

WELLINGTON PT SPINE STUDY

TECHNICAL NOTE: SECONDARY ROUTE

Introduction

The Option Evaluation Report proposes a secondary route for some peak hour bus services. This is assumed to operate for BRT and LRT options only. It provides for some peak hour bus services from the north and west of Wellington to travel along a secondary route – southbound along Featherston Street/Wakefield Street in the am peak, returning along Jervis Quay. This is illustrated in the diagram below:



Why is this proposed?

One of the key conclusions of the Medium List Evaluation was that a secondary route would be required to provide additional capacity through the CBD during peak hours.

Best practice international experience suggests that a 2-way road, with few passing opportunities has a practical capacity of around 60 public transport vehicles per hour or one

per minute in each direction. This relates largely to the ability for such a system to allow up to a minute delay for each service without affecting subsequent services.

Currently along the Golden Mile there are several stretches where only a 2-way road is available, with few passing opportunities. These include Manners Street and parts of Lampton Quay. Willis Street is also significantly constrained. General traffic and service vehicles also share this space, apart from parts of Manners Street. In the am peak hour (average of the two hour am peak) around 107 buses per hour are travelling each way on Lampton Quay, well over the best practice guide of around 60 buses per hour.

In the BRT and LRT options, the road space is reconfigured to a different more efficient layout, higher capacity vehicles are provided, and the number of different bus service routes travelling along the Golden Mile is reduced. General traffic is removed from parts of Lambton Quay and Willis Street, and integrated ticketing is also introduced to assist with transfers. Whilst all of these improvements help reduce congestion and improve reliability, in some sections the restriction of a 2 way road with few passing opportunities remains. Modelling of these options for future years (2021, 2031, 2041) shows that in the peak hour (average of the two hour am peak) without the secondary spine there would be up to 83 vehicles per hour travelling southbound on Lambton Quay, with up to 66 vehicles travelling northbound. Whilst this number of vehicles, coupled with the other improvements outlined above represents a significant improvement, this is still higher than the best practice guide.

To deal with this issue there are a number of options, including:

1. Remove some standard buses from the Golden Mile during peak hours to reduce congestion by forming a secondary route; or
2. Increase capacity along the Golden Mile by providing passing lanes; or
3. Require buses from the north or west of Wellington to terminate at the northern end of the CBD (ie Wellington Railway Station) and transfer to BRT or LRT.

Of these options, Option 1 was considered preferable, subject to further investigation. Option 2, increasing capacity along the Golden Mile and the introduction of passing lanes would require road widening which would have significant effects on pedestrian areas, central city buildings and overall central city amenity as well as adding to costs. Option 3, forced transfers on the edge of the CBD would be unpopular with passengers, would lead to longer journey times and a reduction in the number of people travelling by bus. Both Option 2 and 3 would be likely to result in a lower overall benefit-cost ration (BCR).

Impacts of the Secondary Route

The capacity problem along the Golden Mile is particularly pronounced in the am peak, and especially travelling southbound. There are less issues during the pm peak and no issues during the interpeak.

As such through further investigation and design of the preferred option there will be an opportunity to consider how any secondary route is implemented. As a minimal approach it could be applied to the am peak only, or it could be applied to both am and pm peak, or it could be applied all day to provide better legibility for passengers.

The table below shows the impacts of a secondary spine applied to the am peak only. It compares current bus numbers in 2012 to the future Reference Case (which includes the outcomes of the Wellington Bus Review) and the three shortlisted options.

Number of PT Services per hour on Lambton Quay / Featherston Street (morning peak hour)

	Spine		Second Spine		Total		% Current		% Ref	
	N/b	S/b	N/b	S/b	N/b	S/b	N/b	S/b	N/b	S/b
Current	107	104	0	2	107	106				
Reference Case	79	89	6	6	85	95	21%	10%		
BRT	53	53	13	29	66	82	-38%	-23%	-22%	-14%
LRT	46	54	13	29	59	83	-45%	-22%	-31%	-13%

Number of PT Services per hour on Manners Street / Wakefield Street (morning peak hour)

	Spine		Second Spine		Total		% Current		% Ref	
	N/b	S/b	N/b	S/b	N/b	S/b	N/b	S/b	N/b	S/b
Current	87	94	0	2	87	96				
Reference Case	65	74	6	6	71	80	-18%	-17%		
BRT	39	39	13	29	52	68	-40%	-29%	-27%	-15%
LRT	32	40	13	29	45	69	-48%	-28%	-37%	-14%

Notes:

1. The numbers of vehicles are derived from the WPTM model and therefore differ slightly from today's actual vehicle numbers due a number of factors including non-counting of empty-running buses returning to their origin. Actual bus numbers in 2012 along Lampton Quay are about 10% higher than shown above, however it is important to use relative figures to compare between options.

Further investigation required

The PT Spine Study has so far only assessed the options at a feasibility level. Whether to retain a secondary spine will be re-examined during further more detailed investigation stages, along with detailed design and consideration of operational service issues.

Some of the detailed issues that will need to be considered in relation to the option of a secondary route include:

- What times of the day that it would operate and for which services.
- The best and most effective routes.
- How to ensure legibility for passengers using the affected services.
- Opportunities to transfer to other spine services (ie BRT. LRT) if desired.
- Provision of suitable station/stop infrastructure and signage.
- Future traffic congestion levels along any secondary routes and any impacts on services.