

Vision For Inter-regional Passenger Rail In New Zealand - Future Is Rail Conference

28 June 2023

Heriot-Edievale Limited
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Thoughtful Quote

“There is more to be done than to make figures to show whether the railways are paying or not. You have to take into account consideration the areas to be tapped and the development of the country through which the railway passes ... instead of that, people bought and sold land and they got rich: and it was almost painted on the clouds the railways were not paying”

Michael Joseph Savage – Evening Post 10 June 1938, 10.

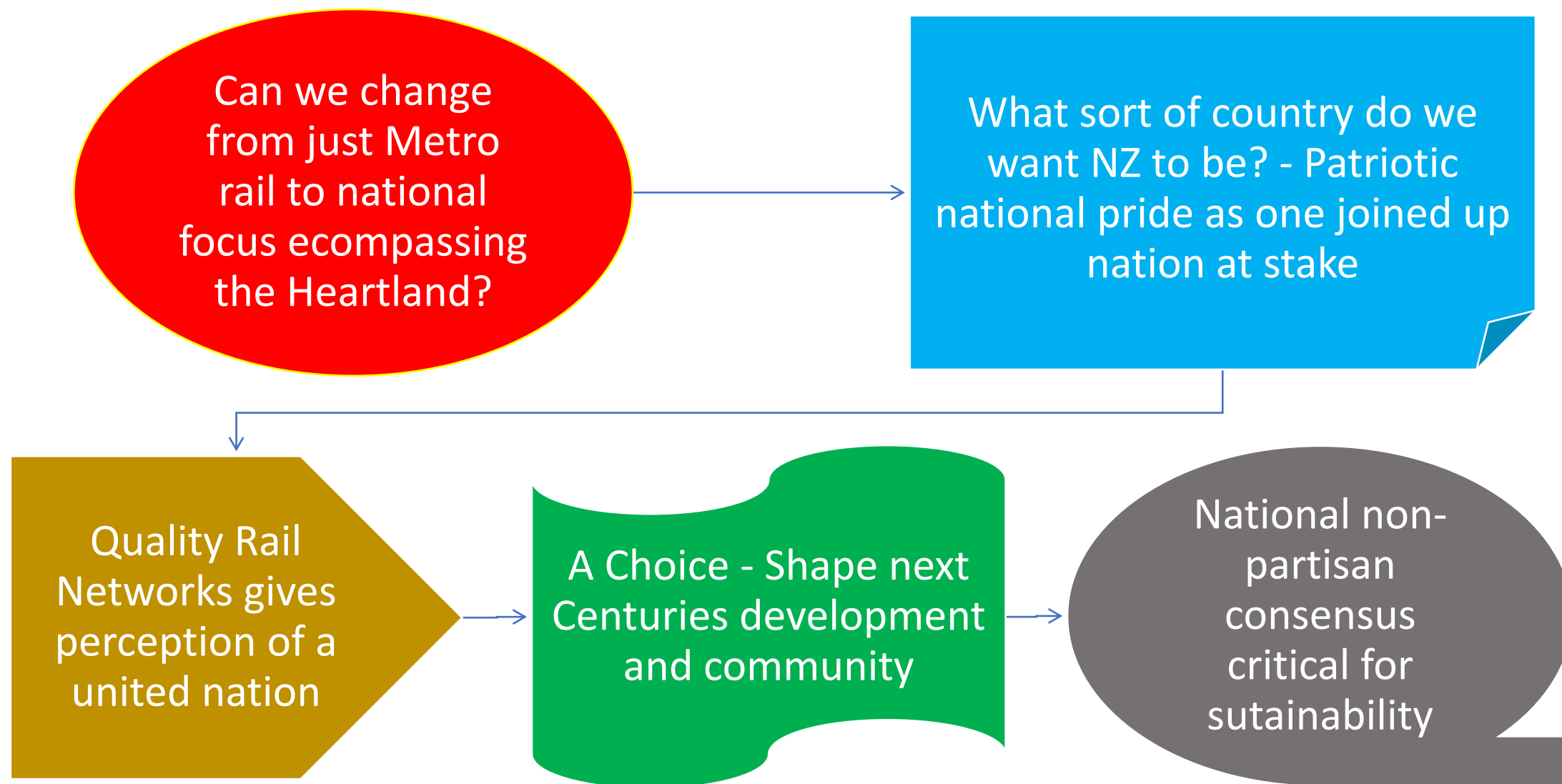


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NZ Passenger Rail At Junction Why A National Vision?

Why A National Vision For Passenger Rail ?



The 2020's – Today – NZ Passenger Rail



Auckland Metro – Auckland One Rail (CDC & UGL)



The Great Journeys of New Zealand – KiwiRail



Wellington Metro - Transdev



Inter-Regional Passenger Rail – KiwiRail Commuter

Why Passenger Rail? Environmental Benefits

Government policies / investment bias towards road and domestic aviation since 1960's

NZ has one of highest car ownership rates in World – too many 2nd hand car imports

Rail direct overhead electrification rather than battery reliance as EV's. EV's have other negative impacts. Aviation decarbonisation a long way off

Rail well utilised, significant opportunity to reduce net emissions. Reduce aviation reliance e.g. Auckland - Wellington (overnight) and Auckland – Tauranga

Rail more energy efficient even allowing for imbedded construction carbon

One train carrying 250 passengers reduces 170 cars trips on average

Why Passenger Rail? Key Success Outcomes

**Connecting
Communities**

**Support Economic
Growth**

**Reduce
greenhouse gas
emissions**

**Customer centric
comfort,
accessibility,
innovation**

**Affordable fares
National
integrated
ticketing**

**Integrated
networks eg, all
modes - last mile
essential**

**Capacity, pace
competitive to car,
and infrastructure
resilience**

**National
standards and
interoperability**

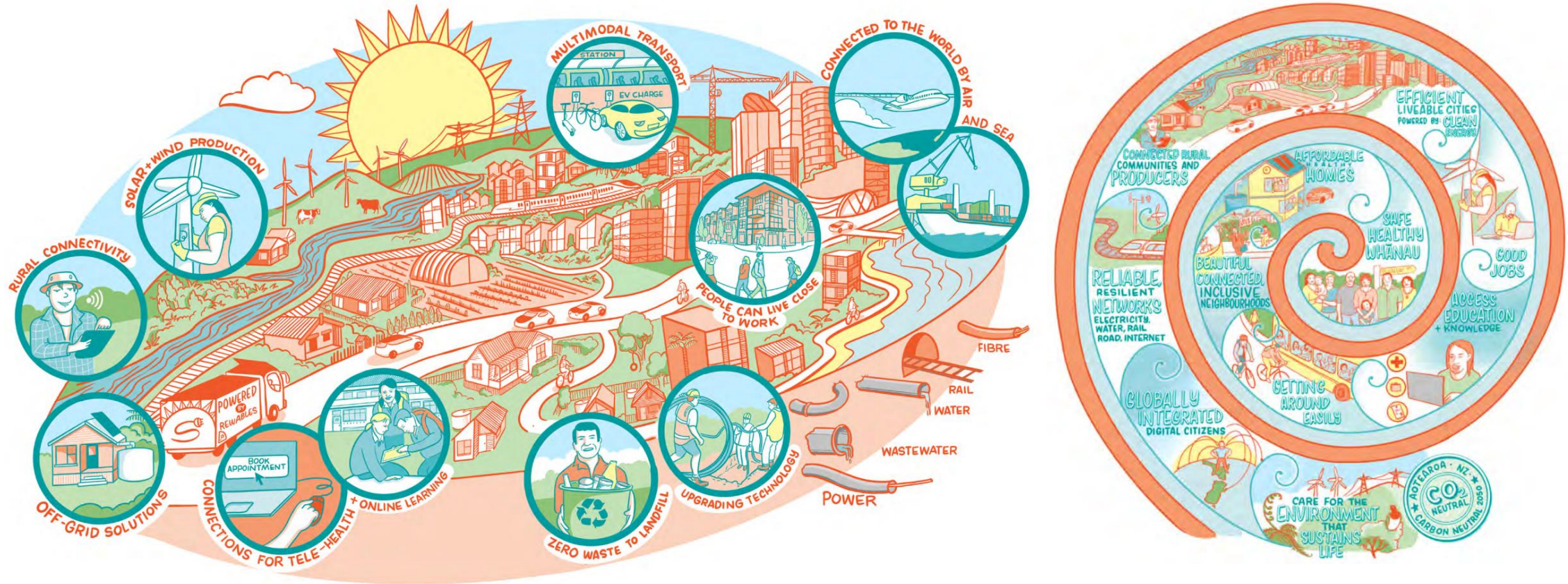
**Improve safety
and reducing
congestion**

**Sustainable
Funding eg (Value
Capture, TOD's /
Co-Ops etc)**

**Spatial Planning /
Housing / Land
use intensification**

**Estimate services
demand right in
uncertain World**

Why? Infrastructure NZ Sustainability Framework



Source of diagrams: Rautaki Hanganga o Aotearoa New Zealand Infrastructure Strategy pages 6, 7 & 28 - Te Waihanganga New Zealand Infrastructure Commission

Infrastructure New Zealand rural connectivity and multimodal transport key elements for a sustainable and resilient infrastructure - Inter-regional Rail is a key like water, wastewater, fibre, power, roads

Where Inter-Regional Passenger Rail?



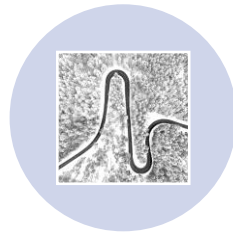
Identifying where rail has strategic edge over other PT modes, aviation or private car use



Potential journey time advantages due to superior rail alignments eg tunnelling



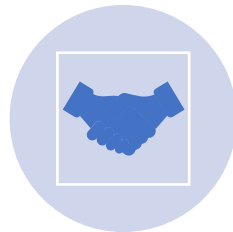
Analysing transport demand - current, latent, how does quality rail induce demand?



Spatial planning to ensure growth strategies are integrated with transport priorities



Access to affordable housing



Mana whenua and our Tamariki to have stronger voice and our social contract with these stakeholders and others is critical

Deficiencies In Planning and Funding Process

Current Deficiencies in The Process

- Significant planning deficiencies in Analysis and Research lacking. Regional only focus but **inter-regional and national public transport national issue**. Inter-regional rail very challenging.
- **Where is the national vision?** Who is responsible? Regional partnerships with Central Government agency leadership required. The PT planning process heavily biased to intra-regional - works for Auckland and Wellington Rail but not elsewhere.

Potential Solution

- ✓ **Establish National Public Transport function to plan/develop national and regional integrated PT multi modal networks across all NZ** ensuring alignment with national development priorities. Business cases **funded as national development. Framework & resource with national analysis and research – Regional & Central Govt partnering.**
- ✓ **“Sustainable Public Transport Framework”** but doesn’t go far enough – a missed opportunity!



The Vision

This Way Forward >>>>>>>>>>

Vision – 1st= Priority - Upper North Island:

Golden Triangle – Auckland – Hamilton - Tauranga



Description: High quality, fast frequent passenger rail Auckland - Hamilton - Tauranga up to 160kph Tri-Mode rolling stock – 50% of NZs population lives north of Te Awamutu



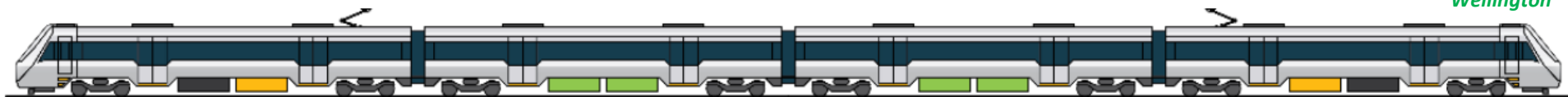
Current Status & Interventions : *Te Huia* Hamilton to Auckland Loco hauled rolling stock – top 100 kph. Infrequent service and no service to Tauranga. Fix Auckland congestion - 3rd/4th mains, enhanced signalling, central Auckland station, electrification extensions, Kaimai tunnel works, maintenance facilities etc. Hamilton - Auckland Intercity Project (Faster Rail) provided to MoT - see www.heriot-edievale.com. Also see Making Rail Work Proposal for how this could be sustainably delivered and Myth Busting campaign at: www.makingrailwork.com



Source of train diagram below - Submission to Parliamentary Transport and Infrastructure Select Committee Inquiry Into the future of inter-regional passenger rail in New Zealand - Ruapehu District Council, Horizons Regional Council and Greater Wellington



Timing: Developing now through to Tauranga by early 2030's possible



NIRP / Te Huia proposed underfloor layout: 25kV AC equipment in gold, Batteries in green, CI engine/genset in black

Vision – 1st= Priority - Lower North Island: Wellington – Masterton & Wellington - Palm Nth – Whanganui



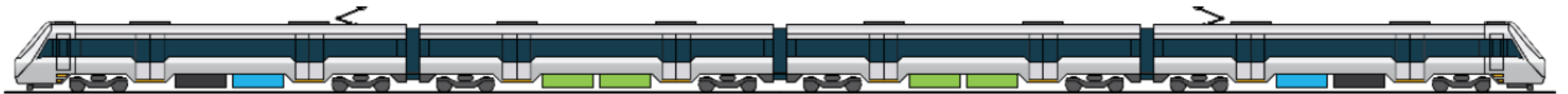
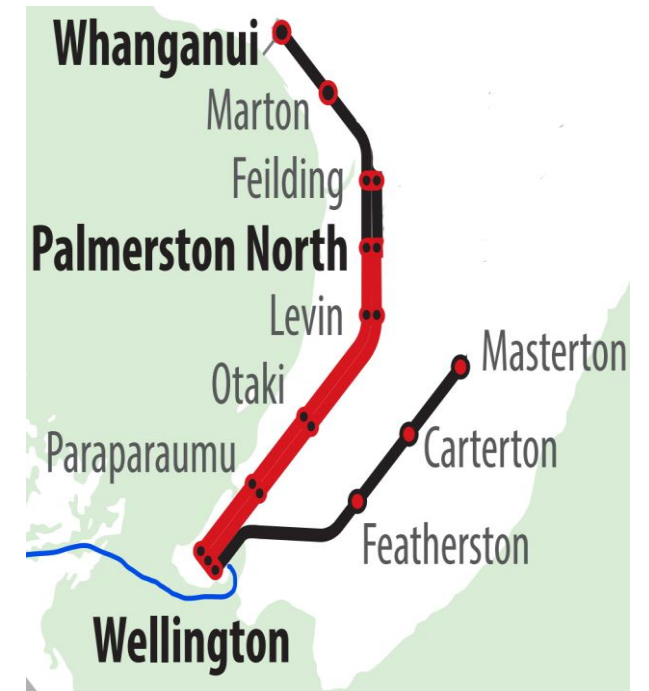
Description: Fast frequent pass rail connections Wellington – Palmerston North and Masterton 120-130kph speed using Tri-Mode rolling stock. Potential later expansion to Whanganui



Current Status & Interventions: *Capital Connection and Wairarapa Connection* uses loco hauled rolling stock – 100 kph. New Rolling stock - Lower North Island Rail Integrated Mobility (LNIRIM) project underway. Infrastructure upgrades underway e.g. closing electrification gaps, track upgrades for reliable running, targeted duplication, and maintenance facilities etc



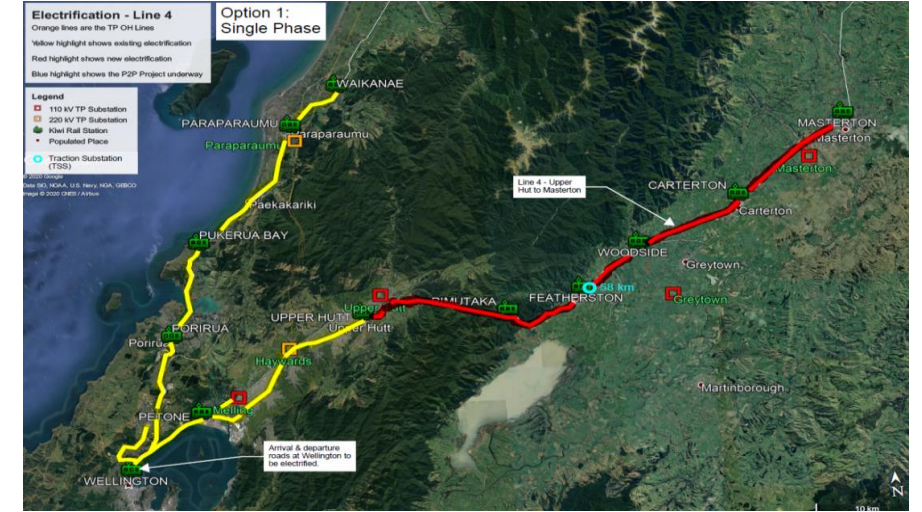
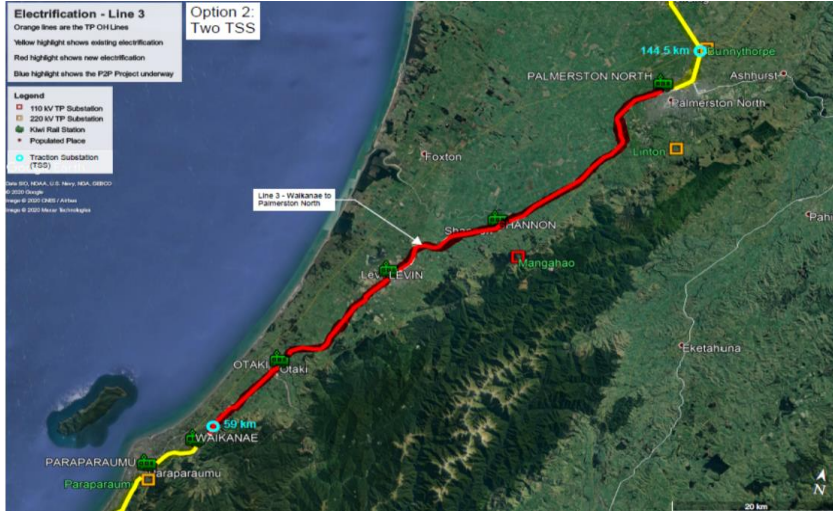
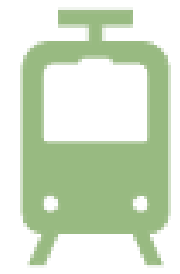
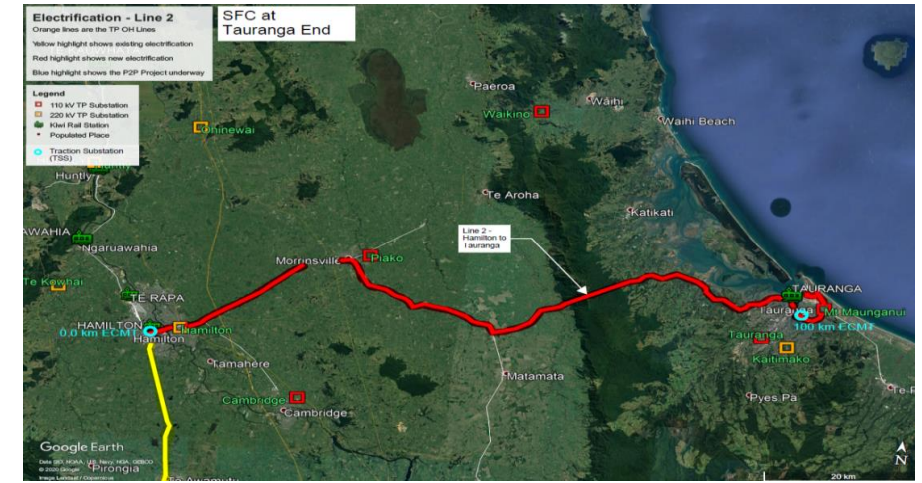
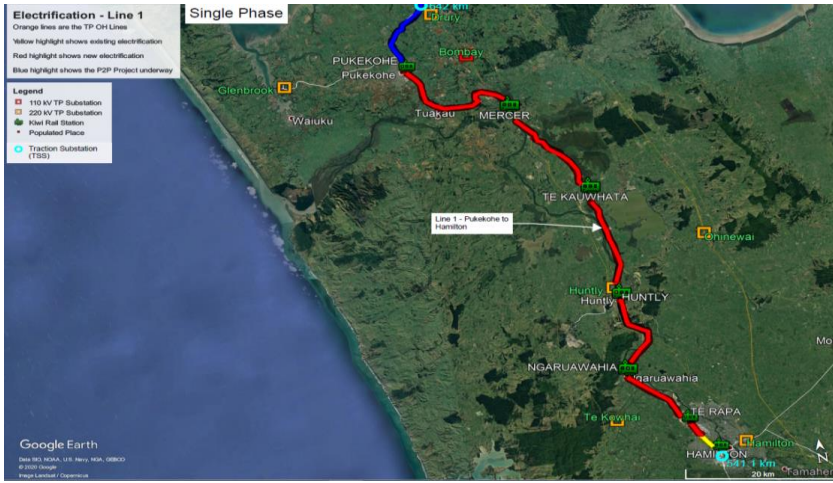
Timing: Developing through to late 2020's delivery – project largely funded in 2023 budget - extended to Whanganui by early 2030's



Underfloor layout proposed in LNIRIM DBC: 1.6kV DC equipment in blue, Batteries in green, CI engine/genset in black

Source of train diagram above : Submission to Parliamentary Transport and Infrastructure Select Committee Inquiry Into the future of inter-regional passenger rail in New Zealand - Ruapehu District Council, Horizons Regional Council and Greater Wellington

Key Enabling Investment - Electrifications



Electrification: 1st Pukekohe – Hamilton 2nd Hamilton – Tauranga 3rd Palmerston North – Waikanae and 4th Upper Hutt - Masterton

Map Source: Beca Electrification study 2020

Vision – 3rd Priority – National Network Connector: Auckland - Wellington - Picton - Christchurch (Connecting Nation)



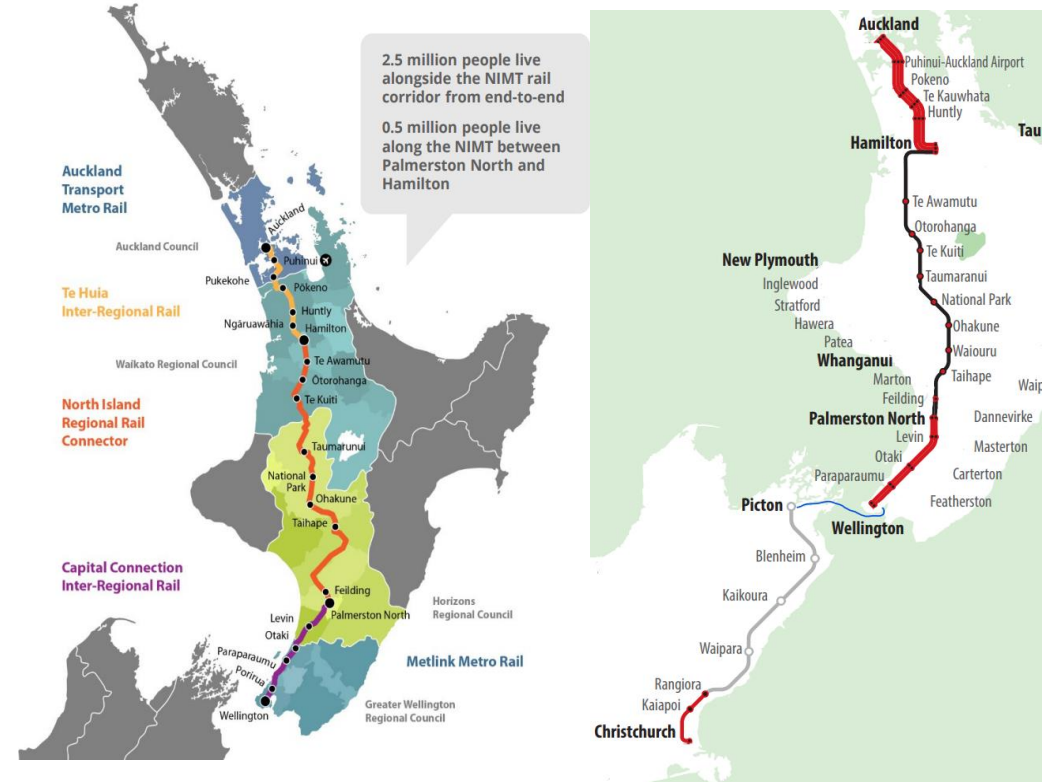
Description: Regional Rail Integrator Auckland to Wellington - daytime & overnight train, and Wellington – Christchurch via Interisland connection. Leveraging off Golden Triangle and Lower North Island – 110kph elsewhere outside these sub networks



Current Status & Interventions: Northern Explorer & Coastal Pacific service seasonal & infrequent. Additional infrastructure and rolling stock upgrades



Timing: New trains for NI and utilizing current Coastal Pacific fleet better – New ferries 2025/26. Upgraded by early 2030's.



INTEGRATOR MODE: Due to advancing battery technology, this rolling stock underfloor layout, will become viable regarding range resilience, at the time of procurement and/or future fleet upgrade: 1.6kV DC equipment in blue, 25kV AC equipment in gold, Batteries in green

Source of train diagram above: Submission to Parliamentary Transport and Infrastructure Select Committee Inquiry Into the future of inter-regional passenger rail in New Zealand - Ruapehu District Council, Horizons Regional Council and Greater Wellington

Vision – Following Priorities 2030 - 2050

Central South Island & Beyond



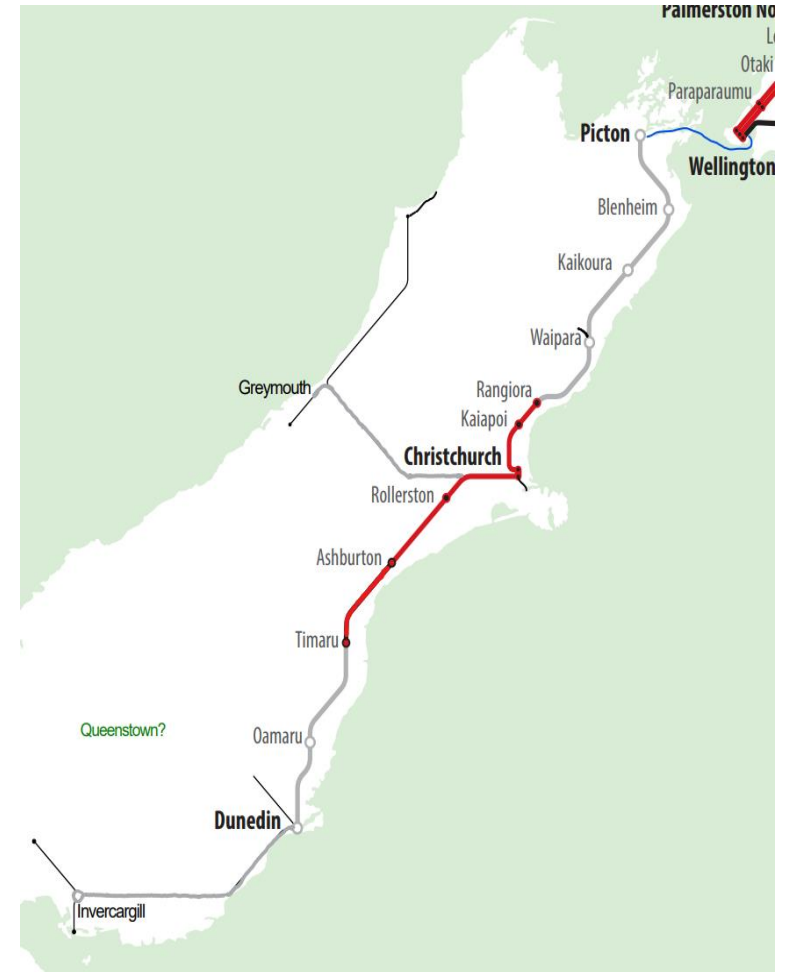
4th Central South Island: Rangiora - Christchurch - Ashburton - Timaru fast rail – connecting bus to south. Fast frequent running across Canterbury Plains by early 2030's

5th Redefined Tourism Services: Tranz Alpine and National Tour Train (all pax lines e.g. SIMT) / Charter Services – Commercial operation – ongoing as develops

6th Eventual Network Expansion: Extend to Dunedin Invercargill, Napier, New Plymouth and Northland. Rotorua? Gisborne? **Queenstown via Kingston??** – 2030's - 2050

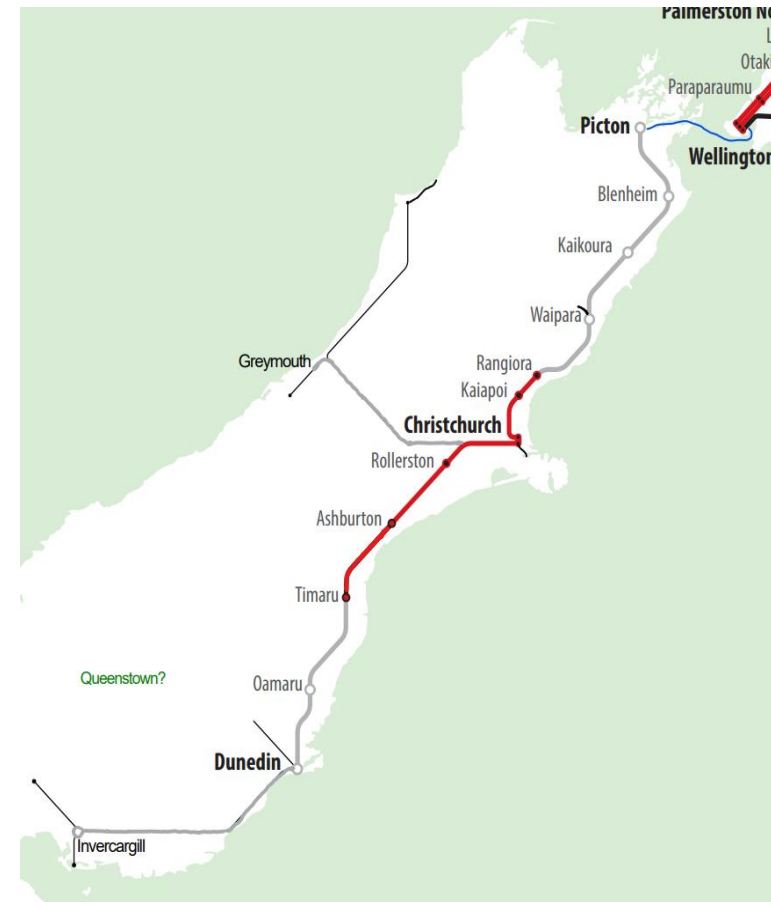
7th Additional New Local Networks: Suburban Christchurch, Mosgiel – Port Chalmers (Dunedin Railways), Waikato Local, BoP Local to Whakatane, Hawkes Bay Local – progressive delivery 2030 - 2050

8th Heritage Operators Sustenance: Dunedin Railways, GVR, Mainline Steam, Steam Inc etc – ongoing now



Map Source: Adapted and modified from Green Party Intercity Rail proposal from 2020 Election proposal

Vision – Completed National Network By 2040's



By 2040 a quality high frequent core network of fast **(Red)** trains supplemented by electrified NI regional connectors **(solid Black)**. Complimented by longer distance trains **(Grey)** spanning the nation progressively by 2050 – some lines (thin black) likely stay freight only except for charter or heritage offerings

Map Source: Is adapted and modified from Green Party Intercity Rail proposal from 2020 Election proposal

New Emerging Rolling Stock – Bi/Tri-Mode

(VLine (Victoria) VLocity, Etihad Rail, DB/Siemens and Wink/Stadler)



Potential inter-regional rail rolling stock adapting fast. From all diesel units like, the VLocity used in Vic. Aus. to Bi/Tri Mode Units (TMU). Power from overhead or battery charged either from CI engine or Overhead.
National procurement strategy for national standards



Time Slipping Into The Future

Key Investments Inter-Regional Passenger Rail

Infrastructure Works – Track, Signalling upgrades eg ETCS

Rolling electrification - (Pukekohe - Hamilton - Tauranga and lower NIMT)

New and upgraded stations – getting platform heights consistent, national standards

Rolling Stock national standards - regional adaptation eg, EMU, Bi/Tri Mode, procurement

Stabling and maintenance (heavy, light, servicing at strategic locations, regional jobs)

Door-to-door last mile - autonomous vehicles, Mobility as Service, Micro mobility

Simulators, new control centres, PT national integrated ticketing (Tap & ride)

Rail Academy - build Rail/PT knowledge, prof development, new jobs, apprenticeships

Other investment eg affordable housing access, spatial planning, inward investment

Summary of Vision and Outcomes

- Staged Rail over 20+ years - **Golden Triangle** and **Lower North Island** first, then **national connectors / South Island** - **“Connecting Communities” – A Choice**
- **National Public Transport Integrated Planning** with Strong Regional input for right local and national outcomes supported by robust research and analysis
- **Rails key advantages leveraged, customer centric approach - innovation required**
- Compelling case for stakeholders for funding and delivery required – non-partisan.
- **Funding: Land Value Capture, TOD’s, NZLTF, fuel / gen tax, rates, GST allocation, inward investment, community, pop funding base, car capital release, fare box**
- Delivery models incl. Franchising, Concession, Development Co-operative
- Integrated networks - Public bus improvements for many routes
- Rail skills enhancement – development pipeline of industry capability

Not just Here & Now – Ambitions / new thinking – Better Connected Nation

Closing Thoughts

“There is no reason to believe that bureaucrats and politicians, no matter how well meaning, are better at solving problems than the people on the spot, who have the strongest incentive to get the right solution”

Elinor Ostrom – IPPR’s ‘The Climate Commons’

“It was a big job, and it required men that could think a mile high and three thousand miles long”

Johnny Cash, Riding the Rails, 1974



Epilogue - NZ Railways Is Your Railway!

The
Railway
Is
Your
Way
**FOR BETTER
NOT WORSE**

People of New Zealand, the railway is your way because you are the owners, and you control the policy. All day and every day your railways offer the best possible service at the least possible cost for the carriage of yourselves or goods. By using your own transport system you avoid worry, save money and reduce taxation. The more you are loyal to your own enterprise, the more you will gain for yourselves, from individual and national viewpoints.



**YOUR RAILWAYS
FOR YOUR WELFARE**

Let's Do This New Zealand!



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