

TARANAKI

2050

# INFRASTRUCTURE & TRANSPORT

TRANSITION PATHWAY ACTION PLAN

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venture

TARANAKI

Te Puna Umanga

# INFRASTRUCTURE AND TRANSPORT

## TRANSITION PATHWAY ACTION PLAN

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# Executive summary

In August 2019, Taranaki launched a co-designed Roadmap for how the region will transition to a low-emissions economy by 2050. A collaborative process has been used to further develop detailed actions across the 12 pathways the Roadmap identifies. This document describes the actions required to assist infrastructure and transport developments in Taranaki to achieve a low-emissions economy. It is primarily a record of an action framing process held with sector and regional participants in November 2019.

## Introduction

This Transition Pathway Action Plan (TPAP) considers infrastructure and transport. Infrastructure refers to assets that allow our society and economy to function. This includes roads, bridges, pipes (water, wastewater and gas), wires (electricity and telecommunications), as well as reservoirs and energy generation plant. It also includes social infrastructure, such as schools and hospitals. Transport covers any means of travel, including by vehicle, ship, aeroplane, train, bus, bike, scooter or foot.

Taranaki has a significant amount of infrastructure given its historical role as New Zealand's only petroleum industry hub, our relative wealth (when measured by GDP per capita) and our topography.

## Action statement and focus areas

The 2050 Roadmap vision informed the development of an action statement at the Infrastructure and Transport workshops. This was:

“Taking a comprehensive view, design and invest in our entire infrastructure and transport ecosystems so they're integrated, affordable, resilient, sustainable (green), low emissions and inclusive for community well-being and commercial use by 2050. This will also provide meaningful and secure work, and community opportunities for generations to come.”

When participants reviewed the action statement against where we are now, the following focus areas were apparent:

- 1) Uncertainty of what infrastructure will be needed in the future to support the new economy;
- 2) Affordability of the large amount of infrastructure renewal;
- 3) Future workforce gaps to build and maintain infrastructure;
- 4) The transport and infrastructure's contribution to emissions and sustainability goals; and
- 5) The importance of narrowing the digital divide.

The COVID-19 pandemic occurred after the Infrastructure and Transport workshops. The health and economic response to the pandemic has impacted the sector. However, the government's economic stimulus response provides opportunity to move a number of significant projects forward. The measures put in place during the various alert levels in New Zealand also provide an opportunity to rethink traditional work and travel patterns, providing these support inclusive and meaningful employment.

The impacts of COVID-19 will be considered as part of the 2050 Roadmap action plans in 2020 and the subsequent two years.

## Actions

The following actions have been identified:

<b>1) Scenario planning to support an infrastructure strategy</b>	A process where all infrastructure asset owners combine data and knowledge to consider different scenarios and what infrastructure might be needed in the future in the region.
<b>2) A Taranaki infrastructure strategy</b>	Developing a combined infrastructure strategy for the whole region. The combined strategy would aim to remove or significantly reduce the risk of coordination failure by getting infrastructure asset owners to work together towards common and clear infrastructure goals.
<b>3) Recruitment pathways</b>	Considers the future work required for infrastructure and transport provision, particularly in three waters (drinking, wastewater and storm water), roading and electricity. Consideration would then be given to models that support meeting skills gaps.
<b>4) Workforce skills hub</b>	A centre for inquiry, development and advocacy. The hub will provide businesses and employees with the skills and information they need, when they need them.
<b>5) Advise on Taranaki's 2021-2027 Regional Land Transport Plan</b>	The current Taranaki Regional Land Transport Plan expires in 2021. There is an opportunity to enact some of the outcomes from this report in the development of the plan.
<b>6) Community education platform</b>	A platform aimed at facilitating community behavioural change towards conscientious transport use.
<b>7) Fully digitally connected Taranaki</b>	This would include improving access to the internet for all, particularly infrastructure in rural areas and devices to access the internet.
<b>8) Competent digital citizens</b>	Development of a digital citizens training programme to reduce the digital divide and assist people to fully benefit from the digital world.
<b>9) Maximising data and information sharing</b>	Formation of a working group to develop a public information sharing strategy.

## Next steps

The actions in this TPAP will feed into a wider programme that will work with all stakeholders to take actions forward.

# Context

## Aotearoa New Zealand is moving towards a low-emissions economy

The world has committed to taking action to lower greenhouse gas emissions.

In 2016, Aotearoa New Zealand ratified the Paris Agreement. Under this agreement, New Zealand needs to reduce emissions to 30% below 2005 levels by 2030.

Taranaki is seeking to lead New Zealand's transition to a low-emissions economy. The coalition government's announcement that it would grant new petroleum exploration permits only for onshore Taranaki and nowhere else<sup>1</sup> has fast-tracked the need to shift to a new energy future. New Zealand's two largest contributing sectors for emissions are agriculture and energy (including transport)<sup>2</sup>, both of which are key parts of Taranaki's economy.

While forestry has considerable potential to offset emissions, moving to a low-emissions economy will be a significant transition for all New Zealanders.

In the first half of 2020, the COVID-19 pandemic led to major restrictions on the movement of people, with subsequent impacts on economic activity. New Zealand, including Taranaki, were not immune. The economic shock is expected to significantly increase regional unemployment, reduce gross domestic product (GDP) growth and lead to economic restructuring in industries most impacted<sup>3</sup>. These impacts may take time to manifest themselves given the dynamic nature of Taranaki's regional labour market.

The past shows us that large transitions, such as lowering our emissions and the economic shock of COVID-19, can lead to a legacy of negative impacts for some. A just transition is about managing these effects to continue to build a fair and inclusive New Zealand. For Taranaki, it means ensuring we keep what is great about our region while planning for more people to share in these benefits.

A just transition, requiring system-wide behavioural and institutional change to ensure more parity in outcomes, is needed. Co-creation with communities, iwi, local and central government, businesses, educators, unions and workers is the cornerstone of the approach we are taking in Taranaki. The Taranaki 2050 project has been designed so that the change process is developed from the bottom up and ensure no-one across Taranaki's communities is left behind.

## Our vision is for Taranaki to be a low-emissions economy

Our vision for Taranaki in 2050 has been co-designed by the region. It considers not just how our economy will change, but all aspects of our lives. It provides the opportunity to plan for inclusive growth as we transition to a low-emissions economy.

The Taranaki 2050 Roadmap was launched as a draft on 9 May 2019 at the Just Transition Summit in New Plymouth, and issued in its final form in August 2019 after further input from a wide range of people and organisations. Overall, the Roadmap development involved over 70,000 engagements.

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<sup>1</sup> <https://www.beehive.govt.nz/release/planning-future-no-new-offshore-oil-and-gas-exploration-permits> .  
*Note that existing off-shore permits remain in place.*

<sup>2</sup> *The New Zealand Productivity Commission, Low-emissions economy: Final report, August 2018, p.30. Data from 2016 figures.*

<sup>3</sup> *Infometrics, Economic Impacts of COVID-19 on the Taranaki Economy – Early Estimates, April 2020. The report was commissioned by Venture Taranaki and the New Plymouth District Council and anticipates an 8.5% contraction in regional GDP for the year to March 2021. Jobs are expected to decline 9.5% in the region.*

The Roadmap is the first step taken by the region to develop a just transition plan to a low-emissions economy. The draft was the culmination of 29 workshops on 12 transition topics, plus surveys and community outreach. There was also a creative challenge and specialist workshops/engagement for youth. More than 14,000 people viewed the introductory online video, and the creation process engaged ideas from more than 1,000 people. The workshops mixed the diversity and talent of our region with specialist expertise from around the country.

Following the launch of the draft Roadmap, public consultation included visits to more than 40 locations with over 1,000 people. Twenty-five separate email submissions were received from individuals and organisations that represented thousands of individuals, as well as 135 submissions via our online interactive tool.

### *Themes of the 2050 Roadmap*

*The people of Taranaki have a vision for 2050 that includes:*

- *A strong sustainable environment*
- *Education options that move and flex with a changing world*
- *Attractive jobs*
- *A similar lifestyle to the one we enjoy now, shared by all*
- *Leading the way in sustainable, low-emissions energy*
- *A region that looks out for and cares for itself and its people.*

While there were some divergent views on the future of Taranaki across participants, there were also many common themes. What unites us as a region is stronger than what divides us as a region. The main consistent themes were: **sustainability**, **inclusivity** and **enterprise**.

These themes reflect the Māori values of guardianship of people and our environment (similar to kaitiakitanga), the importance of community and caring (similar to manaakitanga) and the need for collective action in our move forwards (similar to kotahitanga). They also signify a focus on long-term outcomes that span generations.

The Roadmap picture follows. To read more about the co-design process used for creating the Taranaki 2050 Roadmap, visit [www.taranaki2050.org.nz](http://www.taranaki2050.org.nz)

## Transition Pathway Action Plans (TPAPs)

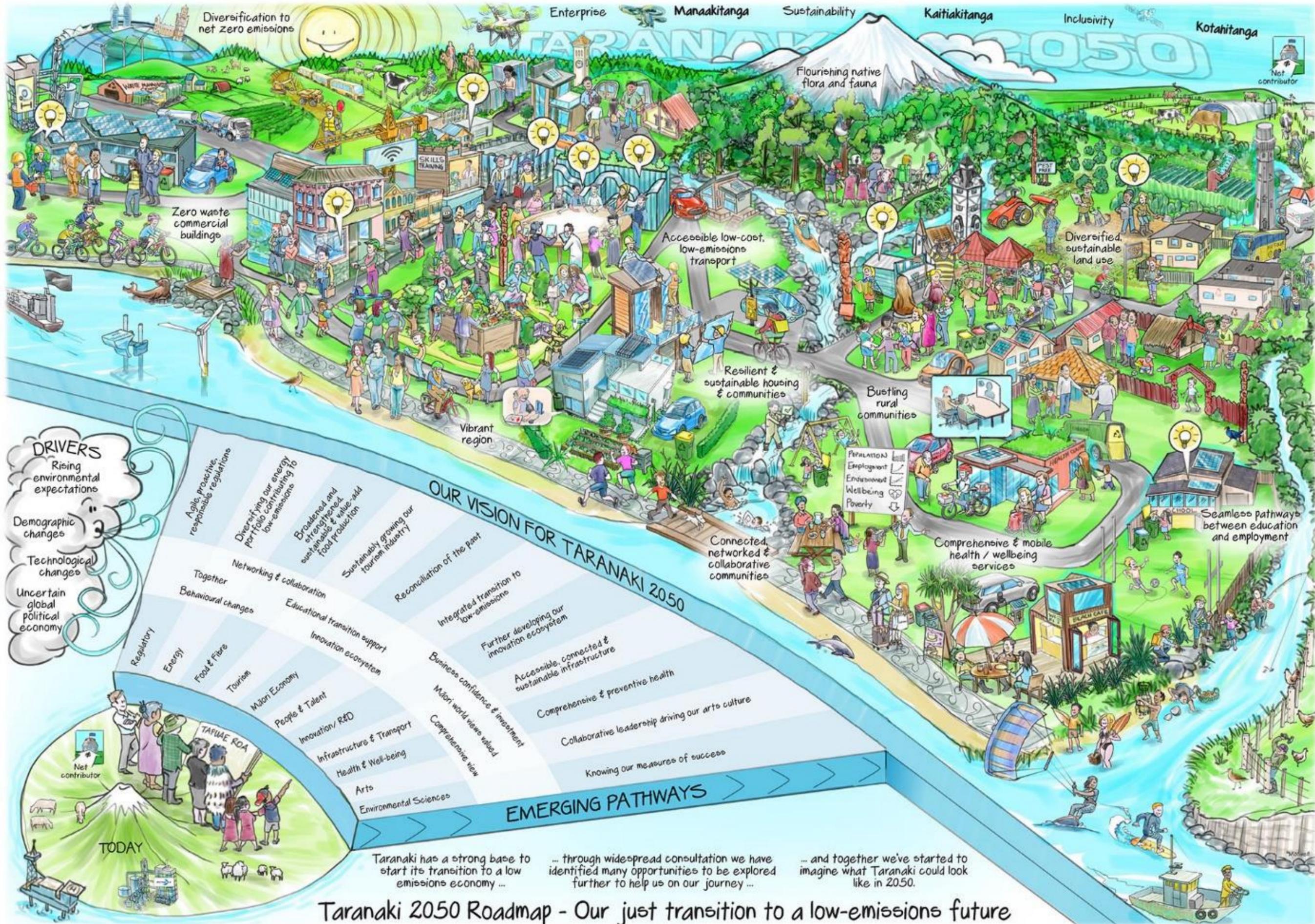
Following the finalisation of the Taranaki 2050 Roadmap, the Lead Group (20 volunteers from the seven pou – local business, iwi, community, unions, education, and local and central government – who guided the co-creation of the Roadmap) and a sub-group known as the Design Council, developed a ‘framing’ process commonly used in the energy sector. Participants of the Infrastructure and Transport workshops that helped co-design the 2050 Roadmap, representing a broad mix of the seven pou and with subject matter expertise, were invited to attend TPAP workshops. Others registered via an expressions of interest process on the Taranaki 2050 website.

The infrastructure and transport TPAP framing workshops were held in November 2019.

Based on the co-design themes and emerging opportunities identified in the Taranaki 2050 Roadmap, the divergent thinking and opportunities identified in the Roadmap were channelled into a convergent set of tangible actions and outputs. These defined the short-term actions and medium-term strategy needed to achieve the region’s long-term vision for 2050.

## Infrastructure and Transport Transition Pathway Action Plan

The output from the three TPAP workshops is described in this document. In preparing it, the Taranaki 2050 team would like to thank everyone who has been part of the process. Your contribution has made a real difference in defining the short-term actions and medium-term strategy needed to meet the goals and vision of the Roadmap. We recognise your time commitment, but more importantly, your respect for the value of manaakitanga during the process. By showing respect, generosity and care for others, you helped create an environment where people felt comfortable sharing diverse opinions.



# Introduction

This TPAP considers region-wide infrastructure and transport. Infrastructure refers to assets that allow our society and economy to function. This includes roads, pipes (drinking water, wastewater and gas), wires (electricity and telecommunications), as well as reservoirs, energy generation plant and many other assets. Transport covers any means of travel, including by vehicle, ship, aeroplane, train, bus, bike, scooter or foot.

Infrastructure and transport enables our well-being and supports the region's economic base.

- They are key enablers of the economy;
- Businesses need to be confident that they will have reliable and affordable access to the right infrastructure;
- The use of roads, rail, aviation and shipping to move products in and out of the region is essential to how well the region can function;
- Transport supports our well-being and social connections; and
- Infrastructure also includes social assets, such as schools, hospitals, prisons, libraries and swimming pools. Some infrastructure also leads to social assets being provided, e.g. walkways created to access sewer trunk mains.

Taranaki has a significant amount of infrastructure given its historical role as New Zealand's only petroleum industry hub and the industrial activities that have located here because of that. Our relative wealth (as measured by GDP per capita) and population base has also helped provide a range of high-quality social infrastructure. Our topography impacts both our infrastructure and transport, e.g. the number of bridges needed for roads.

## Strategic context

This section considers long-term trends impacting infrastructure and transport, as well as the strategic direction of central and local government.

### Long-term trends

There are a number of trends impacting infrastructure and transport:

- We have a number of ageing infrastructure networks that will need renewing. Meeting the cost is difficult across Taranaki, and harder for smaller councils with a lower rating and economic base.
- Growth is uneven across Taranaki. New Plymouth is growing faster than other parts of Taranaki and therefore requires more new infrastructure than other parts of the region. An ageing population is also reducing occupancy rates, requiring a larger infrastructure network to service the same number of people. To meet our 2050 vision, our infrastructure also needs to support high levels of productivity.
- Technology is driving change everywhere, including to our lifestyles and the way infrastructure is built, maintained and managed. Access to quality and stable internet will increasingly underpin our regional economy, and its importance is even more prominent post COVID-19. Technology provides many opportunities but also challenges, such as uncertainty of future platforms, loss of inclusive employment opportunities due to

automation, operations being compromised by cyber incursions, or people's lack of access or skills.

- Our climate is changing and some of our natural resources are under pressure. Rainfall patterns and rising sea levels will challenge flood and drought protection mechanisms. Concern over environmental resources will change the need for, and use of, some infrastructure (e.g. petrol stations). Others will be required to raise their performance (e.g. water infrastructure).

Note: Energy strategic drivers are considered in the Energy TPAP and not repeated here. However, this TPAP does consider these drivers in development of actions.

### **Government strategy**

The current government is seeking to have an economy working for us all, to improve well-being and to make New Zealand proud<sup>4</sup>. It has a committed infrastructure and transport programme, and a range of changes that impact these sectors. These are listed below, noting they were written prior to the COVID-19 pandemic. This may result in some of the timelines and actions below being delayed, deferred or modified.

- Te Waihangā – the Infrastructure Commission was established in September 2019 and has commenced development of a 30-year infrastructure strategy, to be completed by the end of 2021.
- In 2019, the government announced a \$12b NZ Upgrade Programme, with a focus on transport, health and schools. An additional \$3b was announced in Budget 2020.
- The Draft Land Transport Government Policy Statement 2021 was published in March 2020. It prioritises safety, better active mode transport options and alternative freight options. It also has a strong focus on developing low-emissions transport systems to support emissions reductions.
- A draft New Zealand Rail Plan considers the future role of rail and a sustainable funding approach.
- A Green Freight Working Paper has been released by the Ministry of Transport. It informs the Government's strategic approach to reducing greenhouse gas emissions from road freight. The focus is on alternative green fuels (electrification, green hydrogen and biofuels), and the paper sets out a range of options to increase the uptake of these fuels over the next 15 years across New Zealand's truck fleet.<sup>5</sup>
- The Digital Inclusion Blueprint was published in December 2019 and provides a high-level timeline for government action to improve digital inclusion.
- A review of the Resource Management Act is being led by the Resource Management Act Review Panel.
- A range of policies and regulatory changes are expected to increase the funding needed for three waters (drinking, wastewater and storm water). The Department of Internal Affairs is also considering structural service delivery reforms of the three waters.

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<sup>4</sup> <https://www.beehive.govt.nz/feature/our-plan-modern-new-zealand-we-can-all-be-proud>

<sup>5</sup> <https://www.transport.govt.nz/multi-modal/climatechange/green-freight-project/>

## Local government strategy

Local government has an important leadership role in local infrastructure and transport provision. The snapshot below is taken from the four Taranaki councils' Long-Term Plans for 2018–2028:

- **New Plymouth District Council:** Has a vision of making New Plymouth the lifestyle capital of New Zealand. In 2018 it was forecasting a 27% population growth by 2048, with a significant proportion aged over 65 years. It has assets over \$3.3b, including three waters, roading, buildings and parks. Infrastructure and transport investment forecasts from 2018 to 2048 include:
  - \$108m on renewal of the water reticulation network, \$49m on renewal of the wastewater network and \$22m on the storm water network;
  - \$150m on roading resealing and rehabilitation; and
  - Around \$100m on parks, walkways, and redevelopment of the TSB Stadium and Aquatic Centre.
- **Stratford District Council:** Has a vision of being a progressive, prosperous district where communities are celebrated. It has assets worth \$334m and a capital expenditure forecast of \$87m for 2018–2028. Its “Stratford Making it Real” project is also looking at future investments.
- **South Taranaki District Council:** Has a vision of making South Taranaki the most liveable district in NZ. It has infrastructure assets worth \$832m. Its infrastructure and transport capital expenditure forecasts for 2018–2028 include:
  - \$57m on water supply, \$16m on wastewater and \$5m on stormwater; and
  - \$82m on roading.
- **Taranaki Regional Council:** Has a vision of supporting livelihoods, improving lifestyles and taking Taranaki forward. It leads regional transport policy and provides public transport.

## Givens

In developing actions for infrastructure and transport, the following are considered ‘givens’ and cannot be changed:

- Much infrastructure is considered a lifeline asset. It must have high resiliency and be delivered safely and securely.
- Most infrastructure has a fixed nature, is expensive and lengthy to build and lasts a long time once operational. While assets will have some ability to adapt, this is likely to be expensive. Once a decision is made to build an asset, that decision lasts for decades.
- Challenges linked to significant weather events will happen for the foreseeable future. Extreme weather events and rising seas are a threat to a range of infrastructure. Droughts in some parts of New Zealand will continue and are likely to get worse.
- Petroleum transport is a significant contributor to New Zealand’s emissions and one of the key sectors to change to meet our Paris Agreement commitments.
- Technological innovation will allow us to get more out of our resources. The market is shifting in terms of how digital infrastructure is delivered.

- Most infrastructure assets last decades and reasonable forecasts of their use can be made. However, some forecasts will inevitably be wrong and some infrastructure will become redundant before the end of its life.

# Vision

## The Infrastructure and Transport 2050 Roadmap vision

In the Taranaki 2050 Roadmap, the Infrastructure and Transport vision was:

- *The passenger vehicle and roading system in 2050 looks totally different to 2019. There are fewer private cars – use has decreased as public transport options are abundant (autonomous vehicles, electric buses) and digital connectivity has increased. The remaining private cars are low emissions. Video conferencing is widely used. Roads have been re-designed to support safety and enjoyment for active transport types like scooters, bikes and e-vehicles. As a result, there is less need for parking spaces, so many areas in the central business district (CBD) have been repurposed into green and vibrant community places.*
- *Taranaki will have well-connected access to the rest of New Zealand and enjoy connectivity with the world. Our port will be New Zealand's key west coast link. Our rail network will be low emissions, with links south and north to the main truck line. Our airport will provide a reliable connection to the rest of the country.*
- *Infrastructure in Taranaki in 2050 is resilient, low emissions and future-focused. This includes energy for building and transport, water systems and treatment, waste and recycling centres and digital connectivity. The region has replaced infrastructure over time using comprehensive cost-benefit decisions that have enabled innovative and low-emissions infrastructure assets to be procured and deployed.*
- *In 2050, Taranaki has accessible, safe, low-cost, and low-emissions transport options for most people in the region – including people in rural communities, people with special transport requirements (such as the elderly or those less able) and for visitors to the region.*

To read the full introduction, vision, co-design themes and emerging opportunities for Infrastructure and transport visit [http://about.taranaki.info/Taranaki2050/Taranaki-2050-Roadmap-\(1\).pdf](http://about.taranaki.info/Taranaki2050/Taranaki-2050-Roadmap-(1).pdf).

This vision and action statement can be expanded under the following themes:

- 1) **Lowering emissions:** Our transport and infrastructure helps deliver our wider environmental goals – particularly by reducing emissions from the transport sector, e.g. by widespread electrification of transport and hydrogen options where economically viable.
- 2) **Access and connectivity:** Our transport and infrastructure sector supports our economy, connecting us to the rest of New Zealand and the world.
- 3) **Inclusivity:** Our transport and infrastructure sector supports our inclusivity goals, and affordable transport options are an important part of this. In addition, providing long-term contracts for infrastructure maintenance can assist with job security and skills development for workers.
- 4) **Efficiency:** We maximise efficiency, where:
  - a. Decision-making is integrated and considers interdependencies to create an efficient and effective infrastructure network;
  - b. Infrastructure investments provide clear overall social, environmental and fiscal benefits that recognise the need to lower emissions and increase living standards for all people in Taranaki;

- c. There is a stable and predictive regulatory environment, with sectors clear about the expectations on them, and strong compliance regimes to ensure they meet those standards; and
- d. There are mature asset management practices, with a good understanding of intended levels of service, whole of life costs of investment and alternative delivery options fully considered (including supply-side solutions).

5) **Resiliency:** Where:

- a. Our infrastructure is robust enough to resist natural forces and events that would otherwise cause damage;
- b. Our infrastructure is well maintained so that it has operating headroom to continue to function even if damaged;
- c. The critical parts of infrastructure have redundancies so that the system continues to operate even if parts are damaged; and
- d. We have well-resourced and practised emergency response plans so that we can respond quickly and effectively to restore our infrastructure in an emergency.

The 2050 Roadmap vision informed the development of an action statement at the Infrastructure and Transport TPAP workshop. This was:

“Taking a comprehensive view, design and invest in our entire infrastructure and transport ecosystems so they’re integrated, affordable, resilient, sustainable (green), low emissions and inclusive for community well-being and commercial use by 2050. This will also provide meaningful and secure work and community opportunities for generations to come.”

# Current state

The current state of infrastructure and transport is summarised below across the main areas.

## Transport

### Roads

Taranaki has a network of over 3,900km of roads. Around 3,500km of these are owned and maintained by the district councils<sup>6</sup>. These roads form a significant amount of district council expenditure, and present a range of challenges, particularly the funding of rural roads.

State Highway 3 (SH3) is a particularly significant strategic asset to the region, providing the access points to north and south. Government commitments to improving SH3 include the Mount Messenger and Awakino Gorge programme, Bell Block to Waitara safety improvements and the Normanby bypass project. The government has also committed to investments in SH43, the third important and eastern gateway to Taranaki.

There are four electric vehicle fast-charging stations in Taranaki (New Plymouth, Opunake, Hāwera and Waverley)<sup>7</sup>. New Plymouth District Council also has the largest electric vehicle truck fleets in Australasia with its rubbish collection.

### Airport and port

In 2018, New Plymouth Airport was the fourth-busiest regional airport in New Zealand and the ninth busiest in the country overall (including international airports). A new 4,000m<sup>2</sup> terminal was completed in March 2020. It is the only fully commercial air freight and passenger airport in Taranaki.<sup>8</sup>

Port Taranaki has seven fully serviced berths for a wide variety of cargoes and vessels. It handles cargo principally from the farming, forestry, engineering and petrochemical industries. With potential long-term changes expected in the petrochemical industry, the port is looking to diversify trade and consider alternative land use options for the eastern side of its operation. There may be growth in coastal freight in the future, although the port does not ship containers.

### Rail

KiwiRail operates a freight railway service in Taranaki. Access is via the Marton–New Plymouth line. Licensed industrial railway lines throughout Taranaki include those for Fonterra (at Whareroa and Kapuni) and Ballance Agri-Nutrients (Kapuni). The port has recently facilitated exporters to transport logs on rail. There is a mothballed Stratford–Okahukura rail line that is accessible but unavailable for freight purposes. KiwiRail is investigating reopening the line as a resilience measure.

### Public transport

The Taranaki Regional Council operates a public bus network. This includes school buses, 13 city routes in New Plymouth, a regular service between Hāwera and New Plymouth and some less frequent rural services. It also provides mobility support. The school bus services are widely used. Uptake of other services is fairly low, although broadly steady.

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<sup>6</sup> Taranaki Regional Council, *Regional Land Transport Plan for Taranaki 2015-2021*, p11.

<sup>7</sup> Sourced from <https://www.journeys.nzta.govt.nz/ev-chargers/chargers/634>

<sup>8</sup> Sourced from <https://www.newplymouthnz.com/Council/About-the-Council/Projects/New-Plymouth-Airport-Redevelopment>

### Alternative modes of transport

There is a wide range of paths for walking and cycling in Taranaki. The three district councils have a particular focus on improving these. New Plymouth District Council has been running the “Let’s Go” programme since 2010.<sup>9</sup>

### Telecommunications

The telecommunications network in the region includes copper networks, high-speed broadband and ultra-high-speed fibre connections and satellite services. Ultra-fast fibre has reached 22,500 households across 12 towns and cities; 57% of those households have connected to fibre<sup>10</sup>. Mobile black spots and poor internet access are focused around remote hill country areas, although the government’s rural broadband and mobile black spot programme aims to reduce this.

A significant issue is the digital divide. Work needs to be done to ensure digital inclusion where everyone has what they need to participate in, contribute to and benefit from the digital world. In 2013, 66% of Stratford households, 68% of South Taranaki households and 75% of New Plymouth households had access to the internet.<sup>11</sup> District councils also offer free wi-fi in some public places.

### Energy

As the only petroleum-producing region in the country, Taranaki has developed a significant amount of infrastructure to support enterprises and the electricity and manufacturing sectors. Gas production stations in Motunui, Oaonui and Kapuni supply natural gas to the North Island through a high pressure 300km pipeline and a 2,200km transmission pipeline network owned by First Gas Limited. Onshore, condensate and other liquid hydrocarbons are transported either by pipeline or tanker trucks to storage for export through Port Taranaki. The Provincial Growth Fund has also supported investments in hydrogen infrastructure within the region.

The Taranaki region connects to the electricity National Grid at Stratford, through 220kV circuits that run north to Huntly and south-east to Bunnythorpe. This local network is operated in Taranaki by Powerco. There are several electricity generation sites in Taranaki, producing around 8% of New Zealand’s electricity generation capacity.

There are significant capital expenditure needs for electricity infrastructure. For example, Powerco’s expenditure in Taranaki is forecast to be over \$80m between 2019 and 2029<sup>12</sup>. First Gas is planning to realign the White Cliffs natural gas pipeline going north towards Auckland.

### Three waters (drinking, wastewater and storm water)

Together, three waters assets in Taranaki have a replacement cost of over \$1.3b. This consists of >\$560m for drinking water assets, >\$485m for wastewater assets and >\$280m for storm water assets<sup>13</sup>. At the national level, Local Government New Zealand reports that approximately 25% of these assets are more than 50 years old. Local Government New Zealand has identified the core issues as:

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<sup>9</sup> Sourced from: <https://www.newplymouthnz.com/Residents/Transportation/Lets-Go/What-is-Lets-Go>

<sup>10</sup> Crown Infrastructure Partners, *Quarterly Report December 2019*, p15.

<sup>11</sup> Statistics NZ, 2013 Census.

<sup>12</sup> Powerco, *Asset Management Plan 2019*, p40

<sup>13</sup> Figures taken from district councils’ most recent Long-Term Plans, noting NPDC reports Gross Replacement Cost and SDC reports Optimised Replacement Cost.

- Investing to replace and renew existing assets;
- Investing to meet rising standards and increasing expectations; and
- Providing end users with the right incentives to use water infrastructure and services efficiently.

## Productive water and flood defence

Taranaki's weather is forecast to be drier in summer and wetter in winter. This may mean more frequent extreme events, such as longer droughts, more intense rainfall and an increased flooding risk.

Taranaki has flood defences providing a net present value benefit estimated at \$500m. Local Government New Zealand reports the intensity and frequency of weather events is increasingly placing stress on the integrity and risk reduction capability of these schemes.<sup>14</sup>

Taranaki has high rainfall, meaning large-scale irrigation schemes seen elsewhere are not common in the region. There are no plans to develop any.

## Social infrastructure

Taranaki has significant social infrastructure including 94 schools, a polytechnic, Taranaki Base Hospital and Hāwera Hospital, a high court, library services in 15 towns and cities, as well as numerous other facilities.

Recent major investments have been made at Taranaki Base Hospital and the New Plymouth Police Station. Future major investments signalled include a new acute building at Taranaki Base Hospital, a new library, arts and culture centre in Hāwera, expenditure on swimming pools in New Plymouth and Stratford, earthquake strengthening of Yarrow Stadium and campus investment by the Western Institute of Technology at Taranaki (WITT).

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<sup>14</sup> Local Government New Zealand, *Central government co-investment in river management for flood protection*, p9.

# SWOT analysis

The table below provides a SWOT analysis of infrastructure and transport in Taranaki.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Significant infrastructure to serve industrial operations with access to transmission networks for electricity, natural gas and water supply</li> <li>• A number of highly skilled workers in our energy, engineering, manufacturing and construction sectors</li> <li>• Strong historic investment into many types of social assets (museums, parks, etc)</li> <li>• The four councils are already collaborating across a number of areas</li> <li>• Councils have started to grow a culture of zero waste</li> <li>• The New Zealand Institute of Highway Technology is based in Taranaki.</li> </ul>	<ul style="list-style-type: none"> <li>• High forecast costs for local government, particularly for renewal of assets and meeting new regulations, e.g. for three waters</li> <li>• Ability to compete for government funding on population grounds. While (pre COVID-19) New Plymouth was forecast to have significant population growth, most government focus is on metro areas</li> <li>• Rail service is not on the main trunk line</li> <li>• Limitations of size, e.g. hard to supply constant stream of public buses due to low demand.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Technology to reduce costs of building and operating infrastructure and transport</li> <li>• Improving access to/from northern “golden triangle”, providing larger market for goods and services (from SH3 investment)</li> <li>• Home of the National New Energy Development Centre. Pivoting to new areas that use Taranaki’s strengths</li> <li>• Government support for a move to a low-emissions economy</li> <li>• Some new rail developments, e.g. the port using rail to deliver logs</li> <li>• Changing the way infrastructure is delivered to provide higher job security and more meaningful well paid jobs</li> <li>• Interest in household and community resilience, e.g. solar energy, composting, water tanks, grey water systems</li> <li>• Geographic advantages, e.g. high rainfall</li> </ul>	<ul style="list-style-type: none"> <li>• Deep economic shock from COVID-19</li> <li>• Need for investment in resiliency (e.g. flood defence, drought mitigation)</li> <li>• Cost pressures impacting progress in making environmental improvements</li> <li>• Technology change/unforeseen events make some infrastructure redundant</li> <li>• Difficulty getting widespread behavioural change to lower infrastructure spend</li> <li>• Retirement or loss of key skilled workers</li> <li>• Regulations/Resource Management Act (RMA) process makes it more difficult and expensive to build new infrastructure</li> <li>• Hāwera to New Plymouth rail line becomes uneconomic</li> <li>• Increasing costs of materials that produce infrastructure, and also how the Emissions Trading Scheme could impact these costs.</li> </ul>

## Focus areas

A review of the current state against the vision identifies the following focus areas.

- 1) **Uncertainty of what infrastructure will be needed in the future to support a new low-emissions economy:** Economic change may make some assets redundant. Decisions will need to be made on whether to remove infrastructure or keep it in place for potential future needs. Infrastructure may also be adapted to new uses. This requires forecasting around what the economy may need and then making judgements on the lifespans of current assets. This is difficult due to uncertainty of future demand.
- 2) **Affordability of the large amount of renewal of infrastructure:** There are large renewal programmes planned across three waters and electricity. The cost of maintaining roads, bridges and other assets is high. These projects are funded by a relatively small Taranaki population.
- 3) **Future workforce gaps to build and maintain infrastructure:** This significant amount of work requires a larger workforce is currently available. Many highly skilled people in the infrastructure and transport space are also nearing retirement. The workforce pipeline needs to be able to meet future demands.
- 4) **Transport and infrastructure's contribution to low-emissions and sustainability goals:** The transport sector is one of the significant contributors to New Zealand's emissions. There are many potential changes that could be made to reduce emissions. Widespread electrification (powered by renewable energy) will be particularly important.
- 5) **Narrowing the digital divide:** While Taranaki has benefited from the roll-out of ultra-fast broadband, there is still a digital divide in Taranaki. The future benefits of technology – e.g. from the internet of things (IoT) – also require a continuous upgrade in internet capabilities, especially in rural and more remote areas.

# Actions

The Infrastructure and Transport workshop and subsequent work has identified a number of potential actions; these are described below. These actions also need to be further explored with infrastructure asset owners to understand feasibility.

## 1. Uncertainty of what infrastructure will be needed in the future to support the new economy

### a) Scenario planning to support an infrastructure strategy

Infrastructure normally serves multiple parties, and decisions on investment require complex forecasting of future use. Because the future is uncertain, Taranaki will need to make efficient and effective investment decisions. It will need help to map the likely infrastructure needs across various scenarios. Doing this in one place for the region is more efficient and can involve a wide range of companies and organisations choosing to feed in their knowledge and data. This scenario planning can inform each infrastructure asset owner's plans and help with a coordinated response. Commercial confidentiality may restrict what information can be shared, and this action will need to be reviewed in that context.

This scenario planning could also inform a Taranaki infrastructure strategy. This is discussed more below.

## 2. Affordability of the large amount of infrastructure renewal

Affordability of future infrastructure needs is a significant challenge for the region. There are large renewal programmes planned across three waters, electricity distribution and transmission. The cost of maintaining roads and other assets is high. Regulatory change is also expected to further increase expenditure, e.g. on reducing the impact of three waters on fresh water quality. This cost increase is funded by a relatively small Taranaki population.

### a) A Taranaki infrastructure strategy to assist with affordability issues

Developing a combined infrastructure strategy for the Taranaki region could remove or significantly reduce the risk of coordination failure by getting infrastructure asset owners to work together to develop common and clear infrastructural goals. It could:

- Use the scenario planning above as a base for planning infrastructure needs to ensure all infrastructure asset owners are using the same information;
- Help the region prioritise what is most important to inform infrastructure asset owners' planning (noting that ultimately the decision for provision on what to provide lies with each infrastructure owner);
- Identify gaps in future infrastructure provision;
- Identify opportunities where new infrastructure investments may lead to better outcomes, e.g. working across the supply chain to make Taranaki a more attractive place to investors;
- Consider if a joint assessment of service levels has merits, and possibly combine consultation on "willingness to pay" across different types of infrastructure;
- Be an evidence base to support advocacy to government for greater spending;
- Identify areas for collaboration and further efficiency savings across infrastructure asset owners. This includes uptake of new technology, behavioural change campaigns that reduce infrastructure needs or developing skills pathways; and

- Identify roadblocks to delivering infrastructure, such as regulation or skills shortages.

Once the strategy is developed, it could be updated periodically, e.g. every five years.

The strategy could also consider how infrastructure and transport interact with Taranaki's aim to become the new energy centre of New Zealand. As an example, it could look at how the National New Energy Development Centre, government research funding and new transport fuels and energy generation support and interact with regional infrastructure needs.

### **3. Future workforce gaps**

This large amount of work requires a larger workforce than is currently available. Many highly skilled people in the infrastructure and transport space are also nearing retirement. The workforce pipeline needs to be able to meet future demands.

#### **a) Recruitment pathways for future renewal needs**

Many infrastructure asset owners contract out the building and maintenance of infrastructure. These contractors often do not have enough long-term certainty of future work to invest significantly in growing the workforce, e.g. investing in apprentices. In some industries this, combined with an ageing workforce, has led to significant future workforce shortages. While many providers have adopted plans to mitigate this, there are still likely to be gaps in Taranaki.

On the other side, there are young or career-transitioning people searching for career options and training to help them into meaningful and decent employment. Many of them are seeking a clear pathway where they know if they invest in their education, employment and a career is a probable outcome.

There is some work at the moment in encouraging young people into infrastructure careers. For example, Taranaki Futures is looking to work with secondary school students with a 'Build a Bridge' programme in partnership with NPDC and WITT. There is potential to build upon this work and expand the scope of industry members engaged. A key insight from Taranaki Futures is that people (school leaders, students and parents) do not know the opportunities infrastructure careers provide, which makes it very difficult to get youth excited about the pathway.

This action would consider the future work required across infrastructure asset owners, particularly in three waters, roading and electricity. It would then examine models that support meeting this skills gap and make a recommendation to infrastructure asset owners to move forward. For example, infrastructure asset owners could invest in a Taranaki workforce development pool and commit to apprenticeships that ensure a pipeline of skilled workers is available to contractors. It would also work with collaborative groups in the region, such as the Taranaki Engineering Consortium. There is opportunity to work with unions and workers to ensure a workforce development pool provides job security and ensures a just transition.

It would also consider what additional work is needed on secondary/tertiary pathways aligning with industry needs and how this gap must be filled.

When the Taranaki Regional Skills Leadership Group is established, it could initially focus on this area. It could also support the development of a Taranaki regional labour market plan.

#### **b) A workforce skills hub**

New infrastructure and transport technology will offer different forms of employment and opportunities to upskill in certain fields. Providing clear entry for employees/employers to access

and adapt to these pathways will be a major focus in Taranaki's transition. A workforce skills hub would be a centre for inquiry, development and advocacy and would provide businesses and employees the skills and information they need, when they need them. It could be based at the Western Institute for Skills and Technology (WITT).

A workforce skills hub would also be a natural space for unions to operate. For example providing employment advice, health & safety information, and supporting decent jobs and meaningful workforce engagement.

The hub would conduct a needs assessment for skills required to reach transport and infrastructure goals, including 5G technicians and new energy skills.

The operation of this hub could go wider to training, depending on how it fitted with Workforce Development Councils.

### **3. Transport and infrastructures contribution to emissions and sustainability goals**

The transport sector is one of the significant contributors to New Zealand's emissions. There are many potential ways it could be changed to reduce emissions (such as using electric vehicles powered by renewable energy). Infrastructure could also be more sustainable, such as reducing waste or reusing materials. Infrastructure could also support Taranaki's transition into the new energy centre of New Zealand.

#### **a) Transport strategy: advise on Taranaki's 2021-2027 Regional Land Transport Plan**

Every six years regional councils must develop a regional land transport plan (which includes public transport, walking and cycling) in consultation with the community and stakeholders. The current Taranaki Regional Land Transport Plan expires in 2021. This provides an opportunity to enact some of the outcomes from this report in the development of the plan.

While the current Regional Land Transport Plan indicates some commitment towards a low-emission/public transport future, the intent would be to expedite the transition. This would look to improve the region's resilience and encourage opportunities for innovation.

Areas to focus on are:

- **Prioritising low impact/low-emissions transport:** Development of the plan would consider the environmental strategy and objectives<sup>15</sup> from the Government Policy Statement on Land Transport. This is expected to include increasing public transport and active modes of transport, reducing dependency on road freight and promoting uptake of electric vehicles. To produce a low-emissions future, the regional transport strategy should consider the following:
  - Integrating the existing land transport, public transport and walkways and cycleways plans into a transitional transport strategy. This will enable more integration and highlight the importance of low-emissions transport in the Taranaki 2050 vision.
  - Securing local council agreement for coordinated regulation, and plans for improved and integrated transport outcomes.

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<sup>15</sup> <https://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/c6b0fea45a/Government-Policy-Statement-on-land-transport-2018.pdf> Section 2.4

- Facilitating a transition from hydrocarbon-fuelled vehicles to alternative forms of transport, including electric vehicles, public transport, walking, cycling and increased vehicle occupancy.
- Leveraging the New Plymouth District Council's "Let's Go – Walk Ride Bus" initiative across the region to maximise uptake. Seek resources from the Low Emissions Contestable Fund for funding towards electric vehicle technology to complement this shift. The push towards lower emission alternatives must be supported by complementary improvements of transport infrastructure. Suggested actions to incentivise the transition include:
  - Free parking for electric vehicles;
  - Increasing private parking costs and decreasing their availability;
  - Increasing the frequency, reliability, accessibility and affordability of public transport;
  - Improving regional rail and sea freight connections to decrease the region's reliance on road freight.

#### b) Community education platform

Under this action, Taranaki would create a community education platform aimed at facilitating behavioural change towards conscientious transport use. This would leverage New Plymouth District Council's "Let's Go" initiative to stimulate the use of improved cycle/walking access and increase the frequency of public transport. Those taking part in the initiative would be actively engaged in opportunities to improve their commuting habits. They would look at how this can improve their health, the health of the community and the environment. It would also need to consider incentives. In addition, it could include a media campaign, a community carbon off-setting platform and consider the use of apps and other initiatives to create change.

Across the Taranaki 2050 Roadmap there are a range of ideas to create behaviour change, e.g. the environmental benefits of reducing water use and waste. Wide behavioural change programmes could be merged into the above or pursued as separate programmes.

### 4. Narrowing the digital divide

Emerging digital infrastructure has the potential to have a significant regional impact. Having a strategy that acknowledges the skills, people and technology required for its implementation will optimise the introduction of this infrastructure. Such a strategy will produce a more connected Taranaki with high digital competency in our schools, communities and workplaces. It is also important that employment from creating better digital infrastructure is decent and meaningful work.

#### a) Fully digitally connected Taranaki

A plan would be developed to reduce the digital divide in Taranaki, aligning with the government's digital blueprint. This would include improving access to the internet, which requires:

- Accessibility of content;
- Affordability of devices and connection;
- Connectivity – having infrastructure in place; and

- Motivation.

#### b) Competent digital citizens

Reducing the digital divide also requires assisting people to have the skills to fully benefit from a more digital world. This action would develop a digital citizen training programme. The gaps in information technology (IT) skills and the training needed would be identified, and IT specialists and tutors would be recruited for delivery of the training programmes.

It would build on existing training courses in Taranaki and supplement any shortage of training staff through access to massive open online courses (MOOCs)<sup>16</sup>. The strategy should advocate for a digital citizenship culture to encourage uptake and the implementation of training courses in community and business settings.

#### c) Maximising data and information sharing in Taranaki

This action would form a working group to develop a public information sharing strategy. This would include:

- Gap analysis on existing cloud space in Taranaki for the optimum level of public information sharing;
- Privacy, security and confidentiality framework; and
- Internet of things (IoT) approach to support and underpin the Taranaki 2050 Roadmap.

This action would then:

- Develop/invest in the cloud/data infrastructure for the public data repository/exchange/business intelligence platform. There is existing data/cloud storage which can be expanded and opportunities for surplus physical storage locations to be converted to suit demand.
- Adopt business/community champions to advocate for the benefits of information sharing, and offer internal tutorials for willing businesses, schools and community groups.
- Implement an IoT strategy. Recruit socially conscious technology companies to develop coverage across each of the 12 Taranaki 2050 pathways and pilot programmes to perform analytics across the community and businesses.

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<sup>16</sup> [https://www.educationcounts.govt.nz/publications/tertiary\\_education/e-learning/massive-open-online-courses](https://www.educationcounts.govt.nz/publications/tertiary_education/e-learning/massive-open-online-courses)

# Critical success factors

The following critical success factors were identified.

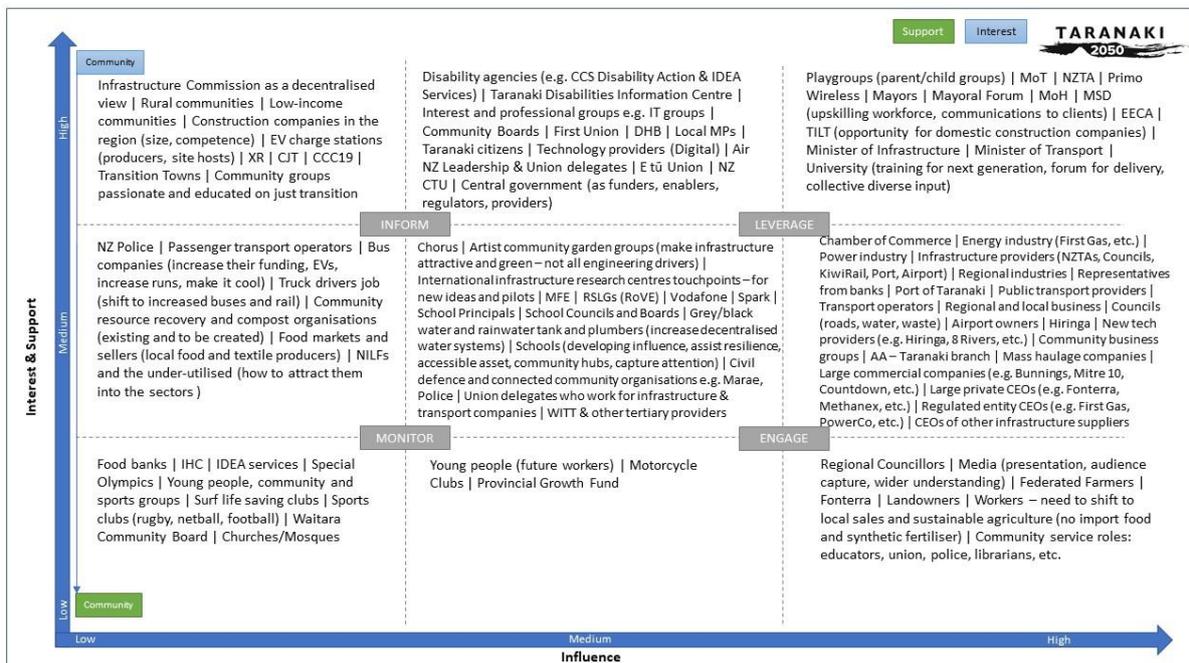
1. Having strong leadership, coordination and integration. There needs to be a clear, cohesive strategy to focus on priorities, and courageous conversations with the community on levels of service and costs;
2. High-quality scenarios for New Zealand and Taranaki that inform the planning of future infrastructure and transport needs and requirements;
3. Having a large skilled workforce, with access to decent and meaningful work;
4. Access to accurate, timely and complete data, that informs measurement, evaluation and review;
5. Legislation and regulation that supports infrastructure and transport goals;
6. Innovative thinking, particularly in funding options, that influences the supply side and investigates alternative options to traditional methods and approaches;
7. Funding support from central government;
8. Continuing to have quality assets that are resilient, safe and secure;
9. Utilisation of existing transport routes in an optimal way and considering marginal added costs.

# Implementation

## Stakeholders

A key step in the process is to review stakeholders and build an engagement plan to ensure the right level of engagement is attained. The figure below identifies the influence and interest of the main stakeholders within the Infrastructure and Transport Action Plan.

It was developed in a working session at the Infrastructure and Transport workshops and consequently does not include all stakeholders. Positioning in the chart is indicative and reflects the point in time. It should be noted that over time some stakeholders' level of influence and interest/support will change, and the stakeholder engagement plan will need to be updated.





## Next steps

The actions in this TPAP will be taken forward and considered by the Taranaki 2050 Lead Group. The Taranaki 2050 website will continue to be updated with progress made on the actions.

The impacts of COVID-19 will be considered as part of the 2050 Roadmap Pathway Action Plans in 2020 and the subsequent two years.

## Taranaki 2050 Transition Pathway Action Plans implementation from 2020

Work to date has been part funded through the Provincial Growth Fund (PGF) and supported with some resource from the Ministry of Business Innovation and Employment (MBIE). A small amount of private funding has come from the TSB Community Trust and local businesses to support workshops, facilitation, printing, etc. The work has been carried out by a large number of volunteers.

Future work needs to be funded at two levels:

- 1) Coordination resourcing (to drive implementation); and
- 2) Funding for the specific projects and initiatives that the action plans set out.

Funding needs to be through:

- Government (central and local) funding – new and existing; and
- Private sector.

### 1) Taranaki 2050 funding – core coordinating resourcing

Resourcing needs are required for five people to facilitate and drive workstreams, as well as measure and track progress over five years.

Resources are to be Taranaki-based, with the suggested positions:

- 1 x leader
- 1 x administrator
- 3 x workstream leads

As well as facilitating and driving workstreams and measuring and tracking progress, the team would be tasked with refreshing the Taranaki 2050 Roadmap in 2024.

Funding required for core coordination and resourcing is \$3.75m over five years.

Requests will be submitted to central and local government for funding.

### 2) Taranaki 2050 Infrastructure and Transport TPAP project funding

The following investigatory projects have been identified as ready for kick-off/completion in 2020.

Opportunity	Description	Cost	Links
Advise on Taranaki's 2021-2027 Regional Land Transport Plan	<ul style="list-style-type: none"> <li>The plan is being reviewed in 2020, and action is to ensure outcomes and thinking of the Roadmap are inputted.</li> </ul>	TBC	Environmental Sciences
Scenario planning and infrastructure strategy	<ul style="list-style-type: none"> <li>Develop scenarios and infrastructure strategy for Taranaki</li> </ul>	TBC	All areas
Recruitment pathways	<ul style="list-style-type: none"> <li>Create a model that ensures enough new people are trained to meet future workforce needs</li> </ul>	TBC	People and Talent, and Māori



# Acknowledgements

The Infrastructure and Transport Transition Pathway Action Plan process has been a significant undertaking. We would like to acknowledge the Provincial Growth Fund and the Ministry for Business, Innovation and Employment for their financial and resource support.

We would like to acknowledge David Langford from the New Plymouth District Council, who facilitated the Infrastructure and Transport TPAP workshops.

We would also like to thank the Taranaki 2050 Lead Group and their organisations for supporting their involvement. The organisations included Ngāi Maru, Ngāruahine, Ngāti Mutunga, Te Atiawa, the Western Institute of Technology at Taranaki, TSB Community Trust, Federated Farmers, the South Taranaki District Council, the New Plymouth District Council, NZEI, the Wells Group, the Ministry of Business, Innovation and Employment, Sustainable Taranaki, Velocite, the Taranaki Chamber of Commerce, Etū, Taranaki Futures, Fonterra, Port Taranaki, Todd Corporation and Venture Taranaki Trust.

As a final acknowledgement, the Taranaki 2050 team would again like to thank everyone who has been part of the process – many people gave up significant hours to participate in workshops.

The team has been overwhelmed with people's passion and commitment to this region. It is clear there is an excitement and energy to achieve our vision for Taranaki 2050.

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