

New Zealand Passenger Rail – Network Development Economic Case

Executive Summary

This report:

- Introduces the concept of New Zealand’s passenger rail services as a nationwide network (as distinct from individual services), and the implications this has for how the network should be planned,
- Should be read in conjunction with other KiwiRail documents, notably the evaluation methodologies and research data contained in the *Preliminary Economic Evaluation Handbook* and *Passenger Rail Technical Notes*,
- Reviews the nationwide passenger rail network, including an outline of preliminary economic evaluation of existing and some possible new services, which shows a strong economic case for service enhancements and network expansion,
- Concludes by identifying cases for potential additional services, or service enhancements, which merit further investigation.

An Appendix also outlines the background situation to the funding of passenger rail in general, including the role and criteria of different funding sources, and relationships between them.

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Introduction

This document shows that New Zealand's nationwide passenger rail network is not only extremely good value for money in the economic benefits it delivers to New Zealand, but also that there is strong economic justification for enhancement of existing services, and expansion beyond the existing network.

It should be read in conjunction with other KiwiRail documents, most notably the *Preliminary Economic Evaluation Handbook*. This *Handbook* covers measurements of the range of costs and benefits associated with passenger rail, and is based on research into international best practice. Where appropriate, application of this research has been tested and refined through surveys in New Zealand.

Because some benefit types are relatively new for New Zealand, the *Handbook* uses conservative values where knowledge is less fully developed, and also incorporates the findings of a professional 'peer review' by a leading world authority.

The *Handbook* may be subject to adaptation as the quality of the data is improved, for example through further New Zealand survey work. Further summaries of supporting data are available as *Passenger Rail Technical Notes*.

This document, *New Zealand Passenger Rail – Network Development Economic Benefits* provides an overview of New Zealand's whole passenger rail network. Its main focus is on regional and long-distance services.

'Urban' rail – the Auckland and Wellington commuter networks – has for many years received funding support from the NZ Transport Agency's *National Land Transport Fund*, since it has significant benefits to motorists.

However, 'regional' commuting, and long-distance rail, each brings different types of major benefit to New Zealand's economy.

'Regional' rail typical links major centres with settlements beyond them (in some cases neighbouring regions), with commuting times of about 45 to 90 minutes, and limited stopping patterns within the urban areas. It helps focus settlement patterns around mixed-use centres, with rail stations helping to concentrate community and commercial activity. Within the major centres

Regional Rail's Competitiveness.

Regional rail services could be very competitive, from the experience of the Masterton-Wellington *Wairarapa Connection* (which forms part of Wellington Region's TranzMetro network, but has a 'regional' function). Each day the Masterton-Wellington *Wairarapa Connection* runs five weekday trains in each direction, which are well-supported and shown by KiwiRail survey work to be highly valued by the communities served. Commuters can travel and work in comfort, while avoiding the state highway 2 Rimutaka Hill Road, which is unpleasant, often windy, and sometimes blocked by ice or land slips. Consequently, this service is used by over 60% of Wairarapa-Wellington commuters.

themselves, other benefits include ‘agglomeration benefits’ (concentrating a higher level of economic activity within a given central city area), as well as reducing demand for road space, reducing car parking need, and encouraging walking, cycling and bus use for other journeys within the centre. At a more localised level ‘transit-oriented’ commercial and community areas are encouraged around rail stations.

Long-distance rail, with journey times typically 3 hours or more, brings tourism benefits arising from the comfort of the ‘rail experience’ (which makes it distinctly different from more functional coach travel). This particularly benefits New Zealand when overseas tourists are involved, not only from the money spent directly, but also because this generates further tourism and investment through the reports the tourists take home with them. Tourism is one of New Zealand’s biggest export earners, and KiwiRail is one of New Zealand’s largest tourism operators.

Subsidy levels – international comparison.

65% of all Australian rail service operating costs, 51% of all England and Wales rail service operating costs, and 52% of all United States long-distance rail service operating costs, were met by public sector subsidy. New Zealand regional and long-distance services receive no such subsidy (KiwiRail research, November 2009)

At present, New Zealand’s long-distance and ‘regional’ services network is unique internationally, in that it receives no public sector funding support. This means the network breaks even in ‘commercial’ or ‘business case’ terms (in that revenue meets operating costs). However, when the wider economic benefits to New Zealand are taken into account, such as national and regional economic growth benefits, preliminary analysis shows that expansion of regional and long-distance services would be deliver substantial added economic value.

New Zealand’s great train rides would be even greater ‘drawcards’ with improvements to their speed, reliability and comfort. Linked with this is applicability to rail of a concept commonly used in planning road projects – ‘level of service’. It might be helpful (especially for identifying prospective development projects, as outlined below) for rail ‘level of service’ measures to be defined, and used to set appropriate standards.

Rail Journeys or Rail (Cycle) ‘Trails’?

Closing rail lines to provide cycle trails (as sometimes suggested) would harm the economy. Each year, nearly six times as many people use the *Overlander* rail service as use the Central Otago Rail Trail. 18 times as many use the *TranzAlpine*. The *Overlander* delivers five times the economic benefit, and per kilometre the benefits are \$48,000 from the Rail Trail, \$55,000 for the *Overlander*. Better to see rail lines as helping cycle trails by delivering tourists – for example, to the Central Otago Rail Trail via a re-instated *Southerner* service (see separate box) and the Taieri Gorge Railway.

To follow this report’s essential point – that improvement and expansion of New Zealand’s passenger rail services makes sound economic sense – an outline knowledge of New Zealand’s transport funding and evaluation processes is useful. This outline is provided in an Appendix, *Funding for New Zealand’s Passenger Rail*.

Rail as a Network

The concept of a 'network' underlies all transport planning theory. The network concept allows for the fact that people may want to travel, or transport goods, to any destination, at any time, and for a range of purposes. Having a network rather than isolated individual routes enables, for example, local services to 'feed' passengers to or from long-distance services. Research has shown that through this, the different rail services benefit each other, resulting in overall economic benefits greater than the total of the benefits from individual lines in isolation. This is similar to how 'local road' traffic feeds onto and off an 'arterial road' network, enabling a road system to cater for a high proportion of the journey demand. It is logical for rail to be planned in the same way.

Rail also has wider benefits if planned as a network, through providing people with a viable alternative to car use. An individual rail line or service will be limited in the range of car journeys for which it could offer a viable alternative. If planned as a network, integrated with planning for walking, cycling and bus use, there is potential for rail to substitute for a significant proportion of car trips. This helps to break 'car dependency' – people being obliged to drive because they have no realistic alternative to meeting their transport needs.

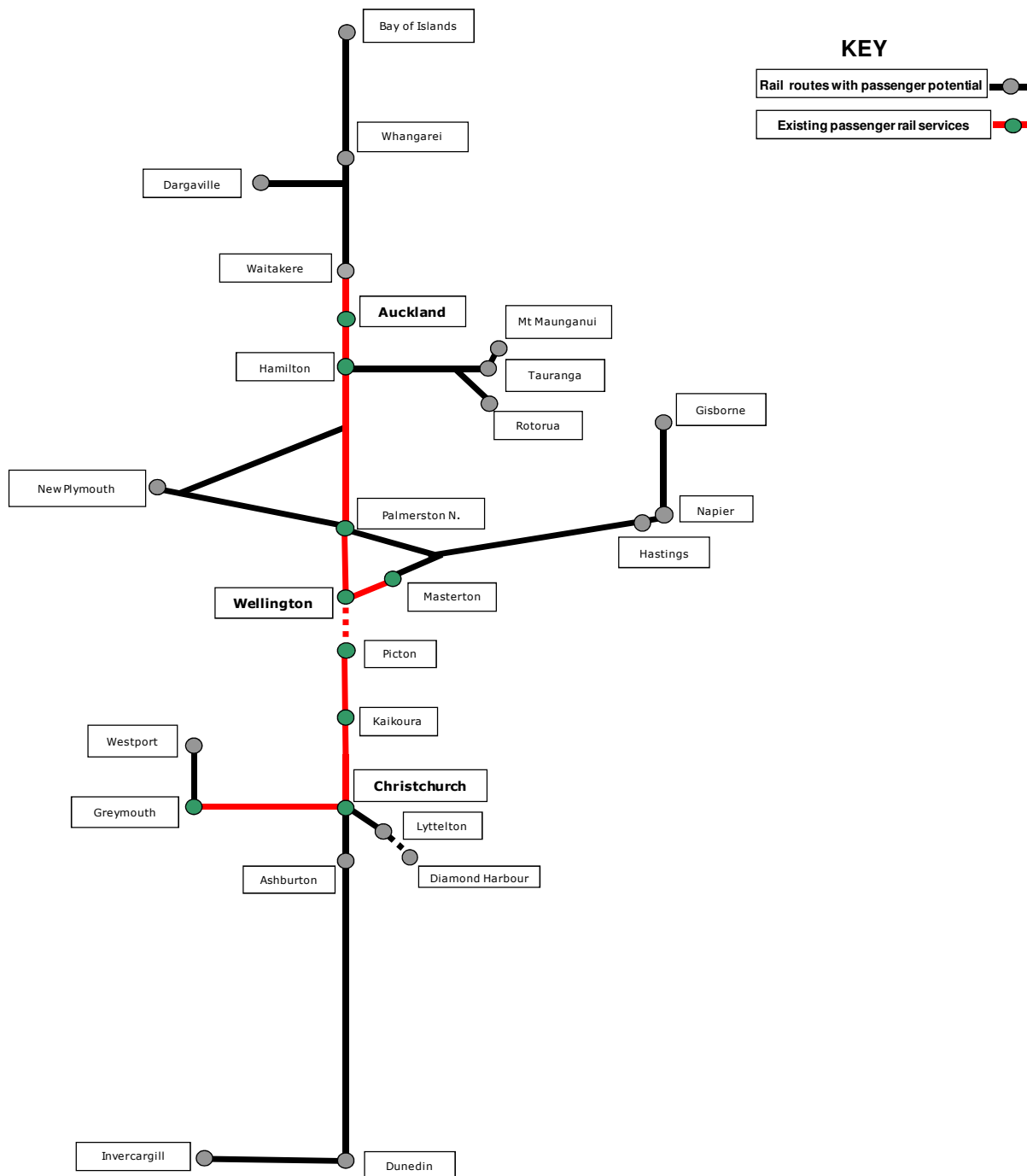


To maximise economic return on public investment, different forms of transport need to be planned together. People would then be able to make the most rational and economic choice for them. For some types of journey, the car may be the most appropriate choice, especially at times and to destinations where not a lot of other people are making the same journey (and it is too long to be walked or cycled).

In other cases, however, rail services would meet people's needs more comfortably, more conveniently, and at less cost. Cities by their nature are places where large numbers of people are making the same journeys at the same times. It is here that rail services can 'deliver' journeys with significant savings to road traffic congestion, land resources and the environment, as well as savings in crashes and injuries – but for choice to be possible, the alternatives need to be developed and made available.

The following schematic map shows New Zealand's current regional and long-distance network, together with routes with passenger potential.

Map 1: Existing and Potential Passenger Rail Network



Note: The map shows existing routes and infrastructure, where they are considered to have potential (subject to economic justification) for a nationwide passenger rail network. In some cases, rail lines have been physically removed, but could possibly be replaced (e.g. to the Bay of Islands and Rotorua). Those identified for prospective preliminary economic analysis are shown on Map 2, later in the document.

Rather than debate service continuation or closure on an isolated, case-by-case basis, it is important for services to be planned as a network, building on the particular strengths of nationwide passenger rail travel – in much the same way as the state highway network is planned and funded.

Rail lines serve most parts of New Zealand, and most main urban centres, but some of these have no passenger services. Even some of New Zealand's largest urban centres lack any commuter rail services, despite having usable rail lines. This places the whole strain of mass commuting on already-clogged roads.

Frequently, transport planning has amounted to a rear-guard fight to damp down rising road traffic congestion – congestion which not only damages the economy through wasted time, but damages a city's attractiveness, because people don't want to do business in a place full of cars, and where journey times are uncertain. This is one reason why it's sensible to plan rail and road together – so that people can make the best choices for them.



Human settlements have spread out beyond the major centres over several decades. This means that people often commute from smaller towns, outside the urban centres where they work. With significant numbers of journeys made over the same routes at similar times of day, increased commuter rail at a regional scale would potentially cater for these journeys with greater comfort, and potentially reap significant savings in journey time, road space and central city car parking space. It could also encourage greater local public transport use for commuters' travel within the city.

There are other cases of regions beyond the major centres where regional commuter rail services may make sound economic sense – for example, the regions north and south of Auckland, near the Bay of Plenty conurbation, and in Canterbury. With growing government interest in the 'spatial plan' concept, it would be possible to plan and provide regional commuter rail services in conjunction with planning for urban growth settlements along the line. The potential economic prospects of some of these are outlined below in *Future Development: New Zealand's Passenger Rail Network*.

For long-distance services especially, other benefits to New Zealand's economy are important. Tourism is key, especially when this brings investment from overseas. Survey work has found 38% of *Overlander* passengers to be from overseas. Tourists spend money not only in smaller regional communities, such as Ohakune, Kaikoura and Greymouth, but also in Auckland, Hamilton, Wellington and Christchurch. With appropriate quality and marketing, more tourists may be attracted who would not have come to New Zealand were it not for the rail service.

Tourism benefits.

Tourism makes a large surplus (in government terms) from indirect taxes and levies, compared with tourism-related public investment. Examples include taxes and levies on tourism marketing, public services (such as museums and national/ regional parks) and transport (such as local tourist-related road and public transport use). Tourism also acts as a stimulus to regional economic activity in many ways. For example, the *TranzAlpine* rail service from Christchurch contributes \$38 million each year to the economy of the small West Coast town of Greymouth.

“Tourism is one of our biggest export earners, employs about one in ten working Kiwis, and its performance ultimately affects all New Zealanders. A strong tourism brand lifts our profile overseas and helps other exporters sell their products” (Prime Minister/ Minister of Tourism John Key, ‘Key Notes’ newsletter, 6 November 2009)

“ . . it is often forgotten that we [KiwiRail] are one of the largest tourism operators in the country” – Jim Quinn, CEO KiwiRail (Logistics and Transport NZ journal, December 2009)

Some rail lines serve remote areas, where they may bring in economic prosperity from elsewhere (for example, from New Zealand tourists), or provide a safeguard where the corresponding road route cannot be used (such as during natural emergencies).

In a network, the availability of different routes and services act to each other's advantage. Just as a proposed state highway improvement is justifiable because of benefits beyond its local area, so a rail service may serve not just the areas it serves directly, but also others who may want to make a longer journey, or link journeys together.

However, for these benefits to be realised, the rail services need to be there so that people are free to choose them. To determine which of these services represent value for money, economic evaluation processes need to fully recognise the benefits accruing from rail transport investment, such as in KiwiRail's *Preliminary Economic Evaluation Handbook*.

The Network Reviewed

New Zealand passenger rail should not just be seen as two urban systems (Greater Auckland and Greater Wellington), one inter-regional commuter service (the Palmerston North-Wellington *Capital Connection*) and three longer-distance lines 'mainly for tourists' (the Auckland-Wellington *Overlander*, Picton-Christchurch *TranzCoastal* and Christchurch-Greymouth *TranzAlpine*). Rather, they should be planned as a continuous nationwide network.

In transport project economic analysis, care is needed to measure economic costs and benefits fairly, and in particular to neither omit nor double-count particular benefit types. The *Preliminary Economic Evaluation Handbook* covers some benefit types not previously covered in New Zealand procedures (such as in the NZ Transport Agency's *Economic Evaluation Manual*), but takes a conservative approach in estimating their values. To ensure professional rigour, the work has been peer-reviewed by Christopher Nash, Professor of Transport Economics, and James Jackson, doctoral candidate, at the UK's Leeds University Institute for Transport Studies, and their insights are incorporated in the *Handbook*.

Table 1 below, *Annual Costs and Revenues of Existing Network* (based on 2009/10 figures), forecasts financial performance of the existing TranzScenic network (i.e. the *Overlander*, *TranzCoastal*, *TranzAlpine* and *Capital Connection*) over the period July 2009 to June 2010. These operated at a surplus, representing a 10.1% return on expenditure.

Economic Analysis Techniques

Which of the various economic evaluation techniques to use depends on which costs and benefits are of greatest concern to the investor:

- 'Business case analysis' uses financial accounting, and is usually appropriate for forms of partnerships between public and private sectors, which also involves some form of direct payment (e.g. road tolls, train/bus fares).
- 'Transport cost-benefit analysis' uses dollar values given to costs and benefits, where possible, but doesn't usually cover society-wide impacts, or wider spending 'multiplier effects'.
- 'Regional economic impact assessment', looks at impacts on particular sectors of the economy, and is often appropriate where 'multiplier' effects are important, in that these affect business turnover, profit levels and employment levels. It is often the appropriate technique for assessing the economic impact of long-distance passenger rail services, in conjunction with transport cost-benefit analysis.

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Table1: Annual Costs and Revenues of Existing Network

Total revenue	Total costs	Surplus/ profit	1st-year rate of return
\$27.2m	\$24.7m	\$2.5m	10.1%

Table 2 below, *Route-Specific Economic Data for Existing Services*, from a 2009 base year forecast, shows an appraisal of the network’s performance over the next 30 years, using the methodology contained in KiwiRail’s *Preliminary Economic Evaluation Handbook*.

Table2: Route-Specific Economic Data for Existing Services

Current passenger rail services network (excluding ‘urban’ services)	Discounted economic benefits	Discounted loss	Discounted profit	Benefit/cost ratio
Capital Connection (Palmerston North-Wellington)	\$69.2m	Not applicable	\$1.3m	Infinity
TranzCoastal (Picton-Christchurch)	\$43.3m	\$3.3m	Not applicable	13.2
TranzAlpine (Christchurch-Greymouth)	\$143.6m	Not applicable	\$61.2m	Infinity
Overlander (Auckland-Wellington)	\$92.6m	\$16.1m	Not applicable	5.7
Existing network economic performance	\$348.2m	Not applicable	\$43.0m	Infinity

Note: the figures above are derived using Kiwirail’s ‘Preliminary Economic Evaluation Handbook’ March 2010 edition

In contrast with the TranzMetro *Wairarapa Connection* (see box *Regional Rail’s Competitiveness*), the Palmerston North-Wellington *Capital Connection* straddles the Wellington and Manawatu Regions. **Although also well-supported and highly valued by the Palmerston North and other communities served (such as Levin, Otaki and Waikanae), the single daily weekday train in each direction (at time of writing) receives no funding support from the National Land Transport Fund. This is despite an extremely strong economic case on the basis of its benefit-cost ratio, well in excess of scores typically derived for many high-profile proposed road projects.**

In one case – the Christchurch-Greymouth *TranzAlpine* – the service fully covers all its costs and delivers a commercial profit to KiwiRail, even before counting the further economic benefits to New Zealand. This means its cost to public funding is zero, and therefore its benefit-cost score (national benefits divided by costs) is infinity – something which is also true of the existing long-distance and ‘regional’ services network as a whole.

Some of the other services, even though they may not individually deliver a commercial profit, do very well in delivering benefits to New Zealand (instead of only the finance raised from rail service users, counted by measures of ‘commercial profit’) compared with costs.

The benefit-cost scores of the *TranzCoastal* and *Overlander* are healthy – comparable to typical scores for road schemes considered to merit investment of public funds.

The substantial benefits from rail services, compared to the very low (and sometimes zero) net costs of providing them, suggests that New Zealand is under-investing in its passenger rail network. Although further investment may bring the system out of commercial net profit, it may nevertheless deliver an exceptionally high benefit-cost ratio, network-wide, as a national economic benefit.

On the other hand, if we only consider whether particular lines should be retained, or expect individual services to show a commercial profit quite apart from the wider economic benefits, we would be selling the New Zealand public short on the economic benefits they could potentially gain from carefully considered improvements and expansion.

Future Development

The strong overall case for enhancement and expansion raises the question of which service enhancements or network expansion possibilities would give best value for money.

Ideally, the 'level of service' concept, commonly applied in the planning of roads, should also be applied to the selection of rail investment projects. 'Level of service' implies measurement, in defined areas, of what the traveller (motorist, or rail passenger) 'receives' from the transport facility. For motorists, 'level of service' measures typically include engineering standards, traffic congestion, crash hazard incidence or road surface roughness.



For rail, 'level of service' may include travel time, punctuality, service frequency, carriage quality, station environment, and other travel experience factors. Measuring 'level of service' could be used to define 'standards' in areas such as these, with the aim of ensuring that projects deliver a certain quality of experience. For long-distance services, this would be crucial for tourism benefits, since it would affect the 'message' visitors took away from New Zealand and disseminated abroad. For commuter services, comfort, speed and reliability are likely to be critical.

When considering rail service possibilities, several variations should be tested, not only for their individual benefit-cost case, but also for the overall (benefit-cost) economic value of the resulting network, including enhancement and expansion possibilities.

For illustrative purposes, one expansion possibility has been tested – a Christchurch-Dunedin-Invercargill service, based on the former *Southerner* service, which was withdrawn in 2002. This should not be taken to imply it has a stronger economic case than other possibilities covered in this report.

The *Southerner* was the subject of an evaluation study just prior to its closure. If this were reworked today using improved techniques and survey data, preliminary evaluation suggests different likely results, as indicated in the box opposite.

The outcome of the *Southerner* study's reworking (which is more fully described in a KiwiRail *Passenger Rail Technical Note*) is shown in Table 3 below, which gives its benefits, costs, and a benefit-cost ratio of 1.72.

Table 3: Re-worked 2001 'Southerner' Evaluation

Benefits	Net costs	Benefit-cost ratio
\$26,248,038	\$15,226,225	1.72

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A further KiwiRail *Passenger Rail Technical Note* also outlines a preliminary evaluation of a possible Hamilton-Auckland commuter service, using the methodology contained in the *Preliminary Economic Evaluation Handbook*. This possibility has also been subject to studies in recent years, enjoys support from local authorities in both centres, and has even been assumed in the sub-regional *Future Proof* strategy's proposals for urban form along the route.

Evaluation of 'The Southerner' (closed in 2002)

The *Southerner* Christchurch-Dunedin-Invercargill service closed in 2002, after an evaluation found its cost broadly equalled its economic impact. Reworking this, the *Southerner's* economic contribution has in fact been substantially under-stated:

- A more realistic 30-year discount period (rather than the study's 10 years) boosts economic impact from \$1.0 million to \$1.7million.
- A lower discount rate of 8%-4%, as now recommended (rather than the study's 10%), with the extended discount period, boosts economic impact further to \$2.7-\$6.3 million.
- If a 2009 *Overlander* survey showing 38% of passengers being from overseas were also true for the *Southerner* (rather than the study's 25%, which was not based on any survey data), this would boost economic impact still further to \$20-\$35 million, with a 1.46-1.5 economic impact-cost ratio.

Although (see box *Economic Analysis Techniques*) the report's Regional Economic Impact Analysis approach may be appropriate for this type of service, by omitting to use this in conjunction with a transport cost-benefit approach (as is usually done), several other benefit types were omitted (e.g. option values, consumer surplus). With these included, the service's benefit-cost ratio would have been about 1.7.

In order to test further possible network expansion, the findings of the Christchurch-Dunedin-Invercargill re-worked evaluation (for long-distance services) and Hamilton-Auckland preliminary evaluation (for regional services) were extrapolated and applied to several further possible services. Table 4, *Economic Performance of Selected Additional Services*, shows the estimated performance results:

Table 4: Economic Performance of Selected Further Additional Services

Service type	Service route	Service basis (daily)	Benefits	Net costs	Benefit-cost ratio
Long-distance	Auckland-Mount Maunganui	One train each way	\$10.6m	\$6.2m	1.72
Long-distance	Wellington-Hawke's Bay (via Palmerston North)	One train each way	\$16.7m	\$9.6m	1.72
Long-distance	Christchurch-Dunedin-Invercargill	One train each way	\$26.3m	\$15.2m	1.72
Regional	Hamilton-Auckland	Two trains each way	\$32.8m	\$12.0m	2.74
Regional	Palmerston North-Wellington	Two trains (i.e. one additional train) each way	\$4.5m	\$3.5m	1.31
Regional	Christchurch-Waipara	Three trains each way	\$11.7m	\$7.5m	1.55
Regional	Christchurch-Ashburton	Three trains each way	\$11.7m	\$7.5m	1.55
Regional	Christchurch-Springfield	Three trains each way	\$11.7m	\$7.5m	1.55
Total	Above selected services	As above	\$126.0m	\$69.1m	1.8
Total	Existing network plus above selected services	As existing plus above	\$472.2m	\$26.1m	18.2

The additional \$126 million generated by the above additional selected services would give an incremental benefit-cost ratio of 1.8. When added to the existing services, the overall network would perform very well with a total benefit of \$472 million, and an 18.2 benefit-cost ratio. The overall network could cost about \$26 million, representing an average investment (in 'net present value' terms) of about \$0.9 million per year over the 30-year appraisal period (and a tiny proportion of that spent on the state highway network).

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Map 2 below covers the selected additional services, together with other service improvements and network expansion considered to merit at least preliminary evaluation. Except for Hamilton-Auckland, these have not been subject to any recent economic analysis, and so the various prospective network expansion possibilities cannot be placed in any priority order.

Map 2: Prospective Passenger Rail Network Expansion

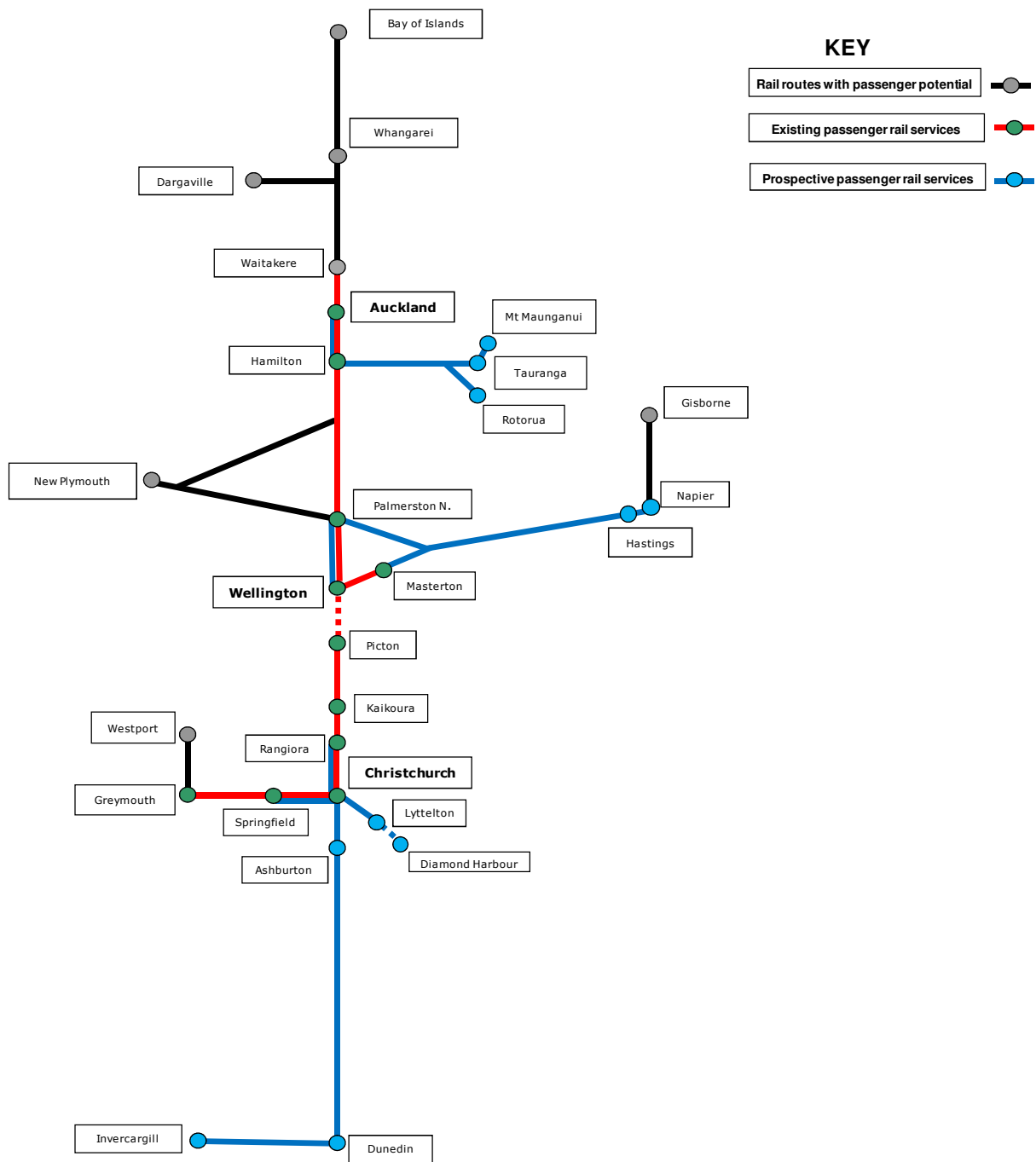


Table 6 below lists improvements to existing services which are considered to merit at least preliminary evaluation, on the basis of the previous tables' positive benefit-cost scores for existing services and some possible additional services.

Table 5: Prospective Enhancements to Existing Services

Potential service enhancement	Outline of expected benefits
Wellington-Palmerston North	This service exists without public sector funding support. Such support would enable retention of the existing Palmerston North service, should this be at risk of closure following completion of electrification south of Waikanae. Bearing in mind that the existing single daily train (in each direction) is well-used and highly valued, additional services (i.e. a second train) would be likely to be justified. Urban form benefits include encouragement to 'transit-oriented development' in intervening corridor settlements, especially those without urban (TranzMetro) services. Road traffic de-congestion benefits within Greater Wellington urbanised area.
Auckland-Wellington night service	A night service (the 'Northerner') used to exist until 2004. It was marketed to backpackers as saving a night's accommodation, but there may be a separate 'luxury' market, which would require sleeper accommodation (which could possibly be on the same train). Apart from characteristic long-distance type benefits (notably tourism), it would be useful to also include any synergistic benefits of operating this service in conjunction with the existing daytime <i>Overlander</i> (e.g. shared stock or staff).
Auckland-Wellington <i>Overlander</i> daytime enhancement	Addition of an extra train in each direction. Possibilities include adding a train similar to the existing, or differentiating by type of service (e.g. introducing a 'luxury' train). There would need to be some evidence that demand existed, but this might be possible given appropriate marketing. Benefits tourism and remote area access.
Picton-Christchurch <i>Tranz-Coastal</i> enhancement	Addition of an extra train in each direction. Possibilities include adding a train similar to the existing, or differentiating by type of service (e.g. introducing a 'luxury' train). There would need to be some evidence that demand existed, but this might be possible given appropriate marketing. Benefits tourism.
Christchurch-Greymouth <i>Tranz-Alpine</i> enhancement	Addition of an extra Christchurch-Greymouth-Christchurch train. Possibilities include adding a train similar to the existing, or differentiating by type of service (e.g. introducing a 'luxury' train). Benefits tourism and some limited remote area access, and route security (notably snow-blocked mountain road passes).

Table 7 lists expansion possibilities beyond the existing network, and is compiled on the basis of existence of rail routes and infrastructure, and of significantly-sized urban centres. In many cases, services had been running in the recent past, and had been discontinued without the benefit of the broader-based economic analysis which is now possible.

Table 6: Prospective Expansion of Passenger Rail Services Network

Potential network expansion	Outline of expected benefits
Auckland-Hamilton	Strong regional commuter benefits. Strong urban form benefits to intervening corridor settlements, especially if planned in conjunction with Waikato Expressway Road of National Significance (e.g. each for complementary different types of movement). Road traffic de-congestion and car parking space benefits within Auckland. Some 'event tourism' benefits.
Auckland-Mount Maunganui	Some possible commuting benefits to and from Hamilton, bearing in mind generally high population concentration within the wider Waikato & Bay of Plenty regions. Some leisure travel, and limited tourism benefits reflecting Tauranga & Mount Maunganui's holiday resort value.
Auckland-Rotorua	Strong tourist value if a high quality service, with good marketing to the tourist sector, could be provided. Some urban form benefits, although less than Auckland-Tauranga.
Wellington-Napier via Palmerston North	Tourism benefits, especially if linked to art-deco-themed and wine tourism promotion of Hawkes Bay. Security of access benefits in relation to potential Manawatu Gorge road closure incidents.
Wellington-Napier via Masterton	Tourism and commuter benefits similar to Wellington-Napier via Palmerston North, but also some utility travel between Wairarapa and Hawkes Bay, because of the strong economic relationship between settlements along the route. Some potential to enhance Wairarapa-Wellington travel benefits, depending on timetable.
Christchurch urban and regional network	There is potential for both urban commuting within the Christchurch built-up area, and for regional commuter services linking with various Canterbury townships (e.g. Springfield, Ashburton, Rangiora), both with potential road de-congestion, and associated safety and environmental, benefits within Christchurch. Regional services especially would also have potential traffic growth demand mitigation effects on radial state highway links, and urban form benefits through encouraging 'transit-oriented' development patterns.
Christchurch-Dunedin-Invercargill	Significant tourism benefits from linking the nationwide rail network to Dunedin, and with this also to Taieri Gorge Railway and Central Otago Rail Trail attractions. Remote area regeneration benefits from the latter, and in Southland.

The Table 6 and Table 7 lists are not exhaustive. There may be other possibilities, not listed here, which would also have a strong economic case. However, the lists do cover New Zealand's most significant urban centres, and would be an appropriate starting point for preliminary evaluation studies.

Since the main focus of this document is regional and long-distance aspects of the network, a comprehensive review of urban commuter services has not been attempted. Christchurch regional and urban services have been identified as particularly obvious, because of the sheer size of the centre, forecasts of rapid traffic growth, and given that it currently has no

regional or urban passenger rail services at all. However, urban rail services within other centres may also have a positive economic case.

Each scenario may have several possible formats (for example, the Hamilton-Auckland analysis considered three variants). Choosing the appropriate format of a possible service enhancement or network expansion possibility requires judgment as to what would keep net costs low, while meeting any strategic objectives and 'level of service' measures defined, and practical need (so as to attract patronage and fare revenue).

Another variable factor, which should be tested in any preliminary evaluation, is the setting of fares. Higher fares would tend to reduce net operating costs, but may also depress potential patronage, which in turn would limit (or possibly reverse) any resultant revenue increases. Higher fares would also tend to reduce user benefits and other wider economic benefits. For example, if user numbers are reduced, then other benefits such as from health and tourism will also tend to be reduced.

Other potentially negative economic effects associated with a high fares policy include increased road traffic demand, such as congestion and land required for car parking. For these reasons, it may be useful to 'sensitivity-test' several different fare and service level scenarios against revenue and other objectives, before selecting a particular proposal. The effect of combining selected scenarios with the rest of the network should also be tested.

The Way Ahead: A Development Programme

Prospective service enhancements and network expansion proposals should be analysed before being formed into a development and investment programme. The range of possibilities involved, and the nature of the investment, make it sensible for such a programme to be phased over several years.

Opportunities should be taken to integrate passenger rail network development with other forms of planning, such as urban form studies, spatial plans, the National Infrastructure Plan, and tourism development strategies. In these, there is increasing recognition of the potential for infrastructure investment to 'lead' economic and urban growth.

Rail investment can stimulate economic growth in several ways. For example:

- Regional commuting services have potential to 'lead' development, such as focusing urban centres around rail stations. This contrasts with road-based development, which tends to encourage 'ribbon development' all the way along the road.
- Longer distance rail can 'lead' tourism development, and also integrate with other tourism initiatives, such as the New Zealand Cycle Trail.

It would also help if road and rail proposals were evaluated together in a high level 'strategic assessment'. This would mean comparing different or complementary ways of meeting corresponding access need or journey demands (e.g. potential road and rail developments within the same 'corridor'), by reference to common objectives, criteria and assessment techniques.



However, even without this the economic evidence for network-wide service improvement and expansion is compelling. It is time New Zealanders were provided with the economic benefits of a high quality passenger rail network, including improvements to and expansion of services.

References

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Appendix – Funding for New Zealand’s Passenger Rail

Historically and up to the present, New Zealand’s rail network has been planned and managed separately from the nation’s road system.

For many years, rail infrastructure (until 2004) and operations (until 2008) were in the private sector. Since 2008, both have been within the public sector. Even with possibly wider use of private sector finance and franchising, this raises the possibility for road and rail to be planned and funded in conjunction with each other. This is important for economic growth and benefit to New Zealand from transport investment, whether that investment is in road, rail or other transport alternatives.

This requires a common set of strategic objectives, a common and comprehensive assessment framework and techniques, and a common set of values by which the costs and benefits of any investment can be measured. Common strategic objectives already exist as the *Government Policy Statement on Land Transport Funding* (May 2009).

KiwiRail’s *Preliminary Economic Evaluation Handbook* outlines methodologies by which costs and benefits arising from potential investment in rail can be assessed. Some differences between road and rail appraisal will be inevitable (for example, because one is free at the point of use and the other is not), but the *Handbook* moves towards more common and integrated treatment through its fuller coverage of economic benefits of rail investment. The *Handbook* complements, and is designed to be used in conjunction with, the NZ Transport Agency’s *Economic Evaluation Manual*.

The *Economic Evaluation Manual* has existed for many years. It originated as a *Project Evaluation Manual* to assess possible roading investments, with a second volume added later to cover benefits from *Alternatives to Roothing* (which has included some public transport investment).

The *Economic Evaluation Manual* has tended to include fuller coverage of costs and benefits where these accrue to private motorists and truck operators. In one sense this is logical, since the *National Land Transport Fund* derives its income from hypothecated taxation from these road user groups. This encourages a ‘user-pays’ view, whereby the taxes raised are seen as ‘charges’, and thus to be used for the user’s (i.e. payer’s) benefit.

However, road investment affects everyone, whether they choose to drive or not, and the government’s priority of economic growth for the benefit of New Zealand **as a whole** implies that a broader view should be taken. The *Preliminary Economic Evaluation Handbook* partly addresses this by covering particular benefits accruing from passenger rail, many of which are either given incomplete coverage in the *Economic Evaluation Manual*, or not covered at all. These include urban form benefits (for regional services), tourism benefits (for long-distance services), option and non-use values, consumer surplus, security

of access, remote area accessibility, property value factors, and some types of environmental effect.

Because of New Zealand rail's private sector past history, the government's relationship with the rail sector was previously led by Treasury. This was transferred to the Ministry of Transport in 2008, but rail funding support may still be assessed according to commercial rather than national benefit/ cost criteria. An exception has been urban commuter services in Wellington and Auckland, which have received *National Land Transport Fund* subsidy, with assessment based on the NZ Transport Agency's *Economic Evaluation Manual*. This is because benefits to motorists were involved (e.g. through potential road traffic decongestion through increased rail use). Meanwhile, New Zealand's long-distance passenger rail services have been funded from fare revenue, without Government support.

Another issue affecting the passenger rail network is that discussions regarding the network's role and future prospects has tended to focus on its freight function, and thus the needs of freight logistics and freight operators. This could lead to a problem of long-distance passenger rail services being 'caught by default' in arguments about the economic viability of freight on specific rail lines routes.