Giltrap Group

Response to

Hīkina te Kohupara – Kia mauri ora ai te iwi

Transport Emissions: Pathways to Net Zero by 2050

FINAL Submission

Final
Friday, 25th June 2021

Executive Summary

This document is a response to the Ministry of Transport's *Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050* request for feedback on options to reduce transport emissions. In this document we seek to:

- Provide industry expertise relevant to the goals of the Ministry (pages 3-10),
- Highlight the key barriers to EV uptake (pages 3-10),
- Describe the means through which the private sector can help progress the goals of the Ministry (pages 1,10-12), and
- Outline policies we believe are critical for success (pages 12-14).

In addition, this submission responds to te following consultation questions

- Question 3, see pages 10-12
- Question 13 see page 12, and
- Question 14, see pages 12-14.

In our responses, we discuss:

- Improving innovation through a mission-oriented approach, the development of regional hubs, and through the transformation of corporate fleets,
- The policy pathway we believe is most appropriate for a sustainable reduction in emissions,
- Additional policies, specifically increasing charging infrastructure and tax incentives such as FBT removal, for inclusion in the first emissions budget.

Background

Giltrap Group is committed to the Ministry of Transport's intention to lower emissions from transport. In our response to the draft advice and recommendations, we hope to provide helpful industry knowledge and insights regarding the challenges surrounding emissions from the light vehicle fleet, specifically with EV uptake. We believe our expertise can assist the Government to address these challenges and achieve the proposed targets.

The Giltrap was established in 1966 by Sir Colin Giltrap. The Giltrap Group has national distribution rights for the Volkswagen Group brands, Jaguar Land Rover and Volvo (Volvo being a JV). Separately the Giltrap Group has 18 retail dealerships, all based in Auckland, compromising of brands they distribute as well as strong brands such as Nissan and Kia. On an annual basis the Group distributes over 12,500 vehicles nationally and sells 7,500 new cars directly from its Auckland retail operations. Accordingly, the Giltrap Group handles through its various entities close to 20,000 new vehicles or circa 15-20% of all new vehicles sold in New Zealand. In 2021 close to 5% of vehicles handled are EV's which, although better than the national penetration of EV's, the Group aims for improvement despite the current supply limitations.

Further, the Giltrap Group has the New Zealand rights to SIXT, a leading and internationally recognised new mobility brand. Our objective is for SIXT to be NZ's leading premium mobility provider in the New Zealand market with circa 4,000 vehicles. As a base line, 400 of these vehicles would be EV's circa 10%, however, with the right policy settings and incentives in place, Giltrap will aim for 1,500 of these vehicles to be EVs, delivering over 15,000 EV experiences and 50,000,000 emission free kilometers per year.

Giltrap Group is well placed to support corporate fleet shifts to sustainable models in the immediate future and help bring innovative new mobility and ownership solutions to the market to help EV growth and support reaching EV targets over the next 14 years to the 2035 milestone. We welcome the Minister's initiative to establish an EV Leadership Group and look forward to contributing fruitfully to the establishment of this group.

System level and commercial challenges for the EV revolution in New Zealand

There are many challenges and critical gaps between where New Zealand is today, with less than 30,000 EVs in the total carparc, and where we need to go, to at least 670,000 EVs by 2035 (according to pathway 1 in the report). If New Zealand fails to meet the targets set in the Pathways to Net Zero, the Climate Commission estimates that each ICE vehicle on the road will translate into a missed opportunity for the 60% reduction in emissions from each EV.[1]

New and innovative approaches are required to address these barriers. As outlined in this response, these approaches should incentivise an increase in both the volume and the speed of EV uptake to align with the Pathways to Net Zero by 2050. We are pleased to see the announcement of an EV sector leadership group to help increase uptake; we believe cross-sector collaboration with government is critical to the success and implementation of the initiatives outlined in this report. More certainty around the policies and regulation planned will help give private sector actors, like us, the clarity needed to co-invest in getting EVs into New Zealand at a much larger scale.

Below we offer some additional commentary and color to existing challenges for EV growth in NZ. Before answering the consultation questions, we highlight the details of three key barriers that should inform policies intended to accelerate EV uptake: 1) supply, 2) price and 3) charging infrastructure.

Supply Challenges

The total number of new EVs sold in New Zealand in 2020 was 1518.[2] This is only 7.9% of the number of EVs expected to sell in the first (19,000) year since the announcement of the Clean Car Discount.[3] Reaching the proposed target will require significant effort. If New Zealand fails

[1] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf

[2] Giltrap Group Data

[3] https://www.stuff.co.nz/national/300332128/national-ev-scheme-takes-from-the-poor-to-give-to-the-rich

to address these supply constraints and look for innovative ways to raise awareness, reduce range anxiety, and get more EVs on the road, it is unlikely the critically important 60% reduction in emissions from each EV on the road will be achieved[4]. Below we present specific nuances in the supply of EVs.

1. *EV model mismatch with New Zealand market:*

- The Climate Commission states "8 out of the top 10 vehicles purchased in New Zealand are utes or SUVs".[5] However, New Zealand has 0 EV utes, and very few EV SUVs options for mainstream consumers.[6]
- With the exception of two medium-sized EV SUVs, the Hyundai Kona and the Kia Niro, EV SUVs are either a) small in size and limited in range, or b) luxury options like Teslas.

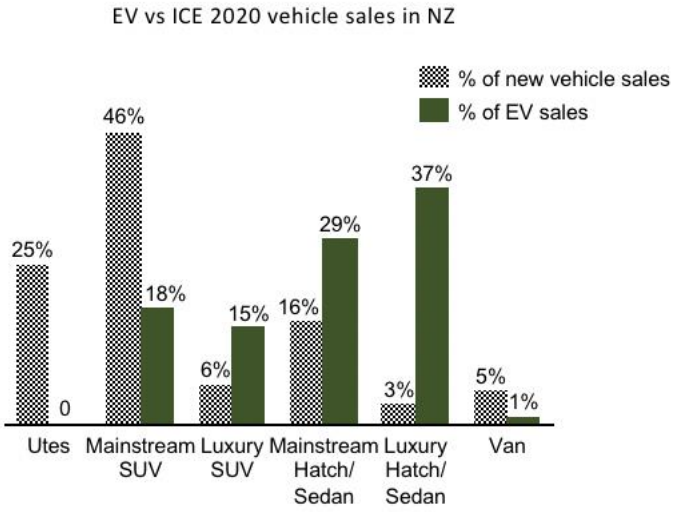


Figure 1: EV vs ICE 2020 vehicle sales in NZ, Source: Giltrap Group Data

- In 2020, 25% of New Zealand's new vehicle sales were utes, but EV utes are not yet on the market at scale globally or in New Zealand.[7] Additionally, in our conversations with manufacturers, we do not see any EV utes on the near-term horizon that fit the requirements for range and size New Zealanders need.
- Lack of EV ute / truck options is predicted to be prolonged due to two ute types that we expect to be first to market. The first type of EV ute we expect is a niche, expensive, high powered ute produced in the US and be left hand drive (a LHD market), which will not have a right hand drive (RHD) option in the near future and is not fit for purpose in New Zealand. The second type of EV ute we expect will come from manufacturers in China which again, these utes will be produced for a LHD market and there is very

[4] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf

[5] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf

[6] Giltrap Group

[7] Giltrap Group Data

limited visibility into key factors like range, size and most importantly RHD availability. As can be seen in Figure 2 (below), Chinese manufacturers of EVs sell predominantly to the Chinese market, with very small production numbers for the rest of the world.

- Manufacturers that do make RHD vehicles don't currently have EV utes lined up in the near to medium term. For example, Toyota has stated publicly that they have no plans to bring an EV ute to market within the next two years.[8]

Total new 2010-2019 light-duty EV production and sales regions

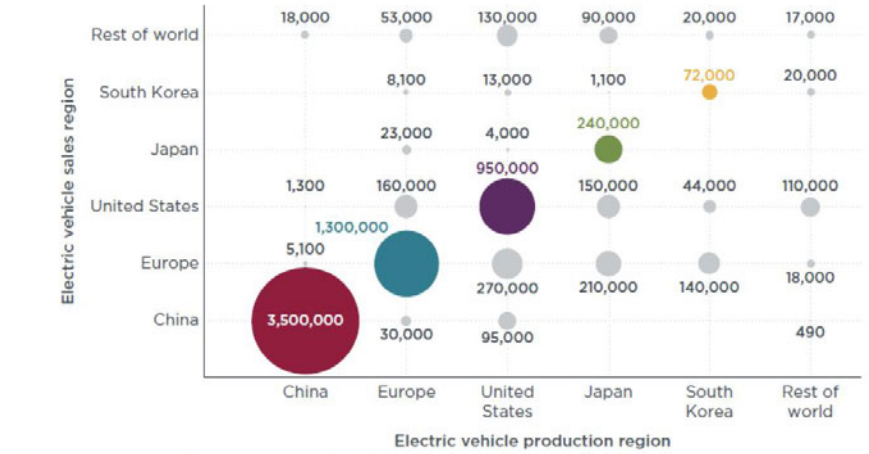


Figure 2 Total new 2010-2019 light-duty EV production and sales regions[9]

- 52% of EVs sold in New Zealand in 2020 were luxury vehicles (37% luxury hatch/sedan + 15% luxury SUV).[10] However, total 2020 luxury vehicle sales constituted only 9% of all new vehicle sales.[11] This means that half the EV market is concentrated in a very small portion of customers that can afford luxury vehicles.
- After luxury vehicles, mainstream hatches and sedans constituted 29% of 2020 EV sales and have the most model options available (6/20 EVs sold in NZ).[12] However, 2020 sales for EV hatches/sedans was only ~450 vehicles.[13]
- Without utes or mainstream SUVs available in large volumes, it is clear that neither luxury vehicles or mainstream hatches will bring sufficient sales volumes to shift New Zealand's total fleet.

2. *Used EV limitations*

[8] https://www.newshub.co.nz/home/politics/2021/06/clean-car-package-toyota-new-zealand-shuts-down-jacinda-ardern-s-claim-company-is-talking-about-bringing-in-ev-utes.html
[9] https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/REL-EECA-EV-Supply-constraints-report.pdf
[10] Giltrap Group Data
[11] Giltrap Group Data
[12] Giltrap Group Data
[13] Giltrap Group Data

- As stated by the Climate Commission, 50% of vehicle sales are from used imports, and 90% of imports are from Japan.[14] However, Japan has committed its production heavily to hybrids which, alone, will not be sufficient to meet the emissions reductions needed from transport set out in this report.[15] Although the Clean Car Discount includes hybrids, it is our understanding that the goals set for emissions reduction via BEVs, in the *Hīkina te Kohupara* report pathways, specifically exclude hybrids. We see an opportunity for alignment between these pathways and the cars included in the discount scheme.
- Slow EV uptake and focus on hybrids over BEVs in Japan will severely limit the number of EVs New Zealand will be able to import in 7 years time (the average age of an imported vehicle).[16]
- Industry data shows that in 2020 less than 3,000 used EVs were imported.[17] The only used EV imported at a significant volume was the Nissan Leaf with 2,251 units for the year.[18]
- These volumes lead us to believe that used EV imports will not be sufficient to meet the scale of EVs we need to meet the goals set out in the Pathways to Net Zero.

3. *New EV supply*

- *Inaia tonu nei* acknowledges supply constraints but assumes that the supply of new EVs will grow to meet the need in New Zealand.[19]
- Contrary to the above assumption, we outline below the reasons new EV supply will continue to be constrained in the short to medium term driven by several factors.
- Parallel importing has been touted as a way to get more EVs into the country, but this argument fails to recognise that parallel importing is for very small-scale imports only and will not fundamentally shift the system. Drive EV in Taupo for example brings in EVs, but currently has only 22 vehicles available for purchase (1% of the EVs sold in NZ in 2020).[20] For New Zealand to be able to bring in the average of 45,000 EVs/year needed to reach the 670,000 by 2035 goal, parallel importing will not be a material contributor to targets.
- Of the top 20 selling EVs globally, only 50% are currently available in New Zealand, and only 21% are suitable for the New Zealand market.[21] Suitability is based on size, range, and price of the EVs as compared to the average NZ buyer. The remaining vehicles currently available are luxury options or super-mini with limited range not suitable for the average New Zealander.

[14] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf
[15] https://www.wsj.com/articles/japan-to-phase-out-gasoline-powered-cars-bucking-toyota-chief-11608887640
[16] Giltrap Group Data
[17] Giltrap Group Data
[18] Giltrap Group Data
[19] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf
[20] https://www.driveev.co.nz/buy-electric-vehicles-nz?Make=&Text=&PriceFrom=0&PriceTo=0&YearFrom=0&YearTo=0&Transmission=&BodyStyle=&Dealership=&SortOption=200&Page=1&EngineSizeFrom=0&EngineSizeTo=0&OdometerFrom=0&OdometerTo=0&Model=
[21] https://cleantechnica.com/2021/02/04/global-electric-vehicle-top-20-ev-sales-report

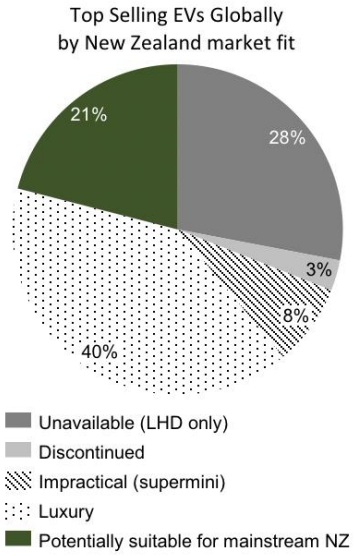


Figure 3: Global EV top sellers by New Zealand market fit[22]

- As a right-hand-drive (RHD) market, New Zealand is limited to EVs produced with RHD models and 28%, or 6 of the top 20 EVs globally are left-hand drive (LHD) as shown in Figure 3.[23]

4. *Implications of a late transition.*

- With New Zealand's later transition to EVs as compared to many countries in Europe (with ICE bans as early as 2025 in Norway and 2030 for Denmark and UK[24,25]), we have felt firsthand the reality that New Zealand is at the back of the line for new EV models as manufacturers prioritise countries with more urgent timelines, bigger markets, and faster uptake.[26]

Price Challenges

1. *Price to Consumer*

- We welcome and support the Government's recent moves to introduce subsidies and feebates to help drive EV growth in New Zealand and this is a good first step.
- EV options in New Zealand are currently 70-90% higher than the price of a comparable ICE vehicle.[27] Even with the Clean Car Discount scheme (with a maximum discount of $8,625), the price of many EVs will remain far above that of the comparable ICE option.
- The only two mainstream SUVs available in New Zealand, the Hyundai Kona and Kia Niro, are both 60-70% higher price than comparable ICE vehicle alternative as shown in Figure 4.

[22] https://cleantechnica.com/2021/02/04/global-electric-vehicle-top-20-ev-sales-report
[23] https://cleantechnica.com/2021/02/04/global-electric-vehicle-top-20-ev-sales-report
[24] https://www.reuters.com/article/climate-change-britain-factbox-idINKBN27Y19F
[25] https://chargedevs.com/newswire/denmark-to-phase-out-ice-vehicles-by-2030/
[26] https://www.eeca.govt.nz/assets/EECA-Resources/Research-papers-guides/REL-EECA-EV-Supply-constraints-report.pdf
[27] Giltrap Group Data

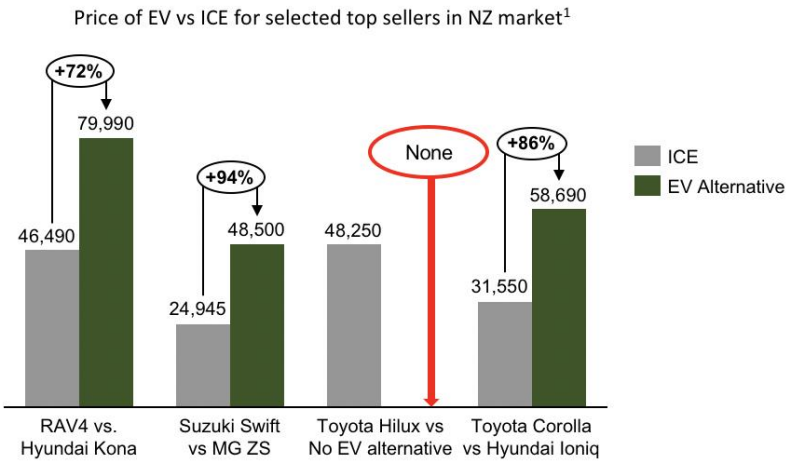


Figure 4: Price of EV vs ICE for selected top sellers in NZ market[28]

- The average price of an EV sold in 2020 was $90K, 80% above the average price of an ICE vehicle at $50K.[29] This price difference is due to two factors: 1) the prevalence of expensive luxury vehicles in the EV market, and 2) the lack of affordable EV options as compared to ICE vehicles. With the maximum Clean Car Discount of $8,625, the price of most EVs will remain above the $50K average price of a new ICE vehicle and substantially above the price of a comparable ICE option.

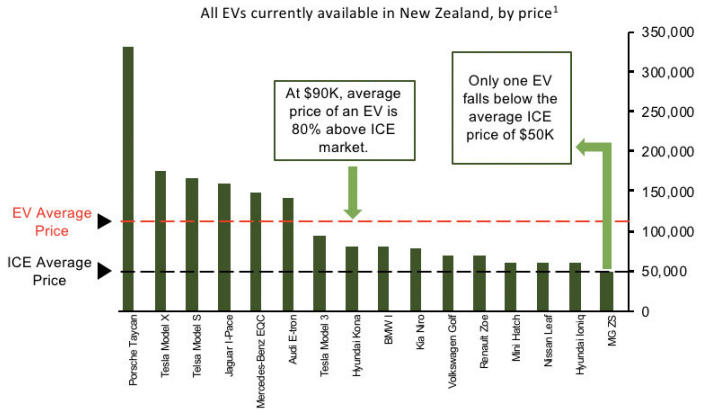


Figure 5 All EVs currently sold in New Zealand, by price[30]

- Due to the persistent difference in price even after a Clean Car Discount, further incentives are needed if EV demand will be able to fill the gap between the 1518 EVs sold in 2020[31] and the 45,000 needed/year to get to 2035 target. Demand will increase faster if we can reduce the timeframe to reach price parity with ICE vehicles.

[28] Giltrap Group Data
[29] Giltrap Group Data
[30] Giltrap Group Data
[31] Giltrap Group Data

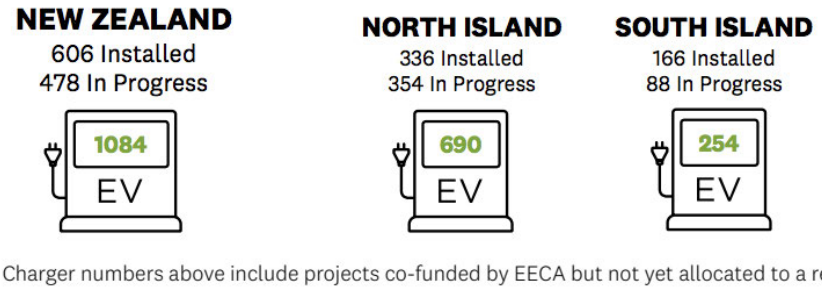
2. *EV Commercial Challenges for Manufacturers and Dealers*

- As has been acknowledged by the Climate Commission, EVs are not expected to reach price parity with ICE vehicles until 2031.[32] Due to the lack of economies of scale, prices are not only too high for consumers but for manufacturers and dealers at each step of the supply chain.
- Currently, both manufacturers and distributers operate with considerably lower margins for EVs compared to ICE, this is also the case for us in our new mobility subscription and rental businesses.
- In order to get more EVs into New Zealand, there must be incentives that will give manufacturers the confidence that New Zealand is committed in the long term, and that there are end-users who are demanding the vehicles (i.e. private buyers, corporates and rental companies), to ensure they will get off the lot and onto the roads. As previously mentioned in Section 1 regarding supply challenges, obtaining suitable EV's for New Zealand is challenging particularly around right-hand drive options. However if there is a consistent horizon on incentives then Giltrap and others in the industry will negotiate hard to bring additional EV volumes into the country. There is significant financial risk due to higher prices for new EVs and reduced margins to be able to commit to more volume.
- Incentives such as a commitment to eliminating FBT and GST reduction on EVs, outlined in our response to question 14 below, would help to give manufacturers and dealers confidence that EVs will be able to sell, therefore giving them a reason to bring them into the country in larger volumes.

3. *Charging infrastructure Challenges*

- According to EVRoam, New Zealand currently has 289 public charging stations, each of which may have multiple plugs.[33]
- The newly released EV buyers guide shows several EV charger installations which are in progress but does not disclose a timeline for when the installation will be complete. 606 chargers have been installed according to EECA (which we will assume is the number of plugs that correlates with the 289 stations on EVRoam).

Figure 6: Chargers installed and in progress[34]



[32] https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf
[33] https://www.journeys.nzta.govt.nz/ev-chargers
[34] https://genless.govt.nz/assets/Individuals-Resources/EV-Buyers-Guide.pdf

- If the vehicle fleet were to grow by 19,000 (the growth in EVs assumed in the first year of the Clean Car Discount), and there was no increase in charging infrastructure from the 606 installed according to the funding committed by EECA, there would only be 1 charger for every 76 EVs in New Zealand (46,436 EVs = 27,436 existing +19,000 new).[35,36]
- If the EV Roam data of 289 charging stations is correct, this is only 1 charger for every 160 plug-in vehicles.[37] Both the 1:160 and the 1:76 ratio is well below the benchmark being set by other countries with higher levels of EV uptake (UK and Norway).[38,39,40,41,42]
    - The UK currently has 1 charger for every 55 EVs, with plans to increase the number of chargers by over 10X from 35,000 to 400,000 by its 2030 ICE ban.[43]
    - Norway currently has 1 charger for every 32 EVs, with even lower ratios in cities like Oslo where there is 1 charger for every 10 EVs (at one point there was 1 charger for every 4 EVs in Oslo).[44]
- We have also seen that the metric being used by the Ministry of Transport and echoed by EECA is 1 charger every 75km on "most state highways".
    - With an additional 19,000 EVs expected in the first year of the scheme, New Zealand would need to simultaneously triple the current number of public chargers available in the same year to keep up with the international benchmark of 50 plug-in vehicles/charger.[45] To fill the gap to get to 45,000 EVs/year on average through to 2035, another 900 chargers are needed per year minimum.
    - Even with the increase in funds, we are not confident that the size of the LEV Fund is sufficient to fill this gap and believe it must be invested strategically rather than spreading funding too thin.
    - Beyond the number of chargers, we believe there are four other considerations for investment in charging infrastructure that should help inform decisions of the LETF moving forward:
        - The ratio of cars with a plug/charger. This needs to be a key metric for investment, ideally at a regional level to account for the difference in EV ownership in different areas.
        - Fast charging is a necessary investment that will improve range and requires expensive upgrades to electricity infrastructure. The ratio of fast chargers to EVs nationally, regionally and for each city will be an important metric (The

[35] https://genless.govt.nz/assets/Individuals-Resources/EV-Buyers-Guide.pdf
[36] https://www.stuff.co.nz/national/300332128/national-ev-scheme-takes-from-the-poor-to-give-to-the-rich
[37] https://www.journeys.nzta.govt.nz/ev-chargers
[38] https://www.reuters.com/article/us-autos-electric-norway-idUSKBN29A0ZT
[39] https://en.wikipedia.org/wiki/Plug-in_electric_vehicles_in_Norway
[40] https://blog.wallbox.com/en/norway-ev-incentives/
[41] https://www.autocar.co.uk/car-news/industry-news-sales-figures/analysis-2020-uk-car-sales-hit-28-year-low-ev-market-grows#:~:text=A%20total%20of%20108%2C205%20EVs,to%204.1%25%20of%20the%20market.
[42] https://theicct.org/publications/charging-gap-UK-2020
[43] https://news.sky.com/story/electric-vehicle-charge-points-must-be-fitted-five-times-quicker-to-hit-2030-target-12206048#:~:text=Its%20report%20said%20the%20UK,35%2C000%20over%20the%20next%20decade.
[44] https://www.weforum.org/agenda/2018/08/the-oslo-model-how-to-prepare-your-city-for-electric-vehicles/
[45] https://www.stuff.co.nz/national/300332128/national-ev-scheme-takes-from-the-poor-to-give-to-the-rich

UK tracks both the ratio of EVs per normal speed charger and the ratio of EVs per fast charger separately).[46]
    - Regional concentration of EV purchases may mean that urban centres require a higher density of charging and rural areas have less of an immediate need (Norway tracks charging in urban centres like Oslo with separate metrics from national EV chargers).[47]
    - There are limitations on at-home charging infrastructure due to the capacity of the grid at most residential locations. This means that most vehicles need to be plugged in for 6-12 hours before fully charged. Upgrading the grid to allow for fast charging at home is crucial to supporting EV uptake.
        - A commission focused on facilitating conversion to EVs in Denmark has recommended less tax for charging at home.[48]
        - In Norway, the purchase price and cost of installation for at-home charging is subsidised through grants to housing associations.[49]
- Measuring charging infrastructure provided on average is insufficient in a country as spread out as New Zealand and will fail to optimise resources. New Zealand must focus first on urban regional hubs (outlined in our answer to question 3 below), create sufficient fast charging, infrastructure for at-home fast-charging.
- We have read the Ministry's plans to increase infrastructure via the Low Emission Vehicles Fund with an increase from the current $6.5M/year to $25M/year by 2023/24. We look forward to hearing more about the Low Emissions Transport Fund and the optimal use of the funding to support EV uptake.
- Assuming New Zealand adds at least 20K EVs/year to its fleet from now until 2035, we will still make a significant dent in the goal to get more EVs on the road. To provide at least 1 charger for every 75 EVs (still almost 2x less than that of Norway), 3,700 chargers would be needed over 14 years.
- In our experience, a fast charger can cost a minimum of $75K for installation of 175KWH. 3,700 chargers at $75K each would potentially mean ~$280M investment required over the next 14 years. If we reach 670,000 EVs by 2035, a $630M investment could be required in charging infrastructure to get to 1 charger for every 75 EVs.
- As can be seen, the investment required will be significant and without it, the risk is that consumers purchasing vehicles will avoid EVs due to the inability to charge and increase range.

Question #3: What more should Government do to encourage and support transport innovation that supports emissions reductions?

1. Establish a bold and clear national EV "mission" between government and industry:

[46] https://theicct.org/publications/charging-gap-UK-2020
[47] https://www.weforum.org/agenda/2018/08/the-oslo-model-how-to-prepare-your-city-for-electric-vehicles/
[48] https://www.thelocal.dk/20210212/lower-danish-taxes-backed-for-home-electric-car-charging/
[49] https://blog.wallbox.com/en/norway-ev-incentives/

- Economist Mariana Mazzucato[50] has pioneered the use of mission-orientated policy and has had significant engagement in the UK and EU industrial and R&D strategies with this approach.
- This policy method could be engaged to set a SMART mission, that brings together industry players, entrepreneurs, scholars. local government officials and community shapers to help orchestrate capabilities and resources toward achieving this mission.
- The EV Leadership Group could be the governing body for this mission in partnership with MoT with close engagement from the Minister.
- We would also recommend the membership of this EV Sector Leadership group is expanded and made more diverse to include entrepreneurs, technologists, creatives, marketers and disrupters to help transform the system, win hearts and minds, and deliver innovative commercial solutions.

2. *Regional urban hubs for future mobility:*
    - Demarcating specific land in dense urban areas (and rural areas in strategic regions) can help address several factors:
        - Provision of many fast chargers close to major roads and motorways to increase awareness and reduce EV anxiety for current and aspiring EV drivers.
        - Provision of new EV mobility solutions, for example EV rental, EV car-share or similar
        - Designs to optimise and future-proof for semi-autonomous and VTOL (vertical takeoff and landing).
    - As outlined above in the charging infrastructure section, these hubs must focus on fast charging and improving the ratio of EVs/charger in the areas where the EV transition will begin. We see 2022-2025 as critical to ensuring sufficient infrastructure in locations where most EV buyers currently reside.
        - Additionally, there must be a focus on the regional ratios of EVs/charger to understand the actual support provided to EV users and buyers.
    - Given small, low range EV models are most available, developing charging hubs in urban locations is an opportunity to encourage and normalise the use of EVs in locations where they are fit-for-purpose. There is potential to expand these hubs to additional locations when a wider selection of vehicles appropriate for other locations are available.

3. *Transforming fleets in NZ:*

As shown in Figure 7, corporate fleets and rental fleets combined in 2019 made up more buyers than all private buyers in NZ. These two fleets are critical levers in the shift to EVs.

- **Corporate Fleet Transformation:**
    - A critical lever to increasing the volume of EVs on the road is the transition of large corporate fleets (owned, leased, and rented).

[50] https://www.ucl.ac.uk/bartlett/public-purpose/research/mission-oriented-innovation

- To achieve this, we see removing FBT, accelerating depreciation rates for EVs and either removing or lowering GST as key incentives. Each of these actions would influence the decisions of corporates when purchasing their fleets, both impacting the volume of EVs sold, and the number of New Zealanders on the road in an EV.
- With one corporate decision-maker on hundreds or thousands of vehicles, New Zealand car dealers could make larger orders without the risk and uncertainty of bringing in EVs without committed sales or orders. If up-front purchase price is paid for by corporates, the price barrier will also be eliminated for the average New Zealander driving a company car, widening the demographic able to access EVs.

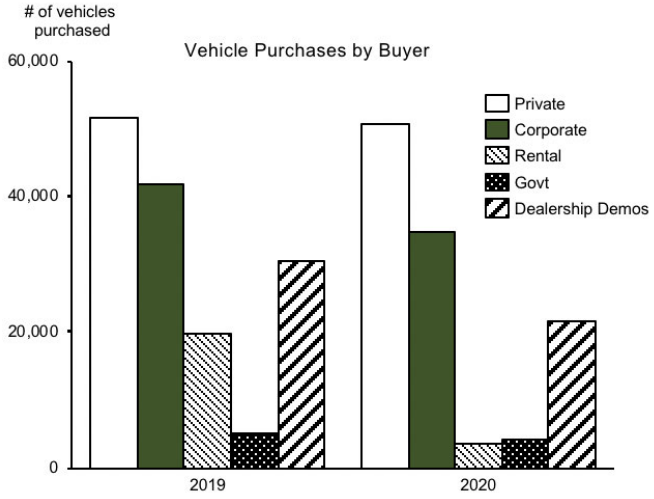


Figure 7 Vehicle Purchases by Buyer[51]

- **Rental car fleet transformation:**
  - Rental car companies are another significant buyer (with the exception of 2020 impacted by COVID-19). Incentivising rental and subscription companies would get more EVs to customers of all income levels and therefore on the road.
  - We see rental and subscription as important levers for the Just Transition, allowing all New Zealanders to access EVs without the barrier of up-front purchase price.
  - Rental companies are also a critical path for getting more EVs on the roads despite the EV supply constraints that New Zealand faces. We are keen to be a part of this transition, but currently the cost of getting EVs on the road without the appropriate amount of charging infrastructure and the tradeoff from having EVs over in-demand ICE rentals is difficult to justify.
  - Due to COVID-19, rental car companies have shifted focus from low cost, easy to import (mostly ICE) options for international tourists to today's main user, New Zealanders. This shift combined with new mobility services will give companies the opportunity to introduce EVs to the domestic market and can provide a "try

[51] Giltrap Group

before you buy" opportunity to get EVs into the market. Importantly, they will also provide a second source of used EVs as companies replace their fleets every 6-12 months.

Question #13: Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway do you think Aotearoa should follow to reduce transport emissions?

1. One of the main critiques we have of these pathways is the extremely high growth in annual EV sales needed to get to the levels proposed in all 4 of the pathways. As we touched on in the supply constraints section of our response above, even the lowest target of 670K EVs in 2035 would require an average of 45,000 EVs/year for each of the next 14 years. This is more than 10X the current number of EVs entering the fleet annually.
    - In order to meet any of the four pathways, it is critically important to address the barriers through the levers we have outlined to get EVs increasing quickly at volume, as well as getting EV access for all New Zealanders through alternatives to ownership. For these reasons, we see the pathways with the lowest assumptions for EV uptake by 2035 as the most viable options.
2. We also support the aspects of the pathways that focus on energy infrastructure improvements, especially for electric vehicle charging (Pathways 2 and 3). As we have outlined above, charging infrastructure will be essential to the success of accelerated EV uptake and adoption.

Question #14 Do you have any views on the policies that we propose should be considered for the first emissions budget (2022-2025)?

1. **Charging Infrastructure:** The *Hīkina te Kohupara* proposals acknowledge that the Government "may need" to ramp up investment in electric charging infrastructure, but with current infrastructure limitations increased infrastructure is critical to successful and accelerated EV uptake. To optimise investment, we see regional hubs, a target number of EVs/charger and a focus on fast charging as key to this policy (as outlined above in Charging Infrastructure Challenges and our answer to question 3).
2. **Tax Incentives:** *Hīkina te Kohupara* also proposes that it should "Investigate the potential for tax incentives to stimulate the demand for low emission vehicles (including Fringe Benefit Tax, Depreciation and Tax Grants) and implement changes to the system if necessary."[52]
    - **Clean Car Discount:** Giltrap Group was pleased to see the Ministry of Transport's acknowledgement of the price barrier and subsequent decision to move forward with the EV rebate through the Clean Car Discount.

[52] https://www.transport.govt.nz//assets/Uploads/Discussion/Transport-EmissionsHikinateKohuparaDiscussionDoc.pdf

    - This rebate will help to ease the burden of expensive EVs (with an average cost of $90K) but cannot address the supply constraints alone.
    - We see the $80K cap as potentially incentivising very high-income buyers to purchase ICE over EVs, despite the fact that the over $80K EV market is arguably the most mature in today's market.
    - As mentioned above, the Clean Car Discount impacts vehicles in the $60K price range most significantly. These EVs will be brought down to around $50K (the average price of an ICE vehicle) with this discount.
    - It is important to note that the vehicles in the $60-70K price range are all sedans and hatchbacks. This means that the total addressable market is the sedan/hatchback market, or about 16% of the total market (2020), equal to roughly 19,000 total vehicles/year.
    - For the rest of the new car market, the discount does not solve for a lack of EV utes, which made up 25% of 2020 sales. For EV SUVs, the discount may not be sufficient to get buyers to switch as the price will still be above ICE alternatives and the EV SUVs are generally smaller in size.
    - Currently, we see this discount as a piece of a larger puzzle, that will not solve the price issues alone and should include all EVs regardless of price.
- Further incentives are critical for EV demand to fill the gaps between 1,518 EVs sold in 2020 vs 45,000 needed/year to get to 2035 target of 670,000 EVs in the NZ carparc. To increase demand, we need to speed up the time it will take to get to purchase price parity with ICE vehicles.
- The Clean Car Discount is a significant start to lowering the price barrier, but increasing EV fleets will require a focus on the largest volume buyers- corporate fleets. To achieve the desired acceleration in EV uptake, the government cannot rely on a subsidy alone, but must coordinate all fiscal levers with complementary adjustments to taxes.
- Removing FBT and accelerating depreciation rates for EVs while keeping FBT and depreciation rates the same or slower for ICE vehicles could create a revenue-neutral solution that will create the desired demand for EVs at scale.
- Currently, FBT on motor vehicles is based on 20% of the cost price or 36% of the vehicles tax written down value including GST.[53] The FBT structure means more expensive vehicles (i.e. EVs) also incur higher FBT.
    - Norway's FBT is half the usual rate for EVs.[54] The UK started a 0 FBT rate on EVs in April 2020[55] and Ireland had 0 FBT for EVs from 2018-2021.[56]
- Accelerating depreciation rates of EVs vs ICE vehicles is another way to reduce the FBT, lowering the overall cost of the EV.
    - In the Netherlands, depreciation was accelerated to 75% in the first year for EVs.[57]

[53] https://taxsummaries.pwc.com/new-zealand/individual/other-taxes
[54] https://www.waikato.ac.nz/ data/assets/pdf file/0007/278080/Electric-Vehicle-Policy-New-Zealand-in-a-Comparative-Context.pdf
[55] https://www2.deloitte.com/uk/en/pages/manufacturing/articles/company-car-tax-rates.html
[56] https://www.windsor.ie/news/nissans-electric-vehicle-ev-0-benefit-in-kind-tax-bik-2018-what-employers-and-employees-gain-/
[57] https://www.iea.org/policies/7215-accelerated-depreciation-for-electric-and-hydrogen-vehicles-under-vamil-scheme-code-f3109

- Another tax incentive to consider that other countries have utilised is GST removal.
    - In Norway, a 25% VAT (GST equivalent) was removed completely for EVs.[58]

3. **Clean Car Standard:**
    - The target of 131g of CO_2 emissions from light commercial vehicles is significantly below the 2020 industry average of 207g.
    - Currently there are only 3 EV vans sold in New Zealand, which have a very limited range of ~200km. The options for tradesmen and other commercial vehicle users to transition to EV options are limited at best.
    - We are concerned about how the Clean Car Standard will support a Just Transition for commercial vehicles like vans and utes which require long range and reliable vehicles, but do not have suitable alternatives available that would keep them from having to pay the fines beginning in January 2022.
    - We know there are no EV utes coming before January 2022, and the vans that are already in the country are sufficient for some, but not all, purposes.
    - We would like to see a commitment to the re-assessment of the Clean Car Standard given the realities of supply constraints and a lack of alternatives for many individuals in order to support a Just Transition.

The Giltrap Group is committed in the shift to EV and we fully support the Ministry of Transport and the Minister on this ambitious journey. We look forward to further contributing on this meaningful action.

Kind regards,

Dane Fisher
General Manager Business Development
Giltrap Group

[58] https://www.waikato.ac.nz/__data/assets/pdf_file/0007/278080/Electric-Vehicle-Policy-New-Zealand-in-a-Comparative-Context.pdf

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25 June 2021

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Submission on Hīkina te Kohupara discussion document

Tēnā koutou,

We welcome the opportunity to provide feedback on the Ministry of Transports discussion document '*Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050.*

We acknowledge the scale of the challenges we face as a nation as we shift the transport system towards a zero emissions pathway. In facing up to these challenges, we support the system-wide approach to tackling emissions reflected in the document. We aspire to work closely with the Ministry of Transport to continue to enable low-emissions transport outcomes in our developments.

We support the attention given to enabling a fair and just transition. Our customers face additional challenges in shifting towards low emissions modes of transport. However, we are also aware of the broader benefits that enabling them to make this transition can provide, including reduced travel costs, stronger health outcomes, and building community connections.

On the following pages we have provided comments on specific questions in '*Hīkina te Kohupara – Kia mauri ora ai te iwi*. These comments represent the technical perspective of the sustainability hub within Kāinga Ora. Given the submission timeframes, broader consultation within Kainga Ora has not been possible. We have been selective in the questions we have responded to, focusing our comments on areas where we have operational expertise and areas that we believe are of particular relevance for Kāinga Ora.

We look forward to discussing these issues further with the Ministry of Transport and to contributing to the transition of our transport system.

Nāku iti noa, nā

Alec Tang
Director, Sustainability
Kāinga Ora – Homes and Communities

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Kāinga Ora – Homes and Communities

Our roles

The Kāinga Ora–Homes and Communities Act 2019 sets out the operating principles that we need to consistently apply as an organisation. They reflect the way that Kāinga Ora works: a well-connected, engaged and partnership-based approach across all aspects of our work. These operating principles are put into action in the areas of:

- public housing solutions that contribute positively to wellbeing
- housing supply meets needs
- well-functioning urban environments
- stewardship and sustainability
- collaboration and effective relationships.

Our operating principles ensure that across all parts of Kāinga Ora we dedicate our effort consistently and contribute to the wellbeing of current and future generations; where there are others that we can work with, we must work together to achieve outcomes.

In addition to our governing legislation, there are other legislative, policy and strategic settings that guide the development of our role and how we operate. These include:

- The Urban Development Act, which provides for the establishment of 'specified development projects' that Kāinga Ora may deliver, partner on or enable, and which provides for associated regulatory and funding powers to streamline housing and urban development processes.
- Budget funding allocations and borrowing policy settings to ensure we will deliver the Government's housing priorities.
- the Government Policy Statement on Housing and Urban Development (presently in draft), which sets out the Government's overall direction and priorities for housing and urban development.

Transport

Kāinga Ora takes a strategy-led approach to all of its work. This includes taking a strategy-led approach to the planning, funding and delivery of the transport infrastructure that is essential for Kāinga Ora to effectively perform its roles.

Kāinga Ora continues to work with the Ministry of Transport Ministry of Housing and Urban Development, other central government agencies and local councils to resolve transport funding and financing constraints. Kāinga Ora also continues to work with the Ministry for the Environment and other agencies on the Emissions Reduction Plan and National Adaptation Plan. We recognise the critical importance of identifying the cross-government action that needs to be taken to decarbonise our transport system.

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Comments on Hīkina te Kohupara discussion document

1. Outcomes and principles to guide good infrastructure decision making

Consultation Question 1

Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

1. As they stand, the principles do not strongly reflect the Avoid, Shift, Improve hierarchy or approach presented at the start of the document. The principles instead note there are "many ways to get there" and "co-ordinated action is required". While this is true the avoid, shift, improve framework could be better reflected within the principles.

2. Te Ao Māori and Mātauranga Māori could be reflected in the principles and woven throughout the document. This could support and ensure a transport system that provides for Māori. For instance, how does the transport promote whanaungatanga in the way it is designed and operated?

3. Principle 1: Transport Sector Lead Role. While transport does make up a significant proportion of emissions, this principle could also reflect the role transport infrastructure can play in determining further decision making such as what gets built where. Transport infrastructure is often an enabler of intensification/development and is often already in existence or going to be built first. This is reflected in Chapter 6 – Changing the way we travel.

4. Principle 3: Strategic Approach. In line with above, this principle could better capture how decisions in the transport sector that we make today can lock in longer term emissions outcomes e.g. locking in new car parking garages in houses that will remain for the life of the building, or widening/building wide roads that will continue to provide for more cars.

5. Principle 5: Just Transition. The just transition principle should not only focus on the costs of transport disadvantaging certain communities but also how different solutions, policies or options are going to be more or less successful with certain populations based on broader factors. E.g.:
    - The provision of cycling connections into the town or city centre but not between local communities and their local workplaces
    - Wealthier areas receiving walking and cycling upgrades before more deprived] outer areas
    - Bike share schemes not being viable in poorer communities because of fear of them getting stolen.

Consultation Question 2:

Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

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1. We support this section's explanation of the different roles government can play (within and external to transport sector) but would recommend that it is summarised in a table to make it clearer to the reader.

2. Comments and actions relating to collaboration are currently quite high level. E.*g. ""Greater collaboration and leadership is required across government to align land use, urban development and transport planning to reduce emissions from the transport system." And "To reduce emissions, there needs to be close collaboration between transport agencies, the Ministry of Housing and Urban Development, Kāinga Ora and the development sector".* Further detail could be provided in relation to what collaboration actually looks like and means across agencies, sectors and groups. This should include exploration of the barriers that are faced in the current system and specific actions to help overcome these.

Consultation Question 4:

Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

1. We support the statements that building back better policy and funding settings need to be changed. We are particularly interested understanding how this could be accelerated in existing Kāinga Ora developments.

2. We support the aspiration to work together to explore options to increase housing around Transport Orientated Developments (p.43), including land swap. Partnership opportunities with the Ministry of Transport could include:
    a. Improving multi-modal transport infrastructure, services and the urban realm between our sites, other neighbourhoods and key facilities. Further work needs to be done to understand how this work is funded, and who leads it. (e.g. can we get creative in the way development contributions are used if we are also already paying for local infrastructure);
    b. Funding and financing of repairs and renewals of the roading corridor in existing developments to 'build back better'; and
    c. Incentivisation and management of car sharing, e-bike sharing schemes for tenants to reduce dependence on private vehicles.

3. Additional actions that could be included:
    a. The role temporary parking buildings (detached from buildings and shared by the community) can play in supporting the transition away from car-dependency. This provides an interim solution to help meet existing car parking (real or perceived) requirements, without locking in carparks into buildings that will exist for the next 90 years. These could also be used to store car-sharing facilities.
    b. Providing funding to local roading authorities to establish public transport services and increase frequency of services when new developments are nearing occupation. This can help to ensure people can establish public transport habits from the point of occupation.

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c. Consideration of how placemaking, design, and types of services can promote whanaungatanga in transport activities.
d. Strict requirements on bike parking for higher density developments (replacing minimum parking requirements).
e. Research & working with communities to understand how they move around and why they move this way. This knowledge could be used to help support design decisions that are responsive to community needs. We are particularly interested in this research in relation to high needs, lower income families.
f. Actions relating to reducing embodied emissions. The prioritisation of repurposing the existing road corridor, over widening corridors or building new streets, can play a role in reducing new embodied emissions associated with the development of new infrastructure.

Consultation Question 5:

Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

Public transport

1. The action relating to "Better connections with walking and cycling" could also refer to the ability to carry bikes on trains/buses/ferries and provision of space/racks to do this.

Cycling:

2. Vision zero should be expanded to explicitly include cycling. This could highlight the importance of having a safe enough network that children and those carrying children to feel comfortable to use the cycling network.
3. Additional actions that could be included:
    a. Tax breaks and incentives on bikes/e- bikes/cargo-ebikes for personal use. For instance, in Ireland everyone is entitled to a bike through their work place through tax/workplace agreements which means you end up paying less than 50% for a bike and the remainder slowly comes out of pay checks.
    b. The provision of grants for body corps/community centres/churches/workplaces/schools to purchase shared e-bikes for their communities to utilise.

Shared Mobility

4. Additional actions that could be included:
    a. Offer discounts on shared mobility services at off peak times to support people who are more dependent on a car specifically for shift work.
    b. Funding/WINZ for Kāinga Ora tenants to utilise shared cars. For instance, a potential trade in scheme of old cars for shared car memberships.

Consultation Question 6:

Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

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1. This section needs to ensure the equity lens is strongly considered and woven into actions and policies. This is because people who live far away from urban areas are already disproportionately disadvantaged. While those who use a car may be juggling multiple demands on their time such as single working mothers. Pricing needs to be targeted at areas who have the means to travel by other modes due to adequate service provision, time and money.

Consultation Question 12:
A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

1. We suggest that the considerations of enabling a fair and just transition are woven throughout the document, rather than being contained in an isolated section (see Consultation Question 1). This would help to ensure opportunities and implications in relation to each specific policy are explored.

2. Some further things that could be considered include:
    a. Racism towards owning/using bikes in some communities (assumed theft).
    b. Safety & security of e-bikes.
    c. Safety of riding on streets in lower income neighbourhoods that typically have much wider roads. This can be used as an argument to help support the narrowing of lanes.

Consultation 14:

Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

1. It is hard to comprehend the scale of change that is being recommended and the level of ambition, policy or action needed to actually achieve the principles and ideas. For instance, the action "Develop design guidance and expectations for quality high-density environments (including streets, public spaces, buildings, and green space)" - Who would use these, how would it be enforced and how does it apply to existing neighbourhoods?
2. More detailed mapping/modelling needs to go into understanding what policies (and combinations of policies) are behind each of the reduction pathways beyond the theme breakdowns. This would help to identify the actual scale of change from BAU that is needed to realise the emissions reductions.

25 June 2021

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To the Ministry of Transport

Submission on Hīkina te Kohupara discussion document

The New Zealand Infrastructure Commission, Te Waihanga, welcomes the opportunity to provide input on the Ministry of Transport's Hīkina te Kohupara discussion document, which sets out potential paths to net-zero carbon emissions in the transport sector.

Our purpose is to co-ordinate, develop, and promote an approach to infrastructure that improves the well-being of New Zealanders and which responds to long-term trends including climate change

Te Waihanga's consultation document for our 30-year Infrastructure Strategy notes that the need to reduce carbon emission and adapt to climate change will have significant impacts on infrastructure. As we are in the midst of consultation on this document, we have had limited capacity to develop an in-depth response to Hīkina te Kohupara, but we expect to consider its findings as we continue to develop the draft Infrastructure Strategy.

Pathways to reduce transport emissions

While we have not had capacity to engage with the details of the proposed pathways, we note the Ministry's finding that achieving required emissions reduction pathways will require large changes to how we travel, what vehicles we use, and how we move freight.

We emphasise that all pathways to reduce transport emissions will have significant infrastructure implications. Achieving 'Theme 1' reductions (changing the way we travel) will require new or improved public and active transport infrastructure, changes to pricing of transport infrastructure, and delivery of appropriate infrastructure to support urban intensification. Achieving 'Theme 2' reductions (improving passenger vehicles) will require significant increases to renewable electricity generation, transmission, and distribution and much greater adoption of smart network technology. Achieving 'Theme 3' reductions (freight improvements) will require changes to how supply chains function as well as appropriate improvements to transport and electricity infrastructure, including design standards that enable greater use of high productivity road and rail vehicles

As an input to Infrastructure Strategy development, we would be interested in better understanding the Ministry's modelling of emission reduction pathways, noting that Appendix B only describes modelling assumptions in a high-level fashion We would also be interested in understanding any analysis the Ministry has done on the financial costs of delivering these pathways, and any regulatory or non-regulatory barriers to implementing these pathways.

Links with the Infrastructure Strategy consultation document

Our consultation document includes some principles and proposed options that relate to the pathways outlined in Hīkina te Kohupara. These include:

- The need for new infrastructure to apply a consistent cost of carbon that is commensurate with New Zealand's international commitments in cost-benefit analysis.
- The need to prioritise non-built transport solutions that can address rising travel demands without supplying costly new infrastructure.
- The need to transition the entirety of the energy sector, rather than just the electricity sector, to renewable energy. This is likely to require a significant increase in renewable electricity supply to substitute for fossil fuels.
- Use of demand-side measures to manage pressure on infrastructure networks, including implementation of congestion pricing and/or road tolling to manage urban travel demands and improvement to alternative travel modes to make it easier for people to substitute away from driving. Demand-side measures, including pricing, are also likely to play a key role in achieving required transport emission reductions. However, different travel options are available in cities and rural areas, meaning that these measures cannot be applied in a 'one-size-fits all' way.
- Changes to urban planning rules to enable increased housing development in accessible areas and to ensure that issues associated with growth are efficiently mitigated.
- The need to understand whether transit-oriented development is being implemented successfully to make it easier for people to avoid car journeys.
- Use of regional spatial planning to better align infrastructure provision and provide for future urban development. If implemented well, this will improve the emissions performance of cities.

Our consultation document also highlights some broader issues that will have a significant impact on our ability to achieve net-zero emissions in transport. These include:

- The need for better-informed and more transparent infrastructure decision-making. Poor decision-making may lead to excessively costly solutions or solutions that are inconsistent with long-term requirements, which will in turn constrain our ability to efficiently achieve long-term goals such as transport emissions reduction. Options such as better uptake of cost benefit analysis, post-implementation reviews, and development of a priority list of projects and initiatives that have undergone a quality process may improve the decision-making environment.
- The need for a planning system that is more enabling for consenting new infrastructure. New or improved transport and energy infrastructure will be needed to reduce transport emissions. If it is not possible to consent the required infrastructure, or if the consenting process adds excessive cost to projects, this may not be viable.
- The need to understand and address the drivers of cost growth in infrastructure provision. The cost to build new transport infrastructure appears to be growing rapidly. Left unabated, this will make it difficult to supply new infrastructure that is required to drive transport emissions reductions.

Thank you for the opportunity to make our submission.

Yours sincerely
Ross Copland
Chief Executive

25 June, 2021

NZ Automobile Association submission on:
Hīkina te Kohupara – Kia mauri ora ait e iwi Transport Emissions: Pathways to Net Zero by 2050

SUBMISSION TO:	Ministry of Transport
REGARDING:	Hīkina te Kohupara – Kia mauri ora ait e iwi Transport Emissions: Pathways to Net Zero by 2050
DATE:	25 June 2021
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NOTE TO REQUESTOR:

The AA would be pleased to meet with the Ministry in response to this submission, and as further policy development takes place over the course of this year.

Contents

Introduction

The NZ Automobile Association (NZAA/AA) appreciates the opportunity to comment on Hīkina te Kohupara – Kia mauri ora ait e iwi: Transport Emissions: Pathways to Net Zero by 2050.

As previously agreed with you, the AA plans to provide a further submission once we have received feedback from our 17 AA District Councils. The timing of their monthly meetings means we can't provide this feedback before the 25 June deadline.

The AA also hopes that our engagement with the Ministry will be on-going following the closing of submissions as many of the proposed options require further development and explanation. Government is not expected to make any final commitments until the end of the year.

Hīkina te Kohupara is a comprehensive document covering a broad range of transport proposals. It poses 13 questions to the reader.

The AA has chosen to limit our response to six questions only:

- Q1: Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?
- Q5 Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?
- **Q6:** Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?
- **Q7:** Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?
- **Q13:** Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway do you think Aotearoa should follow to reduce transport emissions?
- **Q14:** Do you have any views on the policies that we propose should be considered for the first emissions budget?

Some context relevant to the AA's responses

- The past can give us a guide to the future. Over the last decade as our population has increased and economy grown, both vehicle kilometres travelled (VKT) and public transport (PT) trips have increased. Official projections are for both to continue to increase.
- It's worth noting that PT accounts for 2.5% of trips but a far greater percent of Government Policy Statement (GPS) funding goes to this mode, and this trend looks set to increase. As GPS funding for PT has increased more than threefold since 2017/18, this 2.5% share of trips has stayed constant (the overall number of PT trips increased). Similarly, for walking and

cycling big investments (a fivefold increase since 2017/18 in 2021/22) haven't changed the percent of trips this mode accounts for.

- So what's happening here? People are beautifully diverse – one type of transport cannot always be substituted for another (the term transport applies to a range of services and many are simply not close substitutes). With our small population compared to geographic area we would struggle to provide the heavy subsidies required to provide a viable PT service in all areas.

- Our road network is a big part of our transport system. With our small population compared to land area, it makes sense that 83.5% of trips are taken in private vehicles. So what does that mean – we need to look for solutions that address our problem, rather than going straight to solutions.

- One important consideration not well captured in this discussion is people's different circumstances, and what they need from the transport system. For example, private vehicles are indispensable for many people due to their location, health reasons or family commitments.

- While we support investments aimed at mode shift where these provide demonstrable transport benefits, investments into public transport and active modes cannot be an end in themselves, as these modes will not always "improve people's ability to get places" and be "fit for purpose transport for the future", which are intended goals of the GPS. We support an approach that chooses the best mode for the task at hand. That needs to be achieved through a transparent and balanced assessment process.

- Mode shift plans must be realistic about the potential for change, transparent, and deliver value for money. Plans need to be based on actual level of desire (not just the stated level of desire) to change modes, and an understanding of why people choose to live and travel the way they do.

- Therefore, the AA believes we shouldn't take an 'either or' approach to transport investment – the future is multimodal**.** We need a multimodal network. Buses, private vehicles, walking, mobility scooters, trains and bicycles, are all part of our collective past and future, as well as new ways of moving. We must improve the services they provide and reduce the harms they cause). As part of this we need a low carbon, safe, reliable, modern and efficient road network because people depend on it for work, learning, play and social connections.

- Decarbonising the road network is a challenge we are rising to and we must succeed. We need the road network to decarbonise. As this process continues, investment should promote decarbonisation in its many forms – EVs, ride sharing, biofuels, tackling congestion, safer speeds, and flexible infrastructure.

- The Government's recent decision to hypothecate ETS revenues for this purpose is a step in the right direction. Roads are a big revenue generator – they cover their own costs and the costs of others. Over the coming decade the money coming in from road taxes on fuel and

road use will reach close to $50 billion. Road taxes have long covered the costs of road construction, maintenance, payed for road policing, subsidised PT services, and funded large portions of Waka Kotahi. No other mode is currently so self-sustaining.

- In addition, road users also pay ETS levy (currently $560 million p.a.) capturing emissions costs. In the GPS, the challenge of the 'mode shift' strategy is essentially acknowledged through projections that over the next 10 years revenue from road users and road use will continue to increase. This brings us back to questions about the effectiveness of a 'build it and they will come' investment strategy without understanding what people want from the transport system and why they choose to travel the way they do.

- **The AA believes we must allow for innovation**. The GPS sets prescriptive goals for spending on specific modes (often ahead of meaningful analysis, evaluation, and solid cost estimates), combined with spending bands so tight that Waka Kotahi has lost much of the independence it once had regarding transport investments, which constrains innovation. We risk overlooking 'value for money'. Our transport system is constantly changing. Transport policies need to plan for and accept some uncertainty when considering the future of travel. This will enhance our ability to adopt and benefit from rapid advances in transport technology.

- In the AA's view, GPS 2021 needs to be revised with a stronger focus on technology and innovation to deliver an efficient, affordable and safe transport system with less environmental externalities. For this reason, we call for more investment in alternative fuels (e.g. biofuel), low and no emissions vehicles, demand management, shared mobility, mobility as a service, and research and innovation generally.

- The AA is concerned that Waka Kotahi's ability to make and fulfil decisions to build and improve roads has diminished considerably. The majority of current funding has been allocated to finishing projects already started and pay off debt. Without additional funding in later years most of the funding will be for paying off public private partnership debt in terms of roads with little for safety improvements.

AA response to Consultation Question 1:

Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

Summary of AA views on:

- Principle 3: We need to take a strategic approach to reducing transport emissions so as to capitalise on short-term opportunities that will accelerate EV uptake, improved vehicle efficiency, reduce travel demand and investment in biofuels.

- Principle 7: Innovation and technologies will play an important role in reducing emissions, but people are the key to our future.

Discussion

Principle 3:

- The document proposes a series of changes to cities and infrastructure including reshaping our cities to improve the efficiency of the transport systems. It proposes using mixed urban development to reduce trip distances and encourage low emission transport options. With these options however, the pace at which change could be made is slow and they would have little impact on the first two periods of the Emission Reduction Plan (2022-2030).

- The principle prioritises initiatives that will capitalise on short-term opportunities and have the largest impact on avoiding and reducing emissions, while delivering value for society (including co-benefits). We have already seen over the past two GPS periods a move away from spending on road improvements to greater funding on non-road expenditure. However, we are yet to see the related benefits in emission reductions.

- The Climate Change Commission recently released report; Ināia tonu nei: a low emissions future for Aotearoa, identified the following as key to transitioning along its pathway to decarbonise transport. In the first budget period, for road transport their highest priority actions are:

    i. Accelerating EV uptake
    ii. Improving the average efficiency of internal combustion engine vehicles entering the fleet
    iii. Reducing travel demand by remote working and switching to walking, cycling and public transport.

- The AA agrees with these recommendations

Principle 7:

- Principle 7 acknowledges that both existing and innovative technologies will keep changing the way people travel and the government can play a powerful role in accelerating the uptake of transport technologies.

- It's going to take time to transition to a low carbon environment. Hydrocarbon fuelled vehicles will still be in our fleet in 2050. A strategic approach would be to recognise this now and invest in low carbon fuels to power these vehicles. Therefore the AA is a strong proponent of investing in biofuels to lower the emissions from those vehicles still in the fleet.

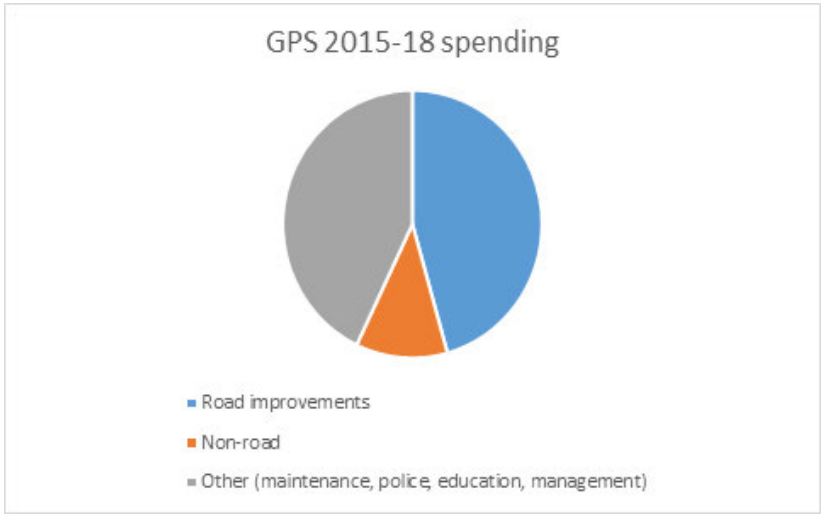
AA response to Consultation Question 5:

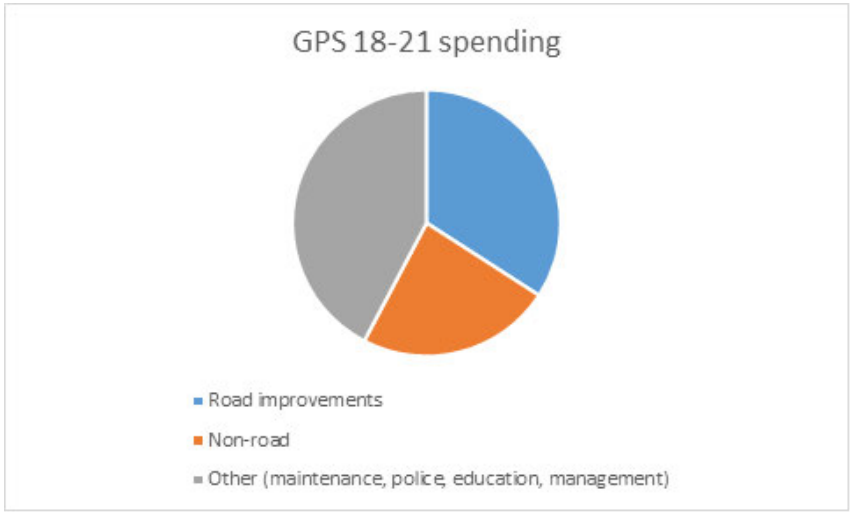
Q5 Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

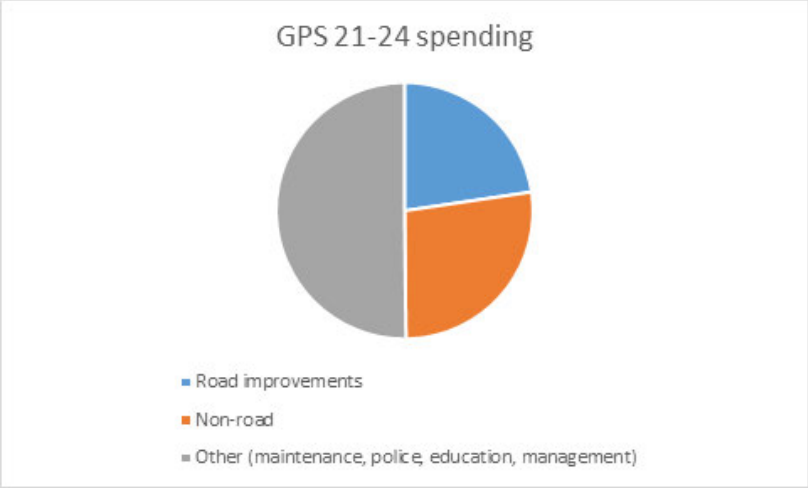
Discussion.

A key theme in Hikina Te Kohupara is to significantly increase investment in PT, walking and cycling in both a capital and an operational funding sense. The report suggests that "some investment is currently occurring though the GPS on Land transport, NZ Upgrade programme, and local government"

We have looked at the NZ GPS allocations for road improvements, Non-Road, and Other (maintenance, police, education, management) over the last 3 GPS periods (2015-2018, 2018-2021, 2021-2024). At this very high level, that expenditure is shown in the graphs below. This clearly shows that investment into "non-road" activity has grown considerable over this period, and roading improvements investment has fallen substantially.







In our view, the level of this change has been underestimated in the commentary on the issue. We now a situation where roading improvements are matched by non-road improvements. We do not consider that this is accurately described as "some" investment.

Furthermore, as we note at the beginning of our submission, we are yet to see this large change in funding begin to translate into mode share. We accept that this will take some time, however, we are of the view that at the level of investment being made we need to see a considerable reduction in emissions, and we want to see some very clear tracking of the changes that this investment produces.

It is also our view that there are opportunity costs to investments of this scale – what for instance would the same level of investment achieve if it was directed to biofuel or hydrogen development? To achieve the scale of change required – we need to invest in initiatives that will have significant, not marginal, impacts

AA response to Consultation Question 6:

Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

Summary of AA views on demand management and pricing

- The AA is a cautious supporter of congestion pricing, but notes that significant public education is needed for it to be widely accepted.
- When introducing new demand management pricing initiatives, policies are needed to mitigate impacts on people/businesses who cannot use alternative transport modes.
- More investment in viable alternative transport modes is needed before substantial increases in fuel taxes are introduced.

- The introduction of low emission zones need to be carefully managed so as not to exacerbate congestion in other areas.

Discussion

Congestion Pricing

- Often policies to incentivise behaviour change are linked to pricing in the belief that motorists will react rationally to these signals. Also, pricing often generates revenue and over time this revenue becomes attractive when pressure is placed on funding. Hīkina te Kohupara proposes the use of congestion pricing as one method of changing motorist's behaviour.

- Congestion pricing is intended to improve traffic flows and travel times as well as achieve emissions reduction by dis-incentivising road users from travel during times when travel is at its highest demand. The purpose is to encourage users to travel at different times or routes or shift to alternative methods of travel. Where it has been able to be implemented (which to date we note is in a very limited number of cities around the world), congestion pricing has been proven to have a positive impact on reducing congestion and emissions.

- New Zealand's six largest metropolitan areas (Auckland, Wellington, Christchurch, Hamilton Tauranga and Dunedin) experience 20-31% average extra travel time at peak times due to congestion. The first two areas, Auckland & Wellington, would appear to be the only realistic candidates if congestion pricing was introduced due to limited egress points and high traffic flows.

- The AA has closely followed the discussion around road user charges (in their different forms) in Auckland for the last decade, and has been one of the most vocal contributors to the public debate. The AA has been fully engaged in the work that the Ministry has been leading in this area. A report on congestion pricing in Auckland (the Congestion Question) was released last year and it makes a compelling case for congestion pricing in Auckland as well as practical suggestions for delivery.

- Our position is that we are a cautious supporter of congestion pricing and recognise the potential benefits it offers, but that Members have concerns about affordability and the impact on those least able to afford it. This is challenging territory and we encourage further work, and further engagement.

- While the AA cautiously supports congestion pricing, we note that a survey of Auckland and Wellington AA Members shows us that congestion charging is simply not popular in the cities where it could be feasibly applied. Less than 10% of Members surveyed thought a daily charge of $8 a day (or more) was acceptable. Also, a large proportion of respondents thought they could avoid a congestion charge by navigating around it. The most popular avoidance strategy is to use roads not included in the scheme, which was cited as a strategy people believed they would use by 74% of Aucklanders and 61% of Wellingtonians.

- In conclusion, AA Members remain sceptical about the idea of congestion pricing, both because of the impact it could have on them personally, and the impact it could have on other members of society. Yet they are desperate to see more done to address Auckland's stifling congestion (congestion is far and away the number-one transport concern for Auckland AA Members), and they recognise that solutions will require changes in the way we behave as transport users (including, potentially, how much we pay). There are signs that, if the benefits justified the additional cost, AA Members would be willing to consider it.

Increase rates of fuel excise after 2023
&
Implement an increased transport fuels only carbon tax

- The AA is concerned that significant price increases would have to apply to FED, RUC, ETS or any new transport fuel tax to achieve the level of ambition the Climate Change Commission seeks in Nāia tonu nei: a low emissions future for Aotearoa. This is due to the elasticity of petrol in New Zealand which is estimated at around -0.15, which means that when the price goes up by 10%, we'll only buy 1.5% less.

- The AA is aware that there has been research into how price changes affect transport activity. These include changes to fuel pricing, distance changes, tolls, parking fees and public transport fares. Other considerations are the frequency and quality of the services provided in relation to the price of that travel.

- Transport pricing will have varying impacts between urban and rural areas. In urban areas the ability to mode shift will be more accessible while in rural areas this will not be the case. Price increases on business travel would have little impact on changing behaviour and is less sensitive as it will be seen as a cost of doing business and an operating expense to be passed on.

- This is not the case for private travel or motorists who are required to commute to and from their workplaces. Also, the wealthy are less likely to be affected as they have more discretionary income, while this is the opposite for low income drivers. This suggests that too big an increase in charges, in whatever form, will be seen as a regressive tax.

- The AA believes that to achieve the best outcomes, first investment must be made in alternative modes of transport so that there are available options prior to the introduction of what may be seen as punitive pricing measures. The challenge will be to provide these options in an affordable way, especially in smaller provincial areas. For this reason, the AA supports investment in alternative transport modes servicing urban areas because there are bigger gains to be made. As Hikina te Kohupara points out, there are much more limited options in provincial and rural New Zealand. In these areas sufficient investment must be made into our current road network to maintain good levels of service, and we must see alternative fuels invested in (including EVs, biofuels, hydrogen) so that provincial communities and business can continue to be mobile.

- The AA is not opposed to price increases where the additional revenue is allocated to viable, alternative transport options, and where investments show good value for money in

reducing emissions. We caution, however, that without viable policies to change behaviour, purchase more efficient vehicles, or generate mode shift, then pricing will be primarily a revenue gathering policy as opposed to a behavioural change policy.

Low emission zones

- The AA acknowledges that low emission zones create more liveable and pleasant urban environments if the design is well executed. This creates spaces for safer and cleaner walking, cycling and public transport use. Their creation is part of changing the way we travel and the intensification of population densities in our cities.

- However, authorities still need to convince a significant proportion of the public that these investments will be improvements. While Wellington City Council's re-design of the "Golden Mile" into a walking, cycling and public transport-only corridor was touted as being broadly supported by the Wellington public, AA surveys indicate there is a significant proportion of the public that are still sceptical of the benefits. The new design will remove parking spaces and private vehicle access, while allowing commercial transport in to service businesses at restricted times. In our annual survey of AA Members concerns around transport earlier this year, 50% of Wellington respondents said they were often annoyed by parking availability in and around the CBD. This was the second highest level in the country, behind only Otago.

- One possible consequence of a well-executed low emissions zone could be that people undertake additional travel to these areas as attractions. It is accepted that most travel into the Wellington CBD is workers commuting to and from their places of employment. But it is not implausible that an attractive low emissions zone draws in extra vehicles to the fringes that would not have previously been attracted to the area.

- Therefore, providing for increased travel to these areas in a low/zero emissions way would be important.

- We believe that more consideration should be given to the treatment of areas on the fringes of these zones and that in the current absence of available, timely and cheap public transport options to the low emission zones, parking spaces / buildings be provided. We advocate the further expansion of EV charging points into these spaces to further incentive low emission transport options. In our annual survey, half of Wellington respondents said they were annoyed by parking availability in and around the CBD.

- Low emissions zones also risk pushing people onto arterial roads, aggravating congestion problems on these roads. We are yet to see any modelling of how this may work in Wellington for example, despite the "ban" already being announced. This is another reason why fringe areas around low emissions zones need careful consideration.

AA response to Consultation Question 7

Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

Summary of AA view on key priorities

- The AA agrees with the principle of a transport biofuels obligation and more investment is needed to reduce emissions across the existing fleet.
- We support the introduction of the Clean Car Discount and the Clean Car Standard.
- More should be done to incentive fleet buyers to increase the uptake of low emission vehicles (eg. tax credits and accelerated depreciation).

Discussion

- The AA welcomes the 2021 budget announcement that commits the Government to hypothecating revenue from the ETS to implementing emission reductions. Currently, $560 million p.a. of ETS revenue is received from FED contributions. At a minimum, an equal amount of this revenue should be hypothecated to transport emission reduction programs. In fact, acknowledging that transport is recognised as low hanging fruit for emission reductions, the AA believe there is a strong case for more money than the current amount be allocated.
- The AA supports the goals of recently enacted emissions reduction policies, but still has some scepticism about their achievability within the timeframes aspired to, and concerns that they will unfairly penalise people who cannot adapt or afford alternative transport options.
- The AA previously raised concerns when the initial Clean Car Standard and Clean Car Discount was first proposed that the rate of change proposed by the policy was far too ambitious. The penalties were too high, especially as they appeared to impact the most popular vehicle models and this would lead to increased vehicle cost for motorists.
- Since then, the Government has agreed to reduce the initial penalties to around half of what was originally proposed, although they will increase over time. The AA is still concerned that low availability of low emission cars, especially EVs, even with strong price signals from both the Clean Car Standard and the Clean Car Discount, will force consumers to have to pay penalties.
- The AA agrees with the principle of a transport biofuels obligation as we already have the infrastructure to store, transport and distribute liquid fuels, we just need to incentivise investment in production.
- The $41.8m allocated for government agencies to lease low-emission vehicles does not go far enough to make a noticeably fast enough transition in our vehicle fleet. More policies directed at fleet buyers are needed to increase the uptake of low emission vehicles. Recent

Budget announcements will fund the transition to EVs in some government departments, but this is small scale. It is acknowledged that the Clean Car Standard and Clean Car Discount will influence fleet buyers and grants are available via EECA and loans from the NZ Green Investment Finance bank, although these grants and loans will not be of use to most small fleets. Because 70% of new vehicles entering the fleet are sold to fleet buyers, these ultimately end up in private ownership so strong incentives are needed to encourage private fleet owners to purchase low emission vehicles.

- Policies such as tax credits and accelerated depreciation have been proven successful when implemented in other countries. To date these have not been seriously investigated in New Zealand. Fleet vehicles usually end up in private ownership so any policy that incentivises uptake of low emission vehicles, then accelerates their entry into the general public fleet, is to be encouraged.

AA response to Consultation Question 13

Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

Summary of AA view on the best pathways

- Start investing in urban form now, with a value for money lens, and no expectation of quick change.
- Investigate, with plenty of public education, smart use of distance and congestion pricing (using policies that minimise the impact on low income households and businesses who cannot change their travel mode).
- Invest more in biofuel development.
- Pathway 2 is the most realist with elements of Pathway 1

Discussion

- To achieve the emission reductions in Theme 1, the theme expects the introduction of congestion pricing, parking pricing, and vehicle-kilometres-travelled distance pricing in 2025. The AA considers that this is far too optimistic a timeframe. Member surveys show that the driving public needs much more information on the benefits that congestion pricing will bring before they are over the line on supporting it.
- Both distance and congestion pricing could offer significant changes to the way land transport revenue is obtained. These pricing options have the potential to be regressive, impacting most on low income households.
- Recent announcements by the Government on introducing the Clean Car Standard and funding the Clean Car Discount complement Pathway 2. However, other than the anticipated biofuels mandate, there are few other initiatives aimed at accelerating the uptake of biofuel.

- In all four pathways, improving efficiency and introducing low carbon fuels will be essential for reaching the zero-carbon target by 2050. The government has introduced the Clean Car Standard to improve the efficiency of new light vehicles entering the fleet. The recently introduced Clean Car Discount will further reduce the price difference between ICE powered vehicles and more expensive EVs but only if there is sufficient stock of used EVs in Japan that can be imported cost-effectively into New Zealand, and unfortunately EV stock does appear to be well below anticipated global demand.

- The policies are premised on the belief that EVs will be readily available in the future and that price parity between ICE and EVs will occur mid to late this decade. The AA has some concerns that this will not be the case due to demand for EVs from left-hand drive countries and manufacturers supplying that market. Also, we know that post-COVID there have been shortages of semi-conductor chips leading to manufacturing constraints.

AA response to Consultation Question 14

Do you have any views on the policies that we propose should be considered for the first emissions budget?

Summary of AA views on policies for the first emissions budget:

- The AA recognises that changes to urban form can have an impact on emissions, although benefits won't be seen until later budget periods. We want to see a strong value for money lens applied to show that these changes will be effective in making significant reductions in emissions.

- The AA believes more policies that incentivise fleet buyers to transition to low/no emission vehicles are needed.

- The AA believes there is opportunity to invest more in biofuel as a transitional technology to reduce emissions across the whole light vehicle fleet.

Discussion

- It is important that more is done to improve existing and future communities to facilitate low emission transport systems. The allocation of road space and the design and implementation of low traffic zones will take time – both because of engineering/building constraints and also where there is opposition to these changes and other proposals to intensify population density. These changes require the social licence of the inhabitants populating the cities as many would be impacted by the loss of parking, the slowing of traffic speeds and the perception their mobility will be compromised.

- The pace at which these changes will be made is slow and they would have little impact on the first two periods of the Emission Reduction Plan (2022-2030). Therefore the AA believes that although starting on this should occur in the first emission period it does not expect to see the benefits until later budget periods.

- The AA would like to see more done to incentivise fleet buyers to purchase low emission vehicles, accepting that the Clean Car Discount will offer some assistance.
- Also our light fleet is still more than 98% ICE powered. The Government need to consider increasing the use of biofuels as the infrastructure to store, transport and distribute liquid fuels already exists and only the production of biofuels requires additional investment.

Further Discussion

The AA would be pleased to meet with the Ministry in response to this submission, and as further policy development takes place over the course of this year.

About the New Zealand Automobile Association

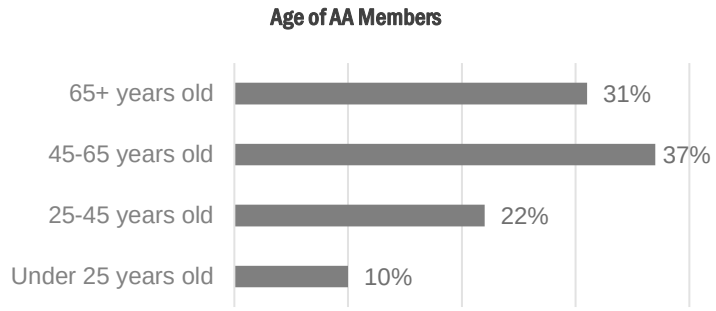
The NZAA is an incorporated society with over 1.75 million members, representing a large proportion of New Zealand road users. The AA was founded in 1903 as an automobile users' advocacy group, but today our work reflects the wide range of interests of our large membership, many of whom are cyclists and public transport users as well as private motorists.

Across New Zealand, the motoring public regularly come into contact with the AA through our breakdown officers, 37 AA Centres and other AA businesses. Seventeen volunteer AA District Councils around New Zealand meet each month to discuss local transport issues. Based in Wellington and Auckland our professional policy and research team regularly surveys our Members on transport issues and Members frequently contact us unsolicited to share their views. Via the AA Research Foundation, we commission original research into current issues in transport and mobility. Collectively, these networks, combined with our professional resource, help to guide our advocacy work and enable the NZAA to develop a comprehensive view on mobility issues.

Motorists pay over $4 billion in taxes each year through fuel excise, road user charges, registration fees, ACC levies, and GST. Much of this money is reinvested by the Government in our transport system, funding road building and maintenance, public transport services, road safety work including advertising, and Police enforcement activity. On behalf of AA Members, we advocate for sound and transparent use of this money in ways that improve transport networks, enhance safety and keep costs fair and reasonable.

Our advocacy takes the form of meetings with local and central government politicians and officials, publication of research and policy papers, contributing to media on topical issues, and submissions to select committees and local government hearings.

Total Membership	1.75+ million members

	Just over 1 million are personal members 0.75 million are business-based memberships
% of licenced drivers	Half of licenced drivers are AA Members
Gender split	54% Female 46% Male
Age range & Membership retention	 Half of AA Members have been with us for 10 years or more.

29th June 2021

Ministry of Transport
Climate Change – Emissions Work Programme
By email: transportemissions@transport.govt.nz

Dear Sir/Madam,

Electric Kiwi welcomes the opportunity to submit a response to Hīkina te Kohupara. We agree with both the principles used to develop the advice, and with the overall Climate Change Commission advice that to achieve our net zero ambitions we need to maximise the use of electricity as a low emissions fuel by ensuring EVs are fully integrated into the electricity system and crucially that "electricity remains affordable and accessible, and measures are in place to keep system costs down".

We support the objectives of the Clean Car Discount programme, and any action to increase the size of the electric vehicle fleet in New Zealand. We also support the efforts to convert the government fleet to create a larger secondary market for electric vehicles. However, we believe that incentivising electric vehicle uptake must also be coupled with policy or regulatory action which ensure that the electricity used to power them is affordable. Electric vehicles must be both the lowest emissions and most economic transport option for New Zealanders, and this means we must ensure that the benefits of renewable energy are passed through to Kiwi households and businesses.

Affordable electricity requires a wholesale electricity market in which we have confidence, is well regulated and where average electricity prices reflect the long run costs of generation. It is our opinion that the current New Zealand wholesale market is in urgent need of reform in order to achieve the emissions targets set out in the Climate Change Commission's advice.

Competition is critical for driving down electricity prices and meeting the Government's dual goals of affordable electricity for Kiwi households and businesses and electrification of the economy as part of the country's zero carbon ambitions. To enable this competition the Government needs to address weak regulation, the exercise of market power and a lack of equal access in the wholesale market.

Firstly, the Electricity Authority has failed to create and enforce rules that protect consumers particularly in the area of trading conduct. The Authority needs to be much stricter in enforcing these rules. We believe the lack of a credible threat of enforcement is playing a significant role in the current extreme futures price environment.

Secondly, the Undesirable Trading Situation (UTS) which occurred in late 2019 is just the latest example of market power being exercised to increase prices above those expected under normal levels of competition. The high levels of concentration in the wholesale electricity market needs to be addressed through structural reforms to existing gentailers to ensure that at minimum there are two generators who are able to set the market price in any one location across New Zealand.

Thirdly, independent retailers and generators have been obstructed from accessing equivalent contract terms with vertically integrated counterparties, and in some cases access to terms of trade. A more

transparent and liquid hedge market is critical to enabling high levels of market competition and the resulting pricing tension which delivers minimum cost to Kiwi households and businesses.

Figure 8.10 in the CCC advice shows modelled wholesale electricity prices for the first emissions budget 2022-2025. The indication that the CCC advice is well out of step with current market conditions is that even the modelled prices at the 95th percentile are below futures market levels. This represents unrealistic assumptions being made about the electricity price path which will ultimately determine whether transport decarbonisation goals can be achieved.

To conclude, we support the principles underpinning Hīkina te Kohupara and the electrification of transport in New Zealand. However, we do urge the Government to address the structural issues in the wholesale electricity market to deliver the affordable electricity so critical to meeting our net zero ambitions.

Yours sincerely,

Luke Blincoe
Chief Executive, Electric Kiwi Ltd
s 9(2)(a)

stuart.bryant@tasman.govt.nz
Phone (03) 543 8400

24 June 2021

Transport Emissions
Ministry of Transport
PO Box 3175
Wellington 6140

Dear Sir/Madam

Tasman District Council's Submission on Hīkina te Kohupara

Background

Tasman District Council (the Council) is a unitary council near the top of the South Island. The district has a population of over 56,000 residents, growing at 2.1% pa in a mix of rural and township settlements. The Tasman District is a primary producer with notable exports in hops, apples and timber. The district has the highest vehicle ownership per capita in the country with transport by road growing at more than 5% per year. Tasman exporters utilise Port Nelson, the only urban exporting port in New Zealand without a rail connection.

The Council has recently completed the Transport Activity Management Plan, Regional Land Transport Plan and Regional Public Transport Plan which are prioritising active transport and public transport to cater for growth in the district.

Summary of the submission

The Council broadly supports the principles and actions identified in Hīkina te Kohupara consultation document. The Council strongly encourages greater financial investment in District and Regional Councils to achieve early transport changes identified in Pathway 4.

Tasman is a rural/provincial district with a large proportion of our community living outside of urban areas. The Council has made commitments to improving walking, cycling and public transport in our towns. Reducing the climate change impact of transport outside of these areas will rely more heavily on the levers that only central government (and Waka Kotahi) can use to influence the greening of the national vehicle fleet and renewable electricity generation and distribution, and improving the efficiency of vehicle movements on our State Highways.

We also recommend that a first-principles review be undertaken of:

- The transport sector's long-term funding needs to maintain and develop our transport system, much like government has with the three waters sector.
- How the sector is funded, particularly in light of the challenges to current funding sources that is presented by proposed climate change mitigations. The proposed road tolling and congestion charges should be considered in light of this wider review.

Question 1: Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

1. We support the principles as outlined in Chapter 1. However, there should be some recognition that changes to the transport system to address climate change should also maximise other opportunities to improve other transport outcomes. Some of the key other community outcomes that addressing climate change can also positively impact are healthy and safe people, and inclusive access.

Question 2: Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

2. We would like to draw your attention to one area that has not been identified. There are a number of government ministries and agencies that undertake transport as part of their everyday activity that have transport policies which constrain public transport mode shift. Below are a number of examples:

    - Ministry of Education school bus policies are leading to parents driving pupils and Councils to limit public transport services.
    - Centralisation of government services has meant that people in rural areas or towns are required to travel significant distances for in-person appointments.
    - Department of Conservation has national parks that require people to drive to. There has been no intention to work with local government or private companies to provide bus services.

3. The Council would like to see government departments co-ordinate and co-operate with each other and with local government in providing fit for purpose public transport services for all (especially those in rural communities).

Question 3: What more should Government do to encourage and support transport innovation that supports emissions reductions?

4. We support transport innovation, but do not specifically have anything else to add.

Question 4: Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

5. In addition to the listed actions, legislation and policy statements could be amended to:

    - Specifically include walking and cycling infrastructure and public transport services as methods for addressing growth.
    - Prioritise road space commonly used for parking for beneficial modes, such as freight, cycling and public transport.

6. The Council believes that the following actions that were identified in Hīkina te Kohupara that will have the greatest impact:

    - Increasing financial assistance rates for walking/cycling and public transport investments.

- Setting walking/cycling and public transport targets with financial consequences if they aren't delivered.

Question 5: Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

7. The Council support all the options considered. Some other options that may be considered are:

    - Ensuring Project Next (the new national integrated public transport e-ticket system) has an ability to subscribe to public transport services. For example, a member of the public can pay a fixed monthly rate for unlimited public transport services. This will encourage people to maximise their use of public transport and justify their monthly investment.
    - Removing fringe benefit tax from public transport passes that companies purchase for employees.

Question 6: Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

8. The Council agrees that road pricing can be beneficial in changing behaviour. The Council would like to make the following points about road pricing:

    - Tasman utilises Port Nelson as its main exporting terminal. A road pricing scheme in the Richmond/Nelson area may provide freight efficiency benefits, but a charge would also be unavoidable as exporters have no option to transfer freight to rail - Port Nelson is the only city centre port in New Zealand not to have a rail connection.
    - We submit that any revenue from road pricing in Tasman District is utilised in Tasman District for local network improvements and not included in a possible consolidated national fund.

9. We also consider that demand management tools such as road pricing can also be complimented by a wider range of 'supply' management tools.

10. Both Nelson City Council and Tasman District Council are considering, together with Waka Kotahi, how we evolve our transport networks to meet the challenges of today and tomorrow. One of the options being considered is prioritising road space for freight and public transport at peak times. For example, by providing freight and public transport only lanes approaching key interactions (jump lanes).

11. This enables high value movements to be prioritised, and for freight would result in similar outcomes to road pricing – i.e. freight moves more freely. In the short term at least, this mitigates the need to provide additional road capacity to ensure efficient freight movements, which would otherwise induce more demand generally, running contrary to the government's other transport related goals.

Question 7: Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

12. The Council recommends that the feebate scheme be extended to not only include new and imported EV's but to repower existing internal combustion vehicles to EV. This will transition the existing fleet at a lower cost than purchasing brand new as well as encouraging investment in training to repair EV's.

Question 8: Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

13. The Council supports all these actions. However, we have some concern that decarbonisation of the current bus fleet will be prioritised over improving frequency and coverage of existing bus services.

Question 9: Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

14. The Council supports all these actions. We also recommend that viable alternatives to air transport are also advanced. We need to provide an inter-regional transport system to support low emission travel around New Zealand. A planned inter-regional network not only supports inter-city travel but also supports the smaller rural communities that live along the routes providing access to core services. This should be undertaken to facilitate international tourism when international visitors return.

Question 10: The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

15. The Council supports all these actions and has no specific views on prioritising possible actions.

Question 11: Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

16. The Council supports all these actions and has not identified any other actions for freight modes and fuels.

Question 12: A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

17. The Council's growth is being characterised by avoiding development of high quality soils and areas of natural hazard risk. This means that residential growth is often separated from our largest urban areas. We are trying to address the transport issues that this creates through intensification of existing urban areas and development of new bus routes to service these development areas. Despite the measures we are undertaking, we are aware that these measures identified in the document will disproportionally affect existing rural and peri-urban residents. We agree with the impacts that have been identified, but do not have any other impacts to add.

Question 13: Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

18. The Council recommends following Pathway 4, for the following reasons:

- Pathway 4 is the only pathway that meets the Climate Change Commission's recommendations by 2035.
- Pathways 1, 2 and 3 require other industries (that are less able to make quick changes) to contribute around 2-3 Mt CO^2-e more than the Climate Change Commission's recommendation which will have a greater economic impact.
- Pathways 1, 2 and 3 require private individuals and businesses to make changes quickly, which may be difficult for government to achieve.
- Pathway 4 better contributes to other transport related goals including:
  - Minimisation of congestion.
  - Travel equity.
  - Road safety.
  - Improved community health and wellbeing.

We thank you for the opportunity to submit to this important discussion on the future of transport in New Zealand.

Yours sincerely

Tim King
Mayor, Tasman District Council

Stuart Bryant
Deputy Mayor, Tasman District Council and
Chair Tasman Regional Transport Committee

From: [redacted]
To: Transport Emissions
Subject: FW: Hikina te Kohupara submission
Date: Wednesday, 30 June 2021 2:00:15 pm
Attachments: [redacted] Hikina te Kohupara submission 25 June 2021.docx

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Kia ora koutou

I would like to add that I endorse the submission of OraTaiao: NZ Climate & Health Council, with detailed answers to most of the Hikina te Kohupara questions.

I believe we need to stay open to the sheer scale of Aotearoa Net Zero changes (for example, freight volumes could drop significantly as consumption emissions reduce).

I also note that we have no control over the rules of atmospheric physics, plus limited control over the fair share of effort other nations will expect of us
- but as a nation, we can change **how we share resources within our nation**, so that the costs and rewards of climate protection are shared equitably.

For example, to ensure that most people will experience the necessary price signals and cut fossil fuel use accordingly, direct fuel grants could be given to those living on lowest incomes.
These would be similar to current heating grants, and could be funded directly from fossil fuel price increases.

Ngā mihi
[redacted]

[redacted]
ph [redacted]

On Fri, 25 Jun 2021 at 16:59, [redacted] wrote:
Please find my individual submission attached.

Ngā mihi
[redacted]

[redacted]

From: [redacted]
Sent: Friday, 25 June 2021 5:00 PM
To: Transport Emissions <transportemissions@transport.govt.nz>
Subject: Hikina te Kohupara submission

Please find my individual submission attached.

Ngā mihi
[redacted]

Individual submission on
Hīkina te Kohupara – Kia mauri ora ai te iwi
Transport Emissions: Pathways to Net Zero by 2050

Introduction

Thanks for this chance to submit on the Ministry of Transport's development of pathways to net zero climate-destabilising emissions: Hīkina te Kohupara – Kia mauri ora ai te iwi. Right from the start, I want to acknowledge that many of us are on a steep learning curve, as we grapple with what Aotearoa Net Zero will look like, and how our climate emergency responses can inclusively co-solve other challenges such as Tiriti injustices, unaffordable housing, widening wealth gaps between New Zealanders, health inequities, and ongoing global pandemic vulnerability. Please read my feedback as co-traveler on this learning curve.

My interest in net zero transport has come from climate concerns over the last 15 years, shaped by a decade of machinery of government and advocacy experience with State Services Commission, a masters' degree in public policy, and lived experience as a family with three schoolchildren, experimenting with living car-free in Wellington for five years.

I welcome any questions or discussion on any points made in this submission. With limited time, I have concentrated on the overall context and key points. The transport section of my previous submission on the Climate Change Commission's Draft Advice is appended which includes more detail and useful references.

We know that our team of five million is capable of fast change when faced with huge threats to human health – and that we must do more to ensure challenges are fairly shared. Dr Chan, the former Director-General of the UN World Health Organisation (WHO) said in February this year that accelerating to net zero emissions is the most important global health intervention. In other words, despite our understandable pandemic preoccupation, the climate emergency is a greater threat (and opportunity) for human health.

Context

Net zero emissions access to work, study, play, goods and services is a crucial component of the government's Emissions Reduction Plan response to our global climate emergency. In the spirit of the global Conference of the Parties gathering in Glasgow this November to accelerate climate protection, I suggest a new title: **Hīkina te Kohupa – Race to Net Zero.**

Climate changes are arguably the greatest market failure we face – including in transport. The scale and speed of required transport change drives the policies and levers needed. Currently, Hīkina te Kohupara seriously underestimates the scale and speed of transport change – the realities of the global "Race to Zero". Here are **five reasons to scale up and speed up transport change**:

1. The IPCC pathway that the Climate Commission used for their draft and final advice to government, only gives **at best, a two-thirds chance of limiting warming to a humanly-adaptable 1.5 degrees** – at worst, a coin toss of fifty-fifty odds. These are publicly unacceptable odds in transport planning, let alone the enormity of global warming moving beyond human control.

2. NZ has signed international agreements, including the Paris Climate Accord, which commit us as a relatively wealthy, historically and currently high emitting nation, to moving to net zero emissions much faster than mid-century. The Climate Change Commission states that NZ's Nationally Determined Contributuion (NDC) needs to be not "more" but "much more" than our current 30% cuts promised (equivalent to 11% on 1990 levels), but that this is the government's decision based on ethical and other grounds. Independent international climate equity experts estimate NZ's fair share is 117-133% cuts to 1990 emissions levels by 2030 – that is, the closest we can get net zero this decade, with a third of 1990-equivalent emissions soaked up by our forests, additional climate finance beyond our fair share, and buying offshore credits where we can negotiate these. In other words, **our NDC could in fairness, increase ten-fold – which puts much more pressure on rapid domestic emission cuts,** including transport.

3. The Climate Change Commission already identifies an emissions gap between our current NDC and the proposed three emissions budgets – **this gap will widen, if NZ's NDC is scaled up "much more**" as the Commission recommends. Even more so, if scaled up tenfold as recommended (see above). Offshore credits are possible to meet shortfalls – but this depends on NZ finding sellers and the credit costs which may put more pressure to cut domestically. The gap widens even further, when applying Statistics NZ's interpretation of the IPCC pathway to limit warming under 1.5 degrees. This means 85.2% of the Commission's total net emissions budget allocations 2021-2030 – **a further 84 MT for NZ to reduce over this decade**, before even considering a fairer NDC and increasing odds beyond a mere two-thirds chance of limiting global warming to a humanly adaptable and controlable 1.5 degrees.

4. The Ministry appears with Pathway 4 (the only pathway somewhat compatible with the Commission's advice) to see the transport sector taking an "**average**" approach to total NZ emissions reductions. Although much greater emissions cuts are possible (and desirable for human health and local environment health) in agriculture, with some already leading the way; politically, there has been little pressure on the agriculture sector to cut emissions. Practically, and strategically, the transport sector must cut emissions at a much faster rate than the average rate overall. To quote the Climate Commissioner, investment must be "net-zero compatible".

5. In the same issue of The Lancet – Planetary Health as former WHO Dr Chan's call to accelerate to net zero, an international study of nine nations with half the world's population and three-quarters of global greenhouse gas emissions by Hamilton et al, demonstrates across developed and developing nations, that **health-centred climate action self-funds with health gains**, before even calculating the financial savings from avoided climate changes. Transport is one of the key sectors where population health gains alone pay for climate-protecting transport policy. Delay is too expensive when NZ's health sector accounts for around one-fifth of government spending – let alone, the ultimately unaffordable costs of climate destabilisation for our climate-dependent economy.

Key Points

References to Tiriti and to health are a positive start in this discussion document.

1 Tiriti obligations, including recognising the many past injustices which require urgent action, means co-constructing this discussion document - including identifying significant transport resourcing which iwi and hapu control according to their priorities.

2. The Ministry must use existing NZ and international research to **quantify** health gains/harms, because that makes a big positive difference to the cost-benefit analysis of transport changes (as alluded to earlier). Currently, the health principle in the transport framework only identifies the tip of the iceberg of health concerns – the high health costs of sedentary transport should be included in decision-making.

3. The Ministry must accelerate net zero access to work, study, play, goods and services transport planning – which includes widening virtual access as well as transport access.

4. Transport policy must not operate as a silo – there are important opportunities to co-solve many of NZ's current challenges in how we design transport and wider access.

5. Barriers to cost-effective net-zero-compatible investment must be dismantled – including how funding is allocated and all regulatory restrictions which illogically silo allocations in local and central government transport planning.

6. Work with diverse communities as pilots to develop transport packages that can be scaled up across NZ. The equitable affordable access needs of those of us living with disabilities and/or low incomes are a priority, as well as considering the needs of those who are unable to drive (too young, too old, no license, unable to afford or run a vehicle, living with disabilities, living with drug and/or alcohol addiction, temporarily impaired, criminal convictions etc).

7. Scale up community cars (light vehicles for hourly hire) and use existing research on how to speed uptake, as car share both enables and amplifies active and public transport gains - too often left out as critical third component.

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8. Bio-energy in rural locations (estimates that we could replace 10% of NZ current fuel - so electrify in urban areas & reduce fuel demand overall, to prioritise rural access)

9. Work with diverse communities as pilots to upscale solutions that meet total transport needs. This is bottom-up work that acknowledges the complexities of people's lives and inequities.

10. Consider the energy independence, including lessening pressure to continue our high-emitting emissions exports, of an almost totally carbon-free transport sector – which virtually eliminates the need for oil imports and oil extraction for NZ.

11. Use public health expertise for the urgent behaviour changes needed.

APPENDIX: Question 14 -Transport (from my personal submission on the Climate Change Commission's Draft Advice, 28 March 2021)

Question 14. Do you support the package of recommendations and actions for the transport sector? Is there anything we should change and why?

manaakitanga (caring) kaitiakitanga (guardianship) whanaungatanga (connection) whakatipuranga (future generations) kotahitanga (unity) tikanga (right ways)

I **support** the package of transport sector recommendations and actions – **if these are accelerated and scaled up,** as outlined below. I **strongly support additional recommendations** to the package. These accelerate domestic mitigation, economic resilience, and **self-fund in health and equity gains**. Implementation of most recommendations can start over 2021-2022, so that much of Aotearoa's transport is accessible, affordable and carbon-free, well before 2030. Transport energy independence will also reduce our reliance on export earnings to fund oil imports – which also increases our future economic resilience.

Additional Recommendations

That:
1. Transport agencies work in genuine well-resourced Tiriti partnership so that by 2022, all transport planning and policies **prioritise Māori transport values and needs** and ensure equitable access. Some transport funding is explicitly under the control of local iwi (rangatiratanga).

An equitable society means active and public transport is available to everybody and car ownership is a choice, not a requirement to get to work. Raerino et al. explored Māori perspectives on the link between transport and wellbeing and found that "in Auckland, where transport systems have been dominated by heavy investment in road infrastructure, the implication is that restricting access to travel by car, without providing alternative means of transport, is likely to impact negatively on Māori wellbeing" (49).

Like OraTaiao: The New Zealand Climate and Health Council, I agree with the Commission's summary (p.85) that, "access to transport is a particular issue for some Māori, iwi Māori wellbeing, hauora and health outcomes. Transport is hugely important for Māori to connect to their whānau, haukāinga, and tūrangawaewae… (transport is a) key enabler for the haukāinga to collect resources and provide services to the marae". Access that strengthens these connections must be guaranteed through well-resourced Tiriti partnership.

2. From 2022 onwards, all central and local government transport planning must **explicitly calculate and minimise climate and health harms**. This means calculating and reporting carbon emissions from proposed transport infrastructure builds and policy changes, well prior to decisions. The high health costs from sedentary transport dependence, air pollution and other health harms, must be similarly calculated - using human life values that are currently limited to safety calculations.

3. **Prioritise accessibility for people living with disabilities** - by working in partnership with representative organisations to set out priorities by 2022 across all transport planning and policies.

4. Around 20 **diverse whole-of-community transport pilots** are completed over 2021 to immediately accelerate best practice net zero transport design across Aotearoa. These pilots look at barriers to greater active and shared transport use by directly interviewing people of all ages, abilities, and situations, which represent the diversity within the communities. The findings translate into

immediate community changes to minimise that community's carbon footprint and ensure accessibility, affordability and equity. The communities are chosen to reflect the diversity of transport needs - rural/urban, geography, socioeconomic, major employer (eg. DHB) and focus on te Tiriti and equitable access.

5. By 2023, everyone with a driver's license in an urban area, has a **community vehicle for affordable hourly hire** within a few minutes' walk of home, workplace, tertiary institution and shopping centre. Roll-out and promotion ensures much more equitable vehicle access, and the potential for each community car to remove 10 privately owned cars is fully realised. By 2025, all community vehicles for hourly hire are electric, with access to a variety of light vehicle sizes and types, including affordable electric rental vehicles for longer term hire (weeks).

Necessary action 2. Develop an integrated national transport network to reduce travel by private vehicles and increase walking, cycling, low emissions public and shared transport.
I strongly recommend reclassifying this necessary action 2 also as a **time critical action** – and accelerating the speed, scale and scope of recommendations as outlined below.

Additional recommendations for Necessary action 2:
Recommendation 2(1): Safe cycleway infrastructure everywhere
Urgently build infrastructure throughout rural and urban Aotearoa, so that by 2023 all New Zealanders of all ages and abilities can access safe cycleways, physically separated from roads (especially where there are no quiet 30kph streets with shoulders for safety). Wherever there's a footpath, there must be a cycleway too, safely catering for third speed transport. Cycleways must be wide and smooth enough for diverse needs and wheels - for example, adult E-trikes, family-sized cargo bikes, skateboards, E-scooters and other third speed vehicles.

Transformational cycling changes are definitely do-able. New Zealand's COVID-19 lockdown saw an increase in child cyclists as shown by a rise in minor cycling injuries (11) and this was accompanied by fall in serious injuries from car crashes (12). Other parts of the world that suffered longer lockdowns reported a boom in the number of cyclists. Decades earlier, cycling was dying out while road traffic injuries skyrocketed, but a massive investment in cycle path infrastructure led to Amsterdam becoming the 'cycling capital of the world' (19) with 38% of all trips made by bike.

In Aotearoa, Te Ara Mua Future Streets retrofitted a mainly Pacific and Māori community for safer and easier walking and cycling (9) meeting several Sustainable Development Goals (SDG) including health and wellbeing, gender equality and climate action (10). Usage of Auckland's Northwest path doubled as the path improved over the last four years (17). Macmillan et al. modelled benefit-cost ratios for cycle lane policies and found that "the most effective approach would involve physical segregation on arterial roads (with intersection treatments) and low speed, bicycle-friendly local streets"; and these changes "would bring large benefits to public health over the coming decades, in the **tens of dollars for every dollar spent on infrastructure**" (18). In other words, any delays in creating safe cycleways across Aotearoa, especially in urban areas, are **wasting** taxpayer and ratepayer funds.

I totally agree with OraTaiao that we do not necessarily need to be encouraged to cycle, we need to be **enabled**. Wherever there is a footpath there must should be a safe cycle lane too. Streets in Aotearoa are currently not safe enough or easy enough for cycling or walking (21). Cyclists are vulnerable to injury and mortality from road crashes (22).

Recommendation 2(2): Electric bike incentives

Strengthen the already rapid uptake of electric bikes by ensuring every government agency offers all employees the current electric bike subsidies in 2021, and from 2022, ensure community service card holders can afford an electric bike via supported electric bike manufacture within NZ, and growing the second-hand market. Some electric bike funding is also under the direct control of local iwi. 'Electric bikes' include electric trikes and cargo bikes. All bikes, scooters and skateboards, whether electric or not, plus helmets, are similarly subsidised. Short-term non-interest loans are widely available to support purchase, likewise supportive training sessions. Tax advantages and 'perks' for employee car access, switch to supporting equitable access to active transport equipment, including widespread safe storage.

E-bikes are key in active transport strategy. At the current rate of increase in new E-bike imports, these could exceed new car imports within a few years. E-bikes lower barriers to cycling, allow longer commutes, and help suburban and rural settings the most with the right infrastructure (24). E-bikes could help low income households which endure the biggest proportionate car ownership costs (24, 25).Safety and connectivity are crucial in making cycling a usable option for commuters (26).

Recommendation 2 (3): Activate equitable active transport
By 2023, at least 50% of all trips under 6km are on foot, cycle, scooter, skateboard or pushchair (before 2nd emissions budget). The gender, age and income distribution for these 2023 trips show that all barriers (cost and safety – actual, perceived and social safety, plus balance) have successfully gone. Women currently cycle less than half the rate of men in Aotearoa, yet overall, emit less from transport than men (48).

Recommendation 2 (4): School students active, healthy and safe
By 2023, at least 90% of students living within 5km of their school safely walk, run, scoot, skateboard or cycle routinely to school. Almost all the remainder of school students routinely commute by free buses and trains, accessibility vehicles, or car-pool.

The change from walking, cycling or bussing to get to school, to being driven to school is very recent and the damage from this change includes: reduced exercise by children, increased traffic and pollution around schools, and the risk to children from motor vehicle injuries around schools.

Recommendation 2 (5): Fund these climate and health goals now
Urgently reorient the "National Land Transport Fund" during 2021, to ensure these four recommendations (above) are easily met within the two years, plus the following land transport recommendations.

I totally agree with OraTaiao that from a health, environmental and economic perspective, New Zealand has an upside down transport budget to transform so that greatest share goes to the transport mode of greatest good to New Zealanders. This mean active transport first, with public transport second. As the most neglected, these transport modes also urgently need the greatest budget boost. This aligns with the human development approach advocated by the UNDP (55). We know that building more motorways only increases car use which increases traffic congestion and defeats the building purpose (56).

A predominantly active and public transport system for New Zealanders will not only benefit our health and wellbeing; it will bring huge cost benefits (28, 50, 51). The University of Auckland's Dr Alex Macmillan showed that "the public health costs and benefits are dominated by the cost of injuries and the all-cause mortality benefits of cycling physical activity. Compared with these,

infrastructure costs and other benefits are small. **Overall savings range from the hundreds of millions of NZ dollars (RCN) to the tens of billions of NZ dollars**" (52).

I also agree with OraTaiao that turning transport expenditure around will require a new way of looking at economics. OraTaiao recommends using *Doughnut Economics* by Kate Raworth of Oxford University (57,58,59) as an overriding framework and the *Mauri Model* by Te Kipa Kepa Morgan of the University of Auckland 60)to aid decision making. Modelling must take into account sector interdependencies, especially policy that impacts public health (53, 61). I agree with OraTaiao that contemporary indices of human wellbeing must be incorporated into economic decision making – examples including the UNDP Human Development Index (HDI) (62), the Planetary Pressure-Adjusted Human Development Index (PHDI) (62,63), and the OECD Better Health Index (64).

As Dr Macmillan has stated: 'the National Land Transport Fund requires urgent reorientation. Building new roads should be replaced with major ongoing national investments in public and active transport infrastructure and services, including rapid inter-city zero carbon links' (65). Commuting by car contributes to cardiovascular disease, diabetes, cancer, and lowers life expectancy (5).

I agree with OraTaiao's submission that New Zealanders pay a high price for polluting our environment. A sedentary lifestyle and a diet high in animal fat means high rates of cardiovascular disease and cancer. Our infrastructure discourages active transport and most people cannot share in the health benefits of cycling or walking to work. Public transport is crippled from decades of underinvestment leading to an overreliance on private vehicle commuting – the least healthy form of transport. More cars means more emissions, air pollution and noise pollution, and high costs for their owners. All of these contribute to inequity by disproportionately harming people on lower incomes and Māori.

I also agree with OraTaiao that we need a transformational shift in transport to active modes, electric public transport, and freight from road to sea and rail – which cuts emissions on the scale we urgently need, and drives much better health, wellbeing and equity, cutting health sector spending.

Very recent international modelling for nine nations (with half the world's population and three-quarters of global emissions) shows the health gains through to 2040 pay for mitigation measures – even before the gains from avoided climate changes are counted. These gains include more active transport and less air pollution. OraTaiao quotes other international studies strongly supporting the health gains from transforming transport to protect our climate. These include: a meta-analysis which concludes that "active commuting decreases mainly all-cause and cardiovascular mortality, with a dose–response relationship" (8).

Currently, investment in road infrastructure undermines public transport quality and patronage by making car use more attractive, leading to more cars, leading to more congestion, and pressure to build yet more roads in a reinforcing loop (31).

New Zealand has the highest car ownership in the OECD (32). Cars harm people's health (33) through road traffic injuries (22,34), noise pollution (35-38) and air pollution (39). Commuting by car contributes to cardiovascular disease, diabetes, cancer, and lowers life expectancy (5). Transitioning to electric vehicles (EV) will partially mitigate air pollution but non-exhaust emissions from brakes and tyres will continue to pollute the environment (40). EVs would not be expected to reduce road trauma whereas reduced speed limits and a shift to active and public transport would reduce major injury and deaths from road traffic crashes.

As OraTaiao submits, focusing on electrifying our vehicle fleet without a significant mode shift to active and public transport does not adequately count the significant evidence-based co-benefits of this modal shift. These co-benefits are: more equitable access to transport, reduced air pollution, better population health through increased exercise, and better urban liveability with less vehicles.

We must reduce car usage and need to own a car; manage road vehicles as a health hazard; and urgently change the transport system so that road transport is no longer subsidised by society – at the expense of active and public transport investment. **Delayed action is false-economy** (43). Aotearoa should 'go hard' now to avoid big financial losses later.

Recommendation 2 (6): Electrify public transport now
Switch roading funding from 2021 (apart from urgent safety changes) to extending and electrifying public transport in all urban areas, including accelerating light rail in Auckland and Wellington. Electric public transport must quickly become the dominant mode of wheeled passenger transport during the second emissions budget period.

Recommendation 2 (7): Fairer public transport access
Centrally fund all public transport from 2021 – so that all trips are free for under 25's and community services card holders, drivers have better wages and conditions, and services are more frequent, reliable, and supportive of people living with disabilities, caring for young children, and transporting shopping, bikes, pushchairs and wheelchairs. Target lower fares to fill buses and trains.

I also agree with OraTaiao that travel by public transport is good for health, and the large UK study cited which showed that, compared to commuting by car, rail commuters had a 10% lower rate of all-cause mortality, a 21% decreased rate of cardiovascular disease mortality, and a 12% reduced rate of cancer (2). Although healthier than car travel, public transport does not seem to help people increase their physical activity (15) thus active transport should still be the preferred option.

Recommendation 2 (8): Better connections between centres
Ensure there are much better, more affordable and flexible electric public transport services between centres by 2023, to lessen our dependence on private car ownership. Use digital technology to tailor electric public buses, vans and people movers' travel between centres according to daily demand. This will mean better access for younger and older people, people living with disabilities and/or low incomes, or not able to drive vehicles for other reasons such as drink-driving convictions. Investigate how soon to set up a fast electric Auckland-Wellington sleeper train service.

Recommendation 2 (9): Discourage urban private car ownership, especially single occupant travel
Prioritise routes for active, public and shared transport (car-pooling and community cars), so that as much as possible, these have designated faster routes. Privilege public and shared transport access in multiple lane roads – so that these become the faster choices for trips. Create zones in urban areas according to 'families' of similar transport speed – for example, centre city streets become pedestrian zones, with limited access by other modes at very low speeds. Charge vehicle parking at true cost – but free for those living with disabilities, temporary illness or injury, pregnancy and post-birth recovery, plus drivers transporting babies, pre-schoolers and people living with disabilities and other conditions necessitating support. Private vehicles are regulated as a health hazard – including restricting the advertising of high emissions vehicles such as fossil fuel powered SUVs.

Time-critical necessary action 2 – Accelerate light electric vehicle (EV) uptake.
I **support** this action and **strongly recommend greater speed, scale and scope** for the action recommendations (as outlined below), to maximise the electricity-powered percentage of our light vehicle fleet by 2027. Overall, I want to see our **privately owned vehicle fleet reduce substantially**

as the least efficient transport mode; responsible for expensive non-communicable disease and deaths from sedentary inactivity, pollution, and vehicle crashes; and wasting land better used for housing, food-production, recreation and active and public transport routes. By monitoring our consumption emissions (with increasing accuracy), EV life-cycle climate costs become obvious, albeit half that of ICE light vehicles. Simply swapping our ICE light vehicles for EVs is not climate-protective.

Recommendations 2 (a) & (c)
From 2021, no light vehicles internal combustion engines (ICE) can be manufactured, assembled or enter this country – except under exceptional circumstances such as specialist vehicles enabling disabled vehicle access, which will be phased out over time. **New Zealand already has more ICE light vehicles than we can afford to drive** in our rapidly reducing emissions future. Less use in future is likely to mean existing ICE light vehicles will last longer.

Recommendation 2 (b)
Low-interest government loans and other measures are available from 2021 to reduce the upfront cost of EVs – noting that EVs are much cheaper to run and maintain, for fast easy loan payback. I also support an EV feebate scheme, with revenue from higher import charges on heavy ICE vehicles.

I agree with OraTaiao that a transition through hybrid vehicles would likely inhibit electric vehicle charging infrastructure, lead to persistence of hydrocarbon infrastructure (petrol stations), and end up deferring the benefits and being more costly in the long run. Emissions from hybrid cars are lower than fully ICE cars; however, real world emissions from hybrids are far higher than official tests show (44). One study showed hybrids emit 117 g CO_2/km.

Recommendation 2 (d)
Charging infrastructure is strengthened for comprehensive networks of access to urban and rural areas by 2022. Battery recycling is widespread and supports domestic solar supplies.

Progress indicators a, b and c, are **replaced** by the scaled-up recommendations above.

Necessary action 3 – Accelerate light electric vehicle uptake
I agree with actions a, b, c, d, e, f and g – if the recommended timing becomes 2021-2022. I also recommend that a significant proportion of EV support funding is allocated to local iwi to decide their policies and priorities.

Necessary action 4 – Increase the use of low carbon fuels for trains, ships, heavy trucks and planes
I agree with actions a, b, c and d – if the scale and timing of these actions are accelerated, as below. The priority is reducing heavy vehicle demand, then growing bioenergy to supply residual demand.

Recommendation 4 (d) – Decarbonise rail and increase rail and coastal shipping
Set targets during 2021 to rapidly increase the share of rail and coastal shipping, so that heavy vehicle transport between ports and railway stations is almost non-existent by 2024-2025. This is accompanied by a well-communicated just transition for trucking industry employees. Develop a comprehensive plan by 2022 to decarbonise rail as fast as physically possible, and increase passenger and freight carrying capacity.

This rapid increase in sea and rail freight will significantly reduce health damage caused by air, water and noise pollution associated with road freight as well as injury and death through motor vehicle crashes. Fewer heavy vehicles will also cut road maintenance costs.

Recommendation 4 (c) – Incentivise low emissions fuel production

From 2022, actively encourage regional fuel production for rural areas using heavy machinery and dependent on light vehicle travel not easily electrified. Prioritise fuel production from local wood waste and other sources that do not displace arable land use, and offer a realistic energy production ratio. Currently, bioenergy potential is estimated to meet around ten percent of transport demand. By expanding urban active transport; expanding electric public/shared transport as the dominant mode of driven passenger transport; electrifying residual privately owned light vehicles (including cargo vans); and minimising heavy vehicle transport between ports and railway stations; this ten percent can become a much greater percentage of fuel required by residual heavy machinery and rural vehicle travel. Potentially much of Aotearoa's transport can become accessible, affordable and carbon-free, well before 2030. This transport energy independence will also reduce our reliance on export earnings to fund oil imports – which also increases our future economic resilience.

Recommendation 4 (a) and (b) – Targets, policies, standards and mandates for low carbon fuels

I recommend that these are quickly set up over 2022/2023 to clearly signal direction – including decreasing the carbon impact of international travel to/from New Zealand, as this is an area of considerable future vulnerability for us, albeit not officially monitored yet.

I **support** the Commission's advice to redesign cities – in line with a recent systematic review showing that there was "a consistent positive effect of walkability components, provision of quality parks and playgrounds, and installation of or improvements in active transport infrastructure on active transport, physical activity, and visits or use of settings" (27).

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From: [redacted]
To: Transport Emissions
Subject: FW: On the road to even cleaner road transport - DAF Trucks
Date: Wednesday, 23 June 2021 11:16:56 am
Attachments: image003.png

For treatment as a submission – not sure if he will submit with a more detailed submissions.

Ngā mihi

Jo

Joanna Pohatu (she/her)
Principal Adviser
Environment, Emissions & Adaptation Team

s 9(2)(a) | www.transport.govt.nz

From: Harriet Shelton [redacted]
Sent: Wednesday, 23 June 2021 10:11 AM
To [redacted]
Cc: Joanna Pohatu [redacted]; Jacob Ennis [redacted]
David Stimpson [redacted]
Subject: RE: On the road to even cleaner road transport - DAF Trucks

Hi Maarten

Thanks so much for your insights and also for the contribution you made to yesterday's meeting; we really appreciate your positive participation and constructive feedback. We are keen to keep working with you as we continue to engage on the Emissions Reduction Plan and also our National Freight & Supply Chain Strategy.

Ngā mihi

Harriet Shelton
Manager, Supply Chain
Ministry of Transport - Te Manatū Waka
M: [redacted] **| E:** [redacted]

Ministry of Transport
TE MANATŪ WAKA

Enabling New Zealanders to flourish

Note: If this email reaches you out of hours, I don't expect a response outside of your office hours. It's just a convenient time for me to send an email.

From: [redacted] <[redacted]z>

Sent: Tuesday, 22 June 2021 16:03
To: Harriet Shelton s 9(2)(a)
Subject: FW: On the road to even cleaner road transport - DAF Trucks

Hi Harriet

Thanks for inviting me to today teams meeting. As we are takers of technology, we could be much further ahead of the game if the NZ Government legislated us to do so.

NZ legalisation holds us back from introducing low and zero emissions technologies.

As it is now NZ is only at Euro5 emission levels and we are out of step with our suppliers. We should and can be at Euro6.

In developed northern hemisphere countries when emission changes are introduced, the back door isn't left open to lower emissions vehicles like we do in NZ, so on one hand, government and a good part of the transport industry all want to advance to a better world, yet, the same government leaves the door wide open to, as Chris Carr describes it, allowing third world Euro4 junk into NZ. He went so to name the source of the trucks and where they come from.

In terms of future driveline and powertrain options, we see a variety of solutions for different truck applications, below is DAF Trucks's view, they are our suppliers and one of Europe's largest truck builders.
DAF has adjusted their model range to comply with European 2025 and 2030 legislation, all NZ needs to do is introduce the same standards here and consider not following the Australians, who do not manufacture any engines in their own country anyway and who are intentionally delaying for their own commercial benefit the introduction of Euro6.

This video fits with your message **"to pull all our levers"** as there isn't a one size fits all solution.

I like the high level view Pamela Bonney had on the big picture and the Ponsonby cyclist scenario, which is the very opposite to where the Netherlands are at now, in that country they are at Euro6, Euro5 cannot be sold, they have dedicated cycle lanes and paths, to reduce road congestion, enabling trucks and people that need to drive to do so.

See the European solution here:

https://www.youtube.com/watch?v=baYwHqEFCYA

Thanks again for the meeting today.

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Hīkina te Kohupara discussion: Cycle Wellington feedback

Summary

Overall, we support the green paper and encourage the Government to adopt the policies proposed, choosing the most ambitious options where alternatives are proposed.

We have focused our feedback on questions 2, 6, 12, 13, and 14 as these have the strongest connection to cycling. We would like to see:

- Other levers used to reduce transport emissions:
    - Extend Employer e-bike purchase support schemes
    - Introduce specific mode-shift incentives related to reducing ICE car ownership
    - Regulate the marketing of the vehicles and fuels you want to see less of
    - Support people to choose smaller, lighter vehicles
- Adoption of Pathway 4 to reduce transport emissions
- Specific policies given extra focus in the first emissions budget.

Other levers the government could use to reduce transport emissions

Consultation question 2: Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

We think the government could do more to encourage mode shift to active modes such as cycling. E-bikes have huge potential to support this mode shift. But purchase cost is a barrier. To improve mode shift and improve equity as part of a just transition, we need

more measures to support the uptake of e-bikes. Two clear opportunities would extend current initiatives:

Extend Employer e-bike purchase support schemes
Extend Employer e-bike purchase support schemes to all bikes and all employees of any business. Currently implementing them is complex and only a few organisations offer them. Waka Kotahi note 'Legislation prohibits many public sector organisations from lending money.' Removing these barriers will help the scheme be as successful as the UK Cycle to Work scheme. A mandatory universal scheme with payroll integration (like KiwiSaver) would dramatically improve uptake. A supplementary scheme for people without 'employee' status would also boost equity.

This feedback also relates to Consultation question 12: *A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?*

Introduce specific mode-shift incentives related to reducing ICE car ownership
People considering a shift from ICE to electric vehicles are more open than many to making other changes. For example, an urban or suburban family considering changing one of two cars to an electric vehicle may be open to replacing one vehicle with car-share, bicycles or public transport. Several countries reward people reducing their vehicle ownership with discounted or free public transport, bike share, car-share or other incentives. A similar scheme would boost mode shift here. It could be any of:

- Scrappage rewards for old ICE vehicles that the owner does not replace with another vehicle
- Discounted or free public transport and car-share passes for vehicle owners who sell a vehicle and do not replace it
- Discounts for bicycles when scrapping or selling a vehicle without replacing it.

Regulate the marketing of the vehicles and fuels you want to see less of
The automotive industry's marketing has helped people all over the world aspire to the latest, greatest (often biggest) vehicle as a sign of wealth and a symbol of freedom. Many alternatives such as active transport do not have such large, glossy marketing support, putting them at a disadvantage.

The green paper does not yet consider limits and regulations on that marketing, a lever that has been effective for other topics such as smoking where the desired behaviour change conflicts with manufacturers' marketing.

These limits and regulations could, for example, require marketing to acknowledge the harm high-emissions vehicles cause, prevent unrealistic representation of the freedom they give, or limit fossil-fuel sponsorship of sporting events.

Support people to choose smaller, lighter vehicles that are safer for others
The Clean Car standard steers buyers towards more efficient vehicles within the class they are considering. But there is limited incentive to downsize vehicles beyond avoiding the highest-CO2 vehicles. Beside being generally more efficient, smaller and lighter vehicles create less wear and tear on the roads, require less urban space for parking, and are generally safer to be around for people using active transport.

We would like to see incentives for people to choose smaller, lighter vehicles. One way to achieve this might be finer weight-based elements in vehicle registration charges. We acknowledge equity and administrative costs would also need to be considered.

Where larger commercial vehicles are still needed, the rate of change in operators' fleets will increase as they try to reduce emissions. This is an opportunity to bring in new safety requirements such as better visibility from truck cabs and side under-run protection. These safety improvements will benefit people using active transport on the same roads as these vehicles, reducing safety concerns that are a barrier to mode shift towards active transport.

We support Pathway 4 to reduce transport emissions

Consultation question 13: Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

We support Pathway 4 as it gives the most weight to 'avoid' and 'shift' initiatives. Less dependence on electric vehicles makes this the most equitable pathway. And focusing more on reducing car trips brings significant co-benefits, such as reduced congestion, less need for extra road capacity to support growth, and health and other benefits from active transport.

We strongly support specific policies for the first emissions budget

Consultation question 14. Do you have any views on the policies that we propose should be considered for the first emissions budget?

Yes, we think specific policies among your proposals are particularly important:

- Resource Management Act (RMA) reforms to integrate transport planning/investments with land use planning **- we'd like to see stronger support for transit oriented developments**
- National Policy Statement on Urban Development (NPS-UD) and Government Policy Statement on Housing and Urban Development (GPS HUD)
- 'Reshaping Streets' work investigating transport system settings for making streets more sustainable, healthier, and inclusive - especially:
    - Remove barriers and improve funding for tactical urbanism and innovative approaches to street design
    - Review street design standards and develop nationally applicable consistent sets of standards for Aotearoa.
    - Investigate if regulatory changes are needed to empower Road Controlling Authorities to more easily consult on and make street changes to support active travel, public transport, and placemaking.
    - Make changes to policy and funding settings to ensure Waka Kotahi and Road Controlling Authorities maximise opportunities to 'build back better' when doing street renewals - **we think the idea of building back better should be the default approach, with authorities needing to justify any cases where they do not do this.**
- Linking funding more closely with requirements to reduce emissions
- Government Policy Statement on land transport 2021 (GPS 2021) - Support mode-shift to public transport, walking, and cycling as described
- Accessible Streets – implement package of regulatory changes
- Investigate the potential for tax incentives to stimulate the demand for low emission vehicles (including Fringe Benefit Tax, Depreciation and Tax Grants) and implement changes to the system if necessary. **We think e-bikes should be included alongside larger low-emission vehicles**.
- National Supply Chain Strategy - **We think there should be more emphasis on carbon-neutral last-mile transport including local distribution centres and e-bikes (such as the Velove Armadillo and Wellington's KaiCycle e-bike/trailer combination below) for local deliveries.**


DHL

I wish to commend you on what I feel is an excellent piece of work. I only have a few things I wish to emphasise. These are as follows.

Firstly, we should not rely on innovation to decarbonise transport. We can already do it with existing technology: particularly through reducing demand, integrating transport into urban form, and mode shift to active modes and public transport.

Consultation Question 4: Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

I am highly supportive on the emphasis you have given to the importance of urban form in enabling emissions reduction in transport. The only extra suggestion I have is to include a specific action to ban any new sprawling subdivisions beyond existing city limits.

Consultation question 5: Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what

I note you mention “Coaches and trains also offer an alternative to interregional air travel and car travel.” I strongly support this idea. For instance, on Queen’s Birthday weekend, I drove from Wellington to New Plymouth to visit family. The journey was average to say the least. There was loads of traffic, it was a long drive and left me tired and stressed by the time I arrived. If there was a good alternative, such as an inter-regional electric rail service, I would absolutely have taken it. This would’ve allowed me to be productive on the journey and complete some work and then relax in comfort for the rest of the way to arrive fresh for a good long weekend.

Consultation question 6: Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

As the owner of a diesel van, I am highly supportive of pricing as a means of controlling demand. People who drive more should expect to pay more, simple as that, as long as the income generated is recycled into giving people better options to enable them to get around without driving.

Consultation question 8: Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

I highly support electrification and expansion of the rail network, for both passengers and freight.

Consultation question 9: Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

The most effective option to reduce aviation emissions is to reduce the number of flights. You identify this yourselves in the pathway section of the report where you say, “Avoiding activities that

produce emissions is, on balance, a more effective strategy than minimising the emissions from those activities."

Reducing the number of flights can be implemented immediately, for instance by setting limits of number of flights or by imposing an emissions charge per seat to reduce demand. This is a far better option than waiting for technological solutions such as hydrogen aircraft to eventuate which may or may not end up happening.

Consultation question 11: Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

I wish to emphasise demand reduction/mode shift - coastal shipping and rail are far more efficient ways to move heavy freight anyway - rather than relying on future technologies like electric, biofuel and hydrogen trucks which may or may not eventuate.

Consultation question 13: Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

I strongly support taking pathway 4, again noting your own statement 'Avoiding activities that produce emissions is, on balance, a more effective strategy than minimising the emissions from those activities."

Thank you for giving me the opportunity to have my say on our Transportation Pathways

Kind regards

Cory

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Ministry of Transport

Hīkina te Kohupara – Kia mauri ora ai te iwi

Transport Emissions: Pathways to Net Zero by 2050

We are submitting on behalf of MRCagney (NZ) Ltd, a transport and urban strategy consultancy based in Auckland and Hamilton. As a company, we stand for well connected, vibrant and liveable places, giving people better, more sustainable travel choices. Our submission primarily focuses on the recommendations relating to transport and urban form.

Introduction:

Aotearoa's response to climate change presents a broader opportunity to improve quality of life by changing how we plan and deliver transport and housing.

Car dependency is at the heart of many factors relating to greenhouse gas emissions. We support initiatives that reduce car dependency by promoting lower emissions modes of transport; walking, cycling and public transport. While some issues are addressed through changes to motor vehicle fuels and technologies, a focus on this approach misses the opportunity to make progress on several other fronts. Car dependency is associated with a range of problems: from health, such as obesity, poor mental health, and injuries from our high crash rates; social problems such as isolation, and stress and anxiety related to congestion; economic problems like transport poverty; and environmental problems including urban sprawl, water pollutants from run-off and air pollution. Transitioning to low carbon modes such as walking, cycling and public transport can solve many of these problems alongside reducing carbon emissions.

In our opinion, the order of priority for actions to reduce transport-related emissions should be:

1. Urban form: Urban form is a major determinant of travel patterns. The rapid growth happening in our major urban centres means decisions made today about urban development can lock in emissions for years to come, so changing how urban development decisions are made is of the highest priority.
2. Walking and cycling: Investment in more cycle lanes, better footpaths, and safer street environments will encourage active modes of transport, including walking, cycling, and micro-mobility options.

3. Public transport: Investing in public transport services and infrastructure to make public transport an attractive and viable option for more trips. This will be the heavy lifter as we move away from single occupancy vehicles and serious investment is needed to ensure this is transition is successful.
4. Private vehicles: For the remaining trips that need to happen by private vehicle, supporting the uptake of EVs, low-emissions vehicles, and ride-sharing or car-pooling options can all reduce transport emissions.

A climate emergency has been declared. Key to addressing this emergency will be ensuring that public backlash does not get in the way of evidence-based decision making. Furthermore, it is important that the pathway scenario selected aligns with our Zero Carbon Act requirements and those that do not align with our emission reduction budgets should be disregarded.

Consultation Question 1

Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

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Behaviour change incentives

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Fringe Benefit Tax reform
- Company vehicles
  o Remove exemption for commercial vehicles
  o Add exemption for electric vehicles
- Add exemption for bikes, e-bikes, and other micro mobility
- Add exemption for public transport fares
- Add exemption for Work from Home costs
	Central Government

Heavily subsidy e-bikes for the whole country	Central Government
Increase parking and bus lane fines - Pigouvian tax	Central Government
Congestion Pricing	Central Government
Public Transport Fare subsidies for under 25's and low-income groups.	Central Government

Consultation question 3

What more should Government do to encourage and support transport innovation that supports emissions reductions?

We note the need for innovation in the way we develop and change our streets to enable emissions reductions. We consider innovation to be about much more than technological solutions, it includes new approaches to designing the transport network for a zero emissions future. We have seen some progress through the Innovating Streets Programme, trialing tactical urbanism around Aotearoa. However, further policy and structural changes to the transport funding model are needed to enable this type of innovation alongside street space reallocation to public transport and active modes to reduce emissions.

There is also a need to reform roading renewals and maintenance programmes to ensure that these reflect changing standards and requirements, particularly for pedestrians. These are substantial funding pots that could be powerful opportunities to upgrade the transport network rather than renew out of date practices and designs.

Consultation question 4

Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

Updated actions are listed in priority order below, based on the key actions suggested.

1. Require transport GHG emission impact assessments for proposed urban developments (including the transport GHG emissions of residents and business owners that would be in the development). Developments that would result in high emission generation could potentially be required to undergo redesign and/or an acceptable form of durable mitigation.
2. Through the proposed Strategic Planning Act (part of the RMA reforms), require spatial plans to be developed and implemented to better integrate land use, urban development, and transport planning to achieve quality compact, mixed use urban development. Both central government and local government need to work together to improve capabilities for spatial planning. (Underway through RMA reforms.)
3. Integrate land use and transport planning and investment as part of the RMA reforms.
4. Make transport investments conditional on providing transport options and having clear links to land use and urban development plans that support quality compact, mixed use urban development. This will affect the types of projects that are included in Regional

Land Transport Plans. Greenfield growth areas in our major urban areas should be hinged on rapid transit connections.

5. Develop clear guidance and expectations to link urban density and mixed land use with accessibility (particularly by way of public transport, walking, and cycling), without precluding a high level of sustainable mode provision at lower housing densities.
6. Require Waka Kotahi, Local Government, KiwiRail and Kāinga Ora to take more active roles in developing sites around frequent public transport stations and supporting private development by creating walkable neighbourhoods, providing high quality cycle parking and frequent feeder buses to quality rapid transit stations.

Possible additional actions

- Require new greenfield developments in Tier 1 Urban Environments to have a rapid transit connection with all day service in place before residents move in.
- Require minimum average densities across new greenfield development areas in our tier 1 and 2 Urban Environments, to support rapid transit connections and provide a greater variety of housing typologies. This will effectively require higher density development to occur, likely at the centre around an existing or future rapid transit station or frequent public stop, to offset any low-density housing the developer wants to build at the edge of the development.
- Require widespread mixed-use zoning in new developments to allow retail and small business to exist in local neighbourhoods and support shorter trips to access day to day amenity.
- Require greenfield development to be designed as low traffic neighbourhoods to promote walking and cycling for local journeys to shops, schools, and local public spaces.

Consultation question 5

Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

Ultimately, to reduce emissions we need to make it harder to drive in urban areas and make the other options easier, more accessible, and cheaper. This needs to be done in an equitable manner. Inequity in transport arises because of two main factors. First, a lack of transport choices means that people have limited options to participate in everyday activities, known as 'transport disadvantage'. Second, some people overcome a lack of choices by paying more than they can afford for mobility, typically by buying and operating a car. People who pay more than they can reasonably afford for travel are defined as having 'transport poverty'. Ultimately this means making it more difficult to drive for those who already have or can afford the alternatives, while introducing and improving alternatives to driving for those currently without choice. Please refer to the action

tables under question two for specific actions to encourage people to use alternative modes of transport.

Consultation question 6

Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

Pricing although controversial is a tool for decarbonising. It is important that we recognise that pricing is away to charge the user but equally that there are equity questions around pricing. Most important is that pricing that is implemented should be linked with funding alternative transport modes e.g., in Auckland it could help to fund the Access for Everyone project.

Furthermore, it is important that there is a goal of reducing vehicles- kilometres travelled when pricing to ensure that pricing is not simply a fix traffic congestion but serves larger societal issues such as climate change and health.

Other pricing that is interrelated to getting mode shift in transport will be:

- Pricing on the size of the vehicles. E.g., SUV and Utes are commonly purchased cars with significantly larger emissions. This is influenced by existing fringe benefit taxes
- Pricing for the presence of each car park.

Consultation question 7

Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition.

Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

Electrifying the private vehicle fleet is an important part of the decarbonising transport picture but it is only one part. Now that the electric vehicle feebate scheme has been introduced the remaining action for government should be to reform Fringe Benefit Tax (FBT). Specifically, providing a Fringe Benefit Tax exemption for all electric vehicles and removing the exemption for commercial vehicles to encourage businesses to choose electric vehicles for their fleet. This ideally should be completed at the same time as FBT exemptions are introduced for bikes, e-bikes, and other micro mobility along with public transport and work from home costs.

Consultation question 8

Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

We support the possible key actions outlined. However, we believe these actions should be a lower priority than encouraging mode shift from cars to active modes and public transport.

Emissions from public transport are a small proportion of New Zealand's total emissions from transport. Reducing car distance travelled has a much stronger impact on emissions reductions, even if the public transport modes are not electrified.

Consultation question 9

Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

We agree with the possible actions to decarbonise the aviation fleet. We believe that disincentivising unnecessary air travel when possible, and encouraging travel by lower-emission modes when possible.

There are significant environmental costs associated with flying, as there are with driving. The relative costs from driving and flying should be represented in the costs for those travelling. This could be achieved through the methods outlined in question six.

Adding costs for those travelling has equity impacts. It would be important to ensure alternative, affordable modes of travel are available, or that there is governmental support for essential travel such as accessing medical services.

It is important that there are low-carbon travel options available between regions. As most inter-city bus services are privately owned, the push away from cars needs to happen before there will be a significant increase in these services, as the organisations will likely only increase availability if there is demand.

Long-term, intercity rail travel would be more sustainable than our current driving and flying patterns. Developing a frequent and reliable inter-city rail network would allow travellers a broader choice in transport options.

Consultation question 10

The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

The possible actions outlined focus on making our current freight routes and vehicles more efficient, seemingly independently of the other transport goals. Many infrastructure and policy changes which would provide more choice of safe and affordable travel mode (outlined in the tables in question two) would also allow for a more efficient and sustainable freight network.

Lower traffic volumes improve efficiency for road freight. Safety measures such as reduced speeds will reduce the harm from freight vehicles as well as cars. Safe infrastructure for active modes will increase the feasibility of micro-freight options.

Improvements to the freight supply chain should not be considered independently from other changes to the transport system.

Consultation question 11

Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

We have no submission for this question.

Consultation question 12

A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

Climate change, housing and transport are huge complex systems. We agree that a just transition for all of Aotearoa will be important as we transition to net zero.

There is a range of policy responses that could reduce transport poverty and transport disadvantage in New Zealand and help enable a just transition in terms of transport. Reducing transport poverty and disadvantage in New Zealand requires improved access to high quality public transport and active transport choices that consider the needs of wider groups of New Zealanders, such as people on low incomes, minority groups, disabled people, and other groups who do not meet a "typical" commuter schedule. Without such options, it is expected to be very difficult to reduce private vehicle dependency for a large portion of New Zealanders.

The below recommendations come directly from the report *Equity in Auckland's Transport System* published by the Ministry of Transport, prepared by MRCagney. These recommendations were developed with a focus on Auckland. However, many of these recommendations are relevant for New Zealand more widely.

Generally, these are recommendations for the Ministry of Transport, however some involve organisations such as Waka Kotahi New Zealand Transport Agency (Waka Kotahi), Auckland Transport, and others outside of the transport sector. Some recommendations are not aimed at a specific agency but are intended to be considered by government in terms of which agency is best placed to action them.

The recommendations are grouped into two sections. Firstly, four recommendations are provided relating to overarching issues and how the transport sector in New Zealand considers and responds to inequity in transport. These recommendations are:

1. The Ministry of Transport to make equity a more central consideration in transport policy, with a greater number of measurable outcome indicators, so that links can be made to desired outcomes for those people who suffer transport inequity most acutely.
2. The Ministry of Transport to work with other ministries, particularly the Ministries of Social Development and Health, to create shared policy and accountability for transport equity and its links with wellbeing.
3. That equity is made an explicit component of other transport strategy documents delivered by the Ministry of Transport and other sector partners.
4. The Ministries of Transport and Social Development to investigate financial services and support for people to access for their transport costs, to act as a safety net for people with no other choices.

Without high-level strategy that includes measurement and engagement with social service organisations, there will be no way of knowing whether other investment is having any impact on reducing inequity. Following the overarching recommendations, fifteen additional specific recommendations are made to improve equity for specific groups. They are:

To address transport poverty and transport disadvantage:

5. The Ministry of Transport to commission bespoke surveys of those under-represented by the Household Travel Survey, including disabled people, Māori, ethnic minority groups, and LGBTQI+ people.
6. Waka Kotahi and local authorities to collect data on diversity of participation on public streets and transport services, to understand the extent to which inclusive access goals are being met. To improve transport sector engagement with groups suffering transport

poverty and disadvantage, and with the agencies that represent and support those people.

7. The Ministry of Transport to develop policy for collaboration with social service agency leaders to inform local engagement processes and indicators of successful engagement.
8. Waka Kotahi and local government to lead engagement with social service organisations to review their programmes and projects, to refine investment options that will address inequity. To address the lack of access low-income and older people have to affordable, accessible goods and services:
9. Investigate mobile service provision that takes services to where people live so that transport is not a barrier to affordable goods and services.

To improve transport choices:

10. Investigate community transport nationally.
11. Investigate the provision of support for access to low-cost finance and car-share options for people who need them.
12. Improve public transport in low-income areas.

To improve transport affordability:

13. Build on the Total Mobility scheme, to provide more affordable access to taxis for low-income people without disability.
14. Investigate increasing public transport subsidies for low-income people. To improve equity in road safety:
15. Promote high-quality public transport as a road safety investment, by providing a realistic alternative for people who might otherwise travel in an unsafe vehicle. To improve personal security while using transport:
16. Improve personal security on transport links and services, through co-designing specific solutions at local stops and stations with local communities of greatest need. To improve accessibility of information about transport:
17. Develop 'easy read' wayfinding policy, accessible for people who cannot read or write in English, as well as being inclusive to people who have learning disability, brain injury, or neurodivergence such as autism.
18. Provide wireless internet at bus stops and train stations as part of transport information services.

To improve accessibility of transport infrastructure and services:

19. Develop guidelines for infrastructure accessibility audits.

Consultation question 13

Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

A selected pathway needs to be consistent with the Zero Carbon Act in order to stay below 1.5 degrees of warming.

We support following Pathway 4 as a minimum, it is the highest aspiration for reducing emissions and opens up the most opportunities to derive co-benefits for the improvements other areas alongside mitigating climate change.

- Making changes to land use to increase density while improving liveability will not only reduce the need to travel, it will also make our communities more connected and resilient.
- Shifting away from light vehicle trips and inducing more walking, cycling and public transport will derive other benefits, including:
    - Improving our health through increased physical activity and improved mental health, improving community cohesion through facilitating more face-to-face interaction and collaboration.
    - Lower environmental impacts from transport, resulting in cleaner air and water and quieter, more pleasant streets, and other public spaces.
- By pushing more and earlier to avoid and shift, we reduce the need to electrify vehicle fleets and retain greater control of emissions and are less dependent on factors outside of our control, for example the availability of electric vehicles and associated infrastructure manufactured overseas.

Pathway 4 requires less investment in several areas than other Pathways, but requires early implementation on a number of fronts. This approach is likely to require more political courage and greater engagement with New Zealanders on the need to change the way we do things to address climate change. This will in effect bring forward hard conversations, get people more accustomed to different ways of doing things and raise awareness of benefits of lower emissions choices.

Following Pathway 4 means we need to make bold assumptions about changes in other areas and global circumstances, but now is the time to be bold and lead by doing. Uncertainties are rightly raised, but it should be assumed that conditions will continue to change and 'new normal' will continue to develop as the world mobilises toward reducing greenhouse gas emissions.

Consultation question 14

Do you have any views on the policies that we propose should be considered for the first emissions budget?

We have outlined our views on individual policy areas throughout the other answers. Our overarching views are summarised below.

- *We should prioritise policies which reduce car dependency*. Policies which focus on improving the efficiency of private motor vehicles through electrification or different fuel sources miss other key areas of improvement, such as safety and better land use. Encouraging mode shift to active modes and public transport is a key area of change required.
- *An equity lens is required for any changes being made*. Some changes may impact specific groups more than others, and it is vital that this is noted for any policy interventions considered. There is potential to reduce inequalities in transport access through the policy changes, but this may not be achieved unless it is explicitly considered.
- *The actions required to achieve our climate goals are ambitious*. Pathway 4, and the policies and investments which are included, are required as a minimum level of change. In order to reach our obligations under the zero-carbon act, we need to be acting on a scale at least as great as this pathway, with potential for further action to be taken.

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Ministry of Transport

Hīkina te Kohupara – Kia mauri ora ai te iwi

Transport Emissions: Pathways to Net Zero by 2050

We are submitting on behalf of MRCagney (NZ) Ltd, a transport and urban strategy consultancy based in Auckland and Hamilton. As a company, we stand for well connected, vibrant and liveable places, giving people better, more sustainable travel choices. Our submission primarily focuses on the recommendations relating to transport and urban form.

Introduction:

Aotearoa's response to climate change presents a broader opportunity to improve quality of life by changing how we plan and deliver transport and housing.

Car dependency is at the heart of many factors relating to greenhouse gas emissions. We support initiatives that reduce car dependency by promoting lower emissions modes of transport; walking, cycling and public transport. While some issues are addressed through changes to motor vehicle fuels and technologies, a focus on this approach misses the opportunity to make progress on several other fronts. Car dependency is associated with a range of problems: from health, such as obesity, poor mental health, and injuries from our high crash rates; social problems such as isolation, and stress and anxiety related to congestion; economic problems like transport poverty; and environmental problems including urban sprawl, water pollutants from run-off and air pollution. Transitioning to low carbon modes such as walking, cycling and public transport can solve many of these problems alongside reducing carbon emissions.

In our opinion, the order of priority for actions to reduce transport-related emissions should be:

1. Urban form: Urban form is a major determinant of travel patterns. The rapid growth happening in our major urban centres means decisions made today about urban development can lock in emissions for years to come, so changing how urban development decisions are made is of the highest priority.
2. Walking and cycling: Investment in more cycle lanes, better footpaths, and safer street environments will encourage active modes of transport, including walking, cycling, and micro-mobility options.

3. Public transport: Investing in public transport services and infrastructure to make public transport an attractive and viable option for more trips. This will be the heavy lifter as we move away from single occupancy vehicles and serious investment is needed to ensure this is transition is successful.
4. Private vehicles: For the remaining trips that need to happen by private vehicle, supporting the uptake of EVs, low-emissions vehicles, and ride-sharing or car-pooling options can all reduce transport emissions.

A climate emergency has been declared. Key to addressing this emergency will be ensuring that public backlash does not get in the way of evidence-based decision making. Furthermore, it is important that the pathway scenario selected aligns with our Zero Carbon Act requirements and those that do not align with our emission reduction budgets should be disregarded.

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  o Remove exemption for commercial vehicles
  o Add exemption for electric vehicles
- Add exemption for bikes, e-bikes, and other micro mobility
- Add exemption for public transport fares
- Add exemption for Work from Home costs
	Central Government

Heavily subsidy e-bikes for the whole country	Central Government
Increase parking and bus lane fines - Pigouvian tax	Central Government
Congestion Pricing	Central Government
Public Transport Fare subsidies for under 25's and low-income groups.	Central Government

Consultation question 3

What more should Government do to encourage and support transport innovation that supports emissions reductions?

We note the need for innovation in the way we develop and change our streets to enable emissions reductions. We consider innovation to be about much more than technological solutions, it includes new approaches to designing the transport network for a zero emissions future. We have seen some progress through the Innovating Streets Programme, trialing tactical urbanism around Aotearoa. However, further policy and structural changes to the transport funding model are needed to enable this type of innovation alongside street space reallocation to public transport and active modes to reduce emissions.

There is also a need to reform roading renewals and maintenance programmes to ensure that these reflect changing standards and requirements, particularly for pedestrians. These are substantial funding pots that could be powerful opportunities to upgrade the transport network rather than renew out of date practices and designs.

Consultation question 4

Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

Updated actions are listed in priority order below, based on the key actions suggested.

1. Require transport GHG emission impact assessments for proposed urban developments (including the transport GHG emissions of residents and business owners that would be in the development). Developments that would result in high emission generation could potentially be required to undergo redesign and/or an acceptable form of durable mitigation.
2. Through the proposed Strategic Planning Act (part of the RMA reforms), require spatial plans to be developed and implemented to better integrate land use, urban development, and transport planning to achieve quality compact, mixed use urban development. Both central government and local government need to work together to improve capabilities for spatial planning. (Underway through RMA reforms.)
3. Integrate land use and transport planning and investment as part of the RMA reforms.
4. Make transport investments conditional on providing transport options and having clear links to land use and urban development plans that support quality compact, mixed use urban development. This will affect the types of projects that are included in Regional

Land Transport Plans. Greenfield growth areas in our major urban areas should be hinged on rapid transit connections.

5. Develop clear guidance and expectations to link urban density and mixed land use with accessibility (particularly by way of public transport, walking, and cycling), without precluding a high level of sustainable mode provision at lower housing densities.
6. Require Waka Kotahi, Local Government, KiwiRail and Kāinga Ora to take more active roles in developing sites around frequent public transport stations and supporting private development by creating walkable neighbourhoods, providing high quality cycle parking and frequent feeder buses to quality rapid transit stations.

Possible additional actions

- Require new greenfield developments in Tier 1 Urban Environments to have a rapid transit connection with all day service in place before residents move in.
- Require minimum average densities across new greenfield development areas in our tier 1 and 2 Urban Environments, to support rapid transit connections and provide a greater variety of housing typologies. This will effectively require higher density development to occur, likely at the centre around an existing or future rapid transit station or frequent public stop, to offset any low-density housing the developer wants to build at the edge of the development.
- Require widespread mixed-use zoning in new developments to allow retail and small business to exist in local neighbourhoods and support shorter trips to access day to day amenity.
- Require greenfield development to be designed as low traffic neighbourhoods to promote walking and cycling for local journeys to shops, schools, and local public spaces.

Consultation question 5

Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

Ultimately, to reduce emissions we need to make it harder to drive in urban areas and make the other options easier, more accessible, and cheaper. This needs to be done in an equitable manner. Inequity in transport arises because of two main factors. First, a lack of transport choices means that people have limited options to participate in everyday activities, known as 'transport disadvantage'. Second, some people overcome a lack of choices by paying more than they can afford for mobility, typically by buying and operating a car. People who pay more than they can reasonably afford for travel are defined as having 'transport poverty'. Ultimately this means making it more difficult to drive for those who already have or can afford the alternatives, while introducing and improving alternatives to driving for those currently without choice. Please refer to the action

tables under question two for specific actions to encourage people to use alternative modes of transport.

Consultation question 6

Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

Pricing although controversial is a tool for decarbonising. It is important that we recognise that pricing is away to charge the user but equally that there are equity questions around pricing. Most important is that pricing that is implemented should be linked with funding alternative transport modes e.g., in Auckland it could help to fund the Access for Everyone project.

Furthermore, it is important that there is a goal of reducing vehicles- kilometres travelled when pricing to ensure that pricing is not simply a fix traffic congestion but serves larger societal issues such as climate change and health.

Other pricing that is interrelated to getting mode shift in transport will be:

- Pricing on the size of the vehicles. E.g., SUV and Utes are commonly purchased cars with significantly larger emissions. This is influenced by existing fringe benefit taxes
- Pricing for the presence of each car park.

Consultation question 7

Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition.

Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

Electrifying the private vehicle fleet is an important part of the decarbonising transport picture but it is only one part. Now that the electric vehicle feebate scheme has been introduced the remaining action for government should be to reform Fringe Benefit Tax (FBT). Specifically, providing a Fringe Benefit Tax exemption for all electric vehicles and removing the exemption for commercial vehicles to encourage businesses to choose electric vehicles for their fleet. This ideally should be completed at the same time as FBT exemptions are introduced for bikes, e-bikes, and other micro mobility along with public transport and work from home costs.

Consultation question 8

Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

We support the possible key actions outlined. However, we believe these actions should be a lower priority than encouraging mode shift from cars to active modes and public transport.

Emissions from public transport are a small proportion of New Zealand's total emissions from transport. Reducing car distance travelled has a much stronger impact on emissions reductions, even if the public transport modes are not electrified.

Consultation question 9

Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

We agree with the possible actions to decarbonise the aviation fleet. We believe that disincentivising unnecessary air travel when possible, and encouraging travel by lower-emission modes when possible.

There are significant environmental costs associated with flying, as there are with driving. The relative costs from driving and flying should be represented in the costs for those travelling. This could be achieved through the methods outlined in question six.

Adding costs for those travelling has equity impacts. It would be important to ensure alternative, affordable modes of travel are available, or that there is governmental support for essential travel such as accessing medical services.

It is important that there are low-carbon travel options available between regions. As most inter-city bus services are privately owned, the push away from cars needs to happen before there will be a significant increase in these services, as the organisations will likely only increase availability if there is demand.

Long-term, intercity rail travel would be more sustainable than our current driving and flying patterns. Developing a frequent and reliable inter-city rail network would allow travellers a broader choice in transport options.

Consultation question 10

The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

The possible actions outlined focus on making our current freight routes and vehicles more efficient, seemingly independently of the other transport goals. Many infrastructure and policy changes which would provide more choice of safe and affordable travel mode (outlined in the tables in question two) would also allow for a more efficient and sustainable freight network.

Lower traffic volumes improve efficiency for road freight. Safety measures such as reduced speeds will reduce the harm from freight vehicles as well as cars. Safe infrastructure for active modes will increase the feasibility of micro-freight options.

Improvements to the freight supply chain should not be considered independently from other changes to the transport system.

Consultation question 11

Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

We have no submission for this question.

Consultation question 12

A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

Climate change, housing and transport are huge complex systems. We agree that a just transition for all of Aotearoa will be important as we transition to net zero.

There is a range of policy responses that could reduce transport poverty and transport disadvantage in New Zealand and help enable a just transition in terms of transport. Reducing transport poverty and disadvantage in New Zealand requires improved access to high quality public transport and active transport choices that consider the needs of wider groups of New Zealanders, such as people on low incomes, minority groups, disabled people, and other groups who do not meet a "typical" commuter schedule. Without such options, it is expected to be very difficult to reduce private vehicle dependency for a large portion of New Zealanders.

The below recommendations come directly from the report *Equity in Auckland's Transport System* published by the Ministry of Transport, prepared by MRCagney. These recommendations were developed with a focus on Auckland. However, many of these recommendations are relevant for New Zealand more widely.

Generally, these are recommendations for the Ministry of Transport, however some involve organisations such as Waka Kotahi New Zealand Transport Agency (Waka Kotahi), Auckland Transport, and others outside of the transport sector. Some recommendations are not aimed at a specific agency but are intended to be considered by government in terms of which agency is best placed to action them.

The recommendations are grouped into two sections. Firstly, four recommendations are provided relating to overarching issues and how the transport sector in New Zealand considers and responds to inequity in transport. These recommendations are:

1. The Ministry of Transport to make equity a more central consideration in transport policy, with a greater number of measurable outcome indicators, so that links can be made to desired outcomes for those people who suffer transport inequity most acutely.
2. The Ministry of Transport to work with other ministries, particularly the Ministries of Social Development and Health, to create shared policy and accountability for transport equity and its links with wellbeing.
3. That equity is made an explicit component of other transport strategy documents delivered by the Ministry of Transport and other sector partners.
4. The Ministries of Transport and Social Development to investigate financial services and support for people to access for their transport costs, to act as a safety net for people with no other choices.

Without high-level strategy that includes measurement and engagement with social service organisations, there will be no way of knowing whether other investment is having any impact on reducing inequity. Following the overarching recommendations, fifteen additional specific recommendations are made to improve equity for specific groups. They are:

To address transport poverty and transport disadvantage:

5. The Ministry of Transport to commission bespoke surveys of those under-represented by the Household Travel Survey, including disabled people, Māori, ethnic minority groups, and LGBTQI+ people.
6. Waka Kotahi and local authorities to collect data on diversity of participation on public streets and transport services, to understand the extent to which inclusive access goals are being met. To improve transport sector engagement with groups suffering transport

poverty and disadvantage, and with the agencies that represent and support those people.

7. The Ministry of Transport to develop policy for collaboration with social service agency leaders to inform local engagement processes and indicators of successful engagement.
8. Waka Kotahi and local government to lead engagement with social service organisations to review their programmes and projects, to refine investment options that will address inequity. To address the lack of access low-income and older people have to affordable, accessible goods and services:
9. Investigate mobile service provision that takes services to where people live so that transport is not a barrier to affordable goods and services.

To improve transport choices:

10. Investigate community transport nationally.
11. Investigate the provision of support for access to low-cost finance and car-share options for people who need them.
12. Improve public transport in low-income areas.

To improve transport affordability:

13. Build on the Total Mobility scheme, to provide more affordable access to taxis for low-income people without disability.
14. Investigate increasing public transport subsidies for low-income people. To improve equity in road safety:
15. Promote high-quality public transport as a road safety investment, by providing a realistic alternative for people who might otherwise travel in an unsafe vehicle. To improve personal security while using transport:
16. Improve personal security on transport links and services, through co-designing specific solutions at local stops and stations with local communities of greatest need. To improve accessibility of information about transport:
17. Develop 'easy read' wayfinding policy, accessible for people who cannot read or write in English, as well as being inclusive to people who have learning disability, brain injury, or neurodivergence such as autism.
18. Provide wireless internet at bus stops and train stations as part of transport information services.

To improve accessibility of transport infrastructure and services:

19. Develop guidelines for infrastructure accessibility audits.

Consultation question 13

Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

A selected pathway needs to be consistent with the Zero Carbon Act in order to stay below 1.5 degrees of warming.

We support following Pathway 4 as a minimum, it is the highest aspiration for reducing emissions and opens up the most opportunities to derive co-benefits for the improvements other areas alongside mitigating climate change.

- Making changes to land use to increase density while improving liveability will not only reduce the need to travel, it will also make our communities more connected and resilient.
- Shifting away from light vehicle trips and inducing more walking, cycling and public transport will derive other benefits, including:
    - Improving our health through increased physical activity and improved mental health, improving community cohesion through facilitating more face-to-face interaction and collaboration.
    - Lower environmental impacts from transport, resulting in cleaner air and water and quieter, more pleasant streets, and other public spaces.
- By pushing more and earlier to avoid and shift, we reduce the need to electrify vehicle fleets and retain greater control of emissions and are less dependent on factors outside of our control, for example the availability of electric vehicles and associated infrastructure manufactured overseas.

Pathway 4 requires less investment in several areas than other Pathways, but requires early implementation on a number of fronts. This approach is likely to require more political courage and greater engagement with New Zealanders on the need to change the way we do things to address climate change. This will in effect bring forward hard conversations, get people more accustomed to different ways of doing things and raise awareness of benefits of lower emissions choices.

Following Pathway 4 means we need to make bold assumptions about changes in other areas and global circumstances, but now is the time to be bold and lead by doing. Uncertainties are rightly raised, but it should be assumed that conditions will continue to change and 'new normal' will continue to develop as the world mobilises toward reducing greenhouse gas emissions.

Consultation question 14

Do you have any views on the policies that we propose should be considered for the first emissions budget?

We have outlined our views on individual policy areas throughout the other answers. Our overarching views are summarised below.

- *We should prioritise policies which reduce car dependency*. Policies which focus on improving the efficiency of private motor vehicles through electrification or different fuel sources miss other key areas of improvement, such as safety and better land use. Encouraging mode shift to active modes and public transport is a key area of change required.
- *An equity lens is required for any changes being made*. Some changes may impact specific groups more than others, and it is vital that this is noted for any policy interventions considered. There is potential to reduce inequalities in transport access through the policy changes, but this may not be achieved unless it is explicitly considered.
- *The actions required to achieve our climate goals are ambitious*. Pathway 4, and the policies and investments which are included, are required as a minimum level of change. In order to reach our obligations under the zero-carbon act, we need to be acting on a scale at least as great as this pathway, with potential for further action to be taken.

24 June 2021

transportemissions@transport.govt.nz
Ministry of Transport
Wellington

Wellington City Council Submission on Hīkina te Kohupara – Transport Emission Pathways to Net Zero by 2050

The Wellington City Council (WCC) welcomes the opportunity to provide feedback on Hīkina te Kohupara.

Strong central government policy, complementing the work we are doing at a local level, is essential to decarbonising transport in Aotearoa in the limited time we have left, and we are pleased to see the government considering a wide range of policy tools to achieve the necessary transformation in how we people and goods move around their local areas and across New Zealand.

WCC declared an ecological and climate emergency in June 2019 placing climate action front and centre of our decision-making. We supported our declaration with the release of *Te Atakura - First to Zero* maps, which outlines actions to support the capital city to be net zero by 2050.

Emissions reductions need to occur at speed (roughly halving local and global emissions in this decade) with transport likely carrying the bulk of the effort. Road transport accounts for ~35 percent of Wellington City emissions, and we have a variety of initiatives underway that aim to support Wellington residents and businesses to change the way they move around the city:

- The Let's Get Wellington Moving programme, which has carbon reductions from mode shift as a key objective, reallocating road space from cars to public transport, cycling and walking in the Central City
- Reducing travel distances through a Spatial Plan that enables densification and prioritises alternative transport modes
- An ambitious cycleways investment programme to improve cycling access and safety along the main routes into and out of the Central City
- Support for car sharing services and alternative mobility modes like e-scooters and e-bikes
- Infrastructure to support the uptake of electric cars, installing 60 or more public chargers on Council land over the next five years

We firmly believe the responsibility to act on climate change lies with this current generation. Future generations are already going to have to cope with the physical impacts of climate change due to the lack of action to reduce emissions up until now. For this reason, we strongly support the Ministry's principle of making early, deep reductions in transport emissions. We would also like to see further investigation of more aggressive decarbonisation scenarios, like pathway 4.

We would recommend that the Ministry reflect on the fact that **public communication of the change required will be essential to achieving these decarbonisation pathways**. Decarbonising transport will require a transformational shift, within a very short space of time, in the way people travel. It will be difficult for councils to implement many of the changes proposed in this paper unless they are clearly understood by the public to be part of a nationwide strategy to prevent climate change and improve our way of life. This will require central government to clearly articulate the risk of inaction, forecast the change that is necessary, and provide a compelling vision of the better future this change can deliver. This is particularly necessary in transport where the transition

to a decarbonised transport sector will require a significant change in many peoples' day-to-day life. If this communication challenge is left to 78 different local councils it will be confusing, contradictory and unlikely to succeed.

The transport sector is well placed to support behaviour change messaging given its decade long experience in road safety behaviour change. Likewise, lessons can be learnt for the efficacy of COVID-19 public communications. We are of the view that a public communications campaign of a similar scale to COVID-19 (albeit over a longer period) will be necessary to ensure there is a strong understanding of why such significant changes to our way of life is needed and worthwhile.

Our commentary on specific proposal in this green paper is outlined in the question-and-answer format on the next page.

Please feel free to get in touch with our staff at WCC if you would like to discuss any of the comments in this submission or if you require further information. You can contact the Manager of the WCC Climate Change Response team via s 9(2)(a)

Yours sincerely,

[redacted]

Andy Foster
Mayor of Wellington

WCC response to consultation questions in Hīkina te Kohupara

Q1. Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

We are broadly supportive of the principles.

We support the intent of principle 1. We think the text underneath this principle could more clearly define what is meant by playing a "lead role" or making "early, deep reductions". Such terms are relative and therefore could easily be interpreted differently by stakeholders. We suggest the Ministry clarify this guiding principle by defining a minimum level of emission reduction in transport over the next three emission budgets. We recommend this minimum level align with the level of emission reduction proposed in Climate Commissions' demonstration pathway for transport.

Principles 6 and 7 could be clearer about the role government plays in determining transition pathways and enabling innovation. The current text gives the impression the Ministry is of two minds about the role government does/should play in shaping transport investment and enabling innovation. Some of the wording suggests the government should play an active role in shaping transport, while other wording (e.g. "Government does not usually 'pick winners'") suggests the opposite. In our view, central government cannot take a neutral position on decarbonisation pathways for transport. Government funding and regulatory decisions already constrain what transition pathways and innovation is possible in New Zealand. Central government needs to be clear about the transition pathway it is planning to regulate for and co-fund so that local governments can make long term decisions about urban form and transport investment.

Q2. Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

Yes.

Q3. What more should Government do to encourage and support transport innovation that supports emissions reductions?

This section could more clearly explain how government policy, regulation and funding settings currently frame what innovations are possible in transport. The car-oriented nature of New Zealand's transport system is itself currently a barrier to many transport innovations that could support decarbonisation. For example, there has recently been an enormous amount of innovation in micro-mobility (i.e. shared mobility, e-bikes, e-scooter, e-skateboard), however, utilisation of these innovations is constrained by the lack of safe space on streets to use this technology.

This section could include discussion on the role that 'automation' can play in public transport. Automated light rail and trains are already operating overseas. Presumably the barrier to this innovation here is more about funding and planning decisions.

This section should include greater consideration of the role e-bikes and other forms of micro-mobility can play in the 'electrification' of transport. E-bike sales are far outstripping electric car sales currently and are close to competing with new car sales.

Q4. Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

We are very supportive of the proposals included in this section. We suggest following policies should be the highest priority in the Ministry's work programme:

- Set higher Funding Assistance Rates for walking and cycling investments and dedicated/priority bus lanes to strongly incentivise Road Controlling Authorities to prioritise and accelerate street changes.
- Set targets for councils to deliver public transport and active travel networks that require street changes (e.g. dedicated/priority bus lanes on some routes; connected cycling networks) by a specific date. There could be funding consequences if Road Controlling Authorities do not deliver these changes within these timeframes.
- Make changes to policy and funding settings to ensure Waka Kotahi and Road Controlling Authorities maximise opportunities to 'build back better' when doing street renewal.[1]
- Prioritise the need to reallocate street space and to create connected networks for delivering transport mode shifts in the next GPS on land transport, and/or for any additional funding for active modes and public transport.
- Policy work on changes to fringe benefit tax exemptions.

In addition, we would suggest:

- Clarifying in the GPS that mode shift is necessary to reduce transport emissions and identifying clear mode shift and VKT reduction targets for Waka Kotahi to achieve through its investment programme. Waka Kotahi does not currently have a consistent position on whether mode shift is necessary to reduce emissions.
- Realigning Waka Kotahi's Funding Assistance Rates to reflect Government objectives in transport and climate change. Urban motorways, for example, should not be funded at a higher rate to transport projects that support more efficient, low-carbon transport.
- Establishing a purpose-built regulatory pathway for trialling street space reallocation (e.g. innovating streets). Trials are a very effective way of reallocating street space at scale and pace. The iterative design process also allows us to adjust streets changes to meet needs of residents and businesses. WCC has used Traffic Management Plans as a framework for piloting cycleways in the city, however, this is not fit for purpose as it creates some legal uncertainties which can constrain design and slow delivery.

Q5. Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

It would be helpful if MoT could:

- include a breakdown of mode shift targets by urban centre/region
- quantify the estimated cost of delivering the key mode shift investments like bus priority and the connected urban cycling networks by urban centre/region
- set timeframes for delivering the infrastructure needed to achieve the mode shift required to meet emission budgets.

This would support councils to scale and sequence the necessary investments to meet national carbon budgets.

Q6. Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the

[1] Building Back Better is an increasing part of WCC renewals programme. Our staff would be happy to talk to the Ministry about how this works in practice in our organisation.

role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

Please see our submission to MoT on the *Congestion Question* for our view on road pricing.

Another relatively straight forward pricing tool is parking charges. Let's Get Wellington Moving has analysed the impact of a potential parking levy as part of the Travel Demand Management workstream. A parking levy could reduce vehicle trips into the CBD during the AM peak and would be relatively equitable and simple to implement. However, it would require regulatory changes to implement.

The Land Transport (Offences and Penalties) Regulations 1999 (SR 1999/99) (as at 01 August 2020) Schedule 1 Offence provisions and penalties – New Zealand Legislation sets the penalties for parking offences. This schedule has not been updated since 27 February 2005 which means that 16 years of price inflation that has not been captured, and the penalty is now not much higher than some parking charges. This effectively creating an artificial cap on parking charges because paying the penalty could become cheaper than paying the fee. Local authorities should be able to amend this schedule.

Similarly cost recovery for providing parking to residents (resident's parking schemes) is limited to a simple cost recovery calculation under s 22AB(1)(o)(iii)(B) of the Land Transport Act 1998 Land Transport Act 1998 No 110 (as at 01 December 2020), Public Act 22AB Road controlling authorities may make certain bylaws – New Zealand Legislation. This prevents the true opportunity cost, and externalities of parking to be captured and passed on to personal vehicle owners. Local authorities should be able to charge, for example, for land use as part of a residents' parking scheme.

Q7. Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

We support the actions listed in this section.

We are of the view that e-bikes should also be eligible for subsidies as part of any feebate scheme developed for vehicles. This would be consistent with the Ministry's mode neutral approach to transport. The subsidy considered for one electric car in the Clean Car Discount could cover the entire cost of between one to three new e-bikes. Research suggests e-bike have the potential to be used more like cars[2] and replace a significant proportion of a user's car trips (between 20%-86%)[3]. A subsidy would support the transition to mainstreaming e-bikes while people are hesitant to give up their car and therefore view e-bikes as an additional cost to a car, rather than a low-cost alternative. E-bike are also financially in reach of more people than electric cars.

Q8. Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

Yes

Q9. Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

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[2] https://road.cc/content/news/e-bike-riders-quadruple-cycling-distance-finds-study-277059
[3] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7456196/

Yes

Q 10. The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

Yes

Q 11. Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

No

Q12. A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

Both existing and potentially new transport inequities are well described in the problem definition of this paper. We agree that this is a really critical consideration in policy design. The entire point of stopping climate change is to preserve and enhance people well-being. That needs to be forefront in our policy design.

In table 6 (which outlines the policy work programme) there does not appear to be a workstream/ or initiative focused on managing a just transition in transport. This creates a risk that distributional impacts in the Emission Reduction Plan are only considered on a policy-by-policy basis. This could result in the cumulative effect of policies being inequitable or lead to an unclear narrative about how policies work together to ensure a 'Just Transition'. We encourage the Ministry to undertake a focused piece of work to ensure that a 'Just Transition' is being delivered across workstreams, that any policy gaps are filled, and that the story of a just transition is clearly communicated.

Q. 13. Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

In our view, all decarbonisation pathways considered by government should, at a minimum, align with the level of emission reduction required by the Climate Commission. Only pathway 4 appears to achieve this. It would be useful if the Ministry could model additional pathways/policy mixes which also achieve this level of emission reduction or greater.

In general, Wellington City Council, supports the focus in pathways 1 and 4 on 'avoid' and 'shift' measures to reduce transport emissions. This reflects the hierarchy of interventions that the Council has adopted in our emission reduction plan. The prioritisation of active, shared and public transport modes aligns with our commitment to the people of Wellington to enable a just transition. These modes can provide affordable and accessible transport for all. And there are wider benefits of encouraging active transport (improving health outcomes) and public transport (increasing transport efficiency).

It would also be helpful if further analysis of decarbonisation pathways could clarify the differences between the Ministry's 'Pathway 4' and the Climate Commission's proposed decarbonisation pathways for transport.[4] It is currently difficult to understand how they compare as the two reports measure change differently. Compare, for example, table 7.3 on page 124 of the Commission's final

[4] Refer to table 7.3, page 124 of this report https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf

advice and table 3 on page 111 of Hikina te Kohupara. The Commission measures EV uptake in terms of percentage of registrations, while the Ministry measures it by share of the total light fleet. Likewise the Ministry's estimated change in VKT uses a BAU baseline for 2030 while the Commission compares VKT reduction to 2019 levels.

There appear to be significant differences in the Ministry's assumptions about the level of EV uptake that is possible, and the level of VKT reduction that is required, to meet the climate commission's proposed level of emission reduction. It would be useful to know if this is based on a different understanding of the effectiveness of policies or simply a matter of counting the emission reductions using different denominators.

Q 14. Do you have any views on the policies that we propose should be considered for the first emissions budget?

We strongly support the selection of policies included in the first emission budget.

We recommend adding a workstream to consider inter-regional passenger rail. Page 46 of this document states that the economic viability and competitiveness of inter-regional rail needs to be tested against changes in our vehicle and aviation fleet to be low emissions. However, this work does not then appear as a policy initiative in any of the emissions budgets. Given the long lead-in time required for this kind of infrastructure we suggest it be investigated during the first emissions budget. This work is of importance to Wellington city given the population growth in satellite towns and the potential for this to increase vehicle travel around the region and into the city if viable alternatives do not exist.

Please also see our answer to question 12 regarding work on a 'Just Transition'.

Hīkina te Kohupara – Kia mauri ora ai te iwi

Transport Emissions: Pathways to Net Zero by 2050

Submission by The Lightfoot Initiative

June 2021

Overview

The Lightfoot Initiative are in support of the proposed solutions to create a low/zero carbon transport system in response to the climate emergency. We urge the current, and future, government to take decisive action to support the shifts required to reduce carbon emissions. We believe that a 'whole system' approach is required to ensure that the shifts are possible and achieve the intended outcomes.

Theme 1: Changing the way we travel

We agree that this shift is required. Significant improvement to how we use and develop urban spaces is required to ensure this shift can happen. This will require cross-sector and ministry support and will require changes to laws and policies around how developers create and adapt new spaces. We are hopeful that the Natural and Built Environment Act (NBA), Strategic Planning Act (SPA) and Climate Change Adaptation Act (CAA) will provide the impetus and direction needed for significant reform in how we use and develop urban spaces. We would like to see Aotearoa New Zealand lead the way in researching how built environments can be maximised for the most vulnerable members of society: women, children, the elderly and those with limited mobility to use and enjoy spaces that encourage and support active travel modes.

We also recognise that attempting to shift New Zealander's out of their cars and into more active modes of transport is likely to be complex and difficult. Managing transport demand will require significant investment as a reimagining of our cultural identity is required as car use is inherent to how we see ourselves as a nation. Solving this issue will require cross disciplinary and cross sector cooperation – particularly when coupled with the imminent threat of a climate crisis that some are still unwilling to admit is happening. We would like to see further development in this area at both local and national government levels to identify best practice models in supporting this shift. There also needs to be a recognition that different models need to be applied according to population density and local climate/contextual factors.

Embedded within Theme 1 is a requirement for people to want to stay within their own local areas. Currently there is massive disparity between the infrastructure, community facilities, quality of housing and amenities and access to successful/suitable schools in many communities in Aotearoa New Zealand. To change the way we travel, we need to address these inequities. Of the 826,000 school children in New Zealand, how many of them travel a significant distance by car to attend a particular school? Are these students also travelling to after school activities that could/should be provided on the school site? What role could state sponsored buses (similar to the school bus system) play in reducing our transport emissions? A multi-agency approach to changing the travel habits associated with school aged children needs to be considered to support your proposals.

Theme 2: Improving our passenger vehicles

We agree that improvements need to be made to upgrade vehicles to reduce emissions. However, continual investment in light passenger vehicles must be carefully managed. We urge you to consider what New Zealand would look like if we all swapped our existing vehicles for more sustainable options. What is the end of service plan for petrol and diesel vehicles?

Research into sustainable biofuels needs careful consideration. We encourage you consider research by Susan Krumdiek (University of Canterbury / Heriot-Watt University) that proposes that hydrogen will not provide the solution we are hoping for.

We fully support the intent to shift to a low carbon public transport fleet.

We reject that domestic aviation in the future is an important mode for inter-city and inter-regional travel. Currently, this is the only option, however redirecting current spending on motorways and highways towards the development of an electrified national rail network would provide a solution to reduce carbon emissions.

Theme 3: Supporting a more efficient freight system

We support the development of a National Supply Chain Strategy and understand the complexities of shifting freight in a geographically dispersed environment. However, we encourage you to consider how water and rail could be used to maximise our natural environment when aiming to reduce the carbon footprint of our freight transport.

Which Pathway?

We support Pathway 4. Young New Zealanders are inheriting a global climate crisis. Although we understand that "Pathway 4 would require significant investment in transport infrastructure and medium to high-density residential areas, as well as swift policy action in these areas" we believe this level of action is now crucial. This is a time for bold policy decisions.

The report states on Page 121 "Most New Zealanders are concerned about climate change, and support emissions reductions. We assume that this sentiment will grow over time, as the impacts of climate change grow and become more obvious, and younger generations who have grown up with the threat of climate change become more influential in decision-making." It is important to consider that what appears as radical and controversial now, in just a few years will be widely accepted as the status quo.

The report also states "If the social mandate grows more quickly than expected, we could achieve a zero-carbon transport system swiftly. This could be reflected in both the personal actions that people take to reduce transport GHG emissions, and collective support and demand for institutional changes (e.g. policies, pricing, and incentives). Alternatively, emissions reductions could be hampered if there is insufficient will or mandate for changes." (p121). As with any policy or action at a national level, swaying specific groups in society will be essential to ensure uptake and compliance. The golden age of the automobile represents a century of independence and perceived freedom, but we at The Lightfoot Initiative are left asking "at what cost?". Transport has been a significant contributor to the climate crisis -we enjoyed it while we had the chance, and now that we're aware of the detrimental impact of overuse, we need to welcome other options and modes. Similar to cultural and social beliefs about smoking, but on a much grander scale, we need to accept that the age of the automobile is almost over. We note that this will not be an easy, or quick fix, but we do urge you to take decisive action.

What is The Lightfoot Initiative?

We are a community group (soon to be charitable trust) representing the voice of hundreds of members of the Queenstown community. Our focus is on ensuring infrastructure supports mode shift, and creating community and education programmes to support the shift in Queenstown. We work in partnership with the local and regional council, community associations, community organisations, local bike retailers, schools and other interested parties. We are committed to supporting the government to make smart policy decisions to better develop active travel uptake in New Zealand.

Amanda Robinson Jennifer Smart Stephen Dalley Mark Baldwin

Spokes Canterbury – Submission

23 June 2021

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Hīkina te Kohupara – Kia mauri ora ai te iwi

Transport Emissions: Pathways to Net Zero by 2050

He waka eke noa

Spokes is a cycle advocacy group in Christchurch, with approximately 1,200 members and is affiliated with the national Cycling Action Network (CAN). Spokes is dedicated to including cycling as an everyday form of transport in the greater Christchurch area.

Our mission is to advocate for change that will benefit cyclists, and thereby improve our living environment. Initiatives that benefit cyclists also benefit a host of other active transport uses including pedestrians, scooters, mobility device users and others. Reducing the use of vehicles, ICE or EV, reduces CO_2 and other contaminants, creates health and wellbeing benefits, and is a modal shift that can be achieved more quickly and cheaply than other transport solutions. Planning for our cities and towns should make active transport a central priority goal replacing the current vehicle-centric designs. With the right infrastructure and incentives to change behaviours, we can increase the proportion of active transport trips, including cycling, by 15% to 25% before 2030.

Spokes agrees with need to reducing CO_2 and other gases to achieve a limit of temperature rise to 1.5C or less above pre-industrial levels and we agree with the Climate Commission's advice to government *Ināia tonu nei: a low emissions future for Aotearoa* on the need to centre the urban form of our cities and towns around people and accessibility for all.

One of the three areas recommended by the Commission in their policy direction for transport was:

- **Reducing the reliance on cars (or light vehicles)** and supporting people to walk, cycle and use public transport. Government needs to support this change with clear targets, plans to meet those targets, and substantial increases to funding.

  Local government plays an important role in changing how people travel, and it needs more support from central government to do the job well. This includes enabling them

through legislation, removing regulatory barriers, and providing increased and targeted funding.

We need to **Shift** the way New Zealanders move from cars to public transport, cycling and walking. The report notes "*decades of underinvestment in infrastructure and services have often made these travel choices slower, less reliable, and ultimately less attractive than travelling by private vehicle*" and the need for "*making sure people have access to affordable, reliable, convenient and well-integrated public transport, and extensive, high-quality and safe cycling and walking infrastructure will be critical for achieving the scale of change required*. "

The Climate Commission recommendations on the need for active transport are fully aligned with Spokes' viewpoint.

According to the 2018 census around 48,000 people cycled to work (2.2% of commuters) and 31% of people (female 26%, male 36%) have cycled in the last year. Commuting by bike is increasing in a number of cities and towns, including Christchurch, Auckland and Wellington following increased investment in infrastructure. 57% of people take part in an active mode of travel at least once a week. Active transport includes Walking, Bicycles, Electric bikes, and Electric Scooters. Some organisations have achieved much high levels of commuter cycling such as University of Canterbury transport survey finding 22.1% of staff cycling (3.2% e-bike) in 2020.

Cycling infrastructure benefits many other forms of micro-transport including skaters, scooters and other mobility devices. Pedestrians also benefit from joint crossings across roads.

Spokes would like to see an increase in urban cycle commuting from 2.2% to 20% in the next 10 years.

Changing the way we travel (Avoid + Shift)

Christchurch has found if you build the right infrastructure people will cycle in numbers that exceed expectations. Spokes' experience advocating for cycling in Christchurch over decades has highlighted some key barriers to change.

Safety

Our vision is to create a safe environment for those aged 8-80 to cycle. Safety is the number one issue for the "interested but concerned" who will, with their families, take up cycling if the right environment is provided. In most places this requires separated cycleways, reduction in speed, and safe ways to cross busy roads that give priority to cyclists and pedestrians. The easiest way to measure perceptions of safety is the gender and age balance of cyclists. One busy road or roundabout without a safe option to cross on a journey will be a big deterrent to someone opting to cycle to a destination.

There are many ways to increase cycle safety:

- Fund a public education campaign on sharing the road safely with cyclists.
- Continue to fund programmes like Bikes in Schools.

- Make it mandatory for truck and bus drivers to attend training sessions on visibility and sharing the road like the currently voluntary system.
- Require new trucks and buses to have cameras and collision warning systems by a certain date.
- Require side under-run protection on all trucks.
- Ban bull and nudge bars, front and rear, on non-farm vehicles.
- Legislate for safe passing distances.
- Actively penalise drivers who park or drive in cycle lanes, pass cyclists too closely, or use cell phones illegally.
- Move freight off the roads onto rail or shipping.
- Make the standard urban road speed 30 kph rather than 50 kph.

Some businesses refuse to allow their employees to cycle in work time due to H&S liability concerns. Worksafe should be asked to clarify the legal situation and to actively promote the overall health benefits and safety of various active transport methods.

Research shows that the more people who cycle the safer it becomes for all.

Political risk

The "not in my neighbourhood" (aka NIMBY, Not in My BackYard) feeling is strong. While the majority of residents support cycling getting each cycleway approved is frequently a battle and even the most supportive councillors get tired of the negative, sometimes nasty, feedback. The issues continue during the building stage as local businesses tend to have a temporary downturn in revenue due to access issues. Media coverage is often predominantly negative. Government funding is critical to get many projects over the line in a timely manner and should continue at 50-75%, as it is easier for councils to support cycleways and harder to turn down funding when the rates burden is minimised. Other policies or incentives to encourage local government to support accessible cities should also be investigated. Waka Kotahi should be funded to provide design and project support for smaller councils. We support the setting of targets for councils to deliver active travel networks with appropriate central funding. This should be part of planned urban design, that provides convenience benefits for active transport above cars. This can be in the form of short-cuts through alleyways or green spaces, priority at signal-based crossings etc.

From a climate change perspective, the goal is to encourage commuters to bike to work at least one or two days a week. There should be a subsidy program for commuter bikes (both electric and standard as they are usually lighter and therefore easier to lift onto bus racks), and businesses should be able to provide bikes tax free (or tax-subsidised) to employees up to a certain dollar limit. New York is considering implementing a scheme to subsidise 50% of the cost of an e-bike up to a maximum of US$1,100 for commuters, and a similar scheme could be implemented in Aotearoa as part of the upcoming car feebate scheme. The use of cargo bikes should be encouraged and also subsidised through the car feebate scheme.

Businesses and councils should be required to provide end-of-ride facilities at employment, schools, public transport stations/stops and public buildings and other high-use facilities, and add bike lockers to

public transport stations/stops. It should be compulsory for all urban buses to have well-maintained bike racks and all trains and ferries should allow bikes for free (as in parts of the EU) for all hours of service.

Funding

The Government Policy Statement on Land Transport 2021/22-2030/31 says all the right things but the reality, found in table 3, is that the funding for walking and cycling for the next decade is expected to be between 2.2-3.0% ($95 to $180M) of the total budget. This funding is a significant improvement on the past but is insufficient to make a different in the timeframes required for global warming. The Climate Commission report recommends a substantial increase to this funding. Spokes believes at least 25% of national transport spend should be dedicated to active transport nationally and with funding flowing through to support local government. Only this will see transport emissions begin to be cut to meet goals.

It was good to see the $2B spend on a motorway through Auckland halted as it would have increased the amount of traffic and CO2 emissions and divided neighbourhoods. The financial cost/benefit for spending the equivalent on active transport is far higher. The two major projects announced, the $685M walking and cycling bridge across Auckland's Waitematā Harbour (which will take five years to complete) and the Wellington to Hutt Valley cycleway (which will use all the current Waka Kotahi funding in 2022, $100M?) have high significance but also come at high cost. There are many other smaller projects that also deserve funding. This funding should cover not only major cycleways, but smaller packages of infrastructure that integrate the networks together (like ring road equivalents), and provide access to desirable destinations. The greater the number of safe interconnections available the more likely people will choose to cycle. The annual spend on active transport should be in the range of $3.5B.

The government should also fund upgrades to the most dangerous intersections for cyclists, particularly near schools, as part of their safety strategy.

Waka Kotahi should be congratulated on their excellent and highly successful active transport infrastructure on the Christchurch Northern Corridor. They should however be funded to review and make safe some of their other efforts. A comparison is the Paraparaumu to Peka Peka section of SH1 where there is an excellent new cycle way with two dangerous crossings making it unsuitable for families to use.

All cycleways should have counters with the data available to the public, so that use can be proven and the cost/benefit measured.

Just Transition

Biking is not for everyone however there are some groups who would benefit from additional support. Support community programmes to get people cycling. A programme of providing free bikes, helmets

and locks for children in low-income areas would be beneficial. There are community groups teaching migrant women to cycle, a free bike on completion would be life changing for some participants. Investigate options to provide financial support to purchase bikes for those that would benefit. Identify cycling advocates already doing good work within communities and provide financial support, particularly in Māori, Pacific and migrant groups.

Legislative changes

Make cycling more attractive than travelling by car. Speed up changes to legislation that make separated cycle lanes part of the legal road as it will make the infrastructure cheaper, and the minimum passing distance for cars. Reduce all urban speeds to 30kph, make 50kph the exception rather than the rule. Allow cyclists to turn left on a red light, and go through a T intersection at the top end (preferably by building clear cycle routes off the road or clear of other traffic at such intersections). Require functional cycle parking at all major destinations including sports grounds and supermarkets proportionate to cars. Note the one car parking space can accommodate ten or more cycles. Require SOEs to take into account pragmatic climate change solutions, such as KiwiRail sharing their land and road crossings where appropriate, and put a compulsory mediation system in place when there is no agreement with other parties such as Councils.

Communication and Learning

Support research into best practice and provide free training and support for staff involved in planning for these new urban designs and cycle infrastructure. Often in small councils there is little expertise in this area and many planners have little or no cycling experience. Best practice evolves over time. Provide positive stories of change and challenge some of the misconceptions.

Research into active transport is also vital, ranging from ways to encourage more participation, how changes impact on communities, through to developing lighter more efficient batteries suitable for active transport modes.

Wider perspectives.

Cyclists share the roads with other vehicles. We breathe in fossil fuel fumes including black carbon (also a GHG pollutant) as well as NOx and SOx that are very harmful to our health. We strongly support the move to electric vehicles. All new urban buses should be electric by 2024 rather than 2025. There should be a greater focus on incentives or mandates for replacement of vehicles that travel the greatest distance per day, have the lowest efficiency, are diesel, and have viable electric alternatives now.

There are an increasing number of e-bikes, e-scooters, and other mobility devices being purchased. This requires a longer-term investment recycling, including batteries.

Thank you for the opportunity to submit on Hīkina te Kohupara. Together we can make a difference.

Spokes would be happy to talk to the Ministry further on our ideas to increase cycling and other active transport modes.

25 June 2021

Peter Mersi
Secretary for Transport
Ministry of Transport
PO Box 3175
Wellington 6140

Dear Peter

Submission on Hīkina te Kohupara

This letter and the attachments are Toyota New Zealand's submission on Hīkina te Kohupara.

We welcome the Ministry's Green Paper on the pathways to transition transport to net zero by 2050, and the opportunity to have input on this matter of such national and global significance. We also note, and have been mindful in preparing this submission, of the final advice to the Government from the Climate Change Commission and the Government's announcement of the Clean Car Discount.

We are committed to supporting the New Zealand response to climate change.

We recognise that shifting to a lower emissions economy requires change to our transport system. At Toyota we are committed to reducing emissions from our vehicles now and steadily over the medium to long-term while keeping mobility safe and affordable for our customers.

As one of New Zealand's most trusted companies, we take very seriously our role in the community, and our responsibility to provide leadership in the transport system's response to climate change. This is based not just on Toyota's global view but also the fact that we supply vehicles and mobility options to the widest range of kiwis with incredibly diverse mobility needs.

We have been operating in the New Zealand market for over fifty years. Our brands represent 25% of the vehicle fleet and we have been the top selling new vehicle brand for over 30 years in New Zealand. Toyota vehicles also represent a significant share of used vehicle imports entering the New Zealand fleet each year.

Our international principal (Toyota Motor Corporation) has been the leading supplier of hybrid electric vehicles (HEV) globally for over two decades and is committed to leading the way to the future of mobility.

We consequently believe Toyota can, and must, provide strong and sound leadership in our nation's response to climate change.

Our submission is in three parts.

This letter offers some high level observations about the overall approach we believe is needed to successfully reduce emissions, especially from the light vehicle fleet. *Appendix One* sets out the key actions we think should be included in the first decade of the Government's Emission Reduction Plan to 2035. *Appendix Two* provides specific responses to the Consultation Questions in Hīkina te Kohupara.

The pathway for the light vehicle fleet must consider availability, affordability, and not compromise safety.

Our primary concern is to ensure the pathway for lowering emissions from the light vehicle fleet is sensible and achievable, and that lives will not be endangered through allowing vehicles to enter the fleet with lower safety standards.

We acknowledge the important role that battery electric vehicles (BEVs) will play in the future, especially as a country with such a high level of renewable energy. But a focus on BEVs alone will not deliver the desired change in our nation's transport emissions, especially in the period to 2035. Global availability constraints and the affordability of BEV technology will be problematic in this regard.

Using projections by the International Energy Agency, we believe New Zealand's share of global production and stocks of BEVs in 2030 will be insufficient to deliver the required change in the emissions profile of our vehicle fleet. Global production in 2030 will still be quite constrained, as will the stock of available second hand BEVs. If our share of the global market remains at 2019 percentages, this will result in a level of BEV imports that is well short of what will be needed. This shortfall could only be overcome if New Zealand suppliers can secure a significantly larger share of global supply by 2030. We think that is unlikely, especially for new vehicles.

New Zealand's new and used vehicle market is a tiny proportion of the world's demand for vehicles. We face intense competition for the latest low emissions technology from far larger, richer, and more powerful markets. Further, our national propensity to allow used imports to enter the fleet has given us limited bargaining power for the latest technology. This will make it even more difficult to rapidly roll out new BEVs. These factors mean New Zealand's light vehicle suppliers will not be able to secure new BEVs in the volume, and at a cost, that would be needed to deliver the Government's desired outcomes.

Another key factor in the uptake of BEVs will be affordability and consumer acceptance. BEVs are currently more expensive than comparable vehicles with other powertrains. Kiwi families and businesses may be forced to keep their older, high emission vehicles for longer, especially if affordable alternatives are not available. This will slow the transition of the fleet. While the Government's recently announced Clean Car Discount will go some way to addressing this

price differential, measures to encourage the uptake of BEVs need to reflect an understanding of all the factors that influence consumer behaviour, especially in New Zealand. Our global experience with the rollout of hybrid technology has given us real insight into consumer behaviour in the adoption of new technology. It shows a slow journey of customer education and acceptance spanning over a decade.

We are also very concerned that efforts to overcome availability and affordability constraints with BEVs may result in more less safe and older vehicles being allowed to enter our fleet. Our concern has been heightened with the announcement that the Clean Car Discount will allow a rebate for 3-star safety rated vehicles. This is a retrograde step. It should require a minimum of 5-star safety. The Ministry's own estimates show the cost of road deaths and injuries to be around $5 billion each year. This cost is borne heavily by some of our most vulnerable in society – families on low incomes who can only afford cheap, less safe, older vehicles. The 'Road to Zero' strategy cannot be allowed to be compromised by allowing less safe BEVs to enter our fleet.

We think there is a more workable and achievable path for reducing emissions from light vehicles without having these types of unintended effects.

The pathway should encourage kiwis to buy '*the next newest vehicle*'.

We believe the pathway for reducing emissions from the light vehicle fleet will be far more effective if it is technology agnostic. It should be designed to incentivise continual reductions in emissions from the fleet without dictating which technologies should be adopted to achieve this outcome. We welcome in this regard the recent signals that the Government recognises the crucial role that other power trains, like HEVs, will play in the transition of our fleet.

Toyota New Zealand is focused on introducing new, cleaner, and safer vehicles into the market at a competitive price that is affordable for kiwis. We are reducing emissions from vehicles we supply as soon as possible and over time with many mobility options rather than solely concentrating on one powertrain or type of vehicle. This philosophy focuses on what we describe as the '*next newest vehicle*'.

Our step-by-step process focusses on promoting a more progressive and workable transition of the light vehicle fleet. We think the Government should design policy based on a similar philosophy.

A consumer journey over the next two decades could therefore look like - a fuel efficient petrol or diesel, followed by a HEV, plug in hybrid (PHEV), and later a zero-emission BEV or, in the more distant future, hydrogen fuel-cell (FCEV). By following this way of thinking we ensure that cleaner and safer vehicles are as affordable as soon as possible for kiwis and their families.

Whatever pathway is ultimately adopted, it will mean all vehicles entering the light fleet must have a different powertrain. But we will get further, and without these unintended effects, by the Government following the approach of encouraging New Zealanders to buy the *'next newest vehicle'*.

The Emissions Reduction Plan needs to be comprehensive and reflect New Zealand's circumstances.

Hīkina te Kohupara provides a useful overview of the factors that influence emissions from the transport system, and the range of interventions a government might contemplate. We congratulate the Ministry for the holistic and system wide approach it has taken in Hīkina te Kohupara. This is a welcome development.

As you well know, Governments have a range of public policy outcomes they seek to achieve through the transport system. Toyota believes that the Government's plan to transition to low emissions must reflect and balance these multiple objectives. A future transportation and mobility system is needed that will meet the needs of its users, be safer, and have lower emissions.

While the light vehicle fleet is just one element of the overall transport system, it is important because it primarily supports the mobility requirements of every kiwi family and business. Those needs vary according to such things as where those kiwis live (rural or urban), the particular needs of their family, where they work, and what their work entails. At Toyota, we think an understanding of these mobility needs is critical when designing interventions that will work for us as a nation.

We also think policy needs to be designed with an understanding of the life cycle of models in our light fleet, and factors that determine this cycle. There are several years of design and planning before new vehicles enter the global market. In New Zealand, we have quite long lead times before models will be available because of our relative size in that global market. (This is relevant, for example, to our current discussions over the adoption of Euro 6 standard which is proposed to apply to all new light vehicle imports from 1 January 2023. A minimum lead time of three years is needed.) Then, once in our fleet, these vehicles will typically be on our roads for more than 20 years (the average fleet age is 14 years).

We think that design of future interventions for New Zealand must reflect an understanding of the factors that influence both the supply and demand for light vehicles if we are to achieve the desired outcomes and minimise any unintended consequences. We encourage the Ministry to ensure it has a sound evidence base, and takes expert advice from industry, to underpin the design of future interventions.

We would welcome the opportunity to further discuss our submission and to assist the Ministry in ensuring its advice to the Government is sound and workable and will deliver the results we all aspire for.

Your sincerely

Neeraj Lala
Chief Executive Officer

APPENDIX ONE:

PROPOSED EMISSION REDUCTION ACTIONS FOR THE TRANSPORT SYSTEM

We note the large number of potential policy initiatives set out in Table 6 (page 127) of Hīkina te Kohupara. We also note these initiatives are mostly envisaged to be delivered over the next three years, as part of the first emissions budget. We question whether this programme is feasible and realistic for the Ministry and the Government.

Conversely, we think there is a comparatively small number of key actions that the Ministry should prioritise, especially if it wants to maximise the impact of its work on decarbonising the transport system. We also think the size and complexity of some of these initiatives means it will take several years to fully develop and implement them.

Detailed below are the key actions we propose the Ministry should prioritise for the period 2022-2030. The key actions are framed around the Ministry's three themes in Hīkina te Kohupara.

THEME 1: CHANGING THE WAY WE TRAVEL.

Action 1. Accelerate the implementation of nation-wide road pricing system.

Technology now exists that enables access to, and use of, transport networks to be charged in much the same way as is used for other network utilities (e.g. energy and telecommunications). Road pricing would provide a much more direct signal to users of the real costs (including carbon costs) of their mobility choices, and better inform these decisions. Time and location based pricing would be possible to reflect demand on the system, and to help shift that demand. We think such a regime may prove to be one of the most influential ways of influencing modal choices and user demand to reduce emissions in the future.

We think road pricing should primarily be viewed as a system to create stronger incentives to support sound user choices. Current dependence on fuel excise tax for publicly provided infrastructure and services also means a new source of funding will eventually be required for these things. By accelerating the implementation of a nation-wide road pricing system, the Government will also future proof its funding source. It will also be able to more effectively influence the demand for new infrastructure and public transport services. These co-benefits make road pricing a highly attractive proposition.

We think New Zealand is well placed to transition to a nation-wide road pricing system. With a single national government and regulatory system it would easier to implement here compared with many countries. Further, many users are already accustomed to paying Road User Charges (RUC).

Action 2. Shift the current policy, legislation, and funding focus from public transport to shared mobility.

Publicly provided shared transport (buses and trains) may well be an effective mobility option for corridors where there is high demand, and where mass transit solutions are essential. But public transport will never be cost-effective for many daily journeys, even in our largest cities.

We think the Government's Public Transport Operating Model (PTOM) is no longer fit-for-purpose. It has limited incentives for the contracted providers to grow patronage, and the subsidies are largely invisible to the consumer. We support the need for a rethink of this policy setting.

We think a shift in policy focus to incentivising shared mobility more generally, with direct incentives, could deliver significantly greater benefits – particularly in reducing emissions. That is, the policy should focus on increasing average vehicle occupancy and be neutral about whether the vehicle in which the ride is being shared is a private vehicle, or a publicly provided mass transit service.

Incentives to increase ride sharing, especially where public transit options are not available, could have a significant impact on the mobility choices made by kiwis. Further, if that public subsidy is paid directly to them, it may well have a greater impact on those choices. Such a shift in policy focus is possible now because technology enables this. It would have been almost impossible just a few years ago.

This shift in policy could achieve a much more significant reduction in the number of private vehicles being used every day, with all the associated benefits - a reduction in emissions, a reduction in congestion, and a reduction in average journey times. This might also provide an alternative mobility solution for some of our most vulnerable kiwis who typically own older, less efficient, and safe vehicles, and who live and work in locations where public transport solutions will never meet their needs.

Action 3. Establish an Activity Class in the National Land Transport Fund to expedite the uptake of new mobility solutions.

Transportation and mobility is on the cusp of a paradigm shift. It will be brought about by technological innovation, social change, and the imperative to respond to climate change.

The development of autonomous and connected vehicle systems will allow vehicles to operate more safely, and more efficiently than is currently possible. It will be easier to optimise network use, and make transport and mobility solutions more effective and efficient. When combined with other emerging developments, these innovations will be game-changers in reducing emissions from the transport system.

The emergence of mobility as a service (where citizens no longer own a vehicle and instead buy their mobility depending on their specific needs) is an equally significant change. Together with a behavioural shift to accept increased ride sharing in certain circumstances, this change could significantly reduce the number of private vehicles required to meet personal mobility needs in our transport system, especially in larger cities.

It may be some decades before these and other developments become common place. And the exact path they will follow is impossible to know and predict. But one thing is certain – the technological innovation in transportation will enable changes that are currently almost unimaginable for most people.
Our size, single regulatory system, and the widely recognised kiwi penchant for being early adopters of technology, make New Zealand a country that is well placed to seize these opportunities and the benefits they will deliver.
Consequently, we believe the Government should encourage the early adoption of transport and mobility innovations in New Zealand. One way it could do this would be to establish an Activity Class in the Government Policy Statement on Land Transport that allocates funding from the National Land Transport Fund to support trials and demonstration projects with new transport and mobility solutions.

THEME 2: IMPROVING PASSENGER VEHICLES.

We believe a number of complementary interventions will deliver, over the next decade, the most substantive improvements in the light vehicle fleet. But interventions need to be designed to reflect our unique market conditions.

The New Zealand vehicle market is unusual with about half the vehicles entering the fleet each year being used imports. Used imports have played a critical role in driving up vehicle ownership levels in New Zealand over the last three decades, arguably making affordable vehicles more accessible to lower income households.

Vehicle selection or purchase is a decision made by the consumer, having regard to a range of factors that influence their choices. Vehicle choices could be influenced by supply or demand side interventions. We believe a combination of both will be required to reduce the emissions profile from our light fleet. We also believe that policies that influence demand side (consumer) behaviour are more likely to lead to enduring change.

Action 4. Emphasise the progressive transition to low-emissions vehicles, including BEVs.

We agree that it makes sense for New Zealand to exploit our comparative advantage with such a high level of electricity generated from renewable sources. BEVs should sensibly play an important role in changing the mix of the light fleet in New Zealand. But, as we have outlined in the cover letter to this submission, we do not think a single-minded focus on this power train will deliver the desired results, especially in the next decade.

There are a range of factors that make it unrealistic to focus just on BEVs. These factors include limits on the availability of BEVs, New Zealand's access to those supplies, and consumer affordability and acceptance. These factors could lead to perverse outcomes including:

- the importation of vehicles with lower safety ratings, and all the consequences that will arise from this. The recent announcement of the Clean Car Discount is a case in point, where the rebate will be payable on 3-star rated vehicles. We think this is a retrograde step and inconsistent with the Government's strategy "Road to Zero". Less safe vehicles (whether new or second-hand imports) will be in the fleet for the next 20 years. The risks and costs of these less safe vehicles will be borne by the most vulnerable, low income, kiwi families who are likely to be the owners of them.;
- kiwi families and businesses holding older, higher emission vehicles for longer, because affordable alternatives are not readily available; or,
- the discontinuance of models that are essential for certain segments of our community.

We think that a more viable pathway is to support new, cleaner, and safer vehicles progressively coming into the market at a competitive price that is affordable for kiwis. Our approach is to be technology agnostic and reduce emissions as soon as possible, over time, with many mobility options rather than solely concentrating on one powertrain or type of vehicle. This step-by-step process focuses on the '*next newest vehicle'* rather than solely on one type or another. It also allows the safety standards of the fleet to be progressively improved, thereby delivering on the multiple public policy objectives we must have for a future mobility system.

A consumer journey over the next two decades could, therefore, look like – a fuel efficient petrol or diesel, followed by a HEV, PHEV, and later a zero-emission BEV or, in the more distant future, FCEV. By following this way of thinking we ensure that cleaner and safer vehicles are as affordable as possible for kiwis and their families.

We think this approach will allow new, more affordable, and efficient vehicles to be made available to kiwi families and businesses sooner than would happen with a sole focus on BEVs. It will make us less dependent on the future availability of BEVs, provide vehicle options that better meet the wide array of consumer needs in Aotearoa, and reduce the risk of older vehicles staying on our roads for longer periods.

Action 5. Implement a fit-for-purpose Feebate Scheme.

We support the introduction of a Clean Car Discount in New Zealand. This recognises that the mix of vehicles sold is primarily determined by consumers, and that demand-side measures are an essential feature of what is required to encourage the uptake of low emissions vehicles.

We are concerned however that the scheme recently announced by the Government will compromise the drive to improve road safety by allowing 3-star rated vehicles to be eligible for the discount. We believe the discount should only be available to 5-star rated vehicles.

In our submission to the 2019 proposals we said that the design and implementation of the scheme would require great care to ensure it has the intended effects, and that such a scheme would need to be introduced and managed carefully over time. The motor industry needed to be closely involved in helping ensure the scheme is fit-for-purpose. We stand strongly by that submission. We note, for example, one disappointing consequence of the lag in implementing the full scheme (presumably pending legislative authority) will be the delayed purchase of HEVs, not captured by the interim measure.

Action 6. Implement a clean car/fuel economy standard.

We support a fuel economy standard as one of the measures to encourage the transition to a low-emissions fleet. However, for any standard to be fit-for-purpose it must be designed and implemented to reflect New Zealand market conditions, especially if it is to minimise unintended effects.

Care is needed to ensure the standard is workable. If it is not, the cost of penalties will impact on retail prices and may lead to the exit from the market of some distributors. These effects will potentially slow the uptake of low-emissions vehicles. They will also detrimentally impact consumers, businesses, and the economy. These unintended effects demonstrate why great care is needed in the design and implementation of such a scheme.

Action 7. Mandate a maximum age for vehicles being imported to New Zealand.

There are potentially very significant benefits from seeking to reduce the average age of the fleet over time.

A complimentary measure to a feebate scheme would be to establish a mandatory maximum age for used vehicles that can be imported. The maximum age could be set and periodically adjusted if the government sought to progressively lift the expectations (in relation to emissions) for used vehicle imports.

A maximum age for imported vehicles may not change the size or mix of vehicles entering the fleet, but when combined with other potential policies (like a feebate scheme) to influence consumer preferences, the effect on the emissions profile of the fleet could be significant.

Action 8. Mandate more stringent Annual Vehicle Licensing and Warrant of Fitness requirements.

Increasing the cost of keeping older, high emissions, vehicles on the road is one way to incentivise their exit from the fleet. Other countries like Japan see their vehicles exit the fleet much earlier. They have far more stringent requirements that make the cost of continued ownership uneconomic.

Two ways of increasing the cost of keeping older vehicles on the roads would be to increase the annual license fee, and have more stringent annual warrant of fitness checks on older vehicles.

The Annual Licensing Fee could be reconceived as a charge for higher emission vehicles if other pricing mechanisms are not already being used to reflect these externalities. It may be that such a fee could, for example, be used in the next decade as part of a pathway to implementation of a comprehensive road pricing scheme.

The annual Warrant of Fitness testing in New Zealand is currently focussed on safety roadworthiness of all vehicles. If it were to apply more stringent emissions testing, and if there were rules requiring the removal from the roads of non-compliant vehicles, this would likely see vehicles exit the fleet sooner than is currently experienced.

The costs of these types of policy would likely impact most adversely on low-income kiwi families. So, it would be highly desirable to explore forms of support that might be made available to these families to scrap their older vehicles and to either upgrade to a lower emissions vehicle, or access their mobility requirements in another way.

Action 9. Mandate a threshold and process to phase out the importation of ICE vehicles.

We are aware that the Climate Change Commission has recommended a ban on further ICEs entering the fleet from as early as 2030. We also know that several jurisdictions have already mandated a specific date. We do not support this approach, and think it will likely prove to be problematic for the Government.

The difficultly in mandating a specified date at this time will be knowing whether the date is both feasible and realistic, especially as New Zealand is heavily dependent on technology developments in other countries. The current level of uncertainty may result in a specified date becoming controversial. Consumers may not be

prepared to accept the ban. So, we think some care is needed in designing an appropriate response to this national challenge.

We think there may be lessons from other areas where the Government has worked with industry and consumers to affect transitions to new technologies. One example is the switch over from analogue to digital television which was made a decade ago. In that case, the Government worked with industry to incentivise the uptake of digital television through the public funding of the Freeview platform. The Government also signalled at the outset what 'threshold' of digital uptake would trigger a decision about the timing and approach to analogue switch-off.

The parallel for ICEs could be to explicitly agree the percentage of the new vehicles entering the fleet that must be zero emissions before a decision is made to prohibit importation of ICEs, and to have an agreed process (including timelines) for implementing such a decision. The policy focus should then be to work with industry and consumers to achieve the specified threshold as soon as is practicable.

THEME 3: SUPPORTING A MORE EFFICIENT FREIGHT SYSTEM.

We support the need for action to reduce the emissions from heavy vehicles used in the transport system.

Green Hydrogen and biofuels are likely to play a significant role in the transition for the heavy vehicle fleet. A range of interventions, similar to those proposed for the light fleet, to incentivise the uptake of low emissions trucks and fuels would seem sensible.

We caution however that any actions, especially in relation to modal choices made for the freight task, must reflect a sound understanding of the particular conditions that drive those choices by freight owners.

Action 10. Support trials and demonstrations of emerging technologies, fuels, and other innovations.

Over the next two decades, emerging technologies and fuels will support future innovations that may well provide new ways to reduce emissions from heavy vehicles. We need to create conditions where we can be an early adopter of these solutions.

For example, our rail network is essentially a dedicated freight corridor of nearly 4,400kms. It makes sense to consider how this corridor could be configured to do more to reduce emissions from the overall transport system. The emergence of autonomous vehicle guidance systems, and the ability to platoon heavy vehicles, may eventually allow much more of the freight task to be moved from our roads to the freight corridor using these vehicles. This solution could deliver significant emissions reductions, but without compromising the supply chain and economic efficiency. We acknowledge the sort of change just described is not currently feasible, but it will likely become so between now and 2050.

We need to create the conditions for New Zealand to seize innovations that will further enhance our ability to reduce emissions from the freight task. We need to be open to new ideas and ways of solving the challenges of moving freight around the country. Enabling trials and demonstrations would be one way of doing this.

APPENDIX TWO:

RESPONSES TO CONSULTATION QUESTIONS

1. Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

Principle 7 currently says "Innovation and technologies will play an important role in reducing emissions, but people are the key to our future".

We think principle 7 should be split into two, and the idea of people being 'the key to our future' incorporated in a separate principle.

We agree that the choices and behaviours of people will be a critical determinant for our success in transitioning the transport system to low emissions. This idea should not be specifically linked or limited to the effects of innovation and technology.

We also believe that affordability will be a critical factor in the uptake of innovations or other developments that reduce emissions.

Toyota proposes:

- *Principle 7. Innovation and technology that provide new and affordable solutions will play an important role in reducing transport emissions.*
- *Principle 8. The choices and future behaviours of people about transport and their mobility will be the key determinant of our future.*

2. Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

We agree with the Ministry's description of the government's role in reducing transport emissions, and the levers available to it.

3. What more should Government do to encourage and support transport innovation that supports emissions reductions?

We believe technology and innovation will play a critical role in the transition, and the Ministry should be more ambitious and encouraging of this factor in its thinking about future interventions.

Transportation and mobility is on the cusp of a paradigm shift that will be brought about by technological innovation, social change, and the imperative to respond to climate change. This will progressively occur over the next 20 years, but we can already see the green shoots of this change.

These emerging technologies and changes in mobility systems will also enable a paradigm shift in public policy – the ability to significantly shift the way desired outcomes can be achieved.

We submit that the pathway for the transport system needs to embrace changes that will be enabled by emerging technological innovations in transportation and mobility. The Government should encourage the progressive uptake of these technologies, and embrace new thinking and approaches to the design of public policy that will be enabled by these innovations.

One way to encourage the early adoption of these innovations is to make funding provision to support trials and demonstration projects. While we acknowledge the latest Government Policy Statement on Land Transport refers to innovation, this is not an area of priority, nor one for which funding is specifically allocated as a separate Activity Class. Given its likely importance to our transition, we think it should be.

Toyota proposes the Government:

- *Adopt a separate priority and Activity Class be established in the next Government Policy Statement on Land Transport that supports the uptake of new mobility and transport solutions through technological innovations.*

4. Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

Chapter 6 covers a large range of actions to change the way people travel. We think it is comprehensive. We have outlined in Appendix One with this submission the main actions we propose, and our rationale, to influence the choices people will make to meet their future mobility requirements.

Toyota proposes the Government:

- *Accelerate the implementation of nation-wide road pricing system.*
- *Shift the current policy, legislation, and funding focus from public transport to shared mobility.*
- *Establish an Activity Class in the National Land Transport Fund to expedite the uptake of new mobility solutions.*
- *Implement a programme of 'place making' initiatives and regulatory changes that reduce the demand for travel.*

5. Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

We acknowledge the discussion in Chapter 6 (page 52) about the potential for technology enabling breakthroughs that encourage people to share rides. We think this is an area that the Ministry should consider more actively, especially in the context of its review of the Public Transport Operating Model.

Publicly provided shared transport (buses, trams, and trains) may well be an effective mobility option for corridors where there is high demand, and where mass transit solutions are essential. But public transport will never be cost-effective for many daily journeys, even in our largest cities.

We think the Government's Public Transport Operating Model (PTOM) is no longer fit-for-purpose. It has limited incentives for the contracted providers to grow patronage, and the subsidies are largely invisible to the consumer. We support the need for a rethink of this policy setting.

We think there should be a shift in policy focus to incentivising ride sharing more generally. That is, the policy should focus on increasing average vehicle occupancy and be neutral about whether the vehicle in which the ride is being shared is a private vehicle, or a publicly provided mass transit service.

Incentives to increase ride sharing, especially where public transit options are not available, could have a significant impact on the mobility choices made by kiwis. Further, if that public subsidy is paid directly to them, it may well have a greater impact on those choices. Such a shift in policy focus is possible now because technology enables this.

This shift in policy could achieve a much more significant reduction in the number of private vehicles being used every day, with all the associated benefits - a reduction in emissions, congestion, and average journey times. This might also provide an alternative mobility solution for some of our most vulnerable kiwis who typically own older, less efficient, and safe vehicles, and who live and work in locations where public transport solutions will never meet their needs.

6. Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

As noted in response to Consultation Question 4, we believe the Government should accelerate the implementation of nation-wide road pricing system.

Technology now exists that enables access to, and use of, transport networks to be charged in much the same way as is used for other network utilities (e.g. energy and telecommunications). Road pricing would provide a much more direct signal to users of the real costs (including carbon costs) of their mobility choices, and better inform these decisions. Time and location based pricing would be possible to reflect demand on the system, and to help shift that demand. We think such a regime may prove to be one of the most influential ways of influencing modal choices and user demand to reduce emissions in the future.

7. Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

Chapter 7 covers a large range of actions to improve our passenger vehicles. We think it is comprehensive.

We believe there are a number of complementary interventions that will deliver, particularly over the next decade, the most substantive improvements in the light vehicle fleet. But interventions need to be designed to reflect our unique market conditions.

While we agree BEVs should sensibly play an important role in changing the mix of the light fleet in New Zealand, we do not think a single-minded focus on this power train will deliver the desired results, especially in the next decade.

There are a range of factors that make it unrealistic to focus just on BEVs. These factors include limits on the global availability of BEVs, New Zealand access to those supplies, and consumer affordability and acceptance.

We think that a more viable pathway is to support new, cleaner, and safer vehicles progressively coming into the market at a competitive price that is affordable for kiwis. This step-by-step philosophy focuses on the '*next newest vehicle*' rather than solely on one type or another.

We think this approach will allow new, more affordable, and efficient vehicles to be made available to kiwi families and businesses sooner than would happen with a sole focus on EVs. It will makes us less dependent on the future availability of BEVs, provide vehicle options that better meet the wide array of consumer needs in Aotearoa, and reduce the risk of older vehicles staying on our roads for longer periods.

We have outlined in Appendix One with this submission the main actions we propose, and our rationale, to shift the fleet to low-emissions.

Toyota proposes the Government:

- *Emphasise the progressive transition to low-emissions vehicles, including EVs.*
- *Implement a fit-for-purpose Feebate Scheme.*
- *Implement a clean car/fuel economy standard.*
- *Mandate a maximum age for vehicles being imported to New Zealand.*
- *Mandate more stringent Annual Vehicle Licensing and Warrant of Fitness requirements.*
- *Mandate a threshold and process to phase out the importation of ICE vehicles, rather than a specific date at this stage.*

8. Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

We have no comment on this matter.

9. Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

We have no comment on this matter.

10. The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

Refer to our response below to Consultation Question 11.

11. Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

While Chapter 8 covers a range of actions to improve our freight supply chain, modes and fuels, we think more emphasis should be given to how emerging technologies and fuels will support future innovations that may well provide new ways to reduce emissions from heavy vehicles, and make the freight system more efficient.

The Government should create conditions where New Zealand can be an early adopter of these solutions. The Government should also be open to new ways of thinking about public policy solutions that are enabled by technological innovations.

For example, our rail network is essentially a dedicated freight corridor of nearly 4,400kms. It makes sense to consider how this corridor could be configured to do more to reduce emissions from the overall transport system. The emergence of autonomous vehicle guidance systems, and the ability to platoon heavy vehicles, may eventually allow much more of the freight task to be moved from our roads to this freight corridor using these vehicles. This solution could deliver significant emissions reductions, but without compromising the supply chain and economic efficiency. We acknowledge the sort of change just described is not currently feasible, but it will likely become so in the next two decades.

We need to create the conditions for New Zealand to seize innovations that will further enhance our ability to reduce emissions from the freight task. We need to be open to new ideas and ways of solving the challenges of moving freight around the country. Enabling trials and demonstrations would be one way of doing this. We comment further on this in our response to Consultation Question 13.

Toyota proposes the Government:

- *Support trials and demonstration projects for emerging technologies, fuels, and other innovations to decarbonise the freight system.*

12. A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

We welcome the Ministry's comments on a 'just transition'. Much of Toyota's thinking is similarly based on a concern to ensure that pathway adopted reflects an understanding of the factors that influence the mobility and transport choices made by kiwi families and businesses. We need to design interventions that reflect this understanding and ensure, for example, low income households are not seriously disadvantaged.

Governments have a range of public policy outcomes they seek to achieve through the transport system. Toyota believes that the Government's plan to transition to low emissions must reflect and balance these multiple objectives. A future transportation and mobility system is needed that will meet the needs of its users, be safer, and have lower emissions.

We are particularly concerned that safety standards should not be compromised to achieve lower emissions. The Ministry's own estimates show the cost of road deaths and injuries to be around $5 billion each year. This cost is borne heavily by some of our most vulnerable in society – families on low incomes who can only afford cheap, less safe, older vehicles. The 'Road to Zero' strategy cannot be allowed to be compromised by allowing less safe vehicles to enter our fleet.

The key actions we have set out in Appendix One to this submission have been proposed with these considerations firmly in mind. In particular, our approach to reducing emissions from the light fleet by focussing on '*the next newest vehicle',* and to specifically propose actions to support the exit of older vehicles from our fleet, will be essential to deliver a just transition.

13. Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

We think the four pathways are too generic and high level. While we appreciate they each involve different modelling assumptions (pages 147-154), it is difficult to clearly understand how, and to what extent, Government policy settings would vary between the different pathways.

In practice, we believe it will be necessary to have a balanced and mixed portfolio of interventions that seek to avoid, shift, or improve energy use in the transport system. This will need to be done by focussing on changing the way we travel, improving the vehicle fleet, and making our freight system more efficient.

14. Do you have any views on the policies that we propose should be considered for the first emissions budget?

Appendix One of our submission provides the key actions we think should be included in the Emission Reduction Plan for the transport system.

HIKINA TE KOHUPARA DISCUSSION SUBMISSION

Bus and Coach Association

Ben McFadgen, Chief Executive Officer
s 9(2)(a)

Who we are:

1. The Bus and Coach Association NZ (BCA) is a membership organisation representing the interests of the bus and coach industry. We provide industry leadership, advocacy, networking, and services for more than 300 members (and their over 6,000 buses and coaches). The BCA represents the majority of New Zealand's bus and coach Operators and domestic and international bus manufacturers.

Introduction:

2. We welcome the opportunity to submit our industry perspective on the Hikina te Kohupara Discussion Document (Hikina te Kohupara). Reducing emissions from all transport quickly is a necessary if New Zealand is to be carbon neutral by 2050. We appreciate that the steps to achieve transport carbon neutrality will require a significant step change in how we move people and goods across the country. Therefore, it is important to implement a long-term vision and pathway of achieving carbon neutrality. However, this pathway must nimble enough to enable future new technologies and new thinking to help steer/influence the transition.
3. Set out below is our responses to the questions posed within the Discussion Document.

Recommendations:

4. The Government positions itself as a regulatory and strategic enabler, one that focuses on outputs/outcomes and provides the framework for the private sector to deliver technological innovation. It is not the role of the Government to "pick winners".
5. Government agencies, working in conjunction with councils and the private sector (through development contributions and developments), prioritise transport investment that maximises mode shift to public transport, walking and cycling as well as reinforcing residential and commercial opportunities in town centre/villages.
6. Rollout demand management congestion pricing in Auckland, Wellington, and Christchurch over the medium to long-term, with a focus on full hypothecation of revenue to fund public transport, walking and cycling capital and operating investments.
7. The four pathways suggested aren't agile enough to adequately reflect changing behaviours, technology innovation and adaption. We recommend a light touch approach, which will better reflect travel behaviour changes/patterns and technological innovation.

Question 1	BCA Response
Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?	• Overall, we support the aspirational intention of all the principles in Hikina te Kohupara; we would like to note that: ○ We support Principle 2 and the implicit focus on changing behaviours, rather than offsetting existing ones. We would like to see more explicit references on changing the behaviours of New Zealanders. All the proposed principles rely on New Zealanders to change their behaviours to succeed. Without the buy-in of New Zealanders, there is a substantial risk of only being able to partially deliver the principles. ○ The Ministry needs to ensure the strategic focus that underpins Principle 3 is flexible enough to reflect changing and new technologies. The market needs to be leading this due to its ability to innovate quickly; especially as there are several clean fuel options and emerging vehicle technologies that could address current environmental concerns. ○ We support the intention of Principle 4 and that a multi-faceted partnership approach across the public and private sectors, which drives the necessary change in business, consumer, and travel behaviours is essential. This partnership needs to be a priority for implementation. Furthermore, this must be a true collaborative partnership. ○ We do not support the idea of the Government picking winners, its not the role of the Government to do this and believe this statement should be removed from Principle 7. We believe the market should lead technological innovation, especially as it can deliver robust technology/innovation trialling, piloting, and rolling out.

Question 2	BCA Response

Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?	• Overall, we believe it is. We would like to reiterate our support for the Government positioning itself as a regulatory and strategic enabler, one that focuses on outputs/outcomes and provides the framework for the private sector to innovate with technology.
	• This role would clearly separate the Government from the market and allow the private sector to lead the development of technology/innovation.
	• As part of this, Government agencies need to work collaboratively alongside councils to ensure:
	  ○ The planning system is agile and responsive, sending the right long-term signals about the future spatial layout and form of the urban environments and how these connect with transport networks.
	  ○ Councils enable housing intensification along transport network corridors and in town and suburban centres.
	  ○ Councils include public transport as a core input to both green and brown-field planning and development.
	  ○ Councils better enable/incentivise town and suburban centres to become economic hubs (enabling people to live and work locally).
	  ○ Relevant transport decisions at the political and official level incentivise and prioritise mode shift and reduce the transport emissions profile.

Question 3	**BCA Response**
What more should Government do to encourage and support transport innovation that supports emissions reductions?	• The BCA welcomes innovation in the transport sector to support emissions reduction. As indicated in the document, innovation includes technology, or in the way communities interact with the transport system. There are four points that the BCA would like to raise in this submission in respect to innovation:

	• Picking winners. There is a fine balance that needs to be struck when electing to pick a particular technology, innovation, or approach to pursue. The comment about the government picking winners, needs to be tempered with a thorough analysis of all options, a risk analysis of a preferred option, attention to the risk tolerance surrounding that option and a regular process of review during the implementation of any technology to ensure that it is still fit for purpose. In essence a fair and objective but agile process that does not favour a particular option due to a philosophical fit when being assessed, but instead deals with the practicalities of what is trying to be achieved. • Transport is predicated on people using it to get where they need to go – work, leisure, household management (i.e. shopping). Currently NZ is structured around large urban centres, with sprawling suburbs that require personal forms of transport such as cars to access many services that are outside of walking or active mode distance. The initiatives around urban places touch on this. A further innovation, as indicated in the section related to question four, could be encouraging more local commerce within communities, removing the need for people to travel longer distances to shop or access services. In short, bring back the village - where people can access 80%+ services at a reasonable cost without having to travel further afield. • Change the focus of Smarter Connections from the rail corridors to first mile last mile. For example, suburban bus hubs/main stops where people can safely and securely leave an active mode of transport they used to get to the hub/stop from home, whilst they then connect with the transport system. Start charging for Smarter Connections car parking at rail stations once a viable alternative that people can use to get to the rail station is implemented. • Mobility as a Service. This is a fantastic initiative in an urban environment. However, there is one issue surrounding MaaS in New Zealand: Our hazardscape.

	New Zealand is prone to natural disasters. If a large portion of the population is highly reliant on a third party for its transport needs then that service needs to be robust enough to manage the evacuation of hundreds or thousands of people reliant on that service for their transport. This is counter to the individual and household resilience that is promoted in New Zealand and needs to be carefully considered.
Question 4	**BCA Response**
Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?	• The BCA agrees that the most important actions have been listed and fully support transit-oriented development. We recognise also that there is a substantial amount if interdependence between the different actions, requiring a balance of policy, regulatory, funding, and strategic settings. • We believe first priority can be given to reallocating street space and creating connected networks for delivering transport mode shifts in the next GPS on land transport, and/or for any additional funding for active modes and public transport; in this instance a focus on supporting first mile last mile active mode shift to a bus or rail hub (as mentioned in our response to question 3) followed by initiating regulatory changes to empower Road Controlling Authorities to more easily consult on and make street changes to support active travel, public transport, and placemaking. Then setting targets for councils to deliver public transport and active travel networks that require street changes (e.g., dedicated/priority bus lanes on some routes; connected cycling networks).
Question 5	**BCA Response**
Are there other travel options that should be considered to	• We support a shift from the traditional focus on expensive supply-side infrastructure interventions to actions that seek to change commuter demand behaviours.

encourage people to use alternative modes of transport? If so, what?	• To maximise the potential of changing demand behaviours, there would need to be an orientation towards increasing vehicle occupancy (ride share, public transport etc.) and providing reliable and integrated services through intelligent transport systems. • This is a transformational change requires a step change in how Waka Kotahi and councils operate their transport networks. to make them smarter and more integrated. As changing commuter behaviour isn't a short-term process, it needs Waka Kotahi and councils to be thinking about bold approaches now. Especially as revenue streams are becoming increasingly constrained over the long-term. • We would like to reiterate our support for: o Increasing share of travel by public transport, walking, and cycling as a mechanism for emission reduction. o Increasing the opex and capex investment into public transport to make it a more reliable and attractive option for commuters by: ▪ Taking a bold approach and increasing the number of dedicated bus lanes along key arterials, which will improve reliability and travel time, and in turn incentivising mode shift. ▪ Bus and rail shelters and other infrastructure should be fit for purpose and provide adequate shelter for usage and local weather conditions. ▪ The Government subsiding public transport fares more. ▪ Focussing on the entire journey by ensuring people can easily access transport hubs through safe, separated connected cycle and walkways, and providing secure facilities for people to leave bikes or scooters at these hubs, allowing for integration of different transport types. ▪ Public transport will also be a more attractive option if private travel is disincentivised – for instance through congestion charging. ▪ Mode shift requires cultural change as well as infrastructure investment. Social marketing campaigns focussed on increasing acceptance and

	uptake of alternative travel types and educating commuters on how best to share roads and spaces with each other would be beneficial. ○ The BCA supports the increased use of coaches for inter-regional travel as a safe, comfortable alternative to air travel or private vehicles.
Question 6	**BCA Response**
Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?	• We support the position taken by the Ministry that "*Transport demand management can encourage people to shift to public transport, walking and cycling, or to encourage people to reduce their travel or not travel at all. These choices can affect transport emissions.*" • With private vehicles contributing 67% of transport emissions, we support a carrot and stick approach to changing transport behaviours, especially commuter ones. To achieve this, we believe that: ○ Congestion pricing, with a focus on solely demand management, can incentivise long-term mode shift. ○ A congestion pricing focus on revenue generation will not deliver the necessary modal shift to address the current emissions profile from commuters. We recommend the Ministry does not try to conflate demand management and revenue generation together, as these principles seek different outcomes. ○ The Government must have clear demand management objectives and work in partnership with relevant councils to ensure public buy-in and understanding. ○ Any new road pricing system must have a lead in time of a minimum of 3-5 years. This is to ensure alternative transport modes can meet additional demand (reliable, safe, accessible, connected e.g.) and for up-to-date and easy to use technology for managing/using the system. ○ The net revenue from a new road pricing system must be fully hypothecated and used to improve previously identified/agreed public transport, walking, and

	cycling infrastructure and services. This is to help ensure the public buy-in into the system. It will help with mode shift as commuters can see what their charges are going into funding. ○ The Ministry need to work alongside private carparks owners and councils to ensure carpark pricing at peak periods is priced accordingly to incentivise mode shift. ○ The Government (politicians and agencies) needs to champion flexibility in work hours/working from home to avoid travel during peak hours as well as initiatives like carpooling. ○ Without ensuring commuters have choices, either through working situations or alternative transport modes, there is a risk charges will just add to the household bill while the suggested reduction in traffic and emissions might not occur.
Question 7	**BCA Response**
Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?	• A substantial risk is the cost to current Operators if existing diesel buses are written off before the end of their 20-year economic life. • Without agreement between Operators, Government and Approved Organisations (AOs) on how to manage this, especially in cases where AOs are accelerating the decarbonisation transition to 2030, Operators will face an impairment to their balance sheets due to writing off their existing bus fleets (i.e., stranded assets). This will limit the ability of Operators to secure funding for replacing these impaired assets with electric ones. • We believe that zero emissions technology will continue to rapidly evolve and that the technology to be adopted in the short term (2-5 years) is likely to be overtaken by improvements to existing technologies (such as EVs) and that new/emerging technological breakthroughs (such as HVs) will see different vehicle platforms being

	adopted in the medium term (5+ years). Furthermore changes (foreseen or unforeseen) to international market dynamics regarding the supply chain will impact on the availability and price of vehicles over time. • The commercial risk of stranded capital/assets presented by the rate of zero emission technology development needs to be addressed by "whole of life" asset commitments and commensurate contracting terms. These commitments are required from AOs to provide the confidence for Operators to make the required investment in new vehicles and infrastructure.
Question 8	**BCA Response**
Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?	• Yes, we support the current actions of decarbonising the urban bus services. • With rail, we support further electrification of the network where there is a business case to justify it. For example, we support exploring electrification where it would support future urban (commercial and residential) growth corridors (Northern Waikato, Wairarapa, and Rodney). • Our concern with rail is the cost of electrification as well as the ongoing opex costs of running the trains and the network and the opportunity cost that this brings. • With rail, it's essential that travel connections to the station (public transport, walking and cycling) are safe, reliable, and connected to ensure a reduction in car usage to the station.
Question 13	**BCA Response**
Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be	• We support the vision set out in the potential pathways in seeking to decarbonise the transport network. • However, we would like to emphasise that a light touch approach by the Ministry is the best course of action. A prescriptive approach towards decarbonisation may stifle

achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?	innovation and be too bureaucratic. The decarbonisation options that the Ministry puts forward as advice should be neutral and focus on outcomes. • The pathways are too inflexible, and aren't agile enough to adequately reflect changing behaviours, technology innovation and adaption. For example, the focus shouldn't be on solely electrification of the car fleet when alternative fuel sources could become more accessible, cost effective and cheaper. as well as less environmentally damaging.
Question 14	**BCA Response**
Do you have any views on the policies that we propose should be considered for the first emissions budget?	• Prioritise national public transport, walking and cycling capital and operating investment to create reliable, safe, and connected networks. • Support councils to make local network improvements (bus priority lanes, better bus stop infrastructure, more services e.g.).

Kind Regards

Ben McFadgen

Chief Executive Officer

25 June 2021

Transport Emissions
Ministry of Transport
PO Box 3175
Wellington 6140

Emailed to: transportemissions@transport.govt.nz

Dear Hon Michael Wood

Submission from the Manawatū District Council to Hīkina te Kohupara – Kia mauri ora ai te iwi Transport Emissions: Pathways to Net Zero by 2050

Thank you for the opportunity to make a submission on the Hīkina te Kohupara discussion document. The Manawatū District Council (MDC) agrees that our transport system needs to shift to a low/zero carbon pathway as soon as possible for New Zealand to meet its emissions reduction commitments and targets. MDC recognises that a suite of policies and measures are needed to decarbonise our transport system. We support the three themes identified in the discussion document and the 'Avoid, Shift, Improve' framework that has been used in exploring pathways for reducing emissions.

Our submission is primarily concerned that the proposals in the discussion document will significantly increase costs for rural/remote communities, such as rural and village communities in the Manawatū, and will disproportionately affect the transport disadvantaged. Government must carefully consider the transition towards low/zero carbon from transport to ensure it is just and equitable.

MDC recommends that some of the policies and actions suggested in the discussion document be implemented only in large metropolitan or high growth areas and not within provincial or rural-based regions and districts.

Background on the Manawatū District

The District's population was estimated at 32,100 (as at 30 June 2020). Approximately 55% of the population lives in Feilding while the remainder lives in the District's village and rural areas. The population of the District is projected to increase by 34.5% between 2021 to 2051, to a total of 43,965. We expect that about 60% of that growth will be in Feilding, while the rest will occur in rural and village areas.

As well as growing, the population of the district is getting older, with the percentage of people aged 65 and over projected to increase from 17% in 2020 to 21% in 2050. This is an increase of almost 3,750 residents aged over 65 in the District. This means that we have to ensure our planning accounts for the needs of the elderly, for example, by ensuring our public spaces and recreational facilities are easily accessible and elder-friendly, and facilitating the provision of appropriate housing and transport options for those on fixed incomes.

The District has an excellent roading network, including four state highways, linking the Manawatū to Wellington City and port to the south, Napier Port to the east, and Auckland, Tauranga and other cities and ports to the north. The main trunk railway, which passes through Feilding, enhances connectivity, particularly for freight. Primary industry (agriculture and forestry) comprise our biggest economic sector, making up nearly 18% of District GDP. This means that the economy of the Manawatū District is highly dependent on freight movements of primary production, including milk tankers, stock trucks and logging trucks, from farm to processing / point of sale. Manufacturing and defence (primarily the Ōhakea Airbase) also contributes strongly to the local economy.

Our existing roading assets are summarised as follows:

Network length (km)

	Sealed	Unsealed	Network
Urban	120.97	11.5	132.47
Rural	880.19	355.29	1235.48
Total	1001.16	366.79	1367.95

What MDC is already doing to reduce transport emissions

As a rural district, transport makes up a substantial proportion of per capita greenhouse gas emissions. Horizons Regional Council commissioned AECOM to measure Greenhouse Gas emissions in 2019 for the Manawatū Territorial Authority using the Global Protocol for Community Scale Greenhouse Gas Emissions Inventory (GPC). The major findings from the 2019 Emissions Inventory is attached as Annex 3 to this submission. The inventory found that transport is the second largest source of emissions, accounting for 25.3% of total gross emissions. MDC is responding to this by:

- Encouraging more active transport within Feilding and the villages (where appropriate) through its 2019 Walking and Cycling Strategy and the Town Centre Refresh Project;
- Investing in walking and cycling infrastructure;
- Developing an Environmental Strategy;
- Working with Horizons to improve public transport in Feilding;
- Advocating for new public transport provision;
- District Plan Review;
- Remote working policy;
- Supporting the Central New Zealand Distribution Hub Strategy to improve freight efficiency; and
- Replacing the Mangaweka Bridge to reduce travel distances for heavy vehicles.

<u>MDC Walking and Cycling Strategy</u>

The 2019 Walking and Cycling Strategy establishes a new vision and goals for walking and cycling within the Manawatū District over the next 10 years. The Strategy will assist Council in

coordinating and prioritising the many requests for footpaths and cycleways received by the community, and enable a coordinated approach to delivering wider initiatives that will encourage people to travel by foot or by bike more often. The overarching vision of the Walking and Cycling Strategy is *"walking and cycling in the Manawatū District is attractive, safe and fun for our community and its visitors."* Four key delivery goals and strategic outcomes have been identified to achieve the vision, as follows:

1. **Connected and Integrated:** Our communities are connected by quality walking and cycling infrastructure that links people to key destinations
2. **Safe and accessible:** Our walking and cycling network is safe and accessible by people of all ages and abilities
3. **Encourage and support:** Our communities are encouraged and supported to walk and cycle more for work, wellbeing and recreation
4. **Develop and grow:** Our District offers a range of unique and diverse walking and cycling experiences for residents and visitors.

Many of the "enabling actions" within the Walking and Cycling Strategy are consistent with the measures proposed in the discussion document. For example, the enabling actions under the "connected and integrated" goal include street design and land use planning considerations and the enabling actions under the "encourage and support" goal area intended to support greater uptake of walking and cycling for work, wellbeing and recreation. A copy of the vision, goals and enabling actions from this strategy is attached as Annex 1 to this submission.

Town Centre Refresh Project

The Feilding Town Centre Refresh project is included in the list of key projects in the Manawatū District Council's Draft 10 Year Plan 2021-2031. This project is reshaping the town centre, based on feedback from the community, in a way that draws on its unique history, heritage and community. The concept plan will be finalised in mid-2021 and will be followed by detailed design. Some of the considerations within the Town Centre Refresh Project include pedestrianising some streets within the Feilding Central Business District, rationalising car parking and facilitating mixed use developments.

Investing in Walking and Cycling Infrastructure

One example of new infrastructure that is being constructed by MDC to support active transport is the Feilding to Palmerston North shared pathway. This is a joint project between MDC and the Palmerston North City Council. MDC's portion of the pathway is scheduled to be completed within approximately 12 months and will link to the Palmerston North portion of the pathway at Nannested Line. Once completed, this shared pathway may be used as a commuter route for active transport between Feilding and Palmerston North.

MDC has a network improvement approach in relation to footpath renewals. What this means is that when existing footpaths are being renewed, they are upgraded to better meet the needs of our aging population.

MDC Environmental Strategy

MDC will be developing an Environmental Strategy in 2021, which may include some actions to reduce Council's greenhouse gas emissions. Examples of internal actions to improve sustainability include regular rubbish audits and changes to catering to reduce packaging waste. Council currently has 2 hybrid vehicles in its fleet and the intention is to replace the fleet with hybrid vehicles, where possible, over time.

Working with Horizons to improve public transport in Feilding

The Manawatū-Whanganui Regional Council (trading as "Horizons") has been working with Horizons through the Feilding Advisory Group to improve passenger transport provision in Feilding and the wider Manawatū District. As a result of the mid-term review of the Feilding Passenger Transport Service, Horizons has agreed to provide an orbital service that will serve Feilding in addition to the current commuter service that operates between Feilding and Palmerston North. MDC submitted on Horizons Draft Long Term Plan 2021-2031 to ensure there is sufficient funding to implement the full suite of recommendations of the Feilding Advisory Group.

Advocating for new public transport provision

There are currently no public transport services that operate within or between the rural villages of the Manawatū District. Establishing viable public transport options in rural villages across the region is critical when considering climate change goals, growth in older population and the withdrawal of community services in rural villages across the region. MDC's submission to Horizons requested that Horizons consider the establishment of viable transport options for the villages as part of the 2021-2031 Long Term Plan or, as a minimum, as part of the next review of Horizons Regional Public Transport Plan 2015-2025. MDC also suggested that Horizons consider a harmonised rate for the provision of public transport across the Manawatū-Whanganui Region. This would help to make the provision of public transport for small and rural communities more affordable, reducing inequity in service provision.

A Rural Transport Initiative Steering Group has been established to scope the provision of a regular public transport service for rural communities in the Northern Manawatū to access services and amenities in Feilding. This Steering Group has been established out of concern for seniors living in rural communities who have lost their ability to drive but cannot relocate to Feilding due to a lack of affordable housing. This initiative is currently at the business case stage. If the business case is successful, the next step will be to seek third party funding. If successful, the project could be extended to include other rural communities in the district.

MDC's submission on Horizons draft LTP 2021-2031 also noted support for the recommendation that Horizons contribute to the Lower North Island passenger rail project given its consistency with the goals of increasing public transport uptake in the Regional Land Transport Plan.

District Plan Review

MDC is undertaking a sectional review of the District Plan. Growth of the villages and rural/lifestyle development is currently under review through the District Plan and will mean that land-use planning and infrastructure provision are aligned. The Structure Plans for growth

areas also include proposed shared pathways that link with the existing urban area to ensure the new growth areas are accessible and safe for active transport modes.

Remote Working Policy

MDC adopted a Flexible Working Policy on 17 May 2021. This policy allows employees of MDC to apply for formal flexible working arrangements, such as adjusted work hours, part-time work, term-time only working, job sharing, rostering and remote working. Working from home and working outside of peak times have the potential to contribute to reduced transport emissions.

Support for the Central New Zealand Distribution Hub Project

One of the key themes of the Hīkina te Kohupara – Kia mauri ora ai te iwi: Transport Emissions: Pathways to Net Zero by 2050 discussion paper is to improve the efficiency of the freight system. One of the key ways that MDC is already working in this space is through its involvement in the reference group and steering group for the "Central New Zealand Distribution Hub Project" (the Distribution Hub Project).

The Distribution Hub Project was established as a result of the Distribution Hub Strategy developed by the Central Economic Development Agency (CEDA), a CCO of MDC and the Palmerston North City Council. This strategy recognises that Palmerston North (and the wider Manawatū) is ideally situated to be the primary distribution hub for the Lower North Island and aims to elevate the Manawatū's position in the national transport and logistics network. Freight and logistics development projects already underway include the KiwiRail Freight Hub, regional freight ring road and the extension to the Palmerston North Airport. The Distribution Hub Strategy brings these projects together as the "Central New Zealand Distribution Hub Project."

MDC has agreed to the proposed governance and management structure for the Distribution Hub Project that is outlined in the Strategy. As these projects are interlinked, this combined approach will ensure alignment, will minimise confusion when communicating with affected communities and will help with identifying other opportunities for mutual benefit.

The KiwiRail Freight Hub is aligned with Accelerate25 regional and Palmerston North City Council growth plans and will tie in with other freight transport projects in the region.[1] This intermodal freight hub will support rail and road transport working together to meet the freight demand in the lower North Island. By getting more freight on rail, this KiwiRail Freight Hub will help to reduce transport emissions and road costs.

Mangaweka Bridge Replacement

The existing Mangaweka Bridge on Ruahine Road at Mangaweka is currently being replaced by a new bridge, with construction scheduled to be completed by June 2022. The existing bridge has reached the end of its useful life and is now limited to use by lighter vehicles. Once the new bridge is complete, this will shorten travel times for heavy vehicles, thereby reducing emissions.

[1] From the "Distribution Hub Strategy – Serving the Distribution Needs of the Lower North Island (CEDA April 2021)".

Feedback on specific Policies proposed for inclusion in Emissions Budgets

MDC has reviewed the policies that are proposed for inclusion in the first emissions budget. Table 1 (Annex 2) summarises those policies that are of interest to MDC and whether these policies are supported or not and why.

Concerns or unintended consequences from policies and measures

EV uptake and charging infrastructure

While MDC is not opposed to measures that encourage electric vehicle (EV) uptake, it is worth noting that there is currently only one charging station in the Manawatū District, being in the New World carpark in Feilding. There is no budget included in the MDC Draft 10 Year Plan 2021-2031 for new EV charging infrastructure within the next 10 years.

Nearly half of the population of the Manawatū District lives in a village or rural area (i.e. outside of the Feilding urban area) with no public transport provision, virtually no EV charging infrastructure and limited walking and cycling infrastructure. There are currently very few (if any) affordable utility EVs that have sufficient power to meet the needs of rural New Zealanders. Policies that will increase costs for those owning private petrol or diesel vehicles will disproportionately affect these residents of the Manawatū. Government support is needed to ensure a just transition.

Another matter worth considering is whether the electricity network has sufficient capacity to charge EV's, should the majority of private vehicles convert to EVs. Some farms that have on-site electricity supplies would be unlikely to have capacity.

Mandatory emissions reporting and infrastructure spending

While the development of an Environmental Strategy is underway, there is no budget within the draft 10 Year Plan 2021-2031 for MDC to monitor carbon emissions. Rates affordability was identified as a key issue in the MDC draft 10 Year Plan 2021-2031. Any policies that require mandatory reporting by local government or any spending by local government on new infrastructure (including street design) will contribute to this affordability issue.

Pricing mechanisms

Current traffic volumes in the Manawatū District mean that pricing mechanisms such as congestion pricing is unlikely to be justifiable or supported by our community.

As noted in the background information on the Manawatū District, we already have a high proportion of residents aged 65 and over and the proportion of residents in this age bracket is forecast to increase substantially over the next 30 years (the period of our infrastructure planning). With an ageing population comes a greater proportion of residents that are mobility impaired. MDC therefore needs to retain a degree of flexibility over parking charges and restrictions to ensure that the transport disadvantaged are not further disadvantaged by new policies introduced under the emissions budgets.

Waka Kotahi Funding

Local Authorities rely on Waka Kotahi funding for new transport infrastructure. In 2020, Waka Kotahi New Zealand Transport Agency reviewed all local authority Funding Assistance Rates (FAR). This review will result in a staged reduction in the Council's FAR from 53% in 2022 to 51% in 2024, meaning costs will increase for Council. Waka Kotahi has reduced the funding for maintenance, operations and renewals in the 2018-21, and 2021-24 National Land Transport Plans.

Policies that are likely to further reduce the FAR rate or the amount of funding available from Waka Kotahi are not supported by MDC and will be counter-productive to the construction of new walking and cycling infrastructure.

The One Network Road Classification (ONRC) levels of service are now established for the district. Council must deliver a service that achieves Customer Level of Service Outcomes.

The Smooth Travel Exposure (STE) measure for MDC roads deteriorated (i.e. the roads became rougher) in the 2018-21 period. This trend is likely to continue as a result of the continued funding constraints. As the roads become rougher the rolling resistance increases. Rolling resistance is a factor in fuel consumption because it must be overcome for a vehicle to accelerate or maintain speed. Rougher roads increase fuel consumption which causes increased carbon emissions that impact on the environment.

Improving freight efficiency

If freight is proposed to be moved off the main state highway network within the Manawatū District to increase efficiency and reduce congestion, bridges will be a significant limiting factor. Many existing bridges on local roads are not of sufficient standard to accommodate heavy vehicles, particularly High Productivity Motor Vehicles (HPMV). Council's planned bridge renewals programme does not include provision to improve these bridges for the purpose of carrying HPMVs.

While MDC agrees that moving freight from the road to rail network is beneficial for reducing carbon emissions, the single lane rail network in New Zealand makes rail transport inefficient. The Hīkina te Kohupara discussion document should include two-laning of the rail network as a long-term action to reduce carbon emissions from freight.

Recommendations:

1. That Government provides assistance to local government in the development of spatial plans to guide the establishment of major transport projects, including in relation to their funding.
2. That the requirement to demonstrate how spatial plans will deliver long-term emission reductions is amended so that only developments that occur outside of identified growth areas or that are not in accordance with agreed spatial plans must do this reporting.
3. That government fund local government to obtain the tools necessary for reporting on emissions if this is to be made a mandatory reporting requirement.
4. That those policies of central government that support local government placemaking (including removing barriers, improving funding, developing standards or guidance and regulatory changes to more easily consult on and make street changes) be retained as drafted.
5. That the proposal to change policy and funding settings to ensure Waka Kotahi and Road Controlling Authorities maximise opportunities to 'build back better' when doing street renewals be retained as drafted.
6. That the Ministry clarify what is meant by the proposal that Government "make transport investments conditional on having appropriate land use and urban development plans."
7. That the recommendation that Government require transport GHG emission impact assessments for proposed urban developments be rejected or modified so as to only apply to large-scale developments or those that are inconsistent with agreed spatial plans or structure plans.
8. That the recommendation that Government set targets for councils to deliver on public transport and active travel modes be removed from emissions budgets.
9. That the proposal to set higher FAR rates for walking and cycling investments be retained as drafted.
10. That government identify how changes are to be made to Road User Charges to ensure that all motorists, including EV owners, fairly contribute to the land transport system.
11. That the proposed policies be amended to remove the suggestion that government could require councils to develop and implement parking pricing strategies, introduce maximum parking standards and consider workplace/private property/commuter parking levies. Councils should retain the flexibility to implement those standards and strategies that best suit their communities and will have the greatest cost:benefit.
12. That the recommendation that government investigate increasing rates of fuel excise duty and implementing a fuels only carbon tax be removed from the proposed emissions budget. Such duties and taxes should not be implemented until there are affordable and fit-for-purpose alternatives available (such as EV charging infrastructure, affordable utility EVs available that meet the needs of farmers and trades people that service the rural area, or alternative fuel sources).
13. The timing for the phasing out of light ICE vehicles must be delayed until such time as there is sufficient infrastructure to support a traRUCsnsition to EVs or alternative fuel sources.

14. The proposals to introduce incentives to address the high upfront cost of cleaner vehicles; investment in electric charging infrastructure; and tax incentives to stimulate demand for low emission vehicles should be retained in the first budget as drafted.
15. That the National Freight Strategy be developed, taking into account the Central New Zealand Distribution Hub Strategy.
16. That the discussion document be amended include the two-laning of the New Zealand rail network as a long-term priority (possibly within the second emissions budget).

Yours faithfully

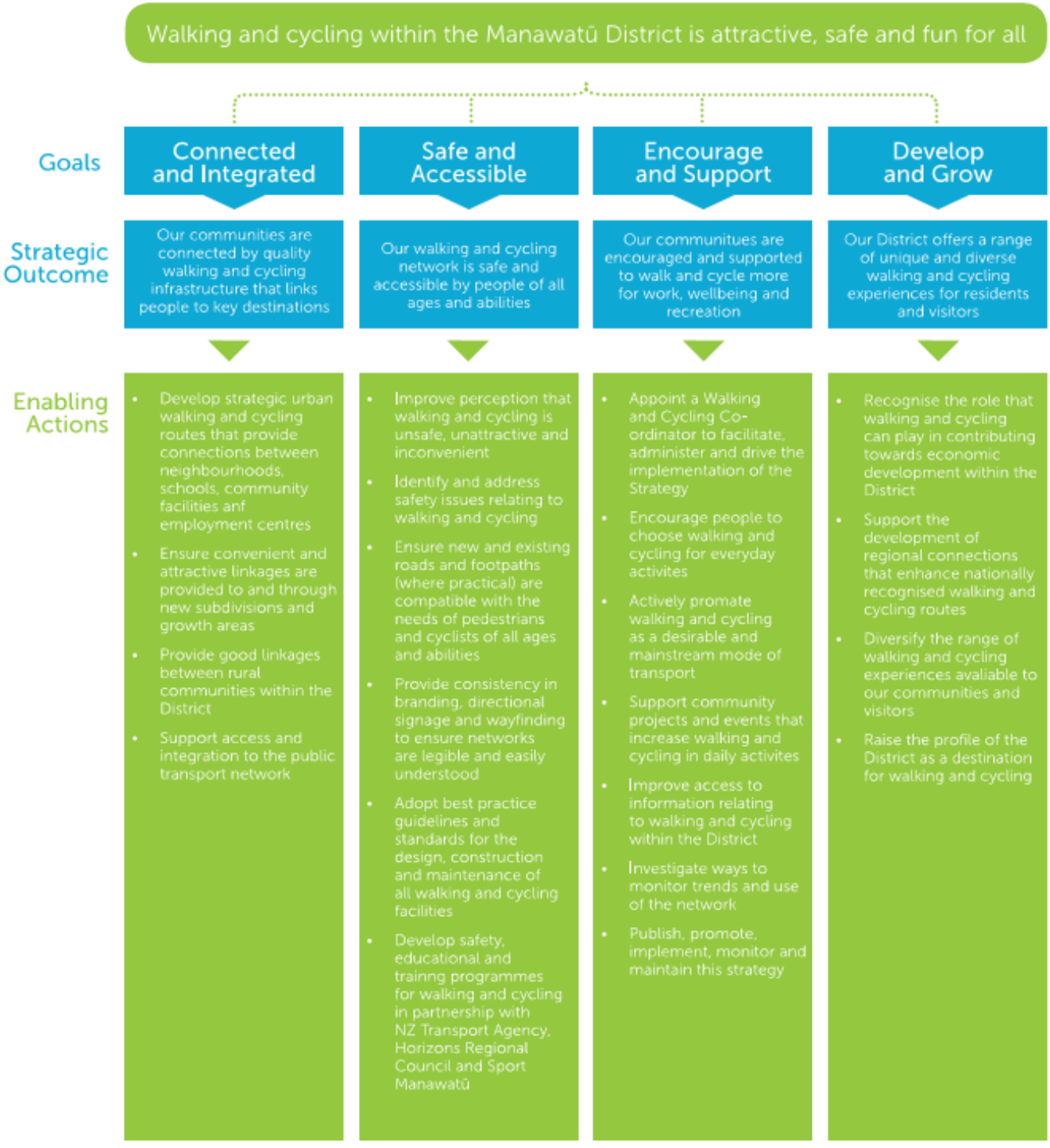
Helen Worboys
Mayor, JP

On behalf of the Manawatū District Council

Enc

- Annex 1: Vision, Goals and Enabling Actions from the MDC Walking and Cycling Strategy
- Annex 2: Table 1 – Feedback on recommended policies within budget period 1: 2022-2025
- Annex 3: Summary of top contributors to total gross emissions from each sector in 2018/19

Annex 1: Vision, Goals and Enabling Actions from the MDC Walking and Cycling Strategy



Annex 2: Table 1 – Feedback on recommended policies within budget period 1: 2022-2025

Recommended policy within budget period 1: 2022 - 2025	Support? Y/N	Comments
Theme 1 – Changing the way we travel		
• Work with local government to establish how major transport projects agreed to in spatial plans could be funded in the future.	Yes	MDC supports the use of spatial plans as a means of planning for future transport infrastructure and supports any central government funding that will assist in their development.
• The RMA reform is a crucial opportunity for the Government to embed spatial planning…Councils could be required to demonstrate how spatial plans will deliver long-term emission reductions.	In part	While MDC is supportive of spatial plans as a land-use planning tool, we have concerns about the proposed requirement for local government to demonstrate how spatial plans will deliver long-term emission reductions. MDC does not currently measure emissions reductions. If this requirement was to be made mandatory MDC would need to invest in tools for measuring emissions. If spatial plans are developed in accordance with best practice there should be no requirement for developments in accordance with them to demonstrate emissions reductions. Such a requirement is more appropriate for development that occurs outside of identified growth areas or that is not in accordance with agreed spatial plans (i.e. do not follow best practice).
• To build off the NPS-UD, the Government may need to undertake work that supports councils to accelerate widespread street changes to support walking, cycling, public transport and placemaking…	Yes	MDC may benefit from Government support for implementing street changes and placemaking actions that come out of our "Town Centre Refresh" project.
• Remove barriers and improve funding for tactical urbanism and innovative approaches to street design…	Yes	MDC may benefit from Government support for implementing street changes and placemaking actions that come out of our "Town Centre Refresh" project.
• Review street design standards and develop nationally applicable consistent sets of standards for Aotearoa	Yes	This would be beneficial, as long as there is sufficient flexibility within the design standards to suit different communities and needs

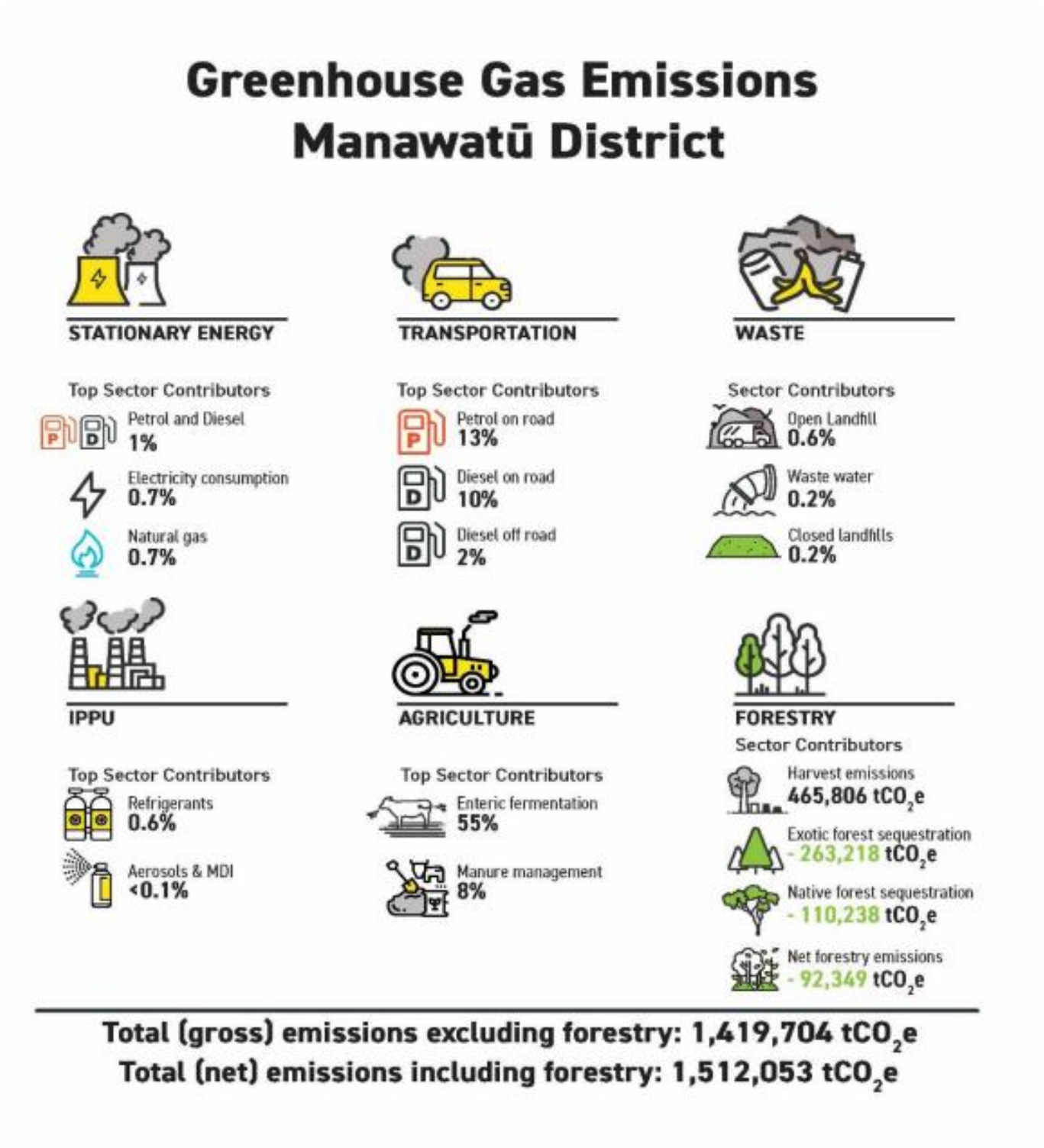
Recommended policy within budget period 1: 2022 - 2025	Support? Y/N	Comments
• Investigate if regulatory changes are needed to empower Road Controlling Authorities to more easily consult on and make street changes to support active travel, public transport, and placemaking	Yes	MDC may benefit from Government support for implementing street changes and placemaking actions that come out of our "Town Centre Refresh" project.
• Make changes to policy and funding settings to ensure Waka Kotahi and Road Controlling Authorities maximise opportunities to 'build back better' when doing street renewals (to improve streets for people walk, cycling, and using public transport).	Yes	This is consistent with MDC's current approach to street renewals. For example, MDC routinely upgrades pram crossings when doing street renewals to make them more useable for mobility scooters and other mobility challenged.
• Government could make transport investments conditional on having appropriate land use and urban development plans…	No	MDC wants more information on what is meant by this. Does this mean that transport projects that are not identified within the National Land Transport Plan or Regional Land Transport Plans will not receive funding from Waka Kotahi? Or does it mean that developer-led infrastructure outside of planned structure plan areas will not receive funding assistance? Clarification is needed.
• Government could require transport GHG emission impact assessments for proposed urban developments…	No	This requirement would add considerably to the cost of development and should only be required for large-scale developments or developments that are inconsistent with spatial plans or structure plans (or other agreed development plans that meet best practice principles).
• Government could set targets for councils to deliver public transport and active travel networks (e.g. dedicated/priority bus lanes on some routes; connected cycling networks) by a specific date. There could be funding consequences if Road Controlling Authorities do not deliver these changes within these timeframes.	No	Public transport is delivered by the Regional Council so MDC only places an advocacy role for our Communities. We have little control over provision of public transport. This proposal would disproportionately impact on those councils with smaller rating bases who cannot afford to deliver on new transport infrastructure. To penalise these communities through further reductions in funding would be counter-productive.

Recommended policy within budget period 1: 2022 - 2025	Support? Y/N	Comments
		Smaller/rural communities may have little need/demand for dedicated infrastructure to support active transport when traffic volumes on these routes are already low.
• Support mode-shift to public transport, walking and cycling – prioritising New Zealand's largest urban areas… (with remaining urban areas considered within budget period 2)	Yes	Actions to support a mode-shift to walking and cycling are consistent with MDC's Walking and Cycling Strategy. MDC works with Horizons to increase uptake of public transport within Feilding, with a view to better serving our villages and growth areas in the future.
• Set higher Funding Assistance Rates for walking and cycling investments and dedicated/priority bus lanes to strongly incentivise Road Controlling Authorities to prioritise and accelerate street changes.	Yes	Additional funding for walking and cycling investments would be welcomed as this will assist us in extending our existing networks (in accordance with the priorities set in the Walking and Cycling Network).
• Implement Accessible Streets proposals. • Deliver integrated ticketing for public transport. • Consider extending public transport fare concessions to other low-income groups.	Yes	We support these initiatives in principle. However, we are concerned that initiatives such as removing minimum parking standards will see a parking shift whereby more vehicles park on the side of the road, which could impact on accessibility for other transport modes. As there is no provision for public transport in our villages and remote rural areas, these residents have no alternative to private transport.
• Continue to investigate opportunities to innovate distance based charging…considering how all motorists can fairly contribute to funding the land transport system, including EV owners.	Yes	Revenue from Road User Charges is needed so that there is sufficient funding available for transport infrastructure projects. If the proportion of owners driving EVs increases significantly there needs to be some way of ensuring that these motorists contribute to the funding of the transport system.
• Parking management can significantly influence demand for parking and encourage mode shift. The	No	The population of the Manawatū District is ageing and there is a high proportion of rural residents who have no options other than private motor

Recommended policy within budget period 1: 2022 - 2025	Support? Y/N	Comments
Government could require councils to continue to develop and implement parking pricing strategies, introduce maximum parking standards for some areas, and consider workplace/private property/commuter parking levies.		vehicles. Implementing parking pricing and maximum parking standards would penalise these residents. MDC does not currently have paid carparking. The introduction of paid parking would be a considerable expense for MDC as we would need to purchase an electronic ticketing system and employ staff to enforce the parking restrictions. Should MDC consider implementing parking pricing and parking standards in the future, this should be done in consultation with the community rather than as a result of having to comply with national standards that would penalise our transport disadvantaged.
• Government could investigate increasing rates of fuel excise duty and implementing a transport fuels only carbon tax.	No	This would disproportionately affect our rural and village residents who have no other option than to use a private motor vehicle. For example, there are currently no affordable EVs that have sufficient power to meet the needs of farmers and trades people that service the rural area. Such duties and taxes should not be implemented until there are affordable and fit-for-purpose alternatives available.
Theme 2 – Improving our passenger vehicles		
• Implement the Clean Car Standard • The Government should also clearly signal the phase out of light ICE vehicles – such as a commitment to phase out fossil fuel vehicle imports by 2030-2035.	In part	While MDC recognises that we need to transition to low emission alternatives for light ICE vehicles, there must be infrastructure in place (such as EV charging stations) to support this transition. Government needs to support rural and provincial areas to construct the infrastructure needed to support this transition to make this transition affordable for these communities. MDC does not have any local sources of biofuel or hydrogen that would assist in transitioning away from fossil fuels.
• Increase demand for cleaner vehicles by addressing their high upfront cost through introducing incentives…	Yes	Measures that make a transition to EVs more affordable are supported. Government funding support for EV charging infrastructure will be necessary for a just transition.

Recommended policy within budget period 1: 2022 - 2025	Support? Y/N	Comments
• The Government may need to ramp up its investment in electric charging infrastructure to support the increasing numbers of EVs in the fleet • Investigate the potential for tax incentives to stimulate the demand for low emission vehicles…		
Theme 3 – Supporting a more efficient freight system		
• Identify opportunities to improve the overall efficiency of the freight supply chain to avoid/reduce freight emissions. This is a focus of the National Supply Chain Strategy.	Yes	This is consistent with the work being done by CEDA in relation to the Distribution Hub Strategy.
• Identify opportunities for supporting mode shift. This is a focus of the National Freight Strategy.	Yes	MDC supports measures to shift more freight from roads to rail as this will reduce congestion and improve road safety. However, as noted above, improvements to the rail network are needed (including 2-laning) for rail to be an efficient mode for transporting significant volumes of freight.

Annex 3: Summary of top contributors to total gross emissions from each sector in 2018/19



Hīkina te Kohupara - Kia mauri ora ai te iwi Green Paper for Consultation

bp submission

June 2021

Contents

Executive summary

In line with bp's aims[1] to get to net zero by 2050 or sooner we strongly support the legislated goal of net zero emissions by 2050. We welcome the opportunity to participate in this ***Hīkina te Kohupara - Kia mauri ora ai te iwi Green Paper for Consultation*** and are committed to working in collaboration with the New Zealand Government to support the development of proposed policies. The pace and forms of decarbonisation of road transport is regionally varied but with the output being the same, to reduce emissions to net zero by 2050. The decarbonisation of the sector must be progressed as quickly and as practically feasibly as is appropriate for New Zealand. Environmental justice, job creating in low carbon transport industries and access to sustainable, affordable mobility are equally important goals to achieve.

The challenge in transport is to significantly reduce emissions while meeting the growing global need for mobility. bp supports the rapid decarbonisation of road transport and believes sophisticated policy is needed to tackle this complex challenge at a system level.

The way people live, and the way people move are intrinsically linked. Urban planning, regional development and the infrastructure that connects economic centres across a landscape or ocean are essentially linked to the type of transport required to enable that economic activity. As we look to the future, the fuels that power those modes of mobility become increasingly diverse, driven by the need to reduce emissions. The transition of the transport sector from crude based (fossil fuel) to other low carbon fuels – whatever they may be – comes with some difficult challenges. These challenges can be physical such as the ability to haul load (Trucks) or provide long-distance range (Electric Vehicles) or they are economic, expensive alternatives that will erode margin or add cost to the consumer. This means we have to think of the transport sector transition in a whole new way.

At bp, we think about the sector's evolution as a journey from hydrocarbons to electrons. In fuels and the mobility technologies that will begin to take over from the Internal Combustion Engine (ICE), both fuels and vehicle technology will work together to provide a product of parity to the consumer but with lower emissions. The functionality of specific transport/mobility applications such as aeroplanes, or heavy-hauling trucks (off road and on road) must remain constant as we transition to low carbon alternatives, because the impact on broader economic activity must be to enhance that activity as the global economy recovers from the Pandemic and as demand for energy especially in mobility grows out to 2050.

The pathway is likely to begin with drop-in solutions, such as sustainable biofuels and renewable diesel – a liquid fuel sourced from biomass or waste products respectively, refined into the fuels that can be blended with fossil fuels to reduce the overall carbon intensity of that fuel. The blends can be as high as required, and in some applications pure renewable diesel may be technically possible but commercially constrained. In sectors such as aviation and heavy hauling which are hard-to-abate sectors, these solutions will provide absolute emission reductions while the mode and functionality of the transport does not need to be altered. This is of particular benefit to long-leased vehicles. As we progress to 2050, the technological changes that are likely to progress will see electrification and or hydrogen displace liquid mediums of fuel.

[1] See 5.Appendix – bp's purpose and aims and https://www.bp.com/en/global/corporate/news-and-insights/press-releases/bernard-looney-announces-new-ambition-for-bp.html

Road transportation accounts for about a quarter of global CO2 emissions from energy, of which around two thirds come from passenger vehicles and the rest from haulage. Decarbonising this sector specifically will support efforts to achieve net zero by 2050. At bp, we will aim to reduce emissions from road transport by offering a range of lower carbon solutions. However, many of these fuels will need policy support to make them more attractive both to investors and customers if we hope for rapid uptake.

bp supports the electrification of cars and light duty vehicles. We believe electrification of passenger cars and light duty vehicles, supported by a fully renewable powered electricity grid, is the best option for lowering emissions from road transport. Until electrification is adopted at scale the most significant reductions in emissions can be achieved by increasing the efficiency of ICE vehicles and decarbonising the fuels they use. Therefore, we support vehicle regulations as an important component in the policy mix to provide regulatory certainty to automakers while seeking to incentivise reductions from all technologies. Biofuels will play an important role in reducing carbon intensity of fuels for ICE vehicles. Their role in the short to medium term, will be vital in reducing GHG life cycle emissions over the coming decades, as we transition to broader vehicle electrification. However, the sources of these biofuels must be environmentally and socially sound, so a net positive sustainability outcome is gained. Sustainable liquid biofuels will play a significant role in providing low and zero carbon solutions for transport especially in those hard-to-abate sectors. Our submission in response to the Ministry's ***Sustainable Biofuels Mandate*** consultation paper will provide further specifics on the role and contribution bp can make in this area.

For heavy duty vehicles, alternative fuel types such as advanced biofuels and biomethane, natural gas and hydrogen potentially have an important role to play, as electrification in the medium term may not be commercially or technically be feasible. Natural gas in a compressed form (CNG) and liquid form (LNG) is an economic alternative to diesel that can lower the carbon emissions and reduce pollution from long-distance road haulage now, and can be progressively decarbonised by the addition of biofuels and hydrogen.

We believe natural gas will continue to play a significant role in the energy transition, increasingly decarbonised and in combination with Carbon Capture and Storage (CCS) technology to produce blue hydrogen as a lower carbon alternative to petroleum fuels in the hard-to-abate long distance road and marine transport sectors.

This will require a number of actions and policies:

i. We support the phasing out of sales of new petrol and diesel cars as one of the ways to help decarbonise road transport.

ii. The phasing out of these cars needs to be coupled with a system transformation and the development of alternative low carbon technologies, fuels, markets and infrastructure. This includes progress in improved battery and fuel cell technology, ultra-fast charging technology, hydrogen associated infrastructure and modal shift.

iii. bp supports policy measures that can be used today to support more biogenic fuel blends, so the economy can begin to abate emissions today, such as appropriate blending targets or mandates with supporting sustainability criteria to ensure a net positive outcome is achieved.

iv. bp supports policies that promote behaviour change and reduce consumption such as ride sharing, promoting public transport, and designing cities with walk-only ways and cycling lanes. The fastest and cheapest way to reduce emissions from road transport is to use it more efficiently and use it less. Behaviour changes that reduce consumption of transport fuels and create efficiency in the transport system, enabled by technology and the provision of convenient, affordable, and accessible public transport option go hand in hand with vehicle and fuel technological advancements to achieve net zero.

Aviation accounts for ~2% of global CO2 emissions and an approximate 12% of transport emissions. The sector itself has made commitments to reduce net emissions to 50% of 2005 levels by 2050. However, the decarbonisation in aviation is very difficult and very expensive. Efficiency gains will need to play a big role in reducing emissions. The biggest lever to reducing emissions from the current aviation fleet, is through fuel switching. The provision of aviation fuel needs to be safe, compliant, and compatible with high altitude conditions. The energy itself needs to have good energy density both in a volumetric and mass basis. The best option for reducing emissions in the aviation sector today is to blend fossil jet fuels with Sustainable Aviation Fuels (SAF). This is a drop-in solution not requiring any aircraft technology adjustment or airport infrastructure modifications. Hydrogen and battery technology do offer solutions to abatement in this sector, but this is many years away from scalable utilisation. Hydrogen is high density on a mass basis but low on a volumetric basis – unless one is able to operate in cryogenic condition, which creates safety risks. There are significant technical challenges with using hydrogen in aviation and will require new generation air-travel technology and supporting airport infrastructure. Electric battery is proven in small scale.

bp is of the opinion that the private sector is a key player in developing resilient strategies, infrastructure and processes, as well as bringing forward innovative technology solutions necessary to meet New Zealand and the world's carbon neutral targets. Only through collaboration can the community achieve the change required to transition the economy. We understand the value of collaborating and have achieved mutual benefit over many years by working with external organisations. This approach is integral to our sustainability frame and we are looking for allies who can help drive progress. We are thinking beyond conventional collaborations with others in our industry and forging relationships beyond our sector with a growing number of businesses, including Qantas, Microsoft and Uber. bp is a founding partner of HRH the Prince of Wales's Sustainable Markets Initiative, and is working with others in the private sector to accelerate the global transition to a sustainable future.

As we transform the economy, and support global transformation to net zero, we must ensure this transition is just. The just transition is about mitigating the potential adverse impacts of a low carbon transition on workers and communities while promoting sustainable and resilient opportunities that low carbon industries can bring to workers and communities. These include decent jobs, support for livelihoods and access to sustainable energy. The workforce will need to adjust to support these new forms of energy and technology. For bp working with the workforce to ensure social inclusion, skills transfer and retraining goes side by side with reducing emissions.

1. Introduction

We believe the world is on an unsustainable path – the carbon budget is running out – and needs to reach net zero greenhouse gas emissions. And we believe that there are a range of global pathways to achieve the Paris goals, with differing implications for regions, industries and sectors, so business strategies need to be flexible.

Ambitious climate policies will be essential to enable the world to meet the Paris climate goals, including achieving global net zero greenhouse gas (GHG) emissions. In our aim 6[2] we have publicly stated our aim to more actively advocate for well-designed policies that will support net zero. We co-operate and engage with Governments, regulators and legislators in the development of proposed policies relevant to our business – ranging from those in support of net zero, through to policy related to tax, employment, safety and other issues. Our activities may include direct lobbying on specific policy proposals by bp employees, through broader advocacy via research work or supporting think tanks, to communications activities and advertising. We're also working in cross-industry initiatives and partnerships to promote policies that support net zero, such as the NCS Alliance, the Carbon Pricing Leadership Coalition, and the Taskforce on Scaling Voluntary Markets.

Our purpose is reimagining energy for people and the planet. We are part of a society and we value the contribution of the communities in which we operate. We want to improve people's lives, ensuring the transition to a low carbon economy does not leave anyone behind or disadvantage particular groups. We referenced this strongly in our submission to the Climate Change Commission's Draft Advice[3] that an equitable, inclusive, and well-planned climate transition is imperative and should be linked to the Government's Economic plan. We want to work with the Government and other relevant stakeholders on developing a robust vision and strategy for the future workforce of New Zealand, as part of this strategy.

Our new regions, cities and solutions integrator (RC&S) will identify and deliver integrated energy and mobility solutions to help customers decarbonise by bringing together bp's capabilities, products and services and with our partners, creating value greater than the sum of its parts. Cities are critical to the progress of the energy transition. They are home to about half the world's population but generate 70% of CO2 emissions – with population and emissions both expected to grow over time.[4] Research suggests that cities have the potential to achieve 40% of the carbon mitigation goals outlined in the Paris Agreement.[5]

bp Energy Outlook 2020[6] explores three main scenarios – **Rapid**, **Net Zero** and **Business-as-usual** – which span a wide range of possible outcomes for the global energy system to 2050. The scenarios are not predictions of what is likely to happen or what bp would like to happen. Rather, the scenarios help to illustrate the range of outcomes possible over the next thirty years. We have included this as an Appendix for context.

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[2] bp's aims https://www.bp.com/en/global/corporate/who-we-are/our-ambition/our-aims.html and included in 5. Appendix – bp's purpose and aims

[3] bp submission to the Climate Change Commission's Draft Advice to Government

[4] Source: c40.org; bp Sustainability Report 2020 p.48 https://www.bp.com/en/global/corporate/sustainability.html

[5] Source: CDP, City-Business Climate Alliances; bp Sustainability Report 2020 p.48 https://www.bp.com/en/global/corporate/sustainability.html

[6] https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html

2. Consultation questions

Our submission addresses the consultation questions where we have a position to share:

Consultation question 1
Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

bp supports the seven principles used in Hīkina te Kohupara to shape the advice to the Government on transitioning to a net zero carbon transport system. bp supports the rapid decarbonisation of road transport and believes sophisticated policy is needed to tackle this complex challenge at a system level. We support a system-level approach to coordinate action as the energy sector becomes more interconnected and transport and energy markets become dependent.

Consultation question 2
Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

bp believes the role of Government should be to create an enabling policy landscape that supports a level playing field and degree of certainty to encourage the scale of investment required to achieve a successful and sustainable just transition - so all low carbon transport fuels and technologies can compete and succeed. We agree with the Business Energy Council (BEC) submission that an outcome-based regulatory environment will enable private sector innovation and forge a market-led path to 2050.

The task of decarbonisation is large and difficult, no one sector can do it alone. It is imperative that Governments, the private sector and civil society work together with a common objective and clear rules of play. We believe a market-led approach will deliver diverse technologies both known and yet to be known, in an economically efficient way.

Consultation question 3
What more should Government do to encourage and support transport innovation that supports emissions reductions?

It is important that the policy landscape developed to support innovation in emissions reduction is technologically neutral, inclusive of all decarbonisation options rather than prescriptive. Given technology advancements will change quickly in coming years, it is important to regularly review this consultation question to ensure New Zealand is able to lead and adapt to new emissions reductions innovations as they arise.

The Government should attend to changing patterns of consumption by encouraging behaviour change that results in lower emissions. bp is particularly supportive of flexible working arrangements as home-based work forces particularly support reduced emissions from the transport sector.

The interdependence of transport with electricity is explored in detail in this paper, equal in interdependence is the role of digital in creating efficiencies in the transport sector. bp recommends a deeper understanding of the role of digital in supporting behaviours that reduce emissions, particularly in the transport sector and believes this should be included in the policy development process.

Consultation question 4
Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

bp is of the opinion that different countries and cities have different circumstances. There's no one size fits all approach here. We want to work with countries, regions, cities and industries that share our ambition to be net zero. The mobility revolution will have the deepest impact in cities, where half of the world's population lives. bp agrees with the BEC submission that the Ministry should commission relevant research to ensure measures designed to shift demand or modal choices are effective in the context of broader planning priorities.

Consultation question 7
Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition. **Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?**

The phasing out of petrol and diesel cars will be a hard push towards electrification. In the near term, policies are needed that ensure alternative low carbon transport fuels, technologies and vehicles are readily available at the scale needed to make this phase-out possible. bp suggests the Ministry explores plug-in hybridisation support, to provide bridging technology to build consumer confidence and manage possible limitations on the supply of batteries. These may also help reduce emissions in the energy-intensive transport modes.

bp supports EV mandates and subsidies provided they are proportionate to the need to drive innovation and early deployment, and take account of environmental externalities in a broad sense (not just GHG). This includes manufacturing and disposal costs and emissions, including residual emissions from green power.

We also support proportional incentives for EV charging and hydrogen refuelling infrastructure. This support should facilitate national or common infrastructure that enables a market to work and is not readily exposed to consumer demand or market forces e.g. Below ground electricity distribution infrastructure. We do not support incentives for other parts of required infrastructure such as public charging points as we believe market incentives are sufficient to drive investment.

The improvement of vehicle efficiency must be part of any measure to reduce emissions and this is possible through vehicle emission standards, and increased uptake of hybridisation. bp suggests considering encouraging demand for light-weighting and downsizing of cars and vans where materials and technology allow this to be done safely.

The introduction of biofuels as progressive blending targets and incentives in order to maximise emission reductions from the existing fleet can be used in ICE vehicles as the fleet turns over to more electric. However, these biofuels must be developed in an environmentally and socially sustainable way.

Consultation question 9
Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

bp supports the possible actions to reduce domestic aviation emissions in the context of the points outlined earlier regarding the aviation sector.

Consultation question 13
Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

bp supports an effective and efficient decarbonisation of the New Zealand economy and commends New Zealand on its Emissions Trading Scheme (ETS). The first step for all decarbonisation must be an explicit price on carbon. The ETS as the primary legislative framework to reduce emissions should lead the decarbonisation efforts of the country. Coupled with complementary policies that address sectors of the economy that may need to transform at pace and at scale. In hard-to abate areas within the Transport sector such as in aviation – additional measures will be needed. We understand that Pathway 4 is the most closely aligned with the Climate Change Commission's final recommendations to Government and bp intends to work with and support this approach, where opportunities allow.

3. bp contact

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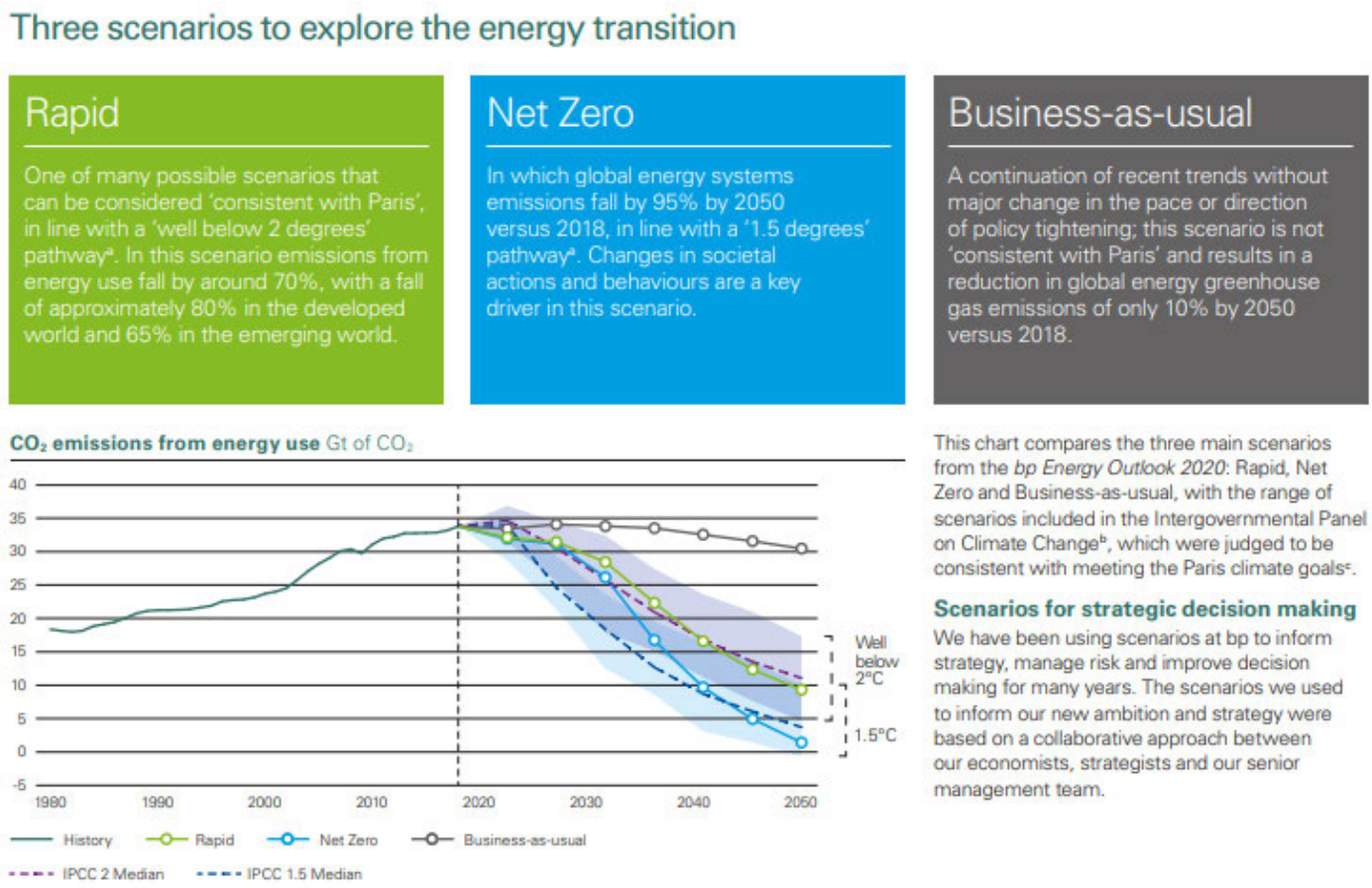
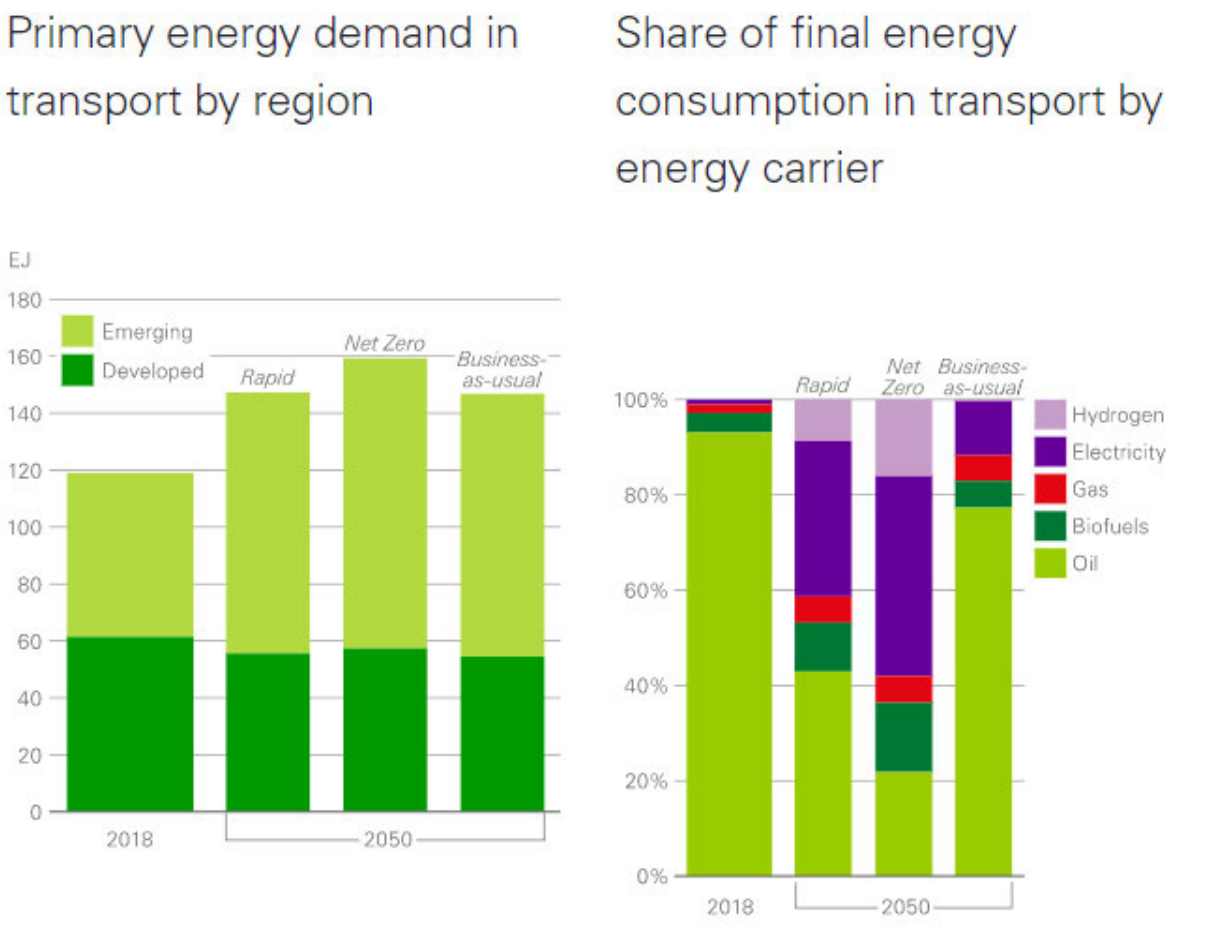
4. Appendix - bp Energy Outlook 2020

bp Energy Outlook 2020[7] explores three main scenarios – **Rapid**, **Net Zero** and **Business-as-usual** – which span a wide range of possible outcomes for the global energy system to 2050. The scenarios are not predictions of what is likely to happen or what bp would like to happen. Rather, the scenarios help to illustrate the range of outcomes possible over the next thirty years.



[7] https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html

The growth of energy used in transportation slows, with oil peaking in mid-to late-2020s.



[8]

The demand for passenger and commercial transportation increases strongly over the Outlook, with road and air travel doubling in all three scenarios. The growth in final energy required to fuel this increased travel is offset by significant gains in vehicle efficiency, especially in passenger cars, trucks and aviation.

The gains in energy efficiency are partially disguised by a shift away from oil towards the increasing use of electricity and hydrogen in transport. In particular, the conversion process used to produce these energy carriers boosts the total amount of primary energy absorbed by the transport sector. The shift towards electricity and hydrogen is most pronounced in **Rapid** and **Net Zero**, where overall primary energy increases by around 25% and 35% respectively by 2050. Primary energy in transport increases by almost 25% in **BAU**, with slower gains in energy efficiency offset by a smaller shift away from oil.

[8] bp Energy Outlook 2020 https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html

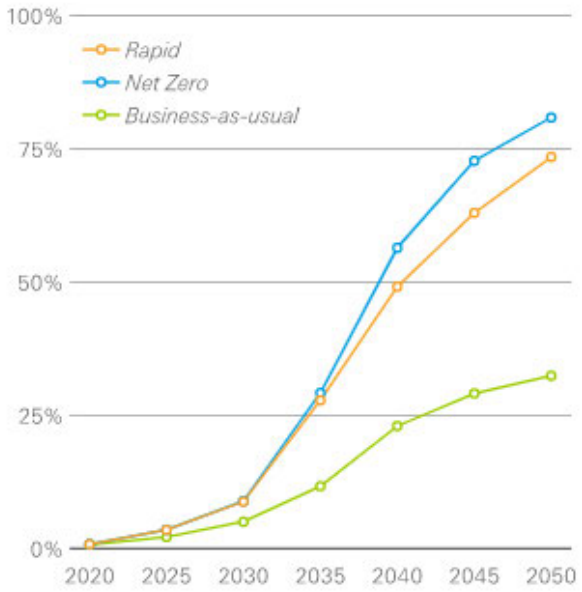
The growth in primary energy used in transport in all three scenarios stems entirely from the developing world, as increasing prosperity in developing Asia, Africa and Latin America supports greater demand for passenger and freight transportation. Energy use in transport in the developed world is broadly flat.

The use of oil in transport peaks in the mid-to-late 2020s in all three scenarios: the demand for oil for road transport in emerging markets continues to increase until the early 2030s in **Rapid** and **Net Zero**, and the late 2030s in **BAU**, but this is increasingly offset by falls in the developed world.

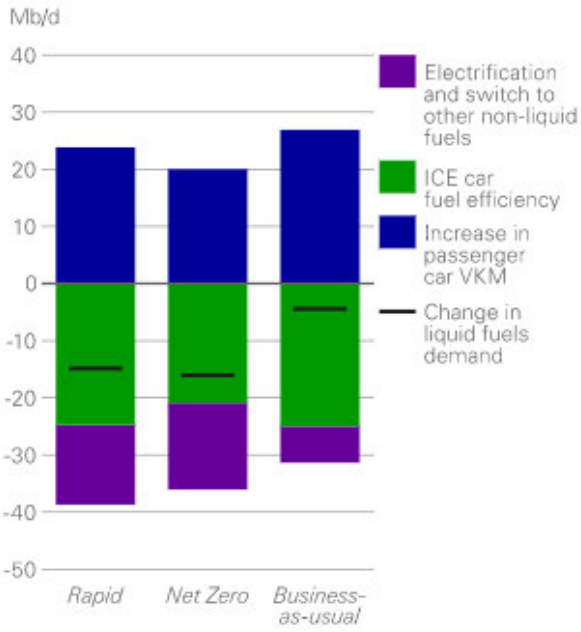
The share of oil in total final consumption falls from over 90% of transport demand in 2018 to around 80% by 2050 in **BAU**, 40% in **Rapid** and just 20% in **Net Zero**. The main counterpart is the increasing use of electricity, especially in passenger cars and light and medium-duty trucks, along with hydrogen, biofuels and gas. The share of electricity in end energy use in transport increases to between 30% and 40% by 2050 in **Rapid** and **Net Zero**.

Energy use in road transport is dominated by electrification and vehicle efficiency

Share of car and truck vehicle kilometres electrified*



Factors impacting passenger car liquid fuels demand over the outlook



*includes buses

The outlook for energy use in road transport is dominated by two major trends: increasing electrification and improving vehicle efficiency.

The electrification of the vehicle parc is most pronounced in **Rapid** and **Net Zero**, concentrated in two and three wheelers, passenger cars and light and medium-duty trucks. Electric vehicles in **Rapid** and **Net Zero** account for around 30% of four-wheeled vehicle kilometres (VKM) travelled on roads in 2035 and between 70-80% in 2050, compared with less than 1% in 2018. The corresponding shares in **BAU** are a little over 10% in 2035 and around 30% in 2050.

By 2050, electric vehicles account for between 80-85% of the stock of passenger cars in **Rapid** and **Net Zero** and 35% in **BAU**. The corresponding numbers for light and medium-duty trucks are 70-80% and 20%.

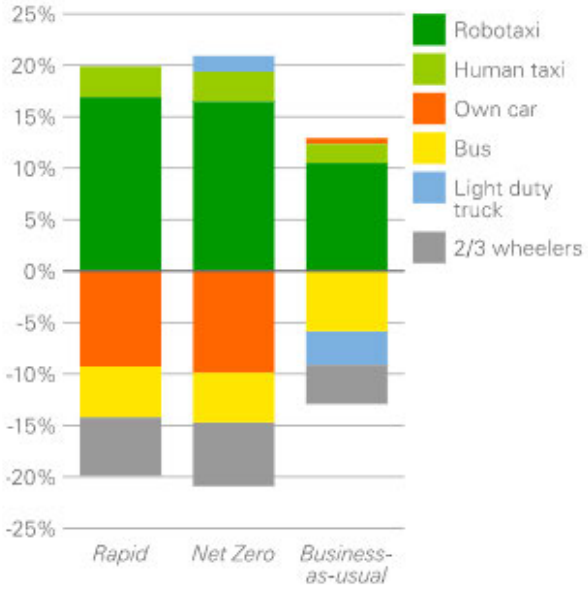
The other dominant trend affecting the use of energy in road transport is the increasing levels of vehicle efficiency, especially passenger cars, driven by tightening vehicle emission standards and rising carbon prices which are largely borne by consumers in the form of higher gasoline and diesel prices. In **Rapid**, the efficiency of a typical new internal combustion engine (ICE) passenger car increases by around 45% over the next 15 years.

Despite the accelerated electrification of passenger cars, the continuing importance of ICE passenger cars for much of the Outlook means that improvements in their efficiency is the main factor limiting the growth of oil used in passenger cars out to 2050.

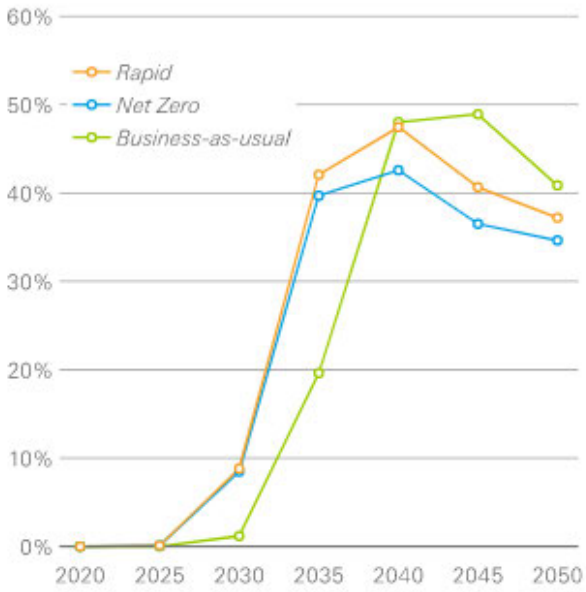
Vehicle efficiency improvements in **Rapid** reduce oil use in passenger cars (and hence carbon emissions) by roughly twice as much as electrification out to 2050.

The pattern of road transportation changes led by increasing prosperity and growth of robotaxis

Change in share of road passenger VKM, 2020-2050



Robotaxi share of passenger car VKM powered by electricity



The composition of road transportation across different modes of transport, e.g. private cars, taxis, buses etc, is affected by two significant trends over the Outlook: increasing levels of prosperity and the falling cost of shared-mobility transport services. Both trends have important implications for the pace and extent to which the transport sector is decarbonized.

The increasing levels of prosperity and living standards in emerging economies leads to a shift away from high-occupancy forms of transport (e.g. buses) into passenger cars. This leads to a reduction in average load factors (i.e. average number of passengers per vehicle), putting upward pressure on carbon emissions.

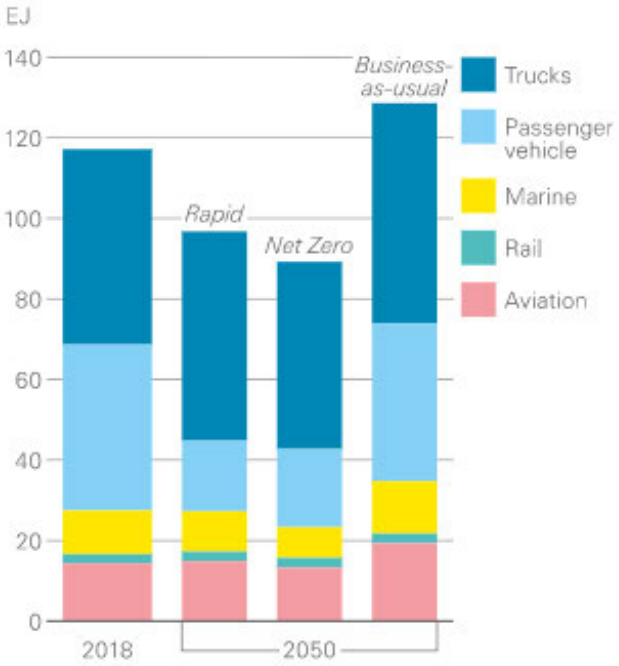
The relative cost of shared-mobility services falls as a result of a range of factors, including continuing advances in digital technologies such as improving connectivity and geospatial technologies. In addition, digital advances enable automated driving systems and the emergence of fully autonomous vehicles (AVs) from the early 2030s in **Rapid** and **Net Zero**, significantly reducing the cost of shared-mobility services, especially in developed economies where average income levels are higher. The falling relative cost of autonomous shared-mobility services (robotaxis) leads to a shift away from private-owned vehicles as well as buses.

The vast majority of robotaxis are electric in all three scenarios. This reflects the local air quality benefits and lower running costs of electric cars relative to traditional (internal combustion engine). Electric robotaxis provide a significant cost advantage given the intensity of use – up to 9-times greater than private cars by 2050. The growing penetration of robotaxis, combined with their intensity of use, means that by 2035 they account for around 40% of passenger VKM powered by electricity in **Rapid** and **Net Zero** and around 20% in **BAU**. This share declines in the final 10-years or so of the Outlook in **Rapid** and **Net Zero** as the share of private ownership of electric cars increases.

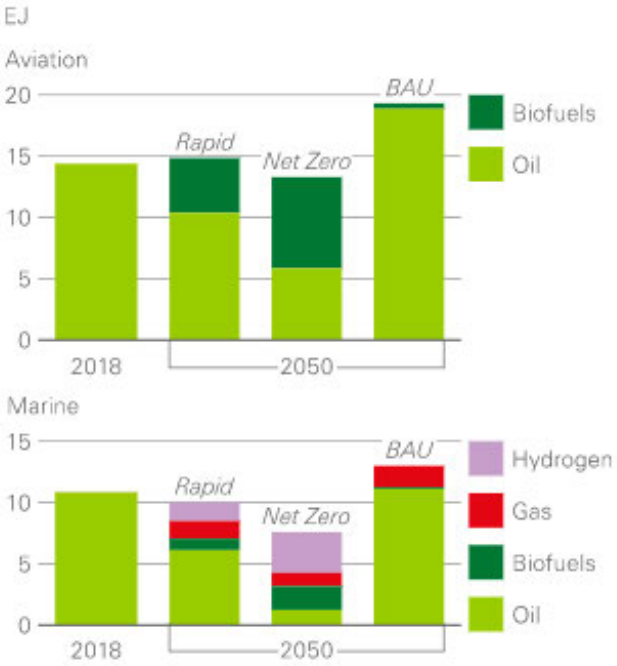
The potential for robotaxis to help decarbonize road transportation by increasing the share of passenger car VKM powered by electricity means they are supported by government policies, such as higher road pricing and congestion charges for private vehicles, particularly in **Rapid** and **Net Zero**. The importance of robotaxis is also supported in **Net Zero** by a shift in societal attitudes towards a sharing economy.

Biofuels and hydrogen play a key role in decarbonizing aviation and marine

Total final energy demand in transport by mode



Aviation and marine demand by source



Aviation and marine transport accounted for around 7 Mb/d and 5 Mb/d of oil consumption in 2018 respectively. Demand for these services increases over the Outlook in both **Rapid** and **BAU**: growth in shipping is driven by increased levels of trade; whilst expansion in air-travel is underpinned by growing prosperity, especially in emerging economies. In **Net Zero**, the growth in air travel by 2050 is around 10% lower than in **BAU**, reflecting in part a shift in societal preferences to use high-speed rail as an alternative to air travel in China and much of the OECD. Similarly, increasing preference for the consumption of locally-produced goods and reduction in oil trade in **Net Zero** contributes to reduced shipping demand by around a third by 2050 relative to **BAU**.

In **Rapid**, liquids demand from aviation remains relatively stable at around 7 Mb/d over the course of the Outlook, as efficiency improves by around 35%, largely offsetting additional demand for air travel. In **Net Zero**, these efficiency savings plus reduced appetite for flying in some markets means liquids demand from aviation peaks in the early 2030s and declines to a little below 2018 levels by 2050. In contrast, liquids demand continues to grow throughout the Outlook in **BAU**, reaching 10 Mb/d by 2050.

Biofuels play a critical role in decarbonizing the aviation sector, since neither batteries nor hydrogen are able to deliver the necessary energy density required for aviation. The share of biofuels in jet-fuel increases from less than 1% in 2018 to around 30% by 2050 in **Rapid** and to nearly 60% in **Net Zero**. In contrast, there is minimal growth in the share of biofuels in **BAU**.

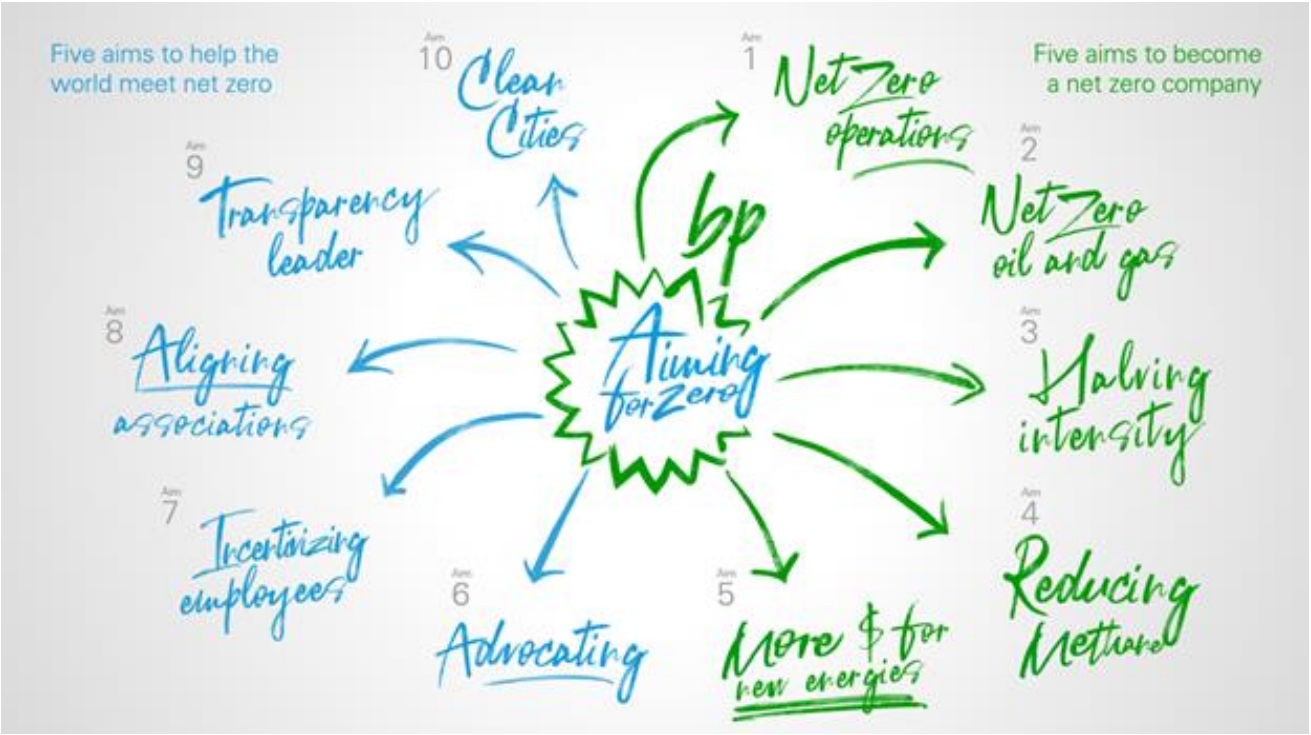
Unlike aviation, the fuel mix in the shipping sector is able to diversify into hydrogen (either as ammonia or in liquid form) and LNG, as well as biofuels. In **Rapid** and **Net Zero**, non-fossil fuels account for 40% and 85% of marine transport fuel by 2050 respectively, with more than half of that coming from hydrogen. Conversely, under **BAU**, marine demand for oil increases slightly by 2050, with natural gas increasing its share of the sector fuel mix to just under 15% and non-fossil fuels accounting for just 1%.

5. Appendix - bp's purpose and aims

On 12 February 2020 bp adopted a new purpose – 'reimagining energy for people and our planet' to make this purpose a reality we have adopted the ambition to become a net zero company by 2050 or sooner, and to help the world get to net zero.

We have developed ten aims to supporting bp's ambition; five to become a net zero company and five to help the world meet net zero:

1. Net zero across bp's operations on an absolute basis by 2050 or sooner.
2. Net zero on carbon in bp's oil and gas production on an absolute basis by 2050 or sooner.
3. 50% cut in the carbon intensity of products bp sells by 2050 or sooner.
4. Install methane measurement at all bp's major oil and gas processing sites by 2023 and reduce methane intensity of operations by 50%.
5. Increase the proportion of investment into non-oil and gas businesses over time.
6. More active advocacy for policies that support net zero, including carbon pricing.
7. Further incentivise bp's workforce to deliver aims and mobilise them to advocate for net zero.
8. Set new expectations for relationships with trade associations.
9. Aim to be recognised as a leader for transparency of reporting, including supporting the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).
10. Launch a new team to help countries, cities and large companies decarbonise.



Ministry of Transport

Email: **transportemissions@transport.govt.nz**

Dear Sir/Madam

Re: Hīkina te Kohupara – Kia mauri ora ai te iwi, Transport Emissions: Pathways to Net Zero by 2050

Please find attached a Submission on the above green paper lodged on behalf of MidCentral District Health Board's Public Health Service.

We have responded to each question within the document.

Yours faithfully

[redacted]

Dr Robert Holdaway
Manager Public Health Services

Consultation question 1
Do you support the principles in Hīkina te Kohupara? Are there any other considerations that should be reflected in the principles?

We support reducing emissions rather than relying on offsetting. As the Climate Change Commission pointed out, relying on offsetting can increase future emissions and will mean increased reductions will be required in the future if targets are to be met (eg. a mature pine forest can't absorb any more emissions, becomes a fire risk, but can't be disposed of without releasing the stored carbon). There is limited suitable land available for tree planting within New Zealand and once planted, even in retired native forest the option of offsetting is removed as a mitigation tool. Offsetting is only short term mitigation measure that allows for existing or new emissions to be offset whilst removing mitigation options for future generations.

We support a strategic approach as some changes (such as increasing density and mixed usage of built environments) will take time to achieve.

We support the need for a co-ordinated approach but believe that responsibility needs to be clearly designated, so that if action does not occur, it is clear who bears the onus of responsibility.

We support a just transition with a particular focus on maximising opportunities that do not increase inequities. For example, electric cars are an opportunity to reduce emissions but their cost makes them an option only for wealthy New Zealanders who then may avoid paying taxes for roading. Business and Economic Research Limited (BERL) states that the poorest quintile of New Zealand households has an average negative net worth[1] [2] so electric vehicles are beyond their means. Hence the current policy increases inequity.

We agree that a multi-pronged approach will be needed to achieve the goal of zero transport emissions by 2050. Achieving zero emissions will involve some "learning by doing" and trying more than one method. It will be essential to evaluate key actions that are implemented to determine how effective they are in helping us to achieve our targets and, for interventions that are novel, to create an evidence base to support and guide our future actions.

We do not support principle seven as it encourages reliance on future technological fixes that may never eventuate. The need to reduce emissions is too urgent to rely on the invention of future methods – although once developed we agree that the government should encourage uptake of viable methods to reduce transport emissions.

The risks to human health and the biosphere posed by not meeting New Zealand's commitment under the Paris Agreement are so great that any reliance on new technologies is simply unacceptable from any reasonable risk assessment analysis.

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[1] https://berl.co.nz/our-pro-bono/inequality-and-new-zealand, accessed June 2021

[2] See also https://www.victoria.ac.nz/__data/assets/pdf_file/0008/1175246/WP17-02-Wealth-Disparities-in-NZ-Final-2017.pdf, accessed June2021

We support the focus on people as the key to our future rather than relying on future new innovations and technologies to provide the solutions to achieve our emission reduction targets. Without ensuring that the people of Aotearoa are willing and able to actively participate in avoiding and reducing emissions, then optimal progress will not be achieved.

The risks to human health and the biosphere posed by not meeting New Zealand's commitment under the Paris Agreement are so great that reliance on the development of new technologies without taking substantial and sustained actions now, is simply unacceptable from any reasonable risk assessment analysis. The need to reduce emissions is too urgent to rely on the invention of future methods – although once developed we agree that the Government should encourage uptake of viable methods to reduce transport emissions.

We support the development of a principle explicitly recognising and addressing the articles of the Treaty of Waitangi.

Consultation question 2
Is the government's role in reducing transport emissions clear? Are there other levers the government could use to reduce transport emissions?

It would be useful to say that the government is responsible for reducing emissions and that it will: work with the community to identify solutions; monitor emissions; encourage alternatives to technology and infrastructure that create emissions; encourage mitigation and where necessary enforce reductions.

Consultation question 3
What more should Government do to encourage and support transport innovation that supports emissions reductions?

We recommend monitoring of emissions to ensure that innovations do lead to reductions in emissions.

'Monitoring of emissions from innovations is important. For example there is some evidence that Uber increases rather than reduces emissions[3], as the driver spends more time driving while searching for their next job; and that by refusing to share company data they create more problems[4]. Similarly e-scooters may create more emissions than they reduce[5] due to emissions caused in their manufacture, collection, charging and management.

[3] https://www.ucsusa.org/resources/ride-hailing-climate-risks, accessed June 2021
[4] Monopolizing mobilities: The data politics of ride-hailing platforms in US cities, Telematics and Informatics, Volume 55, 2020, 101436,ISSN 0736-5853, https://doi.org/10.1016/j.tele.2020.101436. (https://www.sciencedirect.com/science/article/pii/S0736585320300952, accesed June 2021)
[5] https://www.rnz.co.nz/news/world/418988/how-sustainable-are-electric-scooters, accessed June 2021

We recommend that central government bear the bulk of costs in transitioning to low emissions because it is more able to equitably share the costs as it has more funding, tax, and subsidy options than local government. **We recommend social marketing to increase status of active transport-users** – studies show that around a quarter of motorists dislike cyclists[6] and presumably this attitude would extend to other road-users who travel more slowly than cars.

Consultation question 4
Do you think we have listed the most important actions the government could take to better integrate transport, land use and urban development to reduce transport emissions? Which of these possible actions do you think should be prioritised?

We recommend making it easier for people with disabilities or illness to travel easily without their cars as this will make non-car travel more attractive for everyone.

The consultation paper would be improved by increased emphasis on inclusive design (including the concept of the Accessible Journey[7]) and the need to cope with an ageing population that is, as a consequence of the increase in disability that often accompanies ageing, more reliant on car travel. For example, access to facilities of particular value to older people in cars (churches, pharmacies, health facilities) can be threatened by cycle lanes removing parking. We note Waka Kotahi research that states: 'one way in which older people without transport cope, is to stay at home more'[8] which suggests that parking near particular sites would be of greater value to a less mobile population. See also:

> The interface between public/special transport and the older person needs to be made friendlier if these transport modes are to be used in preference to the private car. In addition, further encouragement is needed for people to take their own transport needs into account when making housing decisions, with urban planners needing to take accessibility of services by public transport and non-carbon-emitting modes into account. In the safety area, improved provision for older road drivers and older pedestrians is also required. Encouragement to cycle should be sensibly moderated by knowledge of older cyclists' frailty and increased vulnerability to injury in the event of a crash.[9]

We support all of the proposed actions especially place-making and urban design that are also intended to improve health (e.g., promoting active transport and attractive environments which improve physical activity and mood).

We also suggest using recommendations from *Turning the Tide - from Cars to Active Transport*[10] which covers some of the same issues but has a greater emphasis on

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[6] https://www.nzta.govt.nz/assets/resources/share-the-road-encouraging-behaviour-change-between-motorists-and-cyclists/TRA-NZTA-Share-the-road_Encouraging-behaviour-change-between-motorists-and-cyclists.pdf, accessed June 2021

[7] https://www.hrc.co.nz/our-work/people-disabilities/past-projects/accessible-journey/, accessed June 2021

[8] https://www.nzta.govt.nz/assets/resources/research/reports/369/docs/369.pdf, accessed June 2021

[9] https://nzta.govt.nz/assets/resources/research/reports/481/docs/481.pdf

[10] Citation: Mandic S, Jackson A, Lieswyn J, Mindell JS, García Bengoechea E, Spence JC, Wooliscroft B, Wade-Brown C, Coppell K, Hinckson E. (2019) Turning the Tide - from Cars to Active Transport. Dunedin, New Zealand: University of Otago ISBN: 978-0-473-47794-3 (PDF), 978-0-473-47793-6 (softcover) PDF copy is

monitoring, assessing costs of carbon-emitting transport more accurately, regulating for safety of pedestrians and education of motorists.

Finally we support the conclusion from a study that modelled impacts of other cities achieving as much active transport as Wellington and recommended:

> Better accounting and accountability of the health and carbon impacts of decisions around transport projects, in particular, should be implemented at both local and national levels.[11]

Consultation question 5
Are there other travel options that should be considered to encourage people to use alternative modes of transport? If so, what?

We recommend more infrastructure be provided for mobility scooters. As stated above, an ageing population is likely to bring more disability so one would expect more mobility scooters. Research on this topic is sparse but indicates need for pre-purchase assessments, trials and improvements in community attitudes and environments[12]

We recommend infrastructure be specifically developed to enable safe active transport by children. The Netherlands achieved their increased reliance on active transport through a desire to enable children to travel safely[13]. A similar initiative would be helpful for New Zealand.

We recommend more research on the needs of rural transport-disadvantaged, with community taxi schemes being one potential solution. We note that the housing crisis has brought an increase in people moving to small towns or villages to find housing and that these people will be reliant on their cars to access shops and jobs. One solution may be community taxi services such as that developed in Dannevirke[14] (which has one donated electric car). An NZTA study[15] found community vans to be effective in meeting transport need in rural communities particularly with co-operation of government agencies..

Consultation question 6
Pricing is sometimes viewed as being controversial. However, international literature and experiences demonstrate it can play a role in changing behaviour. Do you have any views on the role demand management, and more specifically pricing, could play to help Aotearoa reach net zero by 2050?

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available on: The Active Living and Environment Symposium (TALES) website: www.otago.ac.nz/active-living-2019, accessed June 2021

[11] https://www.nzma.org.nz/journal-articles/health-consequences-of-transport-patterns-in-new-zealand-s-largest-cities, accessed June 2021

[12] https://www.tandfonline.com/doi/abs/10.3109/17483107.2013.814171

[13] https://en.wikipedia.org/wiki/Cycling_in_the_Netherlands, accessed June 2021

[14] https://www.stuff.co.nz/manawatu-standard/news/106849091/dannevirke-transport-charity-gets-a-charge-from-new-electric-car, accessed June 2021

[15] https://www.nzta.govt.nz/assets/resources/research/reports/425/docs/425.pdf, accessed June 2021.

We believe that pricing will be necessary in shifting people's choice of travel mode. This will increase inequity, but the degree it does so will depend on local conditions. Hence, **we recommend provision for local responses that monitor impacts on inequity and possible mitigation through subsidies** or new infrastructure as necessary.

While pricing has been shown to be an effective tool in decreasing carbon-emitting transport, it also risks increasing inequity. The degree to which it does so will vary depending on the location of more deprived neighbourhoods in relation to places of work and shops etc. Increasing availability, accessibility, acceptability and affordability of public (and active) transport would, to a degree, mitigate the inequities of punitive pricing interventions for private vehicle use. Revenue gained from pricing interventions (either by emission or congestion) could be used to fund pro-equity initiatives such as no or very-low cost public transport options in high density urban areas to encourage a shift from private vehicles. A substantial increase in public transport use could provide additional co-benefits including increased use of active modes of transport particularly among people who currently avoid this form of travel due to safety concerns with high private vehicle traffic volumes. On the other hand, improvements to public and active transport will benefit those with less transport-resources[16] and the poorest tend to be at greater risk of damage due to climate change[17] and this risk also needs to be factored in.

Consultation question 7
Improving our fleet and moving towards electric vehicles and the use of sustainable alternative fuels will be important for our transition.
Are there other possible actions that could help Aotearoa transition its light and heavy fleets more quickly, and which actions should be prioritised?

We would support changes that increase the cost of carbon-emitting vehicles if that leads to cheaper, cleaner vehicles. We note that usage (vehicle kilometres travelled) has increased by about 70% for vehicles with engines sized from 2000-2999cc whereas those sized below this category appear to be similar to 2004 figures[18]. It appears, therefore, that a tax that is used to subsidise more efficient cars would be useful. But this needs to be tempered with considerations about undue hardship.

We recommend provision for dispensation where an individual can show undue hardship. An example could be allowing some older vehicles to remain on the road when the owner can show that its loss would cause hardship (eg loss of job, loss of tenancy in an area with a housing crisis, or inability to reach needed medical facilities,).

Consultation question 8

[16] https://www.nzta.govt.nz/assets/resources/research/reports/666/666-Social-impact-assessment-of-mode-shift.pdf, accessed June 2021
[17] https://www.stuff.co.nz/environment/climate-news/111361637/aucklands-poorest-to-suffer-most-in-climate-change, accessed June 2021
[18] https://www.transport.govt.nz/statistics-and-insights/road-transport/sheet/vehicle-kms-travelled-vkt, accessed June 2021

Do you support these possible actions to decarbonise the public transport fleet? Do you think we should consider any other actions?

We support the de-carbonising of the public transport fleet. We believe that improving the ability of buses to transport e-bikes or other forms of low emission transport is also necessary. For example, growth in urban Feilding has led to greater carbon-emitting commuting to Palmerston North - a 18.5km trip that would be difficult to make by bicycle or e-bike – but one that becomes more practical with a bus and a bike enabling access to non-bus route destinations.

We would recommend social marketing to increase the status of those who usually travel by bus. We believe that not owning a car in New Zealand carries a loss of status for many people in New Zealand[19] [20] – as one participant in this study noted:

> There is a sort of a subtle status in society by having a car. You're somebody who is successful or OK, and not having a car you're perceived in a lower pecking order or something. [21]

Consultation question 9
Do you support the possible actions to reduce domestic aviation emissions? Do you think there are other actions we should consider?

We support actions to reduce domestic aviation emissions.

Consultation question 10

The freight supply chain is important to our domestic and international trade. Do you have any views on the feasibility of the possible actions in Aotearoa and which should be prioritised?

We support the increased use of rail and further electrification of the rail network to move freight long distance domestically.

Increased use of the rail network to move freight off roads and onto rail for long journeys is a quick win to reduce emissions. Rail is currently the only mode of freight transport that is partially electrified and even diesel locomotives generally create less emissions when compared to trucks for freight transport. Improvements in the rail infrastructure and electrification of rolling stock are measures that will reduce emissions in the short term if freight is moved off roads. The summary report notes that electrified trucks are only likely to be viable options for medium sized short haul freight movement. Hydrogen which is a

[19] https://www.auckland.ac.nz/en/news/2021/02/18/nz-car-ownership-culture-cant-be-future.html, accessed June 2021
[20] https://teara.govt.nz/en/class/print, accessed June 2021
[21] Emily Rose , Karen Witten & Timothy McCreanor (2009) Transport related social exclusion in New Zealand: Evidence and challenges, Kōtuitui: New Zealand Journal of Social Sciences Online, 4:3, 191-203, DOI: 10.1080/1177083X.2009.9522454 To link to this article: https://doi.org/10.1080/1177083X.2009.9522454

possible future fuel source for heavy trucks is hugely inefficient when the full emission profile for production and storage is calculated compared to purely electrified vehicles. Using rail for long haul freight and EV trucks for short distance freight distribution from transport hubs is more likely to reduce emissions rather than relying on emerging technologies making low emission heavy trucks an economic alternative for road freight.

Coastal shipping is another alternative mode of freight transport that may in the future become a viable option for shifting non urgent bulk domestic freight. Energy efficient or electric/ hybrid vessels would also reduce emissions of coastal shipping. We also note that road user charges paid for trucks in no way reflect the true economic cost of trucks using the road network. Should trucks be required to pay the full cost of their impact on roads (that could be targeted at high emitting trucks), the increase in cost would incentivise use of other more efficient, low-emitting modes of transport.

We would recommend the setting of targets for reductions in emissions with the reserved option of increased regulation if the targets are not met as a stop gap measure to limit the growth of road freight emissions.

Consultation question 11
Decarbonising our freight modes and fuels will be essential for our net zero future. Are there any actions you consider we have not included in the key actions for freight modes and fuels?

We recommend some consideration of mode conflict and severance due to heavy traffic. For example, in Palmerston North, the inland port (while it has encouraged economic growth) has also led to more trucks on arterial routes within urban areas which often go past schools or cross routes to school. We suspect that this has made active transport less attractive to children and their parents[22] and more dangerous[23].

We recommend further work on *Making cycling safer more attractive*, namely Recommendation 31 which called for investigation of cost-effectiveness of truck side under-run protection .[24]

We recommend the adoption of Euro 6 (and Euro 7 when it is adopted by the European Union) which includes aspects that would improve safety as well as emissions[25] [26].

[22] https://www.stuff.co.nz/national/114602819/coroner-says-girl-killed-by-rubbish-truck-should-not-have-been-walking-to-school-without-adult, accessed June 2021
[23] https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/making-cycling-safer-more-attractive.pdf, accessed June 2021
[24] https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/making-cycling-safer-more-attractive.pdf, accessed June 2021.
[25] https://ecf.com/what-we-do/road-safety/motor-vehicle-regulation-safer-cycling, accessed June 2021
[26] See https://www.rnz.co.nz/news/national/395683/parents-criticise-coroner-s-comments-on-unaccompanied-walk-to-school accessed June 2021 for a NZ death where a truck's blind spot contributed to death.

Consultation question 12
A Just Transition for all of Aotearoa will be important as we transition to net zero. Are there other impacts that we have not identified?

We recommend more emphasis on the impact of ageing and disability as disability is associated with deprivation and discrimination[27]. The importance of the Accessible Journey needs to be emphasised as this will also help make public transport and active transport more attractive to everybody.

Consultation question 13
Given the four potential pathways identified in Hīkina te Kohupara, each of which require many levers and policies to be achieved, which pathway to you think Aotearoa should follow to reduce transport emissions?

We would favour the pathway that most quickly reduces emissions as the health impacts of climate change[28] and the impacts on New Zealand[29] are likely to outweigh impacts associated with emission reduction (especially if there is some sort of accountability to overseas countries and markets).

Consultation question 14
Do you have any views on the policies that we propose should be considered for the first emissions budget?

Given that the built environment is difficult to change once built, **we would recommend urgency be given to regulation of urban growth and the Resource Management Act changes**. This would help industry adapt and also mean less reconstruction of new infrastructure or buildings (which will reduce emissions).

We recommend use of research to identify aspects of the environment that are needed to encourage active transport and requiring these changes through regulation.

We suspect that building new neighbourhoods that encourage active-transport involves supplying a number of independent environmental attributes (with some attributes such as the attractiveness of local destinations varying with age of residents – eg playground versus sports ground). We note Australian prospective research on increasing walking through

[27] https://www.stats.govt.nz/reports/measuring-inequality-for-disabled-new-zealanders-2018#conclusions, accessed June 2021.
[28] https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health, accessed June 2021
[29] https://www.royalsociety.org.nz/what-we-do/our-expert-advice/all-expert-advice-papers/climate-change-implications-for-new-zealand/, accessed June 2021.

neighbourhood design (the RESIDE Study)[30] identified at least seven environmental attributes:

- creating a pedestrian-friendly movement network (e.g. street connectivity, sidewalks, public transport access, street trees and greenery); and
- access to local destinations through well-implemented community design features (e.g. access to local shops, services, and community facilities, and particularly a main street activity center).

The study also noted a complex relationship between variables with some being necessary (street connectivity and residential density) but not sufficient without other variables (structure, connectedness, and accessibility of local destinations which provides residents with a reason to walk)

Cycling, however, did not increase for reasons that were not identified:

> Few RESIDE participants cycled for transport or recreational purposes. ... More research is required to understand why cycling levels in outer suburban areas are so low, including exploring regional planning issues (Beenackers, Foster et al., 2012; Giles-Corti, Vernez-Moudon et al., 2016) such as whether a lack of cycling infrastructure linking outer suburban developments with employment, transport hubs, and/or activity centers inhibits potential cyclists (Heesch, Giles-Corti, & Turrell, 2015).

Lack of supportive infrastructure does prevent cycling (for example, a driver will drive 400 metres to the local supermarket partly due to the busy road not being a pleasant cycle). Cycling is also limited by distance with the average trip leg being 4 kilometres[31]. RESIDE was not successful in increasing cycling which means we face further challenges in integrating new neighbourhoods with existing transport destinations; and in knowing how to create environments where people want to cycle.

We would also hope to see more medium-density-housing provided for middle income people, so that this type of housing is not predominantly social housing[32] which may make it less attractive to other people.

We support *healthy streets* planning[33] and note the success in London.

We would support the Government Policy Statement having a greater emphasis on health, active transport and emissions reduction, but are unsure how this can be achieved with even three successive Government Policy Statements. For example, Palmerston North has achieved economic growth through an inland port[34][35], but has increased freight transport through the city making walking and cycling less attractive.

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[30] https://www.sciencedirect.com/science/article/pii/S2352827319301739

[31] https://www.transport.govt.nz/statistics-and-insights/household-travel/, accessed June 2021

[32] See https://architecturenow.co.nz/articles/shifting-sands-new-zealands-medium-density-identity/ for a discussion on aspects of successful medium density housing.

[33] https://www.healthystreets.com/, accessed June 2021.

[34] http://www.horizons.govt.nz/HRC/media/Media/Agenda-Reports/Regional-Transport-Committee-2016-6-09/16177%20Annex%20B%20Transport%20Investment%20Opportunities%20paper%20to%20Governance%20Group.pdf, accessed June 2021

[35] https://manawatuinlandport.co.nz/, accessed June 2021

Solutions involve either creating new roads or reducing truck access – neither of which seems an attractive option given the costs involved.

From: [redacted]
To: Transport Emissions
Subject: Fwd: Hīkina te Kohupara – Kia mauri ora ai te iwi / Transport Emissions: Pathways to Net Zero by 2050
Date: Sunday, 27 June 2021 8:43:40 pm
Attachments: MOVEMENT Submission re Pathways to Zero.pdf
PastedGraphic-6.tiff

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From: [redacted]
Sent: Sunday, June 27, 2021 5:24:40 PM
To: [redacted]
Subject: Re: Hīkina te Kohupara – Kia mauri ora ai te iwi / Transport Emissions: Pathways to Net Zero by 2050

Kia ora Jo,

Our submission is **attached**.

Thanks for your explanation below. We understand net zero when considering all emission and removals across the different industries in NZ but don't see how it can be relevant when focusing only on Transport Emissions.

Or to put the question another way…. What "removals" exist in the field of Transport Emissions?

And is the goal of Hīkina te Kohupara to have Transport Emissions be Zero by 2050? We certainly hope it is.

Best,

Bevan Woodward Mobile: [redacted]
Transport Planner

> On 21/06/2021, at 4:44 PM, Joanna Pohatu <[redacted] wrote:
>
> Kia ora Bevan,
> Thank you for your email and query. The Ministry for the Environment defines net emissions as:
> - Net emissions - these are gross emissions, plus emissions and removals from land use, land-use change and forestry, and our target accounting emissions. These are used for our United Nations Framework Convention on Climate Change reporting.
>
> New Zealand's projected greenhouse gas emissions to 2050 | Ministry for the Environment
>
> Net Zero means making net emissions equal to zero.

I appreciate it's busy, and we'd appreciate if you can do your best to get your submission in on Friday 25 June. We'll be checking the inbox for submissions on Monday morning.

I hope this helps.

Ngā mihi

Jo

Joanna Pohatu (she/her)
Principal Adviser
Environment, Emissions & Adaptation Team

T: + [redacted] www.transport.govt.nz

From: [redacted]
Sent: Monday, 21 June 2021 9:52 AM
To: Transport Emissions <transportemissions@transport.govt.nz>
Subject: Hīkina te Kohupara – Kia mauri ora ai te iwi / Transport Emissions: Pathways to Net Zero by 2050

Kia ora, we are working on our submission to *Hīkina te Kohupara – Kia mauri ora ai te iwi / Transport Emissions: Pathways to Net Zero by 2050*

Can you please clarify an important matter for us?…

- The document alternates between the need to achieve "net zero emissions" and simply "zero emissions" from transport by 2050. Can you please advise which of these two is the goal of *Hīkina te Kohupara – Kia mauri ora ai te iwi*?
- Please explain what is meant by ""net zero emissions" from transport? Any relevant examples would be appreciated.

And may we request an extension to the submission deadline date to 9am, Monday, June 28? It is currently a busy time for submissions.

Thanks...

Bevan Woodward Mobile: [redacted]
Transport Planner

<image001.png>

Auckland | NZ Government Auckland Policy Office | 45 Queen Street | PO Box 106238 | Auckland City | Auckland 1143 | NEW ZEALAND | Tel: +64 4 439 9000 |

MOVEMENT

MOBILITY for the 21st CENTURY

27 June 2021

Submission re Transport Emissions: Pathways to Zero by 2050

The key point we would like to raise is that **the system is broken and no strategy will fix it**. As management consultant Peter Drucker said "***culture eats policy for breakfast***".

Since 2018, NZTA has been required by the GPS on Land Transport to reduce carbon emissions. But in 2021 they continue to increase, are forecast to do for the foreseeable future, and remain NZ's fastest growing source of greenhouse gas emissions.

Why?

NZTA's culture is project engineering, focussed on building bigger roads for ever greater numbers of vehicles.

NZTA are trapped by their **funding model** which is primarily from the **burning of fossil fuels.** We have seen the financial strive NZTA gets into when traffic declines; eg due to COVID lock-down. NZTA is financially rewarded by more vehicles being driven more often and greater distances.

Consequently, NZTA operate in a cycle of **"predict and provide"**. New roads are built at great cost, these roads are then "free" to use at peak times - this induces more traffic and creates worse congestion across the network. NZTA then plan to build new roads to address the problems created by the new roads.

NZTA is conflicted not only by its funding model, but also by its dual role of deciding which projects to fund and then being responsible for implementing them. NZTA's culture sees it preferring big engineering projects at large cost. NZTA is **not** interested in behaviour change, urban design, land-use planning or mode shift (eg: the Avoid-Shift-Improve model provides in Pathways to Zero).

NZTA can ignore the GPS because there no consequences for doing so. NZTA's investment appraisal methodology is contrary to and dismissive of the GPS (**see Page 3 for details**). This is particularly noticeable in the way that NZTA continues to use predicted travel time savings for motorists to justify new roading projects when the GPS 2018 or 2021 do not include travel time savings for motorists.

See over for how to address this…

To get the culture needed for success:

1. NZTA must no longer have the dual role of deciding which projects to fund and then being responsible for implementing them. Instead these roles must be separated, with the funding role being given to a new planning organisation that has its roots in:
    - behaviour change
    - urban design
    - land-use planning
    - health
    - transport economics
    - climate change

    Civil engineers must be excluded from key decision making roles of which projects to fund. This is because engineers are not planners, hence they must only referred to for specialist technical expertise.

    This new planning organisation should also manage the transport systems pricing scheme proposed in Pathway to Zero. The transport systems pricing scheme will need to be rolled out nationwide, in particular for congestion charging as many cities this particular issue.

2. Dismantle the current funding system as it encourages road building and private motor vehicle use, along with cost over-runs. Fundamentally this means replacing full hypothecation of petrol taxes and road user charges with Crown managed funding

3. Funding from the new planning organisation to NZTA and the RCA's should be linked to their meeting specific targets; eg: mode shift, reductions in emissions, etc.

Thank you for the opportunity to make a submission. MOVEMENT has been advocating for sustainable transport since 2004. Learn more about MOVEMENT at www.movement.org.nz

Please do not hesitate to contact us with any questions.

Bevan Woodward
bevan@movement.org.nz
Mobile: [redacted]

NZTA's new investment assessment approach failing to give effect to GPS 2021:

1) NZTA is not assessing projects against the indicator results provided in Sec 2.6 of GPS 2021 as required by Clause 89 of the GPS 2021.

Instead, NZTA advises on Pg 8 of it Final Assessment Technical Document (copy **attached**) that "***The project team should select the appropriate criteria for their activity on a case-by-case basis.***"

Furthermore per Clause 52 and 53 of GPS, investment decisions should be guided by the GPS 2021 four strategic priorities, with reducing emissions of particular importance: "***This GPS reflects the importance of making investment decisions in the transport sector that will help New Zealand towards that goal.***" However NZTA's advice is for a much lower threshold for consistency with the GPS and allows rising emissions to be ignored, this allows bias to creep into the project assessment resulting in results not consistent with the GPS.

2) Rather than prioritising projects that meet the most (and ideally all) of the four strategic priorities sought by GPS, NZTA's Investment Prioritisation Method advises on Page 11:

"***In order to keep the Investment Prioritisation Method reasonably simple to understand and apply, ratings for the GPS Alignment and Scheduling factors are assigned based on the highest expected contribution to a single GPS strategic priority.***"

Hence NZTA can say a new road has "HIGH" alignment with the GPS because it is "***Improving connections between nationally significant production and distribution points***" (page 15 of IPM) and completely ignore all the detrimental failings for the other priorities, such as carbon emissions, road safety and induced traffic (which reduces accessibility for active transport).

It is interesting to noted that "***Improving connections between nationally significant production and distribution points***" is not one of the 31 proposed indicators from Section 2.6 of GPS 2021.

On this basis..

3) NZTA's Monetised benefits and costs manual should exclude Travel Times Savings for motorists in its appraisals as these do not align with the desired results or indicators of GPS 2021.

4) The Investment Prioritisation Method does not align with GPS (see Section 3.2) as NZTA's Investment Prioritisation Method excludes Effectiveness as required by Clause 89 which is key to ensuring NLTF projects are effective in delivering the desired results of the GPS 2021.

FINAL ASSESSMENT DESIGN REPORT

A technical paper prepared for the Investment Decision-Making Framework Review

3 JUNE 2020

Waka Kotahi NZ Transport Agency has developed tools to assist with assessment at each stage of business case development. These tools are aligned with the Waka Kotahi benefits framework.

New Zealand Government

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DOCUMENT PURPOSE

The purpose of this document is to outline the business case assessment design changes.

BACKGROUND

The Government Policy Statement on Land Transport (GPS) 2018 states: 'Cost benefit analysis should take account of the full range of costs and benefits. Evaluation tools therefore need to transparently and robustly capture and assess these benefits and costs.' Assessment tools have been developed to ensure the effect is given to the GPS and to investment decisions are rigorous and transparent.

Alignment across the transport system

The Ministry of Transport (MoT) and Waka Kotahi worked together to develop a new framework that is consistent at both a sector and operational level. Local government investment partners were also instrumental in the design of assessment tools. The benefit of joined-up thinking will be that approaches, processes, tools and methodologies are developed to form a consistent whole-of-sector approach.

The National Land Transport Programme

The National Land Transport Programme (NLTP) reflects the partnership between local government – which invests local funding – and Waka Kotahi, which invests national funding on behalf of government through the National Land Transport Fund (NLTF). The NLTP sets out how Waka Kotahi will use national land transport funding for the next three years and a high-level forecast of revenue and expenditure for the next 10 years.

In preparing the NLTP Waka Kotahi must give effect to the GPS and take into account regional land transport plans (RLTPs). RLTPs set out each region's land transport objectives, policies and measures, and transport priorities. They also include activities that have been proposed for inclusion in the NLTP. Activities must be included in an RLTP to be eligible for funding from the NLTF.

Activities proposed for inclusion in the NLTP are prioritised using the investment prioritisation method. An investment threshold is set for each activity class based on available funds, so that it is clear which activities are included in the NLTP based on their priority order.

Following inclusion in the NLTP, Waka Kotahi assesses each business case when making an investment decision for the proceeding phase of the activity. Assessment includes a check of the quality of the business case and a check against investment criteria. The activity's priority is also reviewed against the prioritisation criteria (including alignment with GPS priorities) to ensure that the priority order remains above the threshold and funding continues to be available.

To ensure that value for money is delivered, business cases need to transparently demonstrate:

- return on investment – expected benefits compared with expected cost
- contribution toward the desired GPS results.

Waka Kotahi must document the reason for a decision, especially where there is a benefit–cost ratio lower than would normally be required for inclusion in the NLTP.

Assessment versus prioritisation

Prioritisation of an activity for inclusion in the NLTP is based on available information about an activity that exists prior to an investment decision on a business case. Prioritisation of activities involves a coarse comparison of activities in an activity class across New Zealand.

The assessment tools outlined in this paper assist with assessing alternatives and options in a business case. Assessment is intended to identify all significant benefits which are relevant to a proposal.

The priority order of an activity is confirmed based upon updated information on costs and benefits as assessed in the business case. Assessment and prioritisation rely on the identification of benefits, as outlined in the benefits framework.

BENEFITS MANAGEMENT AND THE BENEFITS FRAMEWORK

Benefits management

Benefits management underpins the Business Case Approach and investment decisions. The process of benefits management is a practice of benefits identification, analysis, planning, and realisation and reporting of benefits consists of ex-ante and ex-post evaluations. Well-evidenced and robust intervention logic needs to be applied through all stages of benefits management. The aim of benefits management is to:

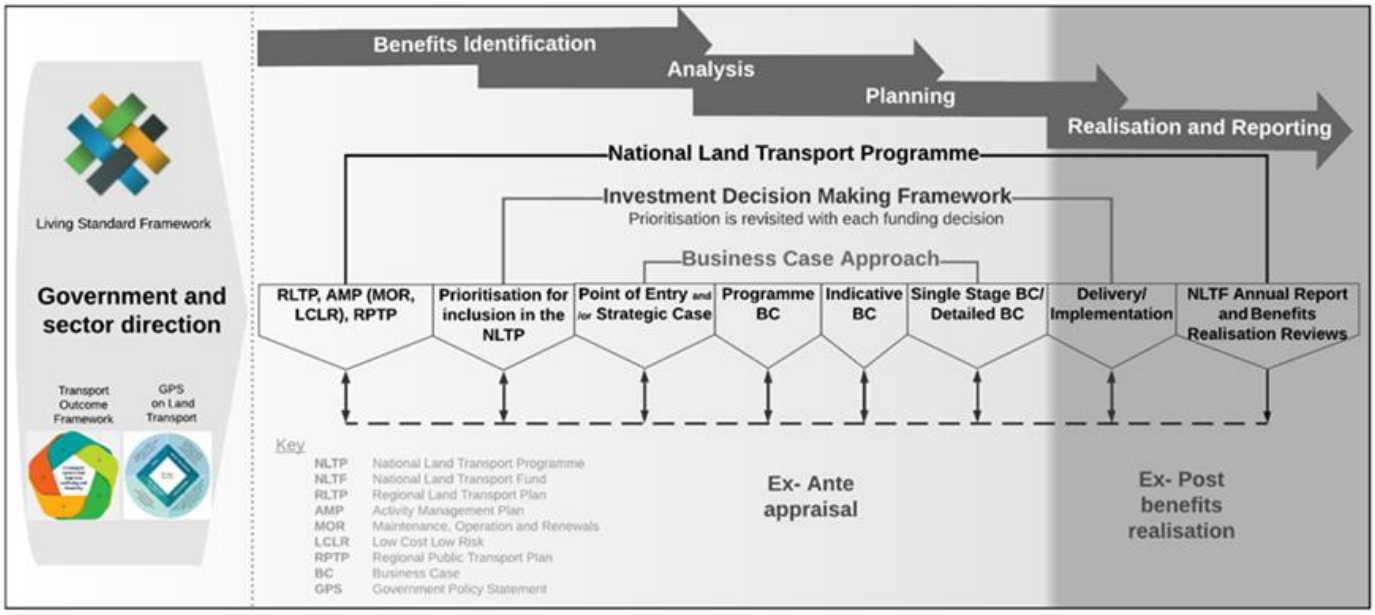
- demonstrate an investment's contribution to outcomes
- ensure benefits are realistic, achievable, and ultimately realised
- ensure value for money
- track the realisation of benefits following implementation
- embed lessons learned in order to continually improve.

Benefit identification is common in both appraisal and benefits realisation. It seeks to identify and define potential benefits and/or disbenefits arising from addressing an identified problem or opportunity.

Benefits are identified and clarified throughout the development of a business case, starting with the identification of problems and the benefits of addressing those problems. A new benefits framework is introduced in Figure 1 that reflects the entire life of benefits through the investment cycle.

Current processes require the capture of benefit information to complete a cost–benefit analysis for funding purposes. The *Economic evaluation manual* (EEM) provides detail of how to complete this benefit assessment, which focuses on monetary outputs. Previously, the EEM was the Waka Kotahi technical guidance for undertaking social cost–benefit analysis for transport investment. The EEM was focused on monetising benefits and its primary function was to provide consistency, transparency and comparability between the economic efficiency of multiple activities. The new benefits management framework seeks to measure investment outcomes and help determine whether expected benefits are realised.

Figure 1: Waka Kotahi benefits management framework



Benefits framework

Waka Kotahi has developed a common benefits framework for use across the entire benefits management process. These benefits are mode neutral and aligned to the enduring Ministry of Transport's Transport Outcome Framework (MoT TOF). High level benefit clusters have been developed to demonstrate meaningful alignment between the new mode neutral benefits and the MoT TOF.

In summary, the new benefits framework:

- is aligned with the enduring outcomes in the MoT TOF
- is used in all stages of benefit management, including benefits identification, option appraisal, business case assessment, reporting on benefits and benefits realisation post-implementation
- includes monetised, quantitative and qualitative benefits
- captures benefits to people, society and the environment rather than functioning as benefit indicators
- is mode neutral.

One of the key shifts through the Investment Decision-Making Framework Review is to better consider non-monetised benefits and costs within decision-making – ie decision-makers will be presented with qualitative, quantitative and monetised benefits and costs to inform investment decisions. This will put us in line with international best practice. The benefits framework will underpin the new approach by providing monetised and quantitative measures.

The EEM will be renamed as the *Monetised benefits and costs manual*. This manual includes guidance, methodology and values for monetised benefits. The benefits framework, which currently has 50 + benefit measures (29 of which can be pre-populated), will be able to be used in populating quantitative benefits. Guidance is provided for both quantitative and qualitative benefits in the *Non-monetised benefits manual*.

For further technical detail regarding the benefits framework refer to the Benefits Framework technical paper.

ASSESSMENT TOOLS OVERVIEW

Business cases are progressively developed as evidence becomes increasingly available. Prior to optioneering there are several prerequisites that must be met, these include.

- Problems/opportunities and the benefits being sought must be clearly defined.
- Investment objectives, which specify the desired outcomes for a proposed investment, must be articulated.
- The do minimum must be defined to enable comparison.
- A broad range of alternatives and options must be generated.

Optioneering and the sifting approach

A sifting approach is used to establish a longlist of alternatives and options and refine to a shortlist. Through the sifting process:

- each filter removes some options
- an increasing number of options are rejected as the process progresses
- the level of effort required for each filter increases as the number of options that require testing goes down
- in cases where multiple options cannot be eliminated easily at the longlist phase, they should each be subjected to detailed appraisal
- the best or preferred option is the one that passes through all filters.

The assessment process when optioneering focuses on determining:

- whether an option or initiative has strategic alignment with transport system objectives (including GPS), strategies, plans and policies
- whether an option or initiative will deliver net benefits, ie benefits greater than costs – the benefits framework and its guidance documents can be used to identify and analyse benefits and costs
- the relative environmental and social and cultural effects of the options and alternatives under consideration, and
- whether the option or alternative can be implemented (eg consentable, ability to obtain property rights, etc).

Sifting alternatives and options is typically an iterative process, with the level of detail and accuracy improving as the business case is further developed. For large complex problems/opportunities, sifting of alternatives (strategic network and corridor level) is typically undertaken first (often with qualitative information). Once the preferred alternative has been agreed then options can then be generated and assessed. At the shortlist stage more detailed assessment is undertaken. It is important that economic assessment is included as part of the multi criteria analysis at the shortlist stage. This will enable robust comparison across options. Decision-makers should consider both monetised and non-monetised benefits and costs to make an informed choice regarding why a preferred option has been chosen. The rationale for the methodology and decisions made should be clearly articulated and documented. At the preferred option stage, detailed economic assessment should be undertaken. A benefit–cost ratio (BCR) is required for the shortlisted options. Iwi, community and stakeholder engagement is an important input into the sifting process.

Assessment tools

The Early Assessment Sifting Tool (EAST) and multi-criteria analysis (MCA) tools can assist with the assessment of alternatives and options through the coarse screening, long list and short-listing process. The EAST and MCA templates have been designed to support a mode-neutral approach. Non-transport investment options should be assessed alongside transport-based solutions, and the same methodology should be applied.

The EAST supports an initial 'coarse screening' of alternatives and options. The EAST is designed to quickly and robustly rule out alternatives and options, allowing for a more manageable MCA exercise. The use of EAST is most useful where there are a large number of alternatives or options to consider. When there are only a few options, such as when using the single-stage business case lite, the EAST is not recommended for use.

MCA is a tool that can be used to evaluate multiple criteria, both quantitative and qualitative. MCA can be used to assess different alternatives and options to inform decision-making. MCA can be used to help assess the alternatives and options that may address the identified problems (not just transport interventions).

In all cases, the use of EAST and MCA will occur after investment objective setting. It is important that the rationale for discarding alternatives and/or options is clearly documented. This includes where an alternative or option does not align with investment objectives or there are fatal flaws. The EAST can assist with this. If there are already a manageable number of alternatives or options and the EAST is not used, then the rationale should be documented as part of the business case.

The EAST and MCA is supported by completion of the Waka Kotahi Environmental and Social Responsibility Screen, which can help with the selection of criteria and the assessment of options and alternatives[1].

Potentially significant environmental and social effects (and opportunities) should be identified and considered. This will enable effects to be avoided, remedied or mitigated. Social and environmental effects have traditionally not been given due consideration and reported to decision-makers. Impacts such as *impact on social cost and incidents of crashes* are considered as part of the assessment against investment objectives.

The Appraisal Summary Table (AST) provides a structured way of presenting decision-makers with an overview of monetised, quantitative and qualitative benefits and costs at the short list and preferred option stage. Benefits from the benefits framework will be used to populate the AST.

Alternative/option assessment stage	**Recommended tools and practice**
Longlist (alternative and/or options)	Use Early Assessment Sifting Tool (for coarse sifting as required). Multi-criteria analysis (MCA)
Shortlist (options)	MCA with economic assessment output (eg benefit–cost ratio (BCR) or end-of-life net present value (NPV) included Costs should be included at this stage Appraisal Summary Table produced for each shortlisted option.
Preferred option	Detailed economic assessment, detailed BCR or end of life NPV. Updated Appraisal Summary Table

The AST provides decision-makers with a consistent and transparent overview of monetised, quantitative and qualitative benefits and costs at both the shortlist and preferred option stage of a detailed or single-stage business case. Benefits that align with strategic priorities in the GPS are highlighted in the AST. Efficiency is demonstrated by reference to the calculation of a BCR (or net present value) as well as non-monetised benefits. Effectiveness is demonstrated by the benefits expected to be achieved.

[1] The Environmental Standard is currently state highway focused, however it is currently being updated to provide guidance on the scope of additional activities. The link to the current version is https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/environment-and-social-responsibility/national-standards-guidelines-and-specifications/esr-standard/

EARLY ASSESSMENT SIFTING TOOL

The Early Assessment Sifting Tool (EAST) is recommended for use when there are a large number of alternatives or options to consider, ie coarse screening.

Introduction

The Early Assessment Sifting Tool (EAST) supports an initial 'coarse screening' of alternatives and options. The EAST is designed to quickly and robustly rule out alternatives and options that are non-starters, allowing for a more manageable subsequent MCA exercise. EAST has been designed to provide a consistent format for assessing all transport-related alternatives and options. The EAST has been adapted from UK Department for Transport best practice and aligns with NZ Treasury Better Business Case guidance.

In many cases only high-level information will be available at the early stages of considering alternatives and options. EAST is designed so that it can be applied without having to obtain detailed evidence, but with input from subject matter experts. They should use their judgement alongside evidence on the relative magnitudes of impacts to assess the net effect on an alternative or option.

The EAST does not provide definitive answers as to which are the best alternatives or options to be used in subsequent MCA. Critical thinking is important, especially when considering the right-sizing of possible solutions to a problem or opportunity.

Benefits of using EAST

The benefit of using the EAST is that the tool:

- provides a consistent approach to coarse screening to refine the initial list of alternatives and options in the optioneering process without having to obtain detailed evidence
- assists in getting to a manageable number of alternatives and options for more detailed assessment through multi-criteria analysis
- encourages a broad range of alternatives and options to be considered
- eliminates non-starters early on to ease the appraisal burden and avoid resources being spent unnecessarily
- helps document decisions made (ie clear rationale for the rejection of alternatives/options).

The EAST template is provided in Attachment 1. This template is available in excel format for ease of use.

MULTI-CRITERIA ANALYSIS

The multi criteria analysis guidance and template is recommended for use.

Introduction

Multi-criteria analysis (MCA) is a tool that can be used to assess multiple criteria, both quantitative and qualitative. MCA can be used to compare different alternatives and options and assist with conversations between investors and stakeholders to help inform decision-making.

This MCA guidance and template will:

- provide guidance on a best practice process and approach to ensure robust and holistic assessment when moving from the longlist to the shortlist of alternatives and options
- support investment decisions being made consistently and transparently across business cases
- embed the intervention hierarchy, which ensures that a broad range of alternatives and options have been considered
- seek to create a replicable approach to scoring, such that a different group could apply the same assessment methodology and produce comparable results
- help identify environmental impacts and opportunities, and aligns investment and Resource Management Act 1991 (RMA) and Public Works Act (PWA) obligations. In particular this relates to the need for robust, transparent and a well-documented optioneering process throughout the entire business case development process; from the strategic case through to the implementation of the preferred option.

It is anticipated that MCA will be utilised as part of most business case optioneering processes to help investors and project teams evaluate alternatives and options at the longlist and at the shortlist phase to identify a preferred solution. It is not intended to be applied when making detailed design decisions post the identification of the preferred solution.

MCA outputs support making trade-off decisions between different alternatives or options. MCA does not provide definitive answers about which is the best alternative or option. Critical thinking is important, especially when considering the right-sizing of possible solutions.

MCA group assessment techniques

MCA is often a group-based assessment activity, since it typically requires input from a range of different specialists. Although practically a single informed participant could complete low-complexity and low-risk MCA assessments, for the majority of activities it is anticipated that multiple participants will be involved in the MCA process.

There are two main methods of group decision-making techniques used for MCA scoring and selecting shortlists and preferred options. These can be broadly defined as decision conferencing, a structured format among individuals in a meeting, and the Delphi method, where participants are physically remote and identify and evaluate ideas/scores independently. Where practicable, it is recommended that a decision conferencing workshop method is used when undertaking MCA.

Decision conferencing provides for a structured format among individuals in a facilitated workshop, or across several workshops. A fundamental requirement is a comprehensive understanding of the activity or project involved. The exercise should be undertaken on the basis of agreed criteria and scoring approach.

Subject matter experts may first independently establish provisional scores based on known evidence. This step may be completed prior to the meeting. At the workshop each subject matter expert presents their own ideas and scores. These scores are then discussed, challenged and moderated and consensus made during the workshop.

MCA criteria

The project team should select the appropriate criteria for their activity on a case-by-case basis. Investment objectives and critical success factors need to be included as part of all assessments. The reasoning for selection should be discussed and documented in the MCA report. If necessary to understand the potential social and environmental impacts of the activity, the Waka Kotahi Environmental and Social Responsibility Standard can be used to guide environmental and social criteria in the longlisting and shortlisting process[2].

[2] The Environmental Standard is currently state highway focused, however it is currently being updated to provide guidance on the scope of additional activities. The link to the current version is https://www.nzta.govt.nz/roads-

The aim of criteria selection is to define:

- whether an alternative or option has strategic alignment with transport system objectives (including RLTP and GPS), strategies, plans and policies
- whether an alternative or option will deliver net benefits, ie benefits greater than costs
- the relative effects of the options and alternatives under consideration, and
- whether the alternative or option is achievable in relation to applicable legislation and regulations.

The identification and description of the criteria must be discussed and agreed upfront by the project team and where necessary key stakeholders. Further definition of a criterion may require the input of subject matter experts, as specific circumstances may need to be reflected.

For activities likely to require approvals under the RMA, Part 2 of the RMA is relevant. Part 2 outlines the RMA's purpose and principles. In identifying appropriate criteria for consideration, practitioners should ensure that relevant Part 2 matters are addressed through the specialist criteria selected. Advice should be sought from RMA planning specialists and/or legal counsel to ensure Part 2 matters are adequately provided for.

Not all the criteria will be relevant to every activity or at every stage of business case development. Stakeholders and/or customer perspectives should not be a criterion in and of itself. The root causes of objections or support should be captured within the relevant criterion. It may be relevant to include specific issues of interest to stakeholders (ie road safety or visual impacts).

If appropriate, a project team may wish to add intermediate and maximum ranges in addition to the do minimum to enable greater granularity.

The upfront cost of an activity should be included in an MCA process but should not be scored. The cost and fundability require a robust assessment separate to the MCA process.

Number of criteria

The number of criteria should generally reflect the risk, opportunity, complexity and variety of the options assessed. As a rule, practitioners should aim for about 8–12 and no more than 15 criteria in a MCA. Including too many criteria can result in criteria scoring 'balancing out', or key criteria being outweighed by multiple other criteria. Also, double counting is more likely to occur if too many criteria are included. Some MCA will require fewer criteria than others; for example, a simple MCA process may use only four or five criteria, while a complex MCA could have significantly more.

Assessing criteria

Subject matter experts advising on each criterion can provide indicative assessments for each option independently prior to the workshop. They should ensure that their assessment relates only to the specifics of the criterion as they have been applied to the particular activity, and that they do not comment on a matter or take into consideration a matter which is being considered in a different criterion.

Scoring – purpose and method

Scoring allows for differentiation between options. The scoring system used needs to have sufficient range to sufficiently discern the benefits, disbenefits and/or effects of the various options.

There are a variety of scoring systems available. A seven-point scoring system, as detailed in Table 2 below, will be appropriate for most activities. It can be used to rate quantitative and qualitative measures within the MCA template. The rating scale comprises a 7-point scale from -3 to +3. A summary of option performance can be obtained by adding these scores together. If desired, the total score or relative ranking of each option can be reported as part of the MCA table.

While Waka Kotahi recommends a 7-point scale as the standard approach, a 9- or 5- point scale can be applied where more or less granularity in scoring would better represent the evidence available.

If a project team deems the use of another scoring system more appropriate, this should be discussed and agreed with MCA technical specialists and the reasons for the system adopted well documented.

Scoring systems should be used consistently through the MCA and the activity lifecycle to enable fair comparison between options. Hence, if a new option is introduced or a reassessment is required, the same scoring system should be used.

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and-rail/highways-information-portal/technical-disciplines/environment-and-social-responsibility/national-standards-guidelines-and-specifications/esr-standard/

Figure 2: Seven-point scoring system

Magnitude	Definition	Score
Large positive (+ve)	Major positive impacts resulting in substantial and long-term improvements or enhancements of the existing environment.	3
Moderate positive (+ve)	Moderate positive impact, possibly of short-, medium- or long-term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.	2
Slight positive (+ve)	Minimal positive impact, possibly only lasting over the short term. May be confined to a limited area.	1
Neutral	Neutral – no discernible or predicted positive or negative impact.	0
Slight negative (-ve)	Minimal negative impact, possibly only lasting over the short-term, and definitely able to be managed or mitigated. May be confined to a small area.	-1
Moderate negative (-ve)	Moderate negative impact. Impacts may be short, medium or long term and are highly likely to respond to management actions.	-2
Large negative (-ve)	Impacts with serious, long-term and possibly irreversible effect leading to serious damage, degradation or deterioration of the physical, economic cultural or social environment. Required major re-scope of concept, design, location and justification, or requires major commitment to extensive management strategies to mitigate the effect.	-3

The colours used above may allow a useful visual assessment to be undertaken as part of the MCA. This system is clear in its relationship with the do minimum, in that the neutral score is equivalent to the do minimum.

Sensitivity analysis

Weights represent beliefs about how important a particular criterion is compared to other criteria. If all criteria are considered to be equally important then all weights are the same. However, some criteria are often considered more significant and/or material to an activity than others.

To both ensure transparency and recognise the significance/materiality of different criterion, the following steps should be followed:

- **Step one:** Undertake scoring with all criteria having equal weighting.
- **Step two:** Undertake sensitivity analysis. This enables the robust examination of the results by exploring their sensitivity to weighted changes to different criteria. All changes to weighting and/or data should be done systematically to assess their effect on results.
- **Step three**: Document the results and the reasoning applied.

While weighting can be used as part of sensitivity analysis it should not be applied unilaterally to criteria to identify a 'preferred' option based on the scoring.

The MCA template is provided in Attachment 2. This template is available in excel format for ease of use.

APPRAISAL SUMMARY TABLE

The use of the Appraisal Summary Table is required for any new business cases which start after 30 June 2020, to align with the mandatory use of the benefits framework from this time. For business cases already under development at 30 June 2020 the AST is recommended for use, except where this would involve rework.

The AST replaces the cost–benefit analysis summary pages in Transport Investment Online.

Introduction

The AST summarises the impacts of an option (both positive and negative) compared with the do minimum. It provides decision-makers with a consistent and transparent overview of costs and monetised, quantitative and qualitative benefits and costs at the shortlist and preferred option stage of a detailed or single-stage business case. The AST replaces existing requirements within Waka Kotahi business case guidance, in particular, the economic summary table that is uploaded to Transport Investment Online.

The AST should include a summary of all relevant benefits (including disbenefits), both monetised and non-monetised, to allow informed decision-making. The number and level of assessment of benefits should be proportionate to the risk and scale of the activity. The source of monetised benefits information is the economic evaluation that is done in the economic case as part of the business case process.

When should an AST be used?

The same AST template will be used at the short list and preferred option stage. As an example, if there are three shortlisted options, an Appraisal Summary Table should be prepared for each of the options to enable informed trade-off decisions to be made. Consistent with current guidance, the shortlist of options needs to be selected before detailed appraisal is undertaken and summarised through an AST. A rich narrative should be captured within the documentation for the economic case as to the reasons why decisions have been made to get from the short list to preferred option. The economic evaluation methodology used at the short list and preferred option stage will be the same however it will be commensurate to the stage of the business case development and available evidence. 'Not material' can be entered into a field after it has been considered and found not to be relevant to an investment decision, and rows added/deleted to reflect the breadth of the costs and benefits considered.

The AST helps support the economic case at the short list and preferred option phase, as part of a detailed business case (DBC), single-stage business case (SSBC) or single-stage business case lite (SSBC lite).

The benefit of using an AST

The benefit of using an AST is:

- It presents both monetised benefits and costs and non-monetised benefits, describing all relevant impacts to decision-makers.
- It clearly demonstrates a proposal's alignment to outcomes.
- Properly calibrated, the AST reduces the incentive of those developing business cases to inflate benefits and underrepresent monetised costs to get a 'project over the line' (ie it tempers optimism bias).
- It illustrates all benefits so trade-offs can be more effectively made between options and then between proposals for different projects (the latter by decision-makers).

Information covered by the economic case

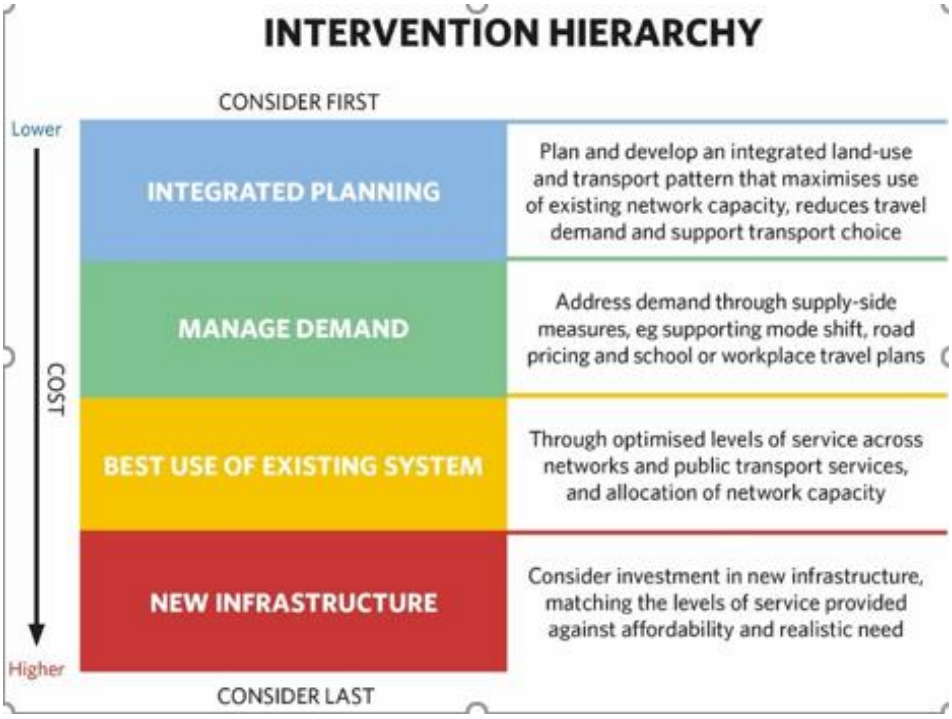
In the business case, the AST replaces the *Economic Summary TIO upload* which previously focused on monetised benefits only. As such, the following components must still be included in the economic case alongside an AST, in line with existing published guidance:

- do minimum/do nothing description – ie, conditions that would exist without the activity being progressed
- optioneering and identifying the preferred option, including the rationale for this choice
- cost–benefit analysis methodology, incorporating detailed forecasting/modelling overview, including assumptions, model used etc
- sensitivity analysis
- incremental analysis
- first year rate of return (to help make decision on when we need something in place by eg now or in 5 years' time)
- identification, assessment and management of risk and uncertainty, including confidence in accuracy of quantitative estimates
- equity issues (particular groups/stakeholders that benefit or are negatively impacted).

The AST template is provided in Attachment 3. This template is available in excel format for ease of use.

INTERVENTION HIERARCHY

Waka Kotahi will work with its investment partners to apply an intervention hierarchy to optimise existing and proposed new investments in the land transport system. The intervention hierarchy should be applied when generating and considering alternatives and options. The intervention hierarchy is used to help drive value for money by promoting low cost investment ahead of costlier physical infrastructure and technological investment. It promotes integrated planning, demand management and the best use of the existing system ahead of new infrastructure solutions.



INTEGRATED PLANNING

Planning an integrated transport system is a multi-dimensional task that requires robust and iterative analysis of growth projections, future land use, spatial patterns and the impact of transport on economic activity, social interaction, culture and the environment. Integrated land use and transport planning is an essential input into the business case process and should drive regional land transport plans (RLTPs). Land-use interventions are a critical component of achieving outcomes. RLTP strategic sections provide a good overview of the combined impacts on outcomes of transport and land use planning decisions. Activity management plans (AMPs), mode shift plans, as well as other cross agency programmes such as future development strategies and spatial plans, provide context for the optioneering phase of business case development.

Integrated planning is an evolving area of consideration for government and Waka Kotahi. Emerging legislation needs to be actively incorporated into strategic analysis and development of land use and transport planning. For instance, the proposed Urban Growth Agenda marks a shift in the approach to urban development and infrastructure and the likely mix of instruments and levers that are available to relevant stakeholders. Additionally, Waka Kotahi is a signatory to the NZ Urban Design Protocol, where we have committed to planning for, developing and promoting quality urban design.

Transport can't be viewed as an isolated activity. To achieve integrated solutions, it is essential that a collaborative approach to national, regional and local transport planning is achieved by working in partnership with other government departments as necessary – including the Ministry of Housing and Urban Development, Ministry of Education and Kainga Ora –iwi bodies, local government and the private sector.

It is good practice that there is a clear correlation between agreed strategies and plans and the problems and benefits identified in strategic cases through all phases of the Business Case Approach, including during alternatives and options selection.

Spatial planning

A spatial plan provides a high-level direction or vision for future urban and economic growth and indicates the location and timing for delivering infrastructure over a 30-year time frame. It will set the overarching strategic objectives for an area. This is generally at a regional level but can also be at inter-regional or sub-regional level. Waka Kotahi inputs or partners with local government, multiple crown agencies, tangata whenua and potentially private sector investors and post treaty settlement entities when creating spatial plans. A spatial plan can illustrate:

- existing and future land use patterns
- existing and future infrastructure provisions and strategic corridors for infrastructure
- priority areas for growth and investment
- 'no-go' areas, and areas for balancing negative development impacts or restoring/maintaining environmental qualities
- other strategically significant priorities for the region.

A number of decisions are made during planning on spatial form which subsequently contribute to the business case process and the optioneering process. Spatial plans and supporting documentation can form part of the strategic context for business cases. Examples include the Auckland Transport Alignment Project or the Urban Form and Transport Initiative in the western Bay of Plenty. Often long-term land-use changes and strategic alternatives have already been considered and agreed as part of spatial planning. This will then form the basis for subsequent business case development, including alternative and option development.

MOVEMENT AND PLACE

The One Network Framework helps provide the context for any potential interventions. By identifying both the movement and place function of roads/streets and corridors, in relation to the wider network, appropriate options can be considered. The One Network Framework sets out different street families which have different characteristics. In areas that have an important place function, e. town and city centres, options need to consider the space for people to dwell on and across a road or street, as well as how they move through a corridor. Additionally, the One Network Framework identifies different modal networks which need to be taken into consideration during optioneering.

Transport systems need to be designed to deliver access to opportunities rather than mobility as an end in itself. The One Network Framework can help identify the combined transport and land use context of the identified problem area, which is useful to inform appropriate responses types when generating alternatives and options.

CLIMATE CHANGE – MITIGATION AND ADAPTATION

The Climate Change Response (Zero Carbon) Amendment Act 2019 addresses climate change mitigation (addressing the causes of climate change – reducing greenhouse gas emissions), and climate change adaptation (adapting to the impacts of climate change). The act provides a framework by which New Zealand can develop and implement clear and stable climate change policies for mitigation and adaptation that contribute to:

- the global effort under the Paris Agreement to limit the global average temperature to 1.5 degrees Celsius above pre-industrial levels
- Aotearoa preparing for, and adapting to, the effects of climate change.

Climate change mitigation

- The act sets a target of net zero emission by 2050. The Climate Change Commission will recommend a series of five-year emission (reduction) budgets and the government will set the emission reduction budgets starting from 2022. Sector-specific budgets are not required but are expected. Provisional emission budgets are under development.
- Government is also required to establish an Emissions Reduction Plan that contains policies and strategies for meeting the relevant emission budget to respond to the emission budgets. The plan must include sector specific policies.
- The Ministry for the Environment is currently leading cross-government work to develop the government's Emission Reduction Plan. The Ministry of Transport is the lead agency for the transport sector, including land transport. A draft transport plan is tentatively proposed for the middle of 2020.
- The Ministry for the Environment is also leading cross-government work to update the social cost of carbon.
- The draft GPS 2021 and the Minister's Letter of Expectations set the expectation that Waka Kotahi will embed long-term emission reductions into planning and investment instruments. The draft GPS 2021 established reducing emissions as a strategic priority, to be achieved through all other strategic priorities.

- Waka Kotahi is not in a position to set emission reduction targets ahead of the Climate Change Commission's recommendations, but it is working with a range of partners to inform the setting of targets.

Setting emission budgets for land transport is complex and difficult. Toitu Te Taiao – the Waka Kotahi draft Sustainability Action Plan identifies that land transport emission reductions will be achieved by interventions that:

- **avoid** or reduce reliance on travel by car in our largest cities where greenhouse gas (GHG) emissions from light vehicles are most concentrated (eg through land use – compact growth/transit focused development)
- **shift** people who choose to travel from cars to other energy efficient modes such as public transport, walking and cycling – again focused on our largest cities (eg mode shift and increasing mode share for public transport and active modes)
- **improve** the energy efficiency of the vehicle fleet (eg supporting electric vehicle (EV) uptake).

To date, most cross-government effort has focused on the last of these (improving the vehicle fleet). Toitu Te Taiao identifies that vehicle fleet interventions must be complemented with initiatives that help people to avoid the need to travel by car and/or shift to more energy efficient modes. The issue with this is that we do not know the overall contribution that 'avoid and shift' interventions can make relative to 'improve the vehicle fleet' interventions. This is complicated by the fact that there are currently no transport models able to reliably model the impact of a range of land use and mode shift interventions on emissions – although expert advice is that some models can be adapted for the purpose.

With the above in mind, the IDMF team and the Toitu Te Taiao team have been working together to take a staged approach to embedding emission reduction requirements into key planning and investment instruments.

The **first** stage includes:

- Setting the expectation that consideration of GHG emission impacts is mandatory for all activities. This now forms part of the Appraisal Summary Table.
- Guidance for optioneering on how interventions can be optimised to reduce GHG emissions and consider long term outcomes for emission reductions.
- New investment principles also support emissions reductions through the focus on providing for long-term outcomes and for programmes and packages purposefully designed to support delivery or more than one outcome.
- Proposed criteria for investment prioritisation that are consistent with the above – and leveraging public transport/active mode interventions.
- A range of other initiatives outside the IDMF review to embed emission reductions into Waka Kotahi practice and focus.

The **second** stage requires work to provide a practical methodology, tools and guidance for how to consistently assess for emission impacts and set targets particularly in the absence of any robust models capable of assessing avoid/shift/improve interventions at the same time. Once this work is tested, refined and complete, we envisage embedding the practical tools and guidance into the Investment Decision-Making Framework.

The National Climate Change Risk Assessment (NCCRA) will provide a national overview of how various hazards and threats throughout the country might be influenced by climate change, and how these hazards may impact infrastructure (including land transport infrastructure). The first NCCRA is expected to be completed by mid-2020. The government will use it to prioritise actions to reduce risks, improving resilience of the system, or take advantage of opportunities through its National Adaptation Plan.

Climate change: interim guidance for adaptation and mitigation

Climate change mitigation and adaption are key considerations when optioneering. Key questions to ask when considering GHG emissions are:

- Is this alternative or option on its own or as part of a package or programme likely to increase, have no impact or reduce demand for travel by car, now or in future?
- If the alternative or option on its own or as part of a package or programme likely to increase or have no impact on demand by car:
    - Consider if there are climate friendly alternatives or options that could reduce demand for travel by car (and therefore emissions).
    - Consider complementary activities to mitigate the potential increase in emissions (either within the same package or programme, or forming part of another package or programme).
- Is the activity on its own or as part of a package or programme likely to reduce reliance on travel by car, now or in future? If so:

    - What is the potential scale of the reduced demand? (For example reducing vehicle kilometres travelled (VKT) or increased mode share for public transport/active modes.)
    - What supporting interventions may be required to optimise emission reductions? (For example incentives, parking management, workplace travel planning.)
- On balance, is the RLTP (for major urban areas) likely to increase demand for travel by car, make no difference to demand for travel by car, or reduce demand for travel by car? If the RLTP is likely to increase demand or have no impact on demand, then mitigation of emissions arising from travel by car is expected.

Optimisation

Investment in 'climate friendly' activities does not automatically mean that transport emissions will reduce. Research tells us that for emissions to reduce, integrated packages of interventions must be specifically designed and optimised to reduce emissions through avoiding or reducing reliance on travel by car, and/or shifting to other more energy efficient modes. This means taking account of things like land use, provision of and proximity to shared and/or active modes, how efficient the movement of shared/active modes is (eg bus prioritisation lanes), and what demand management interventions are in place to support durable behaviour change (eg parking management; reduced public transport fares etc). Stand-alone climate friendly activities are unlikely to achieve sustained reductions in emissions.

To ensure climate change is considered the impact of climate gas emissions is a mandatory requirement within all the assessment tools (EAST, MCA and AST). In addition, adaptation is also included as a key criterion within the EAST and MCA optioneering tools.

APPROACH TO TE AO MĀORI

Māori should be supported and enabled to contribute in a meaningful way to the decision-making process as investment decisions touch on matters that affect Māori and input may have influenced some of these outcomes. Māori are often involved during the delivery of an activity. However, that is often too late to properly incorporate Māori perspectives. Current investment guidance, tools and methodologies do not adequately incorporate a Māori/iwi perspective. The overarching goal is to provide recognition and visibility as to how consideration of Māori/iwi perspective and aspirations are included within investment decision-making and assessment tools.

Te Ara Kotahi (our Māori Strategy) provides strategic direction to Waka Kotahi on how we work with and respond to Māori as the Crown's Treaty partner, and what this means for how we do business.

Māori are partners of Waka Kotahi and there is also a need for Waka Kotahi to meet its Land Transport Management Act 2003 (LTMA) requirements. Section 18H of the LTMA requires Waka Kotahi to establish and maintain processes to provide opportunities for Māori to contribute to land transport decision-making processes and consider ways to foster the development of Māori capacity to contribute to the organisation's land transport decision-making processes.

Similarly, the Local Government Act 2002 provides principles and requirements for councils that are intended to facilitate participation by Māori in local government decision-making processes.

To ensure visibility of the impact on Māori, the assessment tools (EAST, MCA and AST) include a specific row for Te Ao Māori impacts (ie mandatory for consideration). In addition, business case guidance is currently being updated with the help of the Māori Strategy team to provide clarity on Māori participation in business case development as the Crown's Treaty partners.

CRITICAL STATUTORY REQUIREMENTS FOR OPTIONEERING PROCESS

There are a number of legislative requirements to consider throughout all business case optioneering and decision-making processes. In particular, robust, transparent and well-documented optioneering and decision-making processes are critical to meet the statutory requirements under the LTMA, Resource Management Act 1991 (RMA) and Public Works Act 1981 (PWA). Rather than adding undue layers of complexity, these legislative obligations generally reflect best practice and are likely to enhance business case processes and outcomes.

Land Transport Management Act

The LTMA sets out the legislative requirements which govern Waka Kotahi investment from the NLTF. When Waka Kotahi is approving proposed activities or combination of activities, key legislative requirements under section 20 include that an activity or combination of activities:

- is consistent with the GPS on land transport

- is efficient and effective
- contributes to the agency's objectives
- has, to the extent practicable, been assessed against other land transport options and alternatives.

In addition, the LTMA places a number of obligations on the way Waka Kotahi undertakes its functions. In particular, it requires Waka Kotahi to:

- exhibit a sense of environmental and social responsibility
- facilitate participation by Māori in land transport decision-making
- ensure transparency in decision-making and use of revenue and expenditure.

Resource Management Act and Public Works Act considerations

Investment proposals requiring approvals under the RMA and/or requiring compulsory acquisition of land under the PWA, may be required to meet certain tests associated with optioneering and decision-making processes. This influences business case development processes and decisions across the entire business case development process; a thread that runs from the strategy case through to the implementation of a preferred solution.

These RMA and/or PWA requirements oblige Waka Kotahi and its investment partners to clearly demonstrate:

- adequate consideration of alternatives throughout the entire optioneering process (from long-listing onwards). It is not necessary to consider all possible alternatives and options or evidentially eliminate alternatives that are clearly speculative or suppositious. In terms of the requirements under the RMA, an organisation is also not required to select the 'best' option. What is necessary is to demonstrate that an appropriate broad range of alternatives has been adequately considered
- systematic and transparent optioneering and decision-making processes
- a sound argument for why any proposed physical works are 'reasonably necessary' (under the RMA) including the ability to demonstrate 'reasonable need' for any land required (PWA)
- appropriate recognition and provision for the principles of the Tiriti o Waitangi in relation to managing the use, development, and protection of natural and physical resources and the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga
- consideration of a proposal's social, cultural, environmental and economic effects and appropriate action considered to avoid, remedy or mitigate any adverse effects.

While the specific RMA and/or PWA requirements associated with a particular activity are not known until at least the indicative business case stage, it is necessary to ensure that all optioneering and decision-making processes met these requirements from the outset to ensure they are sufficiently robust to support any subsequent RMA approval or PWA requirements.

Seeking early input from property, RMA planning technical and legal specialists into the business case process (particularly from the long listing onwards) will help facilitate integrated decision-making and ensure these processes meet the necessary legislative requirements.

The process of refining alternatives and options from a long list to a short list to a preferred solution involves an increasingly refined process with progressively detailed and focused investigations and information filtering. The inclusion of 'environmental' criteria in optioneering processes will almost always be appropriate from the longlist stage onwards with increased granularity required at the short list stage.

It is likely that specific environmental criteria will be required to assess different physical options (eg different greenfield transport corridors). Identification of appropriate environmental criteria should be based on an assessment of constraints, opportunities and risks applicable to the area in question.

UPDATED DEFINITIONS

Alternatives

An alternative is a strategic way of responding to a problem or opportunity applying a whole-of-system approach (can include corridor or network planning), such as exploring the potential for different land use arrangements or encouraging greater use of other modes to address projected growth in network demand. Alternatives may have been identified as part of spatial planning but may also be developed as part of the business case approach. In addition, the assessment of alternatives needs to meet RMA and PWA requirements as described above. In developing alternatives, it is important to consider the intervention hierarchy, which addresses:

- *demand* – for example, ways in which the need for travel can be reduced
- *productivity* – for example, by making sure the current system is optimised as far as reasonably practicable
- *supply* – for example, provision of new services or infrastructure.

Options

Options represent different ways to achieve an outcome or objective. For example, if it had been decided that the best way to address a particular problem was to improve an intersection for safety or efficiency reasons, options could include: building a roundabout, installing traffic signals, or grade separation. The assessment of options needs to meet RMA and PWA requirements as described above.

Fatal flaws

A fatal flaw is a condition or circumstance that means the option will not be able to be achieved or that the risk is so great that the option is not worth pursuing. Fatal flaw analysis involves a high bar. Options that are highly difficult but not fatally flawed should remain in the mix and be scored appropriately.

Many fatal flaws relate to aspects which are not consentable under the RMA, where property cannot be acquired, or where unresolvable legal challenges may arise. Engineering complexity is rarely a fatal flaw, although natural hazard exposure may be. Financially expensive options in and of themselves should not be considered fatally flawed.

ATTACHMENT 1: EARLY ASSESSMENT SIFTING TOOL TEMPLATE

- The EAST tool will be in excel format. It will provide an overview of the project including problem/opportunity statement, description of do minimum and investment objectives. The assessment of each alterative or option is undertaken and then this information is pulled through to a summary page. This summary can then be used to rule out alternatives and options that are non-starters.
- The EAST tool will have pop-ups. The pop ups will describe what should be entered into a cell.

Project overview details

Fields	Pop ups	Drop down
Date		*08/05/2020*
Project name	*Same description as TIO i.e. connected communities*	*User to enter*
Business case phase	*Same description as TIO*	• *Programme business case* • *Indicative business case* • *Single stage business case*
Problem/opportunity statement	*Problem/opportunity statement as defined by the business case*	*User to describe*
Do minimum		*User to describe*
Investment objec ive *and benefit measures*	*Investment objectives specify the desired outcomes for a proposed investment. It is likely that only initial measures will be available at this stage with no set targets.*	1. *Investment objective (e.g. safety outcomes)* *Measure* *Measure* 2. *Investment objective (e.g. public transport outcomes)* *Measure* *Measure* 3. *Investment objective (e.g. active mode outcomes)* *Measure* *Measure*

Alternative or option details (complete for each alternative or option)

Header 1	Header 2	Header 3	Scoring question	Drop down level 1	Drop down level 2	Pop up text
	Unique identifier				Rating (drop down within excel)	
	Name of alternative/ option				User to describe	
	Description of alternative/ option				User to describe	Provide a brief description of the alternative/option
Investment						
Investment Objectives			What is the potential of the alternative/option achieving investment objectives?	1. Investment objective (e.g. safety outcomes)	1. low 2. 3. 4. 5. High	Alternatives and options need to be assessed for their ability to deliver against investment objectives. Assessment should be made against investment objec ives (i.e. not measure level).

Header 1	Header 2	Header 3	Scoring question	Drop down level 1	Drop down level 2	Pop up text
				2. Investment objective (e.g. public transport outcomes)	1. low 2. 3. 4. 5. High	
				3. Investment objective (e.g. active mode outcomes)	1. low 2. 3. 4. 5. High	
Investment	**Practical Feasibility**	**Technical**	Rate the technical or practical ease/difficulties that may be present when implementing this alternative/option, for example local site geography or existing contracts?		1. low (easy) 2. 3. 4. 5. High (difficult) Don't know	
		Safety and Design	Rate the level of potential hazards associated with the alternative/option which pose a health and safety risk in design, operation or maintenance?		1. low 2. 3. 4. 5. High Don't know	
		Consentability	What is the level of consenting complexity/difficulty and the risks of this adversely impacting on required project timeframes or o her aspects?		1. low (easy) 2. 3. 4. 5. High (difficult/complex) Don't know	
	Scheduling / programming *(no colour as not good or bad)*		When could the option / alternative be delivered?		0-2 years 2-5 years 5+ years	
	Cost *(no colour as not good or bad)*		What is the likely range of the upfront capital cost of the alternative/option?		< $1 million $1-$5 million $5-$50 million $50 + million	
	Key risks and uncertainties.		Does the alternative/option have any significant risks or uncertainties?		User to define	
Climate change and Te Ao Māori						
Opportunities and impacts	**Climate change**	**Mitigation**	What is the expected impact of the alternative/option on demand for travel by car, now or in the future?		Increase	This is a proxy for greenhouse gas emission impacts.

Header 1	Header 2	Header 3	Scoring question	Drop down level 1	Drop down level 2	Pop up text
					Neutral Reduce	
		Adaptation	Is the alternative or option exposed to climate change risk or other natural hazards over time?		Yes No Maybe	
	Impacts on Te Ao Māori		What, if any, impacts are there on Te Ao Māori? This includes areas of significance for Māori, Māori land and Kaitiakitanga (recognition that the environment is a taonga).		User to describe where there are significant impacts Are any of these fatal flaws?	
Environmental and Social Responsibility Identify potential significant environmental and social effects and whether they are likely to be avoided, remedied or mitigated. The Environmental and Social Responsibility Screen can be used to help identify effects and opportunities; however, it is not necessary to undertake the screen for each alternative or option if the environmental context is not materially different and the effects of the alternative/options on the environment are the same or very similar.						
	Environment, social and cultural	**Identify**	Are there any significant environmental, social or cultural effects, including biodiversity, biosecurity, landscape, air quality, water quality, natural hazards, noise, contaminated land, heritage and archaeology etc? Cumulative effects, if any, should also be identified. Cumulative effects may be insignificant on their own but may accumulate over time or space with other effects to become significant. Long-term and short-term effects should be considered including those arising from the construction, operation, maintenance and use of the transport asset.		User to describe where there are significant effects Are any of these fatal flaws?	
		Mitigation	Can these be avoided, remedied or mitigated?		User to describe	
Fatal flaws						
Fatal flaws			Does the alternative/option present any fatal flaws?		User to describe	Fatal flaws listed with text field for description

ATTACHMENT 2: MULTI CRITERIA ANALYSIS TEMPLATE

Summary Description	
Activity Name	*Given name and identifier for activity. Please note that this should align with the Transport Investment Online naming convention.*
Problem/opportunity statement	*Problem/opportunity statement as defined by the business case*
Benefits	*What is the primary benefit of addressing this problem/opportunity (from the benefits framework)?*
Investment Objective	*The intended outcomes or goals of an investment – what the investment is aiming to achieve.*
How project gives effect to GPS	*GPS Priorities are considered within the Transport Outcomes section below.*
Do Minimum	*Define Base Case for comparison*

Intervention type/s (sourced from intervention hierarchy. To be added / deleted as appropriate)	Do Minimum	Intervention hierarchy			
		Integrated Planning	Manage Demand	Best Use of Existing System	New Infrastructure
Long-list options	(Example ratings)	**Option / Alternative 1**	**Option / Alternative 2**	**Option / Alternative 3**	**Option / Alternative 4**
Investment Objective and relevant Transport Outcome					
Healthy and safe people	Moderate (-ve)				
Resilience and security	Neutral				
Economic prosperity	Slight (-ve)				
Environmental sustainability	Slight (+ve)				
Inclusive access	Slight (-ve)				
Critical Success Factors Practical considerations that will dictate whether the option / alternative can be successfully implemented. Project-specific rows can be added if other considerations are relevant.					
Achievability/ Feasibility (Programme Business Case only)	Slight (+ve)				
Technical (Indicative Business Case only)	Slight (+ve)				
Safety and design (Indicative Business Case only)	Slight (+ve)				
Consentability (Indicative Business Case only)	Slight (+ve)				
Potential affordability (Programme Business Case only)	Slight (+ve)				
Capital (Indicative Business Case only)	Slight (+ve)				

Operational/ Maintenance (Indicative Business Case only)	Slight (+ve)				
Potential value for money	Slight (+ve)				
Supplier capacity and capability.	Moderate (+ve)				
Urgency	Large (+ve)				
opportunities and impacts (insert N/A if not relevant)					
Environment effects	Slight (-ve)				
Social and cultural impacts	Slight (-ve)				
Climate change mitigation	Neutral				
Climate change adaptation	Slight (-ve)				
Cumulative impacts	Neutral				
Impacts on Te Ao Māori	Neutral				
Property impacts	Large (-ve)				
Proposal specific critical success factors -					
TBC	Moderate (-ve)				
Cost (not to be scored)	*e.g. $125 million capital*				
Comments/Notes from discussion					
Decision	Possible	Preferred	Discounted	Possible	Possible

ATTACHMENT 3: APPRAISAL SUMMARY TABLE TEMPLATE

Summary Description			
Option name	*Given name and identifier for option*	**Date and Appraisal Period**	*Starting year and timeframe analysed*
Problem/opportunity statement	*Problem/opportunity statement, defined by the business case*	**Investment objectives**	*The intended outcomes or goals of an investment*
How project gives effect to GPS	*(High level outcome)*	**How the project gives effect to local community outcomes**	*Any key impacts on councils or local stakeholders (high level outcomes)*

Transport Outcomes Name of Benefit	**Non-Monetised Impact** *(description in numerical or narrative terms, e.g. number of crashes)*				**Monetised Impact** *(description in dollar terms in real terms, non-discounted)*	
	Name of Measure *(The quantitative or qualitative measure as per the Benefits Framework)*	**Baseline Situation** *(status quo or measure at year zero of the appraisal period)*	**Do Minimum Impact** *(forecast of expected change over time, should the option not be implemented)*	**Preferred Option Impact** *(forecast of expected change over time, should the option be implemented)*	**Do Minimum Impact** *(expected change over time, should the option not be implemented)*	**Option Impact** *(in absolute terms, to allow comparison with the Do Minimum)*
Healthy & safe people *(add or delete rows as appropriate)*						
Name of benefit						
Resilience and security *(add or delete rows as appropriate)*						
Name of benefit						
Economic prosperity *(add or delete rows as appropriate)*						
Name of benefit						
Environmental Sustainability *(add or delete rows as appropriate)*						
Name of benefit						
8.1 Impact on greenhouse gas emissions (mandatory)						
Inclusive access *(add or delete rows as appropriate)*						
Name of benefit						
12.1 Impact on Te Ao Māori (mandatory)						

1. Summary of Non-Monetised benefits *(Descriptive)*	**2. Summary of Financial Impacts** *(Total dollars in nominal, non-discounted terms – provided for context only ahead of financial case)*		**3. Summary of Monetised Option benefits and costs** *(Real, Present Value terms, relative to the Do Minimum)*	
Description of qualitative and quantified benefits identified above	**Capital Costs**		**Total monetised benefits, excluding Wider Economic Benefits (WEBs)**	
			Total monetised benefits, including Wider Economic Benefits	
	Operating Costs		**Total monetised costs**	
			BCR (excluding WEBs)	
	Total Financial Costs		**BCR (including WEBs)**	

Rationale for selecting preferred option
Reason why preferred option was chosen. i.e. consideration of non-monetised impacts reasons for best performing. Groups or individuals impacted by positive and negative externalities. Include results of incremental analysis and first year rate of return.

From: [redacted]
To: Michelle Palmer
Cc: Transport Emissions
Subject: RE: Request for extension re Hīkina te Kohupara
Date: Monday, 28 June 2021 2:58:23 pm
Attachments: Hiringa Hikina te Kohupara Submission 20210628.pdf

---

Kia ora Michelle,

Thank you so much for allowing us the weekend to finalise our submission.

Please find attached.

We request the opportunity to redact portions of our submission if the Ministry intends of making them publicly available please.

Ngā mihi
Dion

From: Michelle Palmer [redacted]
Sent: Friday, June 25, 2021 2:29 PM
To: Dion Cowley [redacted]
Subject: RE: Request for extension re Hīkina te Kohupara

Kia ora Dion,

Many apologies for missing your original email in our submissions inbox. Unfortunately we will not be able to offer a long extension as we are under incredibly tight timeframes. This is because our consultation timelines have to fit within those of the wider Emissions Reduction Plan that the Government has to finalise before the end of the year.

At the very latest we could accept a submission on Monday, 28 June 2021.

Ngā mihi

Michelle Palmer
Graduate Advisor, Environment, Emissions & Adaptation
Ministry of Transport – Te Manatū Waka

M: +[redacted] | www.transport.govt.nz
Enabling New Zealanders to flourish

From: Dion Cowley s 9(2)(a)
Sent: Thursday, 24 June 2021 9:20 AM
To: Transport Emissions <transportemissions@transport.govt.nz>
Subject: RE: Request for extension re Hīkina te Kohupara

Kia ora again,

We are still struggling at our end. Any chance of an extension please?

Thank you
Dion

From: Dion Cowley
Sent: Friday, June 18, 2021 8:26 AM
To: transportemissions@transport.govt.nz
Subject: Request for extension re Hīkina te Kohupara

Kia ora Hīkina te Kohupara team,

We are struggling with the amount of government consultation processes running concurrently.

Is there any chance that we can please have an extension beyond the 25th in order to make a meaningful submission?

Ngā mihi
Dion

MINISTRY OF TRANSPORT

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HIRINGA

The energy to change. Together.

MINISTRY OF TRANSPORT

HĪKINA TE KOHUPARA – PATHWAYS TO NET ZERO BY 2050

HIRINGA ENERGY SUBMISSION

JUNE 2021

Confidentiality Notice

This document contains confidential and proprietary information that shall not be disclosed outside the Ministry of Transport and shall not be duplicated, used, or disclosed – in whole or part – for any other purpose other than to evaluate this document.

TABLE OF CONTENTS

1. Introduction

1.1. Hiringa Energy (Hiringa) is the first company in New Zealand dedicated to the supply of green hydrogen. We are working with the Government, partners and leading companies within the road transport and supply chain industry to introduce zero emission hydrogen fuel cell electric heavy trucks, together with associated green hydrogen fuel production and refuelling infrastructure, to the New Zealand market from 2022.

2. Key messages

2.1. Green hydrogen technology is ready for commercial deployment in New Zealand now and will enable the accelerated decarbonisation of multiple sectors, including the emissions-intensive 'low hanging fruit' of the heavy transport sector.

2.2. Hiringa sees the future of transportation as a combination of multiple technologies. Battery electric, hydrogen fuel cell electric and biofuel vehicles will each have an important role to play and need to be deployed where they work best:

- For battery electric, it's the metro and return to base tasks where the vehicle weight, range and charge times aren't going to encumber productivity and the electrical grid has capacity.
- For hydrogen, its linehaul and high productivity motor vehicle (HPMV) operations where uptime and payload are critical and where fleets are large (with high energy requirements).
- For biofuels, which can only ever be produced in limited quantities in New Zealand, it's the existing legacy fleet of trucks, those which are being road registered today and will still be on the road (albeit in a reduced capacity) in 2040.

We see all of these technologies working in synergy, however because green hydrogen is replacing the highest emitting portion of the heavy fleet it is important that deployment begins in earnest now and is fully ramped up by 2025 if we are to meet our net zero target by 2050.

2.3. Heavy vehicles are responsible for around a quarter of transport emissions, with the heaviest trucks (linehaul) driving the most kilometres and emitting 150 times more CO_2 than the average light passenger vehicle. Zero emission hydrogen electric linehaul trucks begin operation in New Zealand in 2022 and will provide a 'quick-win' in terms of emissions reduction.

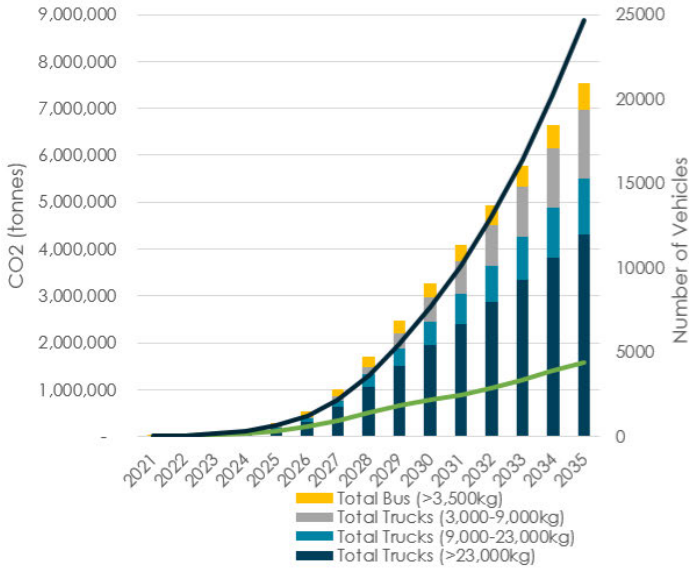
Figure 1. Decarbonising linehaul trucks has high impact

2.4. The Road User Charge (RUC) exemption for electric trucks and trailers is a key enabler for early adoption and it should be clarified that green hydrogen powered fuel cell electric vehicles are included in the definition of electric vehicle. Removing ambiguity around green hydrogen's inclusion in the program is essential for encouraging uptake of heavier zero emission vehicles with high abatement potential. Additionally, exempting trailers pulled by zero emission vehicles ensures appropriate incentive is provided to fleet operators transitioning the highest per-vehicle emitters in the fleet. It also ensures that safer B-train configurations are encouraged over large truck and smaller trailer combinations which would receive ~15% additional benefit over a B-train if trailers are not granted an exemption.

3. Commercial deployment of hydrogen electric heavy trucks begins in 2022

3.1. The capital cost reduction of hydrogen electric trucks is following a typical technology commercialisation pathway. To help manage the introduction of the technology, Hiringa has partnered with TR Group to introduce fuel inclusive hydrogen electric truck leases in rated combinations between 38t and 58t, providing ranges from 400km up to 650km, with comparable payloads and refuelling times to diesel equivalents. There are multiple other local industry stakeholders also making progress in this space, collectively helping to lay the foundation for the ramp up of zero emission freight in the medium term.

3.2. Heavy fleet turnover will take several decades with New Zealand only purchasing around 6,500 heavy vehicles each year. Even if we purchased zero emission trucks from now on, it will take more than 20 years to transition the heavy fleet. Encouraging a rapid increase in zero emission heavy vehicle uptake is critical and needs to start now if we are to meet our net zero target.



IMPACTS OF MODEST FLEET UPTAKE

By 2035:

- 20,000+ heavy vehicles replaced by fuel cell vehicles (>13% of fleet)
- 9,000,000 tonnes CO_2 abated

By 2050:

- >64,000 fuel cell vehicles on road (>40% of fleet)
- ~60 million tonnes CO_2 emissions abated

Figure 2. Emissions impact of hydrogen fuel cell electric vehicle uptake

4. Hydrogen electric buses are already in use within New Zealand

4.1. Hīkina te Kohupara refers to only procuring 'electric' buses by 2025, however we assume that a 'zero emissions at tail pipe' definition applies, as is used in the Public Transport Operating Model discussion paper. Hiringa supports the 2025 zero emission bus mandate and have already made significant inroads with international and domestic hydrogen electric bus manufacturers in terms of securing supply chains. We are working with major regional councils around the country on the integration of hydrogen electric buses into their fleets, with one council committing to 12 in principle. Auckland Transport (AT) is trialling New Zealand's first hydrogen fuel cell bus in 2021 after being assembled in Christchurch. AT and Hiringa have signed an MOU to assess feasibility of commercial hydrogen fuel cell electric buses entering their fleets from 2023 and hydrogen powered ferries in the future.

Figure 3. Auckland Transport's Hydrogen Electric Bus

4.2. Many regional councils see hydrogen fuel cell electric buses being used in their busiest and longest routes given their longer range, higher payload and quicker refuelling times, without the need for sometimes significant grid upgrades and sizeable battery-electric recharging infrastructure in their compact urban areas or grid constrained areas.

4.3. Hydrogen electric bus fleets are well suited for large zero-emission fleets where depot space and electrical grid constraints can limit the number of battery electric buses able to be deployed from a single depot. RedBus's integration of battery electric buses into their Christchurch fleet highlighted that small battery electric fleets can be simple to roll out, however if 40 battery electric buses were needing to recharge it would require 320 megawatts, which was comparable to the power draw of a small suburb and was likely to push past the capacity of the nearest substation.[1] Please refer to our PTOM submission recently submitted for more discussion on the opportunity that hydrogen electric technology provides for decarbonising our public transport bus fleet.

[1] https://www.stuff.co.nz/business/113790113/economics-vs-environment-the-battle-for-the-electric-bus

5. Hydrogen is a cost-effective way to turn non-electrified railway lines into zero emission lines

5.1. Hiringa endorses the Government's desire to decarbonise and grow New Zealand's rail network. There is the ability for trains to switch between electrification in urban areas and hydrogen fuel cell power when travelling through rural areas. Hydrogen fuel cell electric trains provide a solution to the system compatibility issues that arise for trains travelling between Wellington and Auckland electrified networks. New long-distance hydrogen electric trains could be compatible with either Wellington or Auckland electrified systems and use hydrogen fuel cells to power the remainder of their journey once departed. Hydrogen trains require only 20 minutes to refuel with 18+ hours of operation between refuelling and provide a cost-effective way to turn existing non-electrified railway lines into zero emission lines. Hydrogen trains are proven technology, having been in use for over four years in places like Germany[2] and more recently in France and the UK.

6. Hydrogen electric domestic aviation commercially available circa 2024

6.1. The leading development pathway for domestic fleet (e.g. turbo prop Q300 aircraft) low emission fuels is the conversion/retrofit of existing aircraft with hydrogen electric powertrains. The current estimation for commercial availability of this technology is circa 2024. Light electric aircraft (6 to 18-seater) powered by hydrogen fuel cells have been conducting successful test flights since 2016, with commercially available models converted to fuel cell power and electric engines flying since 2019. Light fuel cell powered electric aircraft could be entering service in New Zealand before 2025. There is also potential for fuel cell technology to decarbonise New Zealand's 'narrow body' fleet, enabling Trans-Tasman carbon free travel/freight. Beginning with the decarbonisation of our Q300 fleet in the short term enables the infrastructure and regulations to adjust and paves the way for 'narrow body' decarbonisation in the medium term.

7. Green hydrogen refuelling infrastructure available from 2022

7.1. Hiringa is partnering with Waitomo to establish a nationwide green hydrogen refuelling network. Operational from 2022, the refuelling network will initially serve heavy transport such as buses and the freight and logistics sectors, providing coverage for ~95% of heavy freight routes in the North Island and ~82% of the South Island. The network will be implemented without requiring any significant grid upgrades and will fuel a heavy vehicle in 15 minutes regardless of time of use. Importantly for industry, with hydrogen electric vehicles there is no need to time-shift fleet charging (as may be required if using battery electric technology), meaning the impact on operations when transitioning from diesel to zero emissions is minimal.

7.2. Decarbonising heavy freight routes has a high impact on overall transport emissions reductions. Hiringa has been working with Government and across multiple industry sectors to tie together the zero emission transport value chain to enable road freight decarbonisation and we look forward to working further with the Ministry of Transport to decarbonise our heavy fleet as we head towards our 2050 target.

[2] https://www.cummins.com/news/2020/02/28/power-passenger-trains-how-hydrogen-can-revolutionize-railway-operations-europe

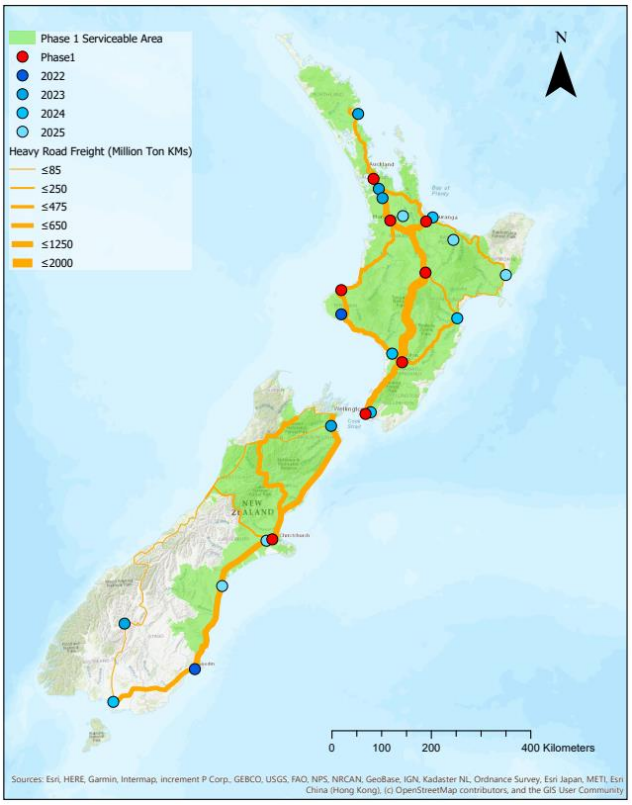


Figure 4. Hiringa's national hydrogen refuelling network in 2025

8. Policy 'levers' to enable fleet decarbonisation

8.1. Mechanisms such as Road User Charge (RUC) exemption for heavy electric (battery and hydrogen) vehicles, including both truck and trailer, are critical in the near term to help stimulate the early uptake of the technology and underpin the initial infrastructure investments. Auckland Transport's (AT) hydrogen electric bus currently in operation is an example of a green hydrogen powered vehicle utilising this exemption, allowing AT to pilot burgeoning zero emission technology in order to decarbonise the parts of their fleet well suited to hydrogen technology.

8.2. According to the Road User Charges Act 2012 Section 37A "the purpose of the exemption is to encourage and support the uptake of heavy electric RUC vehicles". A hydrogen electric heavy truck, including its towed trailer, classifies as a Heavy Electric RUC Vehicle as the green hydrogen stored on the truck (which provides motive power to the truck and trailer), is generated using an external source of electricity. However, the wording in the RUC Act does not specifically mention hydrogen fuel cell electric vehicles (FCEV) and this has created some uncertainty as to the treatment of this zero emission technology.

8.3. Whilst it is clear that a hydrogen electric heavy truck fully meets both the intent and technical requirements of the exemption, there is risk that roadside inspectors i.e. CVST (Commercial Vehicle Safety Team) officers, NZ Police etc may interpret this differently depending on their understanding. The purchasers of these hydrogen FCEVs (including cars and light commercial vehicles) are doing so at significant incremental expense and on the basis that they will be exempt from RUC until at least 2025 (longer would enable even further uptake and therefore greater decarbonisation). The risk of having to pay RUC on top of this due to ambiguous interpretation in the RUC Act is proving to be a

significant deterrent to the adoption of zero emission Heavy Electric RUC Vehicles and needs to be addressed.

8.4. We understand that a review of the RUC Act is currently underway and that under normal circumstances this might be the right place to make such clarifications, however these hydrogen electric heavy trucks are ready to be purchased now and any delays risk jeopardising the production slot at the factory and therefore further delaying the uptake of zero emission Heavy Electric RUC Vehicles. This requires Ministry of Transport clarification of hydrogen electric heavy truck (and trailer) RUC exemption, perhaps in the form of guidelines overseen by NZTA.

8.5. Dual use trailers become Heavy Electric RUC Vehicles when towed by Heavy Electric RUC Vehicles and hence should be included in RUC exemptions when in this configuration. A very high proportion of heavy freight and associated emissions is derived from the use of heavy trailers, the heaviest trucks that do the most kilometres and emissions will always have trailers. It is vital to ensure that these trailers are incentivised to be towed by zero emission trucks to drive adoption in the highest impact segments and provide adequate incentive for these operators to consider early transition of their fleet. This is an immediate mechanism to target large per vehicle emission reductions compared to other segments of the transport sector, which require a greater volume of vehicle uptake for the same overall emissions impact, and therefore significant behaviour change.

8.6. Additionally, by only providing an incentive on the truck, it forces adopters of zero emission trucks to use a less safe configuration such as large truck and small trailer, rather than an articulated B-train pulled by a prime mover. The large truck and smaller trailer with two close pivot points is much more susceptible to roll-over than a B-train. If the RUC exemption is granted only on trucks, the safer B-train configuration would receive ~15% less benefit of the RUC incentive than the large truck and smaller trailer configuration, encouraging greater adoption of a vehicle combination with higher roll-over risk.

8.7. In situations where heavy trailers are in a dual use between hydrogen electric and diesel ICE trucks this can be reconciled with existing technology. Both E-roads and Teletrac Navman already have electronic RUC systems developed for trailers with software for operators to monitor and claim back their off-highway RUC charges. We propose using a variation of this system to track trailer use when connected to a hydrogen electric heavy truck. This would allow the portion of journey the trailer is pulled by a hydrogen electric heavy truck to be eligible for claiming back in a similar manor to the off-highway claim back process.

8.8. The Government's feebate scheme is going to have a positive impact on increasing the uptake of zero emission passenger vehicles, assuming New Zealand can access enough of the vehicles in an already constrained international market. It is worth noting that, if a feebate system was applied to heavy trucks calculated on the actual reduction in carbon emissions, a typical linehaul truck could be eligible to receive CAPEX support of well over $800,000, which is more than the cost of a hydrogen electric heavy truck, with less financial support than this per vehicle being sufficient to stimulate uptake. Given the material impact that decarbonising our heaviest vehicles can have on emissions reduction, an incentive of this nature should be considered.

8.9. We support the development of a National Supply Chain Strategy given its intention (as outlined in Hīkina te Kohupara) is to engage with industry on ways to reduce emissions. Hiringa has been keen participants in the Ministry's Green Freight Project to date and look forward to adding value to this proposed strategy.

8.10. A significant challenge for displacing the incumbent diesel ICE is the low cost of commercial diesel. In order to facilitate the decarbonisation of our fleet, we support the Climate Change Commission's recommendation to introduce fuel agnostic low-carbon fuel standards, similar to the Californian Low Carbon Fuel Standard. Another policy setting to be considered is for new heavy vehicles being required to become progressively more fuel efficient each year under a type of Clean Heavy Vehicle Standard.

8.11. In order to achieve large scale impact in partnership with large fleet owners we recommend increasing the amount of funding available and the investment thresholds to enable high impact zero emission vehicle programmes over multiple years. Making the funding non-contestable is important, as the current Low Emission Vehicle Contestable Fund structure does not provide certainty of funds and is an uptake barrier. Non-contestable funding would give the private sector confidence to invest alongside Government.

9. Decarbonising our heaviest trucks presents a 'quick win' for emissions reductions

9.1. Replacing the heaviest, longest travelling vehicles, emitting the most CO_2 has high impact. Every linehaul diesel truck the industry replaces with zero emission technology can remove the equivalent of approximately 150 cars' worth of CO_2 emissions. With heavy freight contributing around 25% of our transportation emissions, this is a win for New Zealand that is already in-train with hydrogen electric trucks coming online in 2022. The figure below highlights the opportunity to abate transportation emissions in the heavy vehicle sector using today's hydrogen technology.

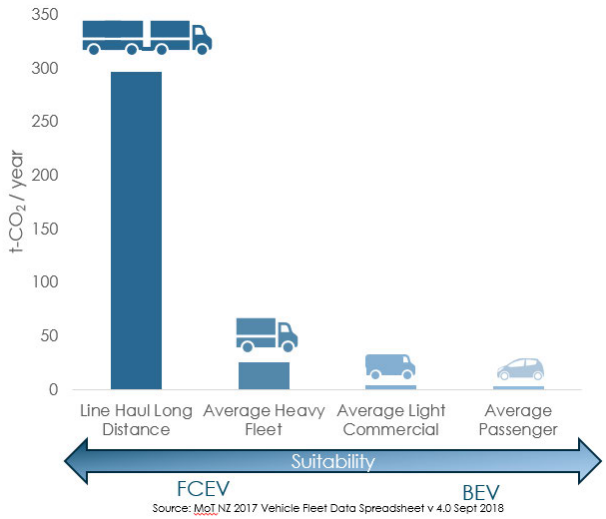


Figure 5. Hydrogen electric vehicles are well suited to high emitting applications

9.2. Modelling is a very useful tool in the toolbox when trying to understand how best to tackle heavy transport emissions. However, we need to be careful if we base assumptions on applying averages. For example, an 'average truck' based on the 2010 Ministry of Transport dataset and often used in analysis travels ~27,000km per year, with a GVM of 19.5t. However, this approach fails to account for the actual emissions of the different truck sub-classes and the actual lifecycle of a truck. A new truck typically enters the fleet at the high end of kilometres service and/or payload where it can be commercially justified, it then generally goes through 3 'lives' with disproportionately high kilometres and emissions in its first 'life'.

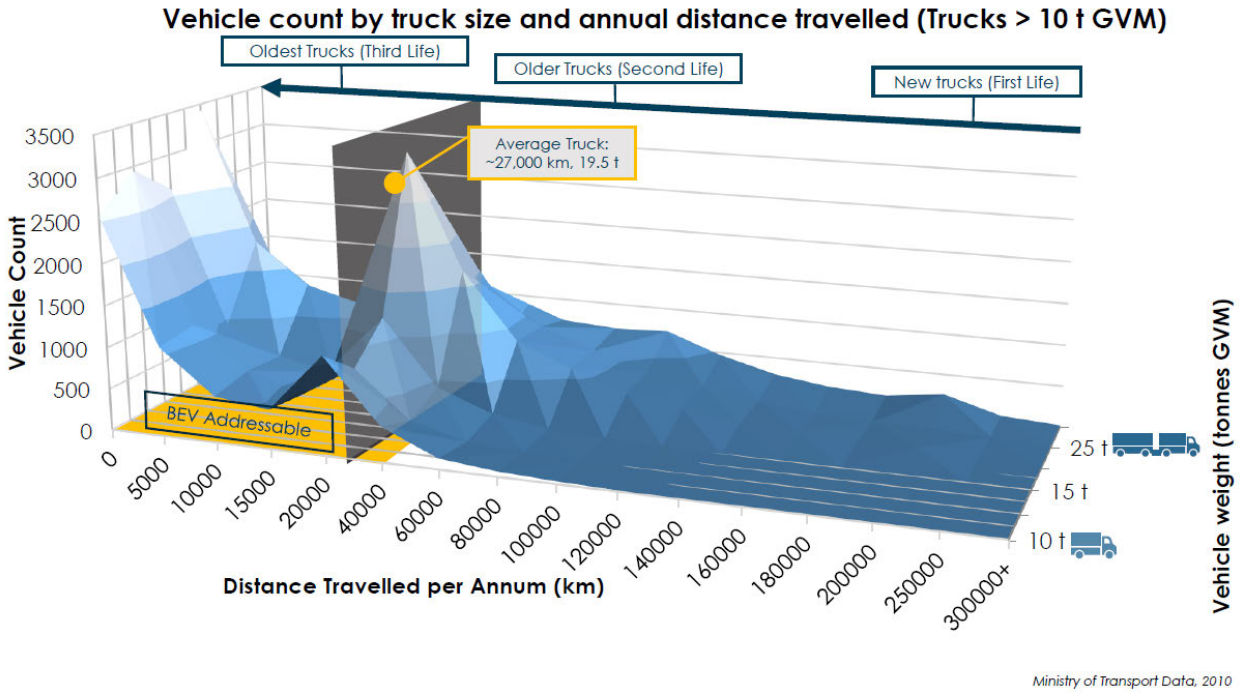


Figure 6. The average truck used in the Ministry's modelling in relation to truck 'lives'

9.3. When emissions are accounted for in heavy vehicle modelling, a very different pattern emerges (refer to figure 7):

a) Over 80% of heavy trucking transport emissions originate from trucks that are heavier and drive further than the 'average truck'.

b) Converting an 'average' heavy truck to zero emission technology would only address less than 20% of a truck's lifetime emissions.

c) A heavy trucking decarbonisation strategy should introduce new zero emission vehicles in the first life and leverage the 'trickle-down' effect.

With the bulk of a truck's emissions being produced in its first and second life, this is the place to focus our energy and replacing our heaviest fleet with hydrogen electric trucks will provide the best 'bang for buck'.

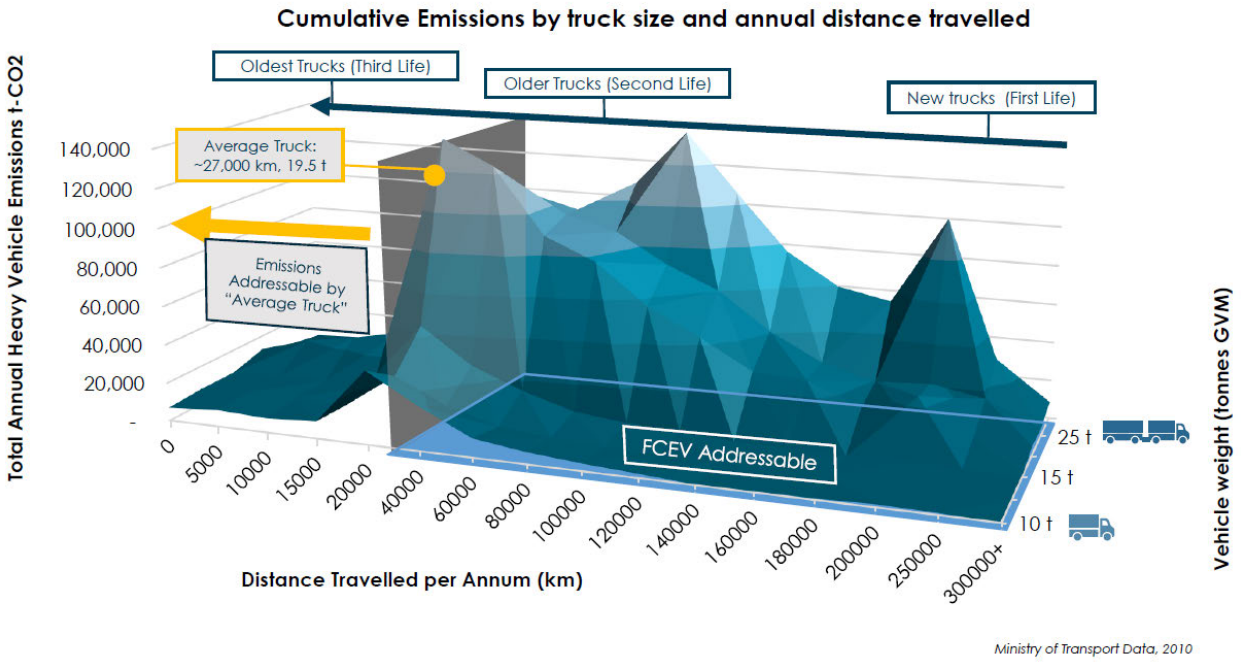


Figure 7. Emissions mainly occur within a truck's first two 'lives'

10. New Zealand's freight industry committing to hydrogen, providing high impact

10.1. Through working closely with our international and domestic industry partners and leveraging Hiringa's refuelling infrastructure planning, we and our partners have secured early access to leading hydrogen fuel cell electric truck technologies. New Zealand is seen to provide a perfect test bed to establish the commercial roll out of hydrogen electric heavy vehicle fleets. These trucks will be configured for New Zealand roads and specifications with the initial tranche of trucks targeted to be in service early 2022.

- Hyundai Motors New Zealand with the support of EECA has announced a programme to bring five zero emission Xcient fuel cell electric trucks to New Zealand before the end of 2021.[3] The trucks are based off the production run for Hyundai's global program that is deploying 1600 units into Switzerland by 2025, leveraging their global manufacturing capabilities.[4] Hiringa has been working closely with Hyundai New Zealand to ensure its refuelling infrastructure is configured to fuel the vehicles and positioned to serve the target applications within heavy freight for the Xcient platform.

- Hiringa has signed a framework agreement with Hyzon Motors to supply up to 1500 fuel cell electric trucks into the New Zealand market between 2021 and 2026 as Hiringa builds upon its nationwide refuelling network. An initial tranche of 20 trucks is planned to be introduced in 2022.[5]

[3] https://www.hyundai.co.nz/hyundai-new-zealand-welcomes-funding-for-hydrogen-fcev-truck-demonstration
[4] http://www.koreaherald.com/view.php?ud=20201008000980
[5] https://hyzonmotors.com/hyzon-motors-and-hiringa-energy-advance-partnership-to-decarbonize-heavy-road-transport-in-new-zealand/

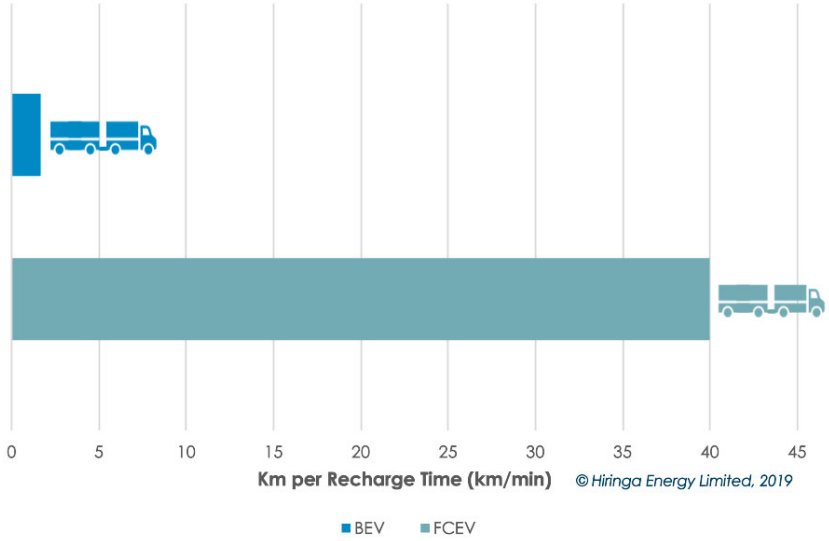


Figure 8. Less charging (refueling) time is more time on the road

10.2. In 2018, Hyundai Motor Group announced that it will invest 7.6 trillion won ($6.58 billion USD) in hydrogen car production facilities and related R&D activities by 2030. Under the plan, the group plans to produce 500,000 hydrogen vehicles by 2030. While battery electric vehicles appear to have a slight lead on the roads for now, Hyundai Motor Group is committed to fostering a "hydrogen society," in the belief that hydrogen fuel cells will be equally competitive in achieving a zero carbon future and possibly more efficient in fuel use and overall emissions.[6]

10.3. In 2020 "Daimler and Volvo signed a binding agreement to produce and commercialise fuel cell systems for HDV applications and other uses, and a new entity, Daimler Truck Fuel Cell, consolidates the company's current fuel cell activities under the joint venture".[7] "Customer trials are planned for 2023 and series production in the second half of the decade. Mitsubishi Fuso Truck and Bus Corporation, part of the Daimler truck group, intends to make all new vehicles for Japan carbon neutral by 2039, with series production of fuel cell trucks by the late 2020s".[8]

[6] http://www.koreaherald.com/view.php?ud=20210128001102&ACE_SEARCH=1
[7] https://fuelcellindustryreview.com/
[8] https://fuelcellindustryreview.com/

Figure 9. Hydrogen fuel cell electric trucks entering the market from a variety of OEMs

10.4. "Other players planning to supply trucks include Toyota and its subsidiary Hino for both the Japanese and North American markets, Cummins and Navistar, MAN under its brand TRATON, Freudenberg Sealing Technologies and Quantron, and Foton and Feichi in China. Swiss company GreenGT, better known for its Le Mans fuel cell developments, continues to integrate its technology onto the Kamaz truck chassis. Illustrating the importance and the ambition, a coalition of vehicle manufacturers, technology and infrastructure providers and more signed a statement in March with targets of 5-10,000 hydrogen trucks on Europe's roads by 2025, and at least 100 fuelling stations. The ambition is for 100,000 trucks by 2030 and 1,500 hydrogen refuelling stations. While non-binding, this clearly shows a cross-industry acceptance that fuel cells will play an essential role in cleaning up heavy-duty vehicles".[9]

11. Green hydrogen forms part of Government energy strategy

11.1. The Government's 'A Vision for Hydrogen in New Zealand - Green Paper' says that "Hydrogen could become a major differentiator for New Zealand's energy, transport and industrial sectors with substantial export potential". "Maritime, long distance road-based freight, buses, coaches and aviation have limited available low-carbon fuel options and represent a significant opportunity for hydrogen-based fuels. Ports, warehousing facilities and freight handling operations using forklifts and straddle carriers that run continuously, could also benefit greatly from the ability to refuel with hydrogen as quickly as with diesel but without the associated transport emissions". [10]

[9] https://fuelcellindustryreview.com/
[10] https://www.mbie.govt.nz/dmsdocument/6798-a-vision-for-hydrogen-in-new-zealand-green-paper

11.2. Hydrogen is rightly placed as one of the Government's pillars of its draft Energy Strategy and complements other pillars such as Renewable Electricity Generation, Just Transition Work, Process Heat, and Backing Emerging Technologies.

Figure 10. Government's Renewable Energy Strategy[11]

12. Green hydrogen is a cornerstone for a Just Transition within the energy sector

12.1. Hiringa is working with international technology vendors to identify suitable New Zealand partners for service, maintenance, and assembly of hydrogen production, refuelling equipment and vehicles in order to include local businesses in the supply chain.

12.2. Hiringa and E tū are working together to develop a plan for worker retention and job creation as a part of the Ballance Agri Nutrients/Hiringa joint venture[12] and other projects. There is a significant opportunity to create 'green jobs' on the back of regional hydrogen hubs, as demonstrated in Figure 11 below. The assembly of Auckland Transport's hydrogen fuel cell bus in Christchurch is an example of 'green job' creation associated with a hydrogen economy.

[11] Energy strategies for New Zealand
[12] https://www.greenhydrogennz.com/

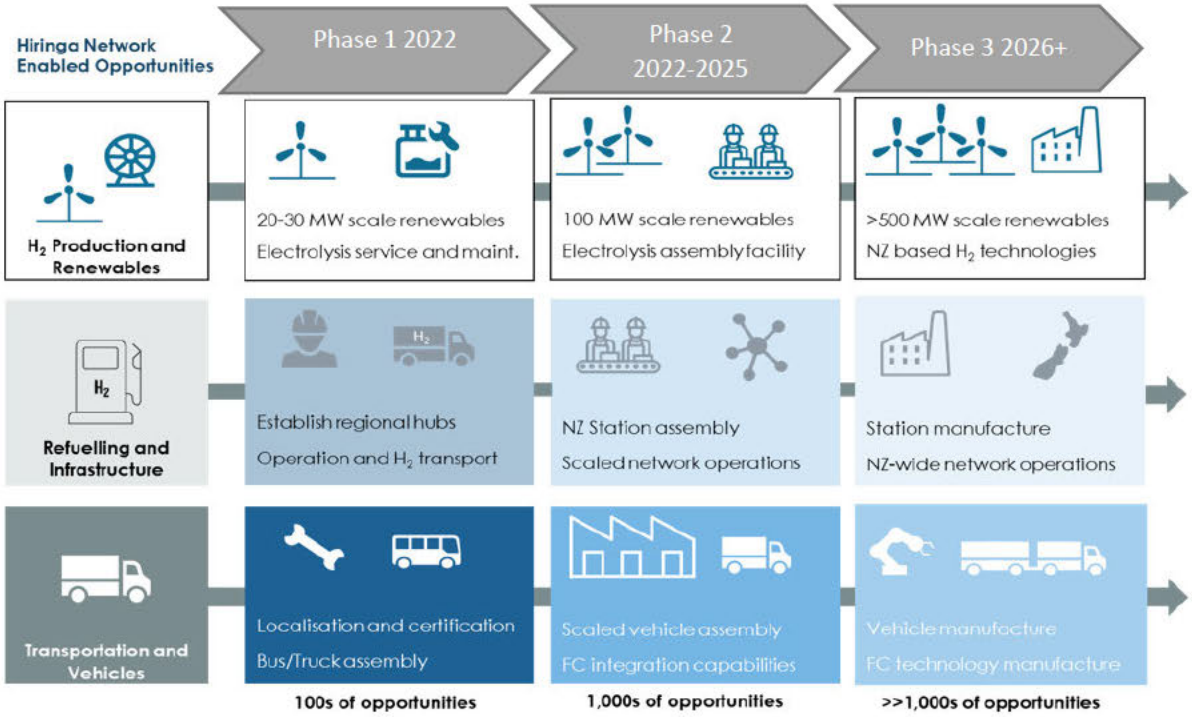


Figure 11. A Hydrogen Economy Creates Green Jobs

12.3. The H_2 Taranaki Roadmap[13], authored by Hiringa in conjunction with Venture Taranaki and New Plymouth District Council was launched in March 2019 by the Rt. Hon Jacinda Ardern and outlines the potential for Taranaki to leverage its existing skills and infrastructure to become a leader in hydrogen production. This document became a cornerstone in outlining Taranaki's plan for a Just Transition. Taranaki is vulnerable as we transition to a low emission economy but has the skills and resources to create a regional hydrogen hub that supports New Zealand Inc's wider hydrogen economy.

[13] http://venture.taranaki.info/projects/h2-taranaki-roadmap.aspx

Figure 12. Potential integration of hydrogen infrastructure and subsequent regional economic stimulus

13. Global hydrogen momentum

13.1. Global uptake of hydrogen is summarised by the Hydrogen Council[14] below:

- More than 30 countries now have a national hydrogen strategy and budget in place, and there are 228 projects in the pipeline on both the production and usage sides.
- Two-thirds of the global hydrogen production expected to be operational in 2030 has been announced in the last year.
- Government decarbonization initiatives are a huge driving force behind the hydrogen wave, with some $70 billion committed globally.
- Japan and Korea are leading the charge on fuel cell vehicles, from which much of our second hand vehicles are imported. Globally there will be 4.5 million hydrogen vehicles on the road by 2030, with 10,500 hydrogen fuel stations targeted to meet that demand.

[14] https://newatlas.com/energy/hydrogen-council-insights/

- A recent study undertaken by the World Energy Council analysing 19 National Hydrogen Strategies demonstrates the deep consideration given to hydrogen technology across economies and the initial focus on transport and industry.[15]

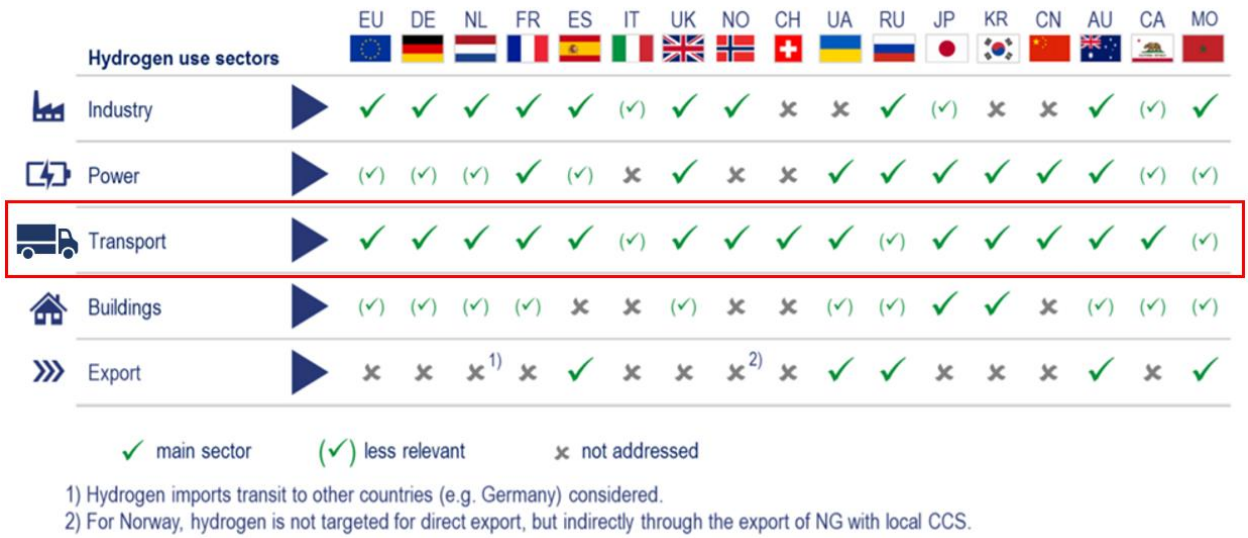


Figure 13. International Analysis into Hydrogen's Potential Sector Penetration[16]

13.2. Major grant-based investments are being made by governments abroad to establish domestic hydrogen markets and create future export opportunities. Recent regional examples include:

a) Australian Government Advancing Hydrogen Fund AU$300m.

b) New South Wales Net Zero Industry and Innovation Programme:
- AU$195m to research and develop new clean technologies including hydrogen.
- AU$175m to set up low carbon industries such as green hydrogen.

c) Queensland Hydrogen Industry Development Fund (HIDF) AU$30m.

d) Queensland Renewable Energy and Hydrogen Jobs $2billion fund.

e) ARENA funding to invest AU$20m for renewable hydrogen for export.

END

[15] https://www.weltenergierat.de/wp-content/uploads/2020/10/WEC_H2_Strategies_Executive-Summary_final.pdf
[16] https://www.weltenergierat.de/wp-content/uploads/2020/10/WEC_H2_Strategies_Executive-Summary_final.pdf

From:	[redacted]
To:	Transport Emissions
Subject:	A Biofueled "Transition Period" and all its potential benefits.
Date:	Monday, 17 May 2021 8:21:50 am
Attachments:	PLaN B - Business Idea - 080819.pdf PLaN B - Gasification Report - SIERRA ENERGY 270420.pdf

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Kia ora koutou katoa & Greetings Transport Emissions People

I forward here my summary/plan for 'TraNZplant' aka PLaN B - Plant a Native Biofuel. This is a 'Nett Emissions' idea, with continued emissions for a 'Transition Period' of 10-25 years compensated for by much greater carbon sequestration, and operated as a viable 'self-sufficiency' and 'economic resilience' industry.

Subject: FastOx Gasification - The Big Biofuel Idea - TraNZplant ... PLaN B

***NB - I feel obliged to say that I'm only using Sierra Energy FastOx Gasification as an example of the type of gasification & biodiesel production I envisage. I cannot speak on their behalf.**

Thanks for having a look at this. I'll do as brief as possible summary as email text and attach my draft PLaN-B Document (very rough) plus not one but two YouTube clips - first from the company and the other Mike Hart's EHF presentation.

I envisage a Public-Private-Iwi-Community-Partnership in some formula or mix of Central & Local Govt, Iwi, Social Enterprise, NGO, Community Group & Private Investors. The whole 'project' may need to be ethically governed too (so NOT like Te Tai Tokerau Water Trust!).

In summary - (Radio *crackles*) ... [Dramatized] ...

"Houston, we have a whole bunch of problems up here! We've got domestic garbage & industrial waste a-landfill-plenty making methane galore, and we've got noxious weeds and unwanted plants coming out our waterways, hundreds of species of them, onto which we are 'hosing' toxic chemical pesticides, making the situation worse.

We've got big old dangerous trees all along the sides of our roads and Wilding Pines infesting everywhere. Arundo Donax taking over vast areas, Ginger, Privet, Pampas & Tobacco Weed to name just a very few. We've got plantation pines that will never be commercially viable to be harvested, some overdue already.

We've got problems short-term and long with the chemical neuro-toxins we're using to 'kill' weeds although the weeds never seem to actually die. The weed problem is getting worse. The fire risk greater.

Houston we have 'Regional' (aka "Provincial" but I don't use this word) unemployment issues and deprived aka abandoned local community economies, many of them already responding to Socio-Economic Issues and Climate Change in positive ways. Self-sufficiency & greater Localism. What if doing so could become an 'Industry' on a productivity & efficiency scale never before seen? An industry that might just lead the world out of this place?

Even if our Tourism Industry becomes reliant on Domestic Tourists only - which I "kind" of hope it will - the roadsides can simultaneously be 'naturalized' and beautified at the same time as being *Harvested* & *Replanted*, in many places to a 'depth' where viable

bird habitats can be re-established.

Public & Privately-owned biomass, including on private land, may even become economically viable to harvest, eg uneconomical farm-lots of Pinus Radiata, clearing Wildings & Exotics from native bush tracts.

As unwanted biomass is reduced, a cultivated biomass industry can develop. Lifestyle Blocks currently idle could be easily 'contract cultivated' with Industrial Hemp? Council might even pay people a nominal amount to take their garbage to the Refuse Transfer Station, rather than they pay Council?

Maintain our existing fleet as much as possible, reducing demand for new and used import vehicles and promoting yet another self-sufficiency industry - keeping vehicles running in safely and well as ICE vehicles are phased out.

Gasification plants can be repurposed if required at the end of the period for multiple other uses, ie rendering chemical components, generating electricity locally and more ...

Houston, *Harvestoration* Teams could even undertake some pest and litter control, because we have problems with them up here too!

Income Streams - for any individual or combined Gasification Plant project
- Biodiesel sales (10% per annum return, plant pays for itself in 9 years)
- Firewood (from large trees removed/replanted)
- Organic Compost Sales? Also bark chips?
- FNDC Weed Control Budget (bulk of)
- NRC Weed Control Budget "
- Beautification & Placemaking Funding (where appropriate)
- Green Environmental Restoration Funding (at national/local level)
- Employment Creation & Vocational Training Funding
- Possible overlap with water quality improvement funding
- Possible overlap with Social Enterprise funding or personnel/labour
- And there may be many more ... ???

- MAXIMIZE EMPLOYMENT & LOCAL/REGIONAL/NATIONAL SELF-SUFFICIENCY FOR MAXIMUM *ETHICONOMIC* BENEFIT!

That's really the Heart of the Matter. The objectives of TraNZplant would all align with larger Climate Change and Equality issues, except they are about over-compensating for continued emissions for a "weaning-off Fossil-Oil Addiction' period of time by greater carbon sequestration.

NB - the PDF doc 'TraNZplant' or PLAN B is a Work-in-Progress.

Nga mihi nui & Many Thanks for the opportunity to submit.
Wally Hicks - Kohukohu
s 9(2)(a)

https://www.youtube.com/watch?v=-XAzu3EibDM

https://www.youtube.com/watch?v=8TEKOAzNKrE&t=9s

PLaN B

PLant a Native Biofuel

A Social-Enterprise, hapu-iwi, Council, business/citizens partnership Idea

Dozens of problems ...

One solution ...

It pays for itself by making money ethically,
fuels Aotearoa New Zealand's independence,
central and local government 'sovereignty',
recycles 100% of non-recyclable waste,
advances provincial growth,
stimulates new industry initiatives
promotes resilient local economies,
restores the natural environment,
actively encourages biodiversity,
sequesters carbon ... and much more ...

BRIEF

Recent PhD research by Dr Andi Makiola[1] reveals that soils associated with farming and plantation forestry contain many more plant pathogens than occur in the soil of natural or native forests. “It’s quite surprising that exotic plants host such a high diversity of potential pathogens.” Makiola’s PhD supervisor Professor Ian Dickie said[2].

Add yet another problem to a long list of issues associated with soil and vegetation in Aotearoa New Zealand, along with the broader issue of ecological biodiversity, and with some of the many socio-economic factors that contribute to these issues.

Using North Hokianga as an example, I will argue a case for a single though multi-pronged, comprehensive solution to literally dozens of these issues which addresses both biodiversity and socio-economic wellbeing.

Plan A, neoliberalism, with its “level playing fields”, ‘free markets’ and globalization, while having realized some benefits – and massive benefits for some – has also contributed significantly towards many problems we face today – climate change, pollution, inequality, economic dependency, rural deprivation, centralization and over-regulation, to name a few.

This is Plan B: An attempt to partially solve these problems beginning locally while also addressing local, regional, national and global concerns. Localism and self-sufficiency.

THE PROBLEMS

1) **Garbage: Household and Industrial waste:** Almost needs no explanation. Enormous tonnages of garbage go to landfill each year, now including an increased number of non-recyclable items.

2) **Noxious exotics:** Extensive areas of the Far North District Council roadside-reserve, some areas of Council public reserve and significant tracts of private land have become increasingly and some overwhelmingly populated by noxious weeds and unwanted exotic plants and trees. Notable among them are Wild Ginger, Pampas, Privet, Arundo Donax (Giant Reed) and Wilding Pine, although there are many more. These plants are spreading in the absence of sufficient Council action and land-owner care.

3) **Big old trees:** Especially at the roadside, many large native and exotic trees (purposely planted and self-seeded) have passed their ‘use-by date’ and become both dangerous and unsightly. These include Totara, Macrocarpa, Willow, Manuka/Kanuka, Flame Tree, some Poplar and several other species. Presently we deal with the damage after they fall, including possible injury and death to motorists, cyclists or pedestrians.

4) **Road safety & visual pollution:** Driving through North Hokianga, extensive areas of roadside are an unkempt mess of mixed exotic and native vegetation, some parts almost

1 Bio-Protection Research Centre, Lincoln University, and Manaaki Whenua – Landcare Research

2 Published by www.thecountry.co.nz in Northern Advocate newspaper Thurs 8 August 2019

constituting ‘visual pollution’. This does nothing for the driving experience of locals and visitors alike. Recently, the rampant Arundo Donax encroached so much on Rakautapu Road as to cause identifiable danger. Imagine more driving being like travelling through Waipoua State Forest?

5) **Toxic, partial remedies:** Care of the roadside vegetation – if it can be called “care” – using toxic sprays and incomplete, inadequate, temporary mowing – has become in every way inappropriate – culturally, environmentally, socially and even economically (if we consider the ultimate cost to our environment?). Recently the Privet (and little else) throughout North Hokianga was “sprayed” – or more correctly “hosed” – with a mixture of Tordon & Roundup. This included Privet growing on the harbour side of the road. They sprayed it into te moana. The visual result is what I call ‘Ecocide Autumn’. Meantime, vast amounts of invasive Pampas were left untouched. The “Prince of Wales’ Feathers” are presumably too attractive to warrant attention? Or perhaps Pampas is simply too well established?

6) **Habitat:** Even a roadside strip of vegetation a few metres wide forms a “habitat”. As evidenced by Dr Makiola’s research cited before, this can either be a healthy natural soil and vegetation habitat, or one that is rife with plant pathogens. This naturally applies to fauna as well as flora. Habitats for native birds or habitats for introduced pests? In some places the habitat is also polluted with litter.

7) **Education, labour and industry flight:** Young people must leave, first to pursue educational opportunities, including vocational education; then to obtain employment. Local industry is not encouraged by a weakened local economy; lack of numbers, disposable income, innovation and youthful energy.

8) **Unemployment:** Areas like North Hokianga have a higher unemployment rate than urban areas and the national average, especially among Maori youth. Employment prospects are limited. On-the-job vocational training even moreso.

9) **A ‘dependent’ local economy:** Money isn’t circulating within the area as much as required for socio-economic wellbeing. Like young students and workers, profits are sucked out of the local financial eco-system, making it dependent on provisions from afar, which are often accompanied by negative consequences and unforeseen ‘ultimate cost’.

10) **Fuel:** Nowhere is the above (8) more true than in the area of fuel. New Zealand is a globally-sourced, fossil fuel-dependent country.

11) **Diminishing biodiversity:** The less we do, the more we lose.

12) **Inequality and inequity:** Provincial Aotearoa New Zealand, places like North Hokianga, have been turned into ‘deprived areas’ through relative abandonment by central government since the sweeping ‘reforms’ of Rogernomics. Inequality and inequity – along with iniquity – are most evident here.

13) **Lack of ‘next stage’ evolution in agriculture: Horticulture:** The North Hokianga and places like it need ‘place appropriate’ agri-horticultural land-use opportunities, such as might be provided by Industrial Hemp?

The Solution:

“A weed is a plant whose virtues have not yet been discovered”
- Ralph Waldo Emerson

“In New Zealand's northernmost region, *Arundo donax* crowds out native plants, reduces wildlife habitat, contributes to higher fire frequency and intensity, and modifies river hydrology ...

Studies in the European Union have identified *A. donax* as the most productive and lowest impact of all energy biomass crops (see FAIR REPORT E.U. 2004).” - Wikipedia

The solution is to **HARVEST** these ‘weeds’ for conversion into biofuel, selectively removing them from many places and/or eventually eradicating them, while cultivating some plants in suitable, designated places, or allowing them to regrow for re-harvest, and even coppicing some plants, i.e., Privet.

We also **DESTRUCT** 100% of our non-biodegradable waste, organic and inorganic, using FastOx Gasification.

GROW : In conjunction with this we simultaneously phase-in the best possible crop to commercially cultivate for biofuel, which is undoubtedly hemp. As and when the “plague” of noxious plants is eradicated or managed, scalable biomass cultivation takes over.

Commercial hemp production in places like North Hokianga will have myriad benefits such as: i) Supplementary income for established farmers ii) Alternative land-use for new farming, iii) A viable and ‘easy grow’ crop for lifestyle block owners iv) Replenishment of the soil, and iv) Reduction in the use of herbicides and pesticides (of which hemp requires virtually none).

Hemp also has many other uses such as fibre, food, paper, wood and medicine, which will encourage multiple value-added business opportunities. However, a comprehensive plan to produce biofuel locally is the subject of this paper.

PLaN B – PLant a Native Biofuel

Ethical business looks to maximize satisfaction of Four Wellbeings – social, cultural, environmental and economic – by the production of a product(s) or service(s), rather than only

maximizing profit by simply satisfying a ‘market demand’ without consideration for input sources and with constant minimization of input costs.

PLant a Native Biofuel is an integrated matrix of services producing a range of products to satisfy local demand and to simultaneously attempt to ameliorate or solve a plethora of local problems.

The basic process is simple: Plant material is harvested and transported to a biofuel manufacturing facility (henceforth biofuel factory or “the factory”) where it is converted into biofuel – biodiesel and/or ethanol – and from where the biofuel(s) and a range of secondary products are sold, primarily to the public.

The biofuel could also be shipped to other local service stations by tanker, e.g. Panguru, Kohukohu, Broadwood and perhaps Pawarenga?

Sierra Energy
FastOx® Gasification
Business Plan

Date

26-Apr-2020

Location

New Zealand

System Size

50 MTPD

Feedstock

Municipal Solid Waste

Tipping Fee

$10.00

End Product

Diesel

Executive Summary

This report provides a custom economic outlook for development of a waste-to-energy FastOx gasification facility in New Zealand, and can serve as the foundation for your business plan. The estimated capital expenditure and operating costs for a FastOx system based on your selected values for system size, feedstock type and end-product should give you a general estimate of the potential profitability of a FastOx gasification based project.

Your inputs for tipping fee, end-product sales price, and utility costs impact the local economics of a system. Costs for site preparation, connecting to local utilities and the grid, logistics for delivering FastOx gasification modules to your location, local construction costs and financing costs are not included in this model. These costs vary greatly by location and should be added to your final calculations.

These calculations are based on chemical models that assume no feed material pre-drying equipment is required and syngas recycling is enabled. US National average labor rates are used for calculating personnel costs. Heat recovery is not included in the calculations, which could also have a substantial positive impact on project economics.

Sierra Energy is pleased that you are interested in FastOx gasification and we look forward to working with you on next steps to get a project built in New Zealand.

About Sierra Energy

Sierra Energy is a gasification company founded in 2004. It has developed FastOx gasification, a technology that turns trash into energy without burning. This sustainable solution is commercially available to meet the needs of the modern waste industry. The company continues to advance its technology and test new applications for gasification at the Sierra Energy Research Park based in Davis, California.

Sierra Energy partnered with the U.S. Army, Department of Defense and the California Energy Commission to build the first commercial scale FastOx system. It is located at Fort Hunter Liggett in Monterey County, California. The system converts waste generated on the base into electricity and fuels.

FastOx gasification has consistently received positive feedback and strong support from numerous public and private entities, including the California Energy Commission, the California Environmental Protection Agency, CalRecycle, the Defense Logistics Agency, the Department of Defense and the White House.

FastOx® Technology

FastOx gasification is based on blast furnace technology. Waste is broken down by high temperatures that are reached when oxygen and steam are introduced, and react with carbon found in waste. Organic components in waste are reformed into energy-dense syngas, which is an intermediate fuel used to produce valuable energy products, such as electricity, renewable diesel, hydrogen and ammonia.

Inorganic materials in the waste, as well as any compounds typically classified as toxic, are melted at high temperatures and recovered as vitrified, inert stone. Molten stone and liquid metals are tapped from the base of the gasifier. These products are salable and the stone can be used as construction aggregate.

SIERRA ENERGY

Sierra Energy
FastOx® Gasification
Business Plan

Advantages

Several key factors separate FastOx gasification from the competition. The gasifier can handle mixed waste with minimal processing including municipal solid waste, biomass, tires, medical waste, hazardous waste and industrial waste. The system can be built on existing waste handling sites further reducing land use and operating costs.

- Handles more types of feedstock
- Complete waste destruction with high energy output
- High uptime and low maintenance
- Uses less land and water
- Low capital and operating costs
- Produces high-value products with no toxic byproducts

Competition

Sierra Energy's FastOx gasification operates at ultra-high temperatures that allow complete conversion of waste. Several gasification technologies employ lower temperatures, which have ash output. For simpler feedstock like biomass, this biochar can be used safely in several industries, however ash from complex waste such as municipal, medical and hazardous waste contains toxic materials that require it to be landfilled.

Incineration is widely used as a high temperature conversion technology for this reason, but it does not achieve high efficiency levels. Many incineration technologies have emissions that are not safe or widely acceptable.

Landfill methane capture comes with the many risks associated with long term in-ground waste storage. Leachate threatens water tables and landslides can shift waste outside of protective boundaries. Odor issues and long-term maintenance are problematic in the industry.

FastOx gasification is a closed system with no direct emissions and no toxic ash. It diverts trash from entering landfills and eliminates greenhouse gases that are released during decomposition. FastOx gasification serves both our waste and energy needs and reduces long term liability and environmental impacts of landfills and other less effective thermal conversion technologies.

Market

Landfills place long-term environmental burdens on our society. They also present relatively untapped, energy-rich carbon resources near large population centers where energy demand is greatest. Sierra Energy's FastOx technology not only eliminates the need for new landfills but allows waste in existing landfills to be cleanly converted into electricity and low-carbon fuels, simultaneously reducing landfill dependence, increasing landfill cleanup and cleanly supporting energy independence.

Renewable energy production has grown rapidly in recent years, particularly in the wind and solar sectors. Despite renewable energy growth of 200% each year for the past five years, the U.S. Energy Information Administration estimates that the United States still obtains only 10% of its energy from renewable sources.

FastOx waste conversion promotes energy independence, limits the need for fossil fuels and reduces greenhouse gas emissions, all while cost-effectively diverting waste from landfills. Instead of wasting the energy in the 136 million metric tons of municipal solid waste landfilled annually in the U.S., that waste could be used to power 15 million homes.

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Economic Projections

Investment Economics

Capital Investment:	**$18,675,000**
Annual Operating Income:	**$1,980,000**
Simple Payback:	**9.4 years**
Annual return on investment:	**10.6%**

Annual Revenues

Tipping Fee received:	$174,000
Sale of Diesel:	$2,120,000
Sale of Recovered Materials:	$107,000
Carbon Credits*:	$1,076,000
RIN Credits*:	$289,000
Estimated Revenue:	**$3,765,000**

Annual Expenses

Electricity Consumed:	$479,000
Supplies and Materials:	$195,000
System Maintenance:	$467,000
Labor:	$644,000
Estimated Expenses:	**$1,785,000**

Operating Income

Annual Revenue:	$3,765,000
Annual Expenses:	$1,785,000
Projected Income:	**$1,980,000**

Capital Investment

Feedstock Preparation System:	$1,100,000
Oxygen Production System:	$1,350,000
FastOx® Gasification System:	$5,000,000
Gas Cleaning System:	$1,375,000
Utilities Subsystems:	$3,300,000
End Product (Diesel) System:	$6,550,000
Total Investment:	**$18,675,000**

System Details

System Size [MT/day]:	50
Diesel Created [gallons/day]:	1,562.4
Diesel Sale Price [/gallon]:	$3.91
Permanent Jobs Created:	13

Environmental Impact

Est. GHG Eliminated*:	107,570 MTCO2e/Year

* Please check whether Carbon or RIN credits are available for your project. These may be significant sources of additional revenue.

SIERRA ENERGY

End Product Comparison

Diesel

Capital Investment:	$18,675,000
Annual Income:	$1,980,000
Simple Payback:	9.4 years
Annual ROI:	10.6%

Alternative End Products

Electricity

Capital Investment:	$13,675,000
Annual Income:	$1,945,000
Simple Payback:	7 years
Annual ROI:	14.2%

Hydrogen

Capital Investment:	$14,125,000
Annual Income:	$5,316,000
Simple Payback:	2.7 years
Annual ROI:	37.6%

Ammonia

Capital Investment:	$25,175,000
Annual Income:	$1,768,000
Simple Payback:	14.2 years
Annual ROI:	7%

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All dollar figures are United States of America dollars unless otherwise stated.

25 June 2021
Document: 2798145

Transport Emissions
Ministry of Transport
PO Box 3175
Wellington, 6140

Dear Sir/Madam

Submission on Transport Emissions – Pathway to Net Zero by 2050

The Taranaki Regional Council ("TRC") thanks the Ministry of Transport ("the Ministry") for the opportunity to submit Transport Emissions – Pathway to Net Zero by 2050 ("the Pathway").

As the authority charged with leading Taranaki's regional land transport approach, we take our role in helping transport respond to the pressures of a zero carbon future very seriously.

As a result, TRC supports the Ministry's objectives in preparing the Pathway. We recognise the significance of climate change, the contribution of transport sector emissions to New Zealand's total emissions balance and the need to move away from business as usual to ensure that New Zealand achieves a sustainable low carbon future.

TRC also supports the intent of the Pathway's seven principles (pp 10 – 11) as sound guides to policy development, which will, if applied broadly and consistently, drive a strong strategic approach.

We offer the following comments as a contribution to helping to ensure that the Pathway and the resulting policy serve New Zealanders well in achieving the necessary changes and carbon goals.

Concern at an apparent absence of a whole of government approach

While TRC supports the need for focused attention in high emitting sectors, we are concerned that the Pathway appears to have been prepared in isolation of other current work on climate change.

In particular, we note that the Pathway covers similar space to the transport sections of the Climate Change Commission's advice and was released concurrently with the Infrastructure Commission's consultation. However, it appears to be independent of both (despite the diagrams at p 136).

This approach risks a lack of coordination amongst responsible agencies, gaps in strategies and general inefficiency.

The sheer volume of overlapping consultation also stretches the resources of important stakeholder agencies such as TRC and probably iwi agencies. The risk is poor or completely lacking input from these groups.

TRC recognises that this issue is broader than this current consultation – and in fact was noted as an issue in the Climate Change Commission's Draft Advice. We strongly urge that responsible agencies take a lead to coordinate and collaborate on consultation.

The Pathway does not fully consider the rural-urban divide in transport opportunities

In common with other recent transport sector related consultation, the Pathway is very much oriented towards developing solutions that work to address urban issues. Rural area concerns are noted briefly, but strategy options are not discussed, at page 102.

Primarily urban focused solutions risk creating unintended negative consequences for rural communities – especially as these groups are overlooked in just transition discussions. The situation arises primarily because of the very different nature of rural communities' transport needs and alternatives.

TRC would also note that the Pathway appears to allocate long haul freight emissions to the regions (page 17). While the majority of those emissions will be in rural areas, they are primarily in support of urban populations who will use the transported goods. Accordingly, allocating those emissions to regional (i.e. rural) populations distorts the true picture of emissions profiles.

TRC submits that the Pathway should be reviewed specifically for its impact on rural communities, ideally in conjunction with those communities themselves, through interest groups and rurally focused regional and local authorities.

The Pathway appears to be time driven, rather than outcome driven

TRC is concerned that the Ministry is highly motivated by a need or desire to have a strategy in place to meet the government's targets around climate change response. Doing so runs the risk that the process is rushed, that proper analysis is omitted and that there is insufficient consultation with impacted communities. A possible consequence is outcomes that may not be appropriate and that can have serious unintended consequences.

We would therefore submit that the Ministry reviews its timelines and process to ensure that it is outcome driven; rather than time bound.

Real change requires thinking broader than roading and infrastructure

The Pathway discusses all main transport modes and notes opportunities such as active transit and urban planning. However, the overall impression from the land transport chapters is a focus on building roads to meet a continuation of current vehicle ownership trends.

TRC is concerned that this approach, fails to address the key problems around broader transport sector environmental impacts (which cannot meaningfully be separated from climate change impacts). Focusing only on climate impacts and failing to address the effects of vehicle ownership rates and the fact that most vehicles are used for short journeys simply transfers the form that those environmental impacts take.

TRC submits that the Pathway needs to be reviewed and revised to give the behavioural patterns underpinning (primarily urban) vehicle ownership and usage higher priority. Those matters should be addressed jointly in conjunction with local government and key sector stakeholders.

The conclusions on the relative costs of the four proposed pathways are confusing

TRC is confused by the cost summaries in Table 4 (p 119).

In particular, we are unclear how, despite being the most aggressive of the four options, pathway 4 is a "lowest cost" option (especially considering the numbers in Table 3 – page 111 – 112).

TRC therefore strongly encourages the Ministry to review the conclusions here and to provide more detailed breakdown of the cost options, for further submissions prior to any strategy decisions being made.

Specific and technical comments

In addition to the higher level comments above, TRC would make the following specific comments:

- Increasing the use of trains as an inter-regional option needs to be fully assessed in light of the passenger rail system's well known limitations. In particular:
    - The recent negative discussions about the apparent failings of the new Hamilton to Auckland service.
    - The on-going challenges with everything from the travel time to rolling stock inadequacy of the two main inter-regional train services from Wellington.
    - The potential $600m cost (using KiwiRail figures – p 95 of the Pathway) to electrify the two Capital Connection and Wairarapa Connection lines.
    - The limitations that the New Zealand gauge and need for level crossing and urban area safety place on interregional train speeds.
- Discussions on using fuel tax as a means to encourage behaviour shifts are at odds with the often stated highly inelastic nature of fuel demand (such that fuel taxes in New Zealand are renowned for their near 100% uptake impact). The effectiveness of fuel tax for behaviour change is therefore questioned.
- TRC would urge the Ministry to consider broadening the type of vehicle engine capacity/fuel use charges that are currently being proposed. In particular, the type of charging that Japan has used to promote efficient Kei cars, is worth investigation and analysis. .
- The discussion in Chapter Seven on improving vehicles should also consider:
    - How to change the overall vehicle ownership rates – as noted above.
    - Using an approach such as China is proposing (p 67) of promoting Plug-in Hybrid Electric Vehicles and hybrids, rather than jumping straight to EV's. As well as

having a greater range of vehicle types, the similarity to "normal" vehicles could be helpful to promote behaviour changes.

- Providing detail on the cost relativity calculations between petrol engines and EV options. Overseas experience and cost calculations, including from countries where electricity is significantly cheaper than New Zealand, give cause for concern. We should look at the experiences from those countries to assist New Zealand in developing policy options.
- How New Zealand's insignificance in the global vehicle markets could impact EV supply and, therefore transition timelines. The current supply difficulties besetting even mainstream ICE vehicles like Hilux and Sportage should be cause for concern and reason to review proposed transition timelines.
  (TRC notes that, at the time of writing, some of the motor vehicle suppliers are already sounding this warning to the government.)
- Overseas experience with EV rebates, which appears to indicate that vehicle characteristics is more relevant than price in EV purchase decisions – such that in many countries with even attractive rebates, EV demand remains low.

- While TRC supports the "clean buses", we question why the Ministry proposes focusing on decarbonising the public bus fleet. At the stated 1% of transport emissions (p 114), the cost of change at anything other than a natural attrition rate would outweigh any benefits.
- Modal freight shift discussions need to recognise the rail and coastal shipping networks' structural limitations.
  Rail issues are similar to those discussed above. For shipping, the reliance on coastal runs of international vessels, the relative emissions inefficiency of the (older, smaller) ships that can serve New Zealand and the undesirability of "Jones Act" type provisions to rebuild coastal fleets are all significant issues. The Pathway inappropriately appears silent on all of them.

Conclusions

TRC again thanks the Ministry for the opportunity to comment on the Pathway.

New Zealand must look long and hard at the entire transport sector if we hope to achieve meaningful national GHG reductions. TRC is however concerned that the approach taken here, consistent with other current consultation on the topic, is promoting technically focused changes around the edges rather than the much needed changes to the behaviours that under-pin our transport decisions and systems. We are also concerned to ensure that the impacts on rural communities, who often lack viable alternatives, are acknowledged and managed.

We look forward to engaging positively and productively with the Ministry and other key transport agencies as support both Taranaki and New Zealand's journey to sustainable low carbon transport futures.

Yours faithfully

S J Ruru
Chief Executive

From: [redacted]
To: Transport Emissions
Subject: Emissions New Zealand
Date: Thursday, 24 June 2021 5:27:26 pm

Transport Emissions: Pathways to Net Zero by 2050.

To fully understand the situation, one needs to go back to when the first emission control was instituted and that was in fact in 1960 when the road-draft tune crankcase ventilation arrangement was banned on all new design engines in the USA and existing designs were required to be changed over to the new 'positive crankcase ventilation' arrangement as soon as possible to prevent hydrocarbons (HC) going into the atmosphere. US/Canada had this system on all 1963 model year cars (new 1963 model year cars released in October of 1962).

The next was at the end of 1965 when all new cars sold in the state of California in the US (1966 car model year vehicles which went on sale October 1965) were required to have their emissions reduced to a certain level. Up until that time uncontrolled USA car engines as a general rule had emissions of 3-5% CO/Carbon Monoxide, 2-3% NOX/Oxides of Nitrogen and HC/Hydrocarbons 1600-1800 parts per million. Note that there are in fact hundreds of bi-product pollutants but three were chosen in the mid-1960s to be tackled as they were regarded as the worst. Diesels were CO2 and particulate matter (no CO of course). It could be noted that in the days of 7- 71/2 litre V8 engines in the 1960s, they were burning about 12,000 gallons of fuel over their service-life. That's at a rate of 10 miles per gallon or 25 litres of petrol per 100km and producing about 1000gms of CO2 per km. The USA Federal Government adopted the criteria from 1968 and so it all spread to other countries from there and mainly because of the need to comply to be able to sell cars in North America. USA cars on average are now around 200-350grams of CO2 per km times 100,000,000 cars on their roads now and they have been around this number since the1950s.

Emissions of the above type and pollution from cars is not happening in New Zealand cities. All cars imported into New Zealand since 1990 have nearly all had catalytic converters and fuel injection fitted and from 1996 emissions were further tightened and the result was the 99.5-99.9% removal of all three. Diesel buses in Auckland or Wellington might not be quite right because of the steepness of the hills and the engines being severely loaded (I've been told that they can be seen emitting smoke at times under such conditions). This is largely because they are not totally suitable for the application. The electric trolley buses of old were extremely powerful and chosen because they could cope with steep hills (current battery buses are likely not in the same league and not as good).

The real problem at the time were cars sitting idling in queues for hours such as in Los Angeles in the 1960s. That's 5 or 6 lanes of cars crawling miles and miles long going in and out of LA in the morning and evening - those same roads being nearly deserted during the working day. It was known then that the ultimate solution was to switch the engine off when stationary but it was difficult to do that then. Clearly the Hybrid solves this problem well as do full electric cars and so do petrol cars that have the expensive motor-generator-starter system. Car exhaust systems are about 30cm off the ground and when the car is moving the exhaust gases tend to cool down quickly after exiting the pipe ie and then do not rise into the atmosphere unlike when hundreds of cars are in queues and stationary. Many cars idling and stationary and gases could rise due to a lack of them cooling. Most car CO2 emissions however from exhaust pipes therefore cool very quickly and within about a metre from the end of the pipe and don't rise into the atmosphere. CO2 is heavier than air except when hot and therefore at ambient temperature will not rise.

Note that CO2 was not really discussed in conjunction with car emissions until much later ie about 1990-1995. Between 1965 and 1995 the three above listed emissions (CO, NOX & HC) which were regarded as the really harmful emissions and indeed pollution, were 99.5-99.9% eliminated using catalytic converters and better designed engines. So the car companies fixed the original problems and it's only the later added CO2 that is discussed now. The smog producing type of emissions are now extremely low but they are still there in 0.1- 0.5% amounts. Only faulty modern cars emit above this amount. In the US, and since 1975, if you get caught with a 'fault code' light on on the dash you get a ticket and the car has to be repaired immediately.

In 1971 the USA introduced 'low lead' fuel which was the removal of the usual 2.5 grams of tetraethyl lead per 4 litres of petrol and was supposed to offer enough valve seat protection with the allowable 0.05 grams. It didn't work as it simply wasn't enough lead and millions of engines failed valve seats if this type of fuel was used in older engines. The HC levels rose due to engine failures. Leaded fuel was still available and in wide use so many people ran a 50-50 mix of the two which stopped the failures. Car manufacturers said they needed more time to adapt engine designs but were refused the extension time so as a consequence early emission control systems worked and indeed reduced emissions to the required level but used nearly twice as much fuel compared to previous while doing so!!! In 1975 unleaded was introduced in the US and all new car's engines had to be able to run on this fuel - hardened valve seats being required to do this. About 15 years later New Zealand introduced unleaded and cars started catching fire as the fuel melted fuel lines. This fuel was withdrawn and a new mix introduced some months later. The West switched to unleaded fuel over a 25 year period with most leaded fuels gone by 2000 except for some aeroplane engines.

So the three main exhaust emissions offenders from petrol cars and lead in the fuel have been dealt with in New Zealand.

Between 1960 and 2020, CO2 production has been reduced by about 20% per litre burned through improved engine design and combustion in petrol and diesel engine cars and trucks. Diesel engines on average generate up to 15% more CO2 than petrol engines per litre burnt. Diesels produce NOX at high temperatures which 'Diesel Blue' stops so most heavy trucks have this technology fitted now. A lot of progress has being made with diesel engines. Diesel engines are unable to accelerate if black smoke is detected in the exhaust due to sensors in the exhaust pipe, as a consequence, the computer controls the rate of engine acceleration (this technology available and fitted since 1985). Particulate matter (soot) is collected and is not allowed into the atmosphere - contained in 'particulate matter canisters' which are changed periodically.

The listed 90% increase in CO2 in New Zealand from motor vehicles and trucks has essentially been caused by the more than doubling of cars and trucks over the last 30 years. The NZ Govt. has always known more cars means more CO2.

There are only three ways to reduce CO2 production from petrol engine cars and that is to have small economical vehicles and/or use fuel that doesn't promote CO2 production and less cars of this type on the road. Suitable alternative fuel is not available here in NZ and isn't likely to be in your time-frame but it could still happen and would be very helpful in the pathway to zero emissions over the next 30 years, no question about it.

New Zealand could have switched to more economical cars such as those like the Hybrid Toyota Prius and others which generate about 70 grams of CO2 per kilometre or three cylinder, one litre, petrol only cars, such as the Citroen C1, Peugeot 107 and Toyota Aygo which also deliver about 90 grams of CO2 per kilometre 20 years ago. These last three cars are old technology now having been around since 2000. This exceptional three cylinder engine is what Toyota use in the latest Prius.

I've recently checked several car yards for Hybrid car availability - they are not 'hot' sellers and there are only about 60,000 Hydrid cars on New Zealand roads at the moment and that's after about 20 years. Car importers are certainly bringing them in. The uninspiring looking Toyota cars are quite good technically and better than the rest for reasonable money and all of their cars will be available in Hybrid form by 2025. It's quite possible to make a 10-15 minute journey with a Toyota and the petrol engine not run at all - regenerative braking powering up the battery. These cars can only do about 60km on battery power alone. That's hardly massive but it does stop the in traffic stop/go queue emissions as when the car stops, so does the engine.

Toyota have EV cars on the roads of Japan only. They are keeping them in the home-market only until absolutely proven to be problem free. 2030 is a likely time for when a large car maker like Toyota will put cars on the world market. Note that the latest generation of the Toyota Prius available since 2018 for example uses around 1.2-1.3 litres of fuel to cover 100km! This is amazing stuff and they are very reliable and cost efficient and 20-30 grams of CO2 per kilometre.

New Zealand now has atleast 4.1 million vehicles on the road where as there were about 2.2 million in 1990 (I've just read that it's 5.5 million?). Most cars in New Zealand on the roads are not 15 years

old so are modern enough and as they are predominantly Japanese made they usually do about 300,000-400,000 kms before the engines show major signs of wearing out. Meaning the engine side of things holds up well and emissions are often near as per when the cars were new even if the vehicle is maintained only reasonably correctly.

Hybrid cars can do about 150,000-350,00 kms mechanically but the batteries won't so it looks like 10-15 years/150,000-300,000 kms is possible before they fail. Honda car's mechanical drive-lines for example are prone to early failure at 100,000-125,000kms. Toyota is the best by far with 300,000-400,000 kms plus quite possible with no breakdowns.

CO2 comprises 0.04% of the worlds atmosphere and that generated by human activity is 0.0016%. New Zealand contributes less than 0.1% of the worlds over all pollution and a minimum of CO2 so anything we do here is not going to make any difference at all to the global position.

There are just under 100 million new cars made each year on average with just a few coming here to NZ. Our car fleet is mainly made up of used imports. It took 30 years to get from making older existing cars last about 20-25 years to replacing cars in 10-15 years because they became old fashioned.

Of interest here is the fact that in 1970, Ford USA's upper management decided to check the whole situation out with regard to pollution and to the extent of placing a new finished car in a sealed room and collected all of the vapours, particulates (paint, tyres, vinyl, rubber etc). They were very thorough. They also worked out the general pollution levels it took to make a car and to scrap a car. The auto industry consumes a lot of electricity from many different sources so it was very difficult to work out the tail-backs but the general un-released figures were as follows: To make a car pre-emission times, resulted in 10-12 times the emissions that came out of the exhaust pipe in its service life and 8-9 times that to scrap that same car. Now come forward to about 1990-1995 when CO, NOX and HC had nearly been eliminated. To make and then scrap a car results in extremely high emissions versus that car's engine pollution over it's service-life. So, the huge number of cars being made is a real problem as is the scrapping of them. As a generalisation, the longer a car survives into it's listed service-life time-frame, the better as there will be much reduced emissions through less cars being manufactured.

Scrapping cars because they are a bit old fashioned is a very poor reason to scrap them but it's how things are done now. If cars were not so easy to obtain it would be quite different. Up until 1975 cars were 'hard to get' new here and in 1971 there were 1,000,000 vehicles on the New Zealand roads.

The main petrol car and diesel truck fleet is reasonably new and take advantage of their slightly better technology over a decade year old car. Hybrid technology is working well and that is where technology is at the moment with Toyota the best by far on a cost basis per car made. One thing with Hybrids and EVs is battery life but as a general rule the batteries last well at 10-15 years but in the end a cell or two goes - when a cell fails a warning light comes on and a single pair of cells can be all it takes to 'repair' the battery. So far it appears that batteries can last up to 15-20 years - depends on the cars battery cooling system to a large degree and how often the car is used.

All electric cars are good around town but not good on trips in this country yet - battery technology is still not as good as good as it needs to be. Electric cars are not good for towing so petrol and diesel powered vehicles still have their place. Long distance use of an all electric car means taking a small petrol driven generator with you made for the job (I'm not joking, that's how the problem is got around). Around town all electric is fine. These cars are heavy and expensive to make and manufacture causes a lot of CO2 but their running cost are good if hydro is producing the power that runs them. The 'tail-back' of EV are not as good as is commonly thought making them not quite as clean during manufacture and scrapping as we all imagine but certainly here in New Zealand they will be clean as end use products.

There has been no major step forward in battery technology in the last 20 years. We have nickel metal hydride and lithium-ion. Takes about 2 1/2 tons of material removed from the ground to make one car's battery (lots of CO2 produced).

No one would disagree that electric cars and trucks can and will be a part of the way of the future but we as a small country can only proceed with technologies that suit New Zealand and at a rate we can afford. A wrong decision would be a disaster financially. Today we can all buy a Toyota Hybrid car

with confidence that it will have low CO2 emissions and last for years so that's a good and proven idea and suits today's world. If the situation isn't as straight forward as this is, then it isn't right for New Zealand.

In conclusion, New Zealand can only follow the trends of 'the way forward', we cannot lead, we can only keep a reasonable distance behind the leading technological countries. In the short term Hybrids are a way forward for many New Zealanders as the technology is proven and the cars are affordable. Current all electric is great for round town now but they are too expensive and have limitations of distance so are not a solution - they will be when battery technology is improved, but that's the catch, it's not there yet. Will all electric be available by 2050? The answer is yes and New Zealand will likely be near zero CO2 from cars atleast because the large common car makers will make them - trucks might take longer. It's likely to be possible to buy electric from 2035 too from Ford, Toyota, Honda etc. The way forward is to proceed cautiously and in step with the advances in technology with a full understanding of what is involved with those technologies. What is clear is that on a global basis the making and scrapping of cars has been and still is the major contributor of global CO2 to do with car and truck transport.

Regards
[redacted]

From: Joanna Pohatu
To: Transport Emissions
Subject: FW: Hikina te Kopuhara comments.
Date: Wednesday, 16 June 2021 3:58:02 pm

For inclusion – not sure if we treat it as a submission or not.

Ngā mihi

Jo

Joanna Pohatu (she/her)
Principal Adviser
Environment, Emissions & Adaptation Team

T: +[redacted] www.transport.govt.nz

From: Tim Hopley <[redacted]
Sent: Friday, 28 May 2021 8:45 AM
To: Joanna Pohatu [redacted]
Cc: Ewan Delany <[redacted]
Subject: Hikina te Kopuhara comments.

Good morning Jo,

Thanks for the reply to Hannah about the Hikina te Kopuhara Green paper. We are always interested to be included into these discussions. Below are my comments regarding the paper.

- We are happy with the inclusion and statements on improving health, wellbeing and physical activity – well done.
- We are also happy with the inclusion and statements of improving air quality and noise thru out the document. However, it could be made clearer that improving air quality and noise has health benefits and not just environmental benefits.
- Well done for the inclusion of equity thru out the document.
- The Environmental Health Intelligence New Zealand team based at Massy there publish a number of fact sheets that could be helpful for this report. Including the "Unmet need for GP services due to a lack of transport" https://www.ehinz.ac.nz/indicators/transport/unmet-need-for-gp-services/ which highlights the plight of accessibility to GPs due to transport issues.
- Otherwise we support this document and would be interesting in any other chances for consultation in the future.

Regards

[redacted]
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From:	[redacted]
To:	Transport Emissions
Subject:	Submission on Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050
Date:	Thursday, 24 June 2021 5:34:55 pm

To whom it may concern,

Climate change is an overriding priority for NZ and the world.

Transport using fossil fuels need to drastically reduce.
Although it will be a big head change for many NZers, alternative ways to fuel our vehicles, reducing air travel, and developing the infrastructure to enable us to get around without carbon emissions like using public transport, walking and cycling are absolutely necessary.
I absolutely support changing our transport system in this way.

I have 9 grandchildren. I want them to inherit a liveable city, country and world.
We need to act now.

Thank you.
[redacted]

[redacted]

From: [redacted]
To: Transport Emissions
Subject: Submission on Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050
Date: Thursday, 24 June 2021 6:38:44 pm

To whom it may concern at Ministry of Transport,

Please consider this my personal submission on the 'Transport Emissions: Pathways to Net Zero by 2050' discussion document.

I strongly disagree that we are in a climate emergency and I do NOT agree that we should destroy our economy and our lifestyles in a knee-jerk reaction to a bogus crisis that we, as a country, can make no difference WHATSOEVER to.

I call on the Government and Ministry of Transport to take a careful and considered approach to roading projects that increase the safety and durability of our roads, and I urge the government NOT to pour millions or billions of taxpayer dollars into vanity or knee-jerk projects that will produce little to no benefit or improvement for the money spent.

I wish to remind the government that, because of the distance between towns and cities, and because of NEW ZEALAND's low population density, expensive "green" transport solutions are NOT viable or practical when seen from a cost/benefit perspective.

I only support investment in clean and accessible public transport, walking and cycling projects, and electric vehicles and bikes IF there is sufficient market demand for them.

I wish to remind the government that "green" technologies are NOT green to produce, and there are few, if any, recycling processes available for these "green" technologies. "Green" technologies require significant amounts of synthetic materials and rare and toxic elements to produce them, and there is in reality not enough of those rare elements on this planet to complete the "green" transformation that the rage mob demands.

"Green" technologies still haven't addressed the issue of "intermittency" - that is, power generation when the sun doesn't shine or the wind doesn't blow. "Green" energy generation (with perhaps the exception of hydro) has a very poor energy generation density ratio - that is, it requires significant land area to produce energy, compared to more traditional "brown" technologies. It does not address the loss of wilderness areas that are needed for "green" energy generation.

Moving freight onto rail, and coastal shipping, will cause significant delays in the supply chain, and is unlikely to reduce our emissions. Shipping lines are already choked and weeks behind schedule, and forcing more freight into an already overburdened system will quickly crash it.

I do not support "better urban compact design and liveable streets" without these terms being more specifically and clearly defined. I do NOT support New Zealand's transition to communist style high-density housing. Humans need space to live in, and we go crazy when crammed together, which quickly leads to high crime levels and low standards of living.

Reducing emissions from our car and truck dependent society will NOT save New Zealanders money and carbon. It MAY make our cities healthier, via reduced traffic emissions, but that will be made up for in pollution from making and disposing of "green" technologies, and the high costs associated with them.

People make towns and cities vibrant and liveable, not legislation. Socialist/communist societies are about as far from "vibrant and liveable" as you can get.

New Zealand only produces 0.11% of the world's carbon emissions. As such, there is absolutely NO POINT in trying to meet or exceed our emissions goals because we make NO DIFFERENCE to the global production.

I DO NOT, AT ALL, support the zero-carbon policies outlined in Hīkina te Kohupara – Kia mauri ora ai te iwi. These policies will very quickly destroy NZ's economy and standard of living and turn this country into a third-world sh*t-hole. I want to see a carefully considered, sustainable, MARKET DRIVEN transition to cleaner

technologies.

The Government needs to stay out of the free market, and significantly reduce it's micro-managing of it.

NZ can do better than be yet another failed communist state.

Thank you.

[redacted]

[redacted]

From:	[redacted]
To:	Transport Emissions
Subject:	Submission on Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050
Date:	Thursday, 24 June 2021 6:33:51 pm

To whom it may concern at Ministry of Transport,

Please consider this my personal submission on the 'Hīkina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050' discussion document.

I am desperately concerned about Climate Change and am committed to doing all I can to make the world habitable for future generations.
I have committed to not flying and have ditched my petrol car. I am trying to get everywhere on public transport and this is not at all easy.
I feel angry when I see money going to roading projects rather than to improving public transport.
I call on the Government and Ministry of Transport to act urgently and to halt all new roading projects that will just increase our emissions.
be brave and creative and invest primarily in projects that help us move around New Zealand without increasing emissions.
I support investment in clean and accessible public transport; walking and cycling projects; better urban compact design and liveable streets; electric vehicles and bikes and moving freight onto rail and coastal shipping. I would also like to suggest that all public transport be free as I am sure that will help people make the switch.
Reducing emissions from our car and truck dependent society will not only save New Zealanders money and carbon, it will also make our cities safer, healthier, more vibrant and liveable.
New Zealand's rising transport emissions are a major reason why we have continually failed our climate targets since the 1990s. With the fifth highest per-person transport emissions in the developed world we need to urgently transform our transport networks.
I support the zero-carbon policies outlined in Hīkina te Kohupara – Kia mauri ora ai te iwi, but noting only one pathway is modelled to achieve the 2035 target. I definitely want to see New Zealand's first Emissions Reduction Plan go further and faster than outlined here. We cannot afford to wait.
The Government needs to be braver and to take a leadership role to urgently bring in policies to match the scale of the climate emergency.

As I have said above. Generations before us have helped ensure that we thrive. We owe it to future generations to be bold, self disciplined and less selfish. We may have to put up with inconveniences and stop the mindless buying of stuff. We definitely need to use more Public Transport and to live in smaller houses with solar power and water tanks. Above all we need to ditch our cars and reduce our emissions.

Thank you.

[redacted]

[redacted]

From: [redacted]
To: Transport Emissions
Subject: Submission on the Hikina the Kohupara discussion document
Date: Wednesday, 2 June 2021 6:16:46 pm

This is short submission from an individual expressing gratitude and relief that this document has been so carefully brought together and, as such, provides an important next step in Aotearoa New Zealand's progress to addressing the Climate Emergency.

I have read the report and, in general, support its approach and recommendations.

My anxiety is that this will be watered down and the resulting actions will be weak and represent a lost opportunity. That would not be an acceptable outcome and I hope that the current Government and its officials will not feel the pressure to compromise.

In absolute terms I think that the report as written presents a modest challenge in terms of what is needed, but, perhaps a massive challenge in terms of what is feasible.

PLEASE STAY BOLD,

Many thanks

[redacted]

[redacted]

[redacted]

From: [redacted]
To: Transport Emissions
Subject: Transport Emissions:Pathway to net zero emissions by 2050.
Date: Friday, 25 June 2021 9:56:37 pm

Greetings.
I am writing to ask you to move your guidelines to 2030 for achieving Zero net emissions in NZ.
We know that the cost of doing stuff more slowly is an extremely high one.
You're creating amazing mind shifts with great courage. However we know what the window of opportunity is.
And 2050 isn't it.
Older NZers are in deep climate denial despite having descendants which frankly I find incomprehensible.
I am 67, have always been an early adopter of cutting edge ideas around human rights, and belief in human equality is where I live.
My friends 40-80 all think as I do and are active in doing/ funding stuff and are physically still activists.
Quakers, which is one group whom I am aligned with are very switched on regardless of age.
So what have they done that is different to other grouping in society.
You are highly unlikely to find climate deniers in this group.
I believe that climate change policies that aren't rapid and timely will utterly destroy the human rights movements gains of the last 100 years.
I am asking you to action this truth.
Half measures just won't cut it.
And please, please, please create an education campaign with cut through where kids advocate for their parents, and especially their grandparents support to accept climate change reality and then act.
Do kids need to get their relatives to commit to actions which slow up the burning of the earth at the sacrifice of their own gifts given to them around ritual events for example ?
The why and the how need to link in achievable examples to help many actually activate for change.
Black and white thinkers and deniers need hearts and minds connected by some of the brilliant creatives our country is known for.
Thanks so much for all you do.
We can maybe alleviate the very worst case scenario if we act absolutely heroically with hearts and minds connected.
Self interest to maintain the status quo or be unwilling to take extreme political risks must be extinguished.
There is no other way.
Yours very sincerely,
[redacted]