Kumeu/Huapai – Waitakere to Swanson Public Transport Options

Recommendations

It is recommended that the Board:

i). Receive the report

ii). Approve not pursuing the diesel train option for the Swanson-Waitakere service

iii). Approve a community engagement exercise in the affected area, explaining AT's reasons for providing a bus shuttle service between Waitakere and Swanson, and giving customers the opportunity to influence the details of the proposed service.

iv). Advise to KiwiRail to not undertake capital works at Swanson to facilitate DMU shuttle services scheduled to commence in the upcoming months.

Executive summary

At present, the public transport demand between the village of Waitakere and Swanson is serviced by approximately every second weekday diesel rail service from Britomart to Swanson extending through to Waitakere and hourly Saturday and public holidays. This provides an approximate two trains per hour peak and one train per hour offpeak service during weekdays, hourly service on Saturdays and public holidays and no Sunday service.

Swanson is the terminus of the Rapid Transit Network in the West. It is shown as such in the draft RPTP, in the Passenger Transport Network Plan of 2006, the Auckland Regional Land Transport Strategy of 2003, and in various "rapid rail" proposals dating back several decades. Rail electrification is therefore due to terminate at Swanson with the public transport link to Waitakere to be serviced by a shuttle service (DMU rail or bus) between Waitakere and Swanson.

The paper recommends to the Board at electrification and operation of EMUs on the Western Line between Britomart and Swanson, the provision of a bus service rather than a DMU rail shuttle, should be the preferred mode to service Waitakere to Swanson on the basis of low demand for public transport services, high relative cost of a DMU shuttle when compared to bus service operations, capital cost savings, equivalent travel times, with improved walk-up catchment and flexibility from a bus service compared to a DMU shuttle.

Mr Cagney was commissioned by AT to undertake an assessment of public transport options between Swanson, Waitakere and beyond to Kumeu/Huapai including travel options from these centres into the city (Attachment 1). Key conclusions from the review are:

- An estimated $3m will be required to upgrade Swanson and Waitakere Stations to provide the infrastructure to support a DMU shuttle to connect to the future EMU operations from Swanson to Britomart. A further $3m is required to refurbish two, two-car DMUs to provide the service. Annual operating costs for the shuttle are estimated to be over $1.5m.
- The existing AM peak boarding from Waitakere is only 65 with 187 from Swanson. Swanson is more popular due to the higher local catchment and the greater rail service frequency from Swanson than from Waitakere.

- With the provision of EMUs and enhanced services and greater P&R at Swanson, the use of Waitakere station with a DMU shuttle to Swanson becomes even less appealing. This is due to the need to transfer from DMU to EMU at Swanson compared to an extra 2.5 kilometre drive to Swanson P&R.
- On the basis that P&R customers, will prefer the higher frequency at Swanson and with enhanced EMU services the logical catchment for Waitakere Station, post electrification, is its walk-up catchment – at just over 600 people in total this is not considered justification for the higher operating costs of a DMU shuttle compared to a bus service.
- A bus service provides additional walk-up catchment over a rail shuttle at 903 versus 624 for the base service options.
- While the rail shuttle provides a faster travel time between Waitakere and Swanson than the bus at 5 minutes versus 7 minutes, this is not considered sufficient benefit for the additional capital and operational costs for the number of users affected. Further it is likely if customers wish to train to the CBD that they would likely drive to the Swanson P&R rather than wait at Waitakere for a DMU service and then transfer to an EMU service at Swanson.
- Possible future extension of the DMU shuttle beyond Waitakere to Kumeu/Huapai requires a third 2-car unit to be refurbished ($1.5m) and $9m of station, track and signalling works. Operating costs for the DMU shuttle increase to $3m per annum. For P&R customers, direct EMU services from Swanson, or express bus services along SH16 through Kumeu/Huapai offer more attractive travel times than a DMU to Swanson for onward travel to most destinations, especially the city centre.

Mr Cagney has completed an economic analysis of the options, governed by the guidelines in the NZTA's Economic Evaluation Manual. This sets out a process for identifying a preferred (economically optimal) option. The 25 year Net Present Value costs for the base rail DMU shuttle are $46.9m compared to $26.1m for the base bus option a variance of $20.8m. A financial analysis of direct AT costs increases of the two base cases (Attachment 2) shows $16.5m for the rail DMU shuttle compared to $1.8m for the bus option, a variance of $14.7m.

In both cases the economic appraisal and the financial analysis shows that Option 3, where base bus services replace the DMU shuttle services between Waitakere and Swanson, is the best option, as well as being the most cost effective. The saving over 25 years from the economic approach is $20.8m, and the saving for AT direct costs is $14.7m. The cost per passenger km per year of the rail DMU shuttle operation between Waitakere and Swanson is $4.17, compared to $0.68 per passenger km for a bus operation.

Additional considerations

If a decision is taken to electrify the network between Papakura and Pukekohe, replacement of the Swanson – Waitakere DMU shuttle services with buses would remove diesel rolling stock from the Auckland fleet, with associated capital and operating cost savings.

The AT capital savings of around $6m associated with this proposal may be transferred to other capital projects that support the new public transport network.

Strategic context

The Auckland Plan identifies the vicinity of Waitakere for “Bush Living” and “Country Living”, with no plans for urban growth to occur. The land between Waitakere and Kumeu/Huapai to the north is shown in the Plan as “Mixed Rural Production”.

In the past there have been discussions about extending the rail service beyond Waitakere to Kumeu/Huapai. The Kumeu/Huapai area is identified in the Auckland Plan as a “Greenfields area for investigation”. However, the RPTP shows that Kumeu/Huapai would be served by an extension of the North Western Motorway frequent bus service. In the longer term, planning is underway for a busway along the motorway between Westgate and Lincoln Rd as part of a Rapid Network link between Henderson and the North Shore. Rail is not a realistic option for serving Kumeu/Huapai because the rail distance between Kumeu/Huapai and Britomart is much greater – 41 kilometres compared to approximately 28 by road. The travel time by train would be in the order of 70 minutes, not including the transfer time at Swanson, whereas the bus travel time in the morning peak is 50 – 55 minutes. The bus option also provides good North Shore connections at Westgate in the New Network.

Figure 1 defines the general study area, with SH16 highlighted in yellow and the existing rail service from Waitakere to Britomart in brown.

Figure 1: General study area of Kumeu/Huapai, Waitakere and Swanson plus onwards links to the city

Background

For operational reasons (the presence of a passing loop and locomotive turntable) Waitakere – 4 kilometres beyond Swanson - has been the terminus of suburban passenger trains since at least the 1930s.

Electrification of the line between Swanson and Waitakere has been rejected because Waitakere is beyond the metropolitan limit and there is a small profile tunnel, 250 metres long, on that section of the line which would need to be either enlarged or replaced with a deep cutting.

On weekdays every second Western Line train continues beyond Swanson to Waitakere, giving it a train every 30 minutes in peak periods and every 60 minutes in offpeak periods. On Saturdays the hourly service on the Western Line runs to Waitakere. On Sundays and public holidays the service runs only as far as Henderson. With electrification the RPTP envisages 10 minute peak service from Swanson, with trains every 15 minutes at other times before 7.00 pm, and every 30 minutes in the evenings.

Patronage from Waitakere is low, with an average of 100 boardings per day (65 in the AM peak period) – in 2012 Waitakere was ranked 41 out of 41 stations on the network. Boardings increased 16% between 2003 (the year Britomart opened) and 2012, whereas patronage increased 260% across the network. One of the reasons for this low patronage, apart from the small population in the station catchment, is that some customers already drive to use the P&R facilities at Swanson, given that Swanson has twice the frequency of service. This pattern is expected to be more pronounced in the future given that there will no through train service from Waitakere to stations beyond Swanson under any scenario. In other words, with electrification, any customer driving to the station at Waitakere would travel on the diesel DMU shuttle for just five minutes before having to change to an electric train at Swanson to continue their journey.

Demand analysis

Mr Cagney was commissioned by AT to undertake an assessment of public transport options between Swanson, Waitakere and beyond to Kumeu/Huapai, including travel options from these centres into the city.

The report recommends that current and likely future passenger numbers do not warrant the expense of maintaining a dedicated DMU rail shuttle service between Swanson and Waitakere for the 5 minute trip, and that a bus service should be provided in order to maintain Waitakere's connection with the public transport network. While a minor estimated increase in travel time (5 minutes), a bus service will provide additional benefits of an increased population catchment (intermediate stops) and the ability to stay on the bus service through to Henderson for local journeys rather than transferring from DMU to EMU at Swanson.

Terminating the rail service at Swanson, and providing a bus service from Waitakere to Henderson via Swanson Station, was reflected in the appendices to the Draft 2012 Regional Public Transport Plan. This attracted no comment in any of the submissions.

The demand analysis that has been undertaken has focused on rail corridor between Kumeu/Huapai and Swanson, on the grounds that all options retain bus services in the SH16 corridor in a common manner as this is the most direct service linking Kumeu/Huapai to the city and beyond. There are two distinct potential public transport markets – peak commuter travel and more localised off-peak demand. Both are discussed below.

Future extended bus services provide flexible and relatively low cost public transport linkages between centres in the study corridor. The study identified the benefits of extending the Swanson to Waitakere bus service to Kumeu/Huapai. This link does not exist in the current network, but could be added as a future bus link at relatively low cost if demand is proven to exist.

Peak Travel

In 2012, the average daily boardings recorded at Swanson and Waitakere stations were 250 and 100 respectively. 65 of these boardings at Waitakere are in the AM peak period. The dominance of Swanson is a function of its greater local catchment and higher frequency of services. The analysis of P&R customers indicates that many customers already drive past Waitakere to access the more frequent, direct rail services that operate from Swanson.

All future options for Waitakere, either rail or bus, involve a forced transfer at Swanson.

For Kumeu/Huapai, the introduction of either rail or bus based options for peak travel via Waitakere and Swanson is likely to be negligible for longer distance peak commuting trips, as the direct road route along SH16 to Westgate and beyond offers vastly superior travel times.

Given the rural / semi-rural nature of the catchment, it is concluded that the peak travel market in the local catchment is, and will remain, insignificant.

Off Peak Travel

Quantitative demand forecasting for local travel in the study corridor is difficult with the limited current demand. Assessment of the population catchments along the rail corridor, taken with estimates of potential public transport trip making suggest that all-day public transport trips will be very few in number – from the available catchment data, an estimated 50 or less local trips per day are likely to be made via public transport, regardless of what option is provided.

Options

Four options for travel mode between centres in the study area have been assessed as listed at Table 1.

Option	Waitakere to City	Kumeu/Huapai to Waitakere/Swanson (local travel)	Kumeu/Huapai to City
Base	DMU rail via connection at Swanson to EMU	No service as current	Peak direct bus. Off-peak bus via connection at Westgate
Option 1	Bus - Waitakere to Swanson, then EMU	Bus - Kumeu/Huapai to Swanson via Waitakere	Peak direct bus. Off-peak bus via connection at Westgate
Option 2	DMU rail via connection at Swanson to EMU	DMU rail - Kumeu/Huapai to Swanson via Waitakere	Peak direct bus. Off-peak bus via connection at Westgate / or by rail via connection at Swanson
Option 3	Bus - Waitakere to Swanson, then EMU	No service as current	Peak direct bus. Off-peak bus via connection at Westgate

Table 1: Travel options between centres

Cost implications of the four options are presented at Table 2.

Option	Capital Costs ($m)	Operating Costs ($m p.a.)	Net Present Value over 25 years ($m)
Base	5.9	3.6	46.9
Option 1	0.4	2.8	33.1
Option 2	13.2	5.0	70.7
Option 3	0	2.3	26.1

Table 2: Option costs

Table 3 outlines the different travel times and population catchments that each option affords as benefits of the service.

Option	Population Catchment (walk up)	Travel Time Waitakere to Swanson) - mins	Travel Time (Kumeu/Huapai to Swanson) - mins	Travel Time (Kumeu/Huapai to Henderson) - mins
Private car	-	5	15	15
Base	624	5	19	34
Option 1	1410	7	19	34
Option 2	941	5	17	31
Option 3	903	7	N/A	34

Table 3: Option Benefits

A direct cost increase for AT analysis has been completed by the AT Finance team. Attachment 2 contains a report of that analysis.

The recommendation, on the basis of low demand for public transport services, high relative cost of a DMU shuttle when compared to bus service operations, capital cost savings, broadly equivalent travel times, improved catchment from a bus shuttle and improved flexibility of a bus service, is for a bus service rather than a DMU shuttle. An enhanced bus service linking Kumeu/Huapai to Waitakere should be further considered in the future, which will increase public transport catchment.

Next steps

Following Board endorsement on the appropriate way forward, AT will plan a programme of engagement with the affected community and key stakeholders that will outline the rationale for the preferred solution and provision of bus shuttle services between Swanson and Waitakere connecting to the EMU service from Swanson. The decision to not progress with a diesel service from Swanson will need to be communicated to KiwiRail who are programmed to commence capital work to accommodate the DMU/EMU interchange requirements.

Attachments

Number	Description
1	Swanson-Huapai Public Transport Options Assessment – Final Report, MR Cagney Pty, February 2013
2	Financial Analysis – Kumeu/Huapai – Waitakere to Swanson Public Transport Options

Document ownership

Prepared by	**Mark Lambert** Manager Public Transport Operations	
Recommended by	Greg Edmonds **Chief Operating Officer**	
Approved for Submission	David Warburton **Chief Executive**