

Transportation Group Submission

‘Hīkina te Kohupara – Kia mauri ora ai te iwi- Transport Emissions: Pathways to Net Zero by 2050’

Submission due: Friday 25 June 2021

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Executive summary

The Transportation Group welcomes the opportunity to provide input on the *Hikina te Kohupara – Kia mauri ora ai te iwi - Transport Emissions: Pathways to Net Zero by 2050*.

The Transportation Group is a technical interest group of Engineering New Zealand, with over 1,100 members. The Group was formerly known as the Institute of Professional Engineers of New Zealand (IPENZ) Transportation Group. More information about the Transportation Group is [available online](#).

This submission has been prepared by a special subcommittee established to prepare this submission. The group's wider membership has had the opportunity to provide input. We are confident that the views and recommendations made below are representative of the majority of our 1,100 members.

We need action not commitments

The Transportation Group **supports some but not all proposals outlined in this paper**. We would like to see stronger language and more concrete commitments that highlight the urgency of our nation's response to reduce our emissions.

The latest Intergovernmental Panel on Climate Change (IPCC) report states that global net anthropogenic CO₂ emissions must decline by **45% on 2010 levels by 2030**, reaching net zero around 2050, **to prevent overshoot of 1.5 degrees Celsius**. Although this paper aims to achieve net zero by 2050 **systemic change must occur now as shown in Figure 1**.

Environment and equity principles must guide all transport decisions, from footpath design parameters through to strategic government investment priorities.

The challenge before us is unprecedented in human history.

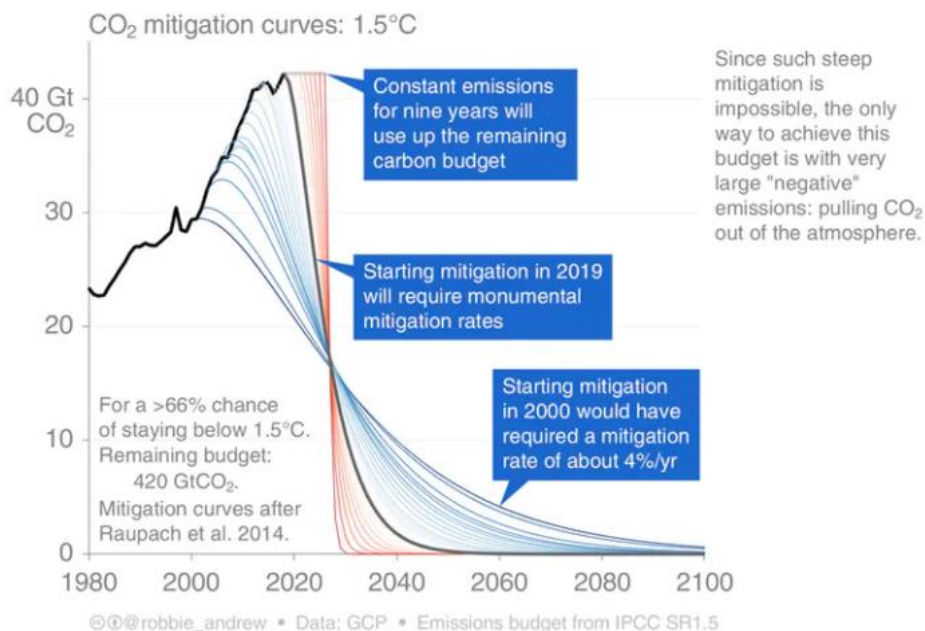


Figure 1: The sooner global emissions decline, the smoother the route to zero emissions by 2050 will be. The lines show potential global pathways. Robbie Andrew/CICERO Center for International Climate Research, CC BY

This is a public health emergency

There are many parallels between the vision of a Smokefree Aotearoa 2025¹ and achieving a low-carbon transport system. The government implemented a raft of legislative, regulatory, and educational actions to **solve a public health emergency with a scientific mandate** not a *'social mandate'*.

Time and resources currently required for public consultation on transport projects attempt to foster a social mandate and win support of public opinion. This is a major obstacle when attempting to deliver transport system change quickly and efficiently especially if the public doesn't agree with the vision.

We must recognise and treat this problem with the policies, tactics, and leadership that are worthy of a public health and climate emergency.

We need to focus on avoiding emissions

We would like the Ministry of Transport to emphasise action on the **'Avoid' and 'Shift' principles** within the *'Avoid-Shift-Improve'* framework.

The **Avoid principle** will help us avoid changes to the transport system that further increase the need for travel. This will be important for achieving net zero by 2050. However, given our current system is already operating at unsustainable levels the avoid principle will be less effective in reducing emissions by 2030.

Focussing on the **shift principle** for reducing **emissions by 2030** is imperative if we are to set Aotearoa up on a realistic pathway to net zero by 2050. Over the next five years Aotearoa will need to make substantive progress on shifting mode share of personal travel from car to walking, cycling, and public transport.

Focusing on these principles will give the transport industry the greatest chance to achieve a net zero carbon future and many of the associated co-benefits.

Systemic change is fundamental to a net zero transport system

We advocate for **system thinking about who and what our transport system is for** – lower carbon modes such as walking, cycling, and public transport must be prioritised.

Strategies and policies that prioritise private motor vehicle use continue to, in general, be favoured by government, the private sector, and the wider public. This has led to inequitable land use developments and the destruction of comprehensive public transport systems in Aotearoa such as the Christchurch Tramway System².

Entrenched thinking within government and the private sector may continue to prioritise historically successful, yet ultimately flawed, decisions that provide for private motor vehicle use. Investment desperately needed in low-carbon forms of transport may be compromised by the system we have now.

Gaining multi-party support for a low-carbon transport system will be imperative to achieving the vision of this document. A low-carbon transport system is also an equitable one and will achieve better outcomes for the most vulnerable in society.

¹ <https://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/smokefree-aotearoa-2025#achieving2025>

² https://en.wikipedia.org/wiki/Christchurch_tramway_system

General

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 **generally support the principles** with the following considerations:

Principle 3 We need to take a strategic approach to reducing transport emissions

Funding priority must be given to walking and cycling projects, liveable streets, building capability and capacity in our public transport networks, and developing low-carbon freight systems. We need to make it easier and safer for people to choose healthier and more sustainable transport options than cars.

Principle 5 To ensure a Just Transition we need to manage the impacts and maximise the opportunities brought about by changes to the transport system.

We support the need for a just transition. This means reducing the inequities that are already present in the transport system. It should be noted that the longer we take to transition, more severe, and more drastic measures will need to be implemented. This is because the climate and social consequences will compound for the most deprived (e.g. those trapped in transport poverty, low quality housing, and worsening access to employment, education, resources, choice, and healthcare).

A just transition is also the pathway that addresses other long-standing issues. Many of the low-carbon transport solutions such as creating safer transport networks through mechanisms such as speed management, better public transport services, and continuous, well-functioning walking and cycling networks are well known to reduce inequity in a population. More sustainable transport modes also improve health outcomes for users, benefiting individuals and reducing the burden on the public health sector.

Principle 6 Actions taken within the next five years will significantly shape this future pathway

We support this principle with amendments. The immediacy of the situation can no longer be ignored. We have enough evidence to understand the cost of inaction would itself require extraordinarily difficult social adaptation. As Prime Minister Jacinda Ardern has stated, climate change is her generation's "nuclear-free moment".

All decisions from government, the private sector, and community organisations should immediately prioritise GPS strategic outcomes at every level of decision making - from engineers to, planners, asset owners, policy makers and elected members. This is the most important principle contained within the document and this time sensitivity brings urgency to all other principles.

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

We disagree with the principle as written. The technology that we have available at our disposal today is enough to largely decarbonise the transport system. Investment in proven technology, such as the rail network, is likely to be a better spend of taxpayer money than trying to have a *powerful role in accelerating the uptake and diffusion of new transport technologies and services*. We cannot risk waiting on technological innovation to decarbonise. Furthermore, this may create a sense of false security or justify dangerous inaction which ultimately means we fail to deliver on the outcomes Aotearoa must achieve.

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?

In any existential life-threatening emergency there must be clear, strong, coordinated leadership. Central government must step into this role with strong legislative, and regulatory positions that enable and support all sectors to align and enable change. Most importantly there must be a clear focus on the agreed pathway so that our actions achieve sustained, coordinated, and aligned effort over the next 30 years.

- Central government must set a clear mandate for the level of change that local government will be required to implement with appropriate regulatory and legislative controls
- Central government must support local governments and agencies that take proactive measures to decarbonise
- Central government does not need to wait for a clear social mandate to emerge – this is a public health emergency and must be treated as such (see Smokefree Aotearoa 2025)
- Referencing the '*social mandate*' undermines the power that central government has in decarbonising our transport system. We would like to see this term removed from the document entirely
- **The Ministry of Health will be a key partner.** There are many parallels between the Smokefree Aotearoa 2025 vision and the decarbonisation of our transport system. The policy frameworks, and tactics used to achieve a long-term goal of reducing smoking prevalence and tobacco availability to minimal levels can be applied to reducing emissions in our transport system.
- **Policy frameworks across government must be aligned** and woven together with the common goal of decarbonisation. The Resource Management Act reform, Local Government Act review and implementation of the National Policy Statement on Urban Development. These frameworks will provide the mechanisms that allow decarbonisation in the transport sector to achieve greater equity and health outcomes in our communities. There is a risk that wholesale changes could be distracting and disruptive. This alone could slow progress on decarbonising transport.
- We agree that projects must deliver co-benefits across strategic transport outcomes. However, some **projects will require immediate trade-offs between transport modes**. Some users will be adversely affected in the short-term especially in the reallocation of road space. The key aspect is to use language that conveys a sense of legacy, and greatest benefit for the greatest number of people, of current and future generations.
- **Central government must play a stronger governance role** in many decisions being made at the local government level especially where there is conflict between developments that increase emissions and short-term economic gain. Urban development outside designated transport orientated corridors must not be allowed - housing pressures need to be addressed through increasing density. This is consistent with the direction of the National Policy Statement on Urban Development that seeks well-functioning urban environments. The NPS requires consideration of walkable catchments and has removed parking minimums in urban centres, which will help contribute to better transport and liveability outcomes.
- Local government needs more funding to properly fulfil its responsibilities. Central government should explore ways to do this, including allocating some of the goods and services tax (GST) revenue to local government.
- The tax system must also be employed to incentivise people and businesses to a low carbon economy – especially in the first two carbon budgets as part of the ERM. Additional tax on high polluting modes will also help generate additional revenue. This revenue should then be used to accelerate investment in public transport, rail, walking and cycling, and renewable energy sources. Instruments like levies and fees could be more targeted and more just.

- We support the use of increased financial incentives and disincentives to encourage behaviour change for people and industries to transition to a net zero transport system. Priority should be given to schemes that have been successful overseas and provide a range of co-benefits.³
- The insurance industry could also be leveraged to help shift people to lower carbon forms of transport. This could include carbon reduction initiatives such as lower motor vehicle insurance premiums to those that have purchased an Electric Vehicle like the ‘pay as you drive’ scheme.⁴

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

We support innovation in the transport sector that **achieves co-benefits, reduces inequity, and a reduction in carbon emissions**. A prime example of this type of innovation is *Waka Kotahi’s Innovating Streets for People Programme*.

- We caution government against innovation that is expensive, has large amounts of uncertainty, and likely to increase inequity within our current transport system such as large investment in sustainable aviation fuels, autonomous metro rail systems and trackless trams.
- There is far too much uncertainty surrounding many of these technologies and they may result in unforeseen outcomes. Waiting for these solutions to become viable will drain resources, time, and money which could be better spent on acting now.
- There are also many innovations currently operating at a local level but need support to be rolled out at-scale. An example of this is the on demand public transport service MyWay in Timaru.⁵
- Government can send clear ‘innovation signals’ through targeted investment. Projects that allocate space for, prioritise, or are designed solely for lower emissions transport options can send clear signals to industry as to where transport innovation should be focused.
- We also note that innovation may come from outside the transport sector that could play a large role in decarbonising such as remote working technology that removes the need for employees to commute for work daily.

Changing the way we travel

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?

The chapter provides a good starting point for integrating land use, transport, and urban development. However, it is unclear how effective the proposed Strategic Planning Act will be at deferring land use decisions that increase carbon emissions. Urban sprawl without strong, legal, and regulatory frameworks will continue to be driven by economic rules of supply and demand.

- All land use and transport planning going forward must be based on the precautionary principle – if there is a possibility that a new development may induce private motor vehicle use then it cannot be allowed to continue.

³ <https://cyclingindustry.news/lithuania-puts-up-e8-million-cars-for-levs-trade-in-subsidy-citizens-snap-up/>

⁴ <https://www.stuff.co.nz/business/money/125239790/door-opens-for-pay-as-you-drive-car-insurance>

⁵ <https://www.ecan.govt.nz/get-involved/news-and-events/2021/myway-trial-extended-but-success-dependent-on-support/>

- This point is incredibly important to a range of outcomes in the current GPS (access, inclusiveness, and equitable social, health, and environmental outcomes.)

We have listed what we think are the most effective actions that will reduce emissions between integrated land use and transport. We have included minor amendments reflecting the need for stronger language.

1. *Make transport investments conditional on 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.*

We believe that this should be rephrased to include that greenfield development is conditional upon having links to quality public transport services and reflect the opportunity cost of converting productive agricultural land into unproductive subdivisions.

2. Implement regulatory changes to empower Road Controlling Authorities to consult on and make street changes to support active travel, public transport, and place-making more easily, including the reduction of speed limits in residential areas.
3. 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
4. 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 as well as all supporting infrastructure). A concerted effort must be made to reduce Vehicle Kilometres Travelled (VKT) as the key metric. Developments that would result in high emission generation must be discontinued (e.g. land on the outskirts of our cities that isn't integrated with existing transport corridors).⁶
5. Make changes to policy and funding settings (including in the GPS) to ensure Waka Kotahi and Road Controlling Authorities maximise opportunities to 'build back better' when doing street renewals (to improve streets for people walking, cycling, and using public transport). Current policies strongly signal that maintenance must only replace "like with like" and improvements are difficult to justify.
6. 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 levers e.g. generous funding allocation rates or funding consequences if Road Controlling Authorities do not deliver these changes within set timeframes.
7. An overt effort to reduce VKT across all urban centres in Aotearoa. Traffic reduction has been overt in some European cities' Sustainable Urban Mobility Plans for years.

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 encourage prioritisation of cycling, walking, and public transport services as the key travel options to reduce GHG emissions and reduce VKT. There is major untapped potential and 'unconscious' support for

⁶ <https://az659834.vo.msecnd.net/eventsairaeuprod/production-harding-public/a8a4217364334efbac30b81acc348e44>

walking and cycling in our cities and towns across Aotearoa. This is evidenced by active mode transport projects in Sydney, Australia.⁷

Reallocation of road space must be used as a primary tool to encourage mode shift and reduce VKT

- This method is quick, effective, and much cheaper than building completely new infrastructure such as cycleways or dedicated walking and cycling bridges. This infrastructure can be delivered at-scale in very quick time frames as was seen across the world during the Covid-19 pandemic.⁸
- Regulatory and legislative changes are necessary to support local government to install, enforce, and maintain reallocated road space for active modes and public transport
- We continue to subsidise the parking of private assets (vehicles) in public space. This is a waste of a precious and finite resource. It also causes a range of safety issues and network inefficiencies that are sub-optimal to achieving many of the strategic outcomes of the current GPS.
- Enact Zero Emission Areas in city centres to provide healthy, safe, and attractive areas for low-emission forms of transport⁹

Greater network planning for walking, cycling, and public transport is essential to support network connectivity

- Prioritising road networks for different modes, rather than providing for all modes on the same network, is essential. This planning technique is used extensively in Europe¹⁰ and provides better transport outcomes for all modes
- Provide better facilities for walking and cycling such as secure, under-cover bike parking, and better end-of-trip facilities including provisions for E-bikes

Public transport must receive greater priority than the private motor vehicle

- Reduce the farebox recovery rate for public transport operators so that they need to recover only 25% of operating costs, rather than the current 50%, to align better with Australian practice. This will significantly reduce public transport fares.
- Increased revenue collected from parking management and pricing must be directed into public transport and walking and cycling infrastructure.
- Public transport green card to boost youth patronage
- Increase private motor vehicle parking levies in CBDs and suburban shopping areas

Current economic investment decisions prioritise private motor vehicle use

- Health disbenefits are not priced into projects that promote car travel in the Waka Kotahi NZTA economic analysis of projects, but health benefits are counted for projects that promote active modes. They are \$2.20 per km cycled and \$4.40 per km walked. This is huge compared to current fuel / distance charges of about 8c per km, and the congestion charging distance option proposal of 12c per km. **Car use is being heavily subsidised at a large cost to public health.**
- Financial incentives and financial penalties must be used to remove higher emitting vehicles from the fleet. Successful overseas programmes include higher registration fees for older cars, cash-for-clunkers trade in programmes, or trading in old cars for new electric bikes.

⁷ <https://www.theguardian.com/australia-news/2021/jan/09/sydney-cycling-has-the-city-that-hates-bikes-finally-turned-the-corner>

⁸ <https://www.forbes.com/sites/carltonreid/2020/04/22/paris-to-create-650-kilometers-of-pop-up-corona-cycleways-for-post-lockdown-travel/?sh=287e3dba54d4>

⁹ <https://aucklandccmp.co.nz/access-for-everyone-a4e/zero-emissions-area-zea/>

¹⁰ <https://www.youtube.com/watch?v=c1I75QqRR48>

Regional and inter-regional travel must be predominantly land based

Regional development should be achieved through prioritising rail and bus services and need not involve large per-capita emitting aviation. Again, we cannot afford to wait for the appearance of clean/green aviation to arrive - this appears decades away from being commercially viable.

Inter-regional rail should be a key focus on competing with domestic aviation especially for travel within the North and South islands in the first instance. Strong government leadership in France has banned short haul flights under 2.5 hours, with complementary support for fast rail services.¹¹

- We recommend that government sets a date for the end of short haul fossil-fuelled flights by 2025 (for non-essential services) and to start heavily investing in inter-regional rail services that are commuter-centric rather than just focused on tourism.

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?

Transport demand management is currently used sparingly in Aotearoa. We support much greater use of this tool to affect travel behaviour and reduce transport emissions. These mechanisms also provide an opportunity to maintain revenue as VKT is reduced over time.

Transport pricing must reflect the true cost and indirect costs through parking management, low emission zones, and congestion pricing. There is a compelling case to be made that the use of motor vehicles is subsidised, with road user charges and petrol tax only recovering the direct costs of maintaining operating the transport system. Correct pricing signals lead to more optimal economic outcomes.

However, pricing as a standalone tactic is likely to be met with extensive pushback, cynicism, and could ultimately be ineffective at achieving the outcomes it seeks to achieve. It is essential that revenue collected from these price increases is directed toward initiatives designed to increase mode shift to walking, cycling, and public transport.

A good example of this funding mechanism is the Perth parking levy in Western Australia. Public buy-in to such schemes generally increases when the link between the introduction of pricing mechanisms and investment of that revenue back into the walking, cycling, and public transport networks is clearly visible.¹²

Improving our passenger vehicles

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?

Electrification of the car fleet on its own is not an economical or practical approach to decarbonisation. The key. The required number of electric vehicles to provide full decarbonisation would be nearly 4.7 million vehicles and is likely to cost over \$230 billion.¹³

¹¹ <https://www.bbc.com/news/world-europe-56716708>

¹² <https://www.transport.wa.gov.au/projects/perth-parking.asp>

¹³ https://en.wikipedia.org/wiki/List_of_countries_by_vehicles_per_capita

Decarbonisation via fleet electrification, without serious systems change, also leaves future generations with a transport network like the one we have at present - car dependent, expensive to maintain, and accompanied by poor safety, health, access, and local environment outcomes.

Certainty around change is the most important factor to enable individuals, businesses, and markets to transition as successfully as possible.

In terms of priorities the top five are listed below (not including those that are already underway)

- **Reduce the size of the fleet** – this has **many co-benefits** and will reduce the burden on the scale of change and investment needed within the energy sector
- Set clear target dates for when **fossil fuel vehicles are to be removed from the fleet** (perhaps set by vehicle type) should be agreed and announced as part of the first ERM budget.
- Set clear target dates for when **fossil fuel vehicles can no longer be imported into Aotearoa** must be agreed as part of the first ERM budget.
- Enable schemes to remove high-emitting vehicles from the road using financial incentives and disincentives such as a vehicle scrappage scheme to encourage the removal of inefficient, unsafe vehicles and combine with an E-bike replacement scheme.

Although electrification of the fleet is important, **we recommend that travel reduction strategies be given greater priority. These achieve more co-benefits, reduce inequity, and better support a Just Transition.**

Table 1: Comparing Emissions Reductions Strategies¹⁴

| Community Goals | Cleaner Vehicles | Vehicle Travel Reductions |
|------------------------------------|------------------|---------------------------|
| <i>Total Vehicle Travel</i> | <i>Increased</i> | <i>Reduced</i> |
| Congestion reduction | Worse | Better |
| Roadway cost savings | Worse | Better |
| Parking cost savings | Worse | Better |
| Consumer savings and affordability | Mixed | Better |
| Traffic safety | Worse | Better |
| Mobility options for non-drivers | Worse | Better |
| Energy conservation | Better | Better |
| Pollution reduction | Better | Better |
| Physical fitness and health | Worse | Better |
| More compact development | Worse | Better |

By reducing vehicle operating costs, Cleaner Vehicle strategies increase total vehicle travel, sprawl, and associated costs. Vehicle travel reduction strategies help achieve many multiple goals.

¹⁴ Extracted from Victoria Transport Policy Institute (VTPI) in https://www.wgtn.ac.nz/__data/assets/pdf_file/0009/1926639/WP-21-09-how-to-decarbonise-New-Zealands-transport-sector.pdf

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

Actions to decarbonise the public transport bus fleet should be accelerated through more financial support to uptake i.e. supporting infrastructure and upfront capital cost. Setting clear, legislative target dates for when all PT operators/councils must have a zero emissions fleet would help accelerate the transition. It is well known that electric vehicles in general also have lower operational and maintenance costs. This fact should be used to persuade councils to provide a matching, tapering budget for the PT fleets accordingly.

In terms of priorities the top five are listed below (not including those that are already underway)

1. Provide additional financial support to accelerate the decarbonisation of the bus fleet and its required infrastructure.
2. Extend the RUC exemption for electric buses (which is due to expire in 2025).
3. Consider the further electrification of existing parts of the passenger rail network.
4. Consider future investment needs to ensure existing rail networks are fit for purpose.

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 'Avoid-Shift-Improve' framework should be applied to the aviation sector as well. **We do not support continued capacity growth in the aviation industry** (e.g. new airports that do not currently exist) as they will undoubtedly contribute to increasing, rather than reducing, emissions. Any new airport developments should be postponed until a time is reached where our existing facilities are all operating at a net-zero emissions level.

In a climate emergency the time of very cheap flying should be over. This sector is also likely to face large hurdles as the wider international market moves away from fossil fuels. The cost of an aircraft ticket is forecast to increase substantially once the market begins to shift.

There are many uncertainties with the developing technologies to make aviation sustainable in the long term. This fact strengthens the need for a **precautionary approach** to any further expansion of the network.

In considering Sustainable Aviation Fuels it needs to be kept in mind that they still contribute to radiative forcing, so even the most sustainably produced fuel still has two thirds of the impact of a fossil fuel. Reducing the impact by one third is considerable, but it is still not a fully sustainable solution.

We recommend that significant investment in land-based inter-regional travel be prioritised over investment in aviation.

- The industries that benefit from aviation can pay the full costs of the necessary research and development. If they become uneconomic in the process, they are not important industries.
- Well-functioning, well used, and well-funded rail and bus networks can have major regional revitalisation effects (**co-benefits**) and are better distributed than economic benefits from aviation

Supporting a more efficient freight system

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?

Although not explicitly mentioned in the report, **reducing congestion caused by single occupancy vehicles on the road network is critical to improving freight efficiency**. Initiatives to shift people to alternative modes in urban environments especially will, in turn, benefit the freight industry significantly. Large trucks are also involved in approximately 20% of all fatal and serious crashes.

We agree that a national freight strategy is required. Geographically NZ faces challenges to pivot from current road freight to coastal shipping or rail. Underinvestment in the past is hard to catch up on - requiring major funding injection.

A well-planned national strategy would help identify appropriate inland ports and possibilities to better connect road, rail, and coastal shipping. Addressing intermodality challenges between rail / coastal shipping is also important.

Incentivising courier companies to deliver last mile through e-cargo bikes or low speed electric vehicles will decrease the volume of heavy vehicles/light trucks within our urban centres. This approach again has many co-benefits including **better road safety outcomes and reduced road congestion**.

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?

Similarly, to vehicle reduction strategies it is important to address this challenge holistically. There is a need to reduce the total amount of freight and for any remaining freight to use low carbon modes of transport.

As climate change impacts threaten and destabilise global supply chains due to extreme weather events, it will become increasingly important for our economy to become self-reliant. Aotearoa's dependence on imports and remote geographic location means that this is more important to Aotearoa than for most economies.

As with Sustainable Aviation Fuels there are many uncertainties surrounding the commercial viability of biofuels within Aotearoa.

- Professor Susan Krumdieck (formerly of the University of Canterbury) has researched these issues for the US Department of Energy and could provide further guidance on the practicalities
- Hydrogen fuel cell technology has the potential to reduce emissions without the battery density issues of EVs (Lee, Elgowainy et al. 2018)
- Hybrid trucks using hydrogen fuel cells are a potential solution that can increase fuel economy by up to 60% but may have adverse emissions impacts unless carefully implemented (Gao, Smith et al. 2015)
- In addition, the lack of cost-effective infrastructure is the main barrier to usage (Lahnaoui, Wulf et al. 2019)
- In essence, the future of hydrogen fuel and biofuels from a thermodynamic perspective is limited

A Just Transition

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?

New policies implemented must stand the test of time. Wide political support and industry acceptance of new policies would also help to ensure consistency through changes in government over the election cycle.

Pricing signals will be an essential part of the transition. They must be designed so that they are both efficient in promoting economic prosperity and health but are also equitable by reducing existing disparities in access between the transport rich and those in transport poverty.

A car-dependent system is well known to increase inequity in all communities. This is depicted by the proportion of household expenditure going to car transport is much higher for low income households. This is shown to be increasing over time which further disadvantages lower socio-economic groups.¹⁵

Electrifying the fleet will not entirely address this issue if electric vehicles have a lower operating cost. It isn't the fuel source of the private motor vehicle; it is a system based primarily upon automobility that increases inequity within society. Walking, cycling, and public transport are inherently more just forms of travel as they require less use of resources.

Transportation policy is climate policy, economic policy and equity policy all wrapped up in one.

Pathways & Budgets

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 do you think Aotearoa should follow to reduce transport emissions?

The pathways provide good conversation starters **but are not enough to meet global scientific and equity needs.**

- CO₂ emissions must decline by **45% on 2010 levels by 2030**, reaching net zero around 2050, to avoid no or limited overshoot of 1.5 degrees Celsius¹⁶
- This is the pathway that should be adopted for Aotearoa not one that is locally and politically palatable

We support strong, bold decisions to ensure future generations are not severely impacted by catastrophic climate change. To be bold is to be safe. There is no disadvantage to any group in Aotearoa if we avoid catastrophic climate change too soon by achieving net zero before 2050. But based on our actions (or inaction) over the last few decades, we are much more likely to miss this target than to achieve it. The time for action is now.

¹⁵ <https://www.transport.govt.nz/statistics-and-insights/household-travel/sheet/other>

¹⁶ <https://www.ipcc.ch/sr15/chapter/spm/>

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

The *'avoid-shift-improve framework'* should be used to prioritise actions and mechanisms deployed within the first emissions budget. A greater focus on avoiding the need to mitigate impacts must be a core part of the strategy.

For Budget period 1: 2022-2025 we would like to see further commitments from the government on some of these 'Avoid' principles to send a strong, clear message to all people in Aotearoa that we are serious about pivoting to net zero.

Other initiatives that **accelerate mode shift within urban centres** and **break the cycle of provision for private motor vehicle use** must be prioritised during the first emissions budget:

- Reallocation of road space to prioritise walking cycling and public transport with interim use of cycle lanes and light segregation (more cost effective than facilities being provided under current policies)
- Reduce vehicle kilometres travelled in urban centres through Sustainable Urban Mobility Plans
- Programmes that incentivise people to trade in high emission vehicles for E-bikes or cash
- Aviation – no new terminals or airports until the existing industry reaches net zero
- Land use – no new greenfield development and introduce regulatory frameworks that ensure emission generation is calculated for any proposed development
- Travel demand management – Creation of low emission zones, transport pricing, and parking management
- Legislative and regulatory changes that treat decarbonisation as a public health emergency and remove the need to consult on minor details of transport projects