

# **KiwiRail's Handling of Recent Disruptions to Passenger Services**

Prepared For:

Sponsoring Ministers: Transport, SOE, and Finance

Prepared by:

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# Executive Summary

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This report is a Rapid Review into KiwiRail Holdings Limited's (KiwiRail) performance in managing the metropolitan rail networks in Auckland and Wellington and the New Zealand rail system.

In 2021, Government published the New Zealand Rail Plan (NRP), setting out a higher level of aspiration for rail services in New Zealand. This plan set out two investment priorities for a resilient and reliable rail network, which are to enable future growth in rail freight and to support growth and productivity in our largest cities through investment in the metropolitan rail network. This Government expects KiwiRail to deliver on these two priorities – freight and metro rail passenger services.

Rail services are delivered under a commercial and operational system, known as the Metropolitan Rail Operating Model (or MROM). Along with the Railways Act, this sets out the roles and responsibilities of a number of different rail participants. For services to be delivered to the high standard passengers expect, this framework must operate smoothly.

KiwiRail is a state-owned enterprise and is one of a number of rail participants. KiwiRail's role in the metros is as the owner and maintainer of rail network infrastructure and as the access provider. The other key participants are the public transport authorities – in this case, Auckland Transport and Greater Wellington. They own the passenger trains and contract out train operations and customer services. Auckland One Rail and Transdev Wellington are those operators, and they have long term contracts (9+ years). Finally, Waka Kotahi provides two important functions: system funding manager and safety regulator. All these parties must work seamlessly together, for safe and effective metro services to be delivered.

This rapid review follows recent disruptions to metro customer journeys that have caused Ministers' concern about the priority placed on metro passenger rail by KiwiRail.

The "EM80 incident" which prompted the review, involved the unavailability of KiwiRail's single track evaluation machine used to inspect railway tracks to identify needs for maintenance intervention or immediate repair. This led to a requirement for train speed restrictions, which in turn resulted in significant delays and disruption to passenger for several days across all rail services in Wellington.

Our review has sought to answer the Ministers' questions as defined in our Terms of Reference. We have reviewed extensive documentation and conducted in-depth interviews with key people from rail participant organisations. We present four key conclusions and recommendations for Ministers to consider.

## Conclusion #1: Governance

The **governance arrangements** of metro passenger rail services are insufficiently integrated across rail participants at present. Greater integration at governance level would eliminate ongoing misalignments which put at risk the outcomes sought by the Crown, Auckland Transport and Greater Wellington. To be truly successful, the unifying concept of governance and management should be developed through a customer lens, with each organisation committed to continuous improvement and making changes as necessary in how they are organised to plan and deliver services.

*We recommend that the Minister of Transport, along Sponsoring Ministers, bring together the Chairs and CEOs of each rail participant and seek their agreement and support to creating a collaborative, aligned governance group that is focussed on delivering excellent services for New Zealand's metro customers.*

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## Conclusion #2: Safety Performance

The **safety standards and procedures** that ensure all rail users including metro passengers are kept safe do not appear to be keeping up with the needs of our growing metro networks. Waka Kotahi as the safety regulator is becoming more proactive in its activities but is still considered to take a 'light touch' approach. We have heard sufficient concern from participants that leads us to conclude the safety regulator must rapidly move to a proactive approach to ensure we further reduce the existing and emerging safety risks in metro networks.

*We recommend that the Minister of Transport seek advice from the Waka Kotahi Director of Land Transport, a role with statutory independence, on any changes needed to policy, funding or other government settings to ensure it can achieve a more proactive posture within 12 months.*

## Conclusion #3: Funding

The existing co-funding of passenger rail services which brings together the Crown contribution and that of AT and GW, ensures the metro services are well managed locally with decision-making tied directly to those managing the customer experience. This must be retained. The current funding structure and allocation of central government budget for the metro rail network that is delivered through KiwiRail, needs to reflect a level of priority of maintaining and growing metro passenger rail services in order to deliver on the NRP.

There is however insufficient alignment between KiwiRail, AT and GW on service level outcomes and insufficient funding to maintain the network in a steady state. While the steady state funding gap is small, it results in a disproportionate level of distraction for participants. If not resolved, there is a growing risk that the Auckland metro network will not be able to support the future timetable after CRL opens. In Wellington, risks arising from unaddressed slope instability are growing, and the impact of recent climate related events highlights the urgent need to remedy these issues to avoid potentially lengthy (weeks/months) of customer service disruption.

There is a similar lack of alignment regarding the extent of the deferred renewals backlog which adds to future performance risks.

*We recommend the Minister of Transport seek advice on means to re-prioritise existing funding to resolve the Auckland and Wellington network maintenance and steady state renewals funding gap to reduce the growing performance risk*

## Conclusion #4: Implementation

The Government has improved the policy framework through its Future of Rail reforms. As a result, the funding available for rail outcomes has increased. Metro networks, along with other parts of KiwiRail's network (e.g., plant and equipment), are benefitting from this investment. However, our review has identified a number of actions that we believe are needed to avoid incidents such as the EM80 failure from occurring again. Moreover, during the course of our review, we have identified previous reports that make important recommendations about rail system safety and performance that remain unimplemented. Specifically, there does not appear to be a comprehensive programme to implement the findings of the Auckland Rolling Contact Fatigue (RCF) review from 2022. Our review makes some similar, and some broader recommendations. The Ministry of Transport, along with rail participants, must ensure these recommendations are actioned.

*Once the recommendations from our review have been accepted or otherwise by the Sponsoring Ministers, then:*

*We recommend that the Minister of Transport direct the Ministry to establish a programme within 30 working days to deliver and monitor the implementation of accepted*

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*recommendations from our review, along with those of the Auckland RCF Report (2022) that remain incomplete.*

In addition to these four conclusions and recommendations, we make 30+ specific recommendations to support the strengthening of the institutional arrangements, operating models and policy systems required to improve New Zealand's metro rail network and avoid incidents, such as the one experienced as a result of the EM80 unavailability. This will bring metro passenger rail to a standard that will support thriving, low-emissions communities in the urban centres of New Zealand.

We continue to be impressed by the dedication and professionalism of those rail professionals that deliver services to customers in the metros. We trust that this report will support them in further refining the system to deliver safe, reliable, on-time rail services.

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# 1 Introduction

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*KiwiRail Holdings Limited (KiwiRail) is a state-owned enterprise responsible for rail network infrastructure in New Zealand. For metropolitan passenger rail services, KiwiRail works closely with Auckland Transport and Greater Wellington and their operators – Auckland One Rail and Transdev Wellington – who deliver passenger rail services on KiwiRail assets.*

*Recent disruptions to those metro customer journeys have caused concern about the priority placed on metro passenger rail, how it is delivered and whether it will be reliable in the future. This Rapid Review into KiwiRail's Performance and the New Zealand rail system as a whole is in response to those concerns.*

## 1.1 KiwiRail and Railway Services in New Zealand

### *Institutional arrangements and system for service delivery*

New Zealand organises the stewardship of our rail assets, and the management of rail services in a manner that is reasonably typical internationally. Specifically, KiwiRail is a national rail company that owns the rail assets and delivers freight and other rail services.

A number of other parties are involved, and when we focus on metro passenger rail, Auckland Transport and Greater Wellington deliver rail services to customers and develop the timetables. Along with Waka Kotahi on behalf of the Crown, they define the quality and type of experience the customer should receive, and also design and fund an integrated network of rail, bus and ferry in each city. In relation to Auckland and Wellington, KiwiRail's most visible role is to provide access, manage train control (traffic management) and maintain the tracks and other infrastructure the services run on, as well as defining the below rail system codes and standards.

In Auckland, Auckland Transport contract out the rail operation to Auckland One Rail. In Wellington, Greater Wellington contracts out to Transdev Wellington. These operators in turn employ staff, clean and maintain the trains, sell tickets, manage stations and so forth. They are the customer facing staff who are dedicated to delivering services to the customer each day. All the parties must do their jobs well, to ensure the services to run smoothly.

Importantly, the jobs each participant must do well are reasonably well defined, with accountabilities and a contract-based system. When taken as a system, this framework is intended to ensure the system is safe and reliable. This is captured in the purpose of the Railways Act which is:

*"Promote the safety of rail operations by–*

- i. stating the duty of rail participants to ensure safety; and*
- ii. authorising the Minister to make rules relating to rail activities; and*
- iii. clarifying the nature of approved safety systems established by rail participants."*

In practice, the rail system relies on a light handed co-regulatory approach, with safety case holders responsible for ensuring their own safe operations. The independent regulator, Waka Kotahi, approves and monitors safety cases and investigates and ensures compliance.

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## About KiwiRail

KiwiRail is a State-Owned Enterprise (SoE) under legislation, and 100% owned by the Crown. KiwiRail is our national rail company, providing many services that keep all aspects of the railway running in the interests of our economy and rail customers. Importantly for this review, KiwiRail own, maintain and operate the infrastructure (tracks, signals, overhead lines) that allow metropolitan passenger services to run in Auckland and Wellington. KiwiRail also have a number of other key functions (See Text box), and specifically own and maintain the national rail network (See Map).

Recently, the Government undertook a review of the form of KiwiRail and concluded that the current arrangements remain fit for purpose. Upon completion of that review, the Chair of KiwiRail noted at the time:

*“State-Owned Enterprises are about successful business operations, being a good employer, and exhibiting a sense of social responsibility in the communities we serve, and we are pleased to continue this work at KiwiRail,” says KiwiRail Chair David McLean.*

*“KiwiRail’s functions are important for New Zealand – and operating a successful business means we can stand on our own two feet and deliver for our customers.*

*“The Government’s commitments support this, with shareholder equity to procure new rolling stock, ferries and other commercial assets to improve our performance for customers and enable our commercial functions to grow and be self-sustaining.*

*“KiwiRail operates in competitive markets with other freight, ferry and tourism operators, and being a State-Owned Enterprise enables us to provide efficient services while extending our funding options through commercial financing.*

*“We also own and maintain the national rail network in the interest of all New Zealanders and for all rail users – the metropolitan operations in Auckland and Wellington, rail tourism operators, and future users yet to come. We are now integrated into the land transport funding system to fund rail like roads.”*

This demonstrates the breadth of responsibilities KiwiRail have within the rail sector, the importance of KiwiRail continuously improving its performance, and how KiwiRail is part of a wider system which must collectively function well to deliver services people expect.

### Text Box 1: KiwiRail by the numbers<sup>1</sup>

**Network:** Maintains 3700 kilometres of track, including six million sleepers, 3100 signals, 1344 bridges and 106 tunnels, to deliver a resilient and reliable national network for all rail users. This activity is fully funded by the Government and does not make a profit.

**Freight:** KiwiRail moves around 18 million tonnes of freight each year, amounting to 4.1 billion net-tonne kilometres or 13% of total freight net-tonne kilometres. Every tonne moved by rail emits 70% fewer emissions than by road.

**Interislander:** Operates 12 daily sailings on the Cook Strait per day at peak, with 2737 sailings in 2021/22.

**Commuter:** Operates New Zealand’s two inter-regional commuter rail services and manages the metropolitan rail networks to support millions of passengers in Auckland and Wellington each year.

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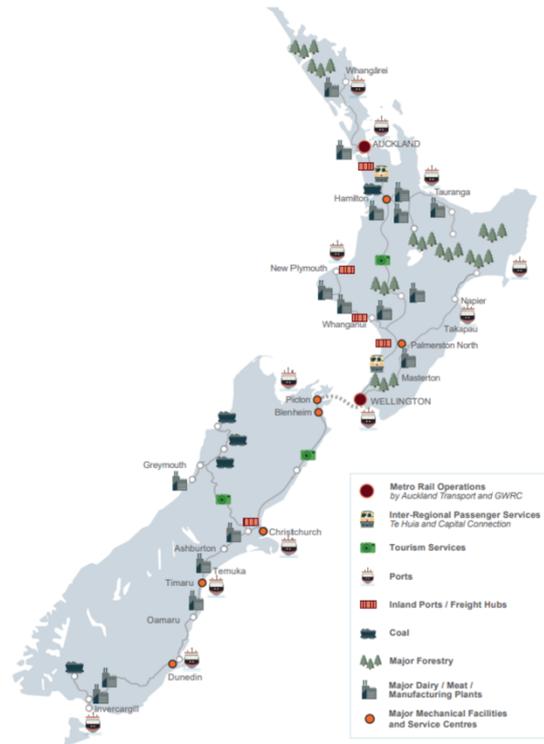
<sup>1</sup> KiwiRail Press Release 22 October 2022

Property: Manages more than 18,000 hectares of land, owns more than 900 buildings, and manages more than 10,000 leases, licenses and grants.

Tourism: Offers rail tourism experiences between Auckland and Wellington, Picton and Christchurch, and Christchurch and Greymouth.

Commercial: In 2021/22, KiwiRail's commercial functions earned \$669.5 million and spent \$535.6 million to deliver those services, generating an operating surplus of \$133.9 million to fund core capital expenditure.

**Figure 1: The national rail network.**



### ***The rail sector***

Turning to the wider sector, in addition to the Railways Act discussed earlier, the policy framework is set by metropolitan rail operating model (MROM) which has been in place since 2009. The Ministry of Transport is the overall policy owner of MROM.

Within the rail sector, the various system roles and responsibilities are undertaken by different parties. Primarily, Ministry of Transport, Waka Kotahi, KiwiRail, Auckland Transport (AT) and Greater Wellington Regional Council (GW). AT and GW contract the delivery of train services out to operators, who are Auckland One Rail (AOR) and Transdev Wellington (TDW). They in turn operate services and also subcontract the maintenance of the trains to a maintainer.

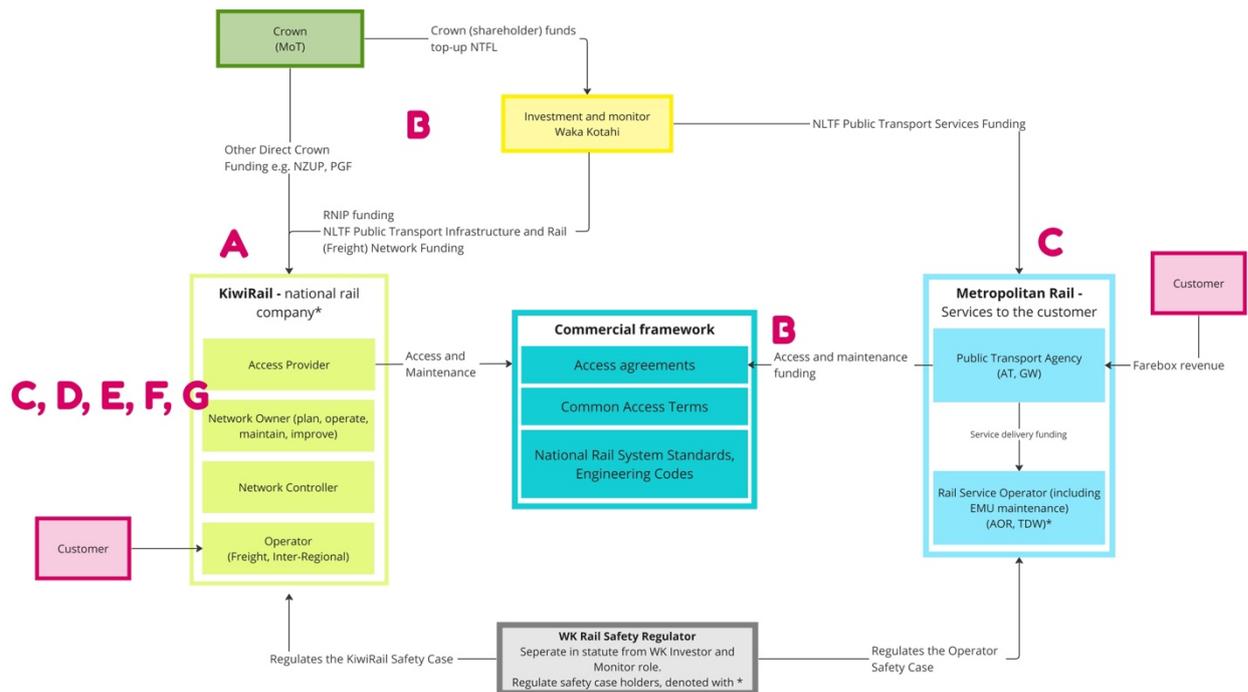
While there are different models around the world as to how a rail sector is organised, the New Zealand model is quite typical. It is important first and foremost for roles to be clear, and we believe in the NZ rail sector that is the case.

Notwithstanding that the roles are clear, a well-functioning system considers how to minimise the friction that occurs at each interface between participants. In some railways there is one partner who runs the infrastructure and train services in a metro. That is not the case here, and in accordance with our TOR, we have not pursued any further thinking about

whether the outcomes would be better under a 'vertical integration' model. There will be various views on this within the sector, but our focus is on addressing the ToR we have been given, and identifying any improvements to the framework we have.

The diagram in Figure 2 sets out the broad industry structure, indicative funding flows, and identifies the owner of the customer. This does not include all industry participants for simplicity but identifies the major ones for the purpose of a metro operation. We also identify where our Terms of Reference cause us to focus, with reference to the questions posed above.

**Figure 2: NZ Railway Sector structure.**



### ***The value and importance of passenger rail***

Rail services deliver significant value to New Zealand and New Zealanders. Increasingly, the need for the provision of high-quality metro passenger rail services is recognised to support urban communities with efficient, low-emissions transport options.

In 2021, the Value of Rail report commissioned by the Ministry of Transport looked at the economic benefits of rail.

Core findings were that the total value of rail is between \$1.7b - \$2.1b for 2019.

- Time (congestion) savings in 2019 sit between \$939m - \$1054m
- Reduced air pollution is valued between \$170m - \$474m
- Reduced fuel use \$211m - \$222m
- Reduced GHG emissions \$178m - \$182m
- Maintenance benefits are \$104m - \$107m
- Safety is valued at \$94m - \$98m

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Metropolitan rail services are in fact a significant proportion of this overall value. An earlier version of the report in 2016 specifically identified the value of metropolitan rail services as 77% of the overall value of rail. The importance of metropolitan rail to Auckland and Wellington cannot be overstated. Rail must function for Auckland and Wellington to be safe, reliable, productive, affordable and liveable cities.

## 1.2 Rapid Review

This report is the output of a Rapid Review into KiwiRail's performance in managing the metropolitan rail networks in Auckland and Wellington. The review was sponsored by the Minister of Transport, in consultation with KiwiRail's shareholding Ministers (the Minister of Finance and the Minister for State-Owned Enterprises) (collectively Sponsoring Ministers).

On 15 May 2023, the review commenced with a meeting of Sponsoring Ministers with the appointed independent experts. The authors of this report, Rick van Barneveld and Greg Pollock ("we" / "our") are the appointed reviewers.

## 1.3 Terms of Reference

Our detailed Terms of Reference asks the following key questions (full details of the ToR are set out in Appendix 1. Our report is structured against the TOR as follows:

- A. How well is KiwiRail, across the organisation, aware of the importance of their role in supporting and enabling high performing metro passenger rail services?
- B. Do broader arrangements and practices in KiwiRail including levels of service, funding and delivery give appropriate regard to supporting metro passenger rail services?
- C. How does KiwiRail balance the priority for track maintenance in the interests of all rail users? Is this prioritisation adequately and transparently represented in the agreements between the relevant parties with appropriate governance oversight? To the degree that there is an agreed process for prioritisation of maintenance between freight and passenger networks, has this been followed correctly by KiwiRail?
- D. Is the current track inspection methodology in relation to the metro passenger network consistent with International best practice?
- E. How well did KiwiRail manage the situation that arose from the EM80's unavailability, in the timeframes available, to minimise disruption to commuters?
- F. How is the maintenance scheduling carried out with respect to the EM80 and track inspection across the Wellington Metro network.
- G. Does KiwiRail have a clear view of the critical points of failure to deliver passenger outcomes on the Metro networks and a plan to address and manage these points of failure?
- H. Is there sufficient redundancy within the plant and equipment to as far as practicable avoid disruption in the context of the growing passenger network demand?

This report is structured around the terms of reference. Each following chapter of the report provides the initial question from the ToR as per the above list, our findings, analysis and recommendations.

We have made 30+ recommendations. We acknowledge the report is to Sponsoring Ministers who will consider our report. We understand there will be a process for those recommendations to make their way to the relevant parties through the machinery of government processes. In our report however, we have taken a simple approach and framed recommendations as if they were going directly to the entity, we believe is best placed to action it.

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## 1.4 About the “EM80 Incident?”

This review was sparked by an incident involving an EM80 track evaluation car being unavailable to inspect track within the metropolitan rail network in Wellington. As a result, safety protocols required a blanket train speed restriction (TSR) on the first affected line which meant all trains had to slow down until that restriction could be removed. So that all readers can start reading our review with a sense of this incident, we describe it briefly here.

KiwiRail have commissioned an independent investigation into the events that led up to the incident, which has been made available to us. The incident report describes the EM80 as follows:

*“The EM80 (see picture) is a compliance tool for maintaining the safety and efficiency of railway tracks. It is used to inspect railway tracks and identify defects, trends in defect locations, or track anomalies that require maintenance intervention or immediate repair. As such, inspections must be completed within certain timeframes to be compliant to KiwiRail Codes and Standards. (Track Standard: T-ST-AM5101 Track Audit and Compliance).”*

**Figure 3: Track Evaluation Car (EM80)**



The incident report has provided a timeline of the event (see Table 2), which focuses on the internal KiwiRail response and activity. We have supplemented that timeline with other events that we believe are relevant and important.

**Table 2: annotated timeline of the “EM80 incident”**

| Date                          | Key Event   | Significance  |
|-------------------------------|---|---|
| Dec 2022 – Early Feb 2023     | EM80 breakdown  | EM80 is unavailable, as repairs and maintenance needed  |
| 4 February 2023               | “Calenda23 proposed to April v1”, wheels planned in to be lathed in Wellington  | Wheels planned to be lathed 19-21 April in Wellington after inspections completed.  |
| Mid-February 2023             | Cyclone Gabrielle   | Track damage and calibration required to be done further away   |
| 6 March 2023                  | “Linemode’s V3” revised to account for training on 20-24 March.   | EM80 training organised to improve rostering capability.<br><br>Programme indicated WLG inspections to fall outside compliance period for the first time (WLG inspection to be completed by 22 May).<br><br>Potentially, some communications may not have been received by distribution recipients. |
| 6 March 2023                  | Professional Head of Track responding to the “Linecodes V3”   | Engineering comment that being out of compliance is not acceptable, and the EM80 needs to complete its inspections to the previous plan.  |
| 15 March 2023                 | ‘Revised Programme (Ver G)’   | Revised programme, with WLG inspection now to be completed earlier on 8 May (but still outside of compliance period)  |
| 13 March – 24 March 2023      | EM80 unavailable for the week leading up to training on 20-24 March.<br><br>EM80 required to be calibrated following training (27-28 March)   | Training and need for re-calibration impacted EM80 availability.  |
| 11 April 2023 – 13 April 2023 | Issue of “Linecodes V4”, which prompted further communications between Engineering and National Resource team.<br><br>Teams online meeting held 13 April between Senior Track Engineer, National Resource Manager and National Manager Infrastructure Operations. | Linecodes suggest WLG inspections to be carried out on 8 May – 11 May. Correspondences between Engineering and National Resource teams on the programme.<br><br>Programme confirmed as under review and to be updated next week.  |
| 14 April 2023                 | Senior Managers enquiring on 13 April meeting outcome.  | Senior Managers (GM Engineering and Technical Director) make enquiries with Senior Track Engineer on 13 April meeting outcome.  |
|                               | EM80 now booked in for wheel lathe in Auckland.   | Speed restriction placed on EM80, limiting it to 50km/hr (from 60km/hr), and change in wheel lathe time and location to Auckland 2-4 May  |

| Date          | Key Event  | Significance  |
|---------------|--|---|
| 18 April 2023 | Senior Track Engineer response to Senior Managers and followed up with National Resource team. | First documentation to Senior Managers on the risk of WLG inspections non-compliance and potential consequences. The email noted that while "a blanket temporary speed reduction of 40 (Class 1**) or 60 (Class 1) may be excessively harsh, there needs to be a defined course of action in terms of mitigations for excessive late running (beyond tolerance periods) of the TEC [EM80]".   |
| 20 April 2023 | "Programme (Ver H)" to account for wheel lathe   | Programme for WLG inspections pushed back further to 22 - 25 May, to account for wheel lathe from 2 - 4 May.  |
| 25 April 2023 | ANZAC day  | Note ANZAC day fell on a Tuesday this year, where this meant some personnel away on Monday 24th April.  |
| 26 April 2023 | Elevated to Senior Managers and KiwiRail Executive   | Engineering elevates to the Professional Head of Track and Senior Managers who escalate to KiwiRail Executive, including urgency for discussion, as latest programme (Ver H) now having WLG inspections up to 25 days outside the programme tolerance period. Communication noted that in addition to extra track inspections, a reduction in line speed as "additional mitigation is applied for unknown track defects. We will need to make a call on a code exemption for Wellington Metro this week, with whatever mitigations deemed necessary". |
| 27 April      | GW advised   | GM Metro calls GM GW at GW and advises of the problem that from Monday blanket TSR on Kapiti line.<br><br>GW team, GW plus Transdev, urgently consider alternatives. Saturday timetable identified as only solution that can be delivered in time available.  |
| 28 April      | Communications to public released  | Agreed communications to public drafted. GW await KiwiRail response. Late in the afternoon communications released.   |
| 29 April      | Problem solved   | KiwiRail advises GW they have a solution and EM80 car will be in Wellington on Sunday.<br><br>EM80 travels from Auckland to Wellington  |
| 30 April      | EM80 begins to measure Kapiti line   | EM80 begins its work evaluating the Kapiti line.  |
| 1 May         | Disrupted to commuters   | First services run on Saturday timetable. Commuters crammed into trains. A number of people appear to stay home.  |
| 2 May         | Disruption to commuters  | Change to capacity, longer trains added into the timetable.   |
| 3 May         | Disruption to commuters  | Problems resolved as EM80 completes its work. No faults identified that require any further line speed restrictions.  |

| Date     | Key Event                        | Significance   |
|----------|----------------------------------|--|
| 4 May    | Network back to normal           | Normal line speed approved and network back to normal  |
| End June | Maintenance of EMU Rolling Stock | Transdev advise that due to the significant additional kilometres the EMU fleet delivered to manage the disruption, scheduled maintenance was unable to be completed as programmed. It took 6 weeks to catch up to this issue. |

## 1.5 Approach

We have approached this review by breaking down the Terms of Reference and seeking to answer each component methodically. To do this in the short time available, we have relied on:

- The statutory and policy framework that the metro passenger rail services operate within, as outlined above, primarily the Railways Act and Land Transport legislation, MROM framework.
- Evidence provided by the participants to this review, with a full document list provided in Appendix 2.
- Interviews with key people directly involved in the EM80 incident, and those involved in the aspects of the rail sector leadership that relate to the TOR. We have been grateful to have had access to executive leaders at the most senior level in KiwiRail, Waka Kotahi, Auckland Transport, Greater Wellington, Auckland One Rail and Transdev in order to inform our review. A list of the roles we interviewed in each entity is included in Appendix 2.
- Our own observations based on the evidence, interviews and our own background and experience in the rail sector.

Our report is provided to the three Sponsoring Ministers – led by the Minister of Transport and including the shareholder Ministers of KiwiRail – Finance and State-Owned Enterprises. At the outset, Ministers made it clear that the review is important to the travelling public in New Zealand.

We have therefore attempted to write this report so that (when released) it will be digestible for public who are users of metropolitan commuter rail.

### ***Acknowledgement***

At the outset of this review, we want to thank all those people who gave their time to support the review with interviews, information and insights.

This report will identify a number of performance and asset management risks, existing operational and relationship problems and potential opportunities to improve performance across the sector.

We were incredibly impressed by the overall calibre of people working in the railway in New Zealand. While we make a number of recommendations in this review, we want to see KiwiRail succeed and deliver better outcomes for metro rail passengers.

We have found that the issues are best described as occurring at a system level, rather than any lack of professional capability or personal dedicated. We have been very impressed with the people we have met and their personal and professional drive to deliver better metropolitan services for the travelling public. We have endeavoured to deliver a report that



will support those professionals in working more effectively to deliver better and world class metropolitan passenger rail services.

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## 2 KiwiRail & Metro Passenger Rail

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*Each section that follows opens with the key question from the Terms of Reference (TOR).*

**TOR A:** *How well is KiwiRail, across the organisation, aware of the importance of their role in supporting and enabling high performing metro passenger rail services?*

### 2.1 Findings

We find that KiwiRail is aware of the importance of their role in supporting metropolitan passenger rail services. Having spoken to many of the senior leaders, through to those leading specialised teams, we observed an awareness of and focus on the critical activities that KiwiRail must deliver well (e.g., policy settings, capital projects, maintenance and train control activities) to enable metro services to run effectively within the Auckland and Wellington networks.

While KiwiRail is aware of their role, we concluded that overall, there is work for KiwiRail to do to reposition metro as an internal priority. Specifically, we conclude that:

- Metro passenger rail is not given **sufficient priority** at the organisation level given the governments clear focus on this investment priority. Freight related activity, which makes up a significant majority of KiwiRails revenue, receives greater priority. Furthermore, there is insufficient capability and capacity that is metro focused.
- There is **insufficient integration** between key functions (e.g., planning, funding, asset management, operational performance, national plant management, maintenance) within KiwiRail to deliver services in the more complex metropolitan networks.
- Access **rules need to be updated and rebalanced** to reflect the strategic objectives of the Crown and AT/GW, acknowledging growth in time sensitive metro services and the importance of effective and efficient freight movement.
- KiwiRail needs access to better **benchmarking** to support their role, give AT and GW confidence in their costs, asset management, partnering and outcomes.
- KiwiRail needs to ensure it has the right **metro skills and expertise** available to support metro services and needs to take a deliberate strategic approach to workforce planning to achieve this. Specifically, we note that operating in a high frequency mixed passenger and freight network using modern plant and methods of maintenance, requires a different skill set to maintaining a predominantly freight network with limited non-KiwiRail users, as is the case for other substantial parts of the KiwiRail network. Communication, commercial and relationship management skills in themselves are substantially different.
- Rail system agencies need to improve their approach to **partnering, collaboration and communication and may need some further support from Government in the form of statutory or governance interventions.**

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## 2.2 Analysis

### *Priority of Metro within KiwiRail*

At many levels, we observed and received evidence that KiwiRail understands their role in supporting metropolitan rail services. We interviewed a number of KiwiRail people, each of whom we considered to be highly professional, committed and passionate about delivering great rail outcomes (see Appendix 2). We did not encounter any KiwiRail employees who didn't understand the importance of KiwiRail's role in providing infrastructure and access services to AT and GW and their respective operators, Auckland One Rail (AOR) and Transdev Wellington (TDW).

KiwiRail people were clear that the government has two key priorities for rail in New Zealand, which are set out in the NZ Rail Plan. They also noted that the Government has further priorities for KiwiRail including tourism, linking the North and South Island (Interislander), management of property and these are typically set out in the annual Letter of Expectations from shareholding Ministers to the KiwiRail Board.

The first version of the NRP was published in April 2021, to provide greater transparency and direction, which we find has helped the sector overall. The Government has signalled its approach relation to investing in the rail network. The first phase was the establishment of a new longer-term planning and funding framework which is in place but continues to be implemented. This has already delivered benefits, in particular to KiwiRail who are able to plan and fund the rail network over a 3-year period, moving towards a ten-year period rather than the annual approach taken previously. The second phase is ongoing and relates to delivering a resilient and reliable network with two priorities:

- *Investing in the national rail network to restore rail freight and provide a platform for future investments for growth.*
- *Investing in the metropolitan rail network to support growth and productivity in our largest cities."*

This Government expects KiwiRail to deliver on these two priorities – freight and metro. KiwiRail has historically been seen largely as a freight business, a view held by a number of interviewees. The income received by KiwiRail from AT and GW paying for metro infrastructure services is a small percentage of KiwiRail's overall revenue.

Given the importance of the freight business, not only to KiwiRail but also to New Zealand, it is understandable that freight does get a great deal of focus within KiwiRail. However, a number of people did observe that KiwiRail can and must do better in terms of reflecting an appropriate balancing of Government's priorities. We have some sympathy for KiwiRail in trying to achieve this balance. One interviewee noted:

*"KiwiRail's rail freight business sees metro as a nuisance for getting freight through. This leads to an inevitable internal conflict."*

Another interviewee noted:

*"I want to love them, but sometimes they don't do themselves any favours".*

Given the two priorities, and the dominance of freight revenue, we conclude that more must be done internally at KiwiRail to prioritise metropolitan rail.

In KiwiRail, metropolitan rail infrastructure and operational activity is led from the third-tier level. While we have significant confidence in both the second and third tier executives at KiwiRail who hold these functions and reporting lines, to have this responsibility at third tier level is almost unfair on the person holding that accountability. Within KiwiRail, the tension between the profit generating freight business, which will be represented at second tier level, and the needs of the metropolitan rail business, represented at third tier level, makes for an unfair internal tension for allocation of resource, energy and focus. Furthermore, the second-tier leader responsible for infrastructure has also been responsible for freight operations,

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meaning metros simply did not get sufficient attention due to the significant span of control of that role (the COO role).

During our review, the KiwiRail CEO has clearly explained to us changes occurring at executive level to address these concerns. Essentially, these result in the split of KiwiRail's COO role into a below rail (infrastructure) function (a new CIO role) and above rail (COO freight/operations). We support this approach and believe it will assist in reducing conflicts between priorities. However, we note that this will still mean there is no executive in the second tier at KiwiRail who has metro rail services as their sole focus. There will remain an executive who has freight operations as their sole focus – and arguably there are two with that focus. Metro will continue to be the poor cousin at executive level with two executives who have split responsibilities across metro and freight. This is the level at which the leading decisions are made on resource allocation, policy, funding requests and so forth.

Notwithstanding the above, KiwiRail has made significant gains in the last 1–2 years in understanding the metro functions, improving asset management practices, long term planning and so forth. KiwiRail are focused on both metros, although they have noted they can only do Auckland first, and then Wellington afterwards. We need the capacity and capability to bring both metros up to the standard customers expect. We agree with KiwiRail that Auckland has a burning platform with the arrival of the CRL. However, Wellington also has a burning platform, with significant investment in slope stability and metro upgrades needed. The future arrival of a new intercity train fleet means the network must be developed to get maximum value for money. All rail participants need to work together to ensure New Zealand has the ability to increase the performance of both metros simultaneously.

We also believe that KiwiRail, along with other system partners, need to consider how to continue to invest in and develop rail capability specifically focused on metro services. Another way of framing this, is that the transformation journey KiwiRail is currently on, relating to asset management, needs to have a specific metro focus. We cannot continue to see the metro as the same as the rest of the network, and this will require additional capability and capacity. This is discussed in more detail in later section of the report where targeted acceleration is recommended alongside a similar recommendation in relation to allocating additional resources to the Auckland Metropolitan Transformation Programme including its extension to Wellington.

We conclude that KiwiRail's Chief Executive should consider a dedicated "Director Metropolitan Rail" (or similar role) within the executive leadership team. This role would have a mix of strategy and operational functions, and hold key metro external relationships, and performance and relationship responsibilities for both Auckland and Wellington metros. To be clear, we are not recommending train control, capital project delivery, engineering or asset management be separated but that they be intentionally influenced by someone with a strong voice of metro customer perspective. To succeed, this role should:

- Be accountable for the development of a KiwiRail wide metro strategy that identifies and integrates all activities from the functional groups and confirms their role in the delivery of services.
- Be accountable for all of KiwiRail activity that affects and delivers an excellent customer journey, as measure by on-time performance.
- Ensure the metro strategy will deliver on the new concept of maintenance that is currently being developed within KiwiRail alongside AT/GW to deliver a step change in performance.
- Enables a strong voice of the customer to be developed within KiwiRail.
- Advocates internally for metro services wherever there is a potential for conflict between different functions.

- Participates in senior management forums with AT and GW that relate to metro performance.
- Prepares and leads transformation for metro services e.g., CRL readiness programme currently underway inside KiwiRail.

See Recommendation A1

### ***Integration of Metro at KiwiRail***

One of the gaps we observed in KiwiRail's management of metropolitan networks is that there is insufficient integration internally amongst KiwiRail staff to deliver services in the more complex metropolitan networks.

KiwiRail is a complex organisation, with a mix of policy, funding, commercial sales, property management, infrastructure delivery and maintenance, and national plant management. Inevitably, there will be parts of the organisation that are less clear on how their role affects other parts of the organisation. The EM80 incident demonstrates that KiwiRail, like any large organisation, has a tendency to work in silos. Frontline managers have also expressed concern to us about this lack of integration. We have seen the EM80 incident as akin to a 'canary in the coalmine'. Essentially, one important function in KiwiRail, the national team operating the plant and equipment that is used to measure and maintain the network, did not appreciate the impact that one machine would have on customers in Wellington if it was unavailable. One manager noted:

*"The gap in communication between the national plant and metro teams is poor and could have been better. People seem to rely on osmosis to communicate things, and it isn't proactive. Field Production managers didn't have good communication through to the metro. Their job is to do the work and help with planning of the operation of the machinery, with the national planning team. While they might talk to planners, it is not effective wider communication, it is often one to one. The reason people are informed can be variable and is random."*

The irony with this statement is that we developed strong confidence in the managers responsible for these various functions, who were absolutely focused on doing their best.

KiwiRail is not in our view, sufficiently focused on travelling public on the metro networks. There is no overarching metropolitan strategy for how KiwiRail will service these customers. We do note that there is a good level of work occurring to address this situation, and as this becomes clearer, it needs to be communicated across the entire organisation. Everyone working in KiwiRail that has an impact on metro services must know there are two priorities – metro and freight.

Again, while we conclude that metro passenger rail is well understood by KiwiRail, there is not sufficient clarity on what that means for each operating group within KiwiRail that have an influence on the metro outcomes. We think KiwiRail should consider implementing regular internal communication that regularly feeds back to all teams the importance of metro services. This should include regular updates on performance, areas for improvement and opportunities for integration across KiwiRail.

See Recommendation A2

### ***Benchmarking***

Whether for metro, freight, or maintenance, access to the network has significant value in a constrained environment. We believe the levers used to incentivise efficient and effective access to the network need reviewing. We have not determined an appropriate outcome but are strongly of the view that there needs to be greater use of benchmarking.

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Specifically, we need to know whether KiwiRail's performance in the metros delivers value for money, an appropriate service, and allows the travelling public to have high levels of confidence that we come to expect from rail travel. The universal measures for this are reliability (did the train run?) and punctuality or on time performance (did the train run on time?).

The operators (AOR and TDW) are responsible for the running of services, but what happens on the network including the quality of the infrastructure matters a great deal.

Currently, AT and GW pay KiwiRail for access to the network by funding their share for maintenance of the network. They have expressed to us that while the data is improving, as is asset management planning and reporting, they have a low level of confidence that KiwiRail are delivering value for money.

AT and GW can satisfy themselves they get value for money from the above rail operators by running tender processes. AOR and TDW are both international companies with deep rail operation experience from many parts of the world, so bring best practice operations experience to these franchise contracts (which are often 10 years or more duration). With KiwiRail, there is no such ability to create competition, so we believe benchmarking must become a far more ingrained part of the rail system in NZ.

Benchmarking is only of value if the results of the process are then given some teeth. We have explored the current system of checks and balances in place in the power sector, where Transpower (like KiwiRail, a government owned monopoly infrastructure provider) is a regulated monopoly under the oversight of the Commerce Commission. While we do not believe that this level of oversight and regulation is warranted at this point, there are some elements that would benefit all participants if put in place.

Specifically, we consider there would be value in benchmarking the following characteristics:

- The asset intensity (number of assets per kilometre of network) of the Auckland and Wellington networks relative to other networks of similar length/complexity.
- The on-time performance, network availability performance standards and customer experience within a mixed metro passenger/freight network.
- The level of inspection, audit and response measures.
- Value for money for maintenance activities, including cost, time windows required, impact on service operations.
- Defining what the steady state for asset management should look like.

We note that benchmarking is notoriously difficult. However, the main benefit from a commitment to benchmarking is not in the difference between the numbers, as it is the subsequent investigation and learnings from others that improve delivery practice. Benchmarking will provide greater confidence to all parties on performance, and thereby improve the basis for relationships between parties. Benchmarking would also provide the Crown and KiwiRail with international comparators of their commercial performance as an SoE.

In order for benchmarking to have any value, it needs to have some teeth. We have heard that Waka Kotahi is using the RNIP process to strengthen its approach to driving a continuous improvement culture across the sector. Their current focus includes increasing asset management maturity and defining more clearly different and affordable levels of service targets across the network. Waka Kotahi also regularly compares itself to equivalent monitors such as the Office of Road and Rail (UK) to look for improvements in their overall approach.

We suggest that Waka Kotahi should have a strong independent verifier function to have oversight of and attest professionally to, the benchmarking of all of KiwiRail's co-funded metro delivery functions. This attestation would then inform their assurance in relation to the

RNIP and the funding of steady state renewals and maintenance. We believe the additional teeth required would benefit from a statutory basis or enabler. We have not explored whether the mechanism for this already exists, but Waka Kotahi should investigate options to achieve this.

Once a level of appropriate access and benchmarked cost for maintenance has been agreed, it would be appropriate to charge KiwiRail for any additional maintenance access. This would incentivise efficient planning and execution of block of lines, regular maintenance or other access required outside agreed operating windows, including increased mechanisation. Incentives to drive this performance include pricing signals on the cost of maintenance access, which is covered elsewhere in our report.

See recommendation A3 and A10

### ***Updated Access Priorities***

Access to the metro networks is governed by a set of rules that each participant must adhere to. In New Zealand these are called the Common Access Terms (CAT). A key outcome the Government are seeking is the growth of both freight and metro passenger numbers. Given the networks have a finite capacity to accommodate these services, the rules ensure everyone is aware of who can have what access and when.

Curiously, these access rules do not favour passenger services to the extent an impartial observer might expect. For context, the rules are at least 10 years old (dated 2012) and developed when the railway had been recently re-nationalised (On-Track, then KiwiRail formed) and metro services in both Auckland and Wellington were only recently benefiting from new EMU fleets. The rules were modelled on experience from the United Kingdom. We note that the Wellington and Auckland access agreements effectively provide a contractual framework for the CAT.

KiwiRail's freight operation is a minor user in terms of train movements but an important user of the Auckland and Wellington networks for the economy. Rail freight plays an important role in reducing emissions, moving bulk freight and keeps the supply chain moving around NZ. However, as the demand for metro services grows, the potential for conflict between freight and metro within a constrained network will only grow. To address these conflicts the access rules come into play.

What worked in 2012 is no longer fit for purpose in 2023. All parties to these agreements agree that they need revision and work on this has started in Auckland. The current approach can see freight trains running through both metros at peak times, or train pathways being allocated to deal with contingencies for late running freight trains, bringing both a loss of passenger capacity and increased risk of disruption. Our review hasn't allowed the time to undertake detailed analysis of these freight and metro conflicts, but we heard about them a great deal. A recent example noted by AT in relation to the current RNGIM works was that:

*AT had asked KiwiRail if they were willing to stop running freight trains in order to significantly shorten the length of time a commuter line would be close / disrupted. KiwiRail were unwilling to do so.*

This is not to criticise either AT or KiwiRail, but to emphasise that each block of line or access decision has a choice attached to it. Often these choices are unpalatable to either passenger freight or both. AT and KiwiRail have made a positive step forward by their designed access arrangements for RNGIM work recognising that the impacts on customers are significant, but the work needs to be done.

KiwiRail note that there are emissions consequences if freight trains are unable to run. However, we also note congestion consequences apply if passenger trains cannot run.

In terms of priorities, Schedule 5 and Clause 4.2 of the CAT are probably the key clauses that address access and affect the metro/freight allocation of access and resolution of conflicts.

We note that changing the priorities would result in additional consequential changes to the CAT.

Now is the time to start working through these priorities, because it will take KiwiRail, AT and GW time to work through these issues, even with independent facilitation to support the process.

Currently Metro services have priority during the peak hours (which are defined) while during Inter-Peak and Off-Peak Nominated Freight Services have highest priority, even above Metro and Long-Distance Passenger Services. During the Peak, Nominated Freight Trains are second priority even above Long-Distance Passenger Trains. While these freight train movement numbers are low, they do have potential to have an outsized impact on metro performance. It is clear that both freight and metro are important, but if KiwiRail is to take a lens that more strongly prioritises the metro and commuter customer, then these priorities need to be revisited.

As an example, we note that the timetable principles in Clause 4.2 could change as follows:

**Table 1: Proposed Changes to access priorities.**

|           | Existing clause  | Proposed clause   |
|-----------|--|---|
|           | The relative prioritisation of the services, which is...in respect of each of the Auckland Network and Wellington Network:   |   |
| <b>aa</b> | During the Peak: Metro Services, Nominated Freight Services, Long Distance Passenger Services, Freight Services and other Services   | <p>During the Peak: Metro Services, Long Distance Passenger Services, Nominated Freight Services, Freight Services, and other services (including Charter Services).</p> <p>During the Peak Hours: Metro Services, Long Distance Passenger Services. All other services shall not be timetabled or operate on the metro network during this time (even if delayed).</p> |
| <b>bb</b> | During the interpeak: Nominated Freight Services, Metro Services, Long Distance Passenger Services, Freight Services, and other Services (including Charter Services); and | During the Inter Peak: Metro Services, Long Distance Passenger Services, Nominated Freight Services, Freight Services and other services (including Charter Services);  |
| <b>cc</b> | During the Off Peak: Nominated Freight Services, Metro Services, Long Distance Passenger Services, Freight Services, and other Services (including Charter Services); and  | During the Off Peak: Metro Services, Long Distance Passenger Services, Nominated Freight Services, Freight Services and other services (including Charter Services);  |

Given the significant changes both metros are aiming to achieve (CRL, RS1), we believe now is the time for deeper conversations about the way freight is treated in the metro networks. This may then involve further discussions about additional capital investment and timings (such as bringing forward projects like the 4<sup>th</sup> main in Auckland).

We spoke with operators in Sydney, who had a clear catchphrase “freight must wait” when it comes to peak times and how freight is seen within the network.

We appreciate working through these issues will be challenging, but we were pleased to discover that senior leaders from KiwiRail, AT and GW are all engaged in the exact conversation, and are aware of the importance of a resolution, as well as the challenges

posed. We have seen evidence that the timetable committee process may struggle to address these 'big' re-prioritisation efforts. Each participant typically approaches such an exercise fighting their corner.

We believe this process would benefit from an independent facilitator appointed by the participants, to provide certainty for all participants and to re-examine and then settle (for now) on rules that work for everyone. We also believe this would also address the perception that KiwiRail uses its position to favour its own services and access.

The independent 'facilitation' role we are proposing should work to a clear deadline, nominally 6-9 months, to resolve new rules.

Just as access is important for services, be that passenger or freight, access is also important for maintenance. We believe AT, GW and KiwiRail need to work through these access requirements to settle on an approach that works for metros – balancing operational and asset needs. We believe there could be a better pricing signal for all access to the network, which would drive better behaviour and clearer outcomes from all participants.

Where KiwiRail deliver their maintenance activities more efficiently than planned and increases the level of network availability, that is where an incentive should be provided for in an access contract.

See Recommendations A4 and A5

### ***Skills and expertise***

We heard from KiwiRail of their intentional approach to development of a contemporary metro capability, but we heard from interviewees, and agree, that KiwiRail still has insufficient capability and capacity that is metro focused. Strengthening metro focused capability management including change management will be important to achieve the aspirations of the NRP and provide the assurance that we heard was of concern to the Crown, AT and GW as well as Waka Kotahi as funder and Waka Kotahi regulator,

We acknowledge that metro capability is limited in New Zealand. We observed that AT and GW have in recent times established a valuable, credible capability and capacity in rail metro. It is concerning that the organisations with the deepest rail expertise, which is AT, GW and KiwiRail, appear unable to work collaboratively to best effect. We have made a specific recommendation B7 in this regard. Notwithstanding this, the lack of fit for purpose resourcing of the EM80 compliance programme which prompted this review, the slow progress on most of the Auckland Metro Transformation Project and the gaps in populating the MAXIMO asset management tool are some specific indicators of constrained capability and capacity that were raised with us by interviewees. In many cases the accountable individuals had "workaround strategies", but our view is that this is a critical failure risk that must be addressed with appropriate mitigations where the risk cannot be eliminated.

We recognise that it would be a bad outcome of the strengthening of numerous roles that we have recommended if scarce resources were to be quarantined in respective organisations in the metro ecosystem or separated inside KiwiRail. Our earlier recommendation that KiwiRail partner more intentionally applies equally within and across the more integrated whole of the Metro enterprise we have recommended.

The metro sector, especially in Auckland with a programme of CRL readiness activities, is subject to large change drivers. We heard that recent changes in KiwiRail's metro role could have benefited from a change management process typical of a mature capability management framework. We conclude that KiwiRail needs to pay more particular attention to deploying best practice change management with the heightened expectation of service improvement in Wellington and the rapidly approaching CRL commissioning.

See Recommendations A8

### ***Partnering***

We believe there are some significant benefits to be achieved through better partnering. Our starting point is the need to bring in a partner, in whatever capacity, with deeper international experience on metro rail asset management and delivery. While we are aware various parties have suggested outsourcing, we do not consider that necessary at this time. We have already recommended benchmarking as means to test KiwiRail's competitiveness and value for money. However, partnering could bring further benefits, including working alongside KiwiRail, GW and AT to improve shared confidence in metro infrastructure services.

See Recommendations A9

## **2.3 Summary of Recommendations**

| #   | Recommendations   |
|-----|---|
| A1  | That <u>KiwiRail's</u> Chief Executive considers establishing a second-tier role focused exclusively on improving and growing Metropolitan Rail.  |
| A2  | That <u>KiwiRail</u> implements regular internal communication that regularly feeds back to all teams the importance of metro services.   |
| A3  | That <u>Waka Kotahi</u> work with KiwiRail, Auckland Transport and Greater Wellington to agree scope of work to deliver an independent benchmark of metro maintenance activity in terms of cost, efficiency and modern work methods.  |
| A4  | That <u>shareholding Ministers</u> ensure that KiwiRail undertake, with rail participants, a first principles review of Common Access Terms to prioritise growing metro passenger rail services while also meeting objectives for freight mode shift to rail.   |
| A5  | That KiwiRail, AT and GW agree and appoint a facilitator to support the parties in negotiating new access agreements consistent with the revised CAT (from Rec A4) that introduce a sustainable commercial regime that incentivises performance of all parties to meet agreed shared objectives aligned with Government priorities, and including a contemporary abatement regime that recognises the value of access for all purposes. |
| A6  | That <u>KiwiRail</u> implement a targeted capability management plan recognising the significance and critical risks associated with KiwiRail metro capability  |
| A7  | <u>That KiwiRail</u> deploy best practice change management to deliver metro transformation program and ensure this is for Auckland and wellington  |
| A8  | <u>That KiwiRail, AT and GW</u> put in place improved communication principles and practices with AT and GW   |
| A9  | That <u>KiwiRail</u> , bring in a partner with maintenance experience to coach and support KiwiRail to speed up their rate of progress towards asset management maturity and modern maintenance methods and performance.  |
| A10 | That <u>Waka Kotahi</u> strengthens its independent verifier role in relation to funding of all KiwiRail's below rail metro services functions, with reference to benchmarking outcomes as required.  |

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# 3 Broader Arrangements and Practices

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*TOR B: Do broader arrangements and practices in KiwiRail including levels of service, funding and delivery give appropriate regard to supporting metro passenger rail services?*

## 3.1 Findings

Much progress has been made in relation to policies, practices and funding over the last decade and more particularly the last five years, but our analysis has identified a number of interventions for consideration to improve for today and position the sector, not just KiwiRail, for metro growth. The broader arrangements and relationships within which KiwiRail operates are critical enablers of the integration of functions across a number of entities and we heard consistently of the benefit that could be realized through formalising integration and collaboration. Specifically, we conclude that:

- **Alignment and agreement on common objectives** between the Crown, AT and GW in the operation of Auckland and Wellingtons metro services is needed with a stronger customer lens.
- Increased funding of below rail metro assets and services has done much to improve resilience and reliability, but **simplified administration of the multiple funding channels** should be considered.
- While work has been undertaken to improve reliability and resilience of the metro networks, the extent of the remaining **deferred renewals backlog** and Crown funding for it, remains **unsure**.
- Resolution of the **affordability of BAU metro maintenance** and renewals in both metros is, in our opinion a driver of future critical failure risk requiring urgent resolution. Specifically, AT and GW NMP funding has not matched the appropriate levels of investment to sustain the assets.
- Ongoing, often unintentional, misalignment between the participants in the metro systems warrant **formal constitution of an 'alliance-like' accountability to drive transformation and performance**.

## 3.2 Analysis

### *Context*

While this Rapid Review was prompted by ongoing significant disruptions to metro services as a result of KiwiRail overrunning a compliance deadline, in our opinion this is a symptom of a wider set of issues some of which have already been discussed in Section 2. We have found that there are some broader arrangements including funding, which require reconsideration to provide greater clarity in relation to the roles of KiwiRail as both owner, maintainer, and an operator.

The current arrangements which have developed since the passing of the Railways Act in 2005 (the Act) and the subsequent Metro Operating Model (MROM) approved by Cabinet in

2009, have not kept pace with rapidly developing expectations and the strategic significance of metro passenger services.

We heard that Waka Kotahi is facilitating a Metro Rail Systems Steering Group (MRSSG) made up of key participants from the two metros, to methodically move forward the matters identified for improvement and further action in the 2009 Cabinet decisions. The MRSSG is also developing plans to address issues raised in the Auckland Rail System issues (ARS) rolling contact fatigue investigation.

We strongly support this work and its intention to keep it simple but found that it did not seem to have the level of visibility and resourcing mandate that it needs in order to gain momentum. We have made recommendations on a number of matters that MRSSG has under consideration in recognition of our view that these are areas of urgency that should not languish as they have until now. We have recommended interventions such as alignment on system objectives and simplification of funding arrangements.

For clarity, we do not have a view that the underlying models require fundamental review and agree with what we heard, in that their implementation and application can be addressed with levers that we will go on to recommend for consideration.

### ***System Objectives and Transparency***

The goal of the NRP for metropolitan rail networks to:

*“Support growth and productivity in our largest cities”*

This sets an expectation for developing the attributes of a contemporary metro. The 2022 Independent Review into Auckland Metro Rail System issues (AMR) report described a hypothetical well-functioning mixed use rail system as having:

*“a unified set of system objectives for planning and delivering the desired levels of service (i.e., planning and coordination).”*

This can be thought about at differing levels. We have heard that the Ministry of Transport is preparing planning documents at a strategic level which are intended to inform future NRPs and the GPS. For now, however, we see the AMR recommendation to secure greater interim clarity on system objectives, as very important to improving the effectiveness of KiwiRail’s development of strategies and tactical plans with AT and GW. At a tactical level we are particularly concerned that if this is not resolved urgently, there remains a material risk that the Auckland metro network will not be CRL ready, and we are confident that Wellington has a similar level of urgency. The scale of the capital investments in improvements suggests that uncertainty in relation to maintenance and renewals should not continue.

Two specific examples of this need for greater clarity, which were described to us, are paraphrased here.

- *the 2012 ANAA and WNA embedded the expectation from Cabinets 2009 MROM approval, that the Crown will fund the work needed to address a renewals backlog to the extent “required to support ongoing steady state renewals and maintenance to support an agreed timetable level of service.” The Crown’s very significant investments in successive WMUP programmes in Wellington and the RNGIM in Auckland have made significant progress toward this end. There is, however, no agreement and differing opinions as to whether clearing the remaining renewals backlog remains a Crown accountability and/or the extent of that backlog. Furthermore, there is uncertainty as to whether clearing the backlog now extends to providing a BAU basis for a post CRL timetable in Auckland and the RS1 timetable in Wellington. This is not able to be resolved between KiwiRail, AT and GW. A great level of time is wasted between these*

*organisations to resolve this issue, which ultimately must sit with the Crown.*

- *Similarly, KiwiRail and Auckland Transport are currently developing a long-term Programme Business Case and we heard of unsatisfactory misalignment on system objectives for access in relation to freight and metro priorities for constrained train paths. While this could be left for resolution in due course, alignment of the government's priorities for metro and freight with those of AT and GW would provide clarity in relation to simplification of immediate funding issues and expedite the development of Programme Business Cases for co-funders.*

#### **See Recommendation B1**

It is our opinion that the significance of the Crowns NRP priority for metro service growth objectives is not clearly reflected in either KiwiRail's Statement of Corporate Intent or its most recent 2023 Half Year Report. The latter, albeit a high-level view, could helpfully provide transparency on how KiwiRail is delivering against the Crowns objectives for below rail metro networks beyond only listing capital investments and high-level unquantified reference to metro access fees.

A greater clarity would then flow through to a principle that KiwiRail could, in reporting on its below rail business, separate metro below rail reporting from the balance of the network. We understand that this approach may be under consideration in regard to RNIP reporting.

#### **See Recommendation B2**

### ***Funding***

The Government has made significant funding allocations and further commitments to help fund the much-needed upgrade of metro rail. This process arguably started with the decision to fund the CRL in Auckland, but in reality, there has also been good support for investment into metro rolling stock and some below rail investments especially in the Wellington and Auckland metros before that. We understand further work in relation to strategies and funding is programmed as part of Future of Rail, but it needs to progress faster and with all parties involved to address the urgency identified in our review.

More recently, the changes to the funding regime provide partial certainty for KiwiRail with the NLTF funded RNIP. This has helped significantly by providing investments in capacity service level step change and renewal backlogs.

We heard and agree that the current funding arrangements have become too complex with the result that a single coherent view of investment and expected metro outcomes is not clear. In our view, now that long term funding mechanisms are established, there needs to be a review of the funding streams for metro.

The current complexity is illustrated by the overview of funding and accountabilities for the Wellington metro network at Figure 4. The multiple sources of funding per se is not the problem, it is rather the confused accountabilities and outcomes expected from this funding. These issues are partly due to the transition from one system to another for multi-year projects, and partly political (i.e. different funds for different outcomes)..

**Figure 4: Wellington Rail Network Programmes.**

| Wellington Rail Network Programmes |   |        |                                      |       |  |   |  |   |  |  |          |
|------------------------------------|---|--------|--------------------------------------|-------|--|---|--|---|--|--|----------|
| Plan                               | NZ Rail Plan 2021-2031                              |        |                                      |       |  |   |  |   |  |  |          |
|                                    | Wellington Network Management Plan (WNMP) 2022-2024 |        |                                      |       |  |   |  | Rail Network Investment Programme (RNIP)                      |  | NZ Upgrade Programme (NZUP)                                  |          |
| Contract                           | Wellington Network Agreement (WNA)                  |        |                                      |       |  |   |  |   |  |  |          |
| Fund                               | National Land Transport Fund (NLTF)                 |        |                                      |       |  |   |  |   |  |  |          |
|                                    | NZTA (51% FAR)                                      |        | GWRC (49%)                           |       |  |   |  |   |  |  |          |
| Conduit                            | RN IP   | GWRC   |                                      | RN IP | GWRL pass-through payment<br><i>Transitional Rail</i>  |   |  | RNIP  |  |  |          |
| Pro-gramme                         | BAU Maintenance                                     |        | BAU Renewals                         |       | WMUP II  | WMUP III  | WMUP IV  | WMUP V  | WMUP VI b  | WMUP VI a  |          |
| Scope                              | Network Maintenance, Management and Network Control |        | Business As Usual renewals programme |       | Traction face renewal<br><br>Renewal of traction overhead on Hutt Valley and Johnsonville Lines<br><br>Replacing remaining 3.3kV signals power supplies with low voltage power | Catch-up track and civil renewal<br><br>Wairarapa Line formation and drainage upgrades<br><br>Remutaka and Tawa Tunnels track renewal<br><br>Re-sleeper twelve short tunnels<br><br>Slope stabilisation<br><br>Bridge replacement | Capacity and resilience upgrades<br><br>Trentham to Upper Hutt (TZUH) double tracking<br><br>Porirua Area Capacity Enhancement (PACE)<br><br>Additional traction sub stations to allow longer trains | Signalling improvements and automatic train Protection (ETCS) | Regional infrastructure enhancements<br><br>New passing loops at Maymorn and Carterton<br><br>Second platform/passing loop at Featherston<br><br>Install signalling Featherston to Masterton | Wellington Station approach capacity and safety enhancements |          |
| Cost                               | ?   | \$286m | \$200m                               | \$50m | \$122.4m   | \$179.9m  | \$147.4m   | >\$250m   | 1m   | \$155.7m   | \$88.0m  |
| Timeline                           | Continuous (10 Year totals above)                   |        |                                      |       | FY18 -22   | FY19 -26  | FY20 -23   | FY21 -31  | FY 22  | FY21 -27   | FY21 -24 |
| Type                               | Maintenance   |        | Renewal                              |       | Catch-up Renewal   |   |  | Improvements  |  |  |          |
| Delivery                           | KR Wellington Metro                                 |        |                                      |       | KR Capital Projects and Asset Development (CPAD)   |   |  |   |  |  |          |

It is our recommendation that the RNIP regime could be used to consolidate administration of the Crown, AT and GWs funding. The RNIP could then provide a single coherent basis for all capital programme works and resolving the funding of both backlog and steady state renewals and maintenance. However achieved, the real outcome we are driving towards is for the Crown along with AT and GW to resolve the asset management outcomes and service levels they expect in metros and align that with funding. This is urgent, as backlogs continues to build while metro demand grows. We believe the parties should aim to have this resolved for the 25/27 triennium.

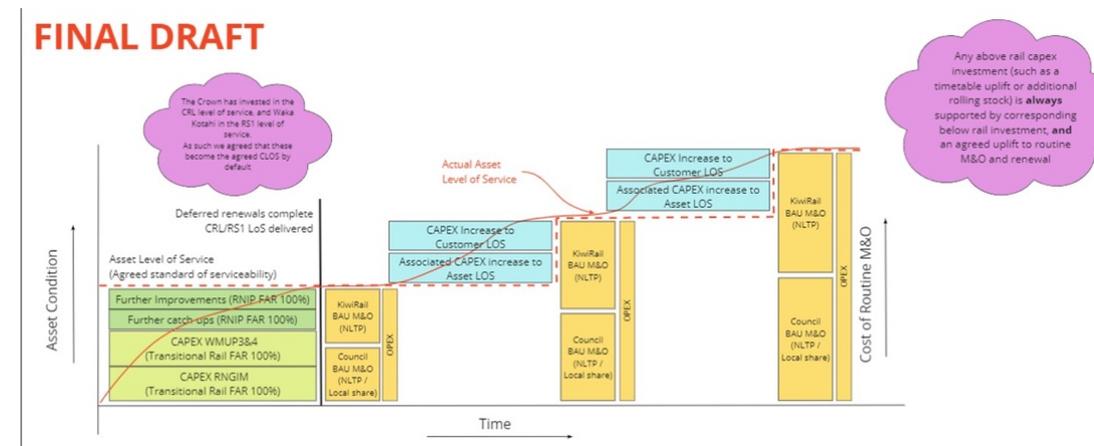
If the Crown agrees with this approach, the RNIP pre-approval assurance process should be significantly strengthened to mimic the 'Independent Verifier' characteristics of the Commerce Commissions role in securing independent verification of the electricity network participants renewal and maintenance plans.

We are strongly of the view that AT and GW are the most appropriate 'contracting entity' with KiwiRail, because they own the relationship directly with the customer. If metros are to become far more customer focused, then AT and GW must remain in that box seat.

**See Recommendation B3**

In relation to below rail funding, we found that a high-level model shared with us by the MRSSG and included here at Fig 5, provided a way to simplify consideration of both backlog and steady state renewals and maintenance.

**Figure 5: Rail Funding Model.**



The left of this figure describes the current state through to the commissioning into service of CRL and introduction of RS1 (via WMUP).

We heard that the agreed scope of the pale green RNGIM/WMUP work is experiencing current scope/cost pressure that is not yet resolved. In Auckland, we see resolution as critical for the network to be ready for the commissioning into service of the CRL so as to avoid the need for ongoing major line closures. In Wellington this investment is needed to meet growth demands on the network.

Urgent alignment between the Crown, AT, GW and KiwiRail is also needed on the scope and cost of the darker green coded boxes which represent the balance of the deferred/ backlog renewals needed to underpin a steady state BAU maintenance and renewals programme in the first set of orange boxes. The scope and cost of the orange boxes needed to support steady state maintenance and renewals is also not resolved, and given the current gap in the existing maintenance and renewals, we consider it highly unlikely that AT / GW will be able to afford the ongoing additional cost required post CRL/RS1 implementation to achieve steady state based on the existing 51:49 FAR approach.

**See Recommendation B4**

While it is clear that Metro networks need to be funded for ongoing BAU maintenance, it is also clear AT and GW have consistently advised KiwiRail that they do not have sufficient visibility and hence confidence, in the specifics of the estimated costs or the asset management planning maturity journey KiwiRail is on, to make a case for greater ratepayer contribution. It would seem that Waka Kotahi has similarly not yet had sufficient visibility of supporting analyses to form a view.

We have seen a number of exchanges of correspondence and have made recommendations about accelerating the development of asset management and analysis but have concluded that this is sufficiently urgent that a pragmatic holding solution is required.

The indicative size of the annual shortfall in Wellington and Auckland at \$20-30M pa is such that in our view a short-term intervention with reallocation of Crown funding to close the gap, must be in place as soon as practicable. Further delay exacerbates what is clearly a concerning performance risk.

We recognise that clarity of ongoing funding is critical and have a view that this needs resolution for the 25-27 triennium, but that meantime, FY24 is the burning platform that requires a pragmatic solution.

Longer term alignment of system objectives and funding models can follow and be informed by the MRSSG work but it is our view that this intervention cannot wait as the risk is too great for cost involved.

**See Recommendation B5**

### ***Executive focus***

As we have noted above, Waka Kotahi plays a key role as funder and investment advisor to Government. Its role in managing and auditing the RNIP and KiwiRails below rail performance has stepped up considerably in recent years, and this is a strong positive for the future function of the rail sector.

However, once again we are concerned that metropolitan rail and the recommendations we have made in this review need greater senior executive attention within Waka Kotahi to complement the recommendation we have made in relation to KiwiRail. We have already recommended that Waka Kotahi take a more active role in facilitating independent verifier of the RNIP. Although we are very impressed with the expertise and professionalism of those rail leaders already within Waka Kotahi it is our view that additional capacity and capability will be needed provide the focus and leadership required to adapt the system to meet contemporary demand and grow rail in line with direction from the Government.

Rail functions are part of a wider public transport team, led from the third tier in Waka Kotahi. Furthermore, it is contained within a second-tier role that has a very large span of control. Similar to KiwiRail, our view is that the metro rail functions become lost and don't receive the priority we believe is necessary. We would note in this regard that Public Transport and its infrastructure requirements are already led at tier 2 in the co funders GW and AT albeit that some structural changes are in progress in Auckland, which we believe will further strengthen focus on public transport.

To address this, we propose that the Waka Kotahi Chief Executive consider the establishment of a second-tier role that has rail metropolitan operations as a core focus. Whether this role is focused on public transport more broadly, or on the role of rail, we do not have a preference. However, what we do want to see is a senior experienced executive within Waka Kotahi focused on rail operations, participating in conversations on priorities, resource allocation, policy settings and with the leverage to hold KiwiRail to account for its performance. For the record, this role would / must remain functionally separate from the rail safety regulatory team.

**See Recommendation B6**

### ***Auckland Metro Transformation Programme***

KiwiRail has sponsored an Auckland Metro Transformation Programme (AMTP) which brings together transformation work programmes from various funding sources to a coherent whole as depicted on Figure 6.



framework for partnering and relationships. This was the single greatest point of contention and frustration we encountered.

As an example, we sighted an independent report commissioned by KiwiRail which set out the full timeline of the EM80 failures. Fundamentally, rather than a failure of an asset due to maintenance challenges (which did occur), the real reason this became an issue of unclear accountabilities and a failure to communicate with key partners This was in two ways:

- A failure to escalate the problem within KiwiRail to allow the issue to be resolved. We note that once that escalation occurred in later April, the issues were actually addressed promptly. This leads us to the concern that the importance of metros is not understood as widely within KiwiRail as its partners believe it should be.
- A failure to communicate the risk of disruption to GW. While proactive communication did occur by the leaders within KiwiRail who are responsible for the metro relationships, they were not aware of the problem until late in the piece, and then communicated promptly. GW would have been far better placed to manage the disruption had 24 hours more notice been provided, let alone the 4–6 weeks that could have been provided if better partnering behaviours were universal within KiwiRail and between GW and Transdev.

As a minimum, we suggest the following approach could make a difference:

- Ensure all partners have an aligned and clear line of communication with central government.
- More open communication and willingness to communicate bad news, even before a solution is known.
- Agreeing communication and partnering principles and then investing in the right leadership behaviours to ensure they occur. There should be much greater emphasis on:
  - Developing the right working relationships between the partners. Focus less on the plans, processes and systems that are all developing and evolving, and figure out how to work together well.
  - Determining how to measure the success of the overall railway, and less on finger pointing as to who is at fault (it is usually clear who is at fault but knowing that doesn't provide a focus on future success). This could be a unified metric for on time performance.
  - Leveraging the difference points of value for each organisation (be that background, customer insight, engineering expertise, process or culture) and use those differences to create a stronger team delivering for the customer.
  - Encouraging and rewarding collaboration between partners, so that everyone knows what is valued most.
  - Ensuring each partner has the space to do the work internally so they can be an effective participant. Internal communication on the importance of metro rail for example, would lead to better performance from KiwiRail as the entire team is on the same page.
  - Using customer experience as a unifying and singular force for change and having all leadership behaviours link back to this outcome.

The development of an alliancing approach to working together would clearly have merit to foster the change in behaviours we have suggested from our review of the EM80 event. We think this should be done between KiwiRail, AT, GW, AOR and TDW. We are inclined to include Waka Kotahi in this relationship, but there could be an argument for them to remain outside and able to hold parties to account. Alternatively, take a consistent but separate approach in Auckland and Wellington, but with KiwiRail as the common partner.

Our view is consistent with the 2022 Independent Review into Rolling Contact Fatigue issues which recommended:

*"More extensive changes to the ANAA, AMR system governance, and asset management planning."*

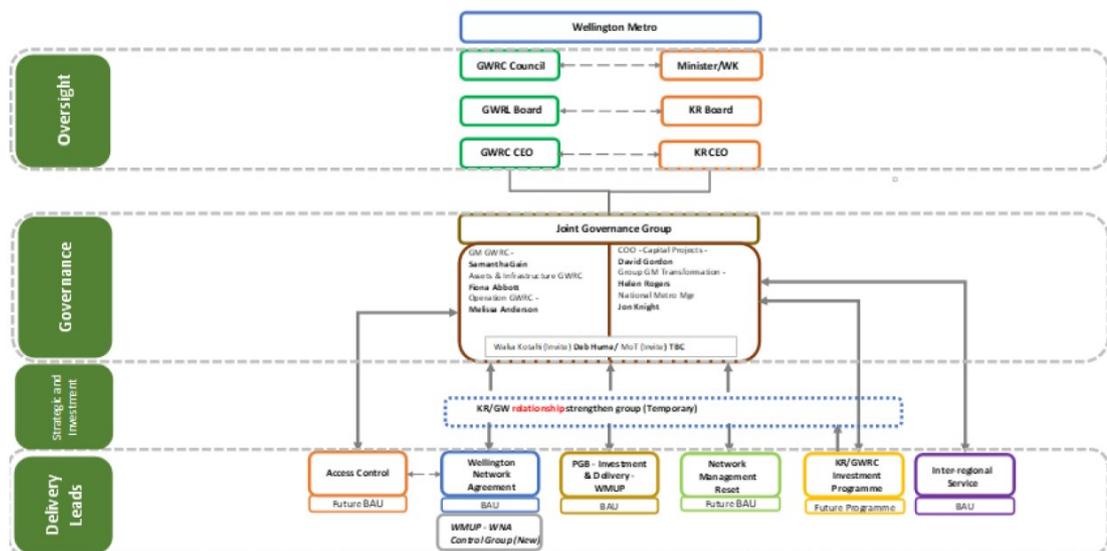
And

*"An enabling environment that allows participants to achieve the desired service levels. This would include sufficient funding, capacity and capability, clear accountabilities, and mechanisms to allow the system to respond appropriately to changed needs through time (i.e., minimising constraints or inhibitors on parties delivering the system objectives)"*

Our review finds that had this recommendation been progressed further, then the KiwiRail specific recommendations we have made above, may have been considered by now. It is our view that the time is right for consideration of a more intentional approach to improving the governance and management of metro rail services taking advantage of our specific earlier recommendations relating to KiwiRail and Waka Kotahi.

Before developing this further we should note that Joint Governance Groups (JGG) have been recently established in Auckland and Wellington. They are attended by senior managers in the partner organisations. It is clear that the JGG's were established to better organise and rationalise a large number of working arrangements and to address the need to work together to address the challenges and opportunities of the NRP and new funding and planning tools. The JGG's are slightly different in the way in which the operator is engaged but they are seen by all participants as valuable step in the right direction and the arrangement is shown at Figure 7 below.

**Figure 7: Joint Governance Group.**



To date however, the JGG have operated with a primary focus on capital programme issue resolution. The Terms of Reference for the JGG are currently under review to adopt a more "proactive and rail system stance" which we support. We suggest however that a much more fundamental change is needed with urgency, to better position all of the participants to make the aligned, integrated and effective progress required.

We have observed this earlier in this report as an essential enabler for KiwiRail and here take a wider view of the issue and opportunity. Some of the symptoms of the need for this more fundamental change to governance and management that we observed included:

- 
- No executive oversight of the performance of the metro system and customer outcomes, allowing the EM80 disruption to unfold.
  - Insufficient aligned focus on metropolitan passenger rail at senior executive levels.
  - Misalignment and a lack of clarity on the extent and remaining funding requirement for a renewal backlog.
  - Differing views on the capability and capacity of KiwiRail.
  - No aligned executive visibility, mandate and support for the MRSSG working group which is addressing critical MROM implementation gaps in a 2023 context.
  - General concern at KiwiRail's perceived conflicts of interest, in particular how it addresses its role as an operator of freight and other services and how it should resolve conflicts.
  - Auckland Metro Transformation Programme delays and resources.
  - Misalignment on timetable inputs to Auckland 30-year PBC.
  - Expectation and process misalignment on fitting ATIS to Auckland EMUs.
  - Mistrust around performance adjustments to KiwiRail's margin on network services.
  - Ongoing concerns at the lack of visibility of critical failure risk.

During the course of our review, we were able to take into account a recent inquiry into the performance of Sydney Trains reported on the 12th of May. The review into Sydney Trains, a vertically integrated passenger service supplier, was prompted by significant customer disruptions and a trend of deteriorating service levels. While the Sydney context is different, we have considered the key recommendations to identify any commonality with the emerging themes of this review.

Notwithstanding that Sydney Trains is vertically integrated, the initial report has found that the key function of access management was not appropriately integrated and that an increasing backlog of renewals and maintenance needed urgent reallocation of transport funding priorities. This necessitated Sydney Trains instituting a major programme of closures to catch-up. A key contributing factor was that insufficient maintenance access was programmed into the base timetable. International experience can be a useful pointer for New Zealand rail participants and specifically the need to successfully integrate and partner to successfully deliver metro services.

To move this forward we have looked at the functions of a well performing metro railway and set them out below.

**Table 2: Metro Functions.**

| Typical Metro Entity Functions     | Division of Roles in NZ today                                 | Suggestions for Consideration from this Review   |
|------------------------------------|---|--|
| <b>Operations</b>                  | Contracted Operators  | No change  |
| <b>Crewing</b>                     | Contracted Operators  | No change  |
| <b>Customer</b>                    | AT/GW   | No change  |
| <b>Engineering and Maintenance</b> | KiwiRail Chief Infrastructure Officer (below rail) (imminent) | <b>New Director Metro</b> (alongside and in addition to the CIO)                               |
| <b>Strategy and Investment</b>     | Crown, AT, GW and KiwiRail                                    | No change  |
| <b>HSE</b>                         | KiwiRail and Operators  | No change  |
| <b>Finance</b>                     | Crown/Waka Kotahi/ AT/GW and KiwiRail                         | No change <b>but simplified and much strengthened assurance and audit role for Waka Kotahi</b> |
| <b>Arm's length functions</b>      |   |  |
| <b>Ownership</b>                   | KiwiRail/GW/AT  | No change  |
| <b>Access</b>                      | KiwiRail  | No change but with <b>independent oversight</b>  |
| <b>Safety Regulator</b>            | Waka Kotahi   | No change and on <b>strengthening path</b>   |

For the recommendations of this review to be progressed, we believe that a formal arrangement to transition the JGG construct to a more effective model is needed. An arrangement with 'Alliance-like' characteristics across the functions in Table 2, will be essential to enable the participants, bound by a shared commitment to the objectives of the co-funders AT GW and the Crown, to avoid the ongoing symptoms we have observed including the EM80 event.

We believe that without such an intervention, the potential for significant future disruption to metro customers in both Auckland and Wellington as consequence of ongoing misalignment is more likely than not, if these issues are not addressed.

We suggest Waka Kotahi, GW, AT, KiwiRail and the Metro Operators should be required to formally reconstitute the JGGs as "alliance like" management entities in accordance with key principles including:

- A formal mechanism for collaborative Tier 2 executive accountability for the roles in Table 2 (within the policies and delegations of participants) and committed to shared metro objectives shaped through a customer lens.
- Establishment of an enabling reporting and management arrangement across all of the functions.
- Commitment to alignment and elevation of unresolved issues to the tier 2 forum and above.
- Establishment of a Chief Executive and Chairs Group, with collective oversight of the metro system to lead a culture of trusted relationships and clarity of objectives and affordability.

See Recommendation B8

## System Safety

We have met the Waka Kotahi safety regulator and were impressed with the progress being made on the R3F system. However, there is a need to recognise that significant changes in the metro system, and increased risks, mean that there is a requirement for the Regulator to accelerate people capability growth, introduction of improved tools and technology; and be funded at the required level to achieve these.

As investment in rail continues and growth is facilitated, the current risk profile of rail, particularly within our metro networks, increases, necessitating greater regulatory oversight to provide the required level of safety assurance.

In fact, a number of interviewees, specifically those with international metro operating experience, consider our safety regulator to be significantly underpowered. While it is not our brief to recommend institutional change, a number of participants suggested institutional separation of the safety regulator from investment and planning functions currently all housed within Waka Kotahi, albeit with statutory empowerment of the regulatory role.

We have heard sufficient concern from parties, such that we recommend that the safety regulator be positioned to more rigorously address risks in a manner aligned with contemporary international practice.

Some of the symptoms described to us, which we believe need attention include:

- A number of very worrying examples of safety incidents or near misses where participants described candidly their view that these should have resulted in more serious investigation and/or sanctions.
- Investigation into the operation of DMUs through future proposed RNGIM worksites without ETCS protection.
- Investigation into the risks to passengers of trains without ETCS protection.
- Unprotected worksites within the rail corridor impacting on EMU operations.
- Poor hand back practices after maintenance shutdowns.

We cannot stress enough our view that these matters need to be addressed quickly to ensure the ongoing safety of all metro rail participants, their staff and the travelling public.

## 3.3 Summary of recommendations

| #  | Recommendations   |
|----|---|
| B1 | That <u>Ministry of Transport</u> review the funding settings under the Metro Rail Operating Model given ongoing unaffordability for GW and AT in maintaining and renewing the metropolitan rail networks.  |
| B2 | That <u>KiwiRail</u> report metro and non-metro below- rail performance separately in their Statement Corporate Intent and Corporate Reporting.   |
| B3 | That <u>Ministry of Transport, with Waka Kotahi, AT and GW</u> , administer their respective funding through the RNIP to provide a single coherent view of metro infrastructure funding aligned with agreed outcomes.   |
| B4 | That Ministry of Transport urgently investigate whether:<br>the Auckland network upgrade works currently being delivered will ensure rail renewals backlog are addressed, to eliminate the risk of ongoing major disruption from Day 1 of commissioning of CRL; and |

| #  | Recommendations   |
|----|---|
|    | the Wellington network upgrade works currently being delivered will enable the implementation of the RS1 timetable  |
| B5 | That <u>Waka Kotahi with Ministry of Transport</u> as soon as practicable implement a pragmatic solution for addressing the current circa \$20-30m annual renewals and maintenance funding shortfalls in Auckland and Wellington through appropriate reprioritisation of transport funding. |
| B6 | That <u>Waka Kotahi's</u> Chief Executive consider establishing a second-tier role that is focused on metropolitan operations as a core focus.  |
| B7 | That <u>KiwiRail</u> prioritise additional resources to speed up the Auckland Metro Transformation Programme and expand it to include Wellington.   |
| B8 | That <u>Waka Kotahi, Greater Wellington, Auckland Transport, KiwiRail, Auckland One Rail and Transdev</u> formally reconstitute the Joint Governance Groups as 'alliance-like' entities to eliminate the consequences of ongoing misalignment.  |
| B9 | That the <u>Director of Land Transport at Waka Kotahi</u> more rigorously address safety performance risks that are increasingly arising from the growth of metro services.   |

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# 4 Priorities for Maintenance

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*TOR C: How does KiwiRail balance the priority for track maintenance in the interests of all rail users? Is this prioritisation adequately and transparently represented in the agreements between the relevant parties with appropriate governance oversight? To the degree that there is an agreed process for prioritisation of maintenance between freight and passenger networks, has this been followed correctly by KiwiRail?*

## 4.1 Findings

We did not hear particular concerns regarding KiwiRail's balancing of maintenance priorities and conclude that this is likely because the levels of activity have, on both networks, been consistently determined by the affordability decisions of the Crown, AT and GW as co-funders. There is however a widespread lack of confidence in management plans for metro maintenance and renewals, and then parties find it increasingly difficult to reach agreement on those plans. We do note that:

- It is our opinion that metro and freight infrastructure investment decisions should be determined from **first principles** for metro and non-metro networks and not trade-offs between below rail investment in the metro and other networks respectively. This appears to be the approach taken in the RNIP.
- We find that the RNIP process appears to be transparent, although not all parties are involved in the process of deciding the outcomes. Specifically, AT and GW could be more involved in capital planning decisions around the RNIP.
- Any direction on priority should come from funders/owners through appropriate statutory levers.
- Asset management **practices are improving**, but we have heard from stakeholders, and we agree, it is **not fast enough**.
  - A strategic Asset Management Plan has been developed and approved to chart the way forward.
  - Asset Class Strategies are in development.
  - Asset Management Plans are also in progress but are **not adequately supported** by data and analysis to create confidence of stakeholders.
- Resolution of any **roadblocks, resource priorities or funding constraints** which limit the quality and currency of inventory, condition and performance needs attention as they are compromising the reliability of estimates of both deferred renewals/backlog and steady state maintenance and renewals.

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## 4.2 Analysis

Historically, compliance with KiwiRail's codes and standards and a bottom-up analysis of resource requirements to maintain them, have driven estimates of renewals and maintenance costs which have then been tensioned against affordable funding. With the increasing maturity of KiwiRail's asset management system this is increasingly informing a top-down reconciliation to better inform investment advice.

A first principles approach would involve all the parties working as follows:

- Collective determination of the correct level of investment for the network for any given time period (i.e., trienniums) not constrained by affordability to any of the network users/funders.
- Allocation of those costs between metro and non-metro customers determined by objective measures (movements, tonnage, usage and value to service levels etc.) and not constrained at this point by affordability by any of the network users/funders.
- Transparent application of affordability constraints to determine adjusted services levels which must be agreed.

Fully developed Network Management Plans (NMP) underpinned by fit for purpose asset management planning, have been a KiwiRail obligation since execution of the decade old ANAA and WNA. KiwiRail's plans however, still lack the rigour that is not unreasonably expected by co-funders. This ongoing area of concern was highlighted in the 2022 AMR report as requiring targeted attention for the Auckland metro network, particularly with the imminent step change introduction into service of the \$5B plus CRL investment. We have heard that this is underway collaboratively with AT and the CRL construction alliance but have made an earlier recommendation B7 to see that this has the resourcing and priority that it needs.

We note and acknowledge that KiwiRail has adopted a best practice approach to development of asset management capability and has made significant progress on a path of continuous asset management maturity. With RNIP funding, the development of a Strategic Asset Management Plan in 2022 has set out quite clearly the development path. A sustained investment of this nature was not possible before RNIP. Asset Class Strategies are in development but as yet the significant gaps in inventory, condition performance and cost data seem to be the result of roadblocks in KiwiRail's delivery models. We also heard that the bandwidth of the current KiwiRail resource allocation to the improvement of asset management practice severely limits the extent to which these strategies can inform network management plans that represent good practice let alone best practice.

The consequence of this is a level of ongoing distrust and lack of confidence by co-funders AT and GW in KiwiRail's plans which undermines the alignment necessary for development of meaningful plans for both the short and long term.

This capability gap if not addressed will compromise the current development by AT and KiwiRail of a 10-year Network Management Plan and 30-year Programme Business Case for Auckland which is to be followed by the same for Wellington. This is not a criticism of KiwiRail's commitment and progress to date but the need to remove roadblocks remains.

If funding is a limitation to progress, then the refreshed and governance framework we have recommended will need to elevate it accordingly as we see this as significant stumbling block to planning for and funding metro services. In particular it will fundamentally put at risk the clear post opening expectations of both the Crown and Auckland Council sponsors of investment in the CRL.

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## 4.3 Summary of Recommendations

| #  | Recommendations  |
|----|--|
| C1 | That <u>KiwiRail</u> accelerate development of its asset management capability to ensure the Auckland network will function as expected after CRL opens, and in Wellington to support the increased frequency of services expected by the RS1 timetable. |

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# 5 Track inspection methodology

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**TOR D:** *Is the current track inspection methodology in relation to the metro passenger network consistent with International best practice? What is the supporting analysis behind the required frequency of these inspections and the requirement to limit speeds if these inspections are not carried out within a certain number of days?*

## 5.1 Findings

KiwiRail's current track inspection methodology is on an improvement path, but we find has lacked the priority appropriate for a comparable metro operation and needs acceleration. We also note that:

- The EM80 track inspection frequency appears consistent with other comparable railway jurisdictions for a track condition audit and is not cause for concern;
- While critical safety defects are addressed promptly the speed with which KiwiRail addresses lower priority defects identified during inspection is an area of concern, including disruption impacts of extended TSRs;
- KiwiRail's methodology does not yet have in place a fit for purpose three layers of defence approach to track inspection:
  - Visual and ride assessment, generally in the cab of a rail vehicle
  - Mechanised data collection
  - Track car audit with biannual foot patrol

to inform it's safe and effective maintenance of metro track.

- KiwiRail in the process of procuring a contemporary track evaluation car for its third line of defence but commissioning is likely still some two years away.
- A mechanised track inspection system (ATIS) for a second line of defence has been procured for Auckland but its commissioning date is still to be locked in.
- A higher priority should be given to extending the ATIS capability to the Wellington network.
- We are also concerned that the RNGIM funded Auckland Metro Transformation Project workstream to develop metro specific codes and standards, may not be progressing effectively.
- Addressing the recommendations, we have raised will have a knock-on effect of highlighting the need for interventions across KiwiRail to signify appreciation of the importance to the government of its metro infrastructure business and the consequences of metro disruption.

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## 5.2 Analysis

We have some specific observations in relation to the fitness for purpose and risk exposure of KiwiRail's metro track inspection regime and metro codes and standards but qualify those observations by noting that we are not subject matter experts.

A four monthly run of the EM80 Track Inspection Car is a core KiwiRail track code compliance requirement. The Plasser track car was purchased more than 40 years ago and its global comparators have long since been retired. KiwiRail has refurbished the car itself and upgraded its technology and we note that it is in the process of procuring a contemporary evaluation car.

While critical safety defects are addressed promptly post an EM80 run and the speed with which KiwiRail addresses lower priority defects issues identified during inspection is an area of concern. KiwiRail's asset management system does however track lower-level defects to provide a basis for analysis. This analysis has the potential to inform predictive deterioration in track condition and lead to implementation of preventive maintenance but this has not become operational. To keep pace with the contemporary application of codes and standards, KiwiRail's asset management development programme needs dedicated metro focused acceleration.

For more than a decade KiwiRail has appreciated that there was a need to put in place a mechanised inspection capability as part of its weekly operational track inspection code. This was particularly critical as foot patrols have become unsafe and cab or high-rail inspections are not adequate for maintaining a contemporary level of safe operations. The EM80 Track Car inspection as it is today in New Zealand should more properly be positioned as calibrated audit tool. A track inspection car is then the third line of defence behind an operational front line visual/ ride assessment supported by mechanised track measurement as the second line of defence.

We note that KiwiRail appreciates what is required to implement a contemporary approach to track inspection and has developed business cases and secured funding approval for a contemporary Automated Track Inspection System (ATIS) for use in the routine management of the Auckland metro network. ATIS which will fill the second line of defence gap is currently being delivered for installation on a heavy high-rail vehicle.

With the ATIS system, the routine track maintenance operation can typically have access to track geometry, track condition, clearances and overhead data to identify and programme defect remediation. In the case of track geometry this currently relies heavily on the four monthly EM80 run. Importantly, where ATIS technology is embedded in the first two layers of defence, a track car inspection delay, should it occur, would not require blanket line TSR as, with appropriate approvals, the first two layers of defence can be stepped up.

We found from our interviews with comparable metro subject matter experts that the NZ EM80 event was incomprehensible for two reasons. The absence of mechanised operational data collection and analysis was seen as a level of risk and effectiveness investment that should not have escaped priority in a metro rail business. Secondly, the series of events that enabled a track car audit to miss its frequency requirement, and overshoot a 28-day grace exemption, was equally incomprehensible.

The programme of improvement in track inspection technology has clearly not had the appropriate priority needed for a contemporary metro operation and it is of concern that the urgency of this step forward has not included dedicated cover for Wellington. The technology is well proven and it would seem that a reluctance to accelerate could be overcome without undue implementation risk, if our earlier recommendations for partnering were embedded in KiwiRail's procurement and partnering practices. In section G where we discuss critical failure risk, the continued gap in the three levels of defence in any comparable metro operation is in our view a material risk exposure.

### See Recommendation D1

We note that the RNGIM funding included provision for KiwiRail to adopt best practice codes and standards for metro infrastructure, but it is of concern to find that KiwiRail officers had differing views as to the need. Amongst stakeholders including the Waka Kotahi Safety Regulator, there is little confidence and a lack of clarity and alignment regarding the scope and approach to this task. Recommendations of the AMR review clearly highlighted the importance of this matter and in our opinion, until this review of codes and standards is completed, it is critical point of failure risk.

The AMTP has visibility of this task, but we are concerned that its scope, methodology and urgency warrant much greater executive vigilance.

### See Recommendation D2

In 2022 a comprehensive independent investigation was completed into the urgent need to replace rail in Auckland due to rolling contact fatigue. We were unable to determine easily whether the recommendations of this report had been fully implemented. By way of example, it was unclear to us as to whether an appropriate rail grinding programme, rail head profile and regular non-destructive testing were all in place.

We have recommended that KiwiRail executive attention be given to ensuring that that the AMR standards recommendations and implementation in relation to Rolling Contact Fatigue are fully actioned and if not this matter is elevated as a critical governance risk.

### See Recommendation D3 & D4

## 5.3 Summary of Recommendations

| #  | Recommendations  |
|----|--|
| D1 | <u>That KiwiRail</u> should accelerate closure of its second line of defence gap with ATIS technology to include cover for both Auckland and Wellington Metro, which would have first call on the equipment.                           |
| D2 | <u>That KiwiRail</u> executive should confirm that codes and standards specific to metro across all asset classes are required, and then expedite their completion.  |
| D3 | <u>That KiwiRail</u> executive should satisfy itself that it has actioned and implemented the recommendations of the Rolling Contact Fatigue (AMR Report, February 2022) review and if not elevate this as a critical governance risk. |
| D4 | That <u>Waka Kotahi</u> as the safety regulator satisfy itself that KiwiRail has a program to implement its actions arising from the Rolling Contact Fatigue (AMR Report, February 2022) review.                                       |

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# 6 Managing the EM80 Line wide TSR

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*TOR E: How well did KiwiRail manage the situation that arose from the EM80's unavailability, in the timeframes available, to minimise disruption to commuters?*

## 6.1 Findings

We find that KiwiRail were poor at managing the situation that arose from the EM80s unavailability. Helpfully, they have acknowledged their own failures and that they let the commuters of Wellington down. We also concluded that:

- A series of KiwiRail **internal failures** of communication, lack of understanding of consequence (TSRs) and an absence of 'Plan B' for critical plant exacerbated the situation.
- It is inexplicable that it took KiwiRail from 6<sup>th</sup> March until 27<sup>th</sup> April to **communicate** the problem to GW.
- KiwiRail's **crisis management** continued to be poor from 27<sup>th</sup> April to 4<sup>th</sup> May, specifically including poor communication to key partners. Notwithstanding they reduced the period of disruption from the initial estimate of many weeks to a few days.
- Once escalated to the most senior levels of KiwiRail (C-suite level) resources were re-prioritised, and the EM80 was able to be delivered to Wellington much earlier than commuters were first advised. While this was a good outcome, an issue this basic should be able to be **solved** at the level it was created and the systems within KiwiRail failed to do so.
- GW and TDW appear to have communicated effectively with the public with the information available to them.
- We are satisfied that KiwiRail have reviewed their handling of the situation and put in place improvements to their EM80 process and systems that reduce the risk of this specific incident reoccurring.
- There is **no plan B** for the possible complete failure or unavailability of the EM80 to address the progressive non-compliance of the network.
- Future misunderstandings could be avoided if GW followed the approach taken in Auckland, with respect to co-locating network and train operator in a single location, specifically at the new Wallaceville facility. We note that KiwiRail have extended this invitation, and we urge GW and Transdev to accept.

## 6.2 Analysis

### *Internal Failure*

KiwiRail have admitted they have handled the EM80 incident poorly. We met those involved, and they are dedicated and competent professionals. The EM80 failures can therefore best be ascribed to a series of system failures, and a culture of decision-making being pushed up the 'chain of command' rather than problems being solved at the level they are created and observed. Noting this, we understand that once the problem was escalated to the third tier and then C-suite level, the EM80 availability problem was solved reasonably quickly.

KiwiRail have subsequently commissioned a report from an independent consultant to determine what happened in the months before the event and during. That report provides

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an accurate account of what happened within KiwiRail. It appears that generally, a number of teams and people within KiwiRail were raising concerns about the EM80 availability, the impact on Wellington and Auckland metros, and trying to find appropriate solutions. None could be found, and the problem stagnated for many weeks. As noted above, once escalation occurred, a solution was found and the worst-case scenario of 3-4 weeks of TSRs was avoided.

### ***External Communications***

KiwiRail performed poorly in relation to communication with GW, and to an extent, other parties that ought to have been informed much earlier, including Waka Kotahi. Specifically, it is inexplicable that it took from the 6<sup>th</sup> March (problem defined and known) to the 27<sup>th</sup> April to communicate with GW.

Furthermore, we also discovered that the Auckland metro team in KiwiRail had to deal with EM80 unavailability issues during February and March but managed to find work around solutions to avoid speed restrictions on the Auckland network. While they were working with a different set of circumstances, the fact remains that a number of opportunities were missed to identify the risk to the Wellington network. KiwiRail have accepted these failings.

Communication between KiwiRail and GW appear to have been made worse by the likely well-intentioned efforts of KiwiRail to present solutions to GW and Transdev as to how they should reduce the impact on the customer. We observed a range of miscommunication and unhealthy tension in the resolution process from 27<sup>th</sup> April until the following week when the line speed returned to normal.

For clarity, the impact of the line speed restriction (70km/hr versus 100km/hr) is that the normal roster of train and crew could not deliver a service that the customer needed or expected. A metro network involves the management of a complex number of movements of train and crew, often planned and scheduled often many weeks in advance. There are also rules around train driver hours for fatigue management, and crew terms and conditions that must be respected in order to provide a safe and reliable service. Solutions to these things cannot be delivered in hours/days. Transdev and GW appear to have delivered the best possible response in the time available.

Once again, if KiwiRail had communicated even a week earlier, better arrangements may have been possible.

### ***Crisis management***

KiwiRails management of the crisis was far from textbook. KiwiRail for the 27<sup>th</sup> and 28<sup>th</sup> April were overly internally focused on resolving the EM80 availability issues, and did not communicate effectively enough with GW, who were left waiting on KiwiRails agreement to the messaging for the customer on Friday 28<sup>th</sup> April.

Notwithstanding, GW did acknowledge that once the severity of the issue became clear to senior KiwiRail executives, they owned the problem and focussed on delivering a solution. They also appreciated the apology provided by KiwiRail directly to their customers. GW specifically acknowledged the good work of the KiwiRail communications team.

We are unsure why the crisis management unfolded the way it did. Once aware of the problem, KiwiRail focused on solving problems. While this approach was effective and admirable, if it had been accompanied by more proactive communication to their fellow rail partner organisations, so everyone was kept informed of that progress, relationships may have been less frayed. It is possible that more engagement with partners may have delivered some alternative solutions.

In the end, the best thing we can observe about KiwiRails crisis management, is that it would be better to address the root cause of the issues and prevent them from happening entirely, rather than focus on improving crisis management. A number of people in KiwiRail are

actively turning their mind as to how to achieve this, and we acknowledge it is a complex challenge.

### Customer impact

Fundamentally, the EM80 was an asset management, scheduling and management failure. In our view it was, at its core, a failure by KiwiRail to understand the impact of its actions on customers. For the reasons outlined, the impact was uncertainty for customers, a reduced timetable, and less capacity on each train. Reports during the week of 1 May were of commuters packed into the trains (not ideal with a community still sensitive to public proximity post-covid), or simply not being able to travel.

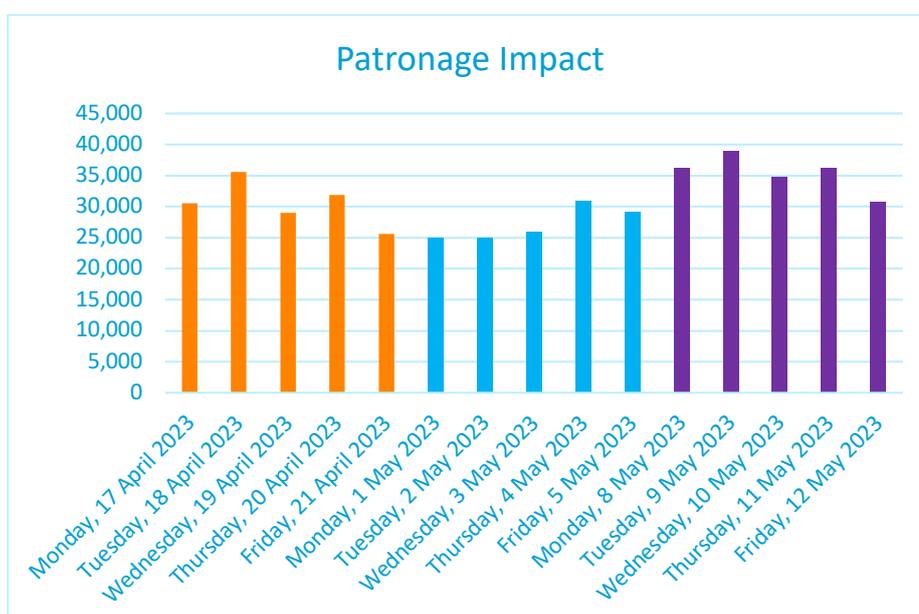
GW and TDW adapted each day to the situation, largely by adding capacity (longer trains). We heard specifically from the RMTU and Transdev, that their positive working relationship allowed timely and responsive adjustments to rosters which would normally take many days. This allowed a faster than usual movement from the normal weekday timetable to a Saturday timetable, which in turn meant customers received the best service possible in the circumstances.

KiwiRail argues that the operator and GW should have done more to reduce the impact on the Hutt Line. There was insufficient lead time for such a change to be implemented for Day 1. We have tested this with the operator and find that the steps taken in the situation were entirely reasonable. The impact on the customers within the network fundamentally flowed from the EM80 unavailability, not from the operator's response to it. It also impracticable to have multiple contingency plans. The more pertinent lesson is to KiwiRail to communicate in a much timelier manner.

The implementation of a Saturday timetable was the only safe, simple and practical timetable available given the TSRs in place. During the week starting 1<sup>st</sup> May, additional capacity was added the following day, and by the end of the week, the network was back to full timetable and full compliance as the EM80 had completed its work.

Patronage patterns have changed since covid, however, there are reasonably consistent patterns emerging week by week. We were interested in the broad impact on customer journeys. While we have not analysed the data in depth, the following figure tells the story of 3 weeks around the event.

**Figure 8: Patronage Impact of the EM80 Incident.**



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People use public transport for many reasons. They want it to be safe, reliable, frequent and affordable. In both Auckland and Wellington, the metro rail service provides a high frequency backbone for the network and moves a significant number of people each day.

The real impact of the EM80 failure was that each day of disruption during the week concerned, up to 14,000 people did not travel by train. We assume they made a choice to either stay home or use another mode of travel. Many of these disrupted journeys are made by people who work, learn or recreate in the CBD. More than 76,000 people work in the Wellington CBD<sup>2</sup>. If up to 14,000 people or 18% of the normal CBD workforce do not turn up, the impacts start to cascade economically. In Auckland, the disruptions occurring as a result of the necessary upgrade works are equally or more significant – both in terms of proportion of the travelling public and impact on the city. This narrative simply serves to demonstrate that in behind all of the asset management issues, real peoples' lives are affected. Metro rail customers deserve better from the system that delivers their services.

See Recommendation E1

### ***Prevention***

We now turn to ensuring that sufficient action has been taken to minimise the risk of this event occurring again. We are confident that KiwiRail is taking the issue very seriously and is working hard to regain the trust of AT and GW, and the travelling public. But as outlined in this report, we believe there needs to be a far more joined up approach, and one which is more metro-customer centric.

Turning to the EM80 issue, we note that the KiwiRail CEO has presented the Board with a paper summarising the EM80 challenges and presenting the independent report KiwiRail had commissioned. The actions proposed mean we believe KiwiRail will adequately manage the maintenance, scheduling and integrated forward planning of the EM80 until it is replaced by new machinery in the next 2-3 years' time. We agree with the recommendations made, and note in particular that KiwiRail will undertake:

*"A review of plant risks associated with the EM80 asset and other on track machinery needs to be completed, to ensure appropriate mitigating actions are in place, and regular review of mitigating actions are occurring".*

As noted, the EM80 is being replaced, but that will take a few years. Therefore, we urge KiwiRail as part of this review to develop a Plan B, with some urgency, for how metro systems will remain in compliance in the event of a total failure of the EM80. This plan must not reduce the safety outcomes for passengers but must identify appropriate means to keep the track in compliance. This might mean alternative track measurement technology or other such methodology. We are not certain of the approach, but we are certain a Plan B is needed. This should be developed urgently and ideally collaboratively with AT and GW, so they are also aware of the mitigations in place.

See Recommendation E2

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<sup>2</sup> <https://www.stats.govt.nz/news>

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## 6.3 Summary of Recommendations

| #  | Recommendations  |
|----|--|
| E1 | That <u>Auckland Transport</u> and <u>Greater Wellington</u> share customer data relating to patronage, complaints and compliments with KiwiRail on a regular basis, so that deeper metro-customer insight can inform KiwiRails change programs and day to day operations. |
| E2 | That <u>KiwiRail</u> develop a comprehensive Plan B for a future EM80 failure that might occur before ATIS is available. This should take a customer-centric focus and seek to ensure safe operation of the metros at full line speed.                                     |

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# 7 EM80 Maintenance Scheduling

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*TOR F: How is the maintenance scheduling carried out with respect to:*

- *The EM80 within its asset management lifecycle approach (including whether actions that contributed to the asset's unavailability could have been avoided or undertaken earlier)*
- *The timing of the track inspection across the Wellington Metro network, and whether this inspection could have occurred earlier and not immediately before certification expired.*

## 7.1 Findings

In summary:

- EM80 maintenance scheduling is planned and documented albeit its **operation was not adequately integrated** with network operations.
- The **EM80 is fundamentally age expired**, unreliable and has suffered from availability limitations due to the difficulty of securing and rostering trained staff.
- The measures KiwiRail has put in place will reduce scheduling risk and the risk of compliance periods lapsing.

## 7.2 Analysis

Our inquiry into the maintenance scheduling of the EM80 has found detailed records and forward plans for its maintenance. It is immediately apparent that notwithstanding the technology and mechanical upgrades which KiwiRail have completed, unplanned maintenance and breakdowns are frequent. When taken together with a longstanding inability for KiwiRail to establish resilient trained staff rosters, the maintenance schedule creates instability in the EM80 programme. This is exacerbated by the lack of clear priority for maintenance of KiwiRail's only and safety critical compliance tool. This single point of failure issue is considered in the previous section of this report. (See recommendation E2)

The combined consequence of unscheduled repairs, deferred planned maintenance, competing freight plant maintenance works and staff rostering constraints all contributed to the late scheduling of the Kāpiti Line compliance run. As already noted, the attempts to reschedule were mismanaged and the severity of the consequences were not understood and/or not communicated amongst those who could have solved it or elevated the issue or both.

The consequences could have been avoided if the actions taken over the weekend of 29/30 April or a number of other options including executive engagement to eliminate a habit of seeing testing inside the 28-day grace extension as BAU, had been initiated earlier. The revised processes KiwiRail have instituted have been developed to do just this.

The independent KiwiRail report provided an accurate summary of how the maintenance scheduling occurs and the risks that need to be addressed to avoid reoccurrence of the issues observed in May 2023. KiwiRail have described to us the comprehensive set of remedial initiatives they have taken.

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Given ongoing vulnerabilities to EM80 compliance and the known consequences, KiwiRail should by the end of July complete a follow up audit to ensure that the planned remedial actions have been systematically implemented and are working as intended.

### 7.3 Summary of Recommendations

| #  | Recommendations  |
|----|--|
| F1 | That <u>KiwiRail</u> complete by end July 2023, and share with Greater Wellington, a follow up audit to ensure that the planned remedial actions have been systematically implemented and are working as intended. |

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# 8 Critical points of Failure

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**TOR G:** *Does KiwiRail have a clear view of the critical points of failure to deliver passenger outcomes on the Metro networks and a plan to address and manage these points of failure?*

## 8.1 Findings

KiwiRail has a better-informed view of the critical points of failure to deliver passenger outcomes than they had two years ago. The combined lessons of the Auckland RCF failures have led to a significant investment in asset management capability. Earlier in this report we have recommended significant acceleration is needed to this capability, in part, to further understand and reduce the risk of future failure within the metro rail networks or the plant and equipment used to maintain them. We note that:

- Our view of the combined current risk exposure to further unplanned metro disruption is evidenced by the urgency we have ascribed to many of our recommendations. This stems from an acknowledgement within KiwiRail that the asset management journey is well underway but cannot support progress in both Auckland and Wellington simultaneously.
- KiwiRail's approach to risk management is generally very sound, and they have a strong focus on safety. However, risk management at KiwiRail would benefit from a much stronger understanding of the customer and the consequences on them for failure.
- We have already noted that the EM80 track evaluation car itself is a critical single point of failure when considering the fitness for purpose of track inspection. Our identification of this relatively obvious critical point of failure suggests that a more intentional review of critical points of failure for the reliance of metro services on the below rail system should be undertaken.

## 8.2 Analysis

We have canvassed the asset management, engineering and infrastructure issues, previously, and the following section address the plant and equipment part of the TOR.

Therefore, here we draw particular attention to the fact that people also represent a critical point of failure. For example, we heard that within KiwiRail 'signals people' are a major constraint. They represent a relatively small group of highly specialised roles. A view was expressed that there was insufficient management and of those people, a lack of focus on developing future capability. In Auckland, when coupled with the addition of CRL, this team of people will effectively need to double in size. Unlike other professional disciplines, signal technology is different in Auckland and Wellington and people need to be trained on different systems. Until this inter-operable capability is built, this is also a critical risk. We are aware that KiwiRail have workstreams focused on these matters as part of the Auckland transformation, but we did not see this come together to address critical points of failure.

Moving onto the trigger for this review, our conclusion that pending the commissioning of new track inspection technology, the EM80 car single car poses an unmitigated critical point of failure risk, suggests that metro focused review of critical points of failure should be completed. We are confident KiwiRail have a sound plan for managing the EM80 in the meantime, but no plan for its failure.

In Wellington one of the well documented and agreed critical points of failure is slope stability adjacent to lines. Monitoring systems have been installed to provide early warning of

impending slope collapse, but a large slope failure – whether early warning is received or not – could still close the network for weeks.

Finally, the forward-looking risk exposure to unplanned metro disruptions is such that we recommend the Minister consider establishing an appropriate implementation accountability regime for those recommendations of this review that are adopted. Previous reports that we have reviewed have made similar recommendations. We cannot be confident that without greater oversight of a system wide programme, the same will not happen to these recommendations.

### 8.3 Summary of Recommendations

| #  | Recommendations  |
|----|--|
| G1 | <u>That KiwiRail</u> include in its workforce planning the need to ensure critical human resources, such as signalling expertise, is expedited to realise the benefit of investments made. |
| G2 | <u>That KiwiRail</u> should complete with urgency a specific review to consider critical points of failure that would create significant unplanned metro service disruptions.              |
| G3 | That the Minister of Transport establish an appropriate implementation accountability regime for those recommendations of this review that are adopted.                                    |

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# 9 Plant and Equipment Redundancy

*TOR H: Is there sufficient redundancy within the plant and equipment to as far as practicable avoid disruption in the context of the growing passenger network demand?*

## 9.1 Findings

We find that there is not sufficient redundancy within the plant and equipment needed to avoid metro disruption. Specifically, we consider the following problems arise:

- Management of plant and equipment at national level has been based on a principle of maximising efficient deployment of limited aging plant. This approach is no longer appropriate for a contemporary metro.
- There is insufficient plant and equipment available for the provision of contemporary metro services alongside more modern work practices, which in turn causes a slower response than may be possible if metros had dedicated equipment.
- TSRs and other constraints remain in place longer than necessary.

## 9.2 Analysis

We have reviewed a 10-year plant and equipment procurement plan (2021) prepared by KiwiRail, which sets out a history of RNIP funding requests. Unfortunately, this document does not provide great confidence that KiwiRail has a clear plan, with redundancy, for the future. While it is detailed, and provides a prioritized list of equipment, the plan does not describe how the plant will be deployed and what it will achieve. It is relatively silent on metro needs, but rather deals with needs for New Zealand in the round. This is likely because plant is managed nationally, and needs a more integrated view for metro management, as per our earlier observations.

There is no evidence of consultation with Waka Kotahi, AT or GW over this document. A current symptom is mutual dissatisfaction by AT, KiwiRail and AOR over the procurement of ATIS by KiwiRail which proceeded without engagement with either AT or AOR on KiwiRail's assumption that the platform would be best fitted to an EMU. This proved to be costly and had to be abandoned in favour of installation on a heavy high-rail vehicle. As already noted in Section 3 this is a generic example of the need for better integrated collaborative management across these participants which we see as benefiting from a formal intervention.

The KiwiRail assessment of their own position is, however, professional and honest, as we found from the national plant managers when we interviewed them. They note the current plant profile is one that can be described as:

- "Aged and in many cases well past their expected economic lifespans.
- Struggling to meet current workloads and further decline is expected.
- Many are not fit for purpose and are unable to meet work demands, are unreliable and in some instances are forcing us to contract out the works at a significantly higher cost.
- Operation of the plant risks the safety of our people and customers, and this could result in an incident or derailment.
- Incurs considerable capital upgrade and repairs and maintenance costs; and is negatively impacting network performance and therefore financial performance."

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We have seen that KiwiRail have a workstream in Auckland (AMTP) for Plant and Equipment. The purpose of the work is to acquire the appropriate Plant and Equipment required to operate and maintain the CRL asset and to investigate and develop business cases for any additional facilities and spares to support the Auckland metro operation and maintenance activities. We are not aware of an equivalent plan for Wellington which is a concern.

We have heard that KiwiRails Chief Executive has commissioned an asset management review of plant and equipment to improve practices. We have not seen the intent of this review and cannot comment on whether it will address our concerns about the adequacy of plant and equipment available and dedicated to the metros outlined above. If the review delivers that outcome, we welcome it.

We are not experts in the equipment required to maintain a modern metro. However, in our discussions with experts the equipment listed below emerged as being critical to be available in each metro. This will require a shift in focus from the efficient deployment of plant across the national network, to the efficient maintenance of metro networks to avoid disruption and customer impact.

There needs to be further assessment undertaken, starting with the principle that plant and equipment must be available to address any immediate issues that cause disruption to metro services. When this principle is applied, we expect KiwiRail would be likely to take a different view as to what plant and equipment is critical to house within the metro area, and what equipment can be used nationally, but be available on call. We understand the plant and equipment that is likely to be included in such an assessment is:

- Tamper / regulator /stabiliser train
- Rail grinders (mainline and turnouts)
- Ballast cleaner train
- Mechanised track (and furniture clearance and overhead) inspection technology

To be clear, we are aware that this equipment is expensive. However, without undertaking an economic analysis, our assessment is that the cost of having metros out of action, poorly maintained or with excessive line speed restrictions is likely to far outweigh the cost of not having to wait for plant to become available. AT, GW and KiwiRail managers responsible for these functions agreed with this approach when we tested this approach with them.

In the end, our recommendation is that this equipment (once an agreed list is in place) must be funded, procured and based in each metro, not spread across the country and unavailable when required. We are aware KiwiRail is procuring at least some of this equipment, but we believe how it is deployed must be reconsidered. The temptation to use the equipment efficiently from KiwiRails perspective, that is, use it all over the country, does not take a customer centric view. Such a view would ensure this equipment was available at all times, to minimise the length of any delays or disruptions, and ensure maintenance is efficient within the metros.

Alongside the new plant and equipment requirements, KiwiRail must move towards more modern, efficient work practices. This may include night working. We had a productive discussion with both KiwiRail and the RMTU in relation to work practices and were pleased to hear that there is agreement that this must happen, and indeed is starting to happen much more regularly, particularly in Auckland.

KiwiRail needs to revisit the procurement of plant and equipment, and/or its deployment so that metros have permanent use of or access to this plant and equipment. The needs of the balance of the network might continue to deploy plant and equipment on an efficient shared use basis.

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## 9.3 Summary of Recommendations

| #  | Recommendations   |
|----|---|
| H1 | That <u>KiwiRail</u> prepare an agreed list of equipment (taking account of benchmarking (A3) be identified, funded, and stationed within the metro for priority use. |

# 10 Consolidated Recommendations

**Table 3: Full list of recommendations made in this report.**

| #  | Recommendations  |
|--|--|
| <b>KiwiRail &amp; Metro Passenger Rail</b> |  |
| A1   | That <u>KiwiRail's</u> Chief Executive considers establishing a second-tier role focused exclusively on improving and growing Metropolitan Rail.   |
| A2   | That <u>KiwiRail</u> implements regular internal communication that regularly feeds back to all teams the importance of metro services.  |
| A3   | That <u>Waka Kotahi</u> work with KiwiRail, Auckland Transport and Greater Wellington to agree a scope of work to deliver an independent benchmark of metro maintenance activity in terms of cost, efficiency and modern work methods.   |
| A4   | That <u>shareholding Ministers</u> ensure that KiwiRail undertake, with rail participants, a first principles review of Common Access Terms to prioritise growing metro passenger rail services while also meeting objectives for freight mode shift to rail.  |
| A5   | That <u>KiwiRail, AT and GW</u> agree and appoint a facilitator to support the parties in negotiating new access agreements consistent with the revised CAT (from Rec A4) that introduce a sustainable commercial regime that incentivises performance of all parties to meet agreed shared objectives aligned with Government priorities, and including a contemporary abatement regime that recognises the value of access for all purposes. |
| A6   | That <u>KiwiRail</u> implement a targeted capability management plan recognising the significance and critical risks associated with KiwiRail metro capability   |
| A7   | That <u>KiwiRail</u> deploy best practice change management to deliver metro transformation program and ensure this is for Auckland and wellington   |
| A8   | That <u>KiwiRail, AT and GW</u> put in place improved communication principles and practices with AT and GW  |
| A9   | That <u>KiwiRail</u> , bring in a partner with maintenance experience to coach and support KiwiRail to speed up their rate of progress towards asset management maturity and modern maintenance methods and performance.   |
| A10  | That <u>Waka Kotahi</u> strengthens its independent verifier role in relation to funding of all KiwiRail's below rail metro services functions, with reference to benchmarking outcomes as required.   |
| <b>Broader Arrangements and Practices</b>  |  |
| B1   | That <u>Ministry of Transport</u> review the funding settings under the Metro Rail Operating Model given ongoing unaffordability for GW and AT in maintaining and renewing the metropolitan rail networks.   |
| B2   | That <u>KiwiRail</u> report metro and non-metro below- rail performance separately in their Statement Corporate Intent and Corporate Reporting.  |
| B3   | That <u>Ministry of Transport, with Waka Kotahi, AT and GW</u> , administer their respective funding through the RNIP to provide a single coherent view of metro infrastructure funding aligned with agreed outcomes.  |

|  |   |
|--|---|
| <b>B4</b>                              | That <u>Ministry of Transport</u> urgently investigate whether: <ul style="list-style-type: none"> <li>the Auckland network upgrade works currently being delivered will ensure rail renewals backlog are addressed, to eliminate the risk of ongoing major disruption from Day 1 of commissioning of CRL; and</li> <li>the Wellington network upgrade works currently being delivered will enable the implementation of the RS1 timetable</li> </ul> |
| <b>B5</b>                              | That <u>Waka Kotahi with Ministry of Transport</u> as soon as practicable implement a pragmatic solution for addressing the current circa \$20-30m annual renewals and maintenance funding shortfalls in Auckland and Wellington through appropriate reprioritisation of transport funding.   |
| <b>B6</b>                              | That <u>Waka Kotahi's Chief Executive</u> consider establishing a second-tier role that is focused on metropolitan operations as a core focus.  |
| <b>B7</b>                              | That <u>KiwiRail</u> prioritise additional resources to speed up the Auckland Metro Transformation Programme and expand it to include Wellington.   |
| <b>B8</b>                              | That <u>Waka Kotahi, Greater Wellington, Auckland Transport, KiwiRail, Auckland One Rail and Transdev</u> formally reconstitute the Joint Governance Groups as 'alliance-like' entities to eliminate the consequences of ongoing misalignment.  |
| <b>B9</b>                              | That the <u>Director of Land Transport at Waka Kotahi</u> more rigorously address safety performance risks that are increasingly arising from the growth of metro services.   |
| <b>Priorities for Maintenance</b>      |   |
| <b>C1</b>                              | That <u>KiwiRail</u> accelerate development of its asset management capability to ensure the Auckland network will function as expected after CRL opens, and in Wellington to support the increased frequency of services expected by the RS1 timetable.  |
| <b>Track inspection methodology</b>    |   |
| <b>D1</b>                              | That <u>KiwiRail</u> should accelerate closure of its second line of defence gap with ATIS technology to include cover for both Auckland and Wellington Metro, which would have first call on the equipment.  |
| <b>D2</b>                              | That <u>KiwiRail</u> executive should confirm that codes and standards specific to metro across all asset classes are required, and then expedite their completion.   |
| <b>D3</b>                              | That <u>KiwiRail</u> executive should satisfy itself that it has actioned and implemented the recommendations of the Rolling Contact Fatigue (AMR Report, February 2022) review and if not elevate this as a critical governance risk.  |
| <b>D4</b>                              | That <u>Waka Kotahi</u> as the safety regulator satisfy itself that KiwiRail has a program to implement its actions arising from the Rolling Contact Fatigue (AMR Report, February 2022) review.  |
| <b>Managing the EM80 Line wide TSR</b> |   |
| <b>E1</b>                              | That <u>Auckland Transport and Greater Wellington</u> share customer data relating to patronage, complaints and compliments with KiwiRail on a regular basis, so that deeper metro-customer insight can inform KiwiRails change programs and day to day operations.   |
| <b>E2</b>                              | That <u>KiwiRail</u> develop a comprehensive Plan B for a future EM80 failure that might occur before ATIS is available. This should take a customer-centric focus and seek to ensure safe operation of the metros at full line speed.  |
| <b>EM80 Maintenance Scheduling</b>     |   |

|                                       |  |
|---------------------------------------|--|
| <b>F1</b>                             | That <u>KiwiRail</u> complete by end July 2023, and share with Greater Wellington, a follow up audit to ensure that the planned remedial actions have been systematically implemented and are working as intended. |
| <b>Critical points of Failure</b>     |  |
| <b>G1</b>                             | That <u>KiwiRail</u> include in its workforce planning the need to ensure critical human resources, such as signalling expertise, is expedited to realise the benefit of investments made.                         |
| <b>G2</b>                             | That <u>KiwiRail</u> should complete with urgency a specific review to consider critical points of failure that would create significant unplanned metro service disruptions.                                      |
| <b>G3</b>                             | That the <u>Minister of Transport</u> establish an appropriate implementation accountability regime for those recommendations of this review that are adopted.   |
| <b>Plant and Equipment Redundancy</b> |  |
| <b>H1</b>                             | That <u>KiwiRail</u> prepare an agreed list of equipment (taking account of benchmarking (A3) be identified, funded, and stationed within the metro for priority use.  |

# Glossary

| Acronym | Definition  |
|---------|---|
| AMTP    | Auckland Metro Transformation Programme   |
| ANAA    | Auckland Network Access Agreement   |
| AOR     | Auckland One Rail   |
| AT      | Auckland Transport  |
| ATIS    | Auckland Mechanised Track Inspection System   |
| BAU     | Business as usual   |
| CAT     | Common Access Terms (2012)  |
| CBD     | Central Business District   |
| CEO     | Chief Executive Officer   |
| CIO     | Chief Infrastructure Officer  |
| COO     | Chief Operating Officer   |
| CRL     | City Rail Link (Auckland)   |
| DMU     | Diesel Multiple Unit  |
| EM80    | Track Evaluation Machine  |
| EMU     | Electric Multiple Unit  |
| ETCS    | European Train Control System   |
| GHG     | Greenhouse Gases  |
| GPS     | Government Policy Statement on Land Transport   |
| GW      | Greater Wellington Regional Council   |
| JGG     | Joint Governance Group  |
| Metro   | The rail infrastructure, passenger services, and control systems that deliver passenger rail services to customers. |
| MoT     | Ministry of Transport   |
| MROM    | Metropolitan Rail Operating Model (2009)  |
| MRSSG   | Metro Rail Systems Steering Group   |
| NLTF    | National Land Transport Fund  |
| NRP     | National Rail Plan (2021)   |
| PBC     | Programme Business Case   |
| R3F     | Rail Regulatory Risk Framework (Waka Kotahi)  |
| RMTU    | Rail and Maritime Transport Union   |
| RNGIM   | Rail Network Growth Impact Management   |
| RNIP    | Rail Network Investment Programme   |



|             |  |
|-------------|--|
| <b>RS1</b>  | Rail Timetable Scenario 1 (Wellington) |
| <b>SoE</b>  | State-Owned Enterprise                 |
| <b>TDW</b>  | Transdev Wellington                    |
| <b>ToR</b>  | Terms of Reference                     |
| <b>TSR</b>  | Train Speed Restriction                |
| <b>WMUP</b> | Wellington Metro Upgrade Programme     |
| <b>WNA</b>  | Wellington Network Agreement           |

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# Appendix 1: Terms of Reference

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*These are the Terms of Reference we were asked to deliver to. As noted in Section 1 we have added Asset Management to our review, and have slightly re-ordered our presentation of the TOR to make more sense based on our findings:*

## Context

KiwiRail Holdings Limited (KiwiRail) is a state-owned enterprise responsible for rail operations and rail network infrastructure in New Zealand. To do this, KiwiRail works closely with Councils and operators who deliver passenger rail services on KiwiRail assets.

On Friday 28 April 2023, KiwiRail and GW advised the public that speed restrictions would be required on the Wellington Metro rail network's Kāpiti Line from Monday 1 May 2023 due to KiwiRail's track evaluation safety car (EM80) being unavailable. These speed restrictions led to a reduced timetable and significant disruption to passengers. KiwiRail lifted the temporary speed restrictions on the Kāpiti Line on Thursday 4 May 2023, enabling GW to resume regular scheduled services.

These events follow other service disruptions to commuters on the KiwiRail network in recent years. These have been experienced as the heavy rail system is being restored from a period of underinvestment, but have also cumulatively led to questions about:

- Whether KiwiRail has given appropriate priority to metro passenger rail operations and can reliably support their delivery
- What if any barriers need to be removed or enablers put in place for KiwiRail to provide effective, reliable support for metro passenger rail.

KiwiRail plays a significant role in providing metro passenger rail services to New Zealand's cities. The successful delivery of these services is important to their growth. Sponsoring Ministers have directed that an investigation be undertaken into the causes of continued disruptions to passenger services, including, but not limited to, the April 2023 disruption. This is to ensure that lessons are learned from significant incidents and to ensure public confidence is maintained in passenger rail delivery.

## Participation in the Review

This Review will be sponsored by the Minister of Transport, in consultation with KiwiRail's shareholding Ministers (the Minister of Finance and the Minister for State Owned Enterprises) (collectively Sponsoring Ministers). Sponsoring Ministers will appoint independent experts to conduct this review (the Reviewers).

The Reviewers will report to sponsoring Ministers, and will be independent of KiwiRail. The reviewers will work with KiwiRail to undertake the Review and respond to the purpose of the Review. The Ministry of Transport – Te Manatū Waka and The Treasury – Te Tai Ōhanga will provide the Reviewers with secretariat support as required.

## Purpose and scope of the Review

The Review will inquire into the causes and management of recent service delivery issues affecting metro passenger services across New Zealand, with a particular focus on the disruption to Wellington's Metro rail network arising from maintenance issues with KiwiRail's track evaluation safety equipment.

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In particular, the Review will consider, but is not limited to:

- How well is KiwiRail, across the organisation, aware of the importance of their role in supporting and enabling high performing metro passenger rail services?
- How well did KiwiRail manage the situation that arose from the EM80's unavailability, in the timeframes available, to minimise disruption to commuters? This may include consideration of other parties (GW and Transdev) response to the disruption and what changes to the relationships between them are advisable to limit the risk of reoccurrence, ensure impacts on passengers are minimised and build confidence in reliability of services.
- Do broader arrangements and practices in KiwiRail including levels of service, funding and delivery give appropriate regard to supporting metro passenger rail services? In particular, how does KiwiRail balance the priority for track maintenance in the interests of all rail users? Is this prioritisation adequately and transparently represented in the agreements between the relevant parties with appropriate governance oversight? To the degree that there is an agreed process for prioritisation of maintenance between freight and passenger networks, has this been followed correctly by KiwiRail?
- How is the maintenance scheduling carried out with respect to:
  - The EM80 within its asset management lifecycle approach (including whether actions that contributed to the asset's unavailability could have been avoided or undertaken earlier)
  - The timing of the track inspection across the Wellington Metro network, and whether this inspection could have occurred earlier and not immediately before certification expired.
- Is the current track inspection methodology in relation to the metro passenger network consistent with International best practice? What is the supporting analysis behind the required frequency of these inspections and the requirement to limit speeds if these inspections are not carried out within a certain number of days?
- Does KiwiRail have a clear view of the critical points of failure to deliver passenger outcomes on the Metro networks and a plan to address and manage these points of failure?
- Is there sufficient redundancy within the plant and equipment to as far as practicable avoid disruption in the context of the growing passenger network demand?

The overall focus of this Review is to be at the operational level to inform actions that can be taken quickly to improve the performance of, and confidence in, the passenger rail network. The performance of the Interislander ferries, KiwiRail's rail tourism services, wider Transport system settings, KiwiRail's entity form, and structural separation of KiwiRail's activities, are out of scope of this review.

Although not the focus of the review, the Reviewers are invited to identify wider issues if the issues are a significant underlying factor or cause of performance problems on the national network. The reviewers may refer to the findings of KiwiRail's review of the incident of Wellington disruptions and the Independent Review into Auckland Metro Rail System Issues (February 2022).

### **Deliverables and timing**

The Reviewers will deliver to Sponsoring Ministers a written report outlining the findings of the Review within 30 working days of the appointment of the Reviewers and agreement of a final terms of reference with sponsoring Ministers.

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Reviewers will engage with any relevant external agencies and experts as the Reviewers consider necessary. Where the reviewers make findings in respect of any agency, that agency will have an opportunity to comment on those findings prior to the report being finalised.

### **Confidentiality and next steps**

All personal information collected through the Review is subject to an obligation of confidence. All people interviewed or spoken to as part of this Review will be advised that notwithstanding the above commitment to confidentiality, the report, its findings and recommendations are intended to be released by the Sponsoring Ministers in due course. The Review will not make any findings nor make any comment on the conduct, performance or competence of any individual.

Sponsoring Ministers, having considered the Review's findings, will agree on the next steps, including the timing to make announcements, if any, and the timing to proactively release the Review's findings.

Sponsoring Ministers reserve the right through the course of the Review to amend these Terms of Reference in consultation with the reviewers.

## Appendix 2: Inputs

*We have reviewed an extensive list of documents. While we do not quote from each and every document, the evidence available to support our report is listed below. In addition, we undertook interviews with people from each organisation.*

### ***Interviews Conducted***

| Organisation                        | Role   |
|-------------------------------------|--|
| KiwiRail                            | CEO  |
|                                     | Chief Capital Planning and Asset Development Officer |
|                                     | COO  |
|                                     | Wellington Metro Manager                             |
|                                     | Professional Head of Track                           |
|                                     | Chief S&S Officer                                    |
|                                     | Manager, Asset Management                            |
|                                     | Wellington Metro Manager                             |
|                                     | Auckland Metro Manager                               |
| Head of National Plant              |  |
| Waka Kotahi                         | National Manager Multimodal Innovation               |
|                                     | Manager Rail and Freight, Multimodal & Integration   |
|                                     | Manager Rail Compliance, NZ Rail Safety Regulator    |
| Greater Wellington Regional Council | GWRC Chair   |
|                                     | CEO  |
|                                     | GM GW  |
|                                     | Manager Asset Management                             |
|                                     | Manager- GW Operations & Partnership                 |
|                                     | Manager, Rail Asset                                  |
|                                     | Rail Network Delivery Manager                        |
| Auckland Transport                  | Chair  |
|                                     | EGM Integrated Networks                              |
|                                     | Rail Programme Director- Rolling Stock               |

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|  | Manager Rail Franchise<br>Rail Programme Director- Infrastructure<br>Manager PT Development |
| <b>Transdev</b>                        | MD Transdev New Zealand   |
| <b>Auckland One Rail</b>               | Immediate past CEO.<br>CEO  |
| <b>Rail and Marine Transport Union</b> | General Secretary   |

## ***Documents***

| Doc#      | Doc Title  |
|-----------|--|
| 001TRC    | The NZ Rail Plan (April 21)  |
| 002TRC;   | Waka Kotahi advice on the Rail Network Investment Programme - Final            |
| 003TRC;   | FINAL Update to Waka Kotahi RNIP Advice to Minister                            |
| 004TRC;   | RNIP - Monitoring Plan   |
| 005TRC;   | Rail Network Investment Programme (Annual Report 21-22)                        |
| 006TRC;   | BRI-2743 Update to RNIP Advice   |
| 013TRC;   | Summary of funding to KiwiRail for Rapid Review                                |
| 007TRC;   | MROM 2009 paper  |
| 008TRC;   | RAIL - METRO FUNDING FRAMEWORK - AN OVERVIEW_Briefing 2010                     |
| 009TRC;   | Govt policy statement on land transport 21-31                                  |
| 010TRC;   | Wellington Metro Letter WK Final 09-22   |
| 011TRC;   | AKL Metro Letter WK Final 09-22  |
| 012TRC;   | Joint response to KiwiRail letter of 12 September 2022_Metro Funding Shortfall |
| 014TRC;   | Metro Rail System Standing Group ToR   |
| 015TRC    | 04.23 SSA Final report Track Code Compliance                                   |
| 001RES;   | FTA Research and Findings Report (May 22)                                      |
| 001BG;    | Independent review of AMR system issues_Final Report                           |
| 001TOR;   | KR Review ToR 9 May 3pm  |
| 002DL;    | Initial Document Dossier Request at 10th May 2023 GP[57]                       |
| 002RES;   | O&M Handbook   |
| 003RES;   | Rail Transit Track Inspection Practices (2013)                                 |
| 002BG RVB | Marked 15.05 002BG; Joint Report   |
| 001LET;   | NZTA Response  |
| 016TRC;   | KR Wellington Metro Network Services Report March 2023                         |
| 017TRC;   | KR Monthly Report - April 2023   |
| 018TRC;   | KR Monthly Summary - April 2023  |
| 001TRC;   | Wellington Metro TSRs - External week 44                                       |
| 019TRC;   | WNA performance incentive regime_Sept22  |
| 020TRC;   | Final Variation to WNA - (Third Triennium beginning 1 July 2018)               |
| 021TRC;   | Report 1 - Commercial Review (DRAFT FINAL)                                     |
| 022TRC;   | Report 2 - KPI Review (DRAFT FINAL)  |

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| 023TRC; Report 3 - Performance Regime Report (DRAFT FINAL)          |
| 024TRC; Report 4 - Cost Allocation Review (DRAFT FINAL)             |
| 025TRC; Wellington rail network programmes                          |
| 026TRC; WNA performance incentive regime_Sept22 (006)               |
| 001TRA; TOR JGG GWRC KR April 2023                                  |
| 001TRD; Wellington Metro TSRs - External week44                     |
| 002 TRD; Sydney Trains Performance Metrics                          |
| 003TRD ; Sydney Trains Preventive Maintenance                       |
| 001 TRE; Sydney Trains Track Inspection                             |
| 027TRC; Minutes JGG GWRC KR 1-03-2023                               |
| 028TRC; AGENDA - JGG KiwiRail GWRC 22 May 2023                      |
| 029TRC; AGENDA - JGG KiwiRail GWRC 13 April 2023                    |
| 030TRC; AGENDA - JGG KiwiRail GWRC Draft 1 March 2023               |
| 031TRC; Minutes JGG GWRC KR 13-04-2023                              |
| 032TRC; TOR Network Management Reset December 22 - Daves draft V1.0 |
| 002TRA; Crown EM80 - Part Evidence A1 - Docs 3, 4 & 5               |
| 003TRA; Wellington Governance Structure                             |
| 004TRA; ANAA Schedule 1 Common Access Terms Final 1 July 2012       |
| 005TRA; ANAA Schedule 10 FINAL 1 July 2012                          |
| 006TRA; ANAA Schedule 11 FINAL 1 July 2012                          |
| 007TRA; ANAA Schedule 12 FINAL 1 July 2012                          |
| 008TRA; ANAA Schedule 13 FINAL 1 July 2012                          |
| 009TRA; ANAA Schedule 2 Final 1 July 2012                           |
| 010TRA; ANAA Schedule 3 Final 1 July 2012                           |
| 011TRA; ANAA Schedule 4 Final 1 July 2012                           |
| 012TRA; ANAA Schedule 5 Final 1 July 2012                           |
| 013TRA; ANAA Schedule 6 FINAL 1 July 2012                           |
| 014TRA; ANAA Schedule 7 FINAL 1 July 2012                           |
| 015TRA; ANAA Schedule 8 FINAL 1 July 2012 9-119                     |
| 016TRA; ANAA Schedule 8 FINAL 1 July 2012 p1-8                      |
| 017TRA; ANAA Schedule 8 FINAL 1 July 2012 red                       |
| 018TRA; ANAA Schedule 8 FINAL 1 July 2012                           |
| 019TRA; ANAA Schedule 9 FINAL 1 July 2012                           |
| 020TRA; Auckland Network Access Agreement Final 1 July 2012         |
| 021TRA; FY23 AMNMP - Approved Final                                 |
| 022TRA; KR Monthly Report - April 2023 v1                           |
| 023TRA; KR Wellington Metro Network Services Report February 2023   |
| 024TRA; KR Wellington Metro Network Services Report January 2023    |
| 025TRA; KR Wellington Metro Network Services Report March 2023      |
| 026TRA; RE WNA Budgets  |
| 027TRA; WNMP Issue 4-20 final                                       |
| 028TRA; Auckland North Infrastructure Manager PD - Copy             |
| 029TRA; GM Metros - Copy  |
| 030TRA; Wellington Metro Infrastructure Manager                     |

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| O34TRC; Annual Report FY22 - Issue 1   |
| O35TRC; KR Monthly Report - April 2023 v1  |
| O36TRC; KR Wellington Metro Network Services Report February 2023                |
| O37TRC; KR Wellington Metro Network Services Report January 2023                 |
| O38TRC; KR Wellington Metro Network Services Report March 2023                   |
| O39TRC; AKL Metro Letter GGM Transformation WK V2 JK AH LH comment 14-09-2022    |
| O40TRC; AKL Metro Letter NMP FY23 - FY24 Risk March 23 Final                     |
| O41TRC; ANAA Access Fee Budget FY23-24 (June 2022)                               |
| O42TRC; ANAA   |
| O43TRC; FY23 AMNMP - Final Draft - October 2022                                  |
| O44TRC; FY24 ANAA Access Fee proposed forecast IX-To Karl                        |
| O45TRC; NMP FY23 Approval and Confirmation of Budget FY24                        |
| O46TRC; RE WNA Budgets   |
| O47TRC; WNAA_ANAA affordability joint response from Ministry and Waka Kotahi     |
| O48TRC; ANAA Monthly Report February 2023  |
| O49TRC; ANAA Monthly Report January 2023   |
| O50TRC; ANAA Monthly Report March 2023   |
| O51TRC; Rail Network - Strategic Asset Management Plan - January 2023 - Approved |
| O52TRC; Status of remaining documents  |
| O53TRC; Status of remaining documents PDF  |
| O54TRC; Track - Asset Class Strategy - Feb 2023 - Approved                       |
| O55TRC; Rail-Network-Investment-Programme-July-2021                              |
| O56TRC; March 23 Rail Network activity class progress report - final             |
| O57TRC; Rail Plan Outcomes Measures Q2 FY23                                      |
| O01TRD; KiwiRail Plant and Equipment AMP V3.1 - Final                            |
| O02TRD; Plant Equipment - 10 year plan including RNIP Funding Review Final       |
| O03TRD; AKL Metro EM80 data Crown Inquiry  |
| O04TRD; Calibration  |
| O05TRD; Copy of Master Sheet Documents Request V1.0 (MP)                         |
| O06TRD; EM80 2014 SAP MAINTENANCE SPEND  |
| O07TRD; EM80 2015 SAP MAINTENANCE SPEND  |
| O08TRD; EM80 2016 SAP MAINTENANCE SPEND  |
| O09TRD; EM80 2017 SAP MAINTENANCE SPEND  |
| O10TRD; EM80 2018 SAP MAINTENANCE SPEND  |
| O11TRD; EM80 2019 SAP MAINTENANCE SPEND  |
| O12TRD; EM80 MAINTENANCE 2020-1  |
| O13TRD; EM80 MAINTENANCE 2021  |
| O14TRD; EM80 MAINTENANCE 2022  |
| O15TRD; EM80 TRACK EVALUATION CAR MAINTENANCE MANUAL                             |
| O16TRD; SAP SPEND ON EM80 2023   |
| O17TRD; EM 80 JANUARY Track recording car scheduled maintenance                  |
| O18TRD; EM 80 MAY Track recording car scheduled maintenance                      |
| O19TRD; EM80 dynamic test runs 27-28 February 2023                               |
| O20TRD; North Island Metro programme + PNGL from 1 mar 23                        |

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| 021TRD; North Island Metro programme amended now 27 Feb 23   |
| 022TRD; North Island Metro programme Dec 22  |
| 023TRD; North Island programme cont WLathe Apr May ver H   |
| 024TRD; South Island programme F1022 ver B.  |
| 025TRD; Wellington Metro TSRs - External week44  |
| 026TRD; T-ST-IN-5109 Track Inspection  |
| 027TRD; KR Monthly Report - April 2023 v1  |
| 028TRD; KR Wellington Metro Network Services Report February 2023  |
| 029TRD; KR Wellington Metro Network Services Report January 2023   |
| 030TRD; KR Wellington Metro Network Services Report March 2023   |
| 031TRD; M120- Nov 2022- Signed Report  |
| 032TRD; M120 Signed Dec 2021 - Feb 2022  |
| 033TRD; M120 Wellington August 2021 Final Signed14th   |
| 034TRD; M120 Wellington August 2022 Signed   |
| 035TRD; M120 Wellington May 22 Final Signed  |
| 036TRD; M120 Wellington November 2021 Signed MEP   |
| 037TRD; m120_2023 02_signed  |
| 038TRD; T-ST-AM-5101 FO120 Quarterly Compliance Certificate Issue 2.0 01.03.21 to 31.05.21 Signed MEP-MS |
| 039TRD; 04 - April 23 - NMD Tactical-Strategic EMD Monthly Asset Reliability                             |
| 040TRD; 20190204 Jan 2019 Sydney Trains RSC Report_v1.0  |
| 041TRD; 2023-05-09 16-04 - L3 - Network Maintenance  |
| 042TRD; 20230518 ROC Report 18 May 2023  |
| 043TRD; AMS-04-GUI-002 Guideline to Develop AMP and STAMP  |
| 044TRD; DSYD202298260 2022-23 Baseline Memo  |
| 045TRD; ICON Summary Report -Thursday 18th May 2023  |
| 046TRD; Q3 FY2023 Sydney Trains ROA Report_v0.1  |
| 047TRD; QSI-Report-Civil-Structures-Oct-to-Dec-2022  |
| 048TRD; QSI-Report-Electrical-Oct-to-Dec-2022  |
| 049TRD; QSI-Report-Signals-and-CS-Jul-to-Sep-2022  |
| 050TRD; QSI-Report-Track-Jan-to-Mar-2023   |
| 051TRD; ST Org chart   |
| 052TRD; Sydney Trains MWP Snapshot November 22 Meeting vers (PCG SteerCo)                                |
| 053TRD; Current and Planned Condition Monitoring Devices 20210416  |
| 054TRD; DRAFT_Predictive_Maintenance_with_Track_Condition_Degradation_Modelling_Instruction_Guide_202304 |
| 055TRD; IAM Program on a Page v2   |
| 056TRD; Maintenance Services Centre  |
| 001TRE; AMSF Detailed Diagram  |
| 002TRE; KiwiRail   |
| 003TRE; MN A 00100 V2.1 Civil and Track Technical Maintenance  |
| 004TRE; t-mu-am-01003-st-v2.0  |
| 005TRE; t-mu-am-01004-st-v2.0tmpclassification   |
| 006TRE; 2 year track inspection report   |
| 007TRE; 23005071   |
| 008TRE; Crown Response_ TOR E Doc 4 - Relevance  |

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| 009TRE; AM-RNGIM-GOV-Paper - Inspection Technology ATIS Vehicle - May 2023 |
| 010TRE; AM-RNGIM-RSL-IMP-ATIS Solution Design_HRV                          |
| 011TRE; Wellington Metro TSRs - External week 44v2                         |
| 001TRF; AM-RNGIM-RSL-ISP-Steering Group Report - 11 May 2023               |
| 002TRF; AM-RNGIM-RSL-ISP-Steering Group Report-Oct 2022                    |
| 003TRF; AM-TP-PE - PMP T2 - Plant and Equipment Workstream                 |
| 004TRF; ATIS-EM80 Slide 30 May 2022  |
| 005TRF; Plant RNIP Funding - RNIP v2 - Oct 2022                            |
| 006TRF; RE RNGIM Inspection Technology updatesolution                      |
| 057TRE; Matters afoot - Auckland Metro V1.0                                |
| 058TRE; AMSF Detailed Diagram  |
| 059TRE; KiwiRail   |
| 060TRE;MN A 00100 V2.1 Civil and Track Technical Maintenance               |
| 061TRE; t-mu-am-01003-st-v2.0  |
| 062TRE; t-mu-am-01004-st-v2.0tmpclassification                             |
| 001OTH; Common Access Terms GWRC   |
| 002OTH; FY23 AMNMP - Approved Final  |
| 003OTH; GWRC Timeline EM80   |
| 004OTH; MN-T-20203-V2.2_EI28-EA4   |
| 005OTH; NMP FY23 and Budget FY24   |
| 006OTH; NMP FY23 Approval and Confirmation of Budget FY24                  |
| 007OTH; Sydney-Trains_Review-Phase-One_Initial-Report_12-May-2023          |
| 003BG; Railways Act 2005   |
| 008OTH; PGB - Customer Update  |
| 009OTH; 2021-Value-of-Rail-report  |

