greater WELLINGTON
REGIONAL COUNCIL

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Committee	Regional Transport Committee
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Wellington Regional Rail Plan

1. Purpose

This report summarises the Wellington Regional Rail Plan (RRP), informs the Committee on the decisions of Greater Wellington's Transport & Access Committee (TAC), and outlines communications and funding processes.

2. Significance of the decision

The matters for decision in this report **do not** trigger the significance policy of the Council or otherwise trigger section 76(3)(b) of the Local Government Act 2002.

3. Vision

The RRP Vision is:

"To deliver a modern, reliable and accessible rail system that competitively moves people and freight in an economic, environmental, integrated and socially sustainable way."

4. Background

The Wellington Regional Rail Plan (RRP) provides for the long term development of the region's rail network. The preparation of the RRP is a condition of ongoing rail funding from the NZ Transport Agency (NZTA) and is required by the Regional Land Transport Strategy 2007-2016 (RLTS) (policy 8.7c).

On 26 November 2008 the Greater Wellington Regional Council's Transport & Access Committee resolved:

That the Committee:

*1. **Receives** the report.*

*2. **Notes** the content of the report.*

3. ***Endorses*** *Rail Scenario 1 (RS1) and the preferred implementation pathway as detailed in Wellington Regional Rail Plan.*

4. ***Refers*** *the Wellington Regional Rail Plan to the Regional Transport Committee and to a wider stakeholder communications programme subject to any necessary minor amendments.*

5. ***Delegates*** *to the Chair of the Committee the power to approve minor amendments prior to the RRP being presented to the Regional Transport Committee and NZ Transport Authority.*

5. Purpose of the RRP

The RRP's purpose is to maintain and grow rail's position as the key transport mode for long to medium distance and high volume transport services over the next 25 years.

Its scope covers the four rail corridors within the region, plus the train service that operates from Palmerston North.

While plans are already under way for a number of improvements, such as the order for new rolling stock, the RRP provides for the longer term improvement of the rail network once current developments are complete.

The RRP recognises and encourages the increasing popularity of rail as a sustainable transport choice for passengers and freight, a trend that is evident across the globe. It also recognises that rail is an essential service underpinning the effective functioning and economic development of the greater Wellington region. By providing an attractive and competitive rail service, users are attracted from cars and road congestion is reduced – a "win-win" outcome.

6. Collaborative approach

Greater Wellington Regional Council (Greater Wellington) has developed the RRP in collaboration with primary rail stakeholders: KiwiRail, ONTRACK, NZTA and the Ministry of Transport. This collaborative approach draws on the value of shared decision-making and experience, and also recognises shared responsibility for the delivery of outcomes.

The RRP also reflects community needs and views, as expressed in RLTS and Annual Plan submissions, Metlink customer satisfaction surveys, and public meetings held throughout the Region in 2007 to discuss transport challenges.

7. Key Issues

The WRRP addresses specific problems facing the Wellington rail network.

- Poor reliability – historical lack of investment in infrastructure and rolling stock has lead to frequent breakdowns and delays to services. Surveys show that this is the number one issue for Wellington rail users.

- Lack of capacity across the network – trains are crowded due to increasing demand. This discourages people from using rail and exacerbates congestion on arterial roads, especially SH1 and SH2. Currently, there is a shortfall of more than 1200 seats across the network at AM peak time with a projected shortfall of over 5,000 seats by 2016.

- Frequency of services – there is not enough network capacity or trains to meet demand for higher frequency services in peak times.

- Ageing train fleet – many trains need replacement or refurbishment soon. Creeping obsolescence contributes to poor service reliability, longer journey times and an uncomfortable travel experience which deters potential rail passengers.

- Ageing infrastructure – existing tracks, tunnel size, signalling systems, platforms and station access limit service levels and have not been designed to support a modern rail service.

8. Key outcomes

The RRP has been designed to deliver levels of service defined by both the Regional Passenger Transport Plan (RPTP) and Wellington passenger transport users through annual customer satisfaction surveys.

The RRP seeks to first deliver a higher quality rail service through resolution of each identified issue, and then build the rail service from a robust and reliable base as dictated by demand. This is not a "build it, and they will come" plan, rather a "fix it, and they will stay" and a "nourish over time and it will grow" plan.

Targeted outcomes for the WRRP are:

- Reliability
- Frequency
- Capacity
- Journey time
- Reach (taking the rail service closer to more commuters)

By delivering these outcomes the plan seeks not just to meet existing customer needs, but to encourage greater rail use in line with NZ Transport Strategy (NZTS) and RPTP targets.

9. Implementation Pathway

The RRP is a pathway comprised of a series of rail scenarios or modules, each with a programme of projects.

Following is a description of each Rail Scenario (RS).

9.1 The Base Case

The plan builds on the comprehensive five year rail improvement programme for the Metlink rail network initiated by Greater Wellington in July 2007 – the

Medium Term Rail Improvement Programme (MTRIP). The Base Case incorporates MTRIP and the cost of funding these improvements and running existing rail services for the next 25 years.

Key improvements:

- 96 "Matangi" cars (48x2-car electric multiple units (EMUs))
- 24 carriages for the Wairarapa service (including 6 SE carriages)
- Refurbishment of 88 Ganz Mavag EMUs (and replacement from 2018)
- Double tracking and electrification to Waikanae
- Kaiwharawhara throat upgrade to improve approach to Wellington Station
- Johnsonville tunnels upgrade
- Station upgrades for new trains
- Track and signal upgrades

Priority:	*essential*
Timing:	*in progress*
Targeted outcomes:	*capacity, reliability, journey time, reach*

9.2 Rail Scenario 1 (RS1)

RS1 provides a significant increase in the electric rail fleet which will increase peak seat capacity by 53% and enable a regular and reliable service with at least four trains per hour to Wellington on all electrified lines during the two hour AM peak time. This scenario is required to meet passenger volumes (without RS1 there will be a shortfall of over 2700 seats across the AM peak by 2016). More seats and a better quality service will support growth in rail patronage in line with the NZTS and RPTP targets for 2016. RS1 also increases freight capacity and speed. The current underlying growth is around 3% which is closely aligned with the GPS target. Setting aside targets, RS1 is essential if the current growth up to and beyond 2016 is to be catered for.

Key improvements:

- 14 additional new electric units.
- North/South Junction Stage 1[1]
- Double tracking Trentham to Upper Hutt
- Network changes for reliable frequency (signalling and track - turnback / passing loops)
- Freight capacity and speed
- Station and park n ride upgrades

Priority:	*essential if regional/national targets and the current growth up to and beyond 2016 are to be catered for.*
Timing:	*starts 2011/12*
Targeted outcomes:	*capacity, reliability, frequency*

[1]Stage 1: Strengthen the walls of the tunnels then lower the floors thereby increasing clearances. This would allow heavier weight rail to be laid and increase the speed at which trains can travel through the tunnels. This would reduce the transit time and the risk of trains stalling.

9.3 Rail Scenario 2 (RS2)

With the benefits of RS1 bedded in and if demand requires it, RS2 will increase capacity on Wellington's busiest commuter service and provide a regular 10 minute service between Upper Hutt and Wellington during peak time.

Key improvements:

- 44 additional new electric units
- Incremental network changes (signalling and track - turnback / passing loops)
- Level crossing safety upgrades

Priority:	*optional*
Timing:	*starts 2014/15 or later depending on demand*
Targeted outcomes:	*frequency, capacity*

9.4 Rail Scenario A (RSA)

If after RS1, and/or RS2, patronage growth plateaus due to decongested roads, RSA introduces faster rail services between Upper Hutt/ Waikanae/ Johnsonville/ Masterton and Wellington in AM peak time. Journey time is recognised, and highlighted in customer surveys, as a key driver of modal choice. Infrastructure enhancements will enable trains to travel at higher speeds, significantly reducing journey times for commuters.

Key improvements:

- Faster passenger and freight services (reduced journey times)
- North/South Junction Stage 2-3[2]
- Track upgrades and curve easements
- Station rationalisation
- Level crossing grade separation

Priority:	*optional*
Timing:	*starts 2017/18 depending on demand and capacity*
Targeted outcomes:	*journey time*

[2] Stage 2: This solution would include the tunnel lowering as above plus elimination of one tunnel altogether and extension of the double track at the northern and southern ends to as near as is practical to the tunnel portals. This would have the dual benefit of reducing the amount of single track and reducing transit time through that single section.
Stage 3: This solution would include the works listed above (tunnel lowering; remove one tunnel; extend double tracking) plus build a bridge around the outside of the tunnels so there is always double track – one on the bridge and one through the tunnels.

9.5 Rail Scenario B (RSB)

Demand driven, RSB makes rail services more accessible to more people by providing greater transport connections between the rail network and urban centres such as Otaki, Levin, Palmerston North and Masterton. RSB "brings the train closer to you" beginning with minivan, or bus shuttle services, leading to rail shuttles services. It extends the network reach.

Key improvements:

- Integrated connection to faster services
- Phased modal connections
- Shuttle services
- Network extensions/new stations

Priority:	*optional*
Timing:	*starts 2017/18 depending on demand and capacity*
Targeted outcomes:	*reach*

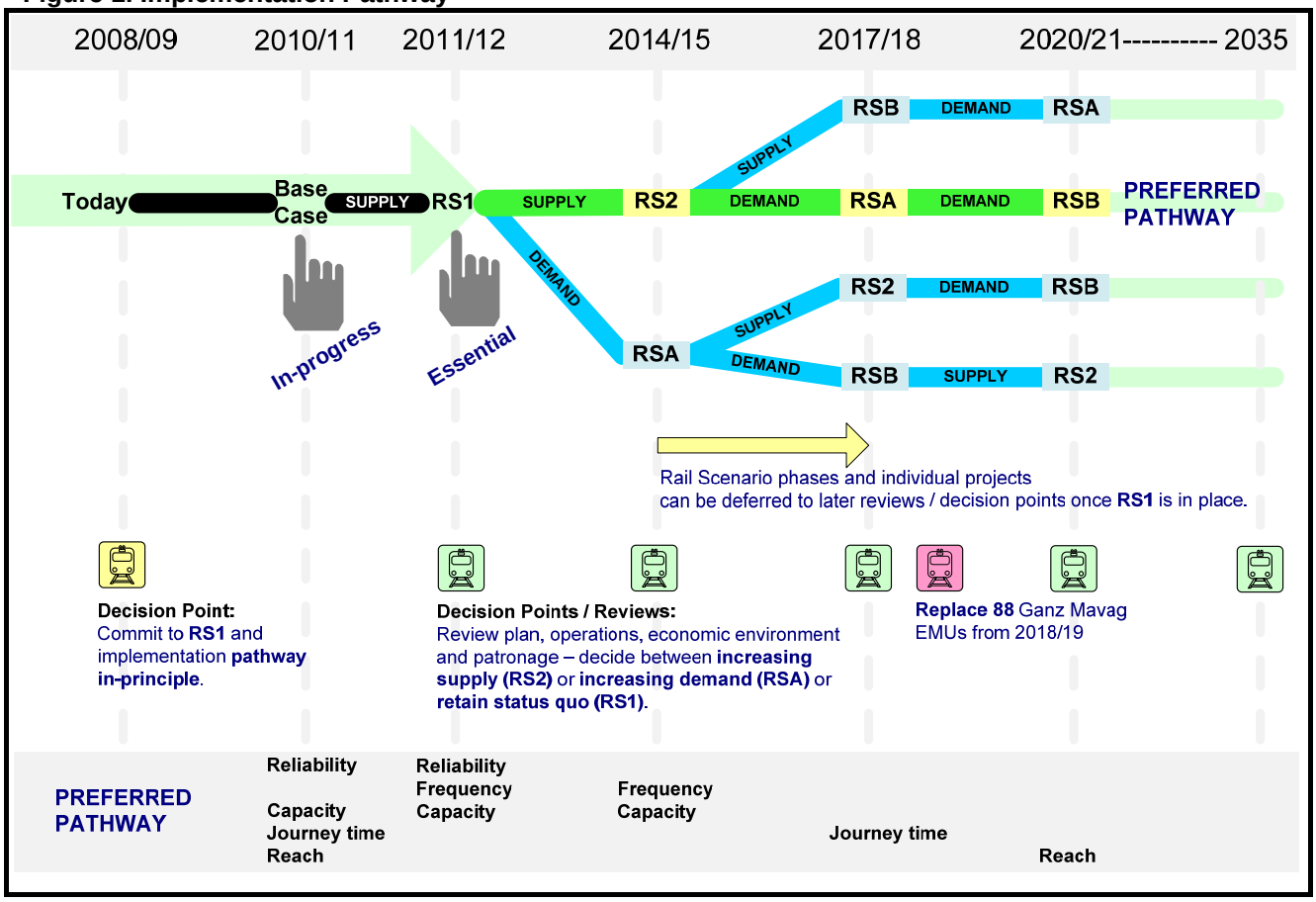
10. The preferred implementation pathway

Greater Wellington proposes a phased approach to implementation. There are stops along the pathway; junctions or decision points between each module (work programme) provide opportunities to defer, bring forward or scale projects up or down depending on network demand and available resources. As the Implementation Pathway diagram (Figure 1) shows, the preferred option is to complete RS1 then proceed to RS2 then to RSA and then RSB. However, if patronage forecasts show a levelling off in demand on the Hutt Line, an alternative option exists to proceed directly to RSA after RS1 and implement RS2 and RSB later.

Like other Wellington regional strategies, the RRP provides choices and the flexibility to respond to changing external pressures and community needs.

The phased implementation approach assists risk management. It accommodates the significant lead times required for ordering new rolling stock and undertaking large infrastructure projects. A key decision point is 2018 when 88 Ganz Mavag electric units are due for replacement. The cost of rolling stock is a major consideration and forward planning provides the potential to capture savings from another bulk order of new electric units.

Figure 1. Implementation Pathway



11. Benefits

The WRRP addresses gaps in rail service levels. Collectively, the rail scenarios provide a better experience for rail users.

Passenger transport benefits:

1. Capacity – more trains, longer trains and more frequent services
2. Quality – increasingly safe, more reliable and comfortable services.
3. Competitiveness – faster services with extended reach.

Rail freight benefits:

4. Capacity – maintained
5. Reliability – greater network and system reliability
6. Competitiveness – reduced journey times from infrastructure improvements

The plan takes a holistic view of the Region's land transport network and presents an approach to rail development that also benefits other modes and delivers integrated transport solutions.

It gives people more reasons to use rail, so they choose to take the train even when roads become less congested.

12. Economic Evaluation

The WRRP represents a significant investment.

Rail projects are capital intensive with a long term return. However, with the phased implementation approach, expenditure is incremental so the demands on rail users, ratepayers and funding agencies are manageable.

The incremental cost of the first three years of RS1 is $35.2m (see Table 2.) and there are no RS1 cost impacts until 2011/12. Table 3 depicts the 10 and 25 year RS1 costs of an additional $238m and $440m respectively. While these long term costs are significant they also carry quantified long term benefits (Table 3.), furthermore the immediate three year budget implications of adopting RS1 are less onerous.

The RRP provides detailed information on the costs and revenue (fares and subsidies) over a 25 year timeframe.

Economic analysis has identified that the cost/benefit ratios (BCR) for the rail scenarios in this plan range between 0.9 and 2.3, with the early Scenarios (RS1 and RS2) both above 1.5, well above the norm for similar rail infrastructure and rolling stock projects.

Table 2. RS1 budget provisions for first 3 years (additional to Base Case)

Rail Scenario 1 (RS1) (first 3 years)	**2009/10**	**2010/11**	**2011/12**
Rolling stock supply (14 additional cars)	0	0	$4.6m
Double track Hutt Line	0	0	$7.0m
Network changes and upgrades for reliable frequency	0	0	$7.5m
Station and carpark upgrades/development	0	0	$6.1m
North – South Junction (stage 1.)	0	0	$5.0m
Total CAPEX	0	0	$5.0m
Total OPEX	0	0	0
TOTAL	**0**	**0**	**$35.2m**

Table 3. Pathway costs and benefits (10 year budget and 25 year total costs)

Preferred Pathway	10 year budget increase		Total 25 yr cost incremental	BCR(N)[1] 8% 30 yrs	BCR(G)[2] 8% 30 yrs
	Capital	Opex			
Rail Scenario 1 (RS1)	$166m	$72m	$440m	1.5	1.9
Rail Scenario 2 (RS2)	$188m	$47m	$235m	1.7 (2.0)[3]	2.1(2.3)[3]
Rail Scenario A (RSA)	$333m	$68m	$401m	0.9	1.1
Rail Scenario B (RSB)	$198m	$362m	$560m	1.1	1.3

[1] BCR(N): takes no account of additional fare revenue

[2] BCR(G): additional fare revenue is netted off the cost

[3] Incremental BCR: the BCR of RS2 improves if RS1 is implemented first.

13. Funding

The very good benefit cost ratios (BCRs) are a positive attribute of at least the early phases of the preferred pathway, however implementation still relies on availability of funding.

The RRP will need to progress through several steps before funding can be confirmed for any individual element. Following endorsement by the Transport and Access Committee (TAC), the Regional Transport Committee (RTC) and NZ Transport Authority (NZTA) the RRP will become part of the RTC prioritisation process.

If successfully prioritised actual sources of funding will need to be determined by Greater Wellington, the RTC, NZTA and the Government.

14. Summary

All of the scenarios have been evaluated on their ability to deliver an integrated, high quality passenger transport network, with each assessed against the objectives of the RLTS and the RPTP using passenger demand forecast modelling based on different mode share assumptions.

The scenarios were found to perform well against all key objectives.

Sensitivity testing using Rail Scenario 1 as a test case reinforced the robustness of the business case for the plan. When modelled, a range of environmental and economic variables, such as future roading developments, either had little impact or enhanced BCR and benefits over time.

Preferred Pathway	Improvements	Peak Service Levels	Increase in seat capacity	Reliability	Frequency	Capacity	Journey Time	Reach
Base Case (BC)	96 new EMUs (Matangis) 24 carriages for Wairarapa Service Double track/electrify to Waikanae Kaiwharawhara Throat upgrades Johnsonville Tunnels Refurbish & replace 88 Ganz Mavag EMUs Station upgrades for new EMUs Track and Signal upgrades	Irregular 20minutes maximum wait (all lines)	21% above today	✓	✓	✓		✓
Rail Scenario 1 (RS1)	14 new EMUs Double track Trentham to Upper Hutt Station upgrades, park n ride Network changes for reliable frequency Freight capacity and speed North-South Junction Stage 1 upgrade	Regular 15minutes maximum wait (all lines)	53% above BC	✓	✓	✓		
Rail Scenario 2 (RS2)	44 new EMUs Level crossing safety upgrades Network changes	Regular 15minutes maximum wait (all lines) 10minutes (Hutt Line)	4% above RS1		✓	✓		
Rail Scenario A (RSA)	North-South Junction Stage 2 -> 3 Track upgrades and curve easements Level crossing grade separation Station rationalisation Increased freight speed	Estimated Journey time reductions UH>WLG 6mins Waik>WLG 7mins J'ville>WLG 1min Mast.>WLG 16mins	-				✓	
Rail Scenario B (RSB)	Integrated connection to faster services Phased modal connections Shuttle services Network extensions/new stations		-					✓

In summary, evaluation of the RRP shows that is a realistic, adaptable plan that will deliver substantial, long-term benefits. Investment in rail in Wellington is considerably worthwhile and will deliver value for money.

15. Communication

The proposed communications process for the RRP is as follows:

1. TAC endorsement of RRP and approval to proceed with wider communications (26 November) *(Complete).*
2. Presentation to Regional Transport Committee (11 December).
3. Presentation to Chief Executives Forum.
4. Presentations to local Territorial Authorities.
5. Presentations to interested individuals and groups.

6. Presentations to Government sector agencies with interest in Transport/Rail.

7. Presentation to NZTA Board (February 09).

8. NZTA Board for approval/endorsement of RRP (March 09).

The purpose of the presentations will be to provide an outline of the RRP and the Implementation Pathway concept, and provide answers to questions. Any feedback will be informally gathered and considered before the final paper to the NZTA Board.

16. Next steps

During the first half of 2009, the RTC will develop the Regional Land Transport Programme (RLTP) within which the priority of the RRP packages will need to be considered. If the RRP is endorsed by the RTC prioritisation process:

- Greater Wellington will work with NZTA to develop a funding plan.

- Greater Wellington will work with KiwiRail and ONTRACK to develop an Implementation Plan. This plan will consider operational parameters (including staging and disruption), asset responsibilities and ownership, rail industry policy and procurement programmes.

17. Recommendations

That the Committee:

1. ***Receives*** *the report.*

2. ***Notes*** *the content of the report.*

3. ***Endorses*** *Rail Scenario 1 (RS1) and the preferred implementation pathway as detailed in Wellington Regional Rail Plan.*

4. ***Notes*** *New Zealand Transport Authority will be considering the Wellington Regional Rail Plan in March.*

5. ***Notes*** *that funding of the Wellington Regional Rail Plan is subject to the Regional Land Transport Programme prioritisation process.*

Report prepared by:	Report approved by:	Report approved by:
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Attachment 1: The Wellington Regional Rail Plan "A Better Rail Experience" 1.2 v1