

# Arataki

Regional direction

Te Moana a Toi-te-Huatahi – Bay of Plenty

September 2023 v1.1

# At a glance



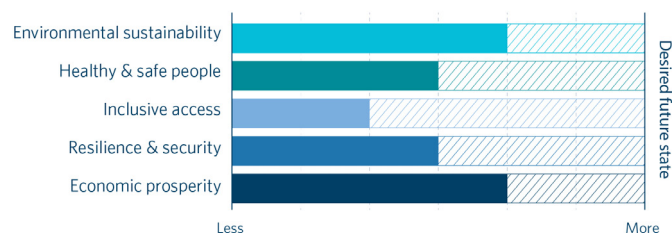
Te Moana a Toi-te-Huatahi Bay of Plenty is one of the fastest growing regions in Aotearoa New Zealand. Within the region there are significant differences between the rapidly growing western section of Te Moana a Toi-te-Huatahi as compared to other regional areas that are growing slower, facing higher unemployment rates, and earning lower incomes.

As the country's primary export port, Port of Tauranga plays an important role in the region. Transport connections between Te Moana a Toi-te-Huatahi and Waikato have national economic significance. The economy of Te Moana a Toi-te-Huatahi relies on tourism, horticulture, and forestry.

Tauranga is experiencing significant growth. It requires transformational change to address high rates of private vehicle use. Changes to the transport network and urban form are necessary to improve access and safety, as well as reduce emissions. Te Moana a Toi-te-Huatahi has a poor road safety record, with high numbers of deaths and serious injuries.

Resilience also needs to be a key focus, with parts of the region vulnerable to tsunami risk, sea level rise, flooding, coastal erosion, and landslides.

### Scale of effort to deliver outcomes in Te Moana a Toi-te-Huatahi – Bay of Plenty



The regional ratings show how Waka Kotahi has assessed the potential scale of effort required in each region to achieve the future desired state for each outcome over the next 10 years. The ratings in each region indicate where effort can be best focused and inform conversations with partners about priority outcomes in each region.

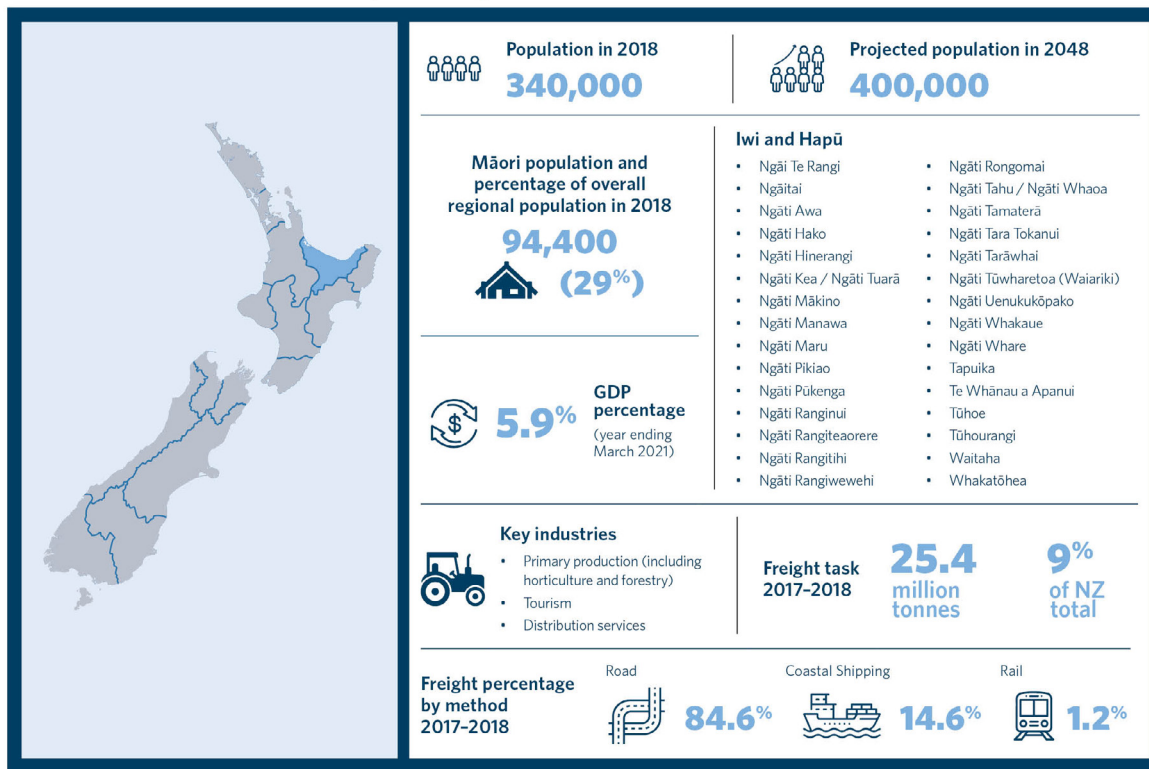
The rating assessments are based on evidence using system-levels metrics. Further details are captured in the methodology document.

The September 2023 v1.1 release of *Arataki* includes updates to reflect the severe weather events of 2023 and correct minor errors.

# Context



## Te Moana a Toi-te-Huatahi – Bay of Plenty



The population of Te Moana a Toi-te-Huatahi Bay of Plenty is projected to grow from 340,000 to just over 400,000 by 2048, or 7% of the country's population<sup>1</sup>. Most of this growth is forecast to occur in the districts of Western Bay of Plenty and Tauranga. The population of Rotorua is projected to grow about 8% to 81,000 in 2028, then slow to 5% to 2048.<sup>2</sup> Low population growth is projected in eastern Te Moana a Toi-te-Huatahi.<sup>3</sup>

Te Moana a Toi-te-Huatahi has an older population than many other regions, with 19% of the population aged over 65. Providing good access for these residents is important so they remain socially connected, active, and able to participate in their communities.

The fast-growing western part of Te Moana a Toi-te-Huatahi is expected to grow through concentration in existing urban areas and new greenfield growth areas (development of undeveloped areas).

In 2018, 94,400 Māori lived in Te Moana a Toi-te-Huatahi, making up 29% of the region's population.<sup>4</sup> This is much higher than the national rate of 16.5%.<sup>5</sup> Māori make up 40% of Rotorua's population, the highest proportion in the region.<sup>6</sup>

The iwi and hapū in Te Moana a Toi-te-Huatahi region are Ngāi Te Rangī, Ngāitai, Ngāti Awa, Ngāti Hako, Ngāti Hinerangi,

Ngāti Kea / Ngāti Tuarā, Ngāti Mākino, Ngāti Manawa, Ngāti Maru, Ngāti Pīkiao, Ngāti Pūkenga, Ngāti Ranginui, Ngāti Rangiteaorere, Ngāti Rangitīhi, Ngāti Rangiwēhē, Ngāti Rongomai, Ngāti Tahu / Ngāti Whāoa, Ngāti Tamaterā, Ngāti Tara Tokanui, Ngāti Tarāwhai, Ngāti Tūwharetoa (Te Moana a Toi-te-Huatahi), Ngāti Uenukukōpako, Ngāti Whakaue, Ngāti Whare, Tapuika, Te Whānau ā Apanui, Tūhoe, Tūhourangi, Waitaha, and Whakatōhea.<sup>7</sup>

*Te Ōhanga Māori - The Māori Economy 2018* includes information for Te Moana a Toi-te-Huatahi - Waiariki rohe. It notes the asset base is valued at \$8.9 billion.<sup>8</sup> The primary and property sectors are important.<sup>9</sup>

Over the next 30 years, primary production (including horticulture and forestry), tourism, and distribution services tied to the Port of Tauranga will continue to play an important role in the economy of Te Moana a Toi-te-Huatahi. Employment in service industries is expected to grow in the larger urban centres in line with the national trend.

The freight task in Te Moana a Toi-te-Huatahi in 2017-2018 was 25.4 million tonnes, or around 9% of the country's total.<sup>10</sup> A total of 84.6% of the freight task tonnage in Te Moana a Toi-te-Huatahi was moved by road, 14.6% by rail, and 1.2% by coastal shipping.<sup>11</sup> The Port of Tauranga handles 25% of the country's imports and exports.<sup>12</sup>

Rail freight movements to and from the Port of Tauranga reduce the number of heavy vehicles travelling through the urban area. This improves safety and emission outcomes. About 40% of imports and 50% of exports are transported by rail.<sup>13</sup>

# Te Moana a Toi-te-Huatahi - Bay of Plenty: Outlook



Significant transformation of the transport system in Te Moana a Toi-te-Huatahi will be needed over the next 30 years. The most significant change is in and around Tauranga, where fast growth will require improved access and safety, while reducing emissions.

It will be a challenge to fund new infrastructure and services to keep pace with growth, especially in western parts of the region. In areas with many people living on fixed incomes, or where populations are static or declining, raising sufficient funds to maintain existing networks and deliver new infrastructure will be challenging. Climate change will make this even harder.

Addressing these challenges will require a shift from the 'predict and provide' approach to transport planning, or solely focusing on the expansion of infrastructure to meet future growth. Instead, a more integrated 'outcomes-led' approach is needed, to deliver on agreed urban form and transport system requirements.

Steps to make sure transport outcomes are delivered in a more efficient and cost-effective way include:

- renewing the focus on small-scale projects and getting more from existing infrastructure
- encouraging use of active modes and public transport by reallocating existing road space and making temporary or low-cost improvements
- influencing travel behaviour and growth patterns.

Even with these steps, more investment from a wider range of finance and funding sources is required to achieve key goals. New sources should be investigated, especially where these incentivise positive urban form or transport outcomes.

This section uses the *Transport Outcomes Framework* from Te Manatū Waka Ministry of Transport to support a ‘decide and provide’ approach to proactively plan the desired future state we want to achieve. Key challenges and opportunities are identified and discussed. Then we highlight the most important actions to be taken to make progress on each outcome.

## Environmental sustainability

### Challenges and opportunities

Te Moana a Toi-te-Huatahi Bay of Plenty will need to make an important contribution to reducing transport emissions, to reach the 2035 targets set in the government’s *Emissions Reduction Plan* and net-zero emissions by 2050.<sup>14</sup> This includes a target to reduce total vehicle kilometres travelled (VKT) by our light vehicle fleet by 20% by 2035.

As the main urban centres, Tauranga and Rotorua present the greatest opportunities to support national emissions reductions by providing alternative transport options and reducing the need to travel. This will require significant change to how people travel in districts focused on private car usage. Improving transport options and reducing traffic are not just important for meeting our climate commitments. They are vital for reducing congestion and making our transport system more safe, healthy, and inclusive for people of all ages and abilities.

Care is required to ensure efforts to reduce VKT don’t unfairly impact specific communities or groups.

We need to reduce freight transport carbon through:

- adopting lower-emitting fuels
- increasing mode share for rail.

We must also reduce the impact of the region’s transport system on the local environment, especially its impacts on air quality, waterways, and ecological systems. Contaminated stormwater runoff from roads must be treated before entering waterways. The impact of new and improved transport infrastructure on the natural environment must be appropriately managed.

### Making progress

As a Tier 1 urban environment, Tauranga will need to do much of the heavy lifting for the region, to contribute towards national vehicle kilometres travelled (VKT) reduction. This work will inform future planning and investment decision-making.

Key actions over the next 10 years to make progress on this outcome are:

- implementing spatial plans developed for the region in a way that guides growth and urban development towards a compact, mixed-use urban form, to reduce trip length and car dependency – this includes the Urban Form and Transport Initiative (UFTI)-Connected Centres approach, *Rotorua Connect*, *Rotorua Spatial Plan*, and *Eastern Bay of Plenty Beyond Today*
- planning what interventions, activities, and investments are needed to achieve VKT and emissions reduction
- enabling and encouraging mode shift through rapid and extensive changes to the allocation of space on existing roads and streets to accelerate delivery of public transport plus walking and cycling networks
- implementing well-connected walking and cycling networks, with a focus on access into, and within, the central city from surrounding suburbs, access to key centres, and safe journeys to schools
- delivering key public transport routes connecting major centres in and around Tauranga, such as Cameron Road and Tauriko West
- continuing to improve public transport service quality and exploring opportunities to use technology to deliver better services at a lower cost
- transforming the freight fleet and improving freight network efficiency
- more actively managing carparking at major destinations and employment areas, to increase use of public transport, walking, and cycling
- ensuring appropriate standards, policies, and regulations are in place to reduce the impact of the region’s transport system on the local environment
- exploring alternative funding and financing to support integrated growth of housing, mixed-use centres, transport connections, and infrastructure
- supporting the implementation of key policies, such as vehicle fleet transformation to lower emissions.



## Healthy and safe people

### Challenges and opportunities

Significant reduction in deaths and serious injuries is required in Te Moana a Toi-te-Huatahi Bay of Plenty. During the past three years, there have been over 200 annual deaths and serious injuries on the region's roads.<sup>15</sup> In particular, we need to reduce crashes along key state highway routes and in urban areas. This will mean focusing on:

- speed reduction
- alcohol and drug impairment
- people not wearing seatbelts.<sup>16</sup>

Efforts to improve road safety are guided by the *Road to Zero: New Zealand's Road Safety Strategy 2020-2030* and associated *Action Plan 2020-2022*, plus regional safety strategies.<sup>17</sup>

Walking and cycling rates have declined substantially over recent decades, contributing to a lack of physical activity and subsequent health problems. These health issues, like obesity and diabetes, disproportionately impact some demographics.<sup>18</sup> The harmful impacts of vehicle tailpipe pollutants on health, especially on the respiratory systems of our youngest, oldest, and most vulnerable, are much greater than previously realised.<sup>19</sup>

Significant progress on the healthy and safe people outcome will support environmental sustainability and inclusive access. Providing extensive networks of safe walking and cycling facilities will encourage more people to use these healthy and sustainable travel options. Similarly, a focus on reducing deaths and serious injuries for vulnerable road users will also encourage more people to walk and cycle.

### Making progress

Continuing to realise safety plans and supporting dramatic changes to encourage walking and cycling will help the urban areas of Te Moana a Toi-te-Huatahi Bay of Plenty. New approaches to planning, design, and delivery, along with significant investment, are needed to accelerate progress.

Key actions over the next 10 years to make progress on this outcome are:

- continuing safety improvements that target high-risk intersections, run-off road crashes, high-volume roads, and head-on crashes on high-risk rural roads, especially between Tauranga and Katikati
- rapidly rolling out a well-connected, separated cycling

network through reallocation of existing street space

- requiring high-quality active mode infrastructure to be part of new developments
- encouraging and implementing regulatory changes that reduce harmful vehicle emissions and encourage the use of zero-emissions vehicles
- continuing to manage transport system noise through planning and mitigation
- targeting road policing and behaviour change programmes with a focus on alcohol and drug impairment, speeding, and people not wearing seatbelts
- managing safe and appropriate speeds on high-risk rural roads - this includes targeted use of safety cameras to reduce speeding
- advocating for robust mobile network coverage in rural and regional areas.

**Walking and cycling rates have declined substantially over recent decades, contributing to a lack of physical activity and subsequent health problems.**

## Inclusive access

### Challenges and opportunities

The region's transport system struggles to provide people of all ages, abilities, and income levels with safe, sustainable, and reliable access to a variety of social and economic opportunities.

High reliance on private vehicles creates several access challenges, including:

- creating difficulties for those without easy access to and use of a private vehicle to fully participate in society
- placing significant pressure on household budgets to meet the high costs of car ownership and use
- limiting people's ability to travel in a way that best meets their needs because of poor travel choice.

Employment and essential services are concentrated in Tauranga and Rotorua. Unless local services and employment opportunities are provided to meet population growth outside these areas, people will be reliant on private vehicles and face long trip lengths.

Rural communities need to access key centres for education, employment, and essential services. As the population ages, travel needs will change; there will be greater reliance on accessing health services, while fewer people will access education and employment. An ongoing issue to be addressed is the conflict between large volumes of through-traffic versus safety, convenience, and disconnection (severance) in rural towns.

Emerging technologies, such as on-demand shuttles, could provide a shared-transport option. These shuttles could help people in smaller towns and rural communities get around and improve access to services in larger centres. Improved access to high-quality data and information will allow better management of the transport system to get the most out of existing infrastructure. The growing popularity of online purchasing and home delivery will impact on-demand travel, including the movement of freight.

### Making progress

Improving inclusive access will often align with making progress on other outcomes, especially where travel choice is improved and car dependency reduced. However, there may be challenging trade-offs to consider, such as balancing increased travel costs to reduce emissions while ensuring lower income households aren't unfairly impacted.

Key actions over the next 10 years to make progress on this outcome are:

- shaping planning rules and urban development decision-making, especially through spatial planning processes, to improve existing connections and expand local services at key locations – this will encourage more people to live in areas with better access to social and economic opportunities
- improving public transport services, expanding on-demand services where appropriate
- exploring opportunities to improve public transport affordability
- expanding and improving walking and cycling facilities, especially through completion of cycling networks in and around Tauranga and Rotorua
- improving active mode facilities in smaller towns, so these low-cost, sustainable, and healthy travel options are safely used for more journeys
- ensuring transport infrastructure and services are designed and provided to meet the needs of people of all ages and abilities
- improving access to opportunities for iwi Māori, including access to sites of cultural significance
- exploring opportunities to support the mobile or digital delivery of essential services.

**Improving inclusive access will often align with making progress on other outcomes, especially where travel choice is improved and car dependency reduced.**

## Economic prosperity

### Challenges and opportunities

As Te Moana a Toi-te-Huatahi Bay of Plenty transitions to a low-emissions economy, the region will need to continue providing reliable and resilient access to employment, education, and essential services. Significant primary production and tourism industries are likely to remain important but may be impacted by climate change. Rail can play a greater role in carrying bulk commodities, such as logs, and provide reliable and resilient connections for growing industries, such as horticulture, and aquaculture in Ōpōtiki.

The region's nationally significant role in supply chains and global connections means it's important to deliver safe and reliable interregional journeys, especially road and rail freight connections to key ports and hubs.

In the coming decades, technological change will have significant impacts on travel demand and on the economy of Te Moana a Toi-te-Huatahi. The COVID-19 pandemic accelerated working from home, while future developments could impact the type and location of work people do. Emerging technologies can improve freight safety and efficiency, while better use of available data can improve freight efficiency and network management.

Transport planning will need to be flexible in response to these changes, recognising high levels of uncertainty around the nature and location of future jobs and the impact of this on travel patterns.

**The region's nationally significant role in supply chains and global connections means it's important to deliver safe and reliable interregional journeys, especially road and rail freight connections to key ports and hubs.**

### Making progress

Economic productivity and business competitiveness in Te Moana a Toi-te-Huatahi Bay of Plenty can be improved by a transport system that provides:

- a range of travel options with wide capacity
- reliable journey times
- safe and low-cost ways of getting around.

Key actions over the next 10 years to make progress on this outcome are:

- implementing regional spatial planning work in Tauranga and Rotorua that includes long-term corridor protection to ensure these areas can perform strategic functions
- supporting resilient, reliable, and efficient freight and business travel around key parts of the network, especially interregional connections and access to the Port of Tauranga
- exploring opportunities to move to a more multimodal freight system with greater use of rail and coastal shipping
- managing increased transport costs in a way that doesn't negatively impact economic activity
- supporting the continued development of key economic centres by improving access and amenity (attractiveness)
- supporting improved accessibility to local and town centres to better enable them to flourish and provide for the day-to-day needs of residents
- supporting safe and reliable movement of visitors across the region, particularly from Rotorua to Eastern Bay, Waikato and Tāmaki Makaurau Auckland, and between Tauranga, Rotorua, Taupō, and areas further south and to the east.

# Resilience and security

## Challenges and opportunities

The next 30 years will see a growing risk of damage to road and rail networks because of increased rain and storm intensity, coastal and soil erosion, sea level rise, flooding, slips, and storm surges.<sup>20</sup>

There are already many high risks in Te Moana a Toi-te-Huatahi Bay of Plenty area related to landslips, coastal erosion, flooding, and other weather-related factors. A notable risk is the impact of slips on SH2 through the Waioeka Gorge and at the Waimana Gorge, which forms part of the primary connection between Tairāwhiti Gisborne and Te Moana a Toi-te-Huatahi.

More extreme weather events, and the need to make the transport system resilient to a variety of natural disasters, will require a greater effort than ever to look after existing assets and maintain current levels of access and connectivity. There is a major opportunity to progress multiple outcomes by investing in maintenance and renewals, but this requires changes to current practices and increased funding.

To be resilient, the region's transport system must adapt to uncertainty and rapid change. For example, in recent years the popularity of e-scooters and then the need for social distancing during the COVID-19 pandemic highlighted:

- a need for more adaptable approaches to road space management
- unexpected benefits from past improvements to walking and cycling facilities.

Rapidly fluctuating fuel prices throughout 2022, caused by international events, also emphasised the need to reduce dependency on fossil fuel.


### Making progress

To improve resilience in Te Moana a Toi-te-Huatahi Bay of Plenty, the transport system needs an ongoing focus on maintaining existing assets along with targeted improvements to reduce risks. We also need to expand our understanding of resilience in a highly complex urban environment, to ensure planning work is flexible and adaptable to change.

Key actions over the next 10 years to make progress on this outcome are:

- continuing design and planning work to identify and prioritise responses to natural hazards in high-risk areas – this includes working with communities to identify plans for when to defend, accommodate, or retreat

- understanding routes that provide critical connections, the condition of these, the pressures, and the level of investment needed to address impacts – this includes assessments to identify priorities for network resilience, particularly on State Highway 2 through Waioeka Gorge and Waimana Gorge
- engaging in local planning processes to avoid infrastructure and development in areas at increased risk of natural hazards and climate change
- seeking continuous improvement in network resilience through maintenance, renewals, and 'low cost/low risk' investments
- improving operational responses to events, to support quick recovery following disruption to the land transport system
- shifting to more adaptable 'scenarios-based' planning
- improving personal security for people using Te Moana a Toi-te-Huatahi transport system
- improving supply chain resilience to protect the critical economic role of the Port of Tauranga.



**More extreme weather events, and the need to make the transport system resilient to a variety of natural disasters, will require a greater effort than ever to look after existing assets and maintain current levels of access and connectivity.**

## Tauranga: Urban focus

### Tauranga: A fast growing city and critical national freight hub

Tauranga is the fifth biggest city in Aotearoa New Zealand and home to about 150,000 people.<sup>21</sup> It has the country's biggest export port. It's also a freight and export hub and key destination for regional horticultural production.

The population of Tauranga and the western Te Moana a Toi-te-Huatahi Bay of Plenty is projected to grow to over 70,000 between 2018 to 2048.<sup>22</sup>

Tauranga is spread around its harbour and inlets and depends heavily on private vehicle travel, with 90% of journeys to work made by private vehicle.<sup>23</sup> Significant investment has been made in developing a strategic road network in recent decades.

### Urban Form + Transport Initiative (UFTI)

Tauranga has taken recent steps to integrate spatial and transport planning through the Urban Form + Transport Initiative (UFTI).<sup>24</sup>

Developed by the SmartGrowth Partnership, UFTI provides high-level guidance on how Tauranga should grow over the coming decades and what transport investment is needed to enable and support this growth. The main components of UFTI's Connected Centres programme are:

- Major centres will be interspersed with smaller centres and a mix of housing, services, and amenities.
- Social and economic opportunities will increase; most people will be able to access everyday needs within a 15-minute walk or cycle ride. Regional opportunities and amenities will be accessible by a 30- to 45-minute journey on high-frequency public transport.
- Transport corridors will connect the city east (Paengaroa to Baypark), west (SH36/SH29 toward Rotorua), north (Bethlehem to Waihi), and centrally (Tauriko Crossing to Mount Maunganui via Cameron Road) with improved public transport service hubs to connect to other services.
- New dwellings will be evenly split between zoned greenfield land (development of undeveloped areas) and intensification of existing urban areas over the next 30 years.

The *Western Bay of Plenty Mode Shift Plan* builds on UFTI with actions centred around:

- shaping a supportive urban form
- making public transport and active modes more attractive by influencing travel demand and travel choice
- delivering a strategic walking and cycling network
- reviewing parking policy.<sup>25</sup>

### Key challenges

Tauranga faces significant transport challenges despite ongoing major investment in recent decades. These challenges include:

- an awkward geographic layout
- highly dispersed urban form
- high car dependency
- rapid population growth
- conflicting transport functions.

Current challenges around the safety and reliability of freight movement are now compounded by new challenges like reducing emissions and supporting more compact, efficient urban form.

### Climate change

Urgency around climate change action and emission reductions has increased significantly in recent years. Larger urban areas, like Tauranga, provide the greatest opportunity to lower transport emissions. Reductions in traffic flow will also achieve wider benefits for health, safety, reliability, and quality of life.

Reducing vehicle kilometres travelled and overall emissions in a growing urban area, like Tauranga, will be extremely challenging, especially given its high car dependent urban form and legacy of past transport investment decisions.

Transformational change is required to improve urban form, offer better transport options, and manage demand for travel by cars. Vehicle kilometres travelled (VKT) reduction planning will confirm what interventions and activities, and at what scale, are required to achieve the necessary change to meet emissions reduction goals. Waka Kotahi will partner with local government, Māori, and community representatives to develop this work.

Climate change impacts such as intense rainfall, storms, and sea-level rise can lead to flooding risks that impact stormwater management, low-lying coastal areas, and critical transport corridors (such as Port of Tauranga, parts of Bethlehem, Matua, and Mount Maunganui). The result is higher maintenance costs and the need for adaptive management.

## Reshaping the urban form of Tauranga

The urban form of Tauranga needs to change to address its challenges, achieve its goals, and contribute to national transport outcomes. Over time, the city's urban form will be shaped by higher density centres and inter-connected multimodal transport corridors.

Changes in urban form, land use planning, and transport investment must accelerate to meet emission reduction targets and mode shift goals. These changes will also make our communities better places to live. This requires more collaboration and coordination between iwi, local government, and central government.

Further work is required to understand whether the future urban form proposal and supporting land transport system from the Urban Form + Transport Initiative (UFTI) will be sufficient to deliver desired long-term outcomes, such as reducing emissions and providing affordable housing.

Enabling growth in Tauranga that delivers on long-term outcomes will be a significant challenge. It will require all partners to work together to make sure the right approach is taken using the right tools.

**Changes in urban form, land use planning, and transport investment must accelerate to meet emission reduction targets and mode shift goals.**

The image shows a wide, calm bay under a clear blue sky. In the distance, a low-lying landmass is visible across the water. To the right, a steep, green hillside descends towards the water's edge. A large, white, curved graphic element overlays the left side of the image, framing the text.

# **Te Moana a Toi-te-Huatahi - Bay of Plenty: Focusing our efforts**

The transport challenges for Te Moana a Toi-te-Huatahi Bay of Plenty need to be tackled in a cohesive way for efficient and effective progress. The directions below identify the most important issues to be resolved over the next 10 years to make progress towards transport outcomes.

- Use spatial planning to enable and encourage growth in areas that already have good travel choices and shorter trip lengths, such as the work underway in Tauranga, Western Bay of Plenty, and Rotorua.
- Rapidly accelerate the delivery of walking and cycling networks, predominantly through reshaping existing streets, to make these options safe and attractive.
- Implement the transport components of the Urban Form + Transport Initiative (UFTI) – this includes protecting key strategic corridors and developing high-quality public transport, walking, and cycling infrastructure to connect centres.
- Continue to improve interregional connectivity and resilience, especially to Tāmaki Makaurau Auckland, Kirikiriroa Hamilton, and Tairāwhiti Gisborne.
- Explore the potential for new and emerging technologies, such as on-demand services, to improve access to social and economic opportunities.
- Better understand the impact of future economic transformation on travel patterns and freight volumes.
- Explore opportunities to move to a more multimodal freight system with greater use of rail and coastal shipping.
- Confirm how key resilience risks will be addressed and work with communities to identify plans for when to defend, accommodate, or retreat.
- Continue to implement road safety plans and programmes, including those focused on iwi Māori.
- Reduce financial and other barriers to iwi Māori getting a driver’s licence in areas not well served by public transport.
- Improve or maintain, as appropriate, physical access to marae, papakāinga, wāhi tapu, and wāhi taonga.

These will be updated over time to focus effort on the most critical matters.



# References

1. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
2. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
3. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
4. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
5. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
6. Statistics New Zealand (2022). Subnational ethnic population projections: 2018(base)-2043. [stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043](https://stats.govt.nz/information-releases/subnational-ethnic-population-projections-2018base2043)
7. Te Puni Kōkiri (2022). Find iwi by local authority. [www.tkm.govt.nz/browse/](https://www.tkm.govt.nz/browse/)
8. Reserve Bank of New Zealand (2018). Te Ōhanga Māori 2018. [www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashxp16](https://www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashxp16)
9. Reserve Bank of New Zealand (2018). Te Ōhanga Māori 2018. [www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx](https://www.rbnz.govt.nz/-/media/0212182a319f481ea4427bcf5dd703df.ashx)
10. Ministry of Transport (2019). National freight demand study 2017/18. [www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf](https://www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf)
11. Ministry of Transport (2019). National freight demand study 2017/18. [www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf](https://www.transport.govt.nz/assets/Uploads/Report/NFDS3-Final-Report-Oct2019-Rev1.pdf)
12. Ministry of Transport (2018). Sea freight. FIGS – Tables. [www.transport.govt.nz/statistics-and-insights/air-and-sea-transport/sheet/sea-freight](https://www.transport.govt.nz/statistics-and-insights/air-and-sea-transport/sheet/sea-freight)
13. Bay of Plenty Regional Council (2019). Bay of Plenty region passenger and freight rail. [atlas.boprc.govt.nz/api/v1/edms/document/A3277034/content](https://atlas.boprc.govt.nz/api/v1/edms/document/A3277034/content)
14. Ministry for the Environment (2022). Emissions reduction plan. [environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-plan](https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-plan)
15. Waka Kotahi NZ Transport Agency (2022). Crash analysis system. [nzta.govt.nz/safety/partners/crash-analysis-system](https://nzta.govt.nz/safety/partners/crash-analysis-system)
16. Waka Kotahi NZ Transport Agency (2022). Crash analysis system. [nzta.govt.nz/safety/partners/crash-analysis-system](https://nzta.govt.nz/safety/partners/crash-analysis-system)
17. Ministry of Transport (2019). Road to zero – New Zealand’s road safety strategy 2020–2030. [www.transport.govt.nz/assets/Uploads/Report/Road-to-Zero-strategy\\_final.pdf](https://www.transport.govt.nz/assets/Uploads/Report/Road-to-Zero-strategy_final.pdf)
18. Waka Kotahi NZ Transport Agency (2022). Research report 696 health and air pollution in New Zealand 2016 (HAPINZ 3.0) He rangi hauora he iwi. [nzta.govt.nz/resources/research/reports/696/](https://nzta.govt.nz/resources/research/reports/696/)
19. Waka Kotahi NZ Transport Agency (2022). Research report 696 health and air pollution in New Zealand 2016 (HAPINZ 3.0) He rangi hauora he iwi. [nzta.govt.nz/resources/research/reports/696/](https://nzta.govt.nz/resources/research/reports/696/)
20. Ministry for the Environment (2018). Climate change projections for the Bay of Plenty region. [environment.govt.nz/facts-and-science/climate-change/impacts-of-climate-change-per-region/projections-bay-of-plenty-region](https://environment.govt.nz/facts-and-science/climate-change/impacts-of-climate-change-per-region/projections-bay-of-plenty-region)
21. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
22. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
23. Statistics New Zealand (2021). Subnational population projections: 2018(base)-2048. [stats.govt.nz/information-releases/subnational-population-projections-2018base2048](https://stats.govt.nz/information-releases/subnational-population-projections-2018base2048)
24. Urban Form and Transport Initiative (2020). Urban Form and Transport Initiative (UFTI) final report. [https://ufti.org.nz/wp-content/uploads/2020/07/22527\\_UFTI-Final-Report.pdf](https://ufti.org.nz/wp-content/uploads/2020/07/22527_UFTI-Final-Report.pdf)
25. Waka Kotahi NZ Transport Agency (2020). Regional mode shift plan: Bay of Plenty. <https://www.nzta.govt.nz/assets/resources/keeping-cities-moving/BoP-regional-mode-shift-plans.pdf>