



# Capital Connection - Palmerston North to Wellington

Business Case

Greater Wellington Regional Council

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# 1. Executive Summary

## 1.1 Overview

The Capital Connection (CC) is an ‘inter urban’ regional rail service that provides an essential and affordable transport link for people living in rural New Zealand with employment in a major city.

The 125 minute journey is popular with long distance commuters on the basis of its express schedule and high levels of comfort, encompassing spacious seating, toilet facilities, an on-board licenced café, and room to work. The service, currently operated by KiwiRail – Tranz Scenic, runs Monday to Friday as a single morning peak in-bound and evening peak outbound.

KiwiRail have indicated they are negotiating the sale of the TranzScenic operations, but that no potential buyers are interested in taking over the Capital Connection. This will leave the Capital Connection orphaned.

In recent months KiwiRail have stated that the service is no longer commercially viable and it will be stopped if there is no action to support it financially. The annual operating cost of retaining the service is approximately \$530,000 (or approximately \$3.30 per boarding) of which the regional councils are willing to pay their share. It is generally agreed that, if the service is abandoned it will be unlikely to be re-started.

Greater Wellington (GW), under the Metlink brand, operates suburban passenger rail services within the Wellington metropolitan network. This includes long distance ‘inter-urban’ regional rail services to Masterton (the Wairarapa Line service). GW is proposing integrating the CC into their current operation. This will provide an ideal opportunity to re-invigorate the service and grow its patronage. Integration of the service will also enable GW to capture a number of tangible benefits through the realisation of management, operational and maintenance efficiencies.

The evaluated benefit cost ratios range from 1.6 to 3.0 (low to medium), with an assessed profile of ‘high’ strategic fit and ‘medium’ effectiveness.

## 1.2 Benefits and Opportunities

Detailed below are a number of significant opportunities that hold real and tangible value on the basis that GW integrate the CC operation into their existing passenger transport portfolio:

- *Affordable employment linkages along the Palmerston North to Waikanae transport corridor.*
- *Reduction in the demand for car parking at the ‘outer lying’ Metlink stations, namely Waikanae and Paraparaumu.*
- *Decongestion on SH1.*
- *Improved road safety on SH1 north of Waikanae.*
- *Improved and enhanced operational flexibility on ‘inter-urban’ services.*

- *Reduction in crowding and much needed additional capacity on Kapiti Services.*
- *Optimisation of rolling stock maintenance costs and practices.*
- *Increased flexibility for operational planning and realisation of cost savings.*
- *Provides additional carriages for use across regional rolling stock fleet.*
- *Secure regional asset ownership and management optimisation.*

### **1.3 Proposal – The Service Retention Scenario**

Taking the above opportunities into consideration GW in collaboration with Horizons Regional Council and KiwiRail have investigated, developed and evaluated a ‘*Service Retention Scenario*’ that essentially sees the transfer to and operation of the CC by GW for a five year period.

The transfer of CC specific assets, coupled with regional council funding and NZTA operational subsidy can reverse the current financial position of the CC to one that operates from a viable foundation.

There is also an alternative to the ‘*Service Retention Scenario*’, this being the cessation of the operation of the CC service. This scenario would almost certainly render the need for a ‘bus shuttle’ to Waikanae, where passengers could board existing Metlink passenger rail services. This alternative would also see commuters reverting to other modes of road based transport, namely the private car, to either drive to their Wellington destination or Waikanae Station, again for transfer to existing Metlink passenger rail services.

Whilst the above ‘no subsidy’ alternative may appear favourable the assessment and evaluation presented in this report demonstrates that there is an economic justification for providing the necessary subsidy required for the ‘*Service Retention Scenario*’.

The ‘*Service Retention Scenario*’ brings a number of economic benefits which accrue to several classes of users, not just the existing CC passengers. There will be decongestion on the congested section of SH1 south of Waikanae. There will also be less congestion within Waikanae and a reduced demand for all-day parking at the popular ‘park and ride’ facility. Finally, if CC passengers transfer to Metlink passenger rail services, there will actually be more crowding on these busy commuter services and this will be avoided if the service continues to run.

### **1.4 Costs of the Service Retention Scenario**

The cost of the ‘*Service Retention Scenario*’ has been calculated and includes all necessary operating and maintenance costs such as labour and fuel, amounting to about \$2.3m in the year 2012/13 (FY13), rising to \$2.5m in 2016/17 (FY17). In addition some \$1.4m will be required for heavy maintenance during 2013-15 (FY14 to FY15).



## 1.5 Revenue Generation – The Farebox

It has been established that the ratio of revenue (the farebox) to operating costs is in the order of 0.78 to 0.84. It should be acknowledged that for a long distance ‘inter-urban’ passenger rail service a ratio of this range is considered very good by comparable international standards<sup>1</sup>. This also compares favourably to TranzMetro services as a whole, which have a projected farebox recovery in 2012/13 of around 0.51.

Throughout the proposed 5 year period of operation a ‘key results area’ will be the improvement of this ratio.

## 1.6 Subsidy Requirements

The total rail subsidy over the 5-year period for the ‘*Service Retention Scenario*’ is \$3.8m, which includes \$2.4m for service operations and \$1.4m for heavy maintenance provisions.

This assumes a fare increase of 10% in the first year for passengers from north of Waikanae and annual fare increases of 3% per annum thereafter. The required subsidy and funding associated with the ‘*Service Retention Scenario*’ is presented in the tables below.

	FY13	FY14	FY15	FY16	FY17
<b>FAR Rate (%)</b>	<b>59</b>	<b>58</b>	<b>57</b>	<b>56</b>	<b>55</b>
<b>NZTA Share (\$)</b>	311,586	292,074	272,294	250,477	228,380
<b>GW &amp; Horizons Share (\$)</b>	216,526	211,502	205,415	196,804	186,856
<b>Total Subsidy - opex (\$)</b>	<b>528,112</b>	<b>503,576</b>	<b>477,709</b>	<b>447,281</b>	<b>415,236</b>

Table A1: Subsidy and Funding Requirements – Operational Expenditure

	FY13	FY14	FY15	FY16	FY17
<b>FAR Rate (%)</b>	<b>59</b>	<b>58</b>	<b>57</b>	<b>56</b>	<b>55</b>
<b>NZTA Share (\$)</b>		533,600	262,200		
<b>GW &amp; Horizons Share (\$)</b>		386,400	197,800		
<b>Total Subsidy - heavy maint. (\$)</b>		<b>920,000</b>	<b>460,000</b>		

Table A2: Subsidy and Funding Requirements – Heavy Maintenance Provision

<sup>1</sup> Railway Technical Web Pages. *Finance for Railways*. Available from: <http://www.railway-technical.com/finance.shtml>, [Accessed July 2012]

Table A2 presents the subsidy and funding requirements over the proposed 5 year period of operation.

## 1.7 Economic Evaluation

The ‘*Service Retention Scenario*’ has been evaluated in accordance with the NZTA Economic Evaluation Manual. The results of the economic evaluation (the dis-benefits of the discontinuation of the CC compared with the cost savings from not operating the CC), for *three* ‘Passenger Mode Choice Scenarios’ (refer section 8.1) are illustrated below:

	<b>Scenario A</b>	<b>Scenario B</b>	<b>Scenario C</b>
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$3.54	\$3.54	\$3.54
BCR	<b>2.0</b>	<b>2.3</b>	<b>2.6</b>

Table B: Benefit Cost Ratio for Developed Mode Choice Scenarios

In addition to the evaluation above, two sensitivity tests have been undertaken:

- (a) Higher Subsidy Requirement, due to a lower average fare, and
- (b) Cost Savings through Efficiencies and Service Optimisation.

The results of these sensitivity tests for the corresponding passenger mode choice scenarios are illustrated below:

	<b>Scenario A</b>	<b>Scenario B</b>	<b>Scenario C</b>
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$4.29	\$4.29	\$4.29
BCR	<b>1.6</b>	<b>1.9</b>	<b>2.1</b>

Table C: Benefit Cost Ratio for Higher Subsidy

	<b>Scenario A</b>	<b>Scenario B</b>	<b>Scenario C</b>
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$3.00	\$3.00	\$3.00
BCR	<b>2.4</b>	<b>2.7</b>	<b>3.0</b>

Table D: Benefit Cost Ratio acknowledging Efficiencies and Optimisation

The evaluated benefit cost ratios range from 1.6 to 3.0, this correlates to Low – Medium in terms of the NZTA ‘efficiency’ assessment. This demonstrates an economic case for the ‘*Service Retention Scenario*’.

## 1.8 NZTA Profiling

Overall the NZTA profile was found to be:

- High for Strategic Fit;
- Medium rating for effectiveness;
- Low or Medium for Efficiency.

Given the profile established above it is considered worthwhile that the Capital Connection '*Service Retention Scenario*' is pursued.

## **2. Purpose**

The purpose of this Report is to present a Business Case for the retention of the Capital Connection passenger rail service (CC) between Palmerston North and Wellington.

In the last few months KiwiRail - Tranz Scenic have expressed increasing concern about the financial position of the CC service to the point where they can no longer consider its operation. When this happens there are two alternative courses of action. Either the service will cease to operate, in which case it would probably be replaced by a bus shuttle to Waikanae where passengers can board metro rail services; or the service can continue to be operated under the auspices of GW.

If the service is to continue it will require a subsidy and this report shows that there is an economic justification for providing the subsidy when compared to the alternative. The report also explains that there are a number of important operational reasons for integrating CC with the wider GW rail operation and that these are likely to lead to cost savings.

The report begins in chapter 3 by discussing the current situation and then goes on (chapter 4) to describe how CC might operate in the context of operation by GW. Chapter 5 discusses risks, opportunities and synergies in greater detail.

The Capital Connection operates along the economically important SH1 corridor and Chapter 6 discusses the relationship between road and rail traffic and the likely road impact of discontinuing CC. Chapter 7 looks at the economic efficiency in terms of the NZTA Economic Evaluation Manual and chapter 8 relates to the wider NZTA profile. Conclusions are drawn in chapter 9.

## **3. Capital Connection – The Current Situation**

### **3.1 Overview**

The Capital Connection (CC) is an ‘inter-urban’ regional rail service between Palmerston North and Wellington. The service, operated by KiwiRail – Tranz Scenic, runs Monday to Friday as a single morning peak in-bound and evening peak outbound.

Despite the 125 minute journey time, the CC is popular with long distance commuters on the basis of its express schedule and higher levels of comfort, which encompasses spacious seating, toilet facilities, an on-board licenced café, and room to work.

The CC is a commercial service and currently does not receive any operational subsidisation.

### 3.2 Route and Stations

The CC operates on the North Island Main Trunk railway line between Palmerston North (NIMT – 136.23km) and Wellington (NIMT – 0km), serving the following stations:

STATION	Kilometre
Palmerston North	136.23
Shannon	106.63
Levin	90.32
Otaki	70.49
Waikanae	55.43
Paraparaumu	48.26
Wellington	0.00

For station locations north of Waikanae, the CC is the only service that provides commuter access to the rail network.

The responsibility of the station assets north of Waikanae fall entirely to KiwiRail (Tranz Scenic). Greater Wellington is responsible for all the station assets from Waikanae south, (with the exception of all platform structures and the entire Wellington Station complex).

Appendix A provides details of the station assets that are not currently the responsibility of Greater Wellington.

### 3.3 Operational Overview

The CC operates a single in-bound and out-bound service during the morning and evening peak periods respectively, on a Monday to Friday basis (excluding public holidays). The overall transit time between Palmerston North and Wellington is 2:05 hours, with the in-bound service departing at 6:15am and the out-bound service departing at 5:15pm.

The following table provides an overview of the CC service timetable.

Station	In-bound (AM)	Out-bound (PM)
Palmerston North	6:15	7:20
Shannon	6:38	6:57
Levin	6:53	6:42
Otaki	7:13	6:22
Waikanae	7:25	6:10
Paraparaumu	7:32	6:03
Wellington	8:20	5:15

The CC's transit time from Waikanae (Metlink's current commuter service limits) to Wellington is 55 minutes, compared to 56 minutes for a standard Metlink express service.



Fig. 1: Capital Connection Route Map and Transit Times

The CC's scheduled departure time from Waikanae is 7:25am, which falls between two Metlink 'Express' train departures at 7:17am and 7:34am. This schedule provides a significant choice for Wellington bound commuters, and as such adds to the stated popularity of the service from the outer limits of Metlink's Kapiti Line services.

### 3.4 Observed Patronage

The CC attracts around 160,000 passenger annually. Daily patronage levels are currently in the order of 612 (these figures have been extracted from revenue data sourced from KiwiRail – Tranz Scenic).

Approximately 50% of the total boardings occur at Waikanae and Paraparaumu stations (these stations also benefit from regular commuter rail services provided by Metlink).

The following table illustrates current patronage / boarding numbers for the CC (these figures have been calculated from detailed revenue and fare data provided for an 8 month period – July 2011 to February 2012, extrapolated to determine annual figures).

Station	Boarding (Per Trip)	Boarding (Per Day)	Boarding (Per Year)	Regional Split
Palmerston North	61	122	31,863	Horizons 58,818
Shannon	4	8	1,968	
Levin	48	96	24,987	
Otaki	47	95	24,703	Greater Wellington 100,823
Waikanae	79	158	41,068	
Paraparaumu	67	134	35,052	
<b>Totals</b>	<b>306</b>	<b>612</b>	<b>159,641</b>	

Table 1: Capital Connection Boarding and Patronage Data (FY12)

The current levels of service usage has remained consistent for a period in excess of 4 years.

### 3.5 Revenue

The CC current fare structure provides for both full (Adult) and concessionary (Child, Students and Gold Card) price tickets.

A variety of ticketing options are available on the CC, including:

- Single Trip;
- Ten Trip;
- Monthly; and
- Quarterly.

The general fare structure correlates to distance travelled, with the average adult fare / kilometre (based on the cost of an adult monthly ticket) ranging from 11c / km to 14c / km travelling from Palmerston North and Paraparaumu to Wellington respectively.

For FY12 the annual fare revenue generated by the CC was in the order \$1.7m (based on information provided by KiwiRail – Tranz Scenic).

Detailed fare and ticketing options for the CC are presented in Appendix C.

In addition to the revenue generated through fares, the CC also has revenue streams from on-board catering;

### 3.6 Rolling Stock

The CC is operated by an eight carriage locomotive hauled train. The KiwiRail ‘S-class’ carriages are air conditioned and offer a high degree of comfort for long distance commuters.

The CC has a seating capacity in the order of 448 passengers. The ‘S-class’ carriages have a seating capacity of 60, with one of the carriages (S3200) incorporating a food servery and wheelchair docking points and consequently seats only 28 passengers. An operational requirement, relating to S3200, is that it must run coupled to the CC’s specifically assigned generator car – AG130.

The ‘S-class’ carriages cannot run ‘inter-mixed’ with other classes of passenger car.



Fig. 2: Capital Connection ‘S-class’ Carriage (S3177)

The class was originally created during 1998 at Hutt Workshops when they were rebuilt from ex – British Rail Mk 2D and Mk 2E carriages (built by the Derby Carriage & Wagon Works between 1971 and 1974) imported second hand from the United Kingdom.

Appendix B provides details of the rolling stock assets that are not currently the responsibility of Greater Wellington.

### 3.7 Rolling Stock Maintenance

The maintenance of the ‘S-class’ carriages, generator car and locomotives is currently undertaken at the Wellington (Thorndon) Locomotive and Carriage Depot (located in the vicinity of the ‘down sidings’).





Fig. 3: Thorndon Locomotive and Carriage Depot

The carriage section of the facility is mainly utilised for the maintenance of GW’s SW and SE carriage trains (25 carriages). The only non GW carriage stock that is maintained in the facility (other than the CC stock) is KiwiRail’s “Northern Explorer” fleet (5-6 carriages) which runs in one direction per day over six days a week between Auckland and Wellington.

## 4. Capital Connection – Service Retention Scenario

### 4.1 Overview

The Capital Connection is considered to be a ‘long distance’ commuter rail service that is supplementary to the existing metropolitan passenger rail network within the Greater Wellington region. As such a scenario has been developed that would see the retention of the service through the execution of a 5 year - medium term ‘package transfer’ to Greater Wellington (in partnership with Horizons Regional Council).

From an economic perspective this scenario, being one of service retention, is considered to be the ‘option case’ which will be tested against a ‘Do Minimum’.

The main scenario assumptions, developed in collaboration with NZTA, KiwiRail and Horizons Regional Council, are listed below:

- GW agrees to deliver the existing service for 5 years;

- NZTA agree to fund a proportion of the operational costs, associated with the service for 5 years, at the appropriate financial assistance rate (FAR);
- Horizons agree to provide a share of the funding for 5 years;
- Horizons and GW agree a process to deal with any material change in circumstances within the 5 year period;
- GW sets the fares each year (including a 10% increase in 2012 for services north of Waikanae);
- GW can integrate the service with TranzMetro operations to achieve possible efficiencies;
- KiwiRail transfers Otaki station, the carriages, depot and carriage wash to GW for \$1;
- KiwiRail agrees to a five year track access and renewals deal at current levels;
- KiwiRail and GW agree that operational expenditure (excluding rolling stock maintenance) is incorporated into the existing suburban rail services contract. KiwiRail remove internal margins but otherwise provide existing direct services on the current basis;
- KiwiRail and GW agree a contract for rolling stock maintenance expenditure for the 5 years.

In addition, there are a number of other peripheral benefits, both tangible and intangible, that can be realised by Greater Wellington through the retention of the CC. These are discussed below and further in section 6.

#### **4.2 Route and Stations**

For the CC service retention scenario, the route and station configuration would remain as is current today.

Station asset ownership, with the exception of Otaki station which is within the GW region, would remain with KiwiRail who, through a 5 year track access agreement, will maintain the facilities to an acceptable and safe condition.

#### **4.3 Operational Overview**

The proposed general operational arrangement will reflect today's timetable ie. a single in-bound and out-bound service during the morning and evening peak periods respectively, on a Monday to Friday basis (excluding public holidays). It is also proposed that GW will integrate the service into the current Tranz Metro passenger operations. This approach will provide for operational, management and administrative cost savings.

A specific feature of the integration will be the ability for the CC rolling stock to be used to supplement the existing Wairarapa Line services. This will allow

for the optimisation of the carriage train fleet in terms of both service kilometres and maintenance interventions (i.e. a further train to deliver the existing Wairarapa Services). It is acknowledged at this stage that minor amendments to the peak period timetable will be necessary to facilitate this opportunity.

#### 4.4 Patronage Forecasts

A high level ‘patronage forecast’ exercise has been undertaken as part of the development of the service retention scenario. Table 4.2 below presents the forecast annual levels of patronage.

Year	Boarding (Per Day)	Boarding (Annual)
FY12 (Today)	612	159,641
FY13	613	159,793
FY14	622	162,286
FY15	632	164,882
FY16	642	167,388
FY17	652	170,000
Growth pa. <sup>2</sup> (%)		1.3

Table 4.1: Patronage Forecasts

Overall it has been assumed that patronage levels will increase annually by 1.3% . The positive increase in patronage growth offsets an initial decrease in patronage as a direct effect of proposed fare increase for boardings north of Waikanae.

#### 4.5 Revenue

A detailed assessment of projected revenue, from the ‘farebox’, has been undertaken as part of the development of the ‘service retention scenario’. The revenue assessment has taken into consideration forecast patronage and fare increases (and the corresponding effect on patronage growth).

Annual revenue totals have been calculated on the basis of an ‘average fare per trip’ x ‘forecast annual patronage’. The results of the revenue assessment are presented below.

It has been established that the ratio of revenue (the farebox) to operating costs is in the order of 0.78 to 0.84. It should be acknowledged that for a long distance ‘inter-urban’ passenger rail service a ratio of this range is considered very good by comparable international standards. This compares favourably to the TranzMetro services as a whole, which have a projected farebox recovery in 2013 of around 0.51

Throughout the proposed 5 year period of operation a 'key results area' will be the continual improvement of this ratio. Given that patronage growth, whilst being positive, is forecasted as being 'low', then this will be achieved through efficient management of the operation of the CC.

#### **4.6 Rolling Stock**

For the CC service retention scenario, the ownership of the rolling stock (S-class carriages and AG generator car) will be transferred to Greater Wellington.

Under this scenario it is considered that the operation and maintenance has the potential to be optimised, as it would be part of a wider locomotive hauled carriage train fleet (the SW-Class and SE-Class).

From a locomotive perspective, the scenario would retain the current 'Hook and Tow' agreement that exists for all Greater Wellington carriage trains.

With boardings per service in the order of 306 and an available seated capacity of 448 for the CC operating as an eight carriage locomotive hauled train there is the potential for consist re-configuration.

One of the early opportunities for the recognition of efficiencies, which will be investigated as part of the retention scenario, is the operation of a shorter train with the overall objective view of matching more closely capacity and patronage.

Consequently the shortening of the train consist by 1 'S-class' carriage will still provide an available seated capacity of 388 passengers, which is within the upper bounds of the forecasted patronage (this has been estimated as being in the order of 326 passengers at the end of the 5 year period – this equates to only 85% of the total seated capacity). It is envisaged that this action will result in the realisation of both train maintenance and operational cost savings.

#### **4.7 Maintenance - Rolling Stock and Infrastructure**

Maintenance of the CC will also be integrated into the existing carriage train fleet maintenance contract. Similar to the proposed service operations integration this approach will provide for efficiency and further cost saving opportunities.

It has been estimated that the CC forecast train maintenance costs (FY13), on a *per km* basis, is in the order of \$5.37. This compares to a train maintenance cost for the SW-Class (Wairarapa Line Services), on a *per km* basis, in the order of \$2.45. As such it is anticipated that closing the *per km* maintenance cost gap, will be realised through maintenance integration and optimisation.

During the 5 year period there will be a requirement to undertake 'heavy maintenance' activities. These include:

- Works to the AG130 Generator Car;
- Maintenance and overhaul of Bogie sets;

- Maintenance of ‘Brake Rigging’ under the S-class carriages.

The costs associated with undertaking the ‘heavy maintenance interventions’ above, have been captured within the economic analysis.

Infrastructure maintenance (incorporating track, signalling, structures and stations), will remain the responsibility of KiwiRail and the costs associated with this work will be recovered through the agreement of a five year track access and renewals transaction at current levels.

## 5. Opportunities and Synergies

The implementation of the ‘service retention scenario’ provides for opportunity and synergies with the existing Greater Wellington rail based passenger transport offering.

Detailed below are a number of significant opportunities and synergies that hold real and tangible value, should a decision to proceed with the ‘service retention scenario’ be forthcoming.

- ***Affordable employment linkages*** - Commuters from Palmerston North, Shannon, Levin, and Otaki will continue to have a daily passenger rail service to Wellington. This provides an affordable critical link for people in rural NZ with employment in a major city.
- ***Reduction in the demand for car parking*** - The already high demand for car parking at Waikanae will not be exacerbated.
- ***Decongestion on SH1*** - Retention of the CC will eliminate at least 160 transfer to road (north of Waikanae), the majority of which are likely to travel to Waikanae and transfer to metro rail services. This transfer will give effect to a high degree of localised congestion on SH1 around Waikanae and specifically Elizabeth Street level crossing. This is already being observed as a greater number of people are travelling by rail from Waikanae.
- ***Improved road safety (SH1)*** - Related to the decongestion is improved road safety, less cars and less localised congestion will in turn render a safer State Highway on the Kapiti Coast.
- ***Improved / enhanced operational flexibility on ‘inter-urban’ services*** - Retention and subsequent transfer of the carriages to GW, will provide additional operational flexibility and capacity on the longer ‘Inter-Urban’ routes i.e. the Capital Connection carriages can operate on the Wairarapa Line and Wairarapa trains could operate on the Capital Connection route if required.
- ***Reduction in crowding / allows for additional capacity on Kapiti services*** - Currently over 300 passengers utilise the CC service during

the morning and evening peak periods. If curtailed it is expected that a substantial proportion of the users will transfer to the existing electrified metro rail services (typically at Waikanae and Paraparaumu). This 'redistribution and transfer' of passengers will have the effect of service crowding earlier in the journey to Wellington than is currently observed. This in turn will create a disbenefit to existing users and may in fact deter new users.

- ***Optimisation of rolling stock maintenance costs and practices*** - Currently GW utilises KiwiRail's Carriage Depot at Wellington, for maintenance of the SW and SE carriages (under a maintenance contract). With retention of the CC and transfer of the 'S-Class' rolling stock to GW it makes sound business sense for the carriage depot to be transferred to GW (similar to the Thorndon Depot). This would enable the optimisation of existing carriage maintenance, whilst reducing the burden of administration of maintenance contracts. With the service withdrawn the cost of maintenance of GW carriage stock is likely to increase given the 'fixed costs' associated with the carriage depot.
- ***Increased flexibility for operational planning and cost savings*** - Retention and transfer of the service to GW will provide a situation where a single metro operator, under one contract, will be responsible for all Suburban and Inter-Urban rail services within the Greater Wellington and immediate surrounding region (Horizons). This will enable greater agility in relation to future operational planning (timetables and bus integration), and savings in relation to 'fixed management costs'.
- ***Additional rolling stock*** - The retention of the CC and subsequent transfer of the service to GW will enable the continued use of an asset (the carriages and locomotives) that still has a real tangible value in the local rail market
- ***Asset ownership and management optimisation*** - The proposal will complete an outstanding part of the 2011 asset transfer agreement by securing access to the carriage depot. The Capital Connection is part of KiwiRail's scenic business which is up for sale. Although there has been no interest from potential purchasers in the Capital Connection part of the scenic business the sale of other parts could restrict access to publically funded facilities if not secured in long term public ownership.

## **6. The Parallel State Highway**

### **6.1 Roads of National Significance**

A large part of the route of the Capital Connection follows the line of one of the Government's Roads of National Significance (RoNS), the Levin to Wellington corridor. According to the Ministry of Transport website:

*“The roads [of national significance] are amongst the country’s most urgent priorities within or close to our five largest population centres. All support large traffic volumes, and all need work to reduce congestion, improve safety and support economic growth.”*

This would indicate that the traffic on the Levin to Wellington corridor has particular importance to the national economy and that any reduction in congestion is desirable. However, because of their scale, the relevant RoNS will not be in place for a number of years and certainly not until after the 5-year period of this proposal. On the other hand, the continuation of the Capital Connection provides the opportunity to have a small impact on the congestion in the corridor.

## 6.2 Congestion South of Waikanae

The fact that the RoNS corridor extends to Levin indicates that there is at least some congestion north of, and within, the settlement of Waikanae. However congestion south of Waikanae is particularly serious, as illustrated in the Table below.

The Table shows the 2011 results of the travel time surveys which are undertaken regularly on the State Highway (SH) network in NZ’s major cities. The results relate to southbound travel on SH1 between Waikanae station and the Terrace Tunnel offramp in central Wellington. The data is for both the AM peak and interpeak and shows the average, maximum and minimum travel times in minutes.

<b>SH1 from Waikanae Railway Station southbound to Terrace Tunnel offramp</b>			
	<b>Observed Ave</b>	<b>Observed Min</b>	<b>Observed Max</b>
AM, minutes	63.7	42.1	97.9
AM, relative to average		66%	154%
IP, minutes	43.8	40.8	48.8
IP, relative to average		93%	111%

The following points can be seen:

- On average, peak travel takes almost 50% longer than interpeak
- Interpeak travel times are all within +/- 11% of the average
- The peak variability is large, with the observed maximum being over 50% more than the average.

This clearly indicates the serious nature of the congestion on the corridor. This has been captured in the economic evaluation (Section 7).

### **6.3 Parking and Congestion in Waikanae**

The limited road capacity in Waikanae is used by both through traffic on SH1 and local traffic accessing shops, schools and the railway station. This is a classic conflict between through and local traffic which exacerbated by the unusual layout of Waikanae, and in particular the railway crossing in Elizabeth St, just a few metres from its junction with SH1, and the linked signals at Elizabeth Street and Te Moana Road.

A significant contributor to the current congestion is rail “park and ride” users who are looking for a parking space. There is insufficient “official” station parking and it is understood that there have been issues of commuter parking in the Waikanae shopping centre, along the state highway and in nearby residential streets.

Both sides of SH1 are clearly used for parking which will cause congestion and has accident potential as cars manoeuvre and turn and pedestrians cross the road. Around Waikanae centre, parking which has no time restriction is full by 8am and this is unlikely to be due to local activity. The fact that these spaces are not available for use in connection with local business will impact on the local economy.

In an attempt to address this, the District Council, acting with GW, have added around 60 marked car spaces on Pehi Kupa and Utauta Streets but there is a limit on how much more commuter car parking can be put on residential streets.

Overall, then, the current situation is one in which parking by rail users is a significant traffic issue which makes congestion even worse and delays SH users. If the Capital Connection is replaced by a bus shuttle to Waikanae then it is likely that about half the existing users would drive to Waikanae (or further south). This amounts to about 80 people which equates to around 50 to 70 extra cars looking for spaces. This raises two issues.

Firstly, space needs to be found for these people to park, which is by no means certain to happen given that future car parking needs to be convenient and off street. Even if space can be found for off-street parking it is likely to come at a significant capital cost; in the absence of any surface site this could entail adding a multi-storey structure at an existing site.

Secondly, the extra cars will add to the already high level of congestion. As discussed above, the timing of the RoNS is such that it will be a number of years before through and local traffic can be separated in Waikanae so more rail users means more congestion for all road users in and near SH1. If some local capacity improvements were possible, for example at the Elizabeth St junction, these would come at a cost.

If a shuttle bus service was introduced to replace the Capital Connection that would mean three buses would be added to the morning peak traffic. In addition space would have to be found and reserved for the buses to park while passengers alight to board the train.



## **7. Economic Efficiency**

### **7.1 Costs**

The cost of continuing operation of CC has been calculated by GW and includes all necessary operating and maintenance costs such as labour and fuel, amounting to about \$2.3m in the year 2012/13, rising to \$2.5m in 2016/17. In addition some \$1.4m will be required for heavy maintenance during 2013-15.

The total rail subsidy over the 5-year period to retain the CC is around \$3.8m, which includes \$2.4m for service operations and \$1.4m for heavy maintenance provisions. This assumes a fare increase of 10% for passengers from north of Waikanae in the first year and annual fare increases of 3% per annum thereafter.

Initial work by Horizons RC indicates that if half of existing rail passengers transferred to the shuttle bus to Waikanae then it could be operated without a subsidy. For this reason no costs have been assumed for the bus replacement.

### **7.2 Economic Methodology**

In economic terms the bus shuttle is the Do Minimum (DM), since it would happen if there were no intervention, and retaining CC is the option case. Since the CC is the status quo, this report generally refers to the disbenefits of the Do Minimum (ie. of discontinuing CC), which are compared with the cost saving from not operating CC.

The analysis has made reasonable assumptions about what would happen in the DM in terms of passengers shifting from CC to different modes, including the shuttle and car-based options. Three different scenarios, which are described below, were assessed.

The evaluation used the standard EEM (Economic Evaluation Manual) discount rate of 8% and a number of unit benefit values taken from EEM. These came largely from SP10<sup>3</sup>, which is designed for use in evaluating improvements to existing PT services.

The period of the evaluation was taken as five years from July 1 2012. For discounting purposes year 0 was taken as 2012/13.

### **7.3 Benefit Calculation**

#### **7.3.1 Passenger Behaviour**

To assess the likely impact of the Capital Connection being discontinued, the passenger market has been separated into two sectors:

- (a) Those travelling from north of Waikanae (e.g. Levin), numbering approximately 160 per peak

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<sup>3</sup> Simplified Procedure (SP10) Existing Passenger Transport Services (EEM Vol.2)

- (b) Those travelling from Waikanae or Paraparaumu, around 150 per peak.

In the absence of CC, passengers in group (a) have three choices:

- (i) Use the shuttle bus to connect with a metro train at Waikanae
- (ii) Drive to Wellington
- (iii) Drive to Waikanae or Paraparaumu and then connect with a metro train.

In the absence of CC, passengers in group (b) have two choices for travelling from Waikanae or Paraparaumu:

- (i) Use the Metro rail service
- (ii) Drive to Wellington.

Each of the five different groups listed above will receive different disbenefits and some (e.g. those involving car) will also cause disbenefits to others (e.g. the other cars on SH1).

### 7.3.2 Wider Impacts in the Waikanae to Wellington Corridor

There will clearly be impacts of the DM for existing CC users; transferring to any other mode involving car must result in a loss of benefits since otherwise the user would already use that mode.

When CC users switch to car south of Waikanae, there will be increased congestion on SH1 between there and Wellington.

When CC users switch to metro rail there will be increased crowding on some metro trains, although this may not happen until further south, e.g. at Plimmerton.

### 7.3.3 Quantification of Disbenefits

In order to undertake the business case it was necessary to assess the loss of benefits resulting from CC passengers having to switch to other modes and this section explains how this was done.

Firstly, SP10 in EEM was used to get unit values of both PT user benefits and decongestion for road users for the trip between Waikanae and Wellington. These values were used for passengers in groups a(ii) and b(ii) above, i.e. those who drive to Wellington.

As with the business case for electrification to Waikanae, the Wellington rail values in SP10 were doubled to reflect the greatly increased length of the trip compared to the rail average which is assumed in EEM.

Because the CC travels non-stop from Paraparaumu the travel time is less than the same trip on metro rail. Passengers who transfer to metro will also have a

negative perception of the additional stops. This has been represented as an extra 5 minutes' travel time for CC users who switch to metro rail, i.e. those in groups a(i), a(iii) and b(i). This was evaluated at the appropriate value of time from EEM.

Passengers in groups a(ii) and a(iii) will incur the disbenefit of driving to Waikanae rather than using rail. SP10 does not provide a specific value for this case so the value which has been taken is the same as for a switch from PT to car in the off-peak, i.e. in uncongested conditions, in the Wellington region. This was then doubled to reflect the extra distance involved.

To represent the extra crowding on metro services due to extra passengers who have transferred from CC, the analysis assumed a 40% uplift on the passenger value of time. This is consistent with EEM for standing passengers compared to seated ones. An average standing time of 30 minutes was assumed since crowding may not occur until stations south of Paraparaumu.

The overall approach which has been used is summarised in Appendix E.

#### 7.3.4 Other Factors

The following factors will lead to disbenefits in the Do Minimum but they have not been quantified:

- Increased congestion in Waikanae
- Extra parking requirements at Waikanae
- Loss of benefits for those who switch from train to bus for trips from north of Waikanae.

#### 7.4 Sensitivity Tests

Two sensitivity tests relating to costs have been carried out:

- A Higher subsidy requirement based on alternative calculated lower average fare
- Cost savings from operation and maintenance of the Capital Connection as part of a larger fleet including the Wairarapa trains.

## 8. NZTA Profile

### 8.1 Efficiency

Three scenarios were examined assuming a range of responses in terms of passengers' mode choice in the absence of CC and these are summarised in Table 8.1 below.

Origin	Mode	Passengers per peak		
		Scenario A	Scenario B	Scenario C
a) North of Waikanae	(i) Shuttle bus then Metro	90	100	80
	(ii) Drive to Wellington	5	10	10
	(iii) Drive to Waikanae /Paraparaumu then Metro	65	50	70
b) Waikanae & Paraparaumu	(i) Metro rail	145	140	140
	(ii) Drive to Wellington	5	10	10

Table 8.1: Mode Choice Scenarios

All the scenarios assumed that relatively few people will switch to driving through to Wellington and that around 50 – 60% of those from north of Waikanae would switch to the shuttle bus. This is consistent with experience elsewhere.

The resulting BCRs are shown in Table 8.2 below.

	Scenario A	Scenario B	Scenario C
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$3.54	\$3.54	\$3.54
BCR	<b>2.0</b>	<b>2.3</b>	<b>2.6</b>

Table 8.2: Benefit Cost Ratio for Developed Mode Choice Scenarios

It can be seen that the BCR is in range 2.0 to 2.6, meaning that there is a sound economic case. The range of BCRs would give medium in terms of the NZTA assessment of economic efficiency.

### 8.2 Sensitivity Tests

The first sensitivity test that has been carried out is based on an alternative calculated lower average fare, eg. as a result of fewer long distance trips due to fare increases. This results in a higher total subsidy requirement of \$4.9m over

the five year period, which includes \$3.5m for service operations and \$1.4m for heavy maintenance provisions.

As can be seen in Table 8.3, the resulting BCRs are 1.6 to 2.1 or low to medium in the NZTA assessment.

	<b>Scenario A</b>	<b>Scenario B</b>	<b>Scenario C</b>
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$4.29	\$4.29	\$4.29
BCR	<b>1.6</b>	<b>1.9</b>	<b>2.1</b>

Table 8.3: Benefit Cost Ratio for Higher Subsidy

The second sensitivity test takes account of the cost savings which could be achieved from maintaining and operating the Capital Connection jointly with the Wairarapa service, which is of a similar nature and uses similar rolling stock.

Two sources of cost savings were identified:

- (a) Maintenance: the current per km cost for the Wairarapa service is around half that of the Capital Connection so it has been assumed that the latter could be brought down, saving around \$125k pa.
- (b) Staffing: it has been assumed that 50% of current staff costs, amounting to \$175k pa, could be saved from efficiencies and removing overlap with Metlink staff.

Table 8.4 shows the outcome of the cost savings and the BCR is medium, in the range 2.4 to 3.0.

	<b>Scenario A</b>	<b>Scenario B</b>	<b>Scenario C</b>
PV Benefits, \$m	\$7.07	\$8.07	\$9.03
PV Costs, \$m	\$3.00	\$3.00	\$3.00
BCR	<b>2.4</b>	<b>2.7</b>	<b>3.0</b>

Table 8.4: Benefit Cost Ratio including Cost Savings

### 8.3 Strategic Fit

The NZTA Planning, Programming and Funding Manual (PPFM) sets out in section G9.5 “the specific criteria and considerations for rating the strategic fit of a component of a passenger transport programme”.

The strategic fit rating is a measure of how the problem, issue or opportunity that is addressed by the component aligns with NZTA’s strategic investment direction. PPFM stresses that the strategic fit must be *assessed without considering the proposed activity*.

PPFM states that the strategic fit rating should be “High” if there is potential for significant improvement in one or more of:

- Peak time PT patronage in major urban areas with severe congestion
- Optimising PT services and infrastructure
- Fare box recovery rates.

We believe that such a potential exists for at least the first of these. The Wellington Western Corridor is one of the most congested in the capital which has both a major road (SH1) and rail service ( the Kapiti Line) running through it. While there are plans for major expansion of the roads in the corridor (through the RoNS), none of those north of the station is expected to be in place within the five-year term of this evaluation. Clearly then there is potential (in the short-term at least) for improving rail patronage along this congested corridor and this could be achieved by improving the existing rail service.

The rating of “High” therefore seems appropriate.

## **8.4 Effectiveness**

Effectiveness measures a particular scheme’s ability to meet the potential identified in the strategic fit assessment. This is measured in terms of a number of criteria, set out in G1.5 of PPFM, and these are discussed below.

### **8.4.1 Minimum Considerations**

Firstly, the scheme delivers in terms of the purpose of the LTMA, i.e. an affordable, integrated, sustainable, safe and responsive land transport system. The CC is affordable in that it has a higher rate of farebox recovery than the metro rail network. It provides integration between PT modes, providing congestion free access to Wellington for users who connect to rail by bus and car. Rail transport is sustainable in that it consumes fewer resources per passenger-km than car. It is also safer than car, with negligible accidents per passenger-km. Rail services are responsive in that supply can be adjusted to meet demand relatively quickly, for example by changing headways or train lengths.

Secondly, the scheme meets the objectives of the NZTS as shown in Table 8.3 below.

NZTS Objective	Comment
Economic development	<p>Allows people without cars to be economically active</p> <p>Increases the number of people who can work in congested areas such as Wellington CBD</p> <p>Avoids congestion</p>
Safety and personal security	<p>Has a lower accident rate per passenger-km</p> <p>Features such as CCTV improve personal security on trains and at stations</p>
Access and mobility	<p>Provides access and mobility for those who do not have cars or who prefer not to use them in certain circumstances</p> <p>Provides a back-up for when a car is unavailable</p>
Public health	Reduces pollution in urban areas
Environmental sustainability	<p>Reduces GHG emissions</p> <p>Reduces consumption of non-renewable energy sources</p>

Table 8.3:

The effectiveness rating requires GWRC to show that it has considered:

- All relevant problems, issues and opportunities
- All appropriate alternatives and options
- Any adverse effects or impacts.

The fact that the existing CC service has a continuing strong customer base indicates that it is meeting a need. It is highly unlikely that any form of alternative (such as bus shuttles) would meet the needs of the market in the same way.

The scheme is affordable in that it only requires a small increase in the funding for passenger rail in Wellington.

The scale of the proposals is appropriate to the high potential identified in the strategic fit assessment: the proposals address congestion in the SH1 corridor. While the number of passengers is relatively small, with the current high degree of congestion the impact of even a small number of additional cars will be high due to the nature of the flow-delay curve.

The proposals are part of an accepted strategy in that they are consistent with both the RLTS and the Passenger Transport Plan.

#### 8.4.2 Requirements for Medium Rating

The proposals will be significantly effective in achieving the potential identified in the strategic fit assessment: as discussed above, the proposals address congestion in the Wellington Western corridor.

The proposals represent a long term solution with enduring benefits: continuing investment in, and optimisation of, the rail network ensures that the network can continue to match longer term changes in demand that are caused by changes in demographic and other factors.

Improves integration within and between modes: this was discussed under the first item in “Minimum Considerations”.

Is an optimised transport solution: the optimisation of PT services and infrastructure is defined in G1.4 of PPFM. This refers to aspects such as rational analysis of demand forecasts and making better use of existing services and infrastructure.

The continuation of CC would make use of the existing infrastructure and rolling stock.

Overall a medium rating is appropriate for effectiveness.

#### 8.5 Summary

Overall the NZTA profile is:

High for Strategic Fit  
Medium rating for effectiveness  
Low or Medium for Efficiency.



## 9. Conclusions

This Report presents a Business Case for the retention of the Capital Connection (CC) passenger rail service between Palmerston North and Wellington. KiwiRail - Tranz Scenic, who currently operate the service, believes that the service is losing money so it must either cease in its present form or be subsidised.

The case presented here shows that providing a subsidy to continue the CC, with operation under the auspices of GW, can be economically justified. The alternative (Do Minimum) is for the service to cease to operate, in which case it would probably be replaced by a bus shuttle to Waikanae where passengers can board metro rail services.

Continuing the service brings a number of economic benefits which accrue to several classes of users, not just the existing CC passengers. There will be decongestion on the congested section of SH1 south of Waikanae. There will also be less congestion within Waikanae and a reduced demand for all-day parking there. Finally, if CC passengers transfer to metro rail there will be more crowding and this will be avoided if the service continues to run.





The report also explains that there are a number of important operational reasons for integrating CC with the wider GW rail operation and that these are likely to lead to cost savings. If these are taken into account the economic case is improved.

Overall the NZTA profile was found to be:

- High for Strategic Fit
- Medium rating for effectiveness
- Low or Medium for Efficiency.

# Appendix A – Inventory (Station Assets)

Capital Connection - Station Assets Owned by KiwiRail

Station Name	Kms	Line	Station Type	Platform		Key Features						Comments	Location Map
				Configuration	Length	Parking Spaces	PT Modal Integration	Waiting Shelter	Cycle Storage	CCTV	PIDS		
Otaki	70.49	NIMT / PNL	Park & Ride	Single	8 Car	40	✓	✓	✓	✗	✗	Bus services integration with Capital Connection	
Levin	90.32	NIMT / PNL	Park & Ride	Single	8 Car	30	✗	✓	✗	✗	✗		
Shannon	106.63	NIMT / PNL	Minor	Single	8 Car	50	✗	✓	✗	✗	✗		
Palmerston North	136.23	NIMT / PNL	Park & Ride	Multiple x 3	8 Car	80	✗	✓	✗	✗	✗		

## Appendix B – Inventory (Rolling Stock)

### Capital Connection Rolling Stock - Owned by KiwiRail

Vehicle Description	Vehicle Type	Vehicle No.	Owner	Date Entered Service	Line of Services	Remark
S Standard Car	Passenger carriage	S3170	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Standard Car	Passenger carriage	S3177	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Standard Car	Passenger carriage	S3184	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Standard Car	Passenger carriage	S3190	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Servery Car	Passenger carriage	S3200	KiwiRail	1998	NIMT	Seat Capacity 28 (includes wheelchair docking points). Must be coupled to AG130.
S Standard Car	Passenger carriage	S3207	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Standard Car	Passenger carriage	S3211	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Standard Car	Passenger carriage	S3245	KiwiRail	1998	NIMT	Seat Capacity 60 pax.
S Generator Car	Passenger carriage	AG130	KiwiRail	1998	NIMT	Used in combination with S3200 (Servery Car)
Locomotive	Diesel Locomotive		KiwiRail	NA	For hauling S-class Carriages	

#### S - Class Carriage



#### Generator Car AG - Class







## Appendix C – Fares and Ticketing

### Fares

Effective 1 November 2011

ADULT SINGLE FARES							
Palmerston North	26.00	15.50	14.00	11.50	9.50	7.00	
Shannon	21.50	11.50	10.50	8.00	5.00		5.00
Levin	19.00	8.00	7.00	5.00		3.50	6.50
Otaki	16.50	6.00	5.00		3.50	5.50	8.00
Waikanae	14.00	4.00		3.50	5.00	7.50	10.00
Paraparaumu	12.50		3.00	4.00	5.50	8.00	11.00
Wellington		9.00	10.00	11.50	13.50	15.00	18.00
	Wellington	Paraparaumu	Waikanae	Otaki	Levin	Shannon	Palmerston North

**CONCESSION SINGLE**

ADULT TEN TRIP							
Palmerston North	208.00	124.00	112.00	92.00	76.00	56.00	
Shannon	172.00	92.00	84.00	64.00	40.00		40.00
Levin	152.00	64.00	56.00	40.00		28.00	52.00
Otaki	132.00	48.00	40.00		28.00	44.00	64.00
Waikanae	112.00	32.00		28.00	40.00	60.00	80.00
Paraparaumu	100.00		24.00	32.00	44.00	64.00	88.00
Wellington		72.00	80.00	92.00	108.00	120.00	144.00
	Wellington	Paraparaumu	Waikanae	Otaki	Levin	Shannon	Palmerston North

**CONCESSION TEN TRIP**

### Concession Fares

Applies to children aged 5–15 years inclusive, **fulltime** Secondary and Tertiary students in uniform or with a current school ID and SuperGold Card holders. A valid ID card must be presented with the ticket to the Train Manager at time of travel to receive the Concession fare, if not presented you will be required to pay an adult fare.

### Child Policy

The child age is up to 15 years inclusive and children aged 0–4 years inclusive travel free if sitting on an adult's knee, one child per adult. Children 13 years and under must be accompanied by an adult.

### Fares

Effective 1 November 2011

ADULT MONTHLY							
Palmerston North	624.00	372.00	336.00	276.00	228.00	168.00	
Shannon	516.00	276.00	252.00	192.00	120.00		120.00
Levin	456.00	192.00	168.00	120.00		84.00	156.00
Otaki	396.00	144.00	120.00		84.00	132.00	192.00
Waikanae	324.00	96.00		84.00	120.00	180.00	240.00
Paraparaumu	283.00		72.00	96.00	132.00	192.00	264.00
Wellington		216.00	240.00	276.00	324.00	360.00	432.00
	Wellington	Paraparaumu	Waikanae	Otaki	Levin	Shannon	Palmerston North

**CONCESSION MONTHLY**

Effective 16 January 2012

ADULT QUARTERLY							
Palmerston North	1,810.00	1,079.00	974.00	800.00	661.00	487.00	
Shannon	1,496.00	800.00	731.00	557.00	348.00		348.00
Levin	1,322.00	557.00	487.00	348.00		244.00	452.00
Otaki	1,148.00	418.00	348.00		244.00	383.00	557.00
Waikanae	940.00	278.00		244.00	348.00	522.00	696.00
Paraparaumu	821.00		209.00	278.00	383.00	557.00	766.00
Wellington		626.00	696.00	800.00	940.00	1,044.00	1,253.00
	Wellington	Paraparaumu	Waikanae	Otaki	Levin	Shannon	Palmerston North

**CONCESSION QUARTERLY**

### Tickets and Passes

Capital Connection tickets and passes are only valid for travel on Capital Connection services from 9 January 2012.



## Appendix D – Costings and Data

### Capital Connection - Service Retention Scenario

### Forecast 2012-2017 Income Statement

	GW 2012/13 Forecast	GW 2013/14 Forecast	GW 2014/15 Forecast	GW 2015/16 Forecast	GW 2016/17 Forecast
<b>Revenue</b>					
Passenger numbers	159,793	162,286	164,882	167,388	170,000
Average fare	<b>11.56</b>	<b>11.91</b>	<b>12.26</b>	<b>12.63</b>	<b>13.01</b>
Fare revenue	1,847,023	1,932,112	2,021,916	2,114,229	2,211,627
Grant required (Calculated)	<b>528,113</b>	<b>503,576</b>	<b>477,710</b>	<b>447,281</b>	<b>415,237</b>
Catering revenue	90,220	92,385	94,694	96,872	99,197
<b>Total Revenue</b>	<b>2,465,355</b>	<b>2,528,073</b>	<b>2,594,320</b>	<b>2,658,382</b>	<b>2,726,061</b>
<b>Expenditure</b>					
Labour	296,994	305,903	315,081	324,533	334,269
Fuel & traction electricity	10,733	11,055	11,386	11,728	12,080
External services	89,227	91,368	93,653	95,807	98,106
Lease and rentals	26,606	27,244	27,925	28,568	29,253
Materials & supplies	95,689	97,985	100,435	102,745	105,211
Incidents, casualties & insurance	5,200	5,325	5,458	5,584	5,718
Other expenses	10,207	10,452	10,713	10,960	11,223
Track access	214,770	219,924	225,422	230,607	236,142
Mechanical - maintenance costs	360,000	368,640	377,856	386,547	395,824
Hook & tow	821,867	843,028	865,336	887,016	909,874
Allocated costs	349,123	357,502	366,439	374,867	383,864
Depreciation	0	0	0	0	0
<b>Total expenditure</b>	<b>2,280,414</b>	<b>2,338,426</b>	<b>2,399,704</b>	<b>2,458,961</b>	<b>2,521,562</b>
<b>Earnings before interest and tax</b>	<b>184,942</b>	<b>189,646</b>	<b>194,616</b>	<b>199,422</b>	<b>204,499</b>
<b>Margin on cost</b>	<b>8.11%</b>	<b>8.11%</b>	<b>8.11%</b>	<b>8.11%</b>	<b>8.11%</b>
<b>Margin on revenue</b>	<b>7.50%</b>	<b>7.50%</b>	<b>7.50%</b>	<b>7.50%</b>	<b>7.50%</b>
<b>Share of opex</b>					
FAR Rate	59%	58%	57%	56%	55%
NZTA Share	311,586	292,074	272,294	250,477	228,380
GW & Horizons Share	216,526	211,502	205,415	196,804	186,856
	GW 2012/13 Forecast	GW 2013/14 Forecast	GW 2014/15 Forecast	GW 2015/16 Forecast	GW 2016/17 Forecast
<b>Heavy maintenance</b>					
Gen car	0	0	100,000	0	0
Bogies	0	300,000	300,000	0	0
Brake rigging under carriages	0	500,000	0	0	0
Subtotal	0	800,000	400,000	0	0
Margin & contingency 15%	0	120,000	60,000	0	0
<b>Heavy maintenance</b>	<b>0</b>	<b>920,000</b>	<b>460,000</b>	<b>0</b>	<b>0</b>
<b>Share of heavy maintenance</b>					
FAR Rate	59%	58%	57%	56%	55%
NZTA Share	0	533,600	262,200	0	0
GW and Horizons Share	0	386,400	197,800	0	0
<b>Heavy maintenance</b>	<b>0</b>	<b>920,000</b>	<b>460,000</b>	<b>0</b>	<b>0</b>

## Appendix E – Economic Evaluation Data

### Summary of Impact of Capital Connection being replaced by bus feeder to Waikanae

Origin and passengers per peak	Mode in the absence of CC	Impact on:		
		CC passengers	Metro passengers	Congestion
a) North of Waikanae 160	(i) Shuttle bus then Metro	Longer time Waikanae – Wellington <sup>1</sup>  Assume same fare and travel time as CC	More crowding <sup>2</sup>	No impact
	(ii) Drive to Wellington	Loss of benefit <sup>3</sup>		Increases <sup>5</sup>
	(iii) Drive to Waikanae /Paraparaumu then Metro	Loss of benefit <sup>4</sup>  Longer time Waikanae – Wellington <sup>1</sup>	More crowding <sup>2</sup>	No impact
b) Waikanae and Paraparaumu 150	(i) Metro rail	Longer time Waikanae – Wellington <sup>1</sup>	More crowding <sup>2</sup>	No impact
	(ii) Drive to Wellington	Loss of benefit <sup>3</sup>		Increases <sup>5</sup>

#### Notes

- 1 Taken as 5 minutes
- 2 EEM premium for standing is 40%; assume more passengers will have to stand for 30 minutes average
- 3 Use SP10 to evaluate PT User Benefits, factored for longer distance, and also include (4)
- 4 Assume off-peak PT user benefit from SP10, factored for longer distance
- 5 Use SP10 to evaluate decongestion, factored for longer distance to Waikanae