchments. This shows that the highest PT demand originates from the catchments to the north served by rail and that the focus of trips is to catchments in the north.

Figure 4 Analysis of Public Transport Trips to Catchments

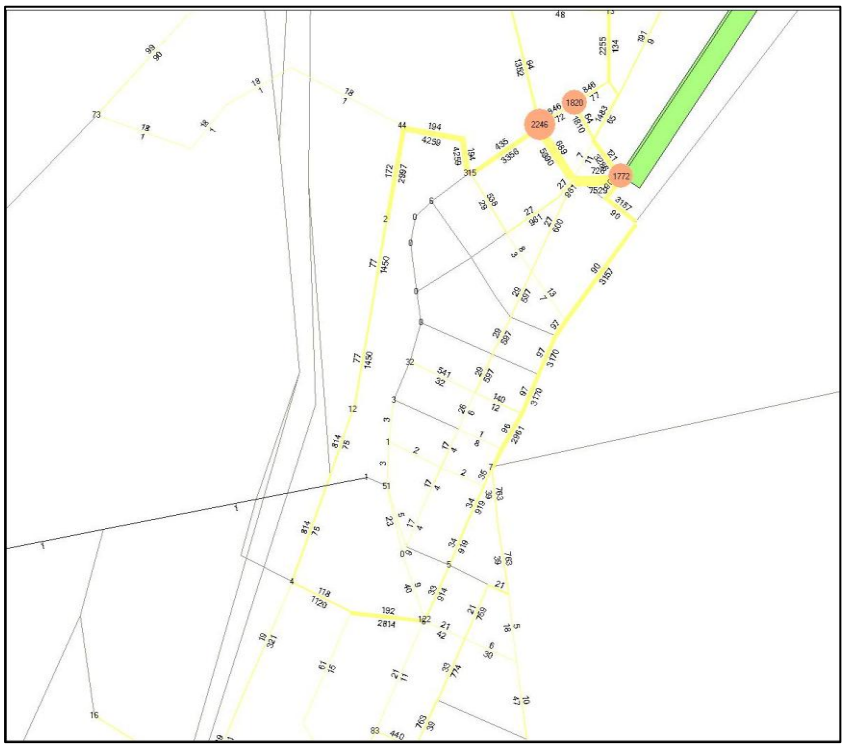


3.0 Analysis of Demand With Wellington CBD

3.1 Walk Trips

Figure 5 displays walk trips within the Wellington CBD associated with public transport (in yellow) and the transfer of passengers between modes (orange circles). This shows that there are approximately 4,000 rail passengers who transfer onto southbound bus services to access their final destinations. There are approximately 3,600 passengers who walk from the rail station to destinations at Parliament and The Terrace. Approximately 3,200 passengers walk along the waterfront to access destinations in the central CBD. This shows that walking is more attractive than transferring to bus for destinations on the Terrace and close to the waterfront and that walking becomes less attractive to destinations beyond 1 Kilometre from the rail station.

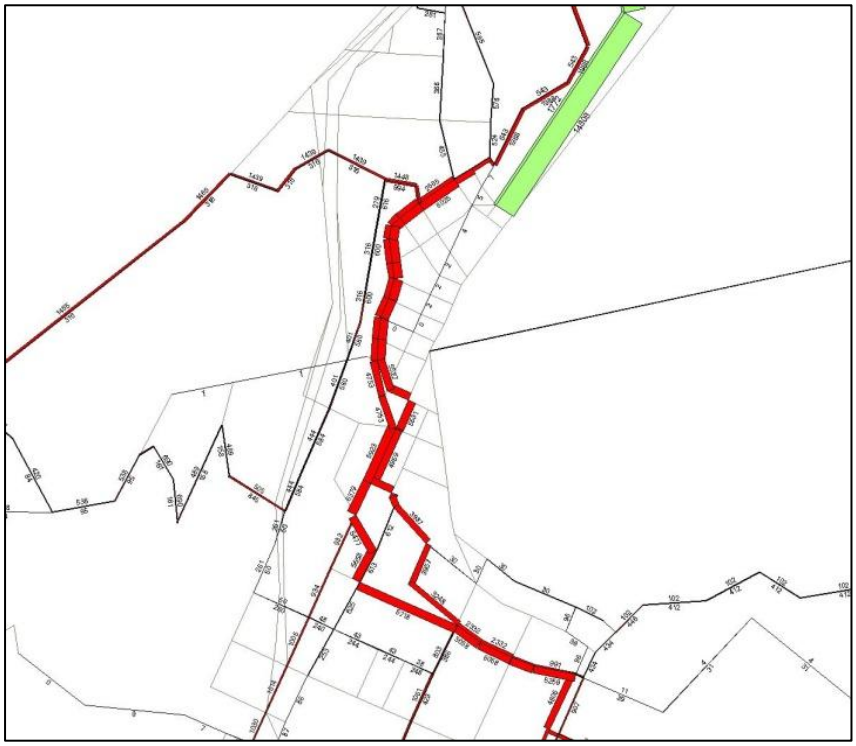
Figure 5 Public Transport - Walk Trips (2031, 7-9AM)



3.2 Public Transport

Figure 6 displays passengers on public transport by mode within the Wellington CBD. The predominance of rail (in green) in providing access from the north is obvious with approximately 15,000 passengers. Within the CBD there is a concentration of bus trips (in red) within a central corridor.

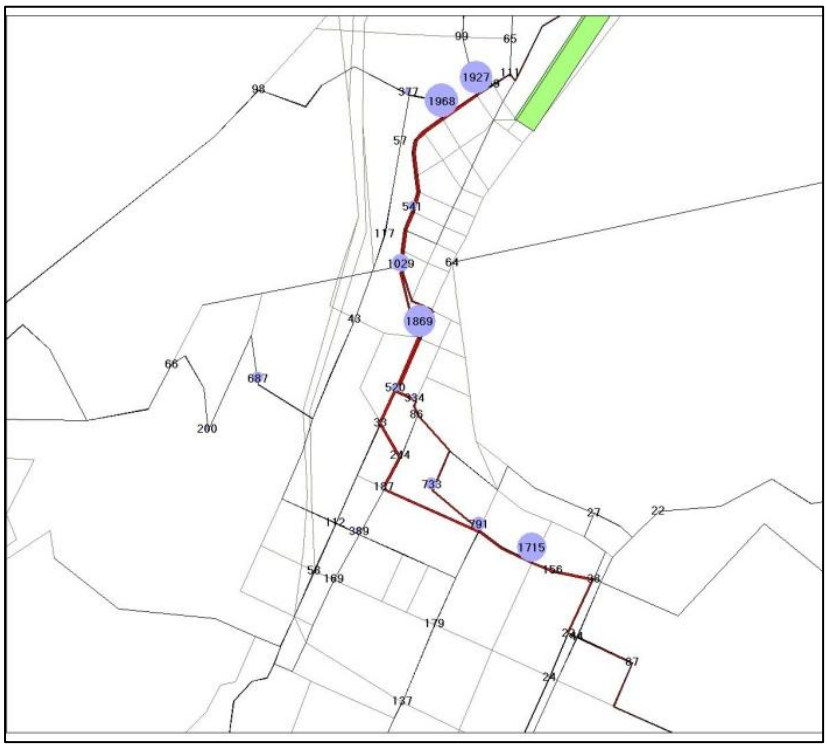
Figure 6 Public Transport - Bus and Rail Trips (2031, 7-9AM)



3.3 Passengers Alighting from Buses

Figure 7 displays bus passengers alighting within the Wellington CBD (blue circles). This highlights the major destinations within the CBD of Courtney Place, Lambton Quay and The Terrace.

Figure 7 Bus Alighting (2031, 7-9AM)



3.4 Screen line Analysis

Figure 8 displays the locations for which the number of bus passengers and pedestrians associated with PT has been extracted from the model. This analysis provides an indication of the total movement of PT passengers throughout the network and the extent to which future services provide adequate access to where people want to travel.

Figure 8 Screenline Locations

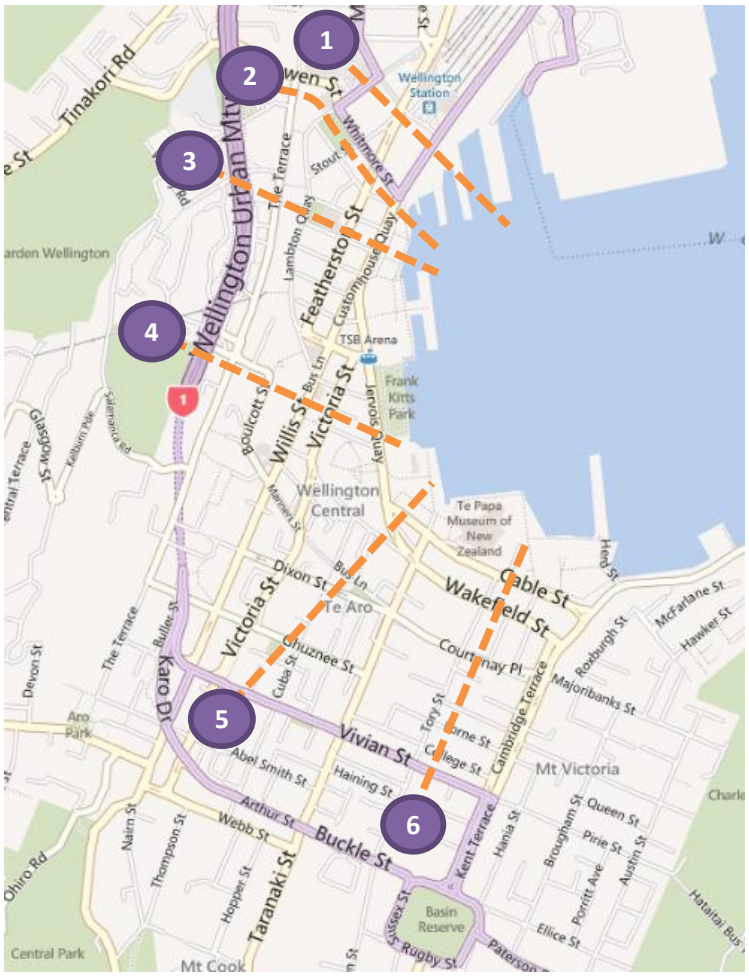


Table 1 displays the volumes of PT passengers crossing each of the screenlines. This shows that around the rail station the number of pedestrians is approximately the same as bus passengers in the southbound direction. This pattern continues until the Johnston Street (3) screenline. This analysis suggests the peak movement of PT passengers occurs at the Harris Street (4) screenline.

Table 1 Screenline Flows (2031 AM peak – 7-9AM)

Screenline between			North Bound		South Bound		Total	
			Walk	Bus	Walk	Bus	Walk	Bus
1	Bunny St	Whitmore St	579	2585	8074	6029	8653	8614
2	Whitmore St	Ballance St	97	3809	6167	6069	6264	9878
3	Johnston St	Waring Taylor St	203	4456	5217	6490	5420	10946
4	Harris St	Manning Ln	181	6367	1530	5543	1711	11910
5	Victoria St	Cuba Mall	116	5962	134	4030	250	9992
6	Troy St	Allen St	159	5246	163	1019	322	6265