



Road Transport Forum NZ Submission
He Tūāpapa ki te Ora | Infrastructure for a Better
Future: NZ Infrastructure Commission
Consultation Document

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1. Representation

- 1.1 Road Transport Forum New Zealand (RTF) is made up of several regional trucking associations for which the RTF provides unified national representation. RTF members include Road Transport Association NZ, National Road Carriers, and NZ Trucking Association. The affiliated representation of the RTF is some 3,000 individual road transport companies which in turn operate 16-18,000 trucks involved in commercial road freight transport, as well as companies that provide services allied to road freight transport.
- 1.2 The RTF is the peak body and authoritative voice of New Zealand's road freight transport industry which employs 32,868 people (2.0% of the workforce), and has a gross annual turnover in the order of \$6 billion.
- 1.3 RTF members are predominately involved in the operation of commercial freight transport services both urban and inter-regional. These services are entirely based on the deployment of trucks both as single units for urban delivery and as multi-unit combinations that may have one or more trailers supporting rural or inter-regional transport.
- 1.4 According to Ministry of Transport research (National Freight Demands Study 2018) road freight transport accounts for 93% of the total tonnes of freight moved in New Zealand.

2. Introductory comments

- 2.1 *Infrastructure for a Better Future*, a document (of some 125 pages followed by references, questions, and additional material) published by the NZ Infrastructure Commission (NZIC) and available for comment represents a very wide brief for determining an infrastructure investment path between now and 2050.
- 2.2 The document seeks submitters' views across a range of infrastructure investment initiatives and policy perspectives, but errs towards being generalist. In one sense it's not a policy document but a range of options drawn together with commentary and discussions, probably with expectation the document would appeal to a wide audience. These are articulated against the backdrop of New Zealand's climate change policy framework.

- 2.3 From RTF's perspective, the various scenarios and infrastructure expenditure goals outlined could be in tension with one another, or complementary (if there was ample funding available).
- 2.4 It would be easy to argue about the imprecision of how competing options might play out over the next 30 years, but it's also difficult to see how the Infrastructure Commission's advice fits into the overall picture of government policy when so many different climate policy aspirations are being presented for action within the same timeframe.
- 2.5 Instead of attempting to respond to every option in the draft, our sphere of interest is relatively constrained to the freight transport sector which is by definition, a service industry essentially meeting the needs of its clients and in turn their customers, more often than not the household consumer. The ideological approach adopted by the Climate Change Commission's reported advice to the Government has, in our view, the potential to misplace infrastructure investment priorities with a negative impact on general population's wellbeing.
- 2.6 From what we can gather, the document seeks to draw out submitter feedback on setting the relevant investment and commitment priorities to satisfy the climate change management aspirations.

3. Summary of RTF comments

- 3.1 In RTF's case we will comment on aspects that impact road freight transportation, such as the road network infrastructure, electricity generation, and distribution investment required to satisfy future demands, as well as the technology interface necessary to facilitate the introduction and operation of new generation connected commercial vehicles. Each of these form part of the overall solution to reducing carbon generated impacts on the environment.
- 3.2 Not only does New Zealand need to optimise the present roading infrastructure, but we also need to ensure it continues to be fit for purpose. There is an alternative view that by reducing personal mobility, such as car use, and creating more condensed urban development, the demand for roading serviceability will also reduce. Unfortunately, this is a misplaced ideal.
- 3.3 Recently released academic papers on autonomous light vehicle uptake suggest the roads may become even more congested than they are now because individuals will inevitably select personal transport over shared transport.
- 3.4 The RTF's comments have focused on the essential need to not only maintain the existing network beyond the minimalist status, but also to build the asset in terms of both safety improvements and reliability to ensure inter-regional connectivity.

4. Roading and network demands for a future state

- 4.1 The RTF's interest in infrastructure is focussed on the urgency (climate change impacts aside) and importance of ensuring an adequate investment in the roading network.
- 4.2 This investment is the key to ensuring firstly, social integration and community wellbeing becomes realisable and secondly, delivering enhanced national prosperity from revenues generated from New Zealand's rural and primary sectors remain achievable.
- 4.3 Without a safe and reliable primary road system, together with well-developed regional network connectivity, neither of the primary objectives we have commented on above will be realised.

5. Comment on the consultation document

- 5.1 Looking over all the infrastructure goals laid out in the document arguably, few will be achieved without having a well-developed road freight transport services sector, along with an appropriate, safe, and resilient infrastructure upon which the vehicles will need to operate, irrespective of whether they are battery electric, biofuel internal combustion engine (ICE), using low carbon liquid fuels, or hydrogen fuel cell powered.
- 5.2 The three proposed action areas of the report (page 43), illustrate the primary national infrastructure objectives and most of the needs identified are obvious. It is essential that the immediate and basic needs for society, such as suitable drinking water supplies, waste water management, and electrical reticulation are provided, and that the systems for these are robust and reliable.
- 5.3 Read in context with the *Issues* outlined (page 34) and *What's on the horizon* (page 35), the investment demand picture could be seen as very financially challenging for a population as small and as thinly spread as New Zealand's.
- 5.4 New Zealand is also net importer of technology solutions, although admittedly, specialist small volume manufacturers have had some export success. Apart from these, revenue is nearly entirely generated by the primary productive sector, reinforcing the need for robust, reliable, and enduring road freight connections.
- 5.5 The Commission appears to recognise this need in the discussion on pages 88 and 89 under the headings (truncated versions follow): "*Freight supply chains operate best when the customer experience is seamless; to improve international connectivity there is the need to better understand the market demands; regions are the economic backbone from which the bulk of primary exports are sourced; and, confirms the need for advanced digital connectivity to enable the regions to deliver the products to*

market”.

- 5.6 Page 37 cites the impact of the Covid-19 pandemic and the associated supply chain disruption, including additional freight cost increases arising from the global disruption, effecting both imports and exports. This is still evident today in New Zealand’s supply side and consumer market.
- 5.7 Even in single weather events such as the recent Canterbury floods, while the disruption was regionally localised, it impacted the whole of the South Island. This resulted in a significant freight capability and capacity resource vacuum, and it will require substantial investment to overcome a future occurrence. These events are very disruptive and they illustrate the importance of investing in a resilient primary roading network.
- 5.8 As already discussed, RTF’s comments and response to the Commission’s discussion document are relatively narrow despite the laudable initiatives outlined in the document.
- 5.9 Disappointingly, a lot of the Government’s climate change policy objectives have attempted to demonise the road freight transport industry while elevating the environmental benefits of rail. When viewed in the context of achieving social equitability and return on investment, this makes little sense.
- 5.10 A fundamental flaw in the present approach to infrastructure policy is a misplaced ideological position that rail freight is a competent competitor to road freight, instead of being seen as complementary service. This is an ideological position based on an irrational assumption that rail can flourish without road transport support. In reality, it is the opposite that exists.
- 5.11 There is no doubt that climate change will present a number of well documented challenges and the multiplicity of ambitious infrastructure investment targets for 2050, set out in the document, have the potential to bankrupt New Zealand. Like similar types of government publications covering the climate change topic, this one is largely silent on the household economic impacts. (The recently released Three Waters Review, carried by DIA, gives some indication of the potential cost impacts to householders for just a couple of primary services i.e. domestic water reticulation and waste reticulation - <https://www.dia.govt.nz/Three-waters-review>)
- 5.12 The consultation document assumes New Zealand has the fiscal capacity to recalibrate the urban environment and reset the entire way people presently live, holding to the view that walking and cycling and centralised urban planning will prove an acceptable choice for most. This suggests a lot of the ideology behind this document is predominantly city centric or, in New Zealand’s case, Auckland centric, apart from the page 88-89 references to rural regional New Zealand.

- 5.13 What is disappointing is, on one hand we have the Infrastructure Commissions' Draft to consider, while we have the New Zealand Government downplaying roading investment and cancelling significant roading projects deemed necessary (regional roading has been hit particularly hard, according to media reports), in favour of funding the Auckland cycleway bridge at some \$780m. That particular spend has not even been subjected to an appropriate economic evaluation. The cycleway bridge falls within the scope of being, for want of a better explanation, a folly.
- 5.14 Changes in urban development policy will have some benefits, but that doesn't diminish the primary need for roading investment. Waka Kotahi NZ Transport Agency spent effort some years ago grading the various networks, both primary and secondary, into some form of demand, or priority, under what was termed a one network road classification (ONRC).
- 5.15 This approach, using four graded classifications, was expected to help with determining an expenditure model, ensuring resilience-based demand and maintenance would be appropriately managed.
- 5.16 Given the role of the Infrastructure Commission, this approach might be able to be dusted off and fed into an investment model, ensuring the best outcome for the investment made. This approach may have merit in the design of a transitional funding model for generating funding from road users, based on differential pricing (page 140).
- 5.17 However, freight transportation services are intrinsically connected to achieving economic wellbeing and costs added at the input side will inevitably find their way into the end-line pricing.
- 5.18 Freight supply chain efficiency, referred to on page 88, where the discussion alludes to the complexity of the present processes, interestingly doesn't offer any comment on how the present models might be improved. This suggests a recognition that changing external cost impacts and charging for externalities might squeeze out even greater efficiencies and in turn reduce the impact of climate change. Reading deeper into the text and discussion elsewhere, the policy focus going forward seems to be based on the principle of applying various types of charging systems. That could arguably be defined as carbon-based activity taxes.
- 5.19 As expected, NZIC recognises the reality that mitigating the impact of climate change in respect of the New Zealand's roads and network connections will involve some carbon impacts (quoting page 47):
- "Infrastructure contributes to climate change by generating greenhouse gas emissions from its direct operations, the materials used in its construction and the activities it enables.*

"The construction and maintenance of infrastructure often generates substantial amounts of embodied carbon through the use of materials such as concrete and steel. Many construction activities, such as earthmoving and tunnelling, also require significant carbon-intensive fuel use. Dematerialisation through design, innovation in low-carbon materials, and the uptake of low-carbon construction methodologies all have an important role to play in reducing the carbon impacts of construction and maintenance.

"Embodied carbon means all the greenhouse gas emissions emitted in producing materials. It includes the carbon used to extract and transport raw materials, as well as emissions from construction and manufacturing processes.

"The impacts of climate change on infrastructure are wide-reaching.

"Climate change will affect most of our infrastructure decisions from where we put new roads and hospitals to the materials and methods used to construct, maintain and operate infrastructure. Mitigating the effects of climate change will affect what, and particularly, how we build. Adapting to climate change will affect where we build."

- 5.20 In effect, the tax payers, being the householders, end up having to meet a significant cost increases for all infrastructure goals and obligations whichever solution the Government elects to take.
- 5.21 The corollary here with vehicles, even electing to use low carbon generating options such as battery electric and hydrogen FCEVs as an expected part of the climate change solution, is that they are manufactured by extracting resources and minerals from the earth and manufacturing components using unavoidable high carbon producing production methods including, in many cases, coal-fired electrical generation.
- 5.22 The only reason these vehicles are seen as a palatable solution is that the carbon generating aspect is conveniently ignored because the industrial manufacturing and mining processes take place elsewhere, and not in New Zealand. The disposal of the same vehicles at end-of-life presents additional problems that are also typically ignored in the climate solutions debate.
- 5.23 Electric vehicles are seen as the personal mobility solution but their costs are not insignificant. Though there is lot of comment that they will reduce in price and increase in availability with time, they are viewed as a middle and high-income earner transport solution. New Zealand has a reputation as a low-income, high-cost country. An \$8,500 discount recently announced by the Government on a \$75,000 new electric car price is not going to sway a lot of the population toward electric vehicles.

- 5.24 There is also discussion of a future battery constituent resource shock, much like the peak oil scenarios postulated in the 1970s and 1980s. This is a possibility, but only because some jurisdictions are actively seeking market dominance.
- 5.25 New Zealand's low population and lack of international economic influence means New Zealanders are potentially going to be stuck with paying higher costs for battery electric mobility options. However, the discussion above, while valid in the overall climate solutions picture, is largely out of scope with the Infrastructure Commission's discussion document.

6. Electricity generation and reticulation including hydrogen distribution and refuelling infrastructure

- 6.1 The importance of renewable electricity generation cannot be overlooked, nor can the need for enhanced reticulation systems. Both are imperatives required to support the new generation of vehicles, including freight trucks, particularly those involved in urban distribution.
- 6.2 The growth in on-line purchasing under Covid-19 has led to exponential growth in door-to-door deliveries. Even with enhanced battery energy densities, light and mid-range freight trucks will need periodic recharging outside of their base. This will necessitate a well-developed and accessible network of vehicle charging facilities.
- 6.3 An essential feature of these will be to develop an installation system that distinguishes between commercial vehicles and private vehicles. The reason for this being, even battery electric commercial vehicle drivers will be expected to comply with strict worktime provisions, as they do now, while private vehicle users only lose time, not productivity, if they are not able to access charging facilities.
- 6.4 We are of the view there needs to be battery vehicle charging facilities provided exclusively for commercial vehicles, to get over the hindrance of competing for access with private vehicle owners.
- 6.5 Hydrogen fuel distribution systems present their own challenges. With the transition to heavy duty commercial vehicles using hydrogen fuel cell electric drive trains, it is essential that the Government supports the development of a suitable refuelling infrastructure. In fact, a number of light vehicle manufacturers are also likely to produce FCEV drive trains so potentially, the market demand could equal the BEV light vehicle market.
- 6.6 Major truck manufacturers in Europe are calling for the installation of around 300 high-performance hydrogen refuelling stations suitable for heavy-duty vehicles by 2025, and for around 1,000 hydrogen refuelling stations no later than 2030 in Europe.

- 6.7 The problem is, there is no real clear signal (here in New Zealand) of what the demand for hydrogen facilities in the near to medium future might be. We also see the leading manufacturers of heavy-duty vehicles are still exploring a menu of power train and propulsion systems, so even they are hesitant about the future and are not committing to any particular system entirely.
- 6.8 For example, according to Lars Stenqvist, Volvo Groups US manager suggests, *"a near-term convergence of biofuel, battery-electric and hydrogen fuel cell electric-powered trucks as the industry, in U.S. and Europe, begins to adopt transformative and disruptive technologies aimed at eliminating harmful emissions and "leapfrogging" current practices.*
- "Three technologies in parallel. They each will have competitive advantages in different applications," said Stenqvist in an interview May 10. (Reported in Transport Topics May 11, 2021) "They each have to live on their own merits."*
- 6.9 He went on to acknowledge some kind of [added] cost on fossil-based fuels going forward, saying some kind of tax, or some kind of penalty, will speed up the transition. This latter comment contrasts with his comment that each technology should exist on its merit.
- 6.10 Because the hydrogen fuel use market in New Zealand at its very formative stages, there isn't presently sufficient evidence and confidence upon which ICNZ infrastructure policy development can be based. An interesting aside is a well implemented approach to utilising hydrogen as a fuel could offset some of the electricity infrastructure development needed going forward.
- 6.11 The RTF's comments on this aspect of the NZIC discussion document also ignores the potential of E-fuels, that is, low carbon liquid fuels that are a direct replacement for carbon fuels in internal combustion engines.

7. Vehicle interconnectivity; technology infrastructure capability

- 7.1 Modern commercial vehicles now, and into the future, are connectivity dependant. The new in-cab driver support technologies, together with vehicle operating systems and vehicle safety management systems imbedded in the cab, are highly reliant on telemetry providing information back to the vehicles' operating base and to the company dispatch team.
- 7.2 Interfacing with customers with estimated arrival times and real-time vehicle status is equally important. The success of these systems is entirely reliant on seamless connectivity across New Zealand.
- 7.3 With the potential development of autonomous trucks advancing and eventually becoming available to market, connectivity takes on an even greater importance. In New Zealand, the application of full autonomy

appears unlikely for heavy duty truck freight applications, but semi-autonomous and driver assisted autonomy may well become more normalised, especially where the routing of the vehicles is routine. For these vehicles to be successfully deployed they need an environment where it's possible to rely on reliable connectivity and data transfer networks.

- 7.4 The RTF is not entirely sure New Zealand's connectivity status is at a level to support these vehicles operating using their autonomous or self-reporting features. New Zealand's topography and road geometry is well recognised as particularly demanding, so it may be likely that even employing some level of driver assisted autonomy maybe pushing the technology capability to its effective limits.

8. Concluding comments

- 8.1 It's difficult to arrive at a single conclusion other than accepting the Infrastructure Commission is confronted with an enormous task that is not made any easier by a Government operating a moving feast of uncoordinated and sometimes irrational policy options.
- 8.2 To be able to move forward on an infrastructure investment framework, the policy options need to be bedded down within a structural coherency that's deliverable and fiscally manageable. We are not sure that's the case at present.
- 8.3 The document presented for comment was wide ranging, demonstrating there are numerous infrastructure aspirations with different levers that appear to need financial lubrication to make any progress.
- 8.4 The key to moving forward is stratifying the various options into different groups based on direct and measurable national benefits. By setting realizable goals into a national policy framework, the relative importance or priority of each becomes more discernable. This assists resourcing both from a national perspective and a regional perspective.
- 8.5 The Transportation Research Board (TRB) has stated the real opportunity to take action on climate change is to focus on the transport infrastructure. TRB recently warned that the USA's crumbling transportation infrastructure must be rebuilt and modernised. More resilient infrastructure would lift recovery, create jobs, strengthen the economy, and fight climate change.
- 8.6 In the USA, like New Zealand, the rural economy is heavily dependent on road access. New Zealand needs to take note of the TRB's comments.