Greater Wellington
Te Pane Matua Taiao

By email

9 August 2022

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Tēnā koe Ministers

Wellington Rail Programme Business Case – Wellington Strategic Rail Plan

It is with great pleasure that I can announce that, Greater Wellington Regional Council has approved the Wellington Rail Programme Business Case (Wellington Rail PBC) for formal submission to Waka Kotahi's Investment Team.

The Wellington Rail PBC Executive Summary (copy attached) outlines how the region's rail system will need to respond to increased patronage demands and significant mode shift requirements over the coming decades to deliver the regional and national mode shift, and carbon reduction, targets.

We anticipate that the Government will see the significant value in this investment and appreciate how it will enable important regional and national growth and environmental policy objectives. Without Crown support, the Government's transport and environmental policy objectives are unlikely to be realised.

Wellington Rail PBC Overview

The Wellington Rail PBC is a 30-year customer-driven strategic investment plan that outlines what is required beyond current investment to help drive the region's economic development and social wellbeing in an environmentally and socially sustainable, and resilient manner. It covers the passenger services and infrastructure needed to deliver a modern transit system, and the network infrastructure required to support this system while also enabling a growing freight operation.

The plan, which drives mode shift over a 30-year programme, provides: highly connected stations in communities where people work, live, play and learn; accommodating stations that make any wait both pleasant and productive; frequent services that are faster and more convenient than by car; reliable services that recover quickly from disruption; links that facilitate convenient connections for national freight customers; and infrastructure and safety systems that enable transport without undue conflict.

Train frequency will be able to progressively improve as infrastructure is improved. Peak train services on the Hutt and Kāpiti lines would be increased in 2025 to four trains per hour, along with improved longer distance services to Masterton and Palmerton North by 2028. The peak service frequency is proposed to step up to six trains per hour (every 10 minutes) on the Hutt and Kāpiti lines by 2032, along with inter-peak services increasing to four trains per hour. The Kāpiti line is expected to further improve to 10 trains per hour during the peak by the mid-2030s, and the Hutt Line by early 2040s.

The scope of the Wellington Rail PBC complements the Let's Get Wellington Moving (LGWM) programme. LGWM will provide mass transit to the south and east of Wellington City, which will complement the rail system that makes up the rapid transit system to the north, and interface with it at Wellington Station to enhance cross-region travel options and support mode shift. The success of two programmes is consequently interlinked and hence both of equal strategic importance.

The preferred programme has a BCR range of 1.1 to 1.5 (with a sensitivity range of 0.9 to 1.8), based on discounted economic benefits of between $4,430m (lower patronage) and $5,760m (higher patronage), and discounted economic costs of $3,880m, over the 60-year evaluation period. Benefits are split across wider economic (24 per cent), road user (20 per cent), public transport user (19 per cent), land use (18 per cent), rail freight (14 per cent), and other benefits (6 per cent). The programme has a recommended National Land Transport Programme priority order rating of 2, based on the BCR range, a very high Government Policy Statement on Land Transport Alignment rating, and a high Scheduling rating.

We are happy to meet to discuss how the Government could support us in implementing the Wellington Rail PBC.

Ngā mihi

Daran Ponter
Chair

Attachment: Wellington Rail Programme Business Case Executive Summary

cc: **Chair, LGWM Board**
Chair, Wellington Regional Leadership Committee
Wellington Regional Mayors
Chairs, Wellington Region Iwi
Chair, Horizons Regional Council
Members of Parliament in Wellington Region

WELLINGTON RAIL PROGRAMME BUSINESS CASE

WELLINGTON'S STRATEGIC RAIL PLAN

July 2022

Greater Wellington
Te Pane Matua Taiao

metlink

Executive Summary

This Wellington Rail Programme Business Case (PBC) has been prepared by Stantec New Zealand and Greater Wellington Regional Council (GWRC) in collaboration with KiwiRail, Transdev New Zealand (GWRC's current rail service operator), and Waka Kotahi New Zealand Transport Agency (Waka Kotahi). It replaces the Wellington Regional Rail Plan and sets out a new customer-driven strategic plan for the region's rail system for the next 30 years, outlining what is required beyond current investment to help drive the region's economic development and social wellbeing in an environmentally and socially sustainable and resilient manner. It covers the passenger services and infrastructure needed to deliver a modern transit system, and the network infrastructure required to support this system while also enabling a growing freight operation, both within the region and linking into the neighbouring Horizons Region. The PBC thus provides the investment pathway needed to achieve the long-term vision of the New Zealand Rail Plan in the region.

Background

Rail is a critical component of Wellington's transport system. It forms the backbone of GWRC's extensive Metlink network of public transport services north of the Wellington CBD, where three quarters of region's population lives, and it provides a crucial link to the region and between the North and South islands, which is strategically important to the national transport system.

Metlink rail services radiate out over four key lines – the Johnsonville, Kāpiti, Wairarapa and Hutt lines – as well as the short Melling branch, which are collectively known as the Wellington metro rail network. The network has been electrified and emission-free since 1955 (aside from Wairarapa services), contributing strongly to the region's position as the least carbon-emitting. The 400,000 residents of the rail service area have access to 2,250 Metlink rail services in a typical week, and customers made 14.32 million trips in the year prior to the COVID-19 pandemic, when peak services were close to capacity. This patronage was more than 20 per cent higher than a decade earlier, a growth rate double that of population, with the extra growth reflecting a strong customer response to improvements to infrastructure, rolling stock, and services. The 42,000 daily peak trips accounted for over 40 per cent of peak trips from the north and around 20 per cent of all peak trips into the Wellington CBD.

KiwiRail's freight and passenger services also use the network – more than one hundred freight trains and sixteen inter-regional passenger trains in a typical week. The Kāpiti Line has a prominent role as the southern end of the North Island Main Trunk (NIMT) railway from Auckland, with freight services connecting most parts of the North Island to local industry, international shipping, and the South Island via the interisland ferry connection. The tourist-focused Northern Explorer from Auckland and the weekday peak Capital Connection (Manawatū Line) commuter service from Palmerston North also use that line. The Hutt and Wairarapa lines connect forestry-related freight traffic from Wairarapa to the port and provide access to KiwiRail's primary engineering facility at Gracefield.

Rail sits outside of the Let's Get Wellington Moving (LGWM) programme, as do all other transport system elements north of Ngauranga Gorge, which lies just to the north of the Wellington CBD. LGWM will provide mass transit to the south and east of Wellington City, which will complement the rail system that makes up the rapid transit system to the north, and interface with it at Wellington Station to enhance cross-region travel options and support mode shift. The success of the two programmes is consequently interlinked.

Growth Context

The region's rail system will need to respond to significant population growth over the coming decades. The 2021 Wellington Regional Growth Framework (RGF), a spatial plan developed by central government, local government, and iwi stakeholders, anticipates that the Wellington-Horowhenua region will need to accommodate an additional 200,000 people, a 35 per cent increase, and 100,000 jobs in the next 30 years. Three quarters of this growth is expected to occur to the north, along the eastern and western growth corridors that follow the primary rail corridors as shown in Figure 1. A substantial proportion of this growth is expected to occur in areas of the region with longer rail journey times, reflecting land cost and availability and recent improvements to the road link between Wellington and the Kāpiti and Horowhenua districts.

The RGF identifies the Metlink rail service as a key enabler of the growth to the north. It envisages intensification around railway stations and improved connections to stations to enable much of the additional transport demand associated with the expected growth to be borne by rail. Intensification around railway stations (as rapid transit stops) is required by the National Policy Statement on Urban Development (NPS-UD). The RGF recognises that rail capacity upgrades will be necessary to enable and meet this demand.

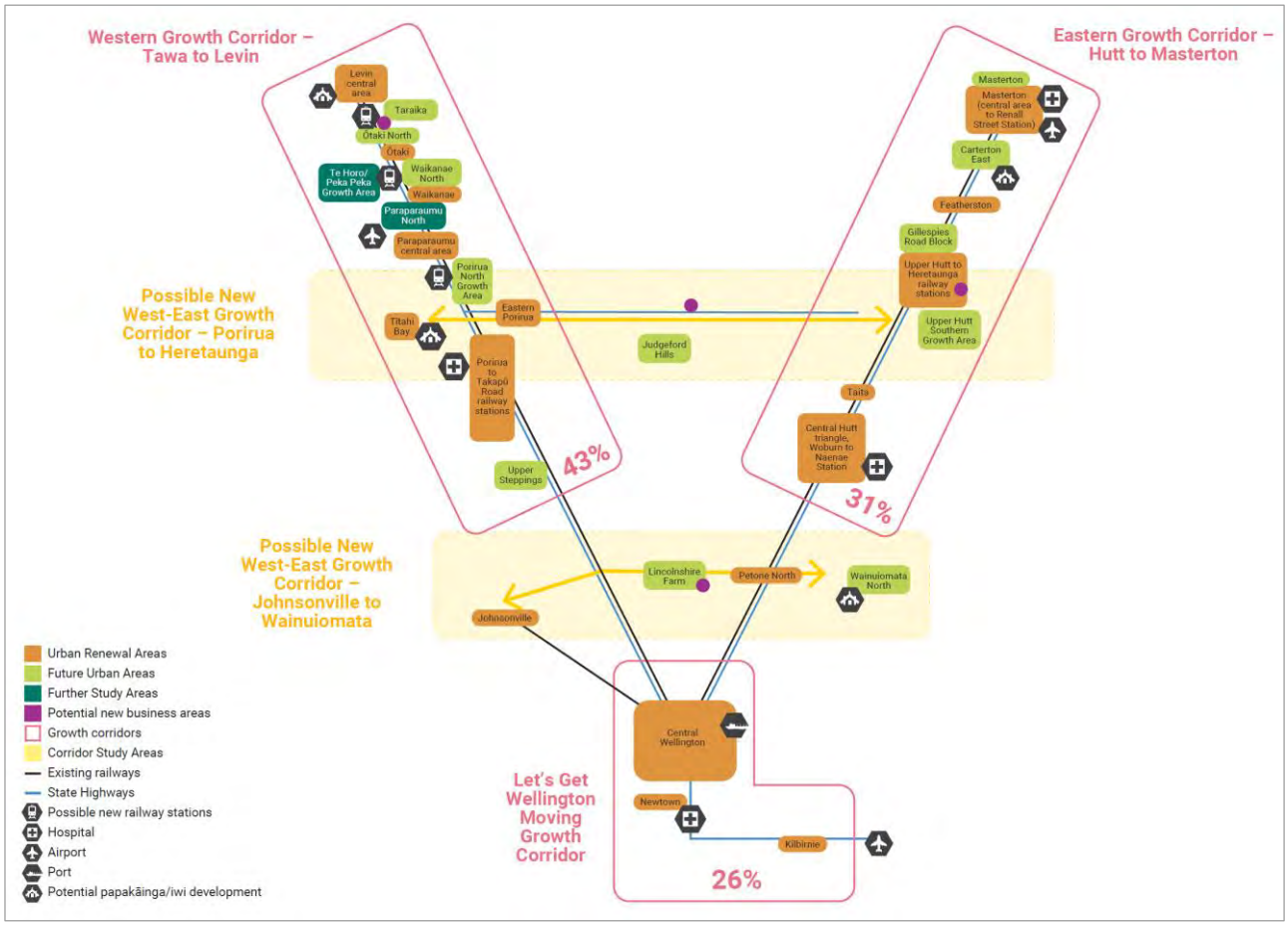

Figure 1: RGF growth corridors

Environmental Context

The region's rail system will need to respond to significant mode shift requirements over the coming decades, reflecting regional and national targets. At the regional level, the 2021 Wellington Regional Land Transport Plan (RLTP) seeks to increase active and public transport mode share by 40 per cent and reduce carbon emissions by 35 per cent by 2030. At the national level, the Climate Change Commission's 2021 Ināia Tonu Nei demonstration path requires an even greater level of uptake, assuming a 60 per cent increase in the distance travelled by public transport in Wellington by 2030. The 2022 Emission Reductions Plan, Te Hau Mārohi Ki Anamata, includes a key action to reduce reliance on cars by improving the reach, frequency, and quality of public transport, including service and infrastructure improvements in Wellington. An associated target aims to reduce total kilometres travelled by the light vehicle fleet by 20 per cent by 2035 through improved urban form and providing better travel options in the largest cities. These targets reflect the national net zero emissions by 2050 target set by the 2019 Climate Change Response (Zero Carbon) Amendment Act.

Rail is the rapid transit option for most of the region's residents. The above mode shift targets require substantial increases in rail patronage on top of population-related patronage growth. The rail system will consequently need to be attractive and convenient to use and have sufficient capacity to both encourage residents to forego private vehicle for most of their trips and comfortably accommodate them when they switch modes. The 2020 Wellington Regional Mode Shift Plan, developed by Waka Kotahi and endorsed by the Regional Transport Committee, therefore supports increased development density near railway stations and improved rail safety, capacity, infrastructure, and service levels to meet the regional targets. The RLTP also includes an investment priority to build rail capacity and reliability, and it prioritises five significant rail projects within the current investment programme, which are included in most programme options within this PBC.

Need for Investment

Stakeholders have identified three fundamental problems that need to be addressed through investment in the region's rail system. These are:

1. Inconsistent customer journey experience and limited rail system capacity result in the network being unable to meet mode share targets, which prevent achievement of growth and environmental obligations
2. Current infrastructure is not capable of safely accommodating additional trains, restricting the options available to accommodate future demand
3. The condition and configuration of the rail network makes it vulnerable to service disruptions, which has a flow on impact onto the wider transport system.

The supporting evidence for Problem 1 confirms that declining levels of service linked to constrained capacity and strong patronage growth, along with variable and often poor station connectivity and amenity, will deter many potential customers and in turn limit the mode share that can be achieved. Capacity in this situation relates to both on-train capacity and rail network infrastructure capacity. It includes major physical bottlenecks at several key locations, and network-wide limitations such as traction power supply, which restrict the number and size of trains that can operate through the network to just above the current level.

Problem 2 evidence confirms that the antiquated signalling system that governs train movement, and the risk of collisions at multiple pedestrian and vehicle level crossings, limits the effective frequency that can be safely provided to customers to relatively low levels. It also recognises the potentially major safety impact of the failure of infrastructure such as track and slopes. Any of these elements could result in a crash or derailment, which could cause significant casualties and lead to a reduction or complete suspension of passenger services by the rail regulator.

Problem 3 evidence confirms that service reliability is (and increasingly will be) inhibited by the failure of aging network infrastructure and its proximity to natural hazards that are susceptible to weather-related failure and climate impacts. It also demonstrates that the network lacks operational resilience and is consequently vulnerable to operational events that hinder operations, such as freight train derailments. Service delay and suspension deter customers, and major rail disruptions have compounded to cause significant and wide-ranging delay across the region's road network over the last decade.

The problems are weighted equally since they are interdependent. Fixing only one or two problems would have limited impact and prevent the rail system from achieving the benefits sought and the expanded role required by regional and national policies. The short timeframes associated with the mode share targets and the long lead times associated with rail infrastructure place considerable urgency on any response to the problems.

Investment Benefits and Objectives

Stakeholders have identified the following benefits of addressing the problems:

- Improved environmental outcomes (15 per cent of the overall benefit), supported by carbon emission and mode share measures
- Enable regional growth through improved access to economic and social opportunities (30 per cent of the overall benefit), supported by passenger capacity and freight path measures
- Improved customer experience (15 per cent of the overall benefit), supported by frequency, customer satisfaction, and punctuality measures
- Improved transport system resilience (20 per cent of the overall benefit), supported by system impact-related measures
- A safer rail system (20 per cent of the overall benefit), supported by safety incident and perception measures.

The investment objectives for this PBC were derived from the problems and benefits. They seek to deliver a rail system that:

- Provides capacity that supports access and growth (20 per cent of the overall objective)
- Is attractive and easy to use (25 per cent overall objective)
- Improves safety for all (20 per cent overall objective)
- Is adaptable to disruptions (20 per cent overall objective)
- Supports a sustainable future (15 per cent overall objective).

The investment objectives align strongly with all five of the enduring outcomes within the Ministry of Transport's (MOT) Transport Outcomes Framework: inclusive access, economic prosperity, healthy and safe people, resilience and security, and environmental sustainability. Each objective is supported by specific and timebound benefit KPIs. Overall success will be measured using an overarching success factor of increased rail passenger and freight use.

Option Development

A long list of nearly two hundred potential interventions expected to respond to the problems and help to achieve the investment objectives was developed with stakeholders in an 'all ideas welcome' environment through a series of meetings and workshops early in the option development phase of the PBC. Duplicates, specific minor works, business-as-usual, interventions considered not to contribute to an investment objective or enable an objective, and those that were out of scope were excluded at the early assessment stage. Interventions that remained following the early assessment were organised into the eight rail system investment programmes outlined in Table 1. All, other than the Do-Nothing and Do-Minimum programmes, sought to address all key problem areas, although each had a different focus and addressed each problem area to a greater or lesser extent or over a shorter or longer timeframe.

Table 1: Programme long list

Programme	Summary
Do-Nothing	Manage rail system decline while prioritising other modes. Lowest direct cost, but highest transport system and environmental cost.
Do-Minimum	Maintain a basic rail system while focusing investment on other modes. Low direct cost but high transport system and environmental cost.
Minor Improvements	Demand management with a focus on low-cost improvements to reliability, safety, and resilience. Lower direct cost but high transport system and environmental cost.
Moderate Improvements	Demand management with a focus on improvements to reliability, safety, and resilience, moderate capacity uplift, and station improvements. Moderate direct cost but still sizeable transport system and environmental cost.
Train Size Focus	Focus on maximising train size while holding frequency in the medium term to boost capacity while delaying the need to invest in below rail infrastructure. Supported by a wide range of reliability, safety, resilience, and customer-focused improvements. Higher direct cost but lower transport system and environmental cost.
Frequency Focus	Focus on maximising frequency, particularly during peak periods, before later increasing train size as needed. Supported by a wide range of reliability, safety, resilience, and customer-focused improvements. Higher direct cost but lower transport system and environmental cost.
Mixed Focus	Balance train size and frequency, by pragmatically increasing train size first where frequency is difficult to enable, and frequency first where it is easier to implement. Supported by a wide range of reliability, safety, resilience, and customer-focused improvements. Higher direct cost but lower transport system and environmental cost.
Drive Mode Shift	Remove all barriers to a high frequency, reliable, and comfortable passenger rail experience, and accelerate network capacity improvements, to drive mode shift within the required horizon. Supported by a wide range of safety, resilience, and customer-focused improvements. Highest direct cost but lowest transport system and environmental cost.

Long List Assessment

The programmes were evaluated using a two-stage process. Long list programmes were firstly outlined at a high-level, then assessed by stakeholders against the five investment objectives and five other criteria using multi-criteria analysis (MCA), with the Do-Minimum option as the baseline for comparison. The results were sensitivity tested using eleven weighting systems.

The long list assessment showed that the Drive Mode Shift programme consistently ranked as the best programme, with the best or equal-best score across most criteria (including all investment objectives) and most sensitivity tests, although it was the poorest scoring option against the deliverability and affordability criteria and sensitivity tests. The Mixed Focus programme scored similarly and generally in second place behind the Drive Mode Shift programme but was much better performing against the deliverability and affordability criteria and sensitivity tests. These programmes were taken forward to the short list as the best scoring programmes.

The Moderate Improvements programme was selected to take forward to the short list as a more deliverable and affordable alternative. It provided the best balance between deliverability and affordability criteria, and the investment objective, outcome, and policy-focused criteria. It can be regarded as a 'middling' option with neither significant advantages nor disadvantages, although it would only partially realise the investment objectives.

The Train Size Focus and Frequency Focus programmes scored well, but did not offer the same investment objective, outcome, and policy-focused advantages as the Drive Mode Shift and Mixed Focus programmes, or the deliverability and affordability advantages of the Moderate Improvements programme. These were consequently discounted, along

with the Do-Nothing, Do-Minimum, and Minor Improvements programmes, which scored poorly against the investment objective, outcome, and policy-focused criteria. The Do-Minimum programme was carried forward for comparison purposes only.

Short List Assessment

The three shortlisted programmes were further developed to define critical aspects, identify next steps and bundling, better define cost estimates, better understand timeframes, better understand operational issues, undertake more detailed patronage forecasting, and undertake initial economic analyses based on early-estimate benefits and costs. Table 2 provides the results of the initial economic analyses, showing that all three programmes would provide a positive return on investment, with the Drive Mode Shift programme offering the best potential value in terms of its positive mid and upper range incremental benefit cost ratio (BCR) and net present value (NPV), despite having the highest cost.

Table 2: Shortlisted programme value (60-year evaluation period)

	Benefit ($m)	Cost ($m)	Inc Benefit ($m)	Inc Cost ($m)	BCR	Inc BCR	NPV ($m)
Moderate Improvements	$1,780 - $2,200	$1,000	-	-	1.8 - 2.2	-	$780 - $1,200
Mixed Focus	$2,450 - $3,360	$2,080	$670 - $1,160	$1,080	1.2 - 1.6	0.6 - 1.1	$370 - $1,280
Drive Mode Shift	$4,080 - $5,890	$3,820	$1,630 - $2,530	$1,740	1.1 - 1.5	0.9 – 1.5	$260 - $2,070

The developed short list programmes were then reassessed by stakeholders through a second MCA process using an expanded scoring framework and the following wider set of criteria:

- The five investment objectives and overarching success factor (increased rail usage)
- Two policy alignment criteria: national policies, and regional policies and investment
- Six deliverability and wider outcomes criteria: funding availability, construction/engineering difficulty, consenting degree of difficulty, programme impacts from delays, economic impacts, and impacts to services during construction.

The status quo situation was used as the baseline for comparison. Results were sensitivity tested using three workshop and eleven other weightings, which emphasised specific criteria or criteria groupings, with the highest workshop priorities being given to the overarching success factor, economic outcomes, and improved safety.

The short list assessment reconfirmed the findings of previous assessment, finding the Drive Mode Shift programme to be the best programme, having the best or equal-best score across most criteria, including all investment objectives, the critical success factor, and the policy alignment criteria. Other than the Do-Minimum, it was the poorest scoring option against the deliverability and wider outcomes criteria, except for economic outcomes, reflecting the challenge of delivering a large programme of works quickly to meet mode shift requirements. It ranked as the first-choice option in most sensitivity tests, including all workshop tests.

The Mixed Focus programme generally ranked second to the Drive Mode Shift programme, again with a similar pattern to the previous assessment. Critically, it was well behind against the capacity and attractiveness investment objectives since it would deliver on these much later than the Drive Mode Shift programme. In contrast, it performed much better against the deliverability and wider outcomes criteria, mostly due to this delayed delivery. It ranked as the second-choice option in most sensitivity tests.

The Moderate Improvements programme again provided the best balance between the objective and policy focused criteria and the deliverability-focused criteria. It again offered neither significant advantages nor disadvantages, although it would only partially realise the investment objectives and would not support significant growth or mode shift in the short or medium term. It ranked as the third-choice option in most sensitivity tests, only coming first in the consenting focus test, reflecting its minimal infrastructure investment in the short and medium terms.

The Drive Mode Shift programme was selected as the best programme to take forward as the preferred programme based on the above assessments and conclusions.

Preferred Programme

The preferred programme delivers a 'fit for purpose', resilient, and safe rail system, enhances customer experience to encourage mode shift, and supports this with the capacity needed to meet and drive high patronage growth, providing:

- Highly connected stations in communities where people work, live, play and learn
- Accommodating stations that make any wait both pleasant and productive
- Frequent services that are faster and more convenient than by car
- Reliable services that recover quickly from disruption
- Links that facilitate convenient connections for national freight customers
- Infrastructure and safety systems that enable transport without undue conflict.

The programme includes a wide range of improvements, key elements of which are summarised in Figure 2, including:

- **Station access improvements** to make active and public transport more attractive as access modes, which will support first and last mile accessibility, reduce the reliance on private vehicle and park and ride in line with zero carbon objectives, and support intensification near stations as envisaged by the RGF and NPS-UD.
- **Improvements to all aspects of station amenity** across the network, including to accessibility, shelter, and information, which will ensure that accessibility obligations to disabled customers are met, that the waiting and overall customer journey experience is first-class, and that it is attractive to new customers for mode shift. These improvements will support increased at-station transit-oriented development where feasible.
- Progressive **service frequency improvements**, from the current 20-minute peak frequency to a 15-minute, then 10-minute, and finally 6-minute peak (turn up and go) frequency at most stations on the Hutt and Kāpiti lines, along with an improved 15-minute off-peak frequency within the electrified area and significantly improved service levels on long-distance services, which will provide better travel options for customers, support the region's growth, and deliver the capacity needed to drive and accommodate the required mode shift.
- Supporting **electric multiple unit (EMU) fleet expansion** to enable the higher frequencies, and replacement and expansion of the mixed and obsolete long-distance Wairarapa and Manawatū train fleets with new low emission trains to reduce rail emissions and provide system bridging capacity in first decade.
- **Network resilience and operational flexibility upgrades**, including improvements to slopes, bridges, culverts, track infrastructure, areas subject to sea level rise and storm surge, and operational patterns and maintenance, which will make the Wellington rail system safer and more resilient, particularly in the face of climate change, and ensure that it can recover quickly when events occur to minimise customer impact.
- **Wellington throat capacity improvements**, including a fourth main to enable the operational separation of Hutt and Kāpiti services, northern access to EMU stabling, and separated access to the Wellington freight terminal, which will significantly reduce conflict between passenger and freight services and improve network and service resilience and reliability.
- **Full duplication between Pukerua Bay and Paekakariki** (North-South Junction), a key single-track constraint with several tunnels, and addition of a third main in the Porirua-Tawa area, which will enable higher passenger frequencies and improve service resilience and reliability on the Kāpiti Line. This will make rail a more attractive travel option on that line, where population growth is expected to be highest, and ensure continued freight access to the network as passenger frequencies increase.
- **Duplicated approach to the Waikanae Station**, including a bridge and second platform, which will reduce conflict between passenger and freight services, improve service resilience and reliability, and enable higher passenger frequencies on the Kāpiti and Manawatū lines.
- **Network resignalling**, which will remove restrictions on the number of peak hour services, safely enable future frequency improvements, and improve operational flexibility, resilience, and reliability.
- **Traction power upgrades**, including additional substations and wider enabling power network upgrades, which will overcome current limitations and enable higher future train frequencies.
- **Rail network segregation** at all places where reasonably practicable, including improved fencing and grade separation of pedestrian and vehicle level crossings, which will significantly improve safety and the experience of surrounding communities as frequencies increase.
- **Continuous improvement of systems, processes, and capability**, including improved asset management.

Figure 2: Key improvements

Table 3 shows the strong alignment of the preferred programme with the five investment objectives.

Table 3: Alignment with the investment objectives

Objective	Preferred Programme	Alignment
Support a sustainable future	• 34 per cent increase in peak hour passenger arrivals by 2032, and 82 per cent by 2052 (excluding long-distance), relative to 2019 • Expected mode shift to rail of between 14.2 per cent and 20.5 per cent by 2031, with a similar reduction in vehicle kilometres travelled (11.8 million km per annum in the latter case) • Mode shift related emission reductions of approximately 3 per cent (3,435 tonnes) per annum by 2031.	High
Provide capacity that supports access and growth	• EMU fleet expansion from 166 to 366 cars by 2048 • Long distance rolling stock fleet replacement and expansion from 32 to 88 carriage equivalents by 2028 • Continued access and increased reliability for freight services.	High
Attractive and easy to use	• Progressive increases in frequency from 3 trains per hour (tph) to 10 tph at most stations in peak periods by 2042 • Increase from 3 to 4 tph at most stations in off-peak periods • Station accessibility and customer experience improvements, including improved shelter at all stations, improved cycle facilities at 38 stations, improved disabled access at 21 stations, community hubs/facilities at 13 stations, improved bus connection facilities at 10 stations, active modes change facilities at 10 stations, and maintenance to prevent flooding and improve attractiveness.	High
Adaptable to disruptions	• Improved network infrastructure and operations to minimise the likelihood and effect of disruption and mitigate climate change impacts • Removal of bottlenecks, track changes, and a new signalling system to reduce conflict between trains, improve flexibility and reliability, and aid recovery from events • Annual resilience benefits of $9.1m by 2032 and $17.9m by 2052.	High
Improve safety for all	• New signalling system to provide modern engineering control and significantly reduce the likelihood of train collisions • Grade separation of 15 road level crossings to remove the risk of collision between trains and vehicles • Grade separation of 6 pedestrian level crossings to remove the risk of collision between trains and pedestrians • Improved fencing to reduce risk of accidental track access.	High

The final programme has a BCR range of 1.1 to 1.5 (with a sensitivity range of 0.9 to 1.8), based on discounted economic benefits of between $4,430m (lower patronage) and $5,760m (higher patronage), and discounted economic costs of $3,880m, over the 60-year evaluation period. Benefits are split across wider economic (24 per cent), road user (20 per cent), public transport user (19 per cent), land use (18 per cent), rail freight (14 per cent), and other benefits (6 per cent). The programme has a recommended National Land Transport Programme priority order rating of 2, based on the BCR range, a very high Government Policy Statement on Land Transport Alignment rating, and a high Scheduling rating.

Financial Case

The expected (P50) preferred programme cost and revenue estimates are shown in Table 4, for the initial four three-year planning cycles of the programme, the remaining period, and the overall programme. Around 69 per cent of capital costs relate to below rail infrastructure (rail network infrastructure and network segregation), and 25 per cent to rolling stock (train fleet expansion and replacement). The balance relates to above rail infrastructure (station, station precinct, and station access improvements). The 95th percentile (P95) cost is 57 per cent higher at $15,629.7m reflecting a similar increase in the capital cost P95 estimate.

Table 4: Expected programme cost and revenue estimates (2022 $m)

Category	2021-24	2024-27	2027-30	2030-33	2033-52	Total
Capital	$27.6	$504.1	$1,269.7	$1,380.5	$4,164.2	**$7,346.1**
Network Maintenance	$89.6	$147.5	$137.3	$153.3	$1,031.6	**$1,559.3**
Service Operating	$174.0	$261.7	$279.7	$308.2	$2,383.8	**$3,407.4**
Fare Revenue	($113.1)	($179.3)	($192.9)	($210.6)	($1,686.8)	**($2,382.7)**
Total Net Cost	**$178.1**	**$734.0**	**$1,493.8**	**$1,631.4**	**$5,892.8**	**$9,930.1**

Figure 3 outlines the annual and accumulating P50 capital costs of the programme, showing the large amount of up-front investment in enabling infrastructure that is required in the first half of the programme, particularly between 2027-28 and 2035-36. The timing and scale of service level improvements and associated train fleet requirements will be able to be accelerated or decelerated depending on government priorities and the level of demand once this infrastructure is in place, taking account of relevant lead times, providing some flexibility.

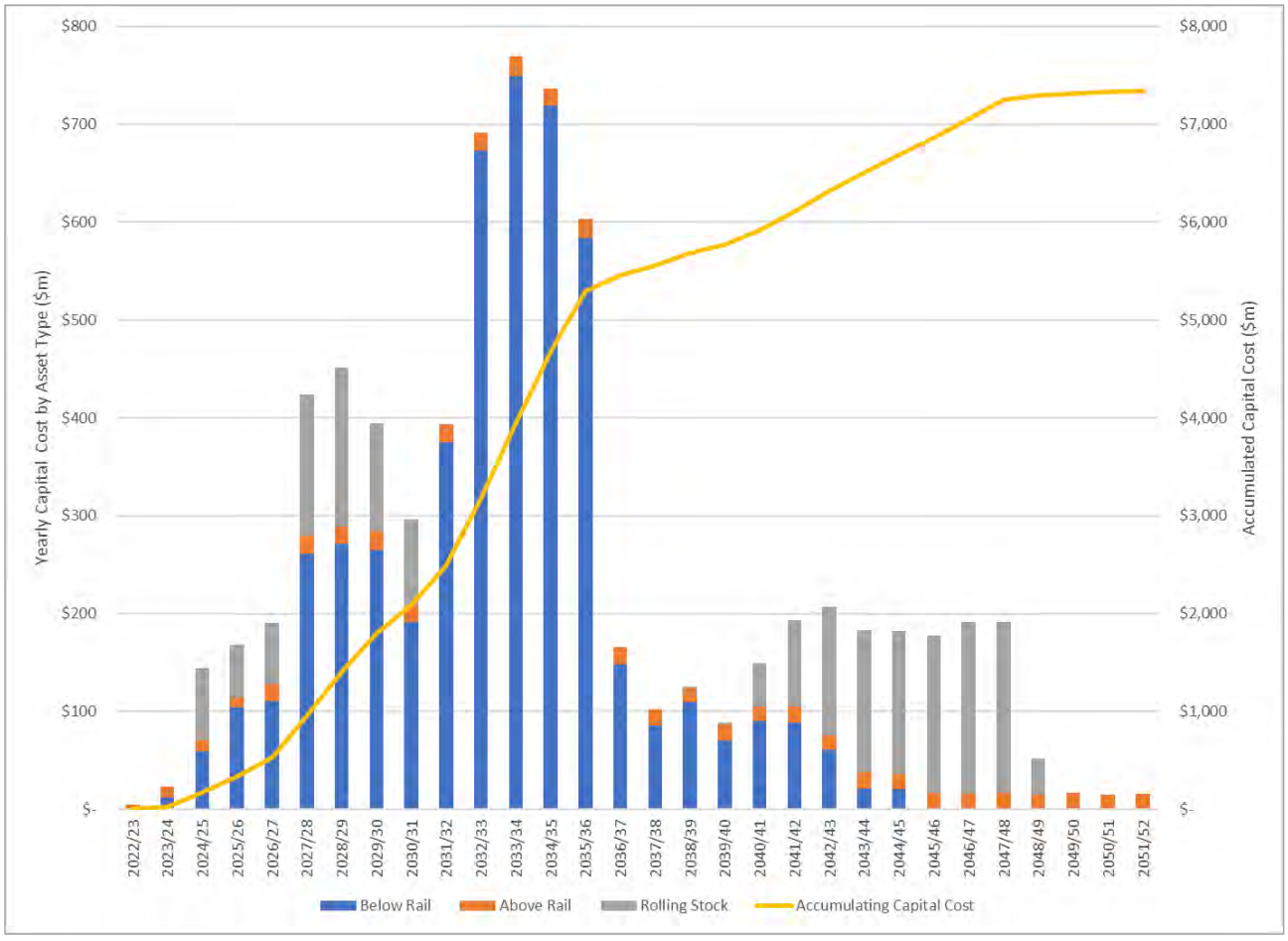

Figure 3: Annual and accumulating capital costs by asset type (2022 $m)[1]

Funding arrangements have not been confirmed, but it is expected that contributions will come from passenger fares, regional council and territorial council rates and debt funding, the National Land Transport Fund through Waka Kotahi, Crown funding, the Climate Emergency Response Fund, new policy and regulatory approaches such as congestion

[1] Below rail capital costs relate to KiwiRail network infrastructure. Above rail capital costs relate passenger-focused fixed infrastructure. Rolling stock capital costs relate to the trains that operate on the network.

charging, and potentially public private partnerships. Below rail capital improvement costs are substantial, and it is recommended that these are fully funded by Waka Kotahi and/or the Crown, as those assets are owned by KiwiRail (and therefore ultimately by the Crown), and the North Island Main Trunk railway, where most network infrastructure improvements are required, is a strategic freight corridor of national significance. GWRC will need to bear a significant share of the remaining costs (for train fleet and station improvements, and service operations), which are unaffordable for that council through current standard funding arrangements. The contribution of each funding source will be determined by subsequent business cases and depend on the type of activity and funding body.

Commercial Case

Projects within the preferred programme range significantly in scale. Large investments will likely progress to indicative followed by detailed business cases, allowing a range of alternatives to be explored before determining the most appropriate investment. Relatively simple programme elements will be assessed through single stage business cases. Single specific investments, such as the train replacement will be progressed through detailed business cases. Each future business case will detail the procurement approach for the programme element that it is delivering, and, as appropriate, the approach to consenting (which will primarily apply to below rail capital projects) and risk sharing.

Management Case

It is proposed that a new Wellington Rail Programme Governance Group will oversee delivery of the overall programme on an ongoing basis. This group will be responsible for delivering the programme in accordance with the timelines outlined in Figure 4, ensuring coordination between programme components (e.g. network infrastructure, rolling stock, stations), managing programme risks, and achieving the benefits and outcomes outlined in this PBC. It will consist of GWRC (Chair and member), KiwiRail (member), Waka Kotahi (member), Metlink rail service operator (observer), and Ministry of Transport (observer). Regular reporting to the Wellington Regional Leadership Committee and Regional Transport Committee will ensure that iwi, territorial councils, and road controlling authorities are kept informed, and provide the means for determining the degree of their involvement at the programme and individual project levels.

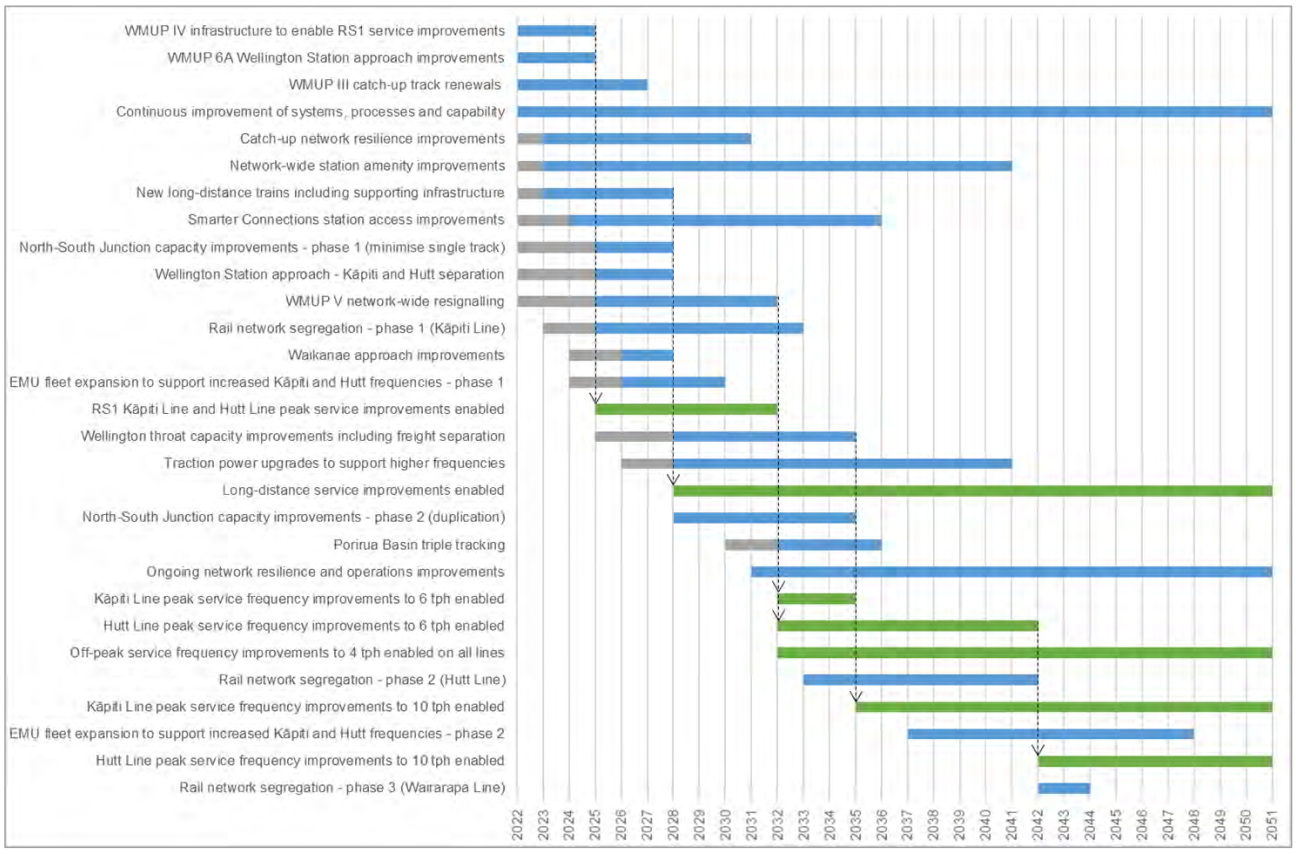

Figure 4: Outline programme plan[2]

Particular programme risks that will need to be managed relate to demand (and the location and scale of growth), financial elements (funding availability and cost variability), planning requirements for improvements to physical

[2] Grey relates to planning and business case timelines, blue to implementation timelines, and green to service improvements. Key dependencies are denoted by arrows.

infrastructure, delivery (lead times and programme interdependencies), and other risks such as policy priority (particularly in relation to the degree of emphasis given to road investment).

Next Steps

This PBC provides a clear investment pathway for the region's rail system over the next 30 years, which will enable achievement of important regional and national growth and environmental policy objectives and provide significant value for investors. It is therefore recommended that decision-makers:

- Approve the overall investment programme as outlined in this business case, and commit to the associated investment requirements and timeframes, subject to the outcome of further business cases and other investigations
- Approve funding of the first three-year stage of the programme, which includes a series of further business cases and other investigations that will determine the optimal solution for and timing of key elements of the programme, particularly the below rail capital components on which the remainder of the programme is dependent
- Approve funding for implementation of the investment proposal outlined in the Lower North Island Rail Integrated Mobility Detailed Business Case, which is a key first decade element of this programme that reduces rail emissions and provides essential system bridging capacity to support growth and mode shift in the short term
- Confirm governance arrangements for delivery of the programme through a new Wellington Rail Programme Governance Group.

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