



engineering  
new zealand  
te ao rangahau

# **SUBMISSION:** **THE FUTURE OF INTER- REGIONAL PASSENGER RAIL IN NEW ZEALAND**

Engineering New Zealand (formerly IPENZ) is New Zealand's professional home for engineers. We are New Zealand's strongest and most influential voice on engineering issues, with more than 22,000 members who want to help shape the public policy agenda and engineer better lives for New Zealanders.

Thank you for the opportunity to provide feedback on the Transport and Infrastructure Committee's inquiry into the future of inter-regional passenger rail in New Zealand, published on 11 August 2022.

In forming this submission, Engineering New Zealand worked with two of its technical groups:

- the Railway Technical Society of Australasia (RTSA), a Trans-Tasman body with over 1500 members in the Australian and New Zealand rail sectors including over 200 in New Zealand. RTSA is both a technical society of Engineers Australia and a technical group of Engineering New Zealand; and
- the national committee of the Transportation Group, which has around 1200 members across New Zealand. The Transportation Group operates with the purpose of advancing technical knowledge, planning and management of land-based transportation facilities, networks, and systems for the movement of people and goods.

The future of the inter-regional passenger rail is important to New Zealand. Engineering New Zealand appreciates the opportunity to provide comment on this inquiry.

## **OVERVIEW**

The Transport and Infrastructure Committee is consulting on their inquiry into the future of the inter-regional passenger rail in New Zealand. We support the outcomes sought by the inquiry and generally support the Terms of Reference provided by the Committee.

It is our view that the Government needs to better explore the viability of passenger rail, in order to plan for extending passenger rail services, and shaping urban growth over coming decades. We need a long-

term passenger rail plan for New Zealand. This plan should include investment requirements, agreed by Government. As outlined in this submission, passenger rail is important for providing transport options and supports reduced transport emissions, improves equity, and supports efficient land use, among other public good outcomes.

## **WE SUPPORT THE INVESTMENT IN NEW ZEALAND'S RAIL NETWORK**

Engineering New Zealand supports investment in New Zealand's rail system for both passenger and freight transport. Rail has been the backbone of New Zealand's social and economic development for over a century, but underinvestment in recent decades has led to a degradation of this legacy and a poor system that is costly and inaccessible to the public. Outside of Auckland and Wellington, KiwiRail's current 10-year Rail Network Investment Programme is oriented at improving freight services. We support improving freight services as this offers significant opportunities for communities and New Zealand's environmental sustainability and climate change ambitions. However, it is our view that national passenger rail services should also be incorporated in long term plans.

### **An opportunity to connect communities using existing rail networks**

Many communities across New Zealand are connected by existing rail lines but passenger trains do not run or do not stop in these communities. There are several reasons for this, including the supply of rolling stock (trains), tracks, stations, and other infrastructure, and the cost of track access. We strongly advocate for a review of these networks to understand the viability of utilising existing networks for passenger rail.

Passenger rail offers various societal, environmental, and economic benefits. Improving rail services also has the potential to increase tourism across regions by attracting New Zealanders to travel domestically and drawing international tourists to visit regions previously inaccessible by alternative transport modes.

To this end, we support Making Rail Work's endeavour to drive passenger rail links between Tauranga, Hamilton, and Auckland. We also strongly support increased passenger network connectivity between all centres.

### **An opportunity to shape the next century of development and community**

The choices we make for transport infrastructure and service shape where people and businesses choose to locate. Many of our cities and towns grew around interregional rail access, which supported efficient, dense mixed-use land uses. Since the mid-20<sup>th</sup> Century, underinvestment in rail and high spending on airports and highways have incentivised dispersed land use patterns that require much greater capital and operational spending on infrastructure.

Creating an attractive and efficient interregional passenger transport system, interconnected with other forms of regional and urban public transport, would increase the attractiveness of living and working near those stations and public transport – both in urban areas and regional New Zealand. With substantial population growth anticipated over the next century, actions that increase the efficiency of locational choices and infrastructure usage will be necessary.

Unlike the point-to-point access provided by flying, interregional rail can serve intermediate destinations, providing spill-over benefits to those areas - and can enable access that would otherwise be inefficient to provide, such as access to national parks, ski-fields, beaches, and cultural and social destinations. Additionally, interregional public transport enables access for the significant section of our community who are unable to drive or for whom the cost of doing so would be prohibitive.

## **An opportunity to reduce negative externalities, and increase positive externalities**

Transport choices have costs and benefits to travellers, but also to the wider public (externalities).

The negative externalities from aviation and road transport are generally significantly higher per passenger kilometre or freight tonne kilometre than for rail travel. Negative externalities include noise pollution, air pollution, crash risk, access severance, congestion/delay impacts, parking demand, etc.

Conversely, *positive* externalities from rail are likely to be higher, particularly in the long run when induced land use changes are considered. Positive externalities include economic agglomeration benefits, improved productivity and employment matching, higher participation in the labour market and education, and more efficient use of land.

Long-run externalities should be quantified and valued in any analysis relating to interregional travel, and ideally should also be priced so that users are incentivised to make better choices.

## **An opportunity to support our climate change goals**

Rail networks, both freight and passenger, are key enablers for New Zealand to reach its emissions reduction targets. Moving freight off the roads has the largest impact to reducing emissions, when compared to passenger rail. This is one of the reason Te Manatū Waka Ministry of Transport and Waka Kotahi New Zealand Transport Agency have prioritised improvements to New Zealand's rail freight system. This said, passenger rail has the potential to substantially reduce car journeys on major routes, such as the Upper North Island Gold Triangle (Auckland, Waikato, and Bay of Plenty), Wellington-Hawkes Bay, Wellington-New Plymouth, and the South Island Main South Line (Christchurch-Dunedin-Invercargill). For New Zealand to transition into a low carbon transport future, it is essential for investments to be made towards sustainable modes of transport and the infrastructure that we will undoubtedly need.

Investing in extending the electrified rail network on major routes such as the Upper North Island Golden Triangle may also provide significant benefits for both passenger and freight services, as well as further reducing emissions. Investing in modern and sustainable rail infrastructure on major routes ensures that New Zealand is contributing toward its climate change commitments. It also enables wider transport sector emission reduction goals, such as reducing the number of car journeys. This is particularly important as transport target 1 of the New Zealand Emissions Reduction Plan calls for better transportation options to reduce the country's reliance on cars.

With transport accounting for nearly 20 per cent of New Zealand's greenhouse gas emissions, decarbonising transport must be a priority to achieve net-zero long-lived emissions by 2050.

## **An opportunity to improve infrastructure**

KiwiRail's Capital Connection, Greater Wellington Regional Council's Wairarapa services and Waikato Regional Council's Te Huia are examples of existing inter-regional passenger rail services in New Zealand that sit alongside KiwiRail's freight network and tourist services. This shows that operation of passenger services on the same tracks with freight trains can be viable.

Undoubtedly, in some parts of the country, there will need to be an investment in upgrading the current infrastructure to accommodate changes and allow widespread passenger rail services to sit alongside KiwiRail's freight network. This investment should be welcomed and encouraged by the local and central government, as by improving the quality of our rail infrastructure we would be building a resilient transport system.

Although New Zealand's topography and small population present challenges in the viability of constructing dedicated high-speed rail lines like those seen overseas, both passenger and freight services will benefit from an ongoing investment programme to incrementally improve rail infrastructure on existing rail corridors, similar to the continuous state highway enhancements that have occurred over the past half-century.

We note that it can take years for rail investments to realise their potential as people take time to change their transport choices. For instance, The Capital Connection service took years to become established, after investments to improve rolling stock were made.

### **An opportunity for developing the workforce**

To make inter-regional passenger rail a reality in New Zealand there needs to be an investment in developing the workforce. Investment in the passenger rail system not only provides connectivity between regions but also creates employment opportunities, leading to sustainable economic growth. New Zealand's engineering profession is at the forefront of these opportunities. However, more engineers are needed. To this end we have been advocating for an increased focus on supporting workforce capacity in the rail industry (see our submission on the [Draft New Zealand Rail Plan](#)).

Engineering New Zealand continues to advocate for Government to provide more investment into the workforce. This can be accomplished by introducing advanced qualifications to support education and training for engineers to upskill or reskill in rail. Doing so would decrease New Zealand's reliance on overseas professionals and create a truly resilient and knowledgeable workforce.

## **IMPORTANT CONSIDERATIONS**

### **Passenger rail sitting alongside KiwiRail's freight network**

We understand the Committee's interest in wanting to explore the viability of utilising freight lines for passenger services. While in principle this is a good idea, there are several factors that will need to be addressed when considering specific passenger service proposals including:

- **The availability of rolling stock (trains) to run services**

A large amount of passenger rolling stock in the country, apart from the electric trains used in Auckland and Wellington, is based on rebuilt 1970s British Rail carriages which will reach end of life in the next 5 years or so. Services will require new rolling stock if investment is to be focused on the medium to long term. Replacement could provide an opportunity to reintroduce railcar-based services, which have more flexibility than locomotive-hauled trains and can be more environmentally friendly. Greater Wellington Regional Council and Horizons Regional Council's multi-mode train concept for the Wairarapa and Capital Connection services could provide a suitable template for a national fleet of trains for interregional services across New Zealand. However new trains typically take around 5 years to procure and build, so early funding commitment will be required.

- **The availability of train paths for new services**

Some parts of the network, such as the Upper North Island Golden Triangle, are already heavily used for freight services. To increase line capacity and ensure that attractive and convenient paths are available for passengers, further investment in additional infrastructure is needed.

Furthermore, it must be noted that some less-used lines currently have simple and largely manual systems for ensuring the safe operation of trains. Increasing the number of trains using such lines may

require further investment in more sophisticated signalling systems to ensure the safe and efficient operation of higher numbers of train movements.

- **Increased infrastructure maintenance costs**

Maintenance standards for freight-only lines are lower than for lines that also carry passenger trains. Introducing passenger trains to a current freight-only line may result in increased levels of infrastructure maintenance being required, as well as increased levels of asset renewal expenditure, beyond that needed for KiwiRail's commercial freight business.

- **Missing or inadequate station facilities**

In many parts of the country, railway stations have been closed or run down over the past decades. Those that remain often will not have facilities complying with modern expectations for regular passenger operations such as lighting, shelter, step-free access and information systems. The experience with the Rotokauri station in Te Rapa built for the Te Huia service shows that initial ideas for low-cost simple station facilities may not be realistic once requirements for compliance with contemporary safety standards are included such as grade-separated access to platforms.

- **Level crossing safety**

Railways in New Zealand typically have multiple level crossings on both public roads and private roads such as farm accesses. Although busier roads are often provided with warning lights and barriers, the majority of level crossings in rural areas are only provided with passive warning signs. Although this may be adequate for low-frequency freight-only lines, introducing passenger services may increase the risk of collisions between trains, vehicles and people at level crossings, particularly if the number and speed of trains using the line are significantly changed. As an example, the current New Zealand Upgrade Programme project to upgrade the railway in the Wairarapa for Greater Wellington Regional Council's plans to increase train frequencies and speeds between Masterton and Wellington includes the provision of automatic barriers, warning lights and bells at 30 public level crossings.

- **Operational control and delivery**

It may be appropriate to consider a range of operation models for the delivery of new services. While most people assume new services would be run by KiwiRail, it may be appropriate to deliver services that receive public investment through another mechanism. Both the United States and Canada have national passenger rail corporations that own the passenger trains and deliver passenger services on freight lines independently of freight operators. This provides transparency between subsidised passenger and commercial freight services. However, continuity of sufficient funding is essential for the operation of passenger rail services that are safe and attractive to customers.

While none of these factors are insurmountable, they do mean that the cost and timeframes to introduce passenger services on some routes may be much greater than might be expected. Therefore, there is a need for rigorous assessment and planning to ensure that proposals for passenger services are realistic and achievable.

### **Passenger rail needs deep integration with complementary urban and regional transport and land use planning**

Interregional journeys include local travel legs, and these must be given due attention in the design and planning process. Stations and interchanges must be safe, attractive and equipped with appropriate facilities; urban/regional public transport feeder services should interconnect efficiently; and the size of the active mode catchment should be maximised with safe and direct infrastructure. Enabling personal mobility

devices to be carried on board would expand the potential catchment, particularly for stations where public transport is unavailable (bicycles, e-bikes, scooters, e-scooters, mobility scooters, etc.)

Planning rules should enable and incentivise a land-use response to improved interregional access around stations, such as allowing increases in density and complementary activities such as retail or commercial uses.

Additionally, while we acknowledge the focus of this inquiry is on rail, we believe that other interregional passenger modes should be considered - as part of the current state analysis and for future integration. The end-to-end journey price and time for each mode is part of people's decision-making, so should be considered. We note that current interregional passenger travel occurs by public options including bus and aeroplane, as well as private options including driving alone or as a passenger.

Attractive and efficient interregional passenger transport systems internationally usually involve rail as the core mode for trunk routes due to its attractiveness to passengers (relating to comfort and speed), and economies of scale. However, it would be worthwhile considering where other modes could be more attractive and efficient for part or all of the journey, whether as a long-run or interim solution. For example, higher-frequency bus services may have a role in some cases, such as where rail journey times are not competitive with road; however, consideration should be given to complementary measures necessary to make these attractive (such as bus priority measures for the journey sections within urban areas), and short-run optimisation should avoid undermining long-run outcomes.

The appropriate level of subsidy or cost-recovery for interregional passenger rail should be examined in the context of subsidy, price, and externalities for all modes, to determine the level that would be fair and attractive. International experience with demand price elasticity and service level elasticity should be examined, with careful examination given to complementary transport and land use investments and policies that enable higher utilisation, driving down per-passenger unit costs.

### **Passenger rail needs to be planned and prioritised**

Whilst the New Zealand Road network has been maintained and upgraded through proactive planning, the rail network has remained relatively reactive in recent decades. The rail sector has been held to a fundamentally different standard of commerciality relative to the road sector, and so has faced planning and funding problems, as well as tension between commercial and public good outcomes. These tensions created barriers to a harmonious environment for rail development to occur efficiently in New Zealand.

Over the years, the Capital Connection has been under threat of being removed by its operator, KiwiRail. It has only been with the Government's financial intervention that this service has remained. Te Huia, the year-old passenger train service, has been highly politicised and often contested by politicians. For the future inter-regional passenger rail to be a success, the discussion of rail needs to be removed from the political arena and instead be seen as a priority for communities.

The New Zealand Rail Plan discusses the priorities for government investment and provides clarity for the urban commuter and scenic rail services but does not address future inter-regional passenger rail services at all. This is a significant omission and further adds to the uncertainty of the discussion around the future of inter-regional passenger rail services and of those that currently exist.

As a result of the historic lack of priority given to passenger rail services, there is limited local experience knowledge and expertise in planning, building, and operating modern passenger services in New Zealand

apart from the successful Auckland and Wellington suburban services. The very inter-regional nature of many of the passenger rail opportunities means that multiple local bodies and regional as well as national groups may be involved as important stakeholders. We believe that there should be a central body established, potentially as part of Waka Kotahi, that is tasked with planning, developing, and funding a national system of inter-regional rail and bus passenger transport services and associated facilities. Creating a long-term prioritised plan for passenger services would both allow expertise in passenger rail implementation and operation to be developed and for delivery efficiencies to be made- for example establishing standard station designs and building a common fleet of trains for inter-and regional services. Additionally, planning for synergies between future freight growth alongside passenger rail development.

Rather than looking backward toward past patterns on individual services, it is important to look forward to what an efficient and attractive national land use and transport system would require, and then to examine the investments that would be needed to enable it as an integrated whole. International experiences should be examined to learn from the successful or unsuccessful revival of interregional passenger services.

## **CONCLUSION**

We appreciate the opportunity to provide comment on the inquiry into the future of inter-regional passenger rail in New Zealand. New Zealand's planning for rail to date has not appropriately addressed passenger rail and we are hopeful that this inquiry will change that, particularly through including long-run induced land use and transport choices, and comprehensively considering positive and negative externalities. We hope the inquiry leads to better outcomes for future generations of New Zealanders.

Engineers and other transport professionals are at the forefront of the work needed to drive change and innovation in New Zealand's rail sector. As such, Engineering New Zealand would value the opportunity to be involved in ongoing conversations as the inquiry progresses. If we can be of additional support, please do not hesitate to contact us.