Arataki

Introduction to Geospatial Maps and Layers

November 2025

NZ TRANSPORT AGENCY
WAKA KOTAHI

Te Kāwanatanga o Aotearoa
New Zealand Government

Arataki is being developed as a shared sector view of how we need to plan, develop, and invest in the land transport system during the next 30 years. This version of *Arataki* provides new and updated information and insights for us to continue having ongoing conversations with our partners and others to co-create the plan. *Arataki* provides direction that will guide how we'll work together during the next 30 years to deliver the future land transport system needed to keep New Zealand moving.

The interactive maps, Our Current Networks and Our Future Focus, complement the *Arataki* context setting and direction. Each map pulls data from multiple sources to provide insights to help manage, develop, and evolve the land transport system in New Zealand. These data sources are shown as layers and sub-layers. Information about each layer is outlined in the table below.

This is an ongoing and evolving process towards building a full-system plan. Part of the process includes updating existing data or applying new data to inform the geospatial maps and layers.

The November 2025 release includes new layers and updated layers added to the two geospatial maps: Our Current Network and our Future Focus. More detail about these layers is outlined in this section.

Your input and feedback is always welcome – you can email us at Arataki@nzta.govt.nz.

The geospatial (GIS) maps developed for *Arataki* focus on showing the modal networks operated by NZTA and KiwiRail. The current maps included are outlined below.

Future versions of *Arataki* will expand on this.

There are currently 2 maps available:

- Our current network map
- Our future focus map

The digital platform of *Arataki* enables multiple insights from shared evidence bases, data, and information. As a step towards progressing these, we have hosted 2 types of layers:

1. Insight layers – these layers incorporate insights derived by Arataki from shared evidence bases.
2. Information layers – these layers provide users with information from external and internal sources.

Both insight and information layers are nested within either Our Current Network map or Our Future Focus map, or both.

As a starting point, the state highway network segments within the maps were defined based on the sections of corridor between state highway to state highway intersections. In this iteration, the state highway network has been broken into additional segments and then refined to reflect situations where:

- the volume or type of traffic using the corridor changes significantly
- the physical form of the corridor changes significantly, for example, steep terrain, narrow lane widths and windy alignment
- The number of lanes on a road section changes (excluding slip lanes/on or off ramps).

These new segments are referred to as Arataki segments and provide more granularity to the data, attributes, insights and guidance to different parts of the state highway system.

Users can interact with the maps by selecting, showing, and hiding layers to manage visibility and shape the map to their requirements.

As the maps are updated, more information and insights will become available.

The maps hosted on the *Arataki* digital platform source data from:

- internal and external shared evidence sources
- internal and external GIS data links.

Icons and colours

Icons

Icons are attributed and aligned with the primary impact of the intervention.

Icon	Description	Focus of intervention benefit
	Truck	Road freight
	Train	Public transport – rail
	Bicycle	Walking/cycling
	Car	State highway improvements
	Boat	Public transport – ferry
	Bus	Public transport – bus

Colours

Icon colours show the primary outcome that the intervention is focused on.

Colour	Description	Outcome
	Red	Economic prosperity
	Green	Environmental sustainability
	Olive green	Healthy and safe people
	Teal	Inclusive access
	Orange	Resilience and security

Our current network map

Our current network map shows our view of the existing land transport network of New Zealand. It includes EV charging points, marae locations, InterCity Bus Stops and population projections.

Our future focus map

Our future focus map details the expected long-term approach to managing different sections of the state highway network managed by the NZ Transport Agency Waka Kotahi (NZTA) and the national rail network. It includes network deficiencies due to safety, resilience (disruption to the network), and travel time reliability.

Layers overview

Our current network map

Insight layers and sublayers

State Highway Network

Strategic Network
- Nationally Strategic
- Regionally Strategic
- Strategic Intermodal Freight Hubs

Journey Reliability: AADT per lane 2025

Information layers and sublayers

Aggregated Harmful/(GHG) Emissions
- Aggregated Harmful/GHG Emissions at SA1 Levels
- Aggregated Harmful/GHG Emissions at SA2 Levels

Coastal Sensitivity Index
- Coastal Sensitivity Index CSI-Erosion
- Coastal Sensitivity Index CSI-Inundation

Coastal Shipping Routes

Commercial Vehicle Safety Centres

Crash Analysis System (CAS) Data

Department of Conservation (DOC) Walking Experiences
- Great Walks
- Normal Walks

Department of Conservation (DOC) Public Conservation Land
- National Parks
- DOC Other Public Conservation Land Types
- Conservation Covenant Areas

Detour Impacts on State Highways

Electric Vehicle (EV) Charging Points

Ferry Service

Flood Prone Areas
- Auckland Flood Prone Areas

Freight Flows

Heavy Vehicle Routes (Hight Productivity Motor Vehicle/50Max)
- State Highway

Heavy Vehicles Flow (av AADT 2025)

Intercity Bus Network

Index of Multiple Deprivation

Information layers and sublayers

Interregional Passenger Rail
- Commuter
- Tourist

Iwi by Local Authority

Māori Demographics
- Current
- Projected

Marae Locations

Maritime Ports

National Rail Network
- National Rail Network
- National Rail Network – Infrastructure
- National Rail Network – Line Priorities

New Zealand Community Facilities
- Health Centres
- Schools

New Zealand Cycle Trail

One Network Framework
- One Network Framework: State Highway

Projected Aging Population

Projected Population Growth

Rapid Transit
- Auckland Bus
- Auckland Rail
- Wellington Rail
- Wellington Bus

Tourism Flows

Traffic Cameras

Our future focus map

Insight layers and sublayers

Change required

Maintain with Current Programmes

Our Network Deficiencies

- Detour Impacts on State Highways
- Safety Risk (collective risk 2025)
- Journey Reliability (AADT per lane 2025)
- Journey Reliability Deficiency (Future)
- Heavy Vehicle Flow (Av AADT 2025)
- Resilience (network disruption risk 2025)
- Extreme Resilience Risk (Future)
- Combined Deficiency (current 2025)
- Hotspots
- National Rail Network Deficiencies

Potential Change Required

Strategic Network Transformational Change

- Strategic Network Transformational Points
- Strategic Network Transformational Segments

Strategic Network

- Nationally Strategic
- Regionally Strategic
- Strategic Intermodal Freight Hubs

Information layers and sublayers

Aggregated Harmful/(GHG) Emissions

- Aggregated Harmful/GHG Emissions at SA1 Levels
- Aggregated Harmful/GHG Emissions at SA2 Levels

Crash Analysis System (CAS) Data

National Rail Network

- National Rail Network
- National Rail Network – Infrastructure
- National Rail Network – Line Priorities

One Network Framework

- State Highway

Projected Aging Population

Projected Population Growth

Iwi by Local Authority

Marae Locations

Māori Demographics

- Current
- Projected

Layers in detail

Aggregated harmful/Greenhouse Gas (GHG) emissions

Map: Our Current Network, Our Future Focus
Data source: NZTA (Vehicle Emission Mapping Tool)[1]
Layer type: Information

The carbon dioxide equivalent, CO2-e, was selected as the key visualised measure for greenhouse gases using 2022 levels.

Emissions for each calendar year are estimated based on the:

- length of the road transport network travelled together with traffic data
- expected emissions as predicted by the New Zealand Vehicle Emission Prediction Model (VEPM).

VEPM predicts emissions from the New Zealand vehicle fleet under typical road, traffic, and operating conditions.

Data is displayed at both Statistical Area 1 (SA1) and Statistical Area 2 (SA2) levels.

Change required

Map: Our Future Focus
Data source: NZTA
Layer type: Insight

Our understanding of future demand and pressure on the network indicates that change is likely to be required over the next 30 years to address a system deficiency relating to travel time reliability, resilience (including climate impacts), and/or safety.

The need for change was identified using:

- evidence regarding existing or emerging system deficiencies for travel time reliability, safety, and resilience
- insight from existing business cases and corridor management plans – this includes any significant constraints with resolving system deficiencies on their current alignment, for example topography, landownership, and operational constraints with undertaking work in the existing corridor.

It's important to note that capacity is not the only factor used to determine where change may be required on the state highway network. Many corridors identified for change through significant interventions are subject to a mix of safety, resilience, and physical constraints that cannot be readily addressed on their current alignment, for example State Highway 1 Lake Taupo and Desert Road, and State Highway 6 Cromwell to Queenstown.

Arataki includes direction about the triggers and preconditions that apply to each corridor. Triggers indicate the level of service deficiency or impact expected to trigger the need to do a significant intervention.

Preconditions apply the intervention hierarchy and signal where we expect other levers or activities to be maximised prior to committing to a significant intervention. The triggers and preconditions for each corridor were determined based on insights about the potential future impacts of key drivers, and our understanding of local context. Assessments from NZTA subject matter experts, existing investigations, and business cases were also considered. Where the scale of change required is likely to significantly alter the form and scale of the current corridor, and may include a new corridor alignment, interim works on the corridor should be limited to maintenance and renewals or works that will provide long-term value for money regardless of future significant interventions.

Coastal sensitivity index

Map: Our Current Network
Data source: National Institute of Water and Atmospheric Research (NIWA)[2]
Layer type: Information

This layer shows the index values for erosion and inundation risks around the coast of New Zealand. These are derived from the Coastal Sensitivity Index (CSI) which provides a snapshot of the potential sensitivity of New Zealand's soft shore coastline to coastal inundation (coastal flooding) and coastal erosion due to future climate change.

Coastal shipping routes

Map: Our Current Network
Data source: The Ministry of Transport (National Freight Demand Study (NFDS)[3]
Layer type: Information

This layer illustrates the significant regional coastal shipping flows that carry freight within the waters of New Zealand.

The indicative flows were derived from the NFDS 2017/18, which was published in September 2019.

The petroleum shipping element following the closure of the Marsden Point refinery was removed from the data and required further detailed examination of flows from NorthPort.

Commercial vehicle safety centres

Map: Our Current Network
Data source: NZTA[4]
Layer type: Information

This layer shows the locations of commercial vehicle safety centres (CVSCs) – previously called weigh stations. These centres are where officers can safely carry out inspections of:

- vehicle weight
- Road User Charges (RUC)
- logbook accuracy
- driver impairment.

Crash analysis system (CAS) data

Map: Our Current Network, Our Future Focus
Data source: NZTA[5]
Layer type: Information

This layer shows the locations of when, where, and how road crashes occurred on the New Zealand road network since the 2017/18 financial year.

Department of Conservation (DOC) - walking experiences

Map: Our Current Network
Data source: DOC[6]
Layer type: Information

This layer shows the tracks that are managed and maintained by Te Papa Atawhai Department of Conservation and classified as either Great Walks or Normal Walks.

Department of Conservation (DOC) - public conservation land

Map: Our Current Network
Data source: DOC[7]
Layer type: Information

This layer shows how parcels of land are geographically defined, recognised, dedicated, and managed through legal or other means to achieve the long-term conservation of nature with associated ecosystem services and cultural values. Conservation land includes land administered by Te Papa Atawhai Department of Conservation and Public Conservation Land (PCL). This layer also maps out national parks, other public conservation land type, and conservation covenant areas.

Detour impacts on state highways

Map: Our Current Network
Data source: NZTA (Detour Routes Tool)[8]
Layer type: Insight

Using data from the Detour Routes Tool, this layer shows the overall performance of state highway corridors when detours are in place, by calculating extra journey time (minutes), extra journey length (km), and any vehicle type restrictions, such as a detour being unsuitable for an HPMV.

EV charging points

Map: Our Current Network
Data source: External stakeholders including EV charge station owners and operators, NZTA[9]
Layer type: Information

The location and technical details of publicly accessible electric vehicle (EV) charging points in New Zealand as at March 2023 are shown in this layer.

Ferry service

Map: Our Current Network
Data source: Auckland Transport,[10] Metro Christchurch,[11] Bluebridge,[12] Interislander,[13] Wellington Harbour Ferries[14]
Layer type: Information

This layer shows ferry services in New Zealand that provide a service for commuters or freight transport.

Flood prone areas – Auckland flood prone areas

Map: Our Current Network
Data source: Auckland Council[15]
Layer type: Information

Flood prone areas are low points in the ground that may flood. They're often associated with roads or railway embankments, or places where water can become trapped and pool if the outlet is blocked. These areas are also associated with one-in-100-year rainfall events. This flood map shows the extent of flooding expected around the Auckland region during severe rainfall events. However, areas that are not highlighted may also experience flooding in some circumstances.

Freight flows

Map: Our Current Network
Data source: Stats NZ,[16] Ministry of Transport,[17] Ministry of Transport,[18] Governance Group[19]
Layer type: Information

This layer was developed as part of the pan-regional summaries for *Arataki 10-Year Plan V2* and shows the key freight flows in New Zealand.

Heavy vehicle routes (High productivity motor vehicle/50Max)

Map: Our Current Network
Data source: NZTA 50Max interactive map[20]
Layer type: Information

Where Road Controlling Authority (RCA) and state highway restrictions are in place on the road network. Only restrictions on the state highway network are shown.

Index of Multiple Deprivation

Map: Our Current Network
Data source: University of Auckland[21]
Layer type: Information

The 2018 New Zealand Index of Multiple Deprivation (IMD18) is a set of tools for identifying concentrations of deprivation in New Zealand. The IMD18 includes 29 indicators grouped into 7 domains of deprivation:

1. employment
2. income
3. crime
4. housing
5. health
6. education
7. access to services.

IMD18 is the combination of these 7 domains, which may be used individually or combined.

The overall index rating is displayed on the layer, and the ranking is indicated by colour as per the map layer legend. Sub-domains and their rankings/deciles are identified in the pop-out boxes for each data zone.

InterCity bus network

Map: Our Current Network
Data source: InterCity Buses[22]
Layer type: Information

This layer shows the geolocations of bus stops served by the InterCity bus network. The locations were provided as general transit feed specification (GTFS) files by InterCity buses, part of the Entrada Travel Group.

Interregional passenger rail

Map: Our Current Network
Data source: Great Journeys New Zealand,[23] Te Huia,[24] Metlink,[25] Capital Connection[26]
Layer type: Information

Commuter

This layer shows the routes of the current interregional passenger rail services that are primarily focused on commuters.

Note: This includes the Wairarapa line service between Wellington City and Masterton although this is intraregional.

Tourist

This layer shows the routes of the current interregional passenger rail services that are primarily focused on tourists.

Iwi by local authority

Map: Our Current Network, Our Future Focus
Data source: Ministry of Māori Development[27]
Layer type: Information

The iwi authorities/rohe primarily located in, or associated with, a local council area are shown in this layer. They're listed in a pop-up box for each local council.

Maintain with current programmes

Map: Our Future Focus
Data source: NZTA
Layer type: Information

The current corridor is generally fit for purpose given our best understanding of the impacts of key drivers, future demand, and pressure on the network. The current alignment and form of the corridor is likely to remain largely unchanged over the next 30 years.

Some sections of the corridor may be subject to safety and resilience challenges, but capacity is not expected to be an issue over the coming decades.

Our focus will be on maintenance, renewals, and targeted improvements as required (including safety and resilience) to ensure the corridor delivers an appropriate level of service for customers.

Additional investment may be required on designated alternate routes to ensure they can function at an appropriate level of service in the event of disruption on the main corridor.

Māori demographics

Map: Our Current Network, Our Future Focus
Data source: Stats NZ (Medium forecast for subnational ethnic population projections and Māori age profiles)[28]
Layer type: Information

This layer shows Māori demographics by the current population and the population projection to 2043.

Current Māori population

- Māori population as a percentage of total population for each local authority area.
- Māori population male and female totals compared to total population figures.
- Māori median age compared to total population median age.

Projected Māori demographics

- Projected percentage of total population that is Māori as at 2043.
- Māori population projections in 5 year snapshots from 2023 to 2043. The comparative total population data was included for context and comparison.

Marae locations

Map: Our Current Network, Our Future Focus

Data source: Local and central government departments, Directory of Iwi and Māori Organisations, Ministry of Māori Development[29]
Layer type: Information

Tribal, urban, institutional, and historic marae of New Zealand are shown in this layer.

Maritime ports

Map: Our Current Network
Data source: The Ministry of Transport,[30] Ministry for Primary Industries[31]
Layer type: Information

In this layer strategic ports were identified from freight and logistics data available from the Ministry of Transport. These were further cross-checked with the Ministry for Primary Industries ports of first arrival list to determine which non-strategic ports should be included, for example commercial freight handling and excluding passenger or fishing (commercial or pleasure).

National rail network

Map: Our Current Network, Our Future Focus
Data source: KiwiRail (Rail Network Investment Programme),[32] KiwiRail[33]
Layer type: Information

Information for this layer is presented across 3 sub-layers:

- National rail network: Shows active lines and some unused or inactive (mothballed) lines currently managed by KiwiRail. Some lines shown as unused by KiwiRail may be used for tourist purposes by private sector operators using very light rail vehicles, for example the Stratford to Okahukura line.
- Infrastructure: The level crossings, tunnels, bridges, key operational centres, stations, electrification, and track layout.
- Line priorities: Shows how national rail network lines have been classified by KiwiRail, for example:
    - priority
    - secondary
    - tertiary
    - mothballed/unused.

New Zealand community facilities

Map: Our Current Network
Data source: Land Information New Zealand[34]
Layer type: Information

Locations relating to health centres and schools are currently presented in this layer.

NZ community facilities – health centres

- Health centres: State and private sector health facilities.
- Type: Public Hospital (state run facilities) or NGO Hospital (privately run facilities).

NZ community facilities – schools

- Schools: Educational establishments catering for students from years 0-15.
- Type: Full Primary, Contributing, Intermediate, Composite, and Secondary.

New Zealand cycle trail

Map: Our Current Network
Data source: NZTA (cycle network)[35]
Layer type: Information

This layer shows the current national cycling network under 5 cycling trail headings. Geospatial data is drawn from the NZTA Cycling Network – Cycle Trail Category map.

One Network Framework: state highway

Map: Our Current Network, Our Future Focus
Data source: NZTA (ONF)[36]
Layer type: Information

The One Network Framework (ONF) is a tool to help establish transport network function, performance measure, operating gaps, and potential interventions for each road and street type.

The ONF data set used in this layer was extracted as shapefiles from the Road Assessment and Maintenance Management system (RAMM) and entered in the geospatial system. The layer displays the current state highway network and the ONF road segment terminology.

Detour impacts on state highways

Map: Our Current Network
Data source: NZTA (Detour Routes Tool)[37]
Layer type: Insight

Using data from the Detour Routes Tool, this layer shows the overall performance of state highway corridors when detours are in place, by calculating extra journey time (minutes), extra journey length (km), and any vehicle type restrictions, such as a detour being unsuitable for an HPMV.

Our network deficiencies

Our network deficiencies identify parts of the state highway and rail network that experience a significant service deficiency in relation to safety, resilience, or travel time reliability. Layers indicate current deficiencies and areas where a deficiency may emerge over the next 30 years. This is based on our best understanding of the impacts of key drivers including population growth, technology, and climate change.

Arataki acknowledges the uncertainties associated with

trying to understand future impacts on the land transport system. The deficiency layers aren't intended to be a definitive statement on where action is required over the next 3 decades; rather they're intended to indicate where significant challenges and opportunities may play out around the country. They're intended to support further conversations and more detailed analysis regarding the scale of issues and delivery of priority outcomes.

The layers were developed using a combination of:

- average Annual Daily Traffic counts (AADT)
- all possible detour routes
- evidence of existing deficiencies
- modelling of future network capacity pressure
- input from NZTA and KiwiRail subject matter experts
- analysis of safety and resilience risks
- the potential impacts of climate change.

Resilience

Resilience indicates parts of the network that are at particular risk of closure and disruption because of unplanned events, either natural or human. The ratings reflect the risk and impact of disruption and emphasise connections with high-potential impacts on customers and/or corridors with no viable alternate routes.

Resilience (network disruption risk 2025)

Map: **Our Future Focus**
Data source: NZTA (NRAT)[38]
Layer type: Insight

This layer shows the resilience risk across the state highway network from hydrological and geological hazards. The data set is drawn from National Resilience Assessment Tool. This tool analyses 12 years of actual data regarding disruption across the state highway network.

Extreme resilience risk (Future)

Map: Our Future Focus
Data source: NZTA (NRPBC)[39]
Layer type: Insight

The sections of the state highway network that are expected to have an extreme resilience risk rating by 2050, as sourced from the National Resilience Programme Business Case. The 2050 ratings help us understand the sections of the network expected to experience increased risks because of climate change, including the impacts of more extreme weather events and sea level rise.

Journey reliability

Journey reliability indicates how well the transport system delivers reliable travel times to customers. Delivering reliable travel times doesn't mean a trip won't have delays, but ideally users of the transport system should experience consistent travel times when making the same journey at different times of day and from day- to-day.

On interregional corridors, travel time reliability tends to vary most:

- in and around major urban centres where urban peak traffic periods impact the reliability of trips
- on corridors with extended sections that offer limited opportunities for vehicles to safely overtake slower traffic, for example the stretch from Picton to Blenheim, along the Kaikōura Coast, or on Desert Road.

In some parts of the country, travel time reliability can also be affected by increased demand caused by holidays, large events, and severe weather events.

The travel time reliability layers indicate sections of the state highway network:

- that currently experience poor travel time reliability
- where travel time reliability is expected to get worse over the coming decades.

Forecasted growth in traffic volumes is expected to cause some parts of the network to reach or exceed maximum capacity, leading to reduced time travel reliability.

Journey reliability (Annual Average Daily Traffic per lane 2025)

Map: Our Current Network, Our Future Focus
Data source: NZTA (State highway traffic monitoring)[40]
Layer type: Insight

This updated layer is based on evidence of existing traffic volumes that were recorded passing traffic count sites.

Many of the main urban corridors are operating at, over or close to the carrying capacity of the corridor for key periods, particularly in areas experiencing strong population growth. Outside these corridors, most of our roads are operating below capacity for most of the day.

Journey reliability (Future)

Map: Our Current Network, Our Future Focus
Data source: NZTA (State highway traffic monitoring)[41]
Layer type: Insight

This map shows sections of the rural and interregional networks where growth in demand, driven primarily by population growth, is expected to place capacity

pressure on a corridor. The assessment of future travel time reliability combines:

- basic forecasts of potential growth in traffic demand, driven primarily by population growth
- analysis of the capacity of the existing road network.

This identifies the corridors where travel time reliability is expected to drop below an acceptable level if nothing is done to:

- manage demand
- get the most out of networks
- enable mode shift
- increase network capacity.

NZTA doesn't currently have a national travel demand model that can provide future state highway demand estimates. In the absence of this model, *Arataki* made use of 2 sets of data to understand future demand on each interregional corridor.

Ministry of Transport data

This data set uses region-level projections from the Staying Close to the Action transport outlook scenario. The regional growth projections were then assigned to the state highway corridor segments based on current level demands.

NZ Transport Agency data

These projections are based on a very simplistic methodology that looked at recent annual growth rates on state highway corridor segments. To provide a range of potential future demand, the 25th and 75th percentiles were calculated for each corridor, and these numbers were used in the analysis of possible future demand.

Neither of these approaches consider detailed demographic, economic, mode-shift effects, or changes in the network. They need to be used with caution and are only considered a starting point for analysis. They aren't considered sufficiently robust to be considered as forecasts, rather they are extrapolations, or estimates, of the current state. The Disclaimer at the end of this sub-section has more about this.

The NZTA extrapolations, or estimates, were done for corridors classified as high volume, national, regional, and arterial, as detailed by the One Network Road Classification. Lower classification corridors weren't modelled as they tend to carry relatively low volumes of traffic and were considered unlikely to come under demand pressure over the next 30 years.

The following corridor capacity levels were applied to the state highway network:

- Four-lane highway – approximately 40,000 vehicles per day maximum capacity.
- Two-lane highway – approximately 20,000 vehicles per day maximum capacity.
- Two-lane highway (constrained) – less than 20,000 vehicles depending on the nature of the constraint.

When all 3 future-demand numbers exceeded the current capacity of a corridor, that corridor was noted as expected to reach capacity and result in travel time reliability issues. When 2 of the future-demand numbers exceeded the current capacity, the corridor was noted as possible to reach capacity. If one or none of the numbers exceeded the current capacity, the corridor was noted as unlikely to reach capacity.

Arataki combines the future-demand numbers with specialist network and regional expertise to identify which corridors are likely to experience a travel time reliability deficiency over the next 30 years. All corridors noted as expected to reach capacity have been mapped as a future travel time reliability deficiency. For the corridors noted as possible to reach capacity, discretion was applied in interpreting the future-demand numbers. In situations where there was a significant gap between current volumes and forecast volumes, with no clear driver of future demand, a softer position was taken. This focuses on monitoring demand to understand whether demand is growing as detailed by the forecasts and whether any interventions may be required in the future. An example of where this occurred was State Highway 8 between Cromwell and Alexandra. No corridors assessed as unlikely to reach capacity have been mapped.

Disclaimer

The future-demand extrapolations, or estimates, done by NZTA reflect recent trends in demand, forecast growth in population, and the future transport patterns described in the Staying Close to the Action transport outlook scenario from the Ministry of Transport. They don't account for:

- events such as pandemics
- major changes in land-use patterns
- changes in demand following mode shift
- further investment in the transport system.

While the future-demand extrapolations are useful in providing an initial indication of the parts of the network that may come under demand pressure in the future, they aren't a replacement for proper travel demand modelling.

We'll continue testing the layers with the resilience and safety teams at NZTA to ensure they're aligned with the latest analysis and prioritisation from development of the Resilience Platform and the road safety strategy delivery programme. Ongoing analysis of real-time traffic data will enhance our understanding of travel time reliability.

Safety risk

The safety deficiency ratings indicate the risk profiles for different sections of the state highway network.

Safety risk (collective risk 2025)

Map: Our Current Network, Our Future Focus
Data source: NZTA (MegaMaps 2024)[42]
Layer type: Information

State highway corridors with elevated risk profiles, as sourced from the NZTA Collective Risk map, which uses historical crash data from 2019 to 2023 inclusive (MegaMaps 2024 edition).

There is currently no assessment of safety risk beyond the current Road to Zero period from 2020 to 2030. Work is underway to understand the longer-term safety challenges for the land transport system beyond 2030. Once completed, this work will be included in the safety deficiency layers.

Combined deficiencies (current 2025)

Map: Our Current Network, Our Future Focus
Data source: NZTA (MegaMaps 2024[43], NRAT[44], AADT[45])
Layer type: Insight

This layer combines the following deficiencies into one interactive map layer: Resilience, Reliability and Safety.

The Resilience data set is derived from the NZTA National Resilience Assessment Tool (NRAT).

The Reliability data set is derived from the NZTA Average Annual Daily Traffic (AADT) volumes.

The Safety data set was derived from the NZTA Cumulative Risk using DSI data from 2019 to 2023 inclusive.

The Combined Deficiencies ratings were obtained by summation of the 3 individual deficiency scores and identify hotspots around the country and where intervention may be required.

National rail network deficiencies

Map: Our Future Focus
Data source: NZTA National Resilience Programme Business Case,[46] The Ministry of Transport,[47] KiwiRail (Rail Network Investment Programme)[48]
Layer type: Information

Key national rail infrastructure and service pinch points identifies the:

- level of service gap
- potential solution
- timescale of likely activity.

The expected trigger point for activity is also identified in this layer. The national rail network deficiencies information is aligned with the Rail Network Investment Programme and was provided by the KiwiRail investment team in comma-separated values (CSV) format and geolocated within *Arataki*.

Projected aging population

Map: Our Current Network, Our Future Focus
Data source: Stats NZ[49]
Layer type: Information

Data in 10-year snapshots starting in 2018 for:

- total estimated population aged over 65
- percentage make-up of the total population.

Potential change required

Our understanding of future demand and pressure on the network indicates the corridor will come under increasing pressure in terms of travel time reliability, resilience including climate impacts, and/or safety. Triggers indicate the level of service deficiency or impact expected to trigger the need to do a significant intervention. Preconditions apply the intervention hierarchy and signal where we expect other levers or activities to be maximised before committing to a significant intervention.

The triggers and preconditions for each corridor were determined based on insights about the potential future impacts of key drivers and our understanding of local context. Assessments from NZTA subject matter experts, existing investigations, and business cases were also considered. It's uncertain whether the speed of change will require a significant intervention within the next 30 years. We'll continue to monitor these change pressures but at this stage, any significant intervention would most likely happen near the end of the 30-year timeframe.

Investigations into potential future interventions should consider thresholds and triggers for both short and long-term interventions. Before doing any new work on the corridor, consider the likelihood and potential impacts of long-term pressures to ensure any interventions can be adapted and will provide value for money over the longer term.

Heavy Vehicles Flow (Av AADT 2025)

Map: Our Future Focus
Data source: NZTA (traffic monitoring sites)[50]
Layer type: Insight

This layer shows the Average Annual Daily Traffic (AADT) for heavy vehicles. This is derived from NZTA Traffic Count Sites, either fixed or mobile, extrapolated as an annual average, and shows a percentage of total vehicles classed as heavy vehicles.

Projected population growth

Map: Our Current Network
Data source: Stats NZ[51]
Layer type: Information

The projected population growth at local authority level is shown in 5 year increments from 2018 to 2048.

Rapid transit

Map: Our Current Network
Data source: Auckland Transport,[52] Metlink[53]
Layer type: Information

Auckland bus

The bus rapid transit network in Auckland includes high frequency bus services. The routes were identified from the Auckland Transport Journey Planner schematic and then geolocated for mapping purposes on this geospatial layer.

Please see the *Land Transport Modes and Strategic Networks* section of *Arataki* for more about what makes up the rapid transit networks.

Land Transport Modes and Strategic Networks →

Auckland rail

The rail rapid transit network in Auckland includes all metro-rail lines. The routes were identified from the Auckland Transport Journey Planner schematic and then geolocated for mapping purposes on this geospatial layer.

Please see the *Land Transport Modes and Strategic Networks* section of *Arataki* for more about what makes up the rapid transit networks.

Land Transport Modes and Strategic Networks →

Wellington bus

The bus routes were identified by analysis of Metlink's timetables to determine which services operate at a minimum of a 15-minute frequency for much of the day. They were then geolocated for mapping purposes on this geospatial layer.

Wellington rail

The metro rail lines in Greater Wellington including Johnsonville, Kapiti, Melling, and Hutt Valley lines. The routes were identified from Metlink's Regional Rail Network schematic and then geolocated for mapping purposes on this geospatial layer.

Note: The Wairarapa Line service from Wellington City to Masterton is not included in this layer as there are currently only 5 trains per day in each direction.

State highway network

Map: Our Current Network
Data source: NZTA
Layer type: Insight

The state highway network has been broken into segments to enable data, attributes, insights, and guidance to different parts of the system.

As a starting point, the state highway network segments were defined based on the sections of corridor between state highway to state highway intersections. These segments were then refined to reflect situations where:

- the volume or type of traffic using the corridor changes significantly
- the physical form of the corridor changes significantly, for example, steep terrain, narrow lane widths and windy alignment
- The number of lanes on a road section changes (excluding slip lanes/on or off ramps).

Within the larger urban centres, the state highway networks have been grouped because highway corridors form part of a more complex urban transport system involving multiple mode and route choices. In this situation, it's more appropriate to consider the highway corridors as part of the whole system, rather than focusing on individual corridors.

Where a state highway corridor passes through a city, defined as an urban centre with a population over 50,000, a segment has been created extending from one side of the city to the other. This allows for targeted attributes and insights that reflect the urban setting and the wider range of route options, modes, and trips occurring along these corridors.

Strategic network

The strategic network identifies the critical parts of the land transport system.

Nationally strategic

These roads cover the most critical parts of the network, acting as the spine of the strategic road and rail networks.

Nationally strategic roads:

- provide important primary connections between population centres and ports, and through urban areas
- perform national level functions
- link major freight hubs to cities
- support both in-region and interregional trips in cities
- have the highest volumes and significant value of trips.

Regionally strategic

These roads perform strategic functions at a regional or subnational scale.

Regionally strategic roads:

- provide interregional connections
- connect areas to the spine of the network
- provide a lifeline function for areas with a single connection
- provide alternate routes in the event of disruption or closures.

Strategic intermodal freight hubs

These are the critical hubs where freight is shipped between transport modes and are served by nationally and regionally strategic networks.

Please see Appendix 2 for more details.

Map: Our Current Network
Data Source: NZTA
Layer type: Insight

Strategic network transformational change

Transformational change may be required if the:

- current networks are underdeveloped and require the introduction or expansion of new solutions
- scale of change required is beyond what can be achieved through ongoing programmes.

Strategic network transformational points

Indicates where transformational change may be required at various points in a city.

Strategic network transformational segments

Map: Our Future Focus
Data Source: NZTA
Layer type: Insight

Indicates where transformational change may be required along a particular section of road, rail, or cycling network.

Please see Appendix 2 for more details.

Tourism flows

Map: Our Current Network
Data source: Ministry of Business, Innovation and Employment[54]
Layer type: Information

This layer was developed as part of the pan-regional summaries for *Arataki 10-year plan V2* and shows the key tourism flows around Aotearoa New Zealand.

Traffic cameras

Map: Our Current Network
Data source: NZTA[55]
Layer type: Information

This layer shows information about NZTA traffic cameras on the state highway network, including the location and direction of view.

What's planned

Committed and planned interventions on the state highway network and other interventions that NZTA and KiwiRail are responsible for delivering. Interventions for this purpose are projects or programmes that either:

• change the use and/or form of the existing network

• improve the level of service.

The starting point for developing the list of interventions was an extract in March 2023 from Transport Investment Online (TIO) for the period from 2021 to 2051.

The initial extract was split into the 16 regions and then refined by applying a range of filters to:

- retain only interventions that had the funding status identified as 'Funding Approved' or 'Included in RLTP 2021–24' or 'Included in NLTP 2021–24'
- remove all interventions that had an end year of 2022 or earlier and retain only those interventions with an end year of 2023 or later
- remove local road improvements and maintenance, leaving interventions focused on NZTA infrastructure
- remove state highway maintenance activities as they're effectively maintaining the current level of service and can't be geolocated from a geospatial (GIS) perspective.
- The remaining interventions were reviewed, and non-geographically specific activities were removed, like funding investment planning activities or advertising spend.

Interventions were geolocated as either a:

- point, either when the intervention was at a specific location or where it was dispersed across a geographic area
- line segment, where the intervention was clearly identified as occurring between 2 points.

Locations were derived from road centre-line data and other data to give an approximate location of the activity.

Primary Outcomes Mode

Interventions were then allocated a primary outcome and a related transport mode or theme, as identified in Transport Investment Online.

Users can choose to display the interventions in sub-layer by outcome.

Mode

Users can choose to display the interventions in sub-layers by mode such as cycling/walking, road freight, car, and public transport.

KiwiRail interventions

Map: Our Current Network
Data source: KiwiRail,[56] NZTA
Layer type: Information

Rail interventions show the current and planned projects and interventions on the national rail network. Interventions were geolocated to either:

- a specific point, either where the intervention was focused on a particular asset or impacted across a wider geographical area
- an identifiable rail line section.

This information was provided by the KiwiRail investment planning team and is aligned to the Rail Network Investment Programme (RNIP).

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