
# Evidence pack

## Introduction and national summary

June 2025

Version 1.0

NZ TRANSPORT AGENCY
WAKA KOTAHI

Te Kāwanatanga o Aotearoa
New Zealand Government

**More information**

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# Contents

# Introduction to the *Evidence pack*

## The purpose of this evidence pack

This pack is intended to help in the preparation of the strategic front end of regional land transport plans (RLTPs).

It does this by providing a consistent set of data and information setting out the current and future state of New Zealand's transport system at a national and regional level, and what interventions are likely to be effective to address identified deficiencies.

This iteration (version 1, June 2025) is the first step in the collaborative development with the sector of consistent and comprehensive evidence and information. For future iterations we will be drawing on your feedback to iteratively improve it and close any data and analysis gaps.

## What the evidence pack is not

The evidence pack is intended as a useful addition to the toolbox that NZTA and the wider sector have at our disposal, however:

- It is not intended to be prescriptive or to replace local knowledge, judgement or local prioritisation of investment activities.
- Use of evidence and/or insights from the pack is not mandated or considered to be a 'compliance' criterion.
- The evidence may or may not support or reflect current government policy. It is meant to be a technical evidence document, rather than a policy or strategic document in and of itself.

## Benefits of the evidence pack

The key benefits include:

- locating evidence from a number of sources in one place
- aligning each region at the national level
- bridging gaps between focus areas, deficiencies and option formulation
- providing context in which various types investments are most effective
- being a starting point to reconcile with the sector's own views of the transport system.

## What's in the evidence pack?

The complete evidence pack is available on the Transport Insights portal.

There you will find:

- this introduction and national summary, which gives you more background to the pack, its purpose and where the information and data are sourced from, and provides an overview for the whole country
- a section for each region, with data and information specific to that region, and discussion of how it fits into the national network.

## How to use this evidence pack (user guide)

You will be using this evidence pack to find information, data and evidence to help in your transport planning. While you will likely be focusing on your own region, you can refer to national information and information from other regions as comparisons and to understand interconnections.

Each section follows a similar structure, which moves from providing context, to looking at specific challenges, through to identifying where to best focus effort and investment, and suggesting solutions:

- **Regional (or national) overview** – a brief overview of the region.
- **Strategic measures** – which looks at how the region (or country) currently rates against the 14 strategic measures, and how it is expected to change over time
- **Strategic measures** – which looks at how the region currently rates against the 14 strategic measures from the Land Transport Benefits Framework, and how it is expected to change over time.
- **Current and future challenges** – specific issues for the region to address.
- **Focusing effort** – identifies key areas to focus investment in the short and longer term, and includes targeted suggestions of potential interventions.
- **Appendices** – more background information, including data sources for the strategic measures and potential intervention.

## Sources of data in the evidence pack

This evidence pack draws on existing information available, including:

- Arataki – NZTA's strategic direction for New Zealand's land transport system, focusing on long-term outcomes to guide planning, development, and investment over the next 30 years
- regional plans and strategies that identify key challenges and opportunities, for example Auckland Transport's Future Connect in the Auckland region section
- NZTA's Land Transport Benefit Framework outcomes and measures that have a strong influence on decision making and NLTP funding within NZTA
- NZTA's Transport data and tools
- other publicly available data, including from regions and Stats NZ.

# Introduction to the national summary

The national summary provides an overview of the challenges and issues for the transport system at a country-wide level. You can see how your region compares to national averages and can use the national data for benchmarking.

## What's in this national summary?

- **National overview** – a brief overview of New Zealand's transport network.
- **Strategic measures** – which looks at how the country as a whole currently rates against the 14 strategic measures from the Land Transport Benefits Framework, and how it's expected to change over time.
- **Current and future challenges** – specific issues to be addressed on a national scale.
- **Appendix** – data sources for the strategic measures.

# National overview

The land transport system must be safe, resilient, and connected. It's critical for the health and wellbeing of New Zealanders for them to have easy and affordable access to employment, education, and essential services. The land transport system supports economic prosperity by facilitating the movement of domestic and international goods get to market. It plays a key role in improving wellbeing and liveability.

## Road network

Roads are a dominant infrastructure element of our domestic transport system. Roads enable journeys by private motor vehicle, heavy vehicles, buses, bicycles and foot. Road corridors support other important infrastructure like water, power, gas and telecommunications networks. Road transport makes up 84% of land freight movement, and it has increased over time, from 19 billion tonne-kilometres in 2005/06 to 30.1 billion tonne-kilometres in 2017/18.[1]

## Rapid transit

Rapid transit forms the backbone of public transport networks in Auckland and Greater Wellington. It provides fast, frequent, and reliable access for large numbers of people. It uses strategic corridors that are separated from other modes and largely unaffected by traffic outside of the rapid transit system. Rapid transit plays a key role in the wider transport networks of these large urban areas, by connecting and providing access to centres of activity and allowing large volumes of people to travel quickly, efficiently, and reliably.

## Public transport

Public transport supports efficient movement to a large and diverse range of people and can generate many benefits, depending on where it operates, and the services provided. It is a space-efficient, travel option, ideal for journeys within, to, and between urban areas, and doesn't require private vehicle ownership or use. The term 'public transport' has historically been associated with trains, buses, and ferries that take people from one place to another on fixed routes, at regular times or frequencies. These modes of public transport can be complemented by other forms of shared transport such as cable cars or on-demand services in smaller vehicles.

[1] Ministry of Transport (2019). *National freight demand study 2017/18*. https://www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf

## Walking and cycling

Walking and cycling are the most affordable modes of transport. These healthy and sustainable modes support vibrant towns and cities and are good choices for short trips (65% of trips in New Zealand are under 5km in length[2]). Use of walking and cycling varies greatly around the country because of land-use patterns, quality of networks and levels of service (such as comfort, safety, and convenience). While current walking and cycling numbers are relatively low, there is high demand for better infrastructure for both. In urban centres, 75% say they would cycle more if the network better met their needs.[3]

## Rail

The rail network consists of the Main Trunk Line stretching from Auckland to Invercargill. It's connected across the Cook Strait by ferry with spurs to Northland, Bay of Plenty, Taranaki, Hawke's Bay, and West Coast. Rail serves all ports except Northport (Marsden), Gisborne, and Nelson. The rail network is used for regional passenger connections and for rapid transit in Auckland and Greater Wellington. However, the rail network's key use is freight, transporting around 25% of New Zealand's exports and has an advantage over road for moving heavy goods over longer distances.[4] Currently, 87% of net tonne-km are carried by road and 13% carried by rail. Rail provides a lower-carbon alternative for freight transportation when compared with road, with 66% fewer carbon emissions per tonne of freight moved.[5]

[2] NZTA (2022). *Benchmarking sustainable urban mobility*. https://nzta.govt.nz/resources/sustainable-urban-mobility-benchmarking

[3] Waikato Regional Council (2013). *The costs of physical inactivity*. https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/The_Costs_of_Physical_Inactivity.PDF

[4] KiwiRail (2017). *Statement of corporate intent 2017–2019*. https://www.kiwirail.co.nz/assets/Uploads/documents/Statement-of-Corporate-Intent-SCI/be6be870ff/KR-SCI-2017-2019.pdf

[5] Sustainable Business Council (2016). *Sustainable procurement guidelines for freight*: https://www.sbc.org.nz/wp-content/uploads/2022/07/Sustainable-procurement-guidelines-for-freight.pdf

# Strategic measures – current and future

This section provides tables summarising the 14 strategic measures in relation to the whole country. The data and evidence used to produce these results is included in Appendix A.

The 14 strategic measures are a subset of 60+ measures included in the Land Transport Benefits Framework. They have been selected to provide a coarse but practical overview of the Ministry of Transports five broad Transport Outcomes, illustrated in the figure.

The tables provide indicative current and future values for the 14 strategic measures (grouped by outcome), to understand how each measure (and therefore outcome) is likely to change if there is no significant investment (beyond that already committed).

More detail about the measures can be found in the Land Transport Benefits Framework measures manual.


## Healthy and safe people

| Benefit framework measure | Units | Current (2023/24) | Future (2048) | Change |
|---|---|---|---|---|
| 1.1.1 Collective risk (crash density) | Average annual fatal and serious per kilometre of road section | 0.028 | 0.036 | 0.008 (+29%) |
| 1.1.3 Deaths and serious injuries (DSIs) | Number of DSIs (annual) | 2713 | 3463 | 750 (+28%) |
| 1.1.4 Personal risk (crash rate) | Average annual DSI per 100 million vehicle kilometres | 5.451 | 5.0451 | 0 (0%) |
| 1.2.1 Road assessment rating – roads | Average infrastructure risk rating | High: 23.21%<br>Medium-high: 26.75%<br>Medium: 34.25%<br>Low-medium: 13.50%<br>Low: 2.29% | | N/A |

**Insights**

- Refer to Appendix A to see how each region contributes to the above national totals.
- Refer to individual regional chapters – available on the Transport Insights portal – for insights related specifically to each region.

## Resilience and security

| Benefit framework measure | Units | Current (2023/24) | Future (2048) | Change |
|---|---|---|---|---|
| 4.1.1 Availability of a viable alternative to high-risk and high-impact route | Percentage of high-risk, high-impact route with a viable alternative | Not included in this release | | |
| 4.1.2 Level of service and risk (note that for this evidence pack this data is from the National Resilience Assessment Tool (NRAT) and includes only state highways) | Number of identified sites in region by combined risk rating (future, geological and hydrological) | Low: 1393<br>Med: 1061<br>High: 820<br>Critical: 257<br>Not yet rated: 1070 | N/A | N/A |

**Insights**

- Refer to Appendix A to see how each region contributes to the above national totals.
- Refer to individual regional chapters – available on the Transport Insights portal – for insights related specifically to each region.

## Economic prosperity

| Benefit framework measure | Units | Current (2024) | Future (2048) | % Change |
|---|---|---|---|---|
| 5.1.2 Travel time reliability – motor vehicles (note for this evidence pack, the data only relates to state highway traffic monitoring system (TMS) sites) | Calculated using coefficient of variation (CoV); standard deviation of travel time divided by average minutes travel time<br>Rate: Low <0.3, Medium 0.3–0.6, High >0.6) | Low: AM 7% Day 1%<br>Med: AM 16% Day 4%<br>High: AM 77% Day 95% | Low: N/A%<br>Med: N/A%<br>High: N/A% | Low: N/A%<br>Med: N/A%<br>High: N/A% |
| 5.1.3 Travel time delay | Difference between average travel time during AM peak and average travel time during the Inter Peak in minutes per kilometre (by mode) as a percentage | Car: 8%<br>PT: N/A<br>Cycle: N/A | Car: N/A<br>PT: N/A<br>Cycle: N/A | Car: N/A<br>PT: N/A<br>Cycle: N/A |
| 5.2.2 Freight – mode share value | Percentage of value for each mode | Not included in this release | | |
| 5.2.3 Freight – mode share weight | Percentage of weight for each mode | Road: 87%<br>Rail: 13% | Road: 90%<br>Rail: 10% | Road: +3%<br>Rail: -3% |

**Insights**

- Refer to Appendix A to see how each region contributes to the above national totals.
- Refer to individual regional chapters – available on the Transport Insights portal – for insights related specifically to each region.

## Environmental sustainability

| Benefit framework measure | Units | Current (2023) | Future (2048) | Change |
|---|---|---|---|---|
| 8.1.1 Greenhouse gas emissions (all vehicles) | Annual tonnes of $CO_2$ equivalents ($CO_2$-e) emitted | 13.83 m | 8.29 m | -5.54 m (-40%) |
| 8.1.3 Light vehicle use impacts | Annual light vehicle kilometres travelled (light VKT) | 42,250 m | 58,062 m | +12,812 (+28%) |

**Insights**

- Refer to Appendix A to see how each region contributes to the above national totals.
- Refer to individual regional chapters – available on the Transport Insights portal – for insights related specifically to each region.

## Inclusive access

| Benefit framework measure | Units | Current (2023) | | | | Future (2048) | | | | % Change | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.2.1 People – mode share | Percentage by mode (Census (2023) journey to work and education) | Car: 79.4%<br>PT: 7.5%<br>Cycle: 2.9%<br>Peds: 10.2% | | | | Car: N/A%<br>PT: NA%<br>Cycle: N/A%<br>Peds: N/A% | | | | Car: N/A%<br>PT: N/A%<br>Cycle: N/A%<br>Peds: N/A% | | | |
| 10.3.1 Access to key social destinations (all modes) | Number of jobs (x1000) accessible by mode in AM peak (car 40 min, PT 45 min, cycle 45 min) and distance from city centre (km) | | 0−5 | 5−10 | 10+km | | 0−5 | 5−10 | 10+km | | 0−5 | 5−10 | 10+km |
| | | Car: | 1782 | 1543 | 2036 | Car: | 2149 | 1855 | 2433 | Car: | 21% | 20% | 20% |
| | | PT: | 913 | 491 | 338 | PT: | 1092 | 601 | 401 | PT: | 20% | 22% | 19% |
| | | Cycle: | 1160 | 914 | 497 | Cycle: | 1397 | 1112 | 595 | Cycle: | 20% | 22% | 20% |

**Insights:**

- Refer to Appendix A to see how each region contributes to the above national totals.
- We do not currently have the capability to estimate future mode change at the national level. However, future year values are provided in selected regional chapters where multi-modal transport models have been utilised (Auckland, Waikato, Wellington and Christchurch).
- Refer to individual regional chapters – available on the Transport Insights portal – for insights related specifically to each region.

# Current and future challenges

## Key network challenges – national context

New Zealand's transport networks are extensive and vital for the country's connectivity and economic prosperity. The state highway network spans about 11,750km,[6] while the local road network covers about 83,368km.[7] Additionally, the rail network consists of around 4128km of rail lines.[8]

### Maintaining existing networks

Maintaining such a vast network requires significant effort. Annually, 5−10 percent of the road network (4750km to 9500km) needs resurfacing or rebuilding.[9] The network includes nearly 4200 bridges[10] on state highways and about 15,000 on local roads.[11] Urban growth and higher traffic volumes, especially of heavy vehicles, increase maintenance needs, which strains budgets. Neglecting maintenance can lead to safety risks, higher long-term costs, and disrupted connectivity.[12]

Looking ahead, future challenges are expected to intensify. Climate change is likely to increase the frequency and severity of extreme weather events, such as flooding and heatwaves, which can damage infrastructure and accelerate wear and tear. Technological advancements, such as the rise of electric and autonomous vehicles, may require new types of infrastructure and maintenance protocols. Additionally, population growth and urban sprawl will create pressure to further expand the network, which will lead to increasing the scale and complexity of maintenance operations.

### Access to opportunities and enabling the efficient movement of freight around the country

The transport system underpins economic and social wellbeing, ensuring access to jobs, education, healthcare, and efficient freight movement. Remote and rural areas face significant access challenges, especially during adverse weather. These challenges include a lack of alternatives to private vehicle trips as public transport services are not a viable alternative because of coverage and frequency. In addition, there is a lack of redundancy in parts of the land transport system – some places rely on one or 2 critical lifelines to stay connected.

Looking ahead, existing access challenges in remote and rural areas will be exacerbated by the impacts of climate change and demographic change. The population is expected to remain static or decline in smaller, rural, and remote districts. In some areas, people aged over 65 are expected to make up more than 35 percent of the population. The affordability of local government rates increases will be an issue in these areas. Network resilience will be further challenged as damage caused by climate change becomes more frequent, outages last longer and repair costs increase. Rural and coastal communities may become increasingly isolated and have difficulty accessing essential services – this may particularly impact Māori.

Freight is a key part of economic activity and is fundamental to making places great to live (liveability).[13] The efficient movement of freight is essential for economic productivity. Current freight

[6] NZTA (n.d.). State highway frequently asked questions. https://www.nzta.govt.nz/roads-and-rail/research-and-data/state-highway-frequently-asked-questions/

[7] Ministry of Transport (n.d.). Statistics and insights. https://www.transport.govt.nz/statistics-and-insights

[8] Stats NZ (n.d.). Transport. https://www.stats.govt.nz/topics/transport

[9] NZTA (n.d.). Road management and maintenance. https://nzta.govt.nz/roads-and-rail/management-and-maintenance/

[10] NZTA (n.d.). Bridges and structures. https://www.nzta.govt.nz/roads-and-rail/bridges-and-structures/

[11] Figure.NZ (n.d.). Number of bridges on local roads in New Zealand. https://figure.nz/chart/nHM7UwJuYIrWnLdT

[12] Government of New Zealand (n.d.). Government Policy Statement on land transport 2024–34. https://www.transport.govt.nz/assets/Uploads/Government-Policy-Statement-on-land-transport-2024-FINAL.pdf

[13] Auckland Transport (2020). Auckland freight plan. https://at.govt.nz/media/1983982/auckland-freight-plan.pdf

inefficiencies such as delays, detours and highly variable travel times can increase costs by up to 20 percent.[14]

Looking ahead, total freight volume is expected to increase by 39 percent by 2053.[15] The location of freight origin and destination may change. A growing population in the largest urban areas means more goods will need to be moved to these locations, and industry and population concentration is occurring in the upper North Island. Climate change is expected to change the nature and location of primary production and increase the frequency of extreme weather events, disrupting transport networks, isolating communities, and affecting freight reliability.[16] Technological shifts, including the rapid growth of e-commerce and the transition to low-emission freight vehicles, will require significant infrastructure upgrades and new logistics strategies to ensure efficiency and sustainability.[17]

**Resilience to natural hazards and climate change**

New Zealand faces significant natural hazard risks, including earthquakes, floods, and cyclones, worsened by climate change. The land transport system has always been exposed to natural hazard risks, with minor closures or delays through small scale events like slips and localised flooding common. However, the network is increasingly exposed to national and regional scale events such as Cyclones Hale and Gabrielle and the Kaikoura earthquakes that caused widespread and significant damage.[18] For instance, Cyclone Gabrielle alone caused damage estimated at $13.5 billion.[19]

Recovery from small events is quick, but larger events, such as Cyclone Gabrielle, cause extensive damage and long recovery times. The state highway network performs critical lifeline functions for communities, and repeated disruption to these functions impacts communities' access to the services they need.

Looking ahead, the land transport system will have to adapt to escalating impacts from natural hazards and climate change now and into the future. These impacts include sea-level rise and ongoing changes in the physical environment, as well as increasingly severe and frequent climate-related events such as storms, flooding, droughts, and wildfires.[20] The probability of an Alpine Fault earthquake occurring in the next 50 years is 75 percent, and there is a 4 out of 5 chance that it will be a magnitude 8+ event.[21] Such an event has the potential to cause severe damage and disruption across the entire South Island, with major consequences for the rest of the country.

These types of impacts will continue and will affect communities and the transport networks that connect them. As damage becomes more frequent, outages last longer and repair costs increase, rural and coastal communities may become increasingly isolated and have difficulty accessing

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[14] Ministry of Transport (2023). Aotearoa New Zealand Freight and Supply Chain Strategy. https://www.transport.govt.nz/assets/Uploads/MOT4806_Aotearoa-Freight-and-Supply-Chain-Strategy-p09-v03.pdf

[15] Ministry of Transport (2019). *New Zealand transport outlook – Freight model*. https://www.transport.govt.nz/assets/Uploads/Data/Transport-outlook-updated/Freight-Model-Version-2-Documentation-20190423.pdf

[16] KPMG & The Aotearoa Circle (2024). *Transport sector climate change scenarios: Report on big climate risks to New Zealand's transport sector*. https://kpmg.com/nz/en/home/media/press-releases/2024/06/report-on-big-climate-risks-to-new-zealand-s-transport-sector.html

[17] Ministry of Transport (n.d.). Climate change — emissions work programme. https://www.transport.govt.nz/area-of-interest/environment-and-climate-change/climate-change

[18] Byett, A, et al (2019). *Climate change adaptation within New Zealand's transport system*. Motu Economic and Public Policy Research. https://www.motu.nz/our-research/environment-and-resources/climate-change-impacts/climate-change-adaptation-within-new-zealands-transport-system

[19] NIWA (2024). Cyclone Gabrielle was intensified by human-induced global warming. https://niwa.co.nz/news/cyclone-gabrielle-was-intensified-human-induced-global-warming

[20] NZTA (2022). *Tiro Rangi: our climate adaptation plan 2022–2024*. https://www.nzta.govt.nz/assets/resources/tiro-rangi-our-climate-adaptation-plan-2022-2024/tiro-rangi-our-climate-adaptation-plan-20222024.pdf

[21] AF8 (2022). *AF8 Programme Strategy 2022–25*. https://af8.org.nz/media/fpxjy3uu/af8_programme-strategy-2022-25-jul22.pdf

essential services, and this may especially impact Māori. In urban areas, the impacts of climate change on multimodal networks can be complex, widespread and cascade across the land transport system. Interregional connections will also be disrupted.

### Congestion and capacity constraints, especially in large and growing cities

New Zealand's road network is a vital part of the country's infrastructure, with significant portions now facing congestion and capacity constraints. This is particularly evident in Auckland, where congestion costs are estimated to range between $1.3 billion and $2.6 billion annually.[22]

The demand for transport in New Zealand has grown rapidly, meaning that in some places the demand exceeds the ability of the transport system to cater for it. This has resulted in frequent congestion across parts of the road and public transport networks, particularly on motorways in Auckland, Tauranga, Wellington, Queenstown and Christchurch. Previously confined to 'rush hour' periods, congestion has steadily lengthened and worsened over time.[23] Congestion on the local road network is a growing concern, especially in urban areas. Rail network capacity restraints currently affect both public transport services in Auckland and Wellington, and freight movements across the country. Population growth, dispersed land use patterns, and increasing vehicle ownership will continue to contribute to this issue into the future.

Looking ahead, a growing population in the largest urban areas means more people who need to get to work, education, business and entertainment. New Zealand's population is projected to reach over 6 million by the early 2030s, with much of this growth concentrated in urban areas.[24] This, combined with dispersed land use and rising vehicle ownership – currently at nearly 0.9 vehicles per person – will further strain transport corridors and worsen congestion.[25] Without significant investment, it is likely congestion will worsen, network productivity will fall, and emissions will rise. Future challenges include adapting for electric and autonomous vehicles, building resilience to climate impacts and reducing emissions through urban planning, mode shift and fleet carbonisation.

### Reducing the level of harm to people and the environment

New Zealand's land transport system faces significant safety and environment challenges. In 2024, there were 292 road fatalities, placing New Zealand 7th highest in road deaths per capita among 35 OECD countries.[26] Contributing factors include adverse weather, unsafe driving behaviour, and poor road conditions. Rural road fatalities are disproportionately high, accounting for 60 percent of all road deaths, despite rural roads making up only 40 percent of the network.[27]

Air pollution from fossil fuels and particulate matter continues to impact public health, contributing to an estimated 2247 deaths in 2016.[28] While low-emission vehicles are essential for reducing transport-related emissions, they are not a complete solution. A broader systems approach – encompassing

[22] NZTA (2013). *The costs of congestion reappraised*. https://www.nzta.govt.nz/assets/resources/research/reports/489/docs/489.pdf

[23] NZTA (2024). *Significant land transport challenges facing New Zealand*. https://www.nzta.govt.nz/assets/planning-and-investment/nltp/2024/docs/significant-challenges-nltp-2024-27.pdf

[24] NZTA (n.d.). *Significant land transport challenges facing New Zealand*. https://www.nzta.govt.nz/assets/planning-and-investment/nltp/2024/docs/significant-challenges-nltp-2024-27.pdf

[25] NZTA (n.d.). *Significant land transport challenges facing New Zealand*. https://www.nzta.govt.nz/assets/planning-and-investment/nltp/2024/docs/significant-challenges-nltp-2024-27.pdf

[26] International Transport Forum (2024). Road safety country profile – New Zealand 2023. https://www.itf-oecd.org/sites/default/files/new-zealand-road-safety.pdf

[27] Stats NZ (n.d.). Transport. https://www.stats.govt.nz/topics/transport

[28] Emission: Impossible Ltd and the HAPINZ 3.0 team (2022) Key findings from HAPINZ. https://ehinz.ac.nz/projects/hapinz3/key-findings-from-hapinz/

clean energy, sustainable manufacturing, and urban planning – is needed to fully address environmental harm.[29]

The impact on the environment, including climate, on and from the transport network and its use is another pressing issue. The extensive road system crosses many sensitive ecosystems, habitats, and waterways, leading to habitat fragmentation, noise pollution, artificial light, and stormwater discharges.

Looking ahead, climate change is expected to intensify these impacts because of more frequent extreme weather events, increased infrastructure stress, and greater disruption to both human and natural systems. Future challenges will also include managing the environmental footprint of new transport technologies and ensuring that safety improvements keep pace with population growth and the needs of changing demographics (such as people with children), travel patterns (increased travel by older people) and vehicle types, while also taking advantage of new technologies (for example cooperative intelligent transport systems and alternatives to bitumen) to improve safety and environmental outcomes.

## State highway hotspots

The current state highway network has many deficiencies that require attention over the next 30 years. Many of these issues are due to resilience challenges posed by New Zealand's complex geology and climate. Additionally, congestion and capacity constraints, especially in our large and growing cities, and the level of harm to people using the network, further exacerbate these deficiencies

The state highway network plays an important role in the land transport system. Maintaining it efficiently and effectively is essential, which means focusing our efforts on where they are needed most. The maps below support this process by heling to identify and assess the areas of greatest need across the state highway network.

The maps show the cumulative deficiencies across the state highway network, based on three risk factors for a road corridor: resilience, reliability of the journey, and safety. While some parts of the network have a generally low-risk profile, other sections – particularly those serving our biggest cities – show a much higher-risk profile.

### Key insights

In isolated parts of the country there are no local roading network or other transport options available, making the state highway network essential. They carry critical electricity, communications, and water infrastructure, particularly across bridges, serving as lifelines for both large and small communities. These highways are crucial for reconnecting communities, delivering emergency services, supplies, and replacement parts to power and communication networks after severe weather events.

For Tier 1 cities such as Auckland, Hamilton, Tauranga, Wellington and Greater Christchurch, it is a deficiency story dominated by road congestion and capacity constraints. The focus in these cities should be in improving road corridor efficiency in order to accommodate the uplift in traffic driven by economic and population growth. Auckland's already saturated road network will have to adapt to servicing the transport needs of an additional 459,000 citizens by 2048.

Other parts of the state highway network have a deficiency story characterised by high resilience risks but low traffic volume. This is typical of SH6 in West Coast and SH35 in the Gisborne regions. In both cases the road corridors provide a critical lifeline function for local communities. Other smaller cities can have very localised deficiencies driven by a combination of risks, such as SH6 in central Nelson and SH14 in Whangārei.

[29] Auckland Council (2022). *Transport emissions reduction pathway*. https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/Documents/transport-emissions-reduction-pathway.pdf

More detailed insights about state highway hotspots in each region are in the regional chapters of the evidence pack.

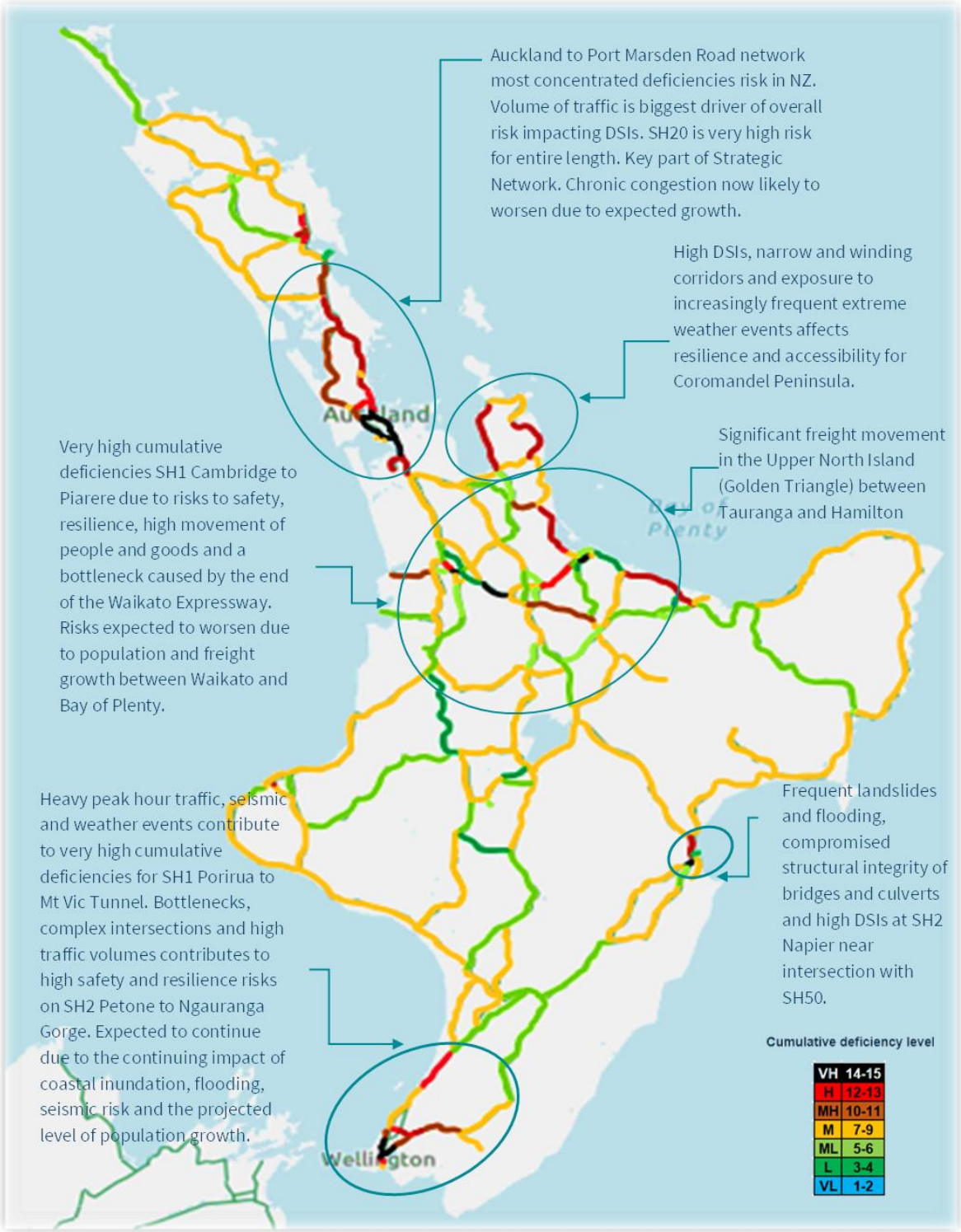


Figure 1: North Island cumulative (resilience, reliability and safety) deficiencies across the state highway network (source: NZTA data[30])

[30] Analysis of NZTA National Resilience Assessment Tool (NRAT), NZTA average annual daily traffic and NZTA cumulative risk using DSI data from 2019 to 2023.

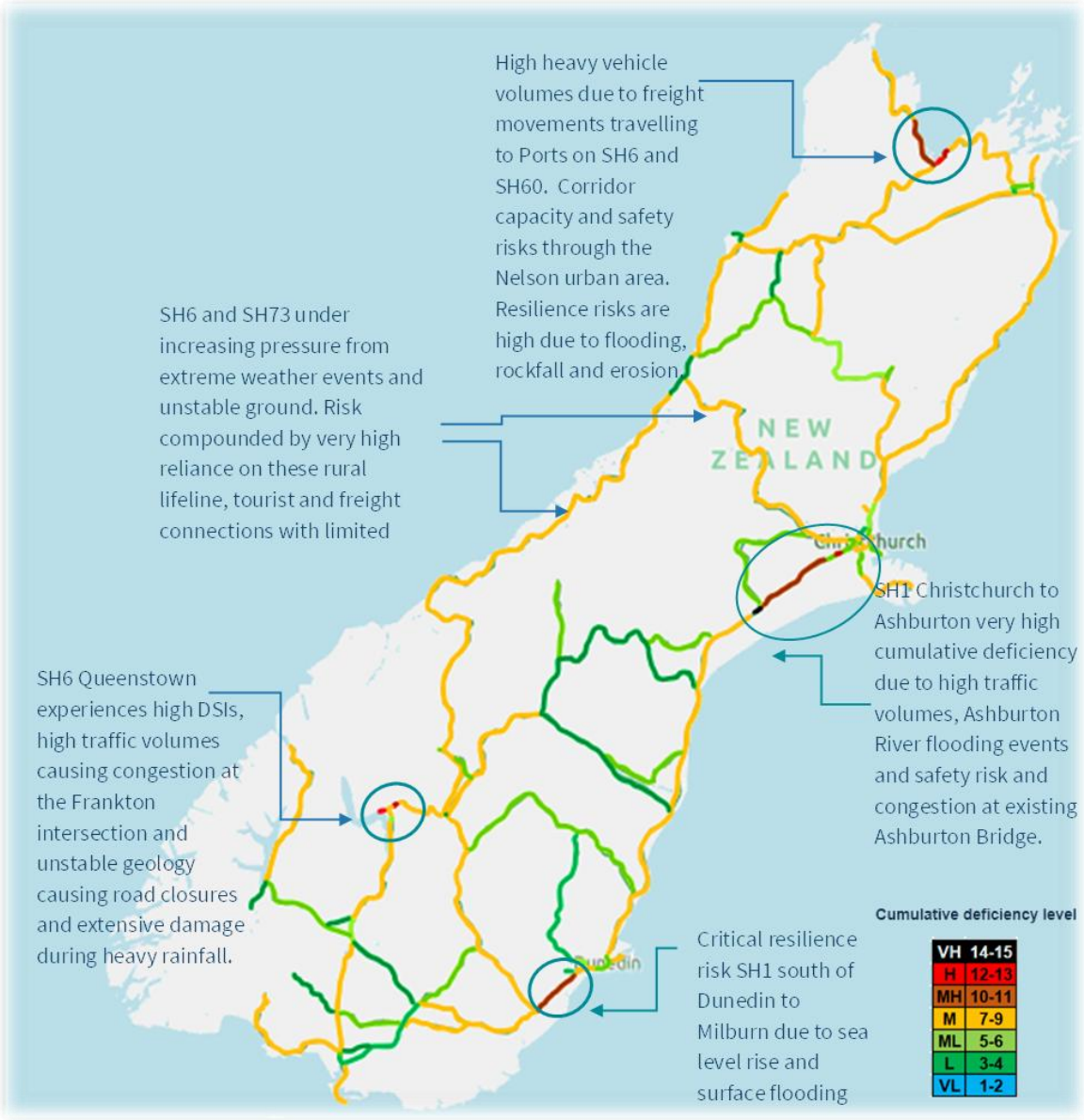


Figure 2: South Island cumulative (resilience, reliability and safety) deficiencies across the state highway network (source: NZTA data[31])

[31] Analysis of NZTA National Resilience Assessment Tool (NRAT), NZTA average annual daily traffic and NZTA cumulative risk using DSI data from 2019 to 2023.

# Appendix A: Data sources for the strategic measures

This appendix references all relevant data sources and assumptions for the 14 strategic measures reported within each regional chapter.

Because this is the first attempt at providing the evidence pack, and the development of the associated tools and processes under the Planning and Investment Evidence base (PIE) programme is still ongoing, we do not yet have the full capability to report outputs for all measures, particularly for future years. In these instances, we have noted that the data is 'not available' by using the 'N/A' abbreviation as a placeholder until such time this can be addressed by a subsequent version of the evidence pack.

Similarly, the process has identified the need for better understanding and reporting of data quality ratings, version control and internal consistency (that is, a single source of truth). These are all things we intend to improve in subsequent releases.

Bearing the above in mind, we have adopted the following general convention for this version in how we report numbers:

- For large numbers, only report 3–4 significant figures (and using rounding units of thousands or millions).
- For small numbers (including percentages), report to one decimal place by default, but make exceptions where appropriate (for example where more or less detail is required to make meaningful comparisons).

The focus is on convenience and the useability of the data. As such, it doesn't necessarily imply a particular level of accuracy (especially for future year forecasts, which have a great deal of uncertainty associated with them).

Each section below (grouped by outcome) provides data for all regions to allow comparison in terms of how each region contributes to the national total. It also provides any important caveats and limitations associated with each of the measures for that outcome.

## Healthy and safe people

To understand the current and future safety risk both at the regional and national level, we calculated deaths and series injuries, personal risk and collective risk as shown in the following table. More details can be found in the Land Transport Benefits Framework.

| Benefit framework measure | Units |
|---|---|
| 1.1.1 Collective risk (crash density) | Average annual fatal and serious per kilometre of road section |
| 1.1.3 Deaths and serious injuries (DSIs) | Number of DSIs (annual) |
| 1.1.4 Personal risk (crash rate) | Average annual DSI per 100 million vehicle kilometres |

**Notes, caveats and data limitations:**

- Data for the number of deaths and series injuries (DSIs) is sourced from the Crash Analysis System (CAS) database managed by NZTA.
- Regional VKTs and network length in kilometres is sourced from the NZTA official data published for financial year 2023/24.[32]
- Generally, DSI measures are calculated as multi-year rolling average. However, because of time and resource constraints the following data is for the financial year 2023/24 only.
- Future year growth factor is based on regional VKT change. This method to calculate this change is discussed in more detail for the 'E.4 Environmental sustainability' section later in this appendix.

[32] https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/

- It is assumed that crash rates remain constant over time. This is consistent with safety expert advice that application of crash trend adjustment factors for long term future predictions may no longer be supported by evidence.
- Future year DSIs were estimated based on the regional change on VKT (all vehicles) between 2023 and 2048 adopted for the GHG emissions measure (8.1.1). This assumes the crash rate (per VKT) remains constant (that is, no crash trend reduction factors applied).

| Region | Current 2023/24 | | | Future 2048 | | |
|---|---|---|---|---|---|---|
| | DSIs # | Per km | Per 100 million VKT | DSIs # | Per km | Per 100 million VKT |
| 01 – Northland | 181 | 0.027 | 7.783 | 176 | 0.026 | 7.554 |
| 02 – Auckland | 593 | 0.073 | 4.267 | 924 | 0.114 | 6.651 |
| 03 – Waikato | 416 | 0.035 | 6.372 | 501 | 0.042 | 7.678 |
| 04 – Bay of Plenty | 184 | 0.038 | 5.321 | 210 | 0.044 | 6.059 |
| 05 – Gisborne | 33 | 0.015 | 7.779 | 37 | 0.016 | 8.737 |
| 06 – Hawke's Bay | 125 | 0.027 | 7.005 | 145 | 0.031 | 8.135 |
| 07 – Taranaki | 82 | 0.021 | 6.293 | 97 | 0.024 | 7.429 |
| 08 – Manawatū-Whanganui | 234 | 0.026 | 7.718 | 231 | 0.026 | 7.619 |
| 09 – Wellington | 171 | 0.039 | 4.671 | 230 | 0.052 | 6.289 |
| 10 – Top of the South | 117 | 0.027 | 6.868 | 151 | 0.035 | 8.848 |
| 11 – Canterbury | 346 | 0.021 | 5.007 | 480 | 0.030 | 6.942 |
| 12 – West Coast | 43 | 0.014 | 7.548 | 43 | 0.014 | 7.545 |
| 13 – Otago | 137 | 0.013 | 4.799 | 142 | 0.013 | 4.968 |
| 14 – Southland | 51 | 0.007 | 3.877 | 53 | 0.007 | 4.024 |
| 15 – Chatham Islands | 0 | 0.000 | 0.000 | 0 | 0.000 | 0 |
| **National** | **2713** | **0.025** | **5.451** | **3419** | **0.035** | **5.055** |

### Infrastructure risk rating (safety)

We calculate strategic measure 1.2.1 Road assessment rating to understand the current situation of infrastructure risk both at regional and national level. This measure can be used for any safety-related investment benefits, particularly those that target road infrastructure to improve safety. It is a comprehensive measure that considers land use, road type, alignment, average annual daily traffic (AADT), intersection density, land and shoulder width, roadside hazards and access density. More details can be found in the Land Transport Benefits Framework.

| Benefit framework measure | Units |
|---|---|
| 1.2.1 Road assessment rating – roads | Average infrastructure risk rating |

### Notes, caveats and data limitations:

- Data to calculate the regional infrastructure risk rating (IRR) measure in the following table is sourced from Megamaps, which is a geospatial platform managed by NZTA.[33]
- IRR data used to calculate regional and national measure values in the following table was calculated in Megamaps in 2024. The raw data used is for the period 2019–23.
- The data in Megamaps is for each road segment, intersection or corridor. We have aggregated it to calculate regional percentages under each risk band.

| Region | High | Medium-high | Medium | Low-medium | Low |
|---|---|---|---|---|---|
| 01 – Northland | 45.77% | 26.44% | 18.74% | 8.34% | 0.71% |
| 02 – Auckland | 14.92% | 17.54% | 48.12% | 13.18% | 6.24% |
| 03 – Waikato | 21.40% | 25.42% | 34.39% | 15.15% | 3.64% |
| 04 – Bay of Plenty | 17.10% | 20.74% | 37.82% | 19.35% | 4.99% |
| 05 – Gisborne | 50.43% | 19.93% | 21.93% | 7.50% | 0.21% |
| 06 – Hawke's Bay | 33.47% | 25.30% | 29.79% | 9.16% | 2.28% |
| 07 – Taranaki | 28.83% | 24.08% | 33.13% | 13.13% | 0.83% |
| 08 – Manawatū-Whanganui | 41.81% | 19.13% | 25.67% | 12.43% | 0.96% |
| 09 – Wellington | 17.98% | 19.51% | 41.67% | 13.62% | 7.22% |
| 10 – Top of the South | 33.70% | 23.83% | 28.06% | 12.94% | 1.47% |
| 11 – Canterbury | 10.87% | 29.16% | 42.29% | 16.36% | 1.32% |
| 12 – West Coast | 17.75% | 29.97% | 38.04% | 13.61% | 0.63% |
| 13 – Otago | 21.83% | 37.95% | 26.55% | 12.63% | 1.04% |
| 14 – Southland | 6.99% | 41.27% | 37.99% | 13.34% | 0.42% |
| **National%** | **23.21%** | **2.29%** | **13.50%** | **34.25%** | **26.75%** |

[33] https://spatial.nzta.govt.nz/apps/megamaps/

## Resilience and security

This transport outcome is about minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events. We intended to use strategic measure 4.1.1 and 4.1.2 from the Land Transport Benefits Framework to understand the resilience and security situation at national and regional level. However, we don't currently have data to calculate measure 4.1.1, so this time around we have only calculated measure 4.1.2. The intent of the measure 4.1.2 is to allow for description and measurement of the risk to level of service by unplanned disruption (including earthquakes, storms, volcanos and tsunamis). This measure is generally used for any investment that focuses on maintaining or increasing the resilience of the transport network.

| Benefit framework measure | Units |
|---|---|
| 4.1.1 Availability of a viable alternative to high-risk and high-impact route | Percentage of high-risk, high-impact route with a viable alternative |
| 4.1.2 Level of service and risk | Number of identified sites in region by combined risk rating (future, geological and hydrological) |

**Notes, caveats and data limitations:**

- The data for the following measure is sourced from the National Resilience Assessment Tool (NRAT) managed by NZTA.[34]
- The following table shows the regional number of resilience risks on state highways under each risk band. This includes hydrological, geological and future risks.
- 'No rating' is for considered risk sites that have not yet been rated.
- There is no easy way to currently calculate future projections for this measure, but we are working on the capability to do so.

| Regions | Critical | High | Moderate | Low | No rating |
|---|---|---|---|---|---|
| 01 – Northland | 29 | 84 | 276 | 171 | 169 |
| 02 – Auckland | 5 | 13 | 29 | 41 | 1 |
| 03 – Waikato | 20 | 175 | 212 | 174 | 149 |
| 04 – Bay of Plenty | 16 | 64 | 153 | 121 | 67 |
| 05 – Gisborne | 1 | 7 | 35 | 49 | 74 |
| 06 – Hawke's Bay | 18 | 123 | 72 | 30 | 143 |
| 07 – Taranaki | 0 | 11 | 9 | 0 | 98 |
| 08 – Manawatū-Whanganui | 1 | 11 | 9 | 8 | 8 |
| 09 – Wellington | 39 | 37 | 25 | 118 | 1 |
| 10 – Top of the South | 9 | 51 | 59 | 177 | 91 |
| 11 – Canterbury | 32 | 88 | 57 | 195 | 46 |
| 12 – West Coast | 34 | 49 | 21 | 34 | 37 |
| 13 – Otago | 26 | 84 | 86 | 247 | 172 |
| 14 – Southland | 27 | 23 | 18 | 28 | 14 |
| **National** | **257** | **820** | **1061** | **1393** | **1070** |

[34] https://national-resilience-assessment-tool-nzta.hub.arcgis.com/

## Economic prosperity

This transport outcome is about supporting economic activity via local, regional, and international connections, with efficient movements of people and products. We calculated the following strategic measures from the Land Transport Benefits Framework to measure the economic prosperity outcomes at both regional and national level.

| Benefit framework measure | Units |
|---|---|
| 5.1.2 Travel time reliability – motor vehicles (note for this evidence pack, the data only relates to state highway traffic monitoring system (TMS) sites) | Calculated using coefficient of variation (CoV); standard deviation of travel time divided by average minutes travel time<br>Rate: Low <0.3, Medium 0.3–0.6, High >0.6) |
| 5.1.3 Travel time delay | Difference between average travel time during AM peak and average travel time during the Inter Peak in minutes per kilometre (by mode) as a percentage |
| 5.2.2 Freight – mode share value | Percentage of value for each mode |
| 5.2.3 Freight – mode share weight | Percentage of weight for each mode |

**Notes, caveats and limitations:**

- Data for travel time reliability and delay measures is sourced from the National Network Performance (NNP) platform managed by NZTA.
- The sources used to calculate following measures is limited to the TMS sites only – that is, for state highways. In future, as more data is available in NNP for local roads, we intend to calculate using extensive local and state highway roads. Additionally, NNP will be able to assess both travel time delay and travel time reliability.
- The data for 5.1.2 Travel time reliability and 5.1.3 Travel time delay is for a typical day.
- Where we have gained access to regional model origin–destination data (for Auckland, Waikato, Wellington and Christchurch), we have used this to estimate current and future values of travel time for all available modes.
- Measure 5.2.2 Freight – mode share value has been selected as one of the 14 strategic measures but currently, there is insufficient data to reliably calculate this. Therefore, the data table for this measure remains unpopulated as a placeholder.
- Measure 5.2.3 Freight – mode share weight would ideally include coastal shipping but currently only includes road and rail modes.
- Future road freight is based on the same data used to forecast heavy commercial vehicle (HCV) VKT (also used for other measures) combined with average cargo weight from weigh-in-motion (WiM) sites (collected for the North Island only, but also applied to the South Island due to lack of data from the South Island). This data covers seven years and shows a trend of average load sizes decreasing over time. This trend line was used to estimate the 2048 average cargo weight (4615kg). Compared to the 2024 value (4822kg), this implies the average load size is projected to decrease by 7%. In contrast, national HCV VKT is projected to increase by 39% (2024 to 2048).
- The last seven years of rail freight net tonne-kilometres (NTK) by line segment has been provided by KiwiRail. This indicates that the amount of freight is reasonably steady over this period (with a small decline over the last few years). Based on the overall trend, we have assumed future year (2048) NTK will remain the same as current day (2024)
- A discrepancy in the rail data has been noted, where a 27km section of the network is missing from the calculations. This is possibly the section between Palmerston North and Woodville, which has been noted for further follow up.

### 5.1.2 Travel time reliability – motor vehicles

| Region | Daily (CoV) | | | Peak time (CoV) | | |
|---|---|---|---|---|---|---|
| | Low | Medium | High | Low | Medium | High |
| 01 – Northland | 96.43% | 3.57% | 0.00% | 88.24% | 0.00% | 11.76% |
| 02 – Auckland | 96.67% | 2.50% | 0.83% | 78.57% | 9.18% | 12.24% |
| 03 – Waikato | 94.59% | 1.35% | 4.05% | 95.00% | 0.00% | 5.00% |
| 04 – Bay of Plenty | 100.00% | 0.00% | 0.00% | 80.56% | 19.44% | 0.00% |
| 05 – Gisborne | 96.30% | 3.70% | 0.00% | 100.00% | 0.00% | 0.00% |
| 06 – Hawke's Bay | 98.95% | 1.05% | 0.00% | 65.38% | 34.62% | 0.00% |
| 07 – Taranaki | 94.74% | 5.26% | 0.00% | 69.44% | 16.67% | 13.89% |
| 08 – Manawatū-Whanganui | 92.11% | 7.89% | 0.00% | 82.56% | 8.14% | 9.30% |
| 09 – Wellington | 92.37% | 6.78% | 0.85% | 67.90% | 30.86% | 1.23% |
| 10 – Top of the South | 100.00% | 0.00% | 0.00% | 86.49% | 10.81% | 2.70% |
| 11 – Canterbury | 94.39% | 3.96% | 1.65% | 73.98% | 16.84% | 9.18% |
| 12 – West Coast | 96.30% | 1.23% | 2.47% | 98.08% | 0.00% | 1.92% |
| 13 – Otago | 92.59% | 6.79% | 0.62% | 75.56% | 17.78% | 6.67% |
| 14 – Southland | 93.27% | 5.77% | 0.96% | 71.43% | 21.43% | 7.14% |
| **National** | **95.30%** | **3.84%** | **0.86%** | **77.34%** | **15.54%** | **7.12%** |

### 5.1.3 Travel time delay

| Region | Peak (mins/km) | Inter-peak (mins/km) | Difference (mins/km) | %Change |
|---|---|---|---|---|
| 01 – Northland | 0.78 | 0.85 | 0.7 | 8.40% |
| 02 – Auckland | 0.77 | 0.86 | 0.8 | 10.23% |
| 03 – Waikato | 0.79 | 0.87 | 0.8 | 9.17% |
| 04 – Bay of Plenty | 0.69 | 0.76 | 0.6 | 8.18% |
| 05 – Gisborne | 0.75 | 0.77 | 0.2 | 3.30% |
| 06 – Hawke's Bay | 0.79 | 0.87 | 0.7 | 9.15% |
| 07 – Taranaki | 0.80 | 0.88 | 0.7 | 8.46% |
| 08 – Manawatū-Whanganui | 0.73 | 0.78 | 0.4 | 5.72% |
| 09 – Wellington | 0.83 | 1.00 | 0.2 | 16.94% |
| 10 – Top of the South | 0.82 | 0.84 | 0.1 | 1.98% |
| 11 – Canterbury | 0.75 | 0.77 | 0.2 | 3.46% |
| 12 – West Coast | 0.74 | 0.77 | 0.2 | 3.13% |
| 13 – Otago | 0.74 | 0.78 | 0.3 | 4.69% |
| 14 – Southland | 0.73 | 0.76 | 0.2 | 3.23% |
| **National** | **0.76** | **0.83** | **0.6** | **8.17%** |

### 5.2.3 Freight – mode share weight – base year 2024

| Region | Road (m NKT/yr) | Rail (m NKT/yr) | Total (m NKT/yr) | Road (%) | Rail (%) |
|---|---|---|---|---|---|
| 01 – Northland | 912 | 17 | 929 | 98% | 2% |
| 02 – Auckland | 2904 | 132 | 3036 | 96% | 4% |
| 03 – Waikato | 5016 | 751 | 5767 | 87% | 13% |
| 04 – Bay of Plenty | 2208 | 534 | 2742 | 81% | 19% |
| 05 – Gisborne | 301 | 0 | 301 | 100% | 0% |
| 06 – Hawke's Bay | 1120 | 31 | 1152 | 97% | 3% |
| 07 – Taranaki | 603 | 59 | 661 | 91% | 9% |
| 08 – Manawatū-Whanganui | 1824 | 646 | 2470 | 74% | 26% |
| 09 – Wellington | 1004 | 102 | 1106 | 91% | 9% |
| 10 – Top of the South | 1193 | 60 | 1253 | 95% | 5% |
| 11 – Canterbury | 4045 | 563 | 4608 | 88% | 12% |
| 12 – West Coast | 409 | 313 | 722 | 57% | 43% |
| 13 – Otago | 1396 | 220 | 1616 | 86% | 14% |
| 14 – Southland | 776 | 73 | 849 | 91% | 9% |
| 15 – Chatham Islands | 0 | 0 | 0 | 100% | 0% |
| **Grand total** | **23,712** | **3,500** | **27,212** | **87%** | **13%** |

### 5.2.3 Freight – mode share weight – future year 2048

| Region | Road (m NKT/yr) | Rail (m NKT/yr) | Total (m NKT/yr) | Road (%) | Rail (%) |
|---|---|---|---|---|---|
| 01 – Northland | 912 | 17 | 929 | 98% | 2% |
| 02 – Auckland | 2,904 | 132 | 3,036 | 96% | 4% |
| 03 – Waikato | 5,016 | 751 | 5,767 | 87% | 13% |
| 04 – Bay of Plenty | 2,208 | 534 | 2,742 | 81% | 19% |
| 05 – Gisborne | 301 | 0 | 301 | 100% | 0% |
| 06 – Hawke's Bay | 1,120 | 31 | 1,152 | 97% | 3% |
| 07 – Taranaki | 603 | 59 | 661 | 91% | 9% |
| 08 – Manawatū-Whanganui | 1,824 | 646 | 2,470 | 74% | 26% |
| 09 – Wellington | 1,004 | 102 | 1,106 | 91% | 9% |
| 10 – Top of the South | 1,193 | 60 | 1,253 | 95% | 5% |
| 11 – Canterbury | 4,045 | 563 | 4,608 | 88% | 12% |
| 12 – West Coast | 409 | 313 | 722 | 57% | 43% |
| 13 – Otago | 1,396 | 220 | 1,616 | 86% | 14% |
| 14 – Southland | 776 | 73 | 849 | 91% | 9% |
| 15 – Chatham Islands | 0 | 0 | 0 | 100% | 0% |
| **Grand total** | **23,712** | **3,500** | **27,212** | **87%** | **13%** |

## Environmental sustainability

This transport outcome is about transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality and air quality. We calculated following strategic measures from the Land Transport Benefits Framework to the measure the economic prosperity outcomes at both regional and national level.

| Benefit framework measure | Units |
|---|---|
| 8.1.1 Greenhouse gas emissions (all vehicles) | Annual tonnes of $CO_2$ equivalents ($CO_2$-e) emitted |
| 8.1.3 Light vehicle use impacts | Annual light vehicle kilometres travelled (light VKT) |

**Notes, caveats and limitations:**

- Current year data for VKT is sourced from NZTA's open data portal.
- Future light national VKT projections have been sourced from the NZTA 2024 Light VKT projection models. These are based on Stats NZ population growth and forecasts for GDP and fuel prices (mid-range assumptions have been adopted for this evidence pack).
- Future regional light vehicle VKT distribution is based on research work done by Beca (VKT and GHG emissions baseline report – NZTA research note 008 September 2022). This assumes the base year light VKT per capita remains unchanged and uses population projection to estimate light VKT within each territorial local authority (TLA). The results are aggregated to spatial areas and adjusted to reconcile with the Ministry of Transport (MoT) observed and projected national totals. It uses base and projected light vehicle fleet GHG emissions factors from the Vehicle Fleet Emission Model (VFEM) to calculate GHG emissions for the baseline spatial areas. The report year 2035 (future) VKT values (by region) have been adjusted (scaled) to 2048 national light vehicle (LV) totals.
- Future year regional heavy vehicle VKT distribution has been calculated using growth factors comprising trend data, Stats NZ medium population forecast and Ministry of Business, Innovation and Employment (MBIE) GDP forecast data. This is a placeholder calculation pending further work on HCV demand forecasting currently being developed (using this general approach) as part of the PIE programme.
- GHG emissions have been estimated by applying light and heavy VKT to Vehicle Emissions Prediction Model (VEPM) (v7.0) emission rates (for current and future years) using the default MoT Vehicle Fleet Model (VFM) assumptions within VEPM (for each year) and average vehicle speeds from NNP or regional transport models (Auckland, Waikato, Wellington and Christchurch).
- Estimates of VKT are key inputs to multiple measures (such as vehicle emissions (affecting both health and environmental measures), DSIs, freight etc. Care has been taken to ensure consistency at the national, regional and local levels.

### 8.1.1 Greenhouse gas emissions (all vehicles)

| Region | Current 2024 | Future 2048 | Change | % Change | Contribution |
|---|---|---|---|---|---|
| 01 – Northland | 0.61 | 0.27 | -0.35 | -57% | 4% |
| 02 – Auckland | 3.58 | 2.19 | -1.38 | -39% | 26% |
| 03 – Waikato | 2.00 | 1.36 | -0.64 | -32% | 14% |
| 04 – Bay of Plenty | 1.01 | 0.63 | -0.38 | -38% | 7% |
| 05 – Gisborne | 0.13 | 0.07 | -0.06 | -48% | 1% |
| 06 – Hawke's Bay | 0.52 | 0.30 | -0.22 | -42% | 4% |
| 07 – Taranaki | 0.35 | 0.19 | -0.16 | -46% | 3% |
| 08 – Manawatū-Whanganui | 0.87 | 0.49 | -0.38 | -44% | 6% |
| 09 – Wellington | 0.93 | 0.45 | -0.48 | -52% | 7% |
| 10 – Top of the South | 0.51 | 0.36 | -0.15 | -30% | 4% |
| 11 – Canterbury | 1.98 | 1.26 | -0.71 | -36% | 14% |
| 12 – West Coast | 0.17 | 0.10 | -0.08 | -44% | 1% |
| 13 – Otago | 0.78 | 0.40 | -0.38 | -48% | 6% |
| 14 – Southland | 0.38 | 0.21 | -0.17 | -46% | 3% |
| 15 – Chatham Islands | 0.002 | 0.001 | -0.001 | -39% | 0.02% |
| **National** | **13.83** | **8.29** | **-5.54** | **-40%** | **100%** |

### 8.1.3 Light vehicle use impacts

| Region | Current 2024 | Future 2048 | Change | % Change | Contribution |
|---|---|---|---|---|---|
| 01 – Northland | 2172 | 2075 | -97 | -4% | 5% |
| 02 – Auckland | 13137 | 20504 | 7367 | 56% | 29% |
| 03 – Waikato | 5597 | 6514 | 918 | 16% | 12% |
| 04 – Bay of Plenty | 3056 | 3349 | 293 | 10% | 7% |
| 05 – Gisborne | 369 | 420 | 52 | 14% | 1% |
| 06 – Hawke's Bay | 1581 | 1810 | 229 | 14% | 3% |
| 07 – Taranaki | 1199 | 1397 | 198 | 17% | 3% |
| 08 – Manawatū-Whanganui | 2702 | 2523 | -179 | -7% | 6% |
| 09 – Wellington | 3488 | 4746 | 1258 | 36% | 8% |
| 10 – Top of the South | 1484 | 1854 | 370 | 25% | 3% |
| 11 – Canterbury | 6182 | 8583 | 2402 | 39% | 14% |
| 12 – West Coast | 494 | 476 | -18 | -4% | 1% |
| 13 – Otago | 2610 | 2624 | 14 | 1% | 6% |
| 14 – Southland | 1175 | 1182 | 7 | 1% | 3% |
| 15 – Chatham Islands | 5 | 4 | -0.4 | -7.9% | 0% |
| **National** | **45250** | **58062** | **12812** | **28%** | **100%** |

## Inclusive access

This transport outcome is about enabling all people to participate in society through access to social and economic opportunities, such as work, education and health care. We calculated the 10.2.1 and 10.3.1 strategic measures from the Land Transport Benefits Framework to measure the inclusive access outcome both at the national and regional level.

| Benefit framework measure | Units |
|---|---|
| 10.2.1 People – mode share | Percentage by mode<br>(Census (2023) journey to work and education) |
| 10.3.1 Access to key social destinations (all modes) | Number of jobs (x1000) accessible by mode in AM peak (car 40 min, PT 45 min, cycle 45 min) and distance from city centre (km) |

**Notes, caveats and limitations:**

- There is a limited information about measure 10.2.1 in the Land Transport Benefits Framework measures manual – that is, its intent, scope, forecasting methods etc are not defined yet.
- Mode share data, that is main means of travel to work and education, is sourced from census 2023 outputs produced by Stats NZ.[35]
- The data for all public transport (PT) modes (buses, trains and ferries) is aggregated together.
- Where we have gained access to regional model origin–destination data (for Auckland, Waikato, Wellington and Christchurch), we've used this to estimate current and future values of 10.2.1 People – mode share based on modelled relative changes applied to the base year census values.

### 10.2.1 People – mode share

| Region | %Car | %PT | %Cycle | %Peds |
|---|---|---|---|---|
| 01 – Northland | 91.00% | 1.33% | 0.99% | 6.67% |
| 02 – Auckland | 77.81% | 11.29% | 1.32% | 9.58% |
| 03 – Waikato | 86.34% | 2.69% | 2.49% | 8.48% |
| 04 – Bay of Plenty | 87.36% | 2.06% | 3.37% | 7.22% |
| 05 – Gisborne | 89.78% | 0.43% | 2.54% | 7.25% |
| 06 – Hawke's Bay | 88.12% | 0.99% | 2.96% | 7.93% |
| 07 – Taranaki | 87.18% | 1.25% | 2.91% | 8.66% |
| 08 – Manawatū-Whanganui | 86.33% | 1.77% | 2.60% | 9.30% |
| 09 – Wellington | 63.97% | 18.40% | 2.98% | 14.64% |
| 10 – Top of the South | 80.14% | 1.09% | 7.53% | 11.24% |
| 11 – Canterbury | 85.26% | 0.17% | 3.27% | 11.30% |
| 12 – West Coast | 79.75% | 4.44% | 6.27% | 9.54% |
| 13 – Otago | 73.35% | 4.38% | 3.77% | 18.50% |
| 14 – Southland | 87.70% | 0.70% | 3.40% | 8.21% |
| Auckland city | 77.78% | 11.30% | 1.32% | 9.59% |
| Hamilton city | 82.96% | 4.96% | 3.08% | 9.01% |

35 https://explore.data.stats.govt.nz/?fs[0]=2023%20Census%2C0%7CTransport%23CAT_TRANSPORT%23&pg=0&fc=2023%20Census&bp=true&snb=9

| Region | %Car | %PT | %Cycle | %Peds |
|---|---|---|---|---|
| Tauranga city | 85.33% | 2.92% | 4.65% | 7.10% |
| Wellington city | 48.62% | 28.51% | 3.59% | 19.29% |
| Christchurch city | 77.74% | 5.84% | 7.20% | 9.22% |
| Queenstown-Lakes District | 79.27% | 4.13% | 5.77% | 10.83% |
| **National total** | **79.45%** | **7.46%** | **2.91%** | **10.19%** |

**Accessibility to employment**

**Notes, caveats and limitations:**

- Data is sourced from the Accessibility Toolkit (ATK).
- It uses network-based travel times (by mode) between household locations and employment locations. This uses recorded travel times for general traffic, bus timetables for PT and road network distance with a constant average speed applied for cycles (the default used in OpenTripPlanner, which is 5m/s = 18km/h).
- Measure 10.3.1 currently estimates accessibility to employment rather than social destinations. Further work is progressing using ATK to also include access to social destinations, which will be included in subsequent versions of this evidence pack.
- ATK has been used to estimate future accessibility in a very limited way by only looking at changes associated with land-use growth based on population and employment sub-regional projections (while keeping base year travel times by mode). It may be possible to improve this in future releases, where other tools (currently being developed) can provide suitable inputs to ATK regarding future network performance (including travel times).

**10.3.1 Access to key social destinations (all modes)**

| Region | Mode | Current year (2023) | | | Future year (2048) | | |
|---|---|---|---|---|---|---|---|
| | | 0–5km | 5–10km | 10+km | 0–5km | 5–10km | 10+km |
| 01 – Northland | Car | 31,292 | 30,536 | 35,034 | 36,807 | 35,913 | 40,486 |
| | PT | 16,850 | 5,845 | 869 | 19,200 | 7,465 | 1,311 |
| | Cycle | 29,138 | 19,854 | 2,377 | 34,068 | 24,541 | 3,369 |
| 02 – Auckland | Car | 716,503 | 536,916 | 455,088 | 899,714 | 670,758 | 582,690 |
| | PT | 313,788 | 177,213 | 124,557 | 388,878 | 224,214 | 151,103 |
| | Cycle | 355,847 | 280,586 | 216,239 | 451,914 | 355,494 | 265,792 |
| 03 – Waikato | Car | 133,357 | 133,999 | 213,804 | 176,632 | 177,837 | 276,406 |
| | PT | 69,881 | 25,929 | 9,321 | 95,049 | 33,744 | 12,351 |
| | Cycle | 104,923 | 82,607 | 16,567 | 140,886 | 112,340 | 21,034 |
| 04 – Bay of Plenty | Car | 79,040 | 77,841 | 93,611 | 103,455 | 101,584 | 107,430 |
| | PT | 35,631 | 23,794 | 18,017 | 47,915 | 32,656 | 20,225 |
| | Cycle | 58,707 | 40,240 | 26,289 | 77,374 | 54,337 | 29,099 |
| 05 – Gisborne | Car | 17,327 | 17,265 | 25,979 | 18,308 | 18,254 | 27,378 |
| | PT | 9,241 | 144 | 147 | 9,421 | 137 | 150 |
| | Cycle | 15,211 | 10,255 | 517 | 15,898 | 9,799 | 849 |
| 06 – Hawke's Bay | Car | 72,436 | 71,160 | 165,625 | 82,291 | 81,101 | 186,660 |
| | PT | 18,570 | 12,495 | 21,930 | 20,305 | 13,607 | 26,451 |
| | Cycle | 27,802 | 26,148 | 59,881 | 30,745 | 29,448 | 70,751 |
| 07 – Taranaki | Car | 36,869 | 36,779 | 81,917 | 41,180 | 40,985 | 91,527 |
| | PT | 17,946 | 6,379 | 3,989 | 19,839 | 7,537 | 4,939 |
| | Cycle | 27,594 | 21,814 | 5,315 | 30,784 | 26,806 | 6,171 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 08 – Manawatū-Whanganui | Car | 63,400 | 60,858 | 116,324 | 70,215 | 68,118 | 129,915 |
| | PT | 42,455 | 8,809 | 12,769 | 47,710 | 12,863 | 14,373 |
| | Cycle | 49,725 | 27,467 | 15,275 | 55,486 | 31,480 | 16,815 |
| 09 – Wellington | Car | 226,937 | 203,306 | 257,735 | 254,242 | 227,977 | 286,594 |
| | PT | 149,015 | 87,351 | 100,318 | 169,490 | 97,902 | 112,643 |
| | Cycle | 160,012 | 138,296 | 82,987 | 178,699 | 153,837 | 93,008 |
| 10 – Top of the South | Car | 59,509 | 39,238 | 43,526 | 65,205 | 43,653 | 48,604 |
| | PT | 33,554 | 20,850 | 2,236 | 36,531 | 23,406 | 2,550 |
| | Cycle | 48,104 | 34,767 | 5,135 | 52,973 | 39,147 | 5,744 |
| 11 – Canterbury | Car | 246,820 | 237,377 | 350,704 | 298,103 | 286,139 | 440,946 |
| | PT | 135,521 | 83,670 | 25,420 | 164,523 | 99,853 | 33,350 |
| | Cycle | 197,173 | 163,672 | 46,480 | 238,400 | 196,568 | 59,540 |
| 12 – West Coast | Car | 6,225 | 6,455 | 14,589 | 5,843 | 6,196 | 13,893 |
| | PT | 3,757 | 183 | 1,862 | 3,445 | 210 | 2,326 |
| | Cycle | 5,537 | 4,664 | 3,015 | 5,099 | 4,604 | 3,432 |
| 13 – Otago | Car | 59,213 | 58,364 | 112,598 | 62,075 | 61,521 | 128,941 |
| | PT | 45,898 | 27,674 | 13,916 | 48,301 | 33,897 | 16,699 |
| | Cycle | 53,343 | 41,614 | 12,458 | 55,959 | 47,303 | 15,473 |
| 14 – Southland | Car | 32,733 | 33,106 | 69,145 | 34,463 | 34,638 | 71,342 |
| | PT | 20,598 | 10,281 | 2,169 | 21,320 | 13,138 | 2,138 |
| | Cycle | 27,027 | 22,387 | 4,685 | 28,399 | 26,232 | 4,374 |
| National | Car | 1,781,661 | 1,543,200 | 2,035,679 | 2,148,533 | 1,854,674 | 2,432,812 |
| | PT | 912,705 | 490,617 | 337,520 | 1,091,927 | 600,629 | 400,609 |
| | Cycle | 1,160,143 | 914,371 | 497,220 | 1,396,684 | 1,111,936 | 595,451 |