Clarifying note: since Cabinet agreed to this paper the emissions reduction plan has undergone several iterations and the detail of some policies has changed. To see the final transport chapter of the emissions reduction plan please follow the link here: https://environment.govt.nz/assets/Emissions-reduction-plan-chapter-10-transport.pdf. Note this version also received Cabinet approval.

17 - Transport

Note: This chapter is subject to changes once Budget 22 is confirmed.

Our path to net zero transport will deliver a better transport system and improve the wellbeing of New Zealanders

Decarbonising the transport system will deliver better transport for everyone in Aotearoa and contribute to more vibrant, resilient, and prosperous places to live, work and visit.

By 2035, almost a third of our vehicle fleet will be zero-emission, and we will be working on decarbonising more challenging transport modes, such as trucks, ships, and planes. This will result in vehicles that are cleaner and more efficient to run, improve air quality and reduce noise pollution.

We will also have enabled more people to walk, wheel, cycle, and use public and shared transport options, particularly in our largest urban areas. This will reduce congestion, air pollution and noise, create better places to live and support public health and wellbeing.

As a result of these changes, we will have a more sustainable, inclusive, safe, and accessible transport system that better supports economic activity. The need for urgent action on carbon emissions is a catalyst to accelerate these changes and deliver better transport outcomes for all.

Achieving this vision will require transformational changes that will be challenging. The Government has a clear role to play, but we cannot deliver this vision alone. Success requires us to work in partnership with local government, iwi/Māori, businesses, and communities.

The challenge is to deliver change at the pace and scale required to achieve the necessary reduction in transport emissions, while also allowing all New Zealanders access to the significant co-benefits that will accompany our transition to a low-emissions transport system.

Why does reducing emissions from transport matter?

Transport is one our largest contributors to domestic GHG emissions

Transport is our second largest source of GHG emissions. It is responsible for:

- approximately 20 percent of gross domestic emissions, and
- 43 percent of total domestic CO_2 emissions.

Without largely decarbonising our transport system, Aotearoa will not be able to achieve its net zero emissions target.

The Climate Change Commission suggested reducing transport emissions by:

- 13 percent by 2030, and
- 41 percent by 2035 (compared to 2019 emissions levels).

This is equivalent to a 6.7 mega-tonne (Mt) reduction in 2035 from 2019 levels.

Te Manatū Waka - Ministry of Transport (Te Manatū Waka) forecasts that transport emissions would be nearly double where they need to be in 2035 without major interventions – including those under development – to put us on a different emissions pathway (see Figure 1).

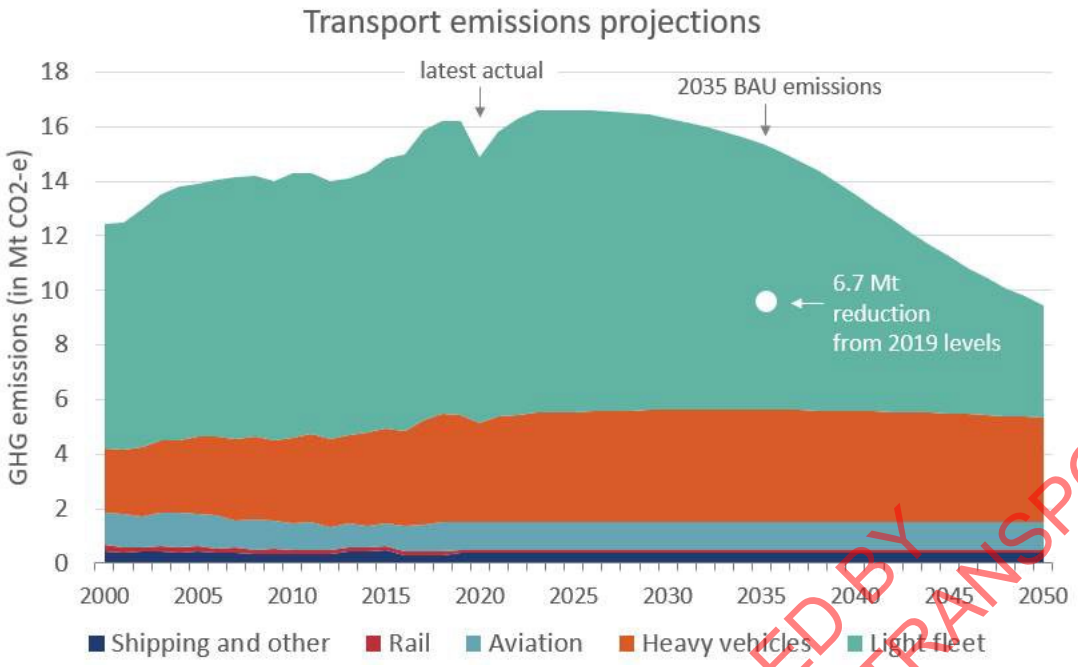


Figure 1: Te Manatū Waka's emissions projections for transport

Urgent action and system-wide changes are required to alter our current transport emissions trajectory.

We have an opportunity to address wider costs on society from transport through the transition

For many people, the transport system is neither affordable nor accessible. We also have problems with safety, congestion, air and noise pollution. In thinking about the opportunities to decarbonise transport, we can also look to address these challenges.

This plan will deliver significant co-benefits in addition to reducing emissions. For example, accelerating the uptake of cleaner vehicles will reduce harmful emissions that increase respiratory and cardiovascular illnesses. Increasing active travel will support better public health. Transport decarbonisation could also lead to job creation in related industries – such as biofuels production and development. Other co-benefits include creating better places to live, reduced congestion and noise, and increased transport reliability and affordability – delivering benefits for everyone.

We all have a role to play in reducing transport emissions

The Government has a clear role to play, but it cannot deliver on emissions reductions alone. A combined effort from all New Zealanders is required to reduce emissions and build a healthy, safe and accessible transport system.

Partnering with iwi/Māori

For Māori, the taiao (environment) is a taonga. Māori are intimately connected to the environment through their daily lives and from the experiences of their ancestors. This connection is important to Māori identity as individuals and as a people. This innate relationship with the land, sea and te ao Māori (the Māori world view) acknowledges the holistic nature, interconnectedness and interrelationship of all living and non-living things.

Mātauranga Māori needs to be an important aspect of the transport policy design and development process; and will also be used to inform policies to improve transport outcomes for Māori. These outcomes will also improve outcomes for all New Zealanders.

Te ao Māori and Māori principles, such as rangatiratanga (leadership) and kaitiakitanga (guardianship) will inform the design of transport policies. This will require active collaboration and partnering with iwi/Māori to understand the issues, find Māori-led solutions and develop proposals.

Te Manatū Waka will work in partnership with iwi/Māori as the policies for this and future emission reduction plans are progressed. Enabling this will ensure that Māori are a true partner in the design and development process. This will build partnerships to uphold the principles of Te Tiriti o Waitangi

Partnering with iwi/Māori to design and develop solutions to reduce our transport emissions is important. Meaningful discussion with iwi/Māori on how partnership will work in practice will be a key first step. We will support iwi/Māori to be able to engage on this work and will establish regional groups and build enduring partnerships for the future.

The role of local government, businesses, and communities

- **Local government** – has a major role in planning and funding transport and urban development at a regional and local level. Bold decisions and strong collaboration with central government will be needed to ensure a joined-up approach to decrease transport emissions.
- **Private sector** (businesses) – is a major investor and employer in the transport system. Businesses also rely on transport for moving people, goods and services. The private sector can also strongly support changes in the system through a range of mechanisms, from education and innovation to investment.
- **Communities** – grow the mandate for change and make change happen. All New Zealanders have a stake in our transport system and can influence its direction. This includes community advocacy groups, such as cycling and neighbourhood groups. Change will vary across communities and effort will be needed to ensure all New Zealanders are equitably served.

The actions we are taking to reduce transport emissions

Four focus areas guide our approach to reducing transport emissions:

1. Reducing reliance on cars and supporting people to walk, cycle and use public transport.
2. Rapidly adopting low-emission vehicles and fuels[1].
3. Beginning work now to decarbonise heavy transport and freight.
4. Cross-cutting and enabling actions.

Focus areas 1 to 3 align with the Climate Change Commission's advice. Focus area 4 reflects the importance of cross-cutting and enabling actions for the success of the whole package.

[1] We have amended this focus to include low-emission fuels to acknowledge that biofuels (and other low-emission fuels) will also play a role in reducing light vehicle emissions.

We are committing to four transport targets

We are setting four transport targets that will support these focus areas and align with achieving a 41 percent reduction in transport emissions by 2035 from 2019 levels. These targets are:

> **Target 1:** Reduce total vehicle kilometres travelled (VKT) by the light fleet by 20 percent by 2035 through improved urban form and providing better travel options, particularly in our largest cities.
>
> **Target 2:** Increase zero-emissions vehicles to 30 percent of the light fleet by 2035.
>
> **Target 3:** Reduce emissions from freight transport by 35 percent by 2035.[2]
>
> **Target 4:** Reduce the emissions intensity of transport fuel by 10 percent by 2035.

Targets 1, 2 and 4 reflect changes compared to baseline projections for 2035. Target 3 is compared to 2019. The targets provide guidance on how much effort is required to reduce transport emissions across the system and will shape our policy and investment decisions to support the scale and pace of change required.

To achieve these targets, we must work with key partners to take the initial actions outlined in this chapter over the first emissions budget period (2022 – 2025). Further action, and refinement, will be needed in emissions budgets 2 (2026 – 2030) and 3 (2031 – 2035) depending on how we are tracking.

Achieving the transport targets also depends on complementary policies, such as a strong Emissions Trading System (ETS) price and changing the way we plan our towns and cities.

Further effort is required from all New Zealanders to reduce transport emissions and build a healthy, safe, and accessible transport system.

Managing whole-of-life carbon dioxide emissions in transport infrastructure

This chapter addresses emissions from vehicle use. It does not cover embodied or operational emissions from infrastructure construction, maintenance and operation. In part, this is addressed in the Building and construction section. However, a whole-of-life approach to transport emissions should consider emissions that arise from constructing and maintaining transport infrastructure – such as streets and roads, rail and ports. This approach also supports a circular economy.

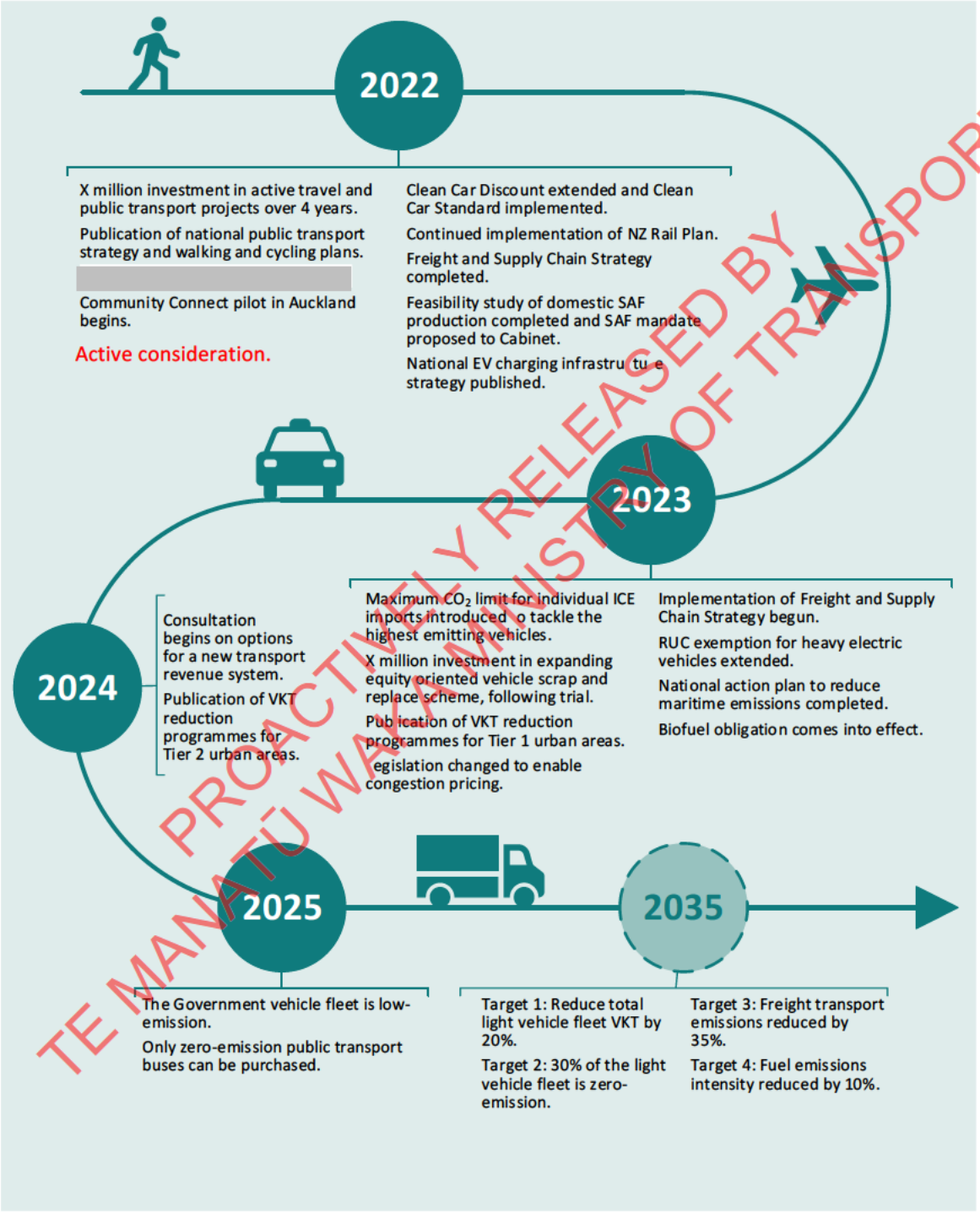
From 2021 onwards, Waka Kotahi will require energy use and embodied emissions to be measured for all new improvement projects and maintenance contracts. Contractors are also expected to assess, plan, and implement opportunities for improving resource efficiency. For select projects, Waka Kotahi must also demonstrate how these emissions are reduced compared to a business-as-usual approach. In addition, Waka Kotahi has a resource efficiency strategy, Te Hiringa o Te Taiao, with the longer-term vision that resources are used sustainably with minimal environmental impact. This includes taking a stronger whole-of-life approach to reducing emissions and working towards a circular economy.

We are considering how to manage whole-of-life carbon in the aviation and maritime sectors.

[2] This target for freight transport includes emissions from trucks, rail and ships. It excludes light vehicles and aviation.

Route Map to 2035

Note: Further work needs to be undertaken to refine this route map and reflect budget decisions. This is illustrative only.



Focus area 1: Reducing reliance on cars and supporting people to walk, cycle and use public transport

The amount of travel that people do in fossil-fuelled vehicles is at the heart of the transport emissions challenge.

Transport target 1: Reduce total Vehicle Kilometres Travelled (VKT) by the light fleet by 20 percent by 2035 through improved urban form and providing better travel options, particularly in our largest cities

We cannot rely on just decarbonising the vehicle fleet quickly. Improving urban form, offering better transport options, and using other demand management levers to reduce VKT by cars is vital. Most of this reduction must occur in our largest cities, where people are more likely to have transport options other than travelling by car. We also need to address the broader systems that affect transport, including urban development and land use planning.

By increasing travel by public transport, walking, cycling and managing demand on the transport network, we can deliver significant benefits beyond reducing emissions. This includes improved travel choice and accessibility, better health and safety, and less congestion.

This focus area includes:

- reducing emissions and supporting cities and towns to thrive by integrating land-use, urban development and transport planning and investments
- providing New Zealanders with better travel choices by making significant improvements to public transport, walking and cycling
- reducing congestion and supporting emission reductions by enabling congestion pricing and investigating other pricing mechanisms
- ensuring further investment in highway and road capacity for light private vehicles is consistent with climate change targets.

Table 1. Focus area 1 actions over the first emissions budget period to reduce transport emissions

Focus area 1: Actions (policies/activities)
1.1 Integrating land use, urban development and transport planning and investments to reduce transport emissions
To reduce transport emissions and support well-functioning and vibrant towns and cities, we need to create places where people have a range of clean and healthy transport options to access jobs, education, shops, and other amenities. Intensification of urban areas with mixed land uses needs to occur in combination with improvements to public transport and active modes to avoid/reduce emissions and improve accessibility. Greenfield developments also need to be public and active transport oriented. To deliver this, urban planning needs to be integrated with transport planning and investments. These actions therefore must be considered in combination with proposed actions in the Planning and Infrastructure Chapter of the Emissions Reduction Plan. **Actions** **Transport and planning system reform**

- Strengthen the relationship between Regional Land Transport Plans (RLTP) and Regional Spatial Strategies (RSS), implementation agreements and Natural and Built Environment Act (NBA) plans.

Impact assessments

- Assess joint spatial plans and associated implementation plans for all Urban Growth Partnerships to understand transport emission and funding impacts, and to identify key risks and opportunities for reducing transport emissions.
- Develop the evidence base and tools to quantify and assess transport emissions from proposed transport and urban developments. This will form part of the evidence base for assessing the lifetime emissions impacts of proposed urban developments (covered in the Planning Chapter).
- Incorporate assessments of VKT by light vehicles, mode share, and transport emissions into RLTPs and amended RMA plans, including how to manage/reduce emissions. These assessments will be required to meet eligibility for transport funding (see funding settings below).

Funding settings

- Identify transport sector and planning sector incentives and investment rules to incentivise low-emission urban form that avoids/reduces travel and encourages travel by public transport and active modes (e.g. use of targeted funding assistance rates for allocating the National Land Transport Fund).
- Require bids for new transport investment to demonstrate how they contribute to emission reduction objectives when being considered for transport funding from central government.
- Establish a high threshold for new transport investments that are not consistent with emission reduction objectives.

1.2. Supporting people to walk, cycle and use public transport

A. Planning – Designing and implementing programmes to reduce total VKT for the light fleet in our largest cities, and beginning planning for other urban areas

In urban areas, transport planning and investments need to provide for effective land use and other demand management, and strongly prioritise travel by public transport, walking and cycling to reduce transport emissions. This will also accommodate more people and businesses in our cities, without causing ever-increasing congestion and emissions.

Actions

- Implement activities approved for funding that are in the six existing mode-shift plans for Auckland, Tauranga, Hamilton, Wellington, Christchurch and Queenstown in partnership with local government.
- Implement 'no regrets' activities that are planned but not yet funded in the NLTP or existing mode shift plans.
- Set sub-national (e.g. Tier 1 and 2[3]) light fleet VKT and mode-shift targets for achieving the national target of reducing total light fleet VKT by 20 percent by 2035. This will be completed by the end of 2022, following consultation with local government, iwi/Māori, and community representatives.
- Revise Waka Kotahi's national mode shift plan (Keeping Cities Moving) to align with the new national VKT reduction target.

[3] Tier 1: Auckland, Hamilton, Tauranga, Wellington, Christchurch. Tier 2: Whangārei, Rotorua, New Plymouth, Napier Hastings, Palmerston North, Nelson Tasman, Queenstown, Dunedin

- Leverage from the six existing urban mode-shift plans to develop urban VKT reduction programmes in partnership with local government, iwi/Māori, and community representatives. Revised programmes will need to clearly demonstrate how they will contribute to VKT targets for major urban centres, other urban areas, towns and rural areas.
- Partner with local government, iwi/Māori, and community representatives in Tier 2 urban areas to develop new VKT reduction programmes, aligned with sub-national VKT reduction targets.

B. Public transport – Improving the reach, frequency, and quality of public transport

We need to provide New Zealanders with better public transport choices to reduce VKT. Well integrated public transport service networks can significantly increase access levels between communities and are vital for connecting employers to labour markets and individuals to social and economic opportunities. Public transport is also essential for our cities to grow in a way that avoids emissions from new development.

Actions

National strategy, policy and enabling activities

- Establish a national public transport strategy that provides a set of principles for planning and funding diverse kinds of public transport to enable the development of a national public transport network.
- Develop a business case toolkit, which will provide guidance on the viability of interregional passenger rail, coach and bus services, and improve the planning, funding and delivery of these projects.
- Complete the review of the Public Transport Operating Model, and subsequently consider making any reforms to the policy and legislative framework for the planning and procurement of public transport.
- Identify and consider addressing barriers to integrating public transport with active and micromobility modes and networks.

Delivery

- Deliver major public transport service and infrastructure improvements aligned to existing mode-shift plans and new VKT reduction programmes in Auckland, Wellington and Christchurch.
- Deliver national integrated ticketing for public transport.
- Significantly improve urban public transport services nationwide to support a major uplift in all urban bus networks.
- Consider improvements to, and new opportunities for, interregional rail services.

C. Walking and cycling – Providing national direction to deliver a step-change in cycling and walking rates

There are major opportunities to reduce emissions while also improving public health and making our streets more inclusive for people. This includes making it safer and easier to travel by active modes and improving access to e-bikes by making them more affordable.

Actions

Policy and enabling activities

- Deliver a co-ordinated national programme of funding, capability-building, change leadership, and regulatory initiatives to deliver a step-change in cycling and walking rates in Aotearoa. This

includes increasing funding for cycling and walking improvements, implementing Accessible Streets proposals nationwide to support safe walking, cycling/scootering and other active modes, and building sector capability in engagement and communications.

Delivery

- Deliver a national plan to significantly improve and increase the safety and attractiveness of cycling and micromobility.
- Deliver a national plan to significantly increase the safety and attractiveness of walking.
- Provide support for local authorities to develop network plans for walking and cycling, and boost capabilities in designing and delivering cycling/scootering and walking improvements at speed.
- Develop and implement an e-bike incentive scheme and support for employer-led initiatives to make e-bikes more affordable.

D. Reshaping streets – Supporting local government to accelerate widespread street/road changes to support public transport, active travel and placemaking

Reallocating street space to provide dedicated bus lanes, bike/scooter networks and walking improvements can be a quick and cost-effective way to make it safer and more attractive for people to travel by clean and healthy transport modes. We need to support and encourage local government to make these changes, and set clear expectations that it should happen.

Actions

Policy and enabling activities

- Deliver a co-ordinated programme of regulatory and funding initiatives to support and encourage changes to existing streets/roads, including:
  - changing funding levels, settings and requirements to strongly incentivise street changes
  - reviewing policy and funding settings to ensure delivery agencies maximise opportunities to 'build back better' when doing street renewals, to make streets safer and better places for people travelling by foot, bike, other wheeled mobility and public transport, and to improve the urban environment
  - considering regulatory changes to make it simpler and quicker for road controlling authorities to change streets to support travel by public transport, walking and cycling
  - building sector capability in engagement and communications.

Delivery

- Scale up Waka Kotahi's existing Innovating Streets for People programme to deliver experimental street changes rapidly.
- Use Network Operating Frameworks, Network Operating Plans and the One Network Framework to support mode-shift objectives and enable delivery of reshaping street activities.
- Provide support for local authorities to boost capabilities in designing and delivering cycling/scooting networks and walking improvements at pace.

E. School travel – Making school travel greener and healthier

Making walking, cycling/scootering and catching the bus to and from schools safer and more convenient for children can improve access, reduce road and parking congestion around schools, improve health and wellbeing, and reduce emissions.

Actions

Policy and enabling activities

- Explore dedicated active transport funding and/or education programmes to schools, including funding for school bike-leasing schemes and bike education classes.
- Set targets for active travel to/from schools.
- Consider opportunities to improve school bus services, including those provided by the Ministry of Education and regional councils.

Delivery

- Prioritise improving walking and cycling infrastructure to/along school routes, in schools, and in surrounding neighbourhoods (including reallocating street space).
- Implement the Tackling Unsafe Speeds programme to reduce speed limits around schools.

F. Equity – Improving access and travel choice for the transport disadvantaged

Low-income households spend a larger share of their budget on transport – particularly on their cars. They also tend to live in areas with poorer transport choices. In addition to poor environmental outcomes, the status quo is not providing safe, healthy or affordable access to transport for many. We must provide equitable access to clean and healthy transport options as part of the transition to a zero-emissions transport system.

Actions

Policy and enabling activities

- Deliver a co-ordinated programme of funding, support and monitoring to improve clean and healthy transport options for transport disadvantaged[4] communities.

Delivery

- Work with local authorities to deliver public transport, cycling and walking improvements in low socio-economic areas and for transport disadvantaged groups (including people with disabilities).
- Investigate opportunities to improve access for people living in social housing through shared mobility schemes, such as car share, carpool, and bike/scooter schemes.
- Implement a three-year Community Connect pilot of a 50 percent concession to Community Service cardholders in Auckland.
- Work with local authorities to ensure that public transport fares are affordable. This could include extending the Community Connect pilot to other areas, support other forms of targeted public transport fare subsidies, or investigating how public transport fare pricing structures could be adapted to improve equity and encourage mode-shift.

G. Rural areas – Investigating the potential for public transport, walking and cycling in rural and provincial areas

Low- and zero-emission vehicles are likely to play a greater role in reducing transport emissions in rural and provincial areas than public transport, walking and cycling. However, there are still opportunities to uplift and build low-emission transport choices for these communities.

Actions

[4] 'Transport disadvantage' includes people who have limited options to participate in everyday activities because of a lack of transport choices, and people who overcome lack of transport choice by paying more than they can reasonably afford for mobility. This includes disabled people, who are more likely than others to experience transport poverty, and have specific accessibility needs, which reduces their choices.

- Investigate the potential for public transport, shared services, walking and cycling in rural and provincial areas, particularly for the transport disadvantaged.
- Investigate further opportunities to provide on-demand public transport in provincial towns, noting positive signs from the MyWay trial in Timaru.

1.3. Enabling congestion charging and investigating other pricing and other demand management tools to reduce emissions from land transport

Pricing mechanisms are integral to reducing transport emissions, alongside other demand management levers such as changes to land use and investment in public and active transport modes. Aotearoa's main pricing tool for reducing emissions is the New Zealand Emissions Trading Scheme. Overseas evidence shows that congestion charging can encourage better use of current transport systems and avoid the need for expensive and carbon-intensive infrastructure investments. A broader range of pricing tools also could be used to reduce emissions by encouraging the use of low-carbon fuels, discouraging the use of high CO_2 emitting vehicles, and supporting shifts to public transport and active modes.

Extensive research into congestion charging in Auckland has found that it would likely have a positive impact on levels of congestion and carbon emissions by encouraging people to change to lower-carbon modes of travel (for example, public transport).

Congestion charging also has the potential to disproportionately impact on many low-income households and individuals and groups in the community who are less able to change their time or mode of transport. If congestion charging is progressed, responding to these equity impacts will be a central part of both legislation and scheme design.

<u>Actions</u>

Congestion charging

- In the second half of 2022, Cabinet will decide whether to progress legislative changes to enable congestion charging in Aotearoa, taking into account how best to align network efficiency objectives with Emissions Reduction Plan targets and objectives.
- Work with Auckland Council on a detailed congestion charging design for Auckland.
- Investigate ways to mitigate the adverse impacts of congestion charging on low-income individuals and households.
- Engage with Wellington City Council and Wellington Regional Council in response to their request for congestion charging.
- Monitor interest in congestion charging from other councils and engage with them as necessary.

Pricing tools

- Investigate the most effective combination of additional pricing tools and appropriate sequencing to reduce emissions from land transport (including parking pricing, VKT pricing and low emission zones) and consider changes to legislative settings to enable their use. This includes investigating potential equity impacts from using these tools.

Future of the Revenue System

- Reconsider the revenue system in response to longer-term changes in the way New Zealanders travel, and in response to the shifting expectations about the purpose and function of the transport system.

Mobility as a Service

- Explore, and potentially deliver, a pilot Mobility as a Service project in Aotearoa, to determine the effectiveness of the platform to shape transport outcomes and to encourage mode-shift.

1.4. Requiring roadway expansion and investment in new highways to be consistent with climate change targets

New highways and road expansion projects are sometimes needed to support urban and housing development and efficient movement of freight but can induce more private vehicle travel and consequently increase emissions. We will ensure further investments that expand roads and highways are consistent with climate change targets and avoid inducing further travel by private vehicles.

Actions

- Establish a high threshold for receiving funding to expand roads, including new highway projects (beyond investments already confirmed), so new investments avoid inducing further travel by private vehicles.

1.5. Embedding nature-based solutions as part of our response to reducing transport emissions and improving climate adaptation and biodiversity outcomes

Nature-based solutions[5] refers to the sustainable management and use of natural features and processes to tackle socio-environmental challenges, such as climate change.

For transport, there are opportunities to apply nature-based solutions at a local, regional, and national scale to reduce transport emissions, and to improve climate adaptation as well as biodiversity outcomes. This includes:

- spatial planning for sustainable land use, development and infrastructure provision, which identifies appropriate areas for production, development, and conservation/regeneration
- urban design that integrates functional green spaces into multi-modal transport infrastructure developments to make places more attractive for urban living, walking and cycling (which supports mode shift and emissions reductions), and to create shading to make streets and buildings cooler in summer
- incorporating the use of functional 'green infrastructure' (e.g. trees, vegetation, and parks) and 'blue infrastructure' (e.g. wetlands and floodplains) to reduce the impacts of stormwater runoff, protect transport infrastructure from natural hazards and the impacts of climate change, and to improve biodiversity
- protecting valuable ecological habitats and species from damage and disruption when transport infrastructure is being constructed and maintained; and from ongoing impacts when infrastructure is used (e.g., air pollution, noise pollution, stormwater run-off, light pollution etc).

Actions

- Investigate the role that nature-based solutions could play in reducing transport emissions and contributing to other benefits. This includes investigating the potential for the transport

[5] Nature-based solutions are being covered throughout the Emissions Reduction Plan, so we have not elaborated on this concept here. For reference, the IUCN defines nature based solutions as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits" https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions.

system to contribute to carbon sequestration, and whether there are any barriers to funding, delivering, and maintaining nature-based solutions in the transport system.
- Ensure transport policy and investment settings encourage the use of nature-based solutions, including protecting existing carbon sinks and support for new long term carbon sequestration opportunities where appropriate. This includes through the Government Policy Statement on land transport.

Focus area 2: Rapidly adopting low-emission vehicles and fuels

Transport target 2: Increase zero-emissions vehicles to 30 percent of the light fleet by 2035.

Two-thirds of transport emissions come from the light vehicle fleet. Therefore, alongside reducing reliance on light vehicles, decarbonising the light vehicle fleet is critical for meeting our targets. We recently announced the Clean Vehicle Standard and Discount. This is a significant step towards decarbonising light vehicles, especially those entering the fleet. However, more action is needed to accelerate the uptake of low-emission vehicles and ensure they are accessible for more New Zealanders, particularly those with lower-incomes.

This focus area includes:

- supporting New Zealanders to buy low-emission vehicles, including through making low-emission transport options accessible for low-income New Zealanders
- working with industry on addressing supply constraints facing low-emission vehicles
- introducing measures to avoid Aotearoa becoming a dumping ground for high-emitting vehicles rejected by other countries

We also need to put the infrastructure in place to support low-emission vehicle use – this is covered in focus area 3. Policies to support the uptake of alternative fuels are included in focus area 3 because they apply to both light and heavy vehicles.

Table 2. Focus area 2 actions over the first emissions budget period to reduce transport emissions

Focus area 2: Actions (policies/activities)
2.1. Accelerating the uptake of low-emission vehicles
A. The Clean Vehicle Standard and Discount Scheme
The Government has already committed to the Clean Vehicle Standard and Discount scheme. This is a significant step towards decarbonising our light vehicles, especially those entering the fleet. The Clean Vehicle Standard will increase the quantify and variety of zero- and low-emission vehicles supplied to Aotearoa. The Clean Vehicle Discount is already encouraging consumers to purchase zero- and low-emission vehicles. **Actions** • Continue to implement the Clean Vehicle Discount and implement the Clean Vehicle Standard (which is subject to legislation passing in 2022). • Update vehicle labelling requirements to inform New Zealanders about the CO_2 emissions of individual vehicles prior to their purchase.

- Investigate extending the Discount approach to other vehicle types (such as e-bikes and motorbikes).

B. The Low Emission Transport Fund

The fund is delivered by the Energy Efficiency and Conservation Authority (EECA). It provides co-funding to support the demonstration and adoption of low-emission transport technology, innovation, and infrastructure to accelerate the decarbonisation of Aotearoa's transport sector – including vehicle charging infrastructure. The Low Emission Transport Fund expands the scope and size of the previous Low Emission Vehicle Contestable Fund.

C. Light electric vehicle Road User Charge (RUC) exemption

The RUC exemption for light electric vehicles has been extended to 31 March 2024, continuing its contribution to supporting the uptake of electric vehicles.

D. Avoid Aotearoa becoming a dumping ground for high emitting vehicles

The Climate Change Commission recommends a phase-out date of no later than 2035, and if possible 2030, on ICE light vehicles being imported, manufactured, or assembled in Aotearoa. Almost all vehicles driven on our roads need to be zero-emission before 2050 to reach our national net-zero carbon target. Given vehicles are scrapped at 19 years of age on average domestically, only vehicles that support our net zero target should be added to our fleet from the early 2030s.

Actions

- Consider what further measures are required from 2027 to increase the fuel efficiency of the imported fleet and avoid New Zealand becoming a dumping ground for high emitting vehicles and to meet emissions budgets.

E. Limiting imports of the highest emitting vehicles: Setting a maximum CO_2 limit or penalties for individual light ICE vehicle imports to tackle the highest emitting vehicles

This policy will complement the Clean Vehicle Standard and the Clean Vehicle Discount in accelerating the shift to a low-emissions vehicle fleet. Its role is to address the gaps that the Standard and Discount cannot respond to.

Specifically:

- the Clean Vehicle Standard cannot prevent vehicles that do egregious climate harm from entering the fleet as it does not apply to individual vehicles. The Clean Vehicle Standard works by lowering the average vehicle emissions of the fleet of vehicles coming in. It allows the emissions of very high emitting vehicles to be offset by low-emission vehicles.
- the highest emitting vehicles tend to be luxury vehicles and large utes and vans that cost more than the average vehicle. Compared to most vehicle buyers, purchasers of luxury vehicles are less price sensitive. This reduced sensitivity will mute the impact of the Clean Vehicle Discount's fees and any penalties passed on from the Clean Vehicle Standard.

Adopting this policy is important because the highest emitting vehicles tend to be driven more. Generally, these vehicles have large engines. People drive large engine vehicles more than vehicles with smaller engines. In 2019, cars and SUVs greater than 3,000 cc were driven 11,506

kilometres on average. Vehicles between 1,600–1,999 cc were driven 8,826 kilometres on average.

Actions

- Setting a maximum CO_2 limit that would operate as a grams CO_2 per kilometre threshold above which vehicles could not be imported or setting very high penalties for these types of vehicles as part of the Clean Vehicle Discount. Further work will be done to identify the appropriate mechanism, and any necessary exemptions regime.

F. Investigating how the tax system could support clean transport options

Aspects of the current tax system may be creating incentives that could be working against reducing transport emissions.

Actions

- Review relevant aspects of the tax system to ensure low-emissions transport options are not disadvantaged, in particular in relation to the work-related vehicle definition in the fringe benefit tax (FBT) rules and the application of FBT to employer-provided public transport.

G. Partnering on solutions to address supply constraints for low-emissions vehicles

Low-emissions vehicle supply certainty will be important to enable continually increasing the percentage of electric vehicles in our national fleet. The supply of new and used low and zero-emissions vehicles (light and heavy) is likely to remain tight in the 2020s.

A Clean Vehicle Sector Leadership Group was established in August 2021 to advise the Minister of Transport on measures to accelerate the uptake of clean vehicles, including those to address future supply constraints.

H. Determining whether there are legislative barriers to the use of some types of low-emission vehicles

Globally, there are different types of light low-emission vehicles that might be suitable for short-distance, low-speed use. However, our existing regulations do not permit their current domestic use.

Actions

- Determine if there are inappropriate legislative barriers to the use of some types of low-emission vehicles in Aotearoa. This will require considering if allowing these vehicles into the national fleet can be achieved without unduly compromising our safety or other objectives.

I. Transitioning to a low-emissions government fleet

Optimising the government fleet and transitioning to a low-emissions vehicle fleet is part of the Carbon Neutral Government Programme and will demonstrate leadership in reducing fleet emissions.

Actions

Where practicable, government agencies are now required to:

- optimise their fleets with the aim of reducing the number of vehicles in the government fleet

- choose a battery electric vehicle (BEV), or a plug-in hybrid electric vehicle (PHEV) if a BEV is not appropriate for the proposed use, unless there are operational requirements or other circumstances that prevent them from doing so.

2.2. Making low-emission vehicles more accessible for low-income and transport disadvantaged New Zealanders

Compared to other income groups, low-income New Zealanders face significant barriers in moving away from high-emitting vehicles, and this disparity is a risk to transport decarbonisation and an equitable transition. The disparity arises from affordability constraints, a lack of suitable low-emission vehicles, and limited or no access to alternative low-emission transport options. Low-income New Zealanders are more likely to live in rental accommodation or denser accommodation which creates a further barrier in that such housing can be harder to install home charging in.

The Clean Vehicle Discount seeks to increase the affordability of low-emission vehicles. However, even with rebates, these vehicles may remain unaffordable to many low-income New Zealanders.

Actions

Social vehicle leasing

- Trial, with a view to establishing, social leasing schemes of EVs for low-income households. Participants would pay an affordable weekly set fee to cover running costs (except fuel), depreciation and scheme administration.

Equity-oriented vehicle scrap and replace scheme

- Trial, with a view to establishing, an equity-oriented vehicle scrappage scheme that will make cleaner vehicles affordable for low income people. On scrapping a vehicle, eligible participants could receive financial vouchers for the purchase of safe low- and zero-emission vehicles or the alternative of vouchers for use on public transport and other low-emission services.

Further targeted support to make low-emission vehicles more accessible

- Investigate whether further targeted support is required to make low-emission vehicles more affordable for other disadvantaged groups and communities. This includes considering whether additional support is required to support disabled people to purchase suitable electric vehicles (e.g. larger vehicles to transport wheelchairs).

Focus area 3: Beginning work now to decarbonise heavy transport and freight

Reducing emissions from freight transport will be critical to achieve a 41 percent reduction in transport emissions by 2035. Heavy vehicles, most of which are for freight, emit almost a quarter of our total transport emissions.

Transport target 3: Reduce emissions from freight transport by 35 percent by 2035

We also need to take actions to reduce emissions from the fuels used for transport. Low-carbon liquid fuels, such as biofuels, will play a role, alongside electrification, the use of hydrogen and other technologies. Low-carbon liquid fuels are one of the best options for vehicles already in use, and for hard-to-decarbonise transport sectors, such as aviation and coastal shipping.

Transport target 4: Reduce the emissions intensity of transport fuel by 10 percent by 2035

This focus area includes:

- creating a national Freight and Supply Chain strategy with industry to identify how to decarbonise freight transport, while improving the efficiency and competitiveness of the supply chain
- implementing the New Zealand Rail Plan to foster resilience in the rail network and provide a platform for future growth
- investigating ways to encourage greater use of coastal shipping
- supporting industry to buy low-emission heavy vehicles with standards and incentives.
- accelerating the decarbonisation of public transport buses
- working with the air transport industry on opportunities to reduce aviation emissions
- drawing up a National Action Plan to reduce maritime emissions and set targets for low-emission shipping
- introducing a sustainable biofuels obligation to reduce emissions from existing ICE vehicles
- planning for the large-scale rollout of and investment in EV charging.

Table 3. Focus area 3 actions over first emissions budget period to reduce transport emissions

Focus area 3: Actions (policies/activities)
3.1. Decarbonising freight
A. Developing a Freight and Supply Chain strategy
The Climate Change Commission recommended that the Government develop a low-emission freight strategy. Decarbonising the freight sector will be extremely challenging and will require consideration of the entire supply chain. **Action** • Develop a national Freight and Supply Chain strategy with industry to identify how to decarbonise freight transport, while improving the efficiency and competitiveness of the supply chain. This strategy will set the direction for the national freight and supply chain for the next 30 years. This will provide a better understanding of the system and how it can help us reach several outcomes – including decarbonisation. The strategy will build on work being progressed in the first emissions budget period and set the pathway for what actions we should take in the second and third emissions budget periods.

B. Implementing the New Zealand Rail Plan (the Rail Plan) and investigating options to encourage greater use of coastal shipping

In April 2021, we committed to implementing the Rail Plan[6]. This 10-year vision will foster resilience in the rail network, restoring rail freight and providing a platform for future investment for growth. Rail contributes to national and regional economic growth, reductions in emissions and congestion, and has the potential to reduce road deaths and injuries, facilitate wider social benefits, and provide resilience and connection between communities.

There are also opportunities for significant mode-shift to coastal shipping. This will form an important part of decarbonising the freight sector, alongside mode-shift to rail.

Actions

The New Zealand Rail Plan

- Invest in the national rail network to restore rail freight and provide a platform for future investments for growth.
- Invest in the metropolitan rail network to support growth and productivity in our largest cities.

Coastal shipping

Waka Kotahi NZ Transport Agency will consider proposals from the sector to deliver coastal shipping activities from the $30 million – $45 million of investment allocated through the Government Policy Statement on land transport 2021 (GPS-LT 2021). This could include new or enhanced domestic services, reducing sector emissions, new or enhanced inter-modal links, and new or enhanced maritime infrastructure.

C. Accelerating the decarbonisation of trucks

The size and weight of heavy vehicles makes decarbonisation especially challenging. The technology available is not as progressed as it is for smaller vehicles and there are currently few commercially viable low-emissions options for heavy trucks. However, over the next few years we expect this to change. It is important to begin establishing incentives, regulations, and investment now to drive future change.

The Government has signed an international Memorandum of Understanding (MoU) to set a high level of ambition to decarbonise heavy vehicles. The MoU requires Aotearoa and other signatory countries to work collectively on action that leads to the proportion of brand new medium and heavy-duty zero-emission vehicles in reaching 30 percent of global sales in 2030 and 100 percent of sales in 2040.

Actions

- Progress decarbonising heavy vehicles programme in the first budget period. This includes:
  - introducing more funding to support the freight sector to purchase zero and low-emission trucks
  - establishing a freight decarbonisation unit to progress regulatory and investment work to decarbonise the freight sector
  - evaluating options to improve heavy vehicle fuel efficiency and identify the appropriate options for regulating heavy vehicle imports to reduce the emissions of heavy vehicles entering Aotearoa, support the development of infrastructure for green fuels and heavy vehicle fast charging, and evaluating options to reduce emissions of heavy vehicles

[6] The New Zealand Rail Plan | Ministry of Transport

operated or procured through government activities (this could include but is not limited to implementing green freight procurement through third-party contractor rules for government activities).

- Evaluating options for RUC to support emissions reductions, including whether to extend the heavy EV exemption from RUC and whether to set RUC rates differently by fuel type/emissions.
- Consider implementing the Euro VI standard for heavy vehicles.

3.2. Accelerating the decarbonisation of the public transport bus fleet

As we encourage more people to travel by bus, it is important to consider opportunities to decarbonise the public transport bus fleet. This will not only reduce emissions but also improve air quality and urban amenity values.

Actions

The Government has already made commitments relating to decarbonising the public transport bus fleet. This includes the following:

- requiring only zero-emission public transport buses to be purchased by 2025
- setting a target to decarbonise the public transport bus fleet by 2035
- supporting regional councils to achieve these outcomes through a $50 million fund over four years.

Additional measures include:

- helping councils meet additional operating costs of deploying low- or zero-emission vehicles and/or
- enabling councils to own or take control of assets that are necessary to support the deployment of low- or zero-emission vehicles

3.3. Decarbonising aviation

Air travel has a role in moving both people and freight to both domestic and international destinations. In many cases, air travel is a core mode for inter-city and inter-regional travel. This means improving its sustainability is critical, alongside improving alternatives to interregional air travel in some places.

Actions

- Develop and set specific targets for decarbonising domestic aviation in line with Aotearoa's climate targets.
- Establish a public-private leadership body focussed on decarbonising aviation, including operational efficiencies, infrastructure improvements, and frameworks to encourage research, development and innovation in sustainable aviation.
- Implement a Sustainable Aviation Fuel (SAF) Mandate.

3.4. Decarbonising maritime transport

Aotearoa intends to ratify Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL), bringing into force new domestic requirements in 2022. This will set (internationally determined) energy efficiency standards, management plans and reporting for ships over 400 Gross Tonnage.

MARPOL Annex VI is the primary international regulatory mechanism for addressing climate change impacts from shipping. New measures to reduce GHG emissions from ships are to be adopted internationally by 2023. Our accession to MARPOL Annex VI will commit us to implementing these measures for Aotearoa flagged ships and foreign ships operating in our waters.

Actions

- Implement international obligations to reduce emissions from ships.
- Develop and implement a national action plan to reduce commercial and recreational maritime emissions in line with international and domestic decarbonisation ambitions.
- Set new targets for maritime, including:
  - all new small passenger, coastal fishing, and recreational vessels to be zero-emissions by 2035
  - all new large passenger, cargo and offshore fishing vessels to meet highest carbon intensity reduction, as set by the International Maritime Organization, by 2035
- Undertake research to advance the development and uptake of alternative low- and zero-carbon fuels for shipping in Aotearoa and develop safety and environmental standards for their use.
- Work with other like-minded countries to put in place the conditions to allow low- or zero-carbon shipping on key trade routes by 2035.

3.5. Biofuels obligation – a greenhouse gas reduction-based mandate to increase the use of sustainable transport biofuels

Liquid biofuels are a renewable, low-emissions fuel source that can be used immediately to reduce our transport sector emissions. Biofuels are the main viable mitigation opportunity for Aotearoa's existing ICE vehicle fleet, which will remain significant over the next 20 years. For the aviation and heavy freight sectors, biofuels are the only immediately commercially available mitigation option in Aotearoa. Unlike biofuels, other low-emissions transport fuels, such as hydrogen and electricity, are not compatible with existing ICE vehicles and fuelling infrastructure.

Actions

- Introduce a Sustainable Biofuels Obligation to help overcome the cost and risk barriers to biofuels uptake in Aotearoa.

3.6. Producing a long-term national electric vehicle (EV) charging infrastructure plan

We need to improve EV charging infrastructure coverage and services to ensure EV charging demand is met as domestic EV fleet numbers continue to increase. We also need to reduce barriers to EV uptake by ensuring Aotearoa's electric vehicle charging infrastructure supports the transition to and use of low-emissions transport by being accessible, affordable, convenient, secure and reliable for all.

The Government has a role in providing long-term strategic direction and ensuring its policy objectives on EV charging are signalled early to key stakeholders and the public. As we achieve mass uptake of light EVs, we will need further investment and regulation to ensure good access to charging infrastructure. Another consideration is providing information and direction to inform required upgrades to the electricity network.

Actions

- Continue to develop the cross-agency EV charging infrastructure work programme to provide a coordinated platform for existing and future government policy, investment and engagement with public and private stakeholders.
- Complete work on a long-term national electric vehicle charging infrastructure strategy to set out the Government's vision and policy objectives around EV charging over future emissions budget periods.
- Review of the Electricity (Safety) Regulations to cover the safety precautions associated with charging EVs

Cross-cutting measures to contribute to the delivery of a low emission transport system

Table 4 outlines key cross-cutting and enabling actions that are important to help us collectively understand the changes required and the impact of our choices on reducing transport emissions. These actions will help us to design a stronger and more equitable zero-emissions transport system.

Table 4. Cross-cutting and enabling actions

Focus area 4: Cross-cutting and enabling actions	Description
4.1. Ensuring the next Government Policy Statement on land transport (GPS-LT) guides investment that is consistent with the Emissions Reduction Plan	We will need to utilise all levers available to achieve emissions reductions. This includes the GPS-LT, which sets the Government's objectives for land transport investment and Crown funding for transport initiatives GPS-LT 2024 development is underway.
4.2. Developing a strong evidence base to inform transport decarbonisation and an equitable transition	We will invest in expanding the evidence base to support an equitable transition to a zero-carbon transport system, and ensure these policies and measures are effective within the New Zealand context. A better understanding of travel accessibility, preferences and behaviour across all user groups and modes will aid the development, assessment and modelling of future policies. The evidence base will support the monitoring and evaluation of the future state, to understand the impact of policies. This base will be integral to shaping current and future policies. This will be supported by cross-agency collaboration and the development of a Transport Climate Research plan, which will set out the direction for further research and to implement research activities to fill the high priority research gaps. We will also expand our tools for assessing interventions to ensure that we take a consistent approach across multiple issues, including how we

	treat uncertainty, account for multi-sector interactions, assess inter-related issues, and better account for risks and opportunities.
4.3. Embedding long-term transport planning	We will set a longer-term planning horizon, with a pipeline that can change when needed. This will give greater confidence that we are on a path to eliminate emissions and achieve other goals. Te Manatū Waka is using the Generational Investment Approach to guide planning through to 30–50 years out. This will be applied with their partner agencies, through cross-system strategies such as the National Supply Chain and Freight Strategy.
4.4. Investing in information and education to support change	Transport will be one of the first areas to make significant changes to reduce emissions. This will affect our people, communities and businesses nationwide. We will invest in information and education to support and encourage people and businesses to change their behaviour, while recognising that the biggest barrier is often a lack of good transport options. We will work across sectors to ensure consistent messages and actions.
4.5. Developing the skills and capability required to transition to a low-emissions transport system and support an equitable transition	We need to ensure the right skills and capability are in place across the transport sector (central government, local government, communities, iwi/Māori, suppliers, infrastructure supply chains) to support the transition. We will consider what capability and capacity building will be needed, and work with the transport sector to plan for the transition. We will also investigate any barriers the transport sector faces accessing the materials and labour needed to deliver the transition.

The impact of this plan on transport emissions

We are on track for the first emissions budget period

We have already made a good start with reducing transport emissions. The Government has made several commitments over the past year that have put transport on track to achieve its reduction targets for the first emissions budget period. This includes the Clean Vehicles programme, progress on decarbonising the public transport bus fleet, RUC exemption policies, and introducing a sustainable biofuels obligation.

Under high NZ ETS price conditions[7], the cumulative impact of these policies is 1.8 Mt over the 2022–25 period. Along with changes in the vehicle fleet's profile and fuel efficiencies over time, these policies are estimated to achieve the change in emissions needed to meet the Commission's first emissions budget for transport (see Figure 2).

We are confident that we will achieve the first emissions budget period based on this analysis and that New Zealanders will benefit from greater access to low-emission vehicles, which are cheaper to run and improve the quality of our fleet.

[7] High ETS price conditions that were modelled by the Ministry of Transport reflect the price path used in the Climate Change Commission's modelling and are higher than the baseline ETS price settings.

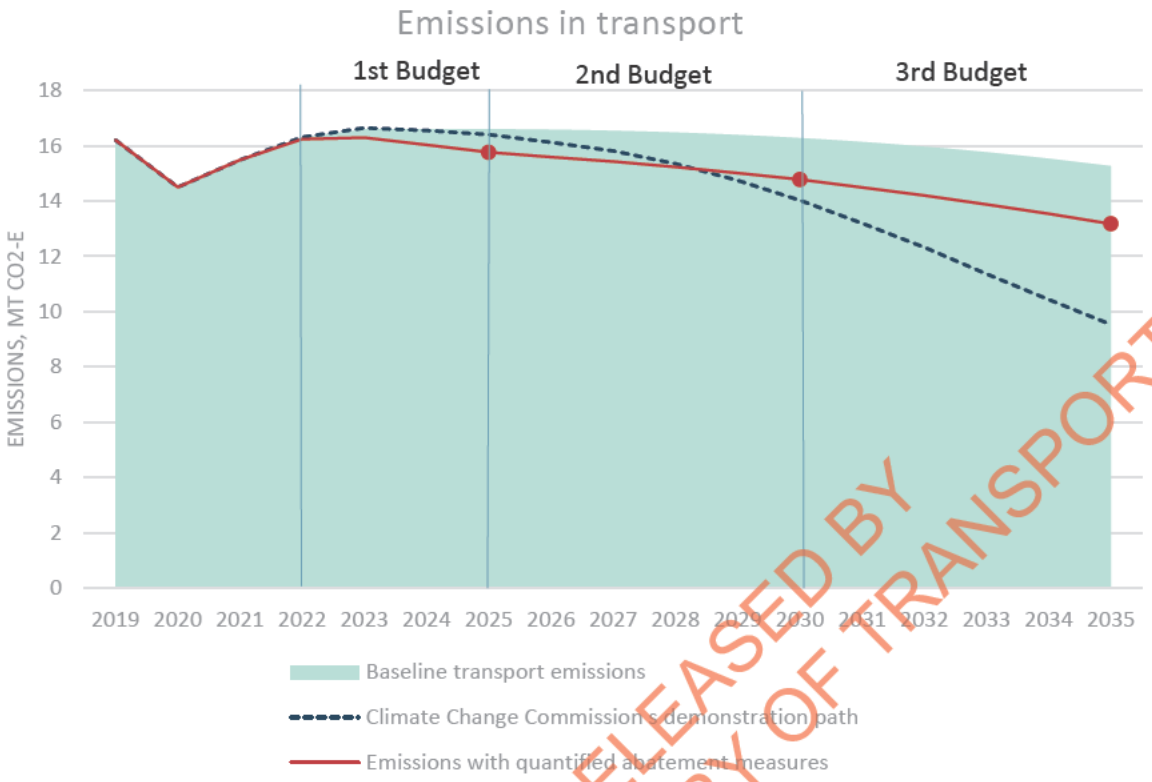


Figure 2. Estimated transport emissions with quantified abatement measures

This plan will make significant progress towards emissions budgets 2 and 3

Achieving the targets set out in this plan will result in a 41 percent reduction in transport emissions by 2035 from 2019 levels, as suggested by the Commission (see Figure 3).

The targets provide guidance on how much effort is required across the system to put us on a pathway to zero carbon by 2050.

We know from our modelling and international evidence that the actions included in this plan will make significant progress towards emissions budgets 2 and 3. However, further policy development is needed before we know the specific abatement that many of the actions will achieve.

Further transport actions and refinement will be needed in emissions budgets 2 and 3 depending on how we are tracking.

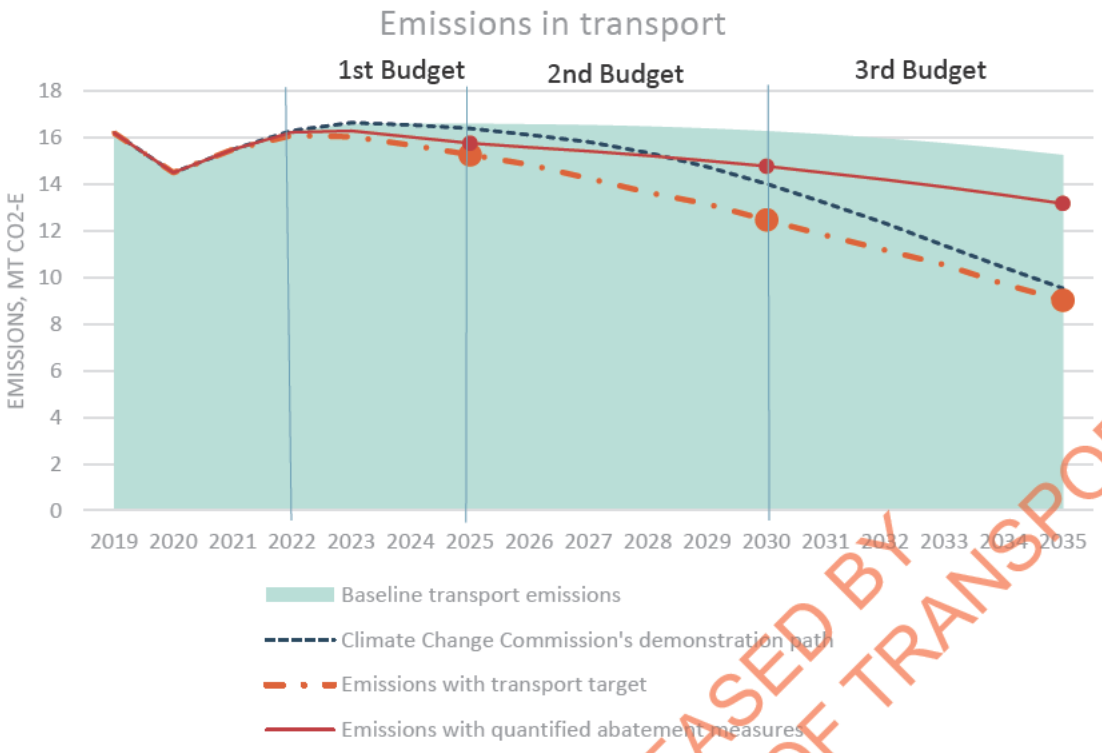


Figure 3. Estimated transport emissions based on achieving transport targets

Potential emission reductions for each focus area

Figure 4 illustrates how each focus area can contribute to achieving a 41 percent reduction in transport emissions by 2035.

Baseline changes include the effects of growth in the vehicle fleet and electrification of the vehicle fleet under business as usual. Other key changes include the impacts of the NZ ETS price on electrification and travel. Focus areas 2 and 3 both include the impact of alternative fuels (for example, biofuels).

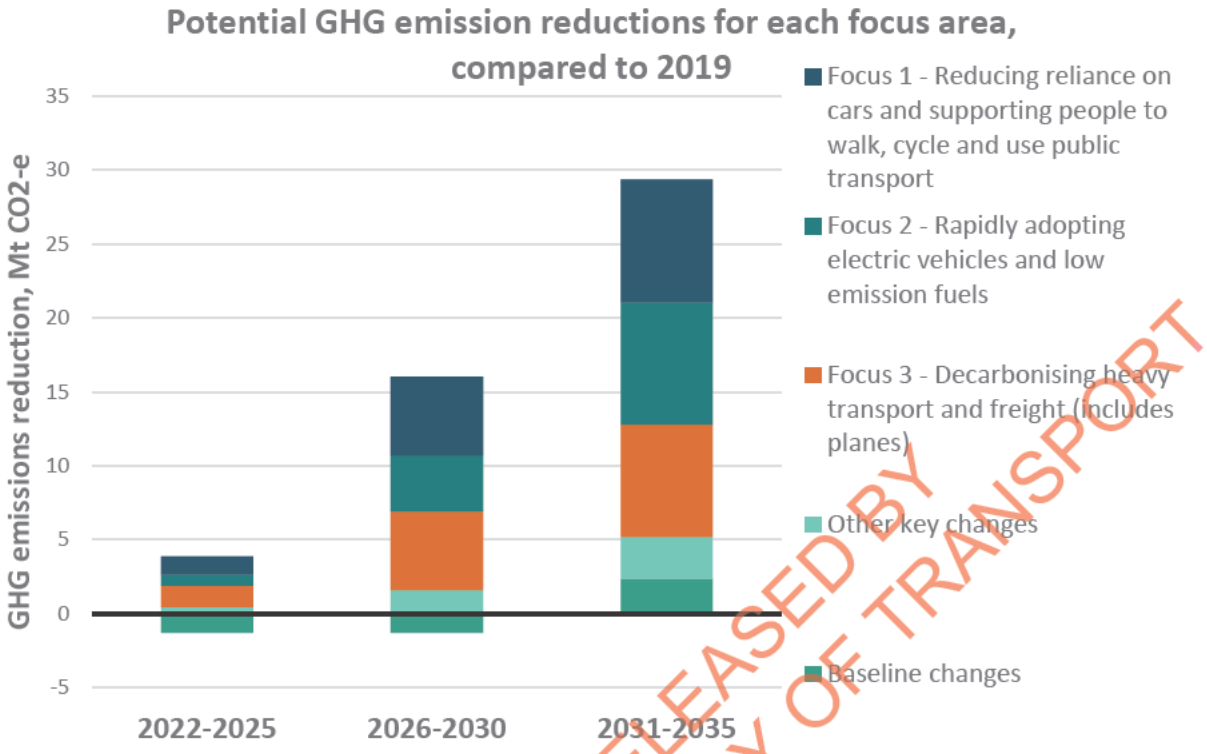


Figure 4. Potential emission reductions for each focus area, compared to 2019

Focus area 1 – Reducing reliance on cars and supporting people to walk, cycle and use public transport

Our cities – particularly our largest and fastest-growing cities – will need to contribute more to reducing VKT by light vehicles. This is because it is more viable to support people in cities to use public transport, and walk and cycle.

We will work with local government to plan and deliver programmes that align with meeting a national target to reduce total VKT by the light fleet by 20 percent by 2035. We will support these programmes with significant investment and regulatory changes. Reducing VKT also requires broader system changes that affect transport, such as land use and urban development changes.

Focus area 2 – Rapidly adopting low-emission vehicles and fuels

Most of the emissions reduction required for focus area 2 can be achieved through implementing the Clean Vehicles programme, introducing measures to prevent Aotearoa becoming a dumping ground for high-emitting vehicles rejected by other countries, and introducing a sustainable biofuels obligation. However, this is based on achieving a 20 percent reduction in VKT by light vehicles by 2035, which reduces the number of light vehicles and the amount of fuel we need to decarbonise.

Focus area 3 – Beginning work now to decarbonise heavy transport and freight

Significant emission reductions will be achieved for focus area 3 through introducing the sustainable biofuels obligation. The development of the Freight and Supply Chain strategy with industry will help to identify the best options to reduce the remaining emissions.

Risks and uncertainties

Our modelling is based on assumptions about what could happen in the future, and how effective our actions could be in making changes. We are always limited by the availability of current knowledge. The pace and scale of transport emission reductions will be affected by a range of drivers within, and beyond, the transport sector. For example, changes in how we live, work and travel could support or hinder our ability to achieve a zero-carbon transport system. Changes to technologies, the availability and cost of alternative fuels, and changes in freight demand will also affect our ability to achieve our targets.

The targets we have set are already very hard to achieve. This means that delaying action would result in us having to take harder and more costly measures in the future, as well as reducing our chance of achieving the targets.

Ensuring an equitable transition

The transition to a low-emissions society will bring a mix of opportunities, benefits, challenges and costs. Actions and approaches to reducing emissions should ensure the benefits of climate action are shared across society. It is important that certain individuals and sectors do not unfairly bear the cost burden of the climate transition.

Improving transport equity through the transition

The current transport system is inequitable

The current transport system is inequitable. Māori, Pasifika, disabled people, lower-income households, older people, children, and rural communities are often underserved. They are also overburdened by related impacts, such as deaths and serious injuries from transport, and air and noise pollution.

Low-income households are more likely to face transport disadvantage and transport poverty because income is a key factor affecting the ownership of transport resources and the affordability of transport services, which in turn will restrict their transport choices.

Many low-income households live in car-dependent areas, on the edges of cities or in rural or remote areas, with poor transport options. This means household expenditure is disproportionately high transport to access work, education, and healthcare services. In turn, this reduces the amount of spending they can devote to food, clothing, rent and other wellbeing essentials.

Affordability concerns can be exacerbated by additional transport costs, such as congestion charges and fuel excise taxes.

We have opportunities to make society more inclusive and equitable as part of the transition to a zero-carbon transport system

There are several actions included in this emissions reduction plan which will improve transport equity. This includes investment in inclusive and affordable transport modes, including walking, cycling and public transport. Some of this will be targeted investment and activities to improve access for low-income and transport disadvantaged communities in Aotearoa. The Community Connect scheme will further support this investment by making public transport more affordable to lower-income users. Shifting people onto public transport, walking and cycling will also improve air quality and reduce congestion in cities, which also adversely affects disadvantaged communities.

For many people, car ownership is already unaffordable. Quality low-emission vehicles cost more to buy than an average vehicle, even with the Clean Vehicle Discount. The vehicle scrap and replace scheme and social leasing pilot will make cleaner vehicles more affordable and accessible to low-income people. This will also improve resilience to fluctuating oil prices and higher petrol prices. Cleaner vehicles will reduce air and noise pollution, reducing the disease burden on many communities.

Supporting industries and workforces that are affected by the transition to adapt and capitalise on opportunities

Government needs to work with industries and workforces that will find it difficult to transition quickly

As transport in Aotearoa is decarbonised, impacts will fall differently on the various industries and workforces in the transport sector. For example, there could be disproportional impacts to small freight operators compared to their larger counterparts. Smaller operators may not have the capacity to transition to new technologies or change business models, or they may not have the finances to buy a new electric truck. Mechanics whose businesses are based on servicing ICE vehicles may also face challenges.

At the same time, there is significant potential for economic opportunity and job creation as we shift towards a low-emissions transport system. These benefits could occur through several avenues, including the uptake of new transport technologies, active modes, and the increased domestic production and use of biofuels. Businesses will be more resilient as we become less dependent on fluctuating oil prices and higher petrol prices.

We will signal what the transport workforce might look like, and work with industries to plan for transitions.

Actions to ensure an equitable transition for Māori

The current transport system is not equitable for many, including Māori. Transitioning transport to being low emissions will create greater inequities if effort is not made to address the economic and social impacts of these decisions.

It will be important that Māori contribute to transport policies to improve community needs as this partnership role will be fundamental to the delivery of equitable outcomes for Māori in urban centres, those living in our rural communities and on marae. Future work on policies must also consider how to mitigate the social and equity impacts that transport policies might create for Māori and what solutions could be put in place to address these issues.

Policies have been included to address current public transport inequities through reduced fares for low-income communities (where public transport is available), and to develop community-based solutions to enable low-income households to gain better access to cleaner vehicles and alternative modes of transport. These policies will benefit Māori. Further conversations with Māori will be needed to develop the best solutions for their communities.

Supporting the ability of the transport sector to adapt to the effects of climate change

The transport sector faces challenges under Aotearoa's changing climate, from managing coastal and flood-prone assets to supporting communities during climate-related events where transport infrastructure is often a lifeline asset.

There are several areas for transport where activity to reduce emissions and activity to adapt to the impacts of climate change intersect, and where co-benefits can be achieved. For example, investment to provide for a low-emissions land transport system can also be used to minimise vulnerability to climate-related events by ensuring land use and transport planning decisions take likely climate impacts into account at the earliest stage. Similarly, ensuring that there are a wide-range of lower-carbon transport modes available increases resilience to climate-related events. Nature-based solutions are likely to have significant adaptation co-benefits, including by reducing flooding and providing cooling.

There are also efficiencies and co-benefits to be gained where adaptation and mitigation can be worked on simultaneously. For example, nature-based solutions can both reduce emissions and improve climate adaptation.

Considering mitigation and adaptation in tandem will reduce the potential for maladaptation, or for adaptation activity to go against emissions reductions. For example, as the climate changes, infrastructure interventions (such as a raised road to reduce sea-level rise impact) may be increasingly necessary when maintaining existing levels of service, and this activity creates emissions, both embodied and future enabled. We need to ensure that new infrastructure investment avoids locations where near-future climate hazards exist, reducing the risk of stranded assets and/or sunk investment.

Policies in the Emissions Reduction Plan may change the profile of climate change risks for the communities, environments, and economic activities we provide for. For example, as mode demand, origin-destination trip and time-of-day trip patterns evolve, climate change risks may also shift. Increasing active mode share will also alter climate risks to people. This reinforces the need to consider mitigation and adaptation together.

The transport sector is starting to build climate change adaptation into the planning and design of future infrastructure and has plans in place to respond to emergency events (though the costs of this are continuing to increase). The significant anticipated investment to reduce and remove emissions could also be used support adaptation and increase resilience to climate change impacts, and in some cases vice versa. This requires the sector to develop knowledge to support long-term system planning in both mitigation and adaptation together. For example, employing nature-based solutions to the design and maintenance of transport infrastructure (e.g. restoration of wetlands/planting to manage flooding whilst also providing a carbon sink, increasing biodiversity and regeneration).

International action to reduce transport emissions

The Paris Agreement is silent on the inclusion of the international aviation and maritime sectors. The respective sector bodies, the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO), are responsible for taking action to reduce emissions.

For international aviation, States have agreed to work through ICAO to pursue emissions reductions in international aviation. Aotearoa is an active participant in environmental discussions at ICAO.

In 2016, the Government agreed to participate in the Carbon Offsetting Reduction Scheme for International Aviation (CORSIA)[8]. It is one of four measures the international aviation sector is focused on to reduce its carbon footprint. The other measures are sustainable aviation fuels, aircraft technology and standards, and operational improvements (e.g. improved ground operations and air traffic management).

For international shipping, States, including Aotearoa, work through the IMO to pursue emissions reductions from international shipping. The IMO adopted its Initial Strategy on the Reduction of GHG Emissions from Ships in 2018[9]. The Initial Strategy sets a target of reducing the total annual GHG emissions from international shipping by at least 50 percent by 2050 compared to 2008. This Strategy will be reviewed in 2023.

In November 2019, Cabinet agreed to Aotearoa's accession to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL), which seeks to address the impact of shipping emissions on human health and environments in and around port communities, as well as on climate change and ozone layer depletion. More information on MARPOL VI can be found at section 3.4 Decarbonising maritime transport.

At the 2021 United Nations Framework Convention on Climate Change Conference of the Parties meeting, Aotearoa agreed to the following to support reducing transport emissions:

- Clydebank Declaration on Green Shipping Corridors – supports work to decarbonise international shipping corridors through international coalitions between two or more States to partner to establish green corridors on shared maritime routes. This would be done in conjunction with the relevant ports and operators.
- International Aviation Climate Ambit on Coalition and associated Aviation Net Zero Declaration – supports the goal of net zero international aviation emissions by 2050, implementing CORSIA and investigating a sustainable aviation fuel mandate.
- Declaration on Accelerating the Transition to 100 percent Zero Emission Cars and Vans – commits government, businesses, and other organisations to rapidly accelerate the transition to zero emission vehicles to achieve the Paris Agreement goals. Intent is to work towards all sales of new cars and vans being zero emission globally by 2040, and no later than 2035 in leading markets.
- International Memorandum of Understanding (MoU) to set a high level of ambition to decarbonise heavy vehicles. It requires signatory countries to work on action that leads to the proportion of brand new medium and heavy-duty zero-emission vehicles being 30 percent of global sales in 2030 and 100 percent of sales in 2040. Several heavy vehicle manufacturers signed the MoU, ensuring that production and supply of the vehicles develops globally. More information on this is at section 3.1. C Accelerating the decarbonisation of trucks.
- Glasgow Breakthroughs – a set of global common targets under the Breakthrough Agenda to set ambitious goals for 2030 to rapidly accelerate the innovation and deployment of clean technologies in five key sectors of the economy, Power, Road Transport, Steel, Hydrogen and Agriculture. For road transport focus is on making zero-emission vehicles the new normal and accessible, affordable and sustainable in all regions by 2030.

[8] https://www.transport.govt.nz/sitesearch/SearchForm?Keyword=corsia&action_results=Go

[9] The Initial Strategy can be found here: https://www.imo.org/en/OurWork/Environment/Pages/GHG-Emissions.aspx