

Foundation Report 2020



This is a joint local government, central government and Iwi project and will deliver a 30 year spatial plan for the region with a list of projects and investment requirements.

Introduction

Ka ora te wai	<i>If the water is healthy</i>
Ka ora te whenua	<i>the land will be nourished</i>
Ka ora te whenua	<i>If the land is nourished</i>
Ka ora te tangata	<i>the people will be provided for</i>
Mo te iti - mo te rahi	<i>For the little - for the large</i>

This is the Foundation Report for the Wellington Regional Growth Framework (the Framework). The document outlines the context for the development of the Framework (a regional spatial plan) and identifies the key challenges for growth in the region.

For the purpose of the Framework and this Foundation Report the region includes the territorial authorities of Masterton, Carterton, South Wairarapa, Upper Hutt, Lower Hutt, Wellington, Porirua, Kāpiti Coast and Horowhenua. This project is a collaboration between these councils, the Greater Wellington Regional Council, central government and mana whenua of the region.

This report has been developed based on readily available data. Some parts of this report do not have complete or consolidated information that extends to Horowhenua (as it may be based on the Greater Wellington Regional Council area). We expect that more up to date data will become available during development of the Framework and additional work may be commissioned.

The process for developing the Framework will develop and test possible future scenarios for the region over the next 30 to 100 years. It will test the need for significant infrastructure and other investments and recommend a prioritised regional programme of work, reflected in a regional spatial plan, that will require joint action and investment. This Foundation Report provides background for the Framework and outlines the challenges that need to be addressed regionally.

The region has an immediate issue relating to a lack of housing supply, a limited range of housing options and declining housing affordability, particularly for first home buyers.

Increasing numbers of vehicles on the roads, capacity and reliability issues associated with buses and trains and network resilience issues are straining the regional transport system and may not result in the necessary transport system shifts that we are seeking such as improving safety and access, reducing emissions and reducing reliance on private vehicle travel.

Other issues facing the region include projected sea level rise, severity of weather events, environmental stewardship pressure and natural hazards. All of which are creating challenges as well as uncertainty.

Community infrastructure will also need more coordinated investment to accommodate growth including open spaces, community facilities, schools and health care facilities.

Significant investment in housing, urban development, transport and three waters infrastructure and services as well as regional and district planning and policy changes will be needed to support future growth

Whilst the Framework is primarily a spatial plan that will describe a long-term vision for how the region will grow, change and respond to key urban development challenges and opportunities, all of the above challenges will need to be resolved for the future, not just where and how to develop more housing.

These are regional issues that are best dealt with together and not individually. Many of these issues cross local council boundaries (e.g. investment in water or transport), and maximum benefit can be had from planning and investing in these together and not individually and with central government and mana whenua. This work on the Wellington Regional Growth Framework provides an opportunity to further build on established relationships and partnerships with mana whenua of the region.

This Foundation Report is a key milestone in the Wellington Regional Growth Framework project. The project partners will continue to work collectively and with other stakeholders on developing the Framework. The next phase of the project is development of an Options Report and work on this is currently underway.

Contents

Introduction	2	Challenge 2: Impacts of natural hazards and climate change, improving resilience and enhancing the natural environment	29
The Wellington Regional Growth Framework	4	Natural Hazards and Climate Change	29
What is the Wellington Regional Growth Framework?	4	Assets at Risk	30
Why are we developing a Wellington Regional Growth Framework?	5	Natural Environment	32
Who is developing the Wellington Regional Growth Framework?	6	Challenge 3: Inequitable access	34
Building on the Wellington Regional Investment Plan and links to current projects	7	Inequitable Access	34
Context	8	Access to Social Infrastructure	38
Tangata Whenua	8	Access to educational opportunities	39
Development of the Region	10	Challenge 4: Mana whenua and Māori access to affordable housing	40
The Region Today	11	Regional Profile	40
Our People	12	Why is poor access to housing a problem?	41
Our Housing	13	Housing development	41
Our Economy	15	Next Steps	42
Our Transport System	17	This Foundation Report	42
The Three Waters Infrastructure	20	Scenario Development	44
Our Environment, Natural Hazards and Climate Change	21	Shared Evidence Base – Technical Reports	45
Our Challenges	23	Glossary	47
Challenge 1: Lack of sufficient and affordable housing supply and choice, investment needed in infrastructure	24		
Housing – Affordability, Supply and Choice	24		
Enabling Three Waters Infrastructure	27		
Enabling Transport Infrastructure	28		

The Wellington Regional Growth Framework

What is the Wellington Regional Growth Framework?

The Wellington Regional Growth Framework (the Framework) is a spatial plan that will describe a long-term vision for how the region will grow, change and respond to key urban development challenges and opportunities in a way that gets the best outcomes and maximises the benefits across the region.

It will develop and test possible future scenarios for the region over the next 30 to 100 years. It will test the need for significant infrastructure and other investments and recommend a prioritised regional programme of work that will require joint action and investment.

The Framework will identify where areas for housing, public transport and roads, three waters infrastructure (stormwater, wastewater and drinking water), businesses and jobs, are recommended in the context of issues such as housing affordability, climate change,

resilience and natural hazards. It will seek to reflect the housing and urban development aspirations of mana whenua in the region.

It will draw on and incorporate the local and regional planning and engagement work on growth that has been undertaken already and be aligned with the Transport Outcomes Framework and Government Policy Statement on Land Transport Funding, the proposed National Policy Statements on Urban Development, Highly Productive Land, Freshwater Management and Biodiversity and the Governments' Urban Growth Agenda.

Central Government, councils from the region and mana whenua are working together to develop the Framework and build an enduring regional growth partnership.

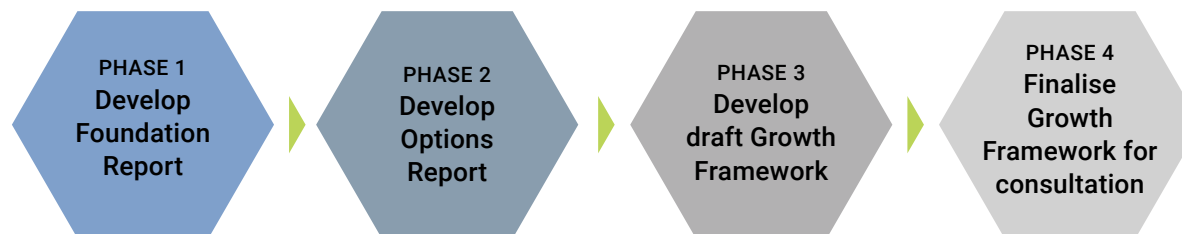
The phases of the Framework are shown below.

This Foundation Report completes the end of Phase 1 of the project. It sets out our regional context, our initial evidence base using existing data sources, our regional challenges, and presents the case for change.

During development of the Framework we expect that more up to date data will become available and that our partnership with mana whenua will evolve, so we may commission additional work.

Treaty of Waitangi obligations will be upheld by the Framework. Active engagement and collaboration between project partners will be central to the development of the Framework. This includes a commitment to actively engage with mana whenua in good faith and with a commonality of purpose. The Framework seeks to reflect mana whenua perspectives and recognises the special relationship that tangata whenua have with the environment and their role as kaitiaki.

Diagram 1: Phases of Wellington Regional Growth Framework



Why are We Developing a Wellington Regional Growth Framework?

The region is growing faster than it has done for many decades and is facing immediate and longer-term housing supply and affordability, urban development and infrastructure challenges.

The immediate issues relate to a lack of housing supply, a limited range of housing options and declining housing affordability, particularly for first home buyers. Over the next 30 years between 52,000 and 66,000 new homes may be needed for between 91,000 and 151,000 additional people across the region¹. This is the equivalent of accommodating more than another Hutt Valley of people and housing into the region.

Significant investment in housing, urban development, transport and three waters infrastructure and services as well as regional and district planning and policy changes will be needed to support future growth.

Beyond the forecast population and dwelling growth there are a number of other challenges facing the region. Projected sea level rise, severity of weather events, environmental stewardship pressures, barriers to mana whenua in fulfilling their role as kaitiaki and natural hazards are creating challenges as well as uncertainty.

Increasing numbers of vehicles on the roads, capacity and reliability issues associated with buses and trains and network resilience issues are straining the regional transport system and may not result in the necessary transport system shifts that we are seeking such as improving safety and access, reducing emissions and reducing reliance on private vehicle travel.

Community infrastructure will also need more coordinated investment to accommodate growth including in open spaces, community facilities, schools and health care facilities.

All these challenges collectively will need to be resolved for the future, not just where and how to develop more housing. These are regional issues that are best dealt with together and not individually. Many of these challenges cross local council boundaries and maximum benefit can be had from investing in these together and not individually. It is important that we have a region-wide approach and develop a partnership between central government, local government and mana whenua to respond to our regional challenges so that we can address community expectations.

Central Government’s Urban Growth Agenda (UGA) requirements and its long-term outcomes for transport will also be met. The Framework will therefore include the requirements of a Future Development Strategy as outlined in the National Policy Statement – Urban Development.

Whilst local planning will continue to focus on local issues, regional collaboration on regional issues will lead to a more effective and efficient result than each party planning separately. Mana whenua may want to work across local and regional boundaries and this work provides an opportunity for leadership in this space.

The objectives sought from the Framework are to the side. These have been developed jointly by the project partners and reflect the particular needs for change in the region. These objectives are not intended to

override the Framework’s commitment to providing for the regional outcomes of Māori as Treaty partners. The Framework is committed to working with hapū and iwi on the development of the spatial plan, following an established kaupapa and recognising tangata whenua aspirations within the region.

PROJECT OBJECTIVES	
1	Increase housing supply, and improve housing affordability and choice
2	Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future
3	Improve multi-modal access to and between housing, employment, education and services
4	Encourage sustainable, resilient and affordable settlement patterns/urban form that make efficient use of existing infrastructure and resources
5	Build climate change resilience and avoid increasing the impacts and risks from natural hazards
6	Create employment opportunities.

¹ A range of growth figures is provided based on ranges from Statistics NZ data and the recently completed Housing and Business Development Capacity Assessments

Who is Developing the Wellington Regional Growth Framework?

This project is a collaboration between central government, the councils of the region and mana whenua as shown in the table below.

We have worked with a range of central and local government stakeholders during the development of this Foundation Report and will work with a wider group of stakeholders during the next phases of work.

We will continue to work with mana whenua during the development of the Framework to enable mana whenua participation in the process and ensure mana whenua views are incorporated in the Framework.

This project is an important opportunity for regional spatial planning to incorporate Te Ao Māori, and seeks to create a Framework which is reflective of its Treaty partners. The project partners already work together, with Ara Tahi, Te Upoko Taiao and the Whaitua committees an example of this. The Framework seeks to build upon and strengthen these existing partnerships.

A kaupapa will inform the Framework to give life to the project. The kaupapa may reflect that already adopted by Te Upoko Taiao; including Ki uta ki Tai (connectedness), Wairuatanga (identity), Kaitiakitanga

(guardianship), Tō Mātou whakapono (judgement based on knowledge) and Mahitahi (partnership).

Through the development of this Framework we will operate, as we already do, by recognising the principles of the Treaty of Waitangi, supporting the role of mana whenua as kaitiaki, providing for the relationship of Māori with their ancestral lands, water sites, waahi tapu and other taonga.

Local government	Central government lead partners ²	Mana Whenua
Carterton District Council Greater Wellington Regional Council Horowhenua District Council Hutt City Council Kāpiti Coast District Council Masterton District Council Porirua City Council South Wairarapa District Council Upper Hutt City Council Wellington City Council	Ministry of Housing and Urban Development Waka Kotahi – New Zealand Transport Agency	Ātiawa ki Whakarongotai Charitable Trust Muaūpoko Tribal Authority Ngā Hapū o Ōtaki Ngāti Kahungunu ki Wairarapa Charitable Trust Ngāti Raukawa (Horowhenua) Port Nicholson Block Settlement Trust Rangitāne Tū Mai Rā Trust Te Runanga o Toa Rangātira

² Other key central government agencies we have been working with on the Framework are Department of Internal Affairs, Ministry of Transport, Ministry for the Environment, Treasury, Kainga Ora and Ministry of Business, Innovation and Employment

Building on the Wellington Regional Investment Plan and Links to Current Projects

The Framework is the next stage in collaborative regional strategic planning following the completion of the Wellington Regional Investment Plan (WRIP). It is also developed in the context of other major urban development planning and regional scale projects currently underway across the region.

The WRIP has been endorsed by the councils of the Wellington region³ and identifies four areas for investment and partnership:

- building a contemporary economy
- developing new housing supply and urban form
- accessing opportunities through transport, and
- strengthening our resilience and reducing environmental impact.

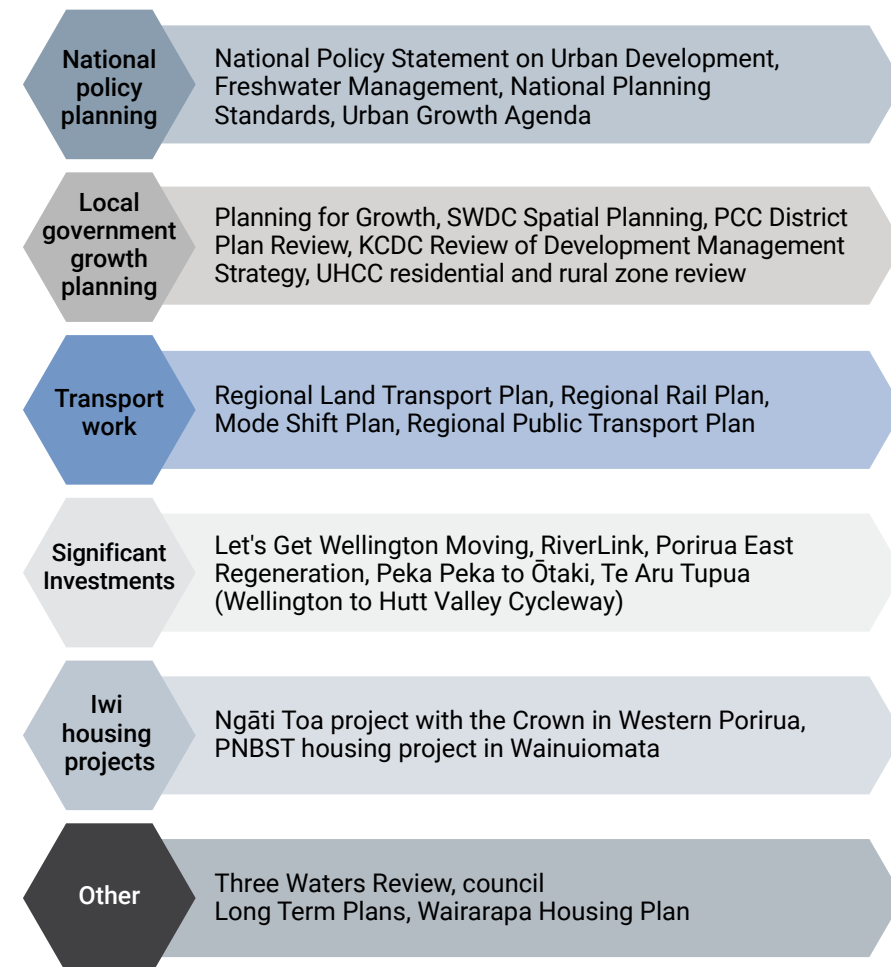
It outlined investments already occurring and those that could be required over the next 30 years. The Framework will build on this and test the investments identified in the WRIP.

In addition to the WRIP and existing mana whenua partnerships, a range of activities are currently being undertaken by the project partners that are relevant to the development of this Framework. This includes major region shaping housing, urban development and transport projects which are being planned and/or delivered. Some examples are provided in the diagram below.

A full list of projects has been compiled and will be available in March 2020 on the Framework website (once the website for this project is live).

³ This work did not include the Horowhenua District Council

Diagram 2: Key Work Being Undertaken Relevant for this Framework



Context

This section of the report provides regional context for the Foundation Report, providing an overview of the characteristics of the region.

Tangata Whenua

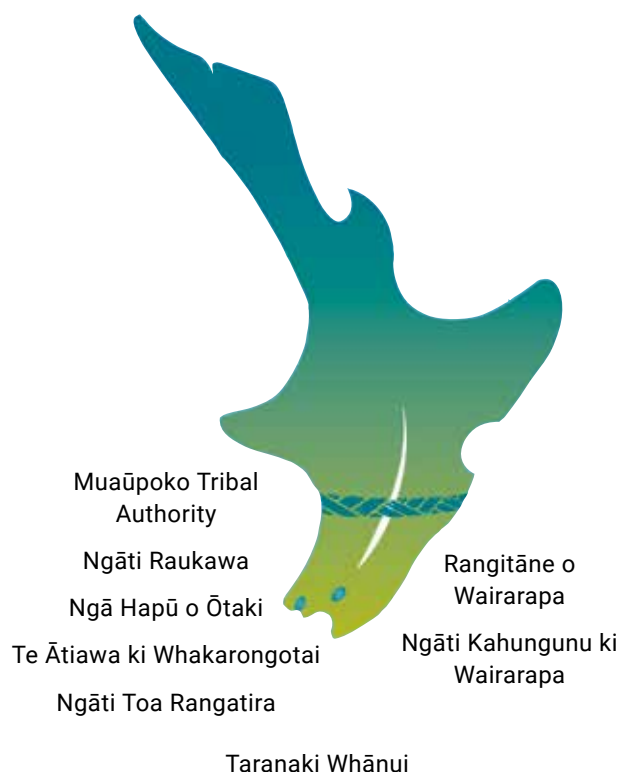
Long before European settlers reached New Zealand's shores, the region had been the ancestral home to generations of Māori tribes, with areas such as the Wellington Harbour being the centre of local Māori life.

Wellington's earliest name, Te Upoko o Te Ika a Māui, goes back to the Māori story of how Aotearoa New Zealand was created. According to Māori, the legendary navigator Maui hooked a giant fish that, when pulled to the surface, turned into the landform now known as the North Island or Te Ika a Maui.

Wellington Harbour and Lake Wairarapa are referred to as the eyes of the fish (Ngā Whatu o te Ika a Maui). Palliser Bay, on the south coast of the Wairarapa, is the mouth of the fish (Te Waha o te Ika a Maui) and Cape Palliser and Turakirae Head at either extreme of the bay are the jaws. The Remutaka, Tararua and Ruahine mountains make up the spine of the fish, as shown in the diagram.

Modern archaeology has confirmed that sites found in the Palliser Bay area of south Wairarapa, along the southern Wellington coastline and on Kāpiti Island are some of the oldest recorded sites in New Zealand, dating back some 650 years.

Diagram 3 Iwi ki Te Upoko o te Ika – Iwi of the region



Further north, before the 1820s the principal tribes of the Manawatu and Horowhenua region were Rangitāne, Muaūpoko and Ngāti Apa. Rangitāne were found particularly in Manawatu, Muaūpoko in Horowhenua and Ngāti Apa along the Rangitikei River.

By 1864, European settlement had resulted in the alienation of the majority of Māori land in the region. Only a small proportion of the region comprises Māori freehold land today, and this land predominantly located in rural areas. According to the Māori Land Court there are 12,529 hectares of Māori Freehold Land, across 526 property titles, in the Wellington region (not including Horowhenua). This represents just 1.56% of land in the Wellington region.

The Māori Land Court states that Māori Freehold Land is land that has been investigated by the Māori Land Court and a freehold order has been issued or was set aside by the Crown as Māori freehold land and awarded by Crown Grants to specific individuals or has had the status determined as Māori Freehold Land by order of the Māori Land Court. The first diagram overleaf shows the Māori Freehold land blocks in the Wellington region.

Historical claims for breaches of the Treaty of Waitangi by the Crown are addressed through the Treaty Settlement Process. Treaty settlements have provided financial, commercial and cultural redress to four of the region's Iwi:

- Taranaki Whānui ki Te Upoko o Te Ika in 2008,
- Ngāti Raukawa in 2012,
- Ngāti Toa Rangātira in 2012, and
- Rangitāne o Wairarapa and Rangitāne o Tamaki Nui-ā-Rua in 2016.

Ngāti Kahungunu ki Wairarapa initialled a Deed of Settlement with the Crown in 2018. This was ratified by Iwi members in 2019 and is awaiting the conclusion of Waitangi Tribunal hearings before it can be signed. Muaūpoko Tribal Authority, Te Ātiawa ki Whakarongotai Charitable Trust and Ngāti Raukawa ki te Tonga (Ngā Hapū o Ōtaki) have not yet reached settlement with the Crown.

In 2018, 80,844 people or 16% of the population in the Wellington region identified as being of Māori descent. This was up from 13.9% in 2013.

The 2013 census identified that 6,486 Māori live in the Horowhenua District. This was up 6.8% from the 2006 census.

39% of Māori adults in the Wellington region can speak some te reo Māori. There are 32 Kōhanga Reo facilities and four Te Kura Kaupapa Tongarewa Māori schools in the Wellington region. Between 2001 and 2013 there was a decline in the proportion of the overall regional population able to speak te reo. Only 3.3% of census respondents for the Wellington Region identified as being able to hold an everyday conversation in te reo in 2013.

Marae are a key feature of local Māori society being a place where the Māori language is spoken, where customs are explored and debated, and where important ceremonies, such as welcoming visitors, meeting inter-tribal obligations, or farewelling the dead are performed. The marae is a wāhi tapu, a 'sacred place' which carries great cultural significance.

Within the region there are tribal marae (those that are linked to iwi/hapū/whānau through whakapapa), urban marae (typically pan-tribal and serving the wider community) and institutional marae (those associated with places like education facilities, churches and social service providers).

Marae staff and others also undertake activity such as health and social services, training and education, assist in public policy development and many provide civil defence support.

The second diagram to the right shows where mana whenua marae and mātāwaka marae are located through the Wellington region. In addition to the marae identified in the diagram there are a number of marae located throughout the Horowhenua district.

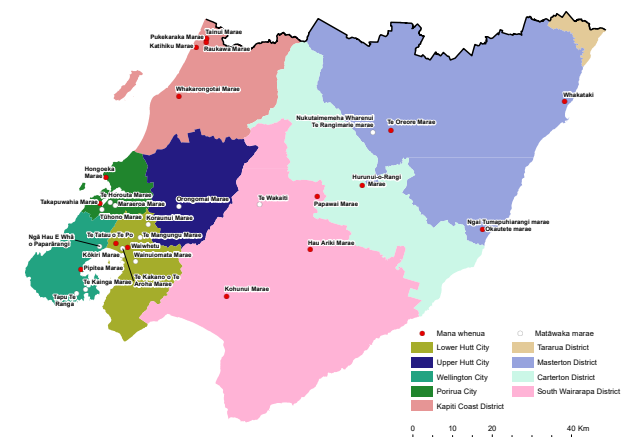
The values of tangata whenua are important and include Whakapapa, Mauri, Kawa and Tikanga, Kaitiakitanga, Cultural Landscape, Mahinga Kai and Māori Customary Use.

The Framework is cognisant of Treaty partner iwi management plans and recognises that mana whenua have their own aspirations; including for housing, education, protection of land, water and other taonga and economic opportunities.

Diagram 4 Map of Māori Freehold Land Blocks in the Wellington Region



Diagram 5: Mana Whenua and Mātāwaka Marae in the Wellington Region



Development of the Region

People have lived and prospered in this region since the Polynesian explorer Kupe first discovered the area and named many of its most prominent places including Te Whanganui-a-Tara, and Mana, Matiu and Mākaro islands. For hundreds of years the region's coastal areas have played an important role as a link between Te Ika a Maui (the North Island) and Te Waipounamu (the South Island). Key coastal landmarks were used by Māori to navigate across Cook Strait. This role at the centre of New Zealand, continues through to today with the Cook Strait ferries providing important freight links between the two islands, and critical national telecommunications and electricity infrastructure coming ashore on the region's coast.

Since people first settled here, they have been aware of the challenges and opportunities that its rugged topography and complex geology and seismology present to urban and economic development. Easily developable flat land is limited in the southern, more urbanised parts of the region. And like many city-regions on the rim of the Pacific (e.g. Santiago, San Francisco, Vancouver, Portland, Tokyo, Osaka) this region is subject to seismic events (earthquakes and tsunami), requiring careful management and mitigation as urban and economic development occurs.

The wider region has gone through a series of stages of economic and urban development, over the hundreds of years that people have lived and worked here. Much of the early development of the region was focused on or near the coast, major lakes and rivers, with papakāinga, pā, and much later, whaling settlements, and Wellington City in its first decades, all relying on water-based transport.

Later, the decision to move the capital to Wellington in 1865 provided the region with a significant urban and economic development boost. In the decades following, railways were built from Wellington to the Manawatu and Wairarapa, and settlements grew up along the railway lines in places such as Johnsonville, Plimmerton, Paekakariki, Levin, Petone, Featherston and Masterton. A second wave of rail-focused urban development occurred following World War II, when major state housing development occurred in Lower Hutt and Tawa/Porirua.

Throughout much of the 20th century the region was a major manufacturing centre, with textile/footwear manufacturing focused in Levin, motor vehicle and consumer products manufacturing in the Hutt Valley and Porirua, and food and beverage production in Masterton. As well as being the capital, Wellington City

was a major commercial centre, with the headquarters of many of New Zealand's largest companies, including most banks, insurance companies, and oil companies. From the 1960's urban development to house workers in these growing sectors, was primarily low density, private vehicle oriented suburban housing, supported by investment in new motorways. Extensive new areas of urban development opened up in the Hutt Valley and on its surrounding hills, on the Kāpiti Coast, around the Porirua Harbour and in the northern areas of Wellington City.

Following the economic reforms of the 1980s, the region's economy changed dramatically. Almost all the region's large-scale manufacturing closed down, and a significant number of corporate head offices left the region.

The Region Today

Today the region is an interdependent network of cities, towns and rural areas. It is the seat of Government with an upbeat image, and an emerging centre for economic enterprise, knowledge and skills, creative and cultural pursuits and lifestyle. It has a modern urban economy paired with a quality natural and social environment.

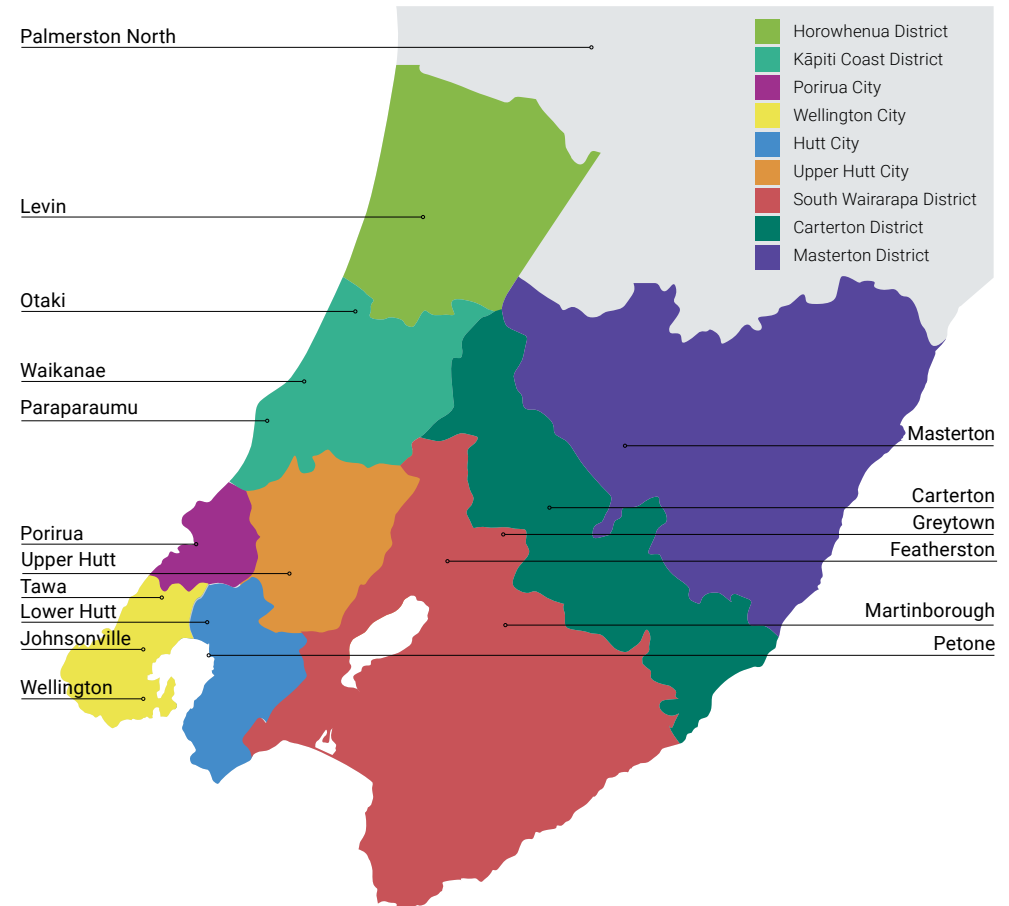
Overall residents in the region enjoy a high quality of life relative to other parts of New Zealand. In the 2018 Quality of Life survey, 88% reported that they had a good quality of life, while 3% expressed dissatisfaction.

Following a long period of transition, and concerted efforts to increase vibrancy, the region is now growing strongly off the back of new industries. All parts of the region are experiencing significant population growth, including regional towns, many of which experienced long periods with little growth, following the economic reforms.

Much of the region has a constrained and challenging topography. This has to a large extent dictated urban development patterns and resulted in two main, north-south urban development and movement corridors – with limited east-west connections.

There are a number of statutory acknowledgement areas within the region, and a number of sites which have been vested to Iwi as part of their settlement redress; including the Parangarahu Lakes, the Wellington harbour islands (Mātiu/Somes, Makāro and Mokopuna) and Kāpiti Island. Some areas of the region are covered by co-management arrangements between mana whenua and government agencies; such as Whitireia Park and the Wairarapa Moana and Ruamāhanga River catchment.

Large areas of the region are protected in Department of Conservation and Regional Council parkland. These provide opportunities for recreation and in many parts of the region they also contain and frame the region's housing and urban development current and future footprint. The Wairarapa and Horowhenua also contain important areas of highly productive land, where the balance between primary production and urban development will need to be determined into the future.



As the home of the Capital the region is important to New Zealand as a whole, and as an international partner and connector. There are other significant challenges emerging as regional growth accelerates, that will require joint local government, central government and mana whenua leadership.

Our People

The population of the region has grown steadily over the last 20 plus years. The current population of the region is 562,790⁴ compared to 457,690⁵ in 1996.

In recent years the population of the region has grown at a faster rate (1.4% pa since 2013). After a long period where population growth was primarily concentrated in Wellington City and the Kāpiti Coast, most parts of the region are now experiencing population growth significantly higher than long term averages. Levin, Carterton and Porirua have experienced growth rates of 2% or more over the last 3 years with growth rates in the Hutt Valley and Kāpiti from 2018-2019 being 1.18% and 1.27% respectively.

This growth is being driven by national migration trends into New Zealand and movement of people from other parts of New Zealand into the region. This is contributing to serious housing supply and affordability challenges for the region.

Demographic projections show that the population in the region is aging as illustrated in the diagram below. The aging demographic change is more pronounced in the districts.

Wellington City is projected to continue to have the largest proportion of the ‘working age’ demographic. The spread of ages 0-9 and 10-19 is projected to become more

consistent across the region (between 21% and 24% within all areas), compared to the current spread of 21% to 30%.

The diagram below shows ethnicity demographic information about people currently living in the region and the projected change through to 2038. This projection shows that 20% of people in the region will identify as more than one ethnicity by 2038, an increase of 8% from 2018. The 2018 Quality of Life survey revealed that 63% of respondents in the Wellington region think that increasing cultural and lifestyle diversity makes their local area a better place to live. Ethnicity and age projections for 2038 show that 53% of Māori will be under 30 years old, while for the rest of the population only 31% will be under 30 years old.

Diagram 6: Projected Regional Age Demographic Change 2018-2038

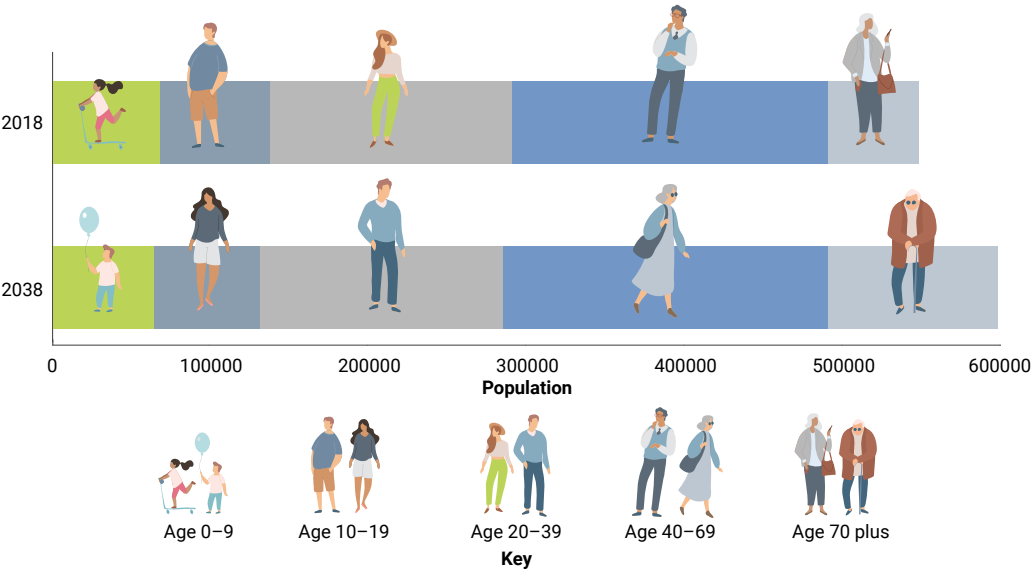
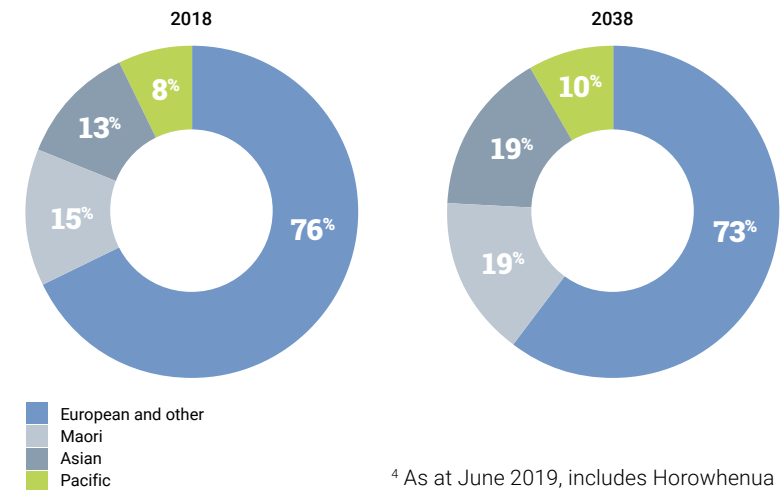


Diagram 7: Projected Regional Ethnicity Demographic Change 2018-2038



⁴ As at June 2019, includes Horowhenua

⁵ An average increase of 0.9% pa

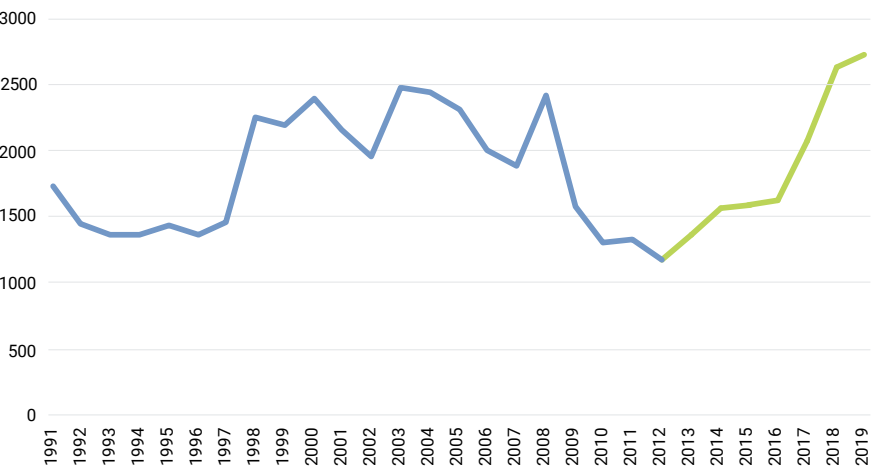
Our Housing

Until recently housing growth in the region has been steady but more recently housing construction rates have been increasing as shown in the diagram below.

Despite a more than 43% increase in new building consents from 2012 to 2019 as seen in the diagram below, construction has not been able to keep pace with the increased housing demand on the back of the increase in population.

This is being evidenced by increasingly high rents, increasing house prices and growing issues with housing affordability. As evidenced in the diagrams overleaf, between March 1994 and March 2019 the average regional dwelling price increased by a factor of 4.98, while dwelling rents over the same period increased by a factor of 2.72.

Diagram 8: New Regional Residential Building Consents



The most significant changes in both dwelling price and dwelling rent over this period (1994 to 2019) has been in the Wairarapa; with the 2019 average house price in South Wairarapa 6.3 times the average dwelling price in 1994. This difference is also almost 6 times in the Carterton district.

Dwelling prices rapidly increased across all parts of the region between March 2016 and March 2019, on average by 44.8%. The largest increase over this period was seen in the Horowhenua and South Wairarapa districts; with a 58.5% and a 52.5% increase respectively.

Over the same period (March 2016 to March 2019) the average dwelling rent has increased by 23.9%. As with dwelling prices, the largest increases over this period have been in Horowhenua and South Wairarapa (with increases of 30% in both areas).

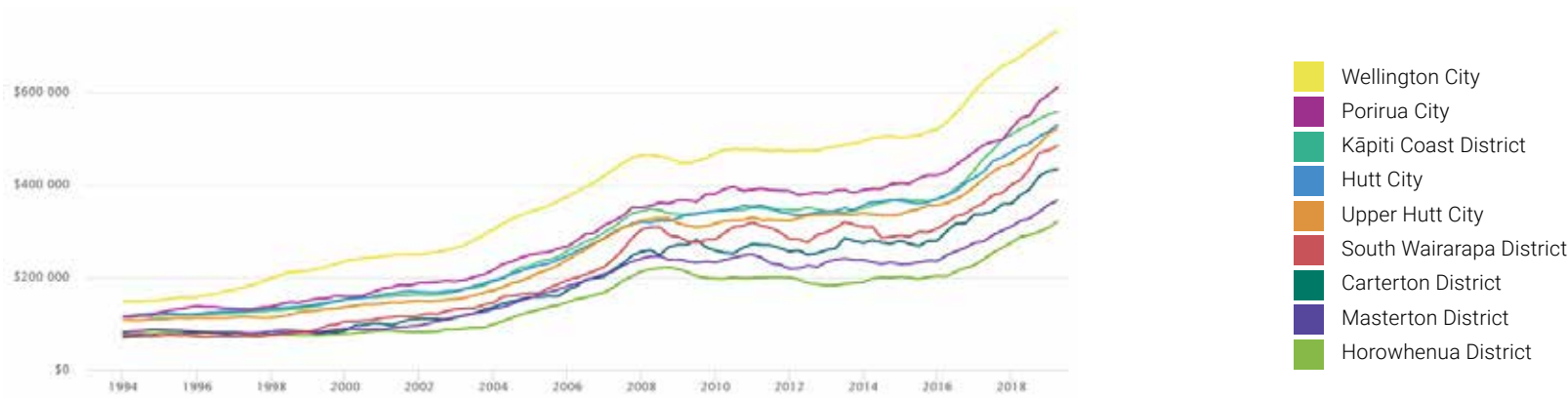
On a dollar (\$) basis, Wellington has the highest average house price in the region at \$794,000 in January 2020, as well as the highest average weekly rent price at \$550 per week as of November 2019.

This is reflected in the 2018 Quality of Life survey which revealed that 29% of respondents in the Wellington region think that housing is unaffordable. Housing quality was also identified as an issue for the region, with 24% of respondents having problems with damp or mould and 16% of respondents unable to afford to heat their home properly during winter. Damp housing is a particular issue for Māori and Pacific households, larger households, renters and young families.

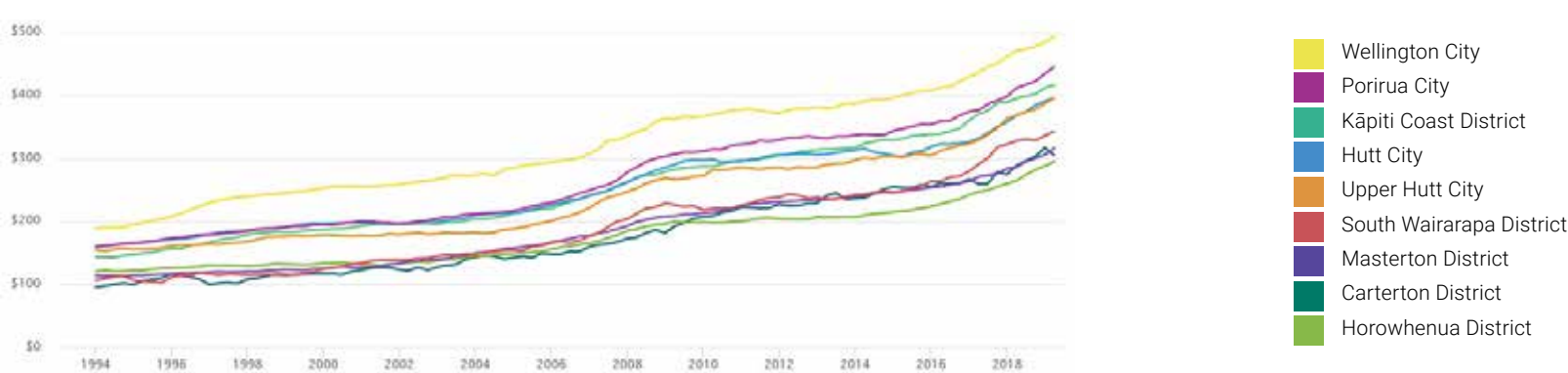
In addition to the current housing issues, the region is expecting an increase of between 91,000 and 151,000 people in the next 30 years which will require between 52,000 and 66,000 homes. This is the equivalent of accommodating more than the population of another Hutt Valley within the geographical and other constraints the region has.

In planning for this growth, it will be important to ensure availability of a range of housing options, in the right places and at the right prices.

Diagrams 9: Twelve Month Rolling Median Dwelling Sales Prices (actual)



Diagrams 10: Twelve Month Rolling Mean Dwelling Rents (actual)



Our Economy

The region has a strong foundation to build off with its high knowledge-based industries as well as being the Capital and the centre of Government. We have a competitive advantage in the areas of film and technology, finance, professional services, arts and government services. These weightless industries provide a strong starting point to achieve a low-carbon economy. Technology will play an ever-increasing role in this.

As well as this the regional economy is diversified through the strength of the food bowls of the Wairarapa and Horowhenua.

Māori and Iwi increasingly play an important role in the local economy. There is a strong presence of Māori in business in film, technology and business services and Māori owned entities play a key role in commercial property, housing and social developments.

The current top employment sectors in the region are shown in the diagram to the right.

Analysis undertaken as part of the 'Wellington Regional Investment Plan - 2019' with regards to the industries within the Wellington region (excluding Horowhenua) identified that:

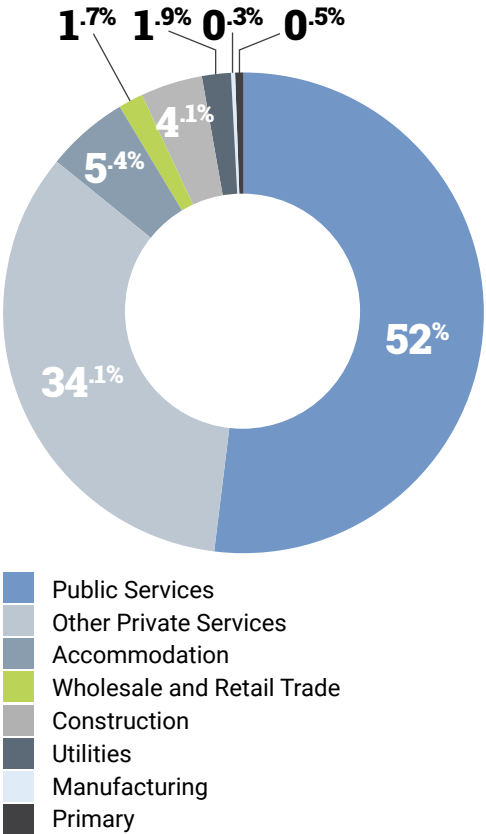
Diagram 11: Top 5 Employment Sectors (Wellington region only)



- The industry mixes for the Wairarapa districts are reasonably typical for rural-based districts in New Zealand. The high importance of health in Masterton reflects the location of the hospital there.
- The industry mixes for Lower Hutt, Upper Hutt, Porirua, and Kāpiti Coast are quite typical for urban centres in New Zealand. They all include amongst others, Manufacturing and Construction industries. The report noted that the importance of health services to the Kāpiti Coast is unusual given its lack of a hospital, and probably reflects its higher age structure.
- The high importance of government, professional services, finance and ICT for Wellington City is singular for a territorial authority area in New Zealand.

Central Wellington is the largest employment centre in the region. There are a number of other major employment centres in the western and eastern corridors and a number of smaller regional service towns in Kāpiti, Horowhenua and the Wairarapa. All of these are serviced by the rail and State Highway networks and have significant numbers of commuters traveling to central Wellington regularly for employment (with the exception of Martinborough).

Diagram 12: Share of Employment Growth by Sector 2018-2050



Going forward, the region is expecting over 100,000 additional jobs over the next 30 years⁶. The diagram to the left shows the projected share of employment growth by sector.

A recent business land assessment undertaken as part of the 'Housing and Business Development Capacity Assessment – 2019' for the metropolitan councils project a future business land demand over the 2017-2047 period of 1,340,472 square metres of new floor area across all business sectors. The report concluded that there is sufficient capacity within the region to meet projected demand for business land over the next 30 years.

The region has 12.0% of national employment, 14.9% of the nation's professionals and 16.9% of the nation's knowledge workers.

The region overall has amongst the highest GDP per capita in the country at \$69,076, generating 14% of national value added (GDP) whilst being home to 11.5% of New Zealand's population. Per capita GDP in the region is 18% greater than the national average.

In line with high GDP per capita, the average household incomes across the region are also amongst the highest in the country being \$66,900 in 2018, 10% above the national average of \$60,900.

There are however variations in household incomes in the region. At the 2013 census within the Wellington region (excluding Horowhenua), just over one fifth or nearly 33,000 of households reported having a household income of \$33,000 or less and nearly one third or just over 45,000 households reported have

a household income of \$109,431 or more. In the same census, in Horowhenua, just over one third of households reported household income of \$30,000 or less and just over 10% of households reported a household income of over \$100,000.

A PWC report 'Competitive Cities: A Decade of Shifting Fortunes – Spotlight on Wellington - 2019' reported that Wellington experienced a sizeable rise in discretionary income over the decade 2008-2018, extending its advantage over other cities. They estimated that discretionary income for a median household increased by \$137 per week.

⁶ According to the Greater Wellington Regional Council economic forecast model

Our Transport System

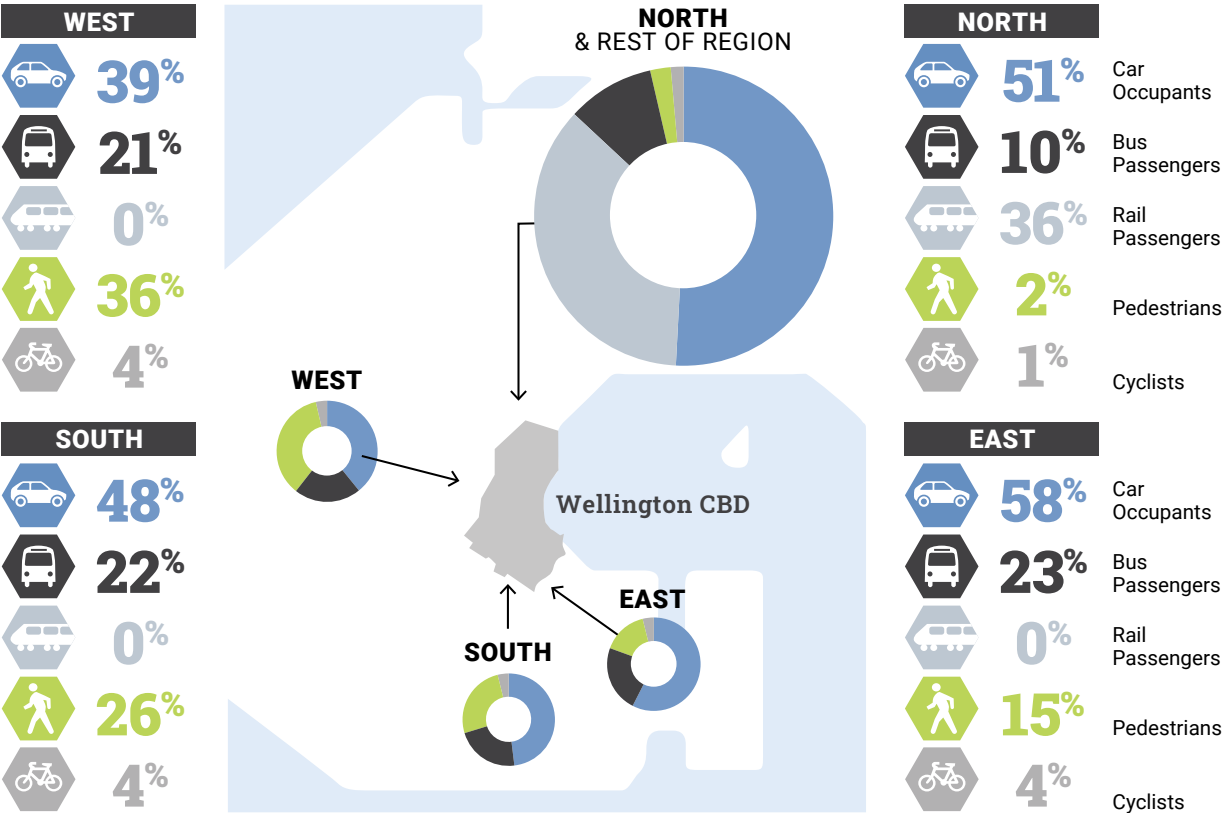
State Highway 1 and the Main Trunk Railway provide connections along the western corridor from Wellington through Porirua, Kāpiti and Horowhenua to Palmerston North and the Upper North Island. State Highway 2 and the Wairarapa Railway Line provide connections between Wellington through the Hutt Valley to the towns and rural areas of the Wairarapa. Both Masterton in the Wairarapa and Levin in Horowhenua are nearly 100km from central Wellington.

The topography and key transport links have helped to deliver a relatively compact urban form across most of the region, a focused and dynamic Wellington city centre, and relatively high public transport use when compared to other urban areas in New Zealand.

Major natural barriers including the Remutaka Hill (between the Hutt Valley and the Wairarapa), and hilly topography between Porirua and the Hutt Valley, and Porirua and the Kāpiti Coast have presented limits to urban development and limited easy access between the residential and employment areas (east-west connections).

The concentration of regional employment in central Wellington, and the dominance of the knowledge-based sector working conventional hours means that a large number of people want to travel into and out of central Wellington at the same time, as can be seen in the diagram for the morning travel peak. This creates a significant and concentrated peak demand on the two north-south road and rail corridors as well as from other key west, south and east routes within Wellington City.

Diagram 13: Morning Peak Transport by Area of Origin by Mode 2016



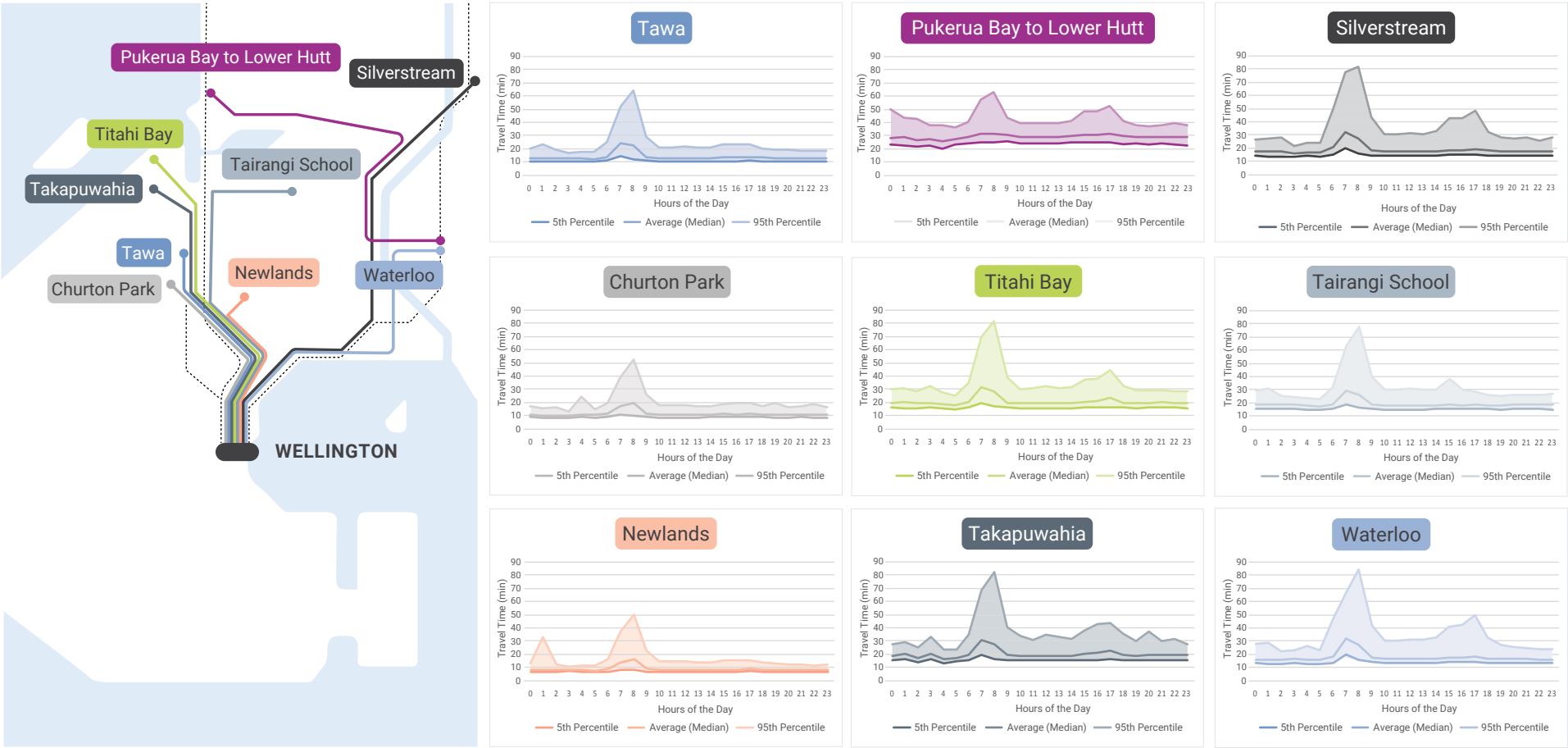
The significant commuter peak, limited east-west connectivity across the region, and capacity constraints on both the state highway, local roads and public transport, create significant travel time delays and unreliable journey times for freight, private vehicles and bus services.

The large number of vehicles travelling into central Wellington also creates conflict and safety issues with people walking, cycling and using other non-car travel options. A significant proportion of central city streets are currently used for moving or parking private vehicles.

The diagram below illustrates travel time variability on key car journeys and illustrates how travel time increases significantly during the morning peak.

School travel makes a significant contribution to trip numbers, particularly in the morning peak when those travelling to school are travelling at the same time as commuters.

Diagram 14: Travel Time Variability



During the weekends, congestion is increasing particularly in central Wellington and town centres as people travel for sport, shopping, or other lifestyle reasons.

The region provides the northern port for road and rail trips between the North and South Islands, via the Cook Strait ferries. The region has a number of existing key freight hubs and destinations including Waingawa, Seaview/Gracefield, Porirua/Tawa, CentrePort and the Wellington City CBD. Access to CentrePort, and the safety and reliability of road and rail corridors north of Wellington, are critical to supporting journeys between these destinations.

Businesses are reliant on an efficient and reliable transport system for their economic growth and prosperity. Network improvements have the ability to impact the extent to which economic growth occurs in different parts of the region, and the time and cost associated with moving freight and/or travelling to deliver services.

Space constraints on road corridors and limited alternative routes means that the transport system has poor resilience to unplanned events (whether they are caused by natural events such as storms, or network incidents such as crashes).

Whilst much of the land in the region is bordered by the sea, beyond the Cook Strait ferries and visiting cruise ships, there is limited use of the sea as a transport option between different areas within the region, with the primary service being one between Queens Wharf and Days Bay.

The Three Waters Infrastructure

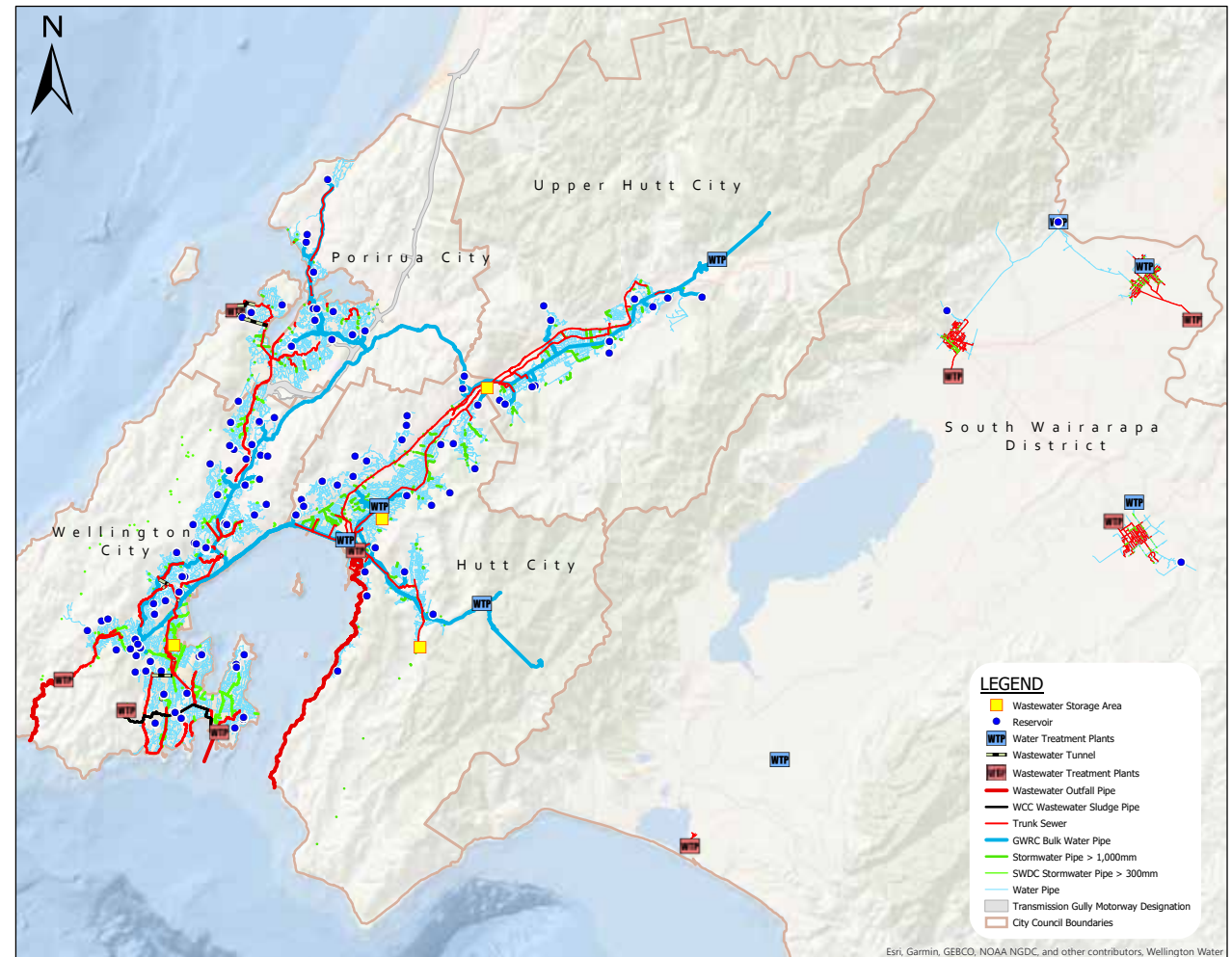
There are a number of increasing pressures on the three waters infrastructure in the region including:

- The region growing faster than anticipated putting pressure on current aging infrastructure.
- Funding challenges for current and new infrastructure.
- Managing urban growth within environmental limits.
- Managing existing infrastructure and designing new infrastructure for the impacts of climate change.
- The vulnerability of the three waters assets to the impacts of extreme natural hazards.
- Expected changes to legislation that will impact on the requirements of the network.

The diagram to the right provides a current state view of the strategic three waters assets and networks within some parts of the region. It illustrates the number of assets within the region.

The recent '*Housing and Business Development Capacity Assessment – 2019*' report highlighted the need for ongoing investment for the renewal and upgrading of infrastructure in the region in order to ensure that development capacity is not constrained by infrastructure. In some instances there are existing constraints that are having an immediate impact on the ability of areas to accommodate growth.

Diagram 15: Strategic three waters assets and networks (not all of the region included)



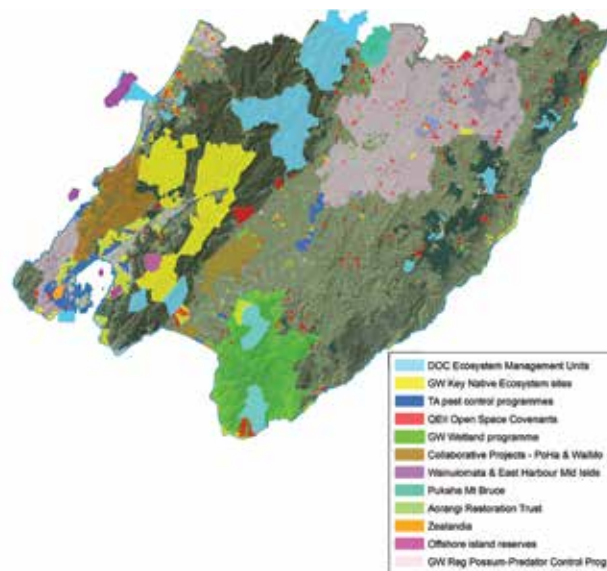
Our Environment, Natural Hazards and Climate Change

The region has a wide range of natural environmental features with many interconnected parts including the coastal environment, waterbodies, mountains and hills, wetlands, terrestrial habitats and landscapes and urban and rural environments.

The natural environment is highly valued and enjoyed by communities for ecological amenity and recreation value. However, opinions vary on how, and the extent to which, the natural environment should be protected, particularly on private land. There are 33,000 hectares of regional parks, and as of July 2009 150,500 hectares of the Wellington region was legally protected by the Department of Conservation, regional councils, QEII Trust or Ngā Whenua Rāhui. In addition to the areas of land with formal protection, there are a wide range of conservation initiatives being undertaken in the region, as can be seen in the diagram to the right.

The 'Quality of Life Survey 2018' provides information on the extent to which residents in the region perceive certain environmental issues are of concern. The results show that 58% of residents surveyed in the Wellington region felt that water pollution had been a problem in their local area. 34% also felt noise pollution had been a problem and 18% felt that air pollution had been a problem. Overall 88% of respondents in the Wellington region rated their overall quality of life positively (responding with either good, very good or extremely good).

Diagram 16: Wellington Region Conservation Sites and Activity



The following represents a range of environmental reporting from the region:

- 15% of the region is prone to erosion and requires re-vegetation to retain soils, particularly in the eastern Wairarapa hill country.
- Soil quality is generally "reasonable", however vegetable growing and dairy farming activities are having a negative impact; particularly around Ōtaki.

- Coastal environments are generally in good condition, however some beaches regularly record high levels of faecal pollution.
- Air quality is generally good, however the Wairarapa Airshed is polluted. Elevated PM10 in winter due to domestic fires are a concern for several areas including the Wairarapa, Wainuiomata, Upper Hutt and Raumati South.
- Lakes Wairarapa, Onoke and Waitawa are degraded due to discharges from agricultural and municipal wastewater discharges. By contrast, regional lakes located amongst forest cover have recorded high ecological value.
- Contaminants, including heavy metals, polycyclic aromatic hydrocarbons and DDT are present in both Porirua Harbour and Wellington Harbour at concentrations above 'early warning' guidelines.
- 55% of monitored shellfish gathering locations did not comply with faecal coliform thresholds.

The region is exposed to a wide range of natural hazards including earthquakes, landslides/slips, tsunamis, flooding and liquefaction. With over 12,300 kms of rivers and streams in the region and more than 500km of coastline the region is also exposed to climate change impacts. Some of these such as storm surges and increased flooding are being seen at present and are expected to increase in the region.

Any development will need to be undertaken within the context of protecting the environment including taking account of national policy direction such as the National Policy Statements on Highly Productive Land and Biodiversity.

Key messages from reports by NIWA on the Wellington region, 'Wellington region climate change extremes and implications – December 2019' and 'Report Summary: Wellington region climate change projections and impacts - June 2017', predict that if global carbon emissions are not significantly reduced by 2090 the region will experience:

- Annual temperature increases of at least 2°C, and up to 3.5°C in Masterton.
- Annually more hot days (above 25°C) - to increase by 20 for the west of the region, 29 for Wellington and 70 for the Wairarapa. Extremely hot days (above 30°C) will increase by 20 for Masterton.
- Rainfall in the east of the region reducing by 10% in spring, summer and autumn⁷. Increased drought risk in the Wairarapa. Rainfall in the west increasing in all seasons and by up to 15% in winter⁸.
- More frequent extreme rainfall events, particularly in coastal locations.

- Frosts declining in the Tararua Ranges from 30 per annum to near zero.
- Sea levels rise between 0.28 and 0.98m⁹, however this could significantly increase depending on the future of the Antarctic ice sheets.

Impacts of a changing regional climate will include increased coastal erosion and inundation, landslides, drought, water shortages, more frequent and intense storms, new pests and diseases and impacts on biodiversity and ocean acidification. Some of these, such as storm surges and increased flooding, are being seen at present and are expected to increase in the region. Large areas of central Wellington, Kilbirnie, Miramar, Petone, Ōtaki, Waikanae and east of Lake Wairarapa, are at risk from inundation.

This is having an impact on insurance discussions and premiums, with for instance, IAG which covers more than half of the Wellington insurance market deciding to limit its home and contents policies in Wellington following the Christchurch and Kaikōura earthquakes.

The gross greenhouse gas emissions for the Wellington region in 2014/2015 were 3.56 Mt CO₂-e. Most of our emissions are from the transport (37%) and agriculture (33%) sectors as can be seen in the diagram to the right.

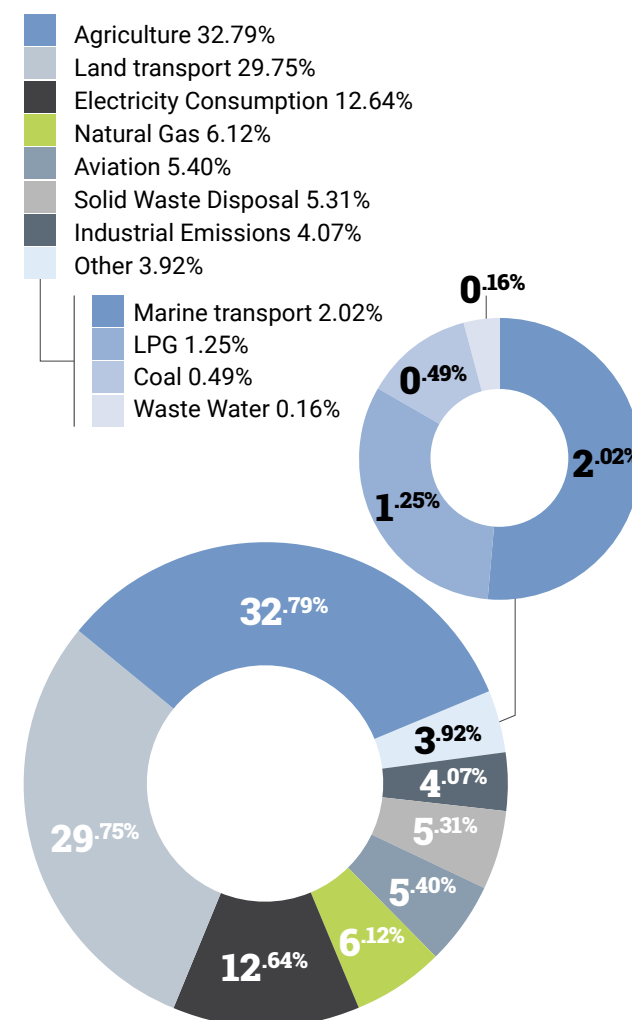
The regional greenhouse gas inventory is currently being updated and new data will be available then.

⁷ Compared to 1995

⁸ Compared to 1995

⁹ Note this statistic is for 2100 compared with 1986-2005 average

Diagram 17: Wellington Region Gross Greenhouse Gas Emissions 2014/15, by Source

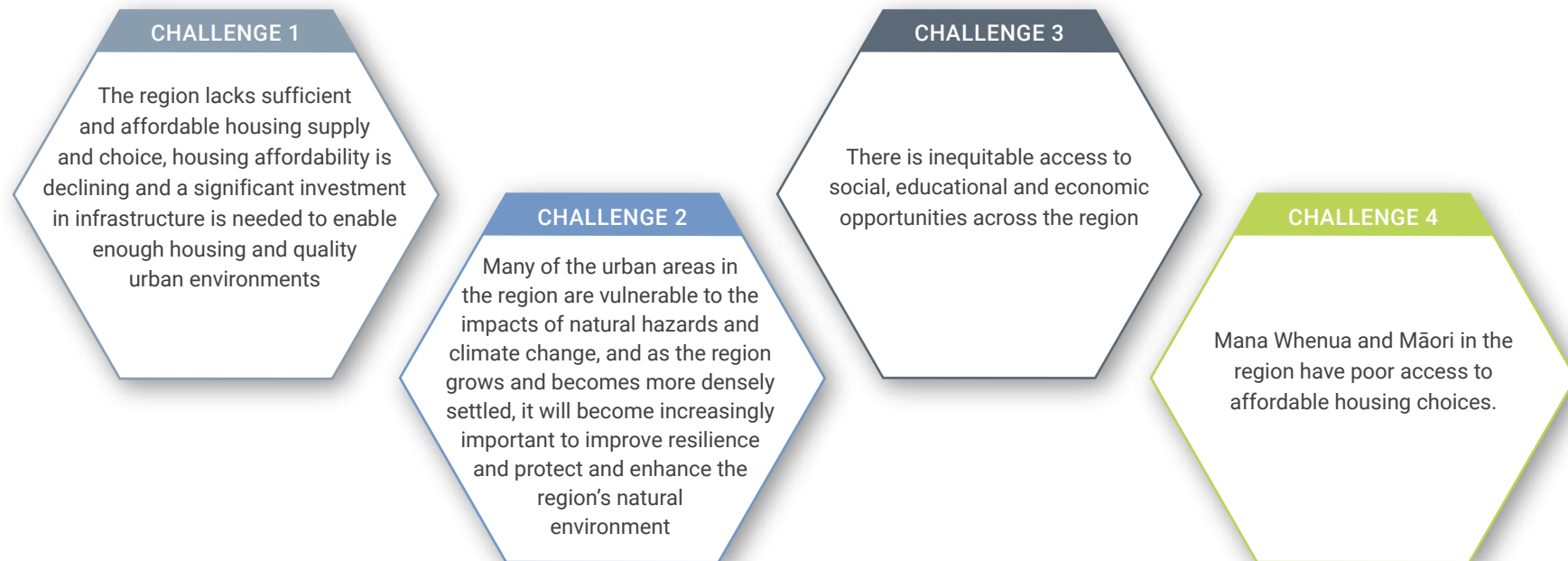


Our Challenges

Local government, central government and mana whenua, amongst others are already working on responses to the challenges outlined below. All of us have some activity underway. However, these responses are not integrated.

We recognise that business as usual will not give this region the outcomes we want, and we need to do things differently. The challenges identified in this section are one of the first steps towards developing more collaborative and joined up responses.

We have worked collaboratively through meetings and workshops with a range of staff and governance bodies from central government, local government and mana whenua to identify the key challenges for the region. These were developed from a range of information including that covered in the Context section of this report.



Challenge 1: The region lacks sufficient and affordable housing supply and choice, housing affordability is declining and a significant investment in infrastructure is needed to enable enough housing and quality urban environments.

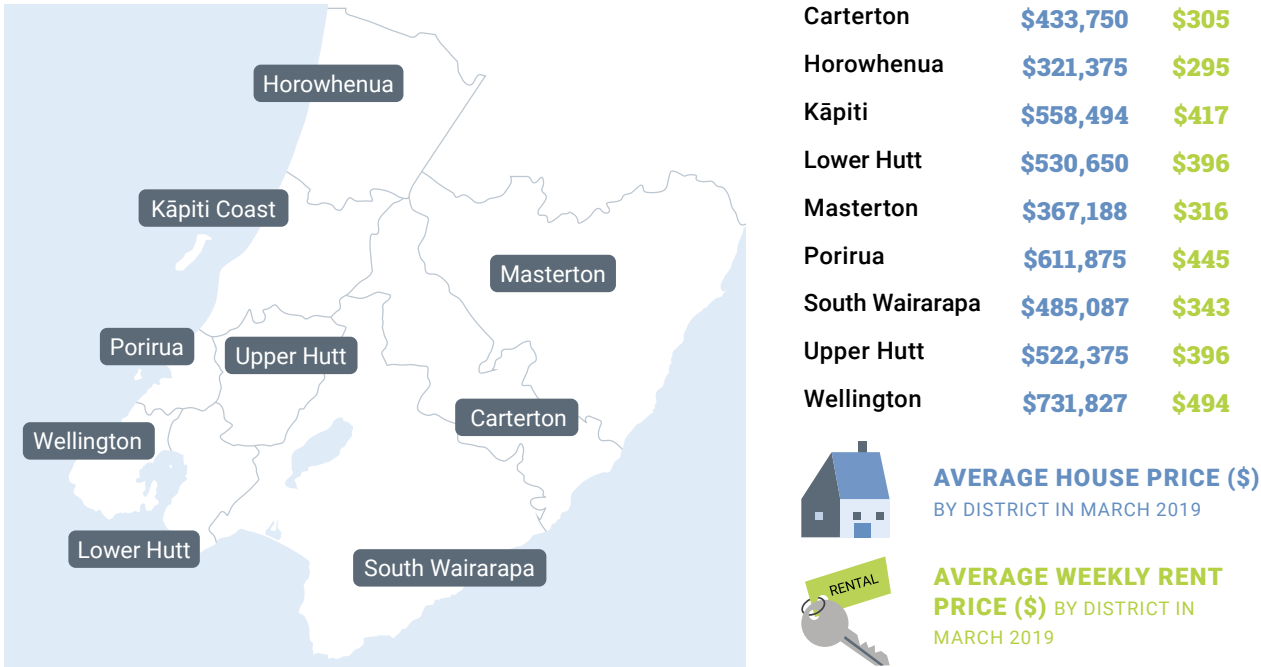
Housing – Affordability, Supply and Choice

The recently completed ‘*Housing and Business Development Capacity Assessment*’ reported a current shortfall of 4000-5000 houses for the metropolitan area¹⁰ within the region. Given that this assessment did not include the Wairarapa and Horowhenua, the shortfall can be expected to be greater and the resulting pressures are expected to be worse.

This shortfall in housing across the region is leading to decreasing affordability for renters and homeowners and long wait times for social and emergency housing with particular impacts noticed over the past 5 years. This is also increasingly contributing to homelessness, overcrowding and poor health and educational outcomes. These issues are now being found seen across all parts of the region, not just in one or two areas.

Decreasing housing affordability is changing the demand for housing within the region, pushing more residential growth to outer areas, and causing displacement of communities. The diagram to the right shows the range of average house prices and weekly rent prices as at March 2019¹¹.

Diagram 18: Map of Average House Price and Weekly Rent Price (\$) by District in March 2019



¹⁰ Being Kāpiti Coast, Lower Hutt, Porirua, Upper Hutt and Wellington

¹¹ Most recent figures (January 2020) show that the average rent price in Wellington City has increased to \$550 per week, an 11.34% increase in less than a year.

The graphs, to the right and over the page based on data from the He Kainga Oranga (2016) report 'Severe Housing Deprivation in Aotearoa New Zealand 2001-2013', the Ministry of Business, Innovation and Employment Urban Development Capacity Dashboard and 2006 Census data supplied by the Ministry of Housing and Urban Development (HUD) show these housing affordability pressures in a range of indicators.

Key points to note from the data is:

- Across the region, average rent per week increased 90.3% between 2000 to 2018.
- Across the region, average house prices increased by 74.8% between 2006 to 2018.
- Housing ownership affordability measures the average house price as a ratio of the average wage. In 2018, the average house price was nine times the average wage.
- The population of people in the region in severe housing deprivation increased by 31.2% from 2001 to 2013. At September 2019 over 1600 people had registered for social housing in the region compared with 300 people 5 years prior – a fivefold increase.

Diagram 19: Average Rent (\$) per Week Across the Region

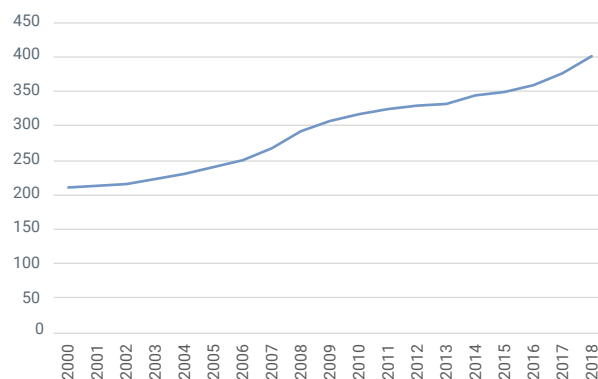


Diagram 20: Average House Prices (\$) Across the Region

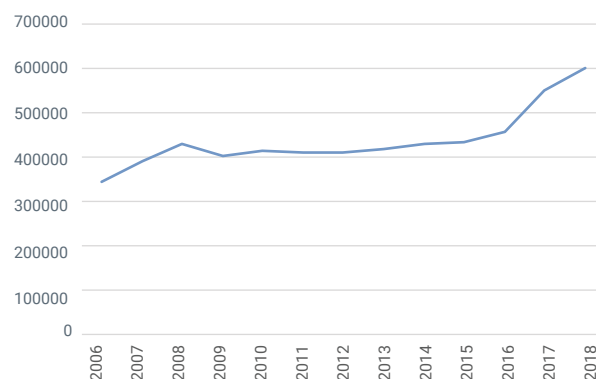


Diagram 21: Housing Ownership Affordability

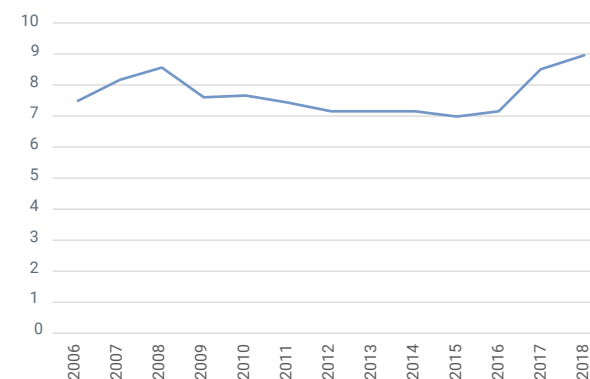
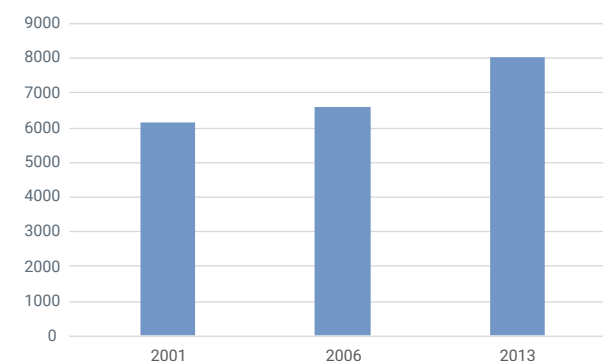
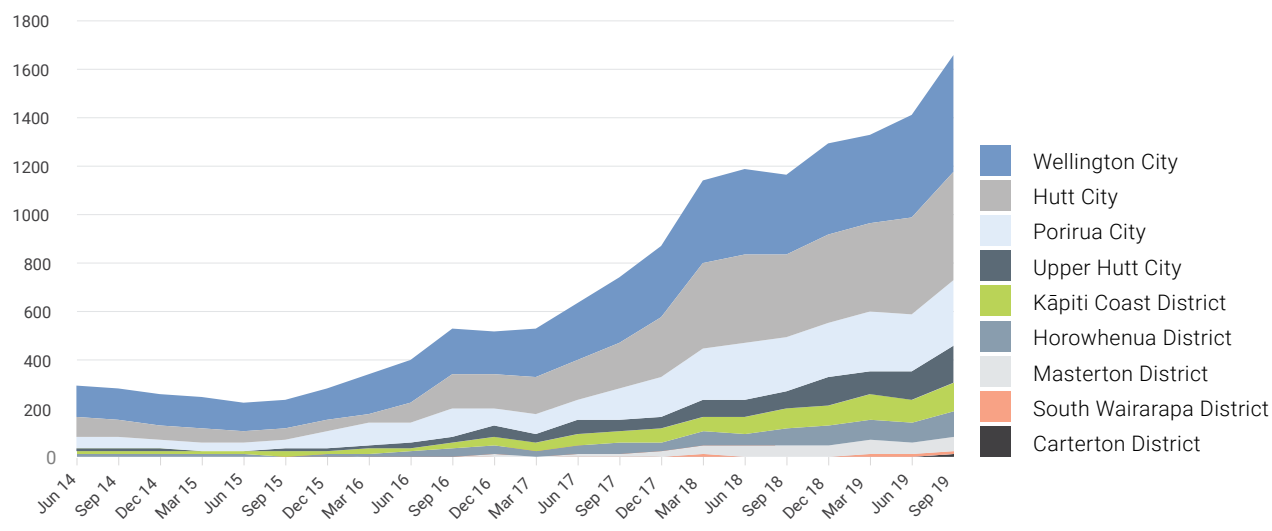


Diagram 22: Total Population of Those in the Region in Severe Housing Deprivation¹²



¹² Severe housing deprivation refers to people living in severely inadequate housing due to a lack of access to minimally adequate housing. This means not being able to access an acceptable dwelling to rent, let along buy.

Diagram 23: Social Housing Register for the Region by Territorial Authority



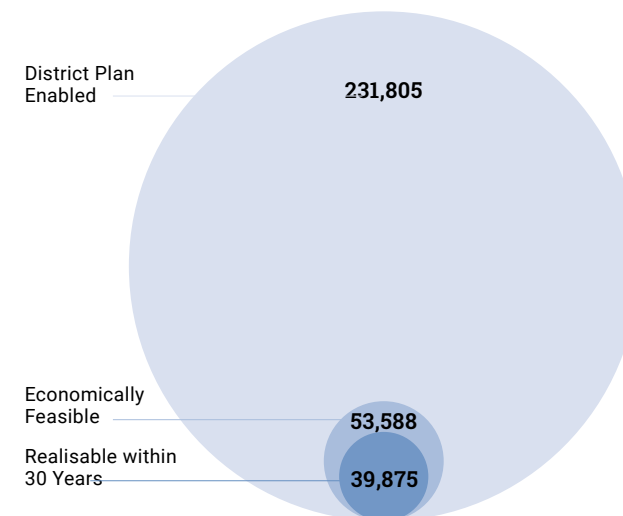
The region is predicted to have a population increase of between 91,000 and 151,000 people in the next 30 years. This growth would require between 52,000 and 66,000 more houses across the region.

Modelling from the 'Housing and Business Development Capacity Assessment' report predicts that at present only 40,000 houses are expected to be realisable within the next 30 years in the metro area¹³ and that the metro area housing shortfall is forecast to increase by 10,000-20,000 homes over the next 30 years.

Given that this assessment did not include the Wairarapa and Horowhenua, the shortfall can be expected to be greater given that these areas are experiencing the same housing pressures.

The report analysed the differences in housing provided under a number of scenarios. The diagram to the right shows this difference between various scenarios from district plan enabled to realisable land.

Diagram 24: Housing and Business Development Capacity Assessment – Predicted Housing Capacity Metro Areas¹⁴



Aside from the shortfall in housing numbers the key housing issues within the region relate to the limited types of housing being built which is impacting on housing choice and the limited capacity within the housing development and building sector.

The ability to provide for different types of housing over time, for example apartments, town houses and standalone housing is impacted by a number of factors such as demand, developers and home owners building traditional types of housing, the appetite of funders to fund different housing types, a disconnect between where land is zoned for these activities and where the market is willing to respond, sector capacity to build larger development and planning provisions.

¹³ This report included the territorial authorities of Kāpiti, Porirua, Wellington, Lower Hutt and Upper Hutt only

¹⁴ The 'Housing and Business Development Capacity Assessment' report defines District Plan enabled as capacity that is enabled by the respective District Plan of each Council; economically feasible as a finer grain analysis of the District Plan enabled capacity by incorporating costs and fees of development to understand what can actually be built and make a profit, under market conditions; realisable as an assessment of what is more likely to be built.

Limited capacity in the region is emphasised through land ownership, construction industry costs and capacity limits, supply and availability of infrastructure and a lack of competition in the construction industry. As an indicator, the cost of construction inputs (excluding labour and capital costs), have doubled since 1994.

All these aspects are impacting the ability to quickly provide the right quality and type of housing in the right locations to deliver housing at a significant scale.

As the region continues to grow there is a need to manage the development of the required enabling infrastructure to support this. The region has a range of challenging infrastructure issues including three waters, transport, electricity and broadband. The two key constraints of three waters infrastructure and transport are covered in the sections below.

Enabling Three Waters Infrastructure

The age, capacity and location of three waters infrastructure are all relevant for the ability of the region to continue to develop. Much of the three waters infrastructure is aged, in part due to an historic underinvestment in water infrastructure. This results in an infrastructure renewal bow wave anticipated over the next 30 years.

In addition to this, a challenge for councils at present is that housing growth has occurred faster in the region than was expected, meaning that in a number of cases, infrastructure investment is not keeping

up with housing growth. Whilst developers will fund some forms of new infrastructure, for instance in a new subdivision, growth also impacts on existing infrastructure that might already be at capacity.

The recently completed *'Housing and Business Development Capacity Assessment'* report included an investigation into the sufficiency of infrastructure. Whilst this investigation was not able to quantify the impacts of the constraints this has on development capacity, it did identify that there are pressures and constraints across the three waters networks of each council.

Those constraints vary in their scale and significance and the causes also vary between the water, wastewater and stormwater networks. For instance, capacity constraints in the wastewater network are often caused by stormwater infiltration but may also be caused by capacity constraints in pump stations. Water network constraints may be caused by storage shortages, or insufficient pressure to meet expected levels of service.

There are some possible implications for three waters infrastructure and service provision going forward from the National Policy Statement on Freshwater Management (NPS-FM) including a possible restriction on the amount of water take at a time when more housing growth than ever is expected. Most of the regions freshwater resources are already fully allocated under operative resource consents.

With the current funding constraints for local government funders and pressures on spending for three waters infrastructure, little is being done on implementing emerging technology options as

councils often do not have the ability to invest in new technologies whilst focusing on their current assets. Wellington Water¹⁵ strategic direction identifies a need to shift away from a business as usual approach and towards innovative design solutions which embrace new technologies.

Councils are required to update their Infrastructure Strategy every three years as part of the Long-Term Planning process. This strategy identifies, amongst other things, expected expenditure for three waters infrastructure. A snap shot of information from a number of Infrastructure Strategies for expenditure on three waters activity shows:

- Upper Hutt City Council – expenditure over the next 30 years (2018-2048) of \$189 million on capital expenditure and \$67 million on operational expenditure. This excludes UHCC's contribution to the Hutt Valley Wastewater Treatment plant.
- Wellington City Council – expenditure over the next ten years (2018-2028) of \$934 million on maintaining three waters assets and ensuring the provision of related services; \$221 million on renewing existing three waters assets; \$223 million on improving the level of service provided and \$36 million on building network capacity to respond to population growth.

¹⁵ Wellington Water is owned by Hutt City Council, Porirua City Council, Upper Hutt City Council, Wellington City Council, South Wairarapa District Council and Greater Wellington Regional Council. Their role is to manage the drinking water, wastewater and stormwater services for their council owners.

- South Wairarapa District Council – expenditure over the next ten years (2018-2028) of nearly \$12.5 million of capital expenditure (this does not include operating expenditure) on three waters infrastructure comprising upgrades, renewals and construction of new assets.

Early estimates indicate that billions of dollars of investment are required to bring three waters infrastructure in the region up to environmental standards. These estimates have been made by only a limited number of councils in the region and so this can only be taken as indicative at this stage. Work is underway to get more precise information.

Enabling Transport Infrastructure

Decisions around how and where to increase housing supply and choice need to factor in the ability of the transport system to provide access to the housing. This could be through making efficient use of existing system capacity, locating growth so that the need to travel is minimised, or by developing new infrastructure and services to support growth.

Significant transport activities have been identified for implementation in the region over the next 10-30 years (eg, Let's Get Wellington Moving package), both through National Land Transport Fund investment and through Crown investment via the NZ Upgrade Programme.

Through the NZ Upgrade Programme, the government has allocated \$1.35 billion of Crown funding over 10 years to Wellington transport system improvements. With a focus on improving safety, resilience, public transport and travel choice options, the four projects in this package spread across the region are:

- Ōtaki to north of Levin (Ō2NL) - \$817m.
- State Highway 58 safety improvements - \$59m.
- Melling interchange - \$258m.
- Railway upgrades north of Wellington - \$211m.

Local government funding for the land transport system may be constrained as councils face significant investment in the three waters and other infrastructure, particularly during the next 10 years.

Shifts in transport options, and changes in the way people pay for transport because of new technology, could impact revenue and provide increased opportunity for network optimisation and travel demand management activities.

While the volume of freight is presently forecast to increase (driven primarily by population growth), improvements in efficiency, electrification of the heavy vehicle fleet and changes in travel choice could impact revenue.

Significant investment of nearly \$100 million of Crown investment and \$200 million of NLTF investment is being made (throughout this NLTP period and into the next), in catch up renewals and capacity and resilience enhancements as part of the Wellington Metro Rail Upgrade programme. In addition, the New Zealand Upgrade Programme investment of \$211 million in

rail will (a) prepare the network for new dual mode trains and increased services; (b) increase capacity and safety of Wellington Railway Station; and (c) provide for the refurbishment of existing KiwiRail owned passenger rolling stock including the Capital Connection carriages (to keep them operational until new units are in service).

However, despite this investment, with the unprecedented growth occurring on the rail network - 6% patronage growth year on year; 9% peak growth year on year; 25% peak growth over the last five years - significant further investment will be required both in fleet and for rail infrastructure improvements before the end of the decade. This will require investment of approximately \$300 million for new dual mode multiple units (as detailed in GWRC's Lower North Island Longer-Distance Rolling Stock Business Case), and large infrastructure investments with multi-year planning and implementation timeframes. The cost and timeframes for these investments will depend in part on whether investment is responding to growth or stimulating new growth and development and mode shift towards rail. The Wellington Regional Rail Plan - currently in development - will provide more detail on the investment and lead-in time requirements.

Challenge 2: Many of the Urban Areas in the Region are Vulnerable to the Impacts of Natural Hazards and Climate Change, and as the Region Grows and Becomes More Densely Settled, it Will Become Increasingly Important to Improve Resilience and Protect and Enhance the Region's Natural Environment.

Natural Hazards and Climate Change

One of the challenges for the region is how to balance the existing built form and a continuing demand to build in coastal and/or hazard prone areas and the risks that this brings both currently and into the future with the impacts of sea level rise.

The recently published *'Wellington Lifelines Project – Protecting Wellington's Economy through accelerated infrastructure investment PBC'* analysed the economic costs of the region not being prepared for “the big one” and then analysed the savings to the nation if the region was prepared with infrastructure that was sufficiently resilient to be able to maintain services or recover rapidly. Utilising a scenario of a magnitude 7.5 earthquake on the Wellington fault, the work found that a coordinated investment of \$3.9 billion would save the nation \$6 billion after such an event.

Some councils in the region have announced a climate change emergency and have emissions reductions targets in place while others have or are developing

strategies and plans to reduce emissions and adapt to climate change impacts. Each council is at a different stage of maturity in developing and implementing their programmes. Wellington City Council, Hutt City Council, Porirua City Council and Kāpiti Coast District Council have each declared climate emergencies. Currently Wellington City Council and Hutt City Council have city wide emissions reduction targets. Kāpiti Coast District Council and Greater Wellington Regional Council have organisational emissions reduction targets. The other councils are in the process of developing or implementing climate change strategies. This is an indicator that councils and their communities are concerned about climate change and are allocating resources towards dealing with it.

The recently completed report *“Preparing Coastal Communities for Climate Change – Assessing coastal vulnerability to climate change, sea level rise and natural hazards”*, shows that the issue of sea level rise impacts will be the most significant in the highly populated settlements along the region's coast especially where key commercial or industrial areas are included, such as Porirua and Petone/Seaview.

A number of vulnerability heat maps were developed as part of this report and can be found at <https://www.gw.govt.nz/assets/Uploads/Wellington-Regional-Coastal-Vulnerability-Assessment-June-2019-Final.pdf>

The two most vulnerable coastal units for each district in the study area were found to be:

- Paraparaumu and Raumati (Kāpiti Coast District);
- Porirua and Pauatahanui (Porirua City Council);
- Seaview and Petone (Hutt City Council);
- Palliser and Whakataki (for the joint Wairarapa Districts).

A similar report undertaken by Wellington City Council in 2013 *“Sea Level Rise Options Analysis”* undertook an assessment of the impact of sea level rise for each coastal suburb, considering the impact on each of the four ‘well-beings’ – social, cultural, environmental and economic.

Assets at Risk

Several organisations have undertaken work on the value of assets at risk in the region based on various sea level rise scenarios.

Results from those studies show:

- In a LGNZ 2019 report '*Summary of Vulnerable: the quantum of local government infrastructure exposed to sea level rise*' the findings show that for the Wellington region the total replacement value of all exposed infrastructure at MHWS¹⁶ +0.5M and 1.5M is \$90M and \$850M respectively
- In a related LGNZ report, '*Vulnerable: the quantum of local government infrastructure exposed to sea level rise*' the findings with regards to buildings notes that there are some large jumps in value across elevation increments and that the Wellington region has a nine-fold increase between the 0.5 and 1.0 metre scenarios, with the value increasing from \$36 million to \$320 million.
- The '*Sea Level Rise Options Analysis*' report undertaken for Wellington City Council found that the city-wide impact of sea level rise of 0.6 metres was that \$0.4B of assets would be affected and 150 residents potentially displaced. At sea level rise of 1.5 metres, \$6.5B of assets would be affected and 2000 residents potentially displaced.

Some of the regions three waters infrastructure resides in areas that are already being, and likely to become more impacted by climate change. This includes three waters assets along coastal corridors, in flood prone areas and in areas of increased storm surges. Recent estimates are that 3,453km of three waters pipelines and 73,053 three water nodes are at risk from flooding.

Three waters infrastructure is also at risk from seismic events. The Wellington Water '*Three Waters Strategy – 2018*' notes that the three waters networks within the region cross numerous faultlines including the Ōhāriu and Wellington faults, making them vulnerable to seismic events. Assets noted are the bulk water supply pipelines from the Te Marua treatment plant to Porirua and Wellington which crosses the Wellington Fault in three different places, the Waterloo bore field and treatment plant and the wastewater trunk pipelines.

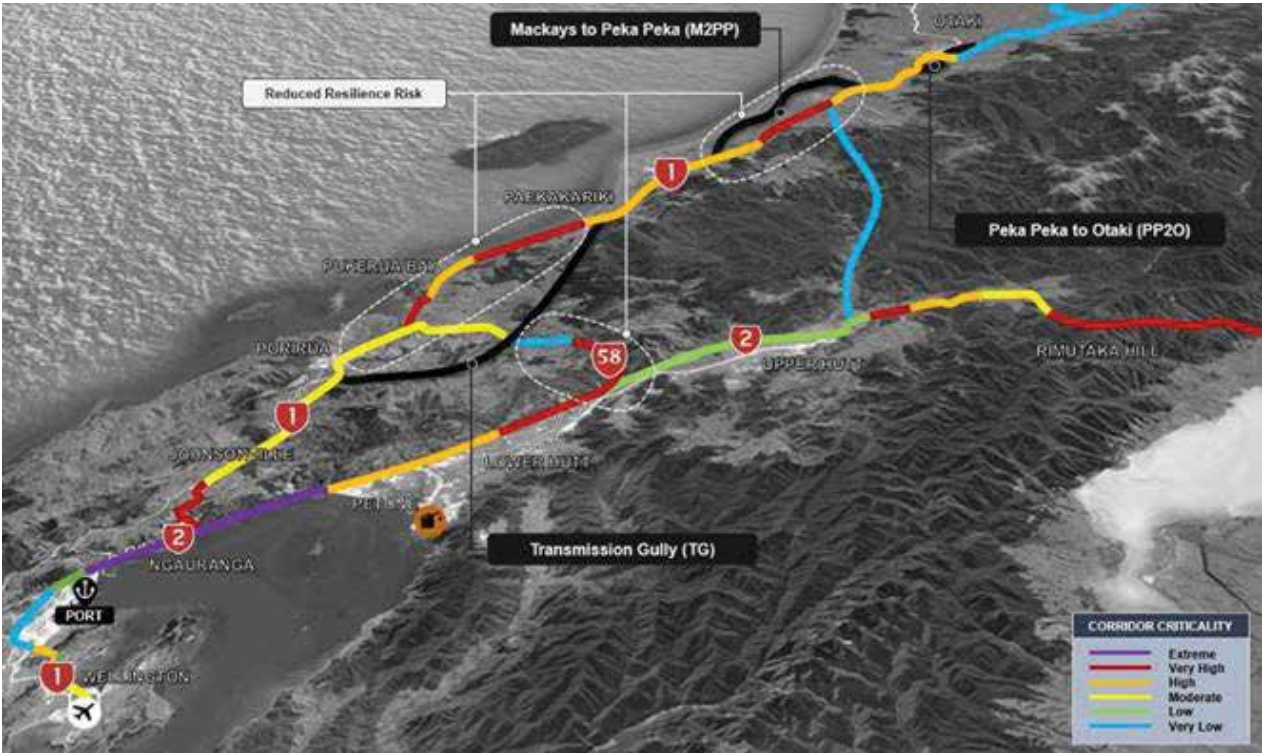
Movement of residents, visitors and freight faces significant seismic and resilience risk due to the heavy reliance on the western and eastern road and rail corridors to connect people and goods with employment centres, services and key hubs including the port and airport. These transport corridors (road and rail) and CentrePort are located on a series of major fault lines and/or in areas susceptible to future sea level rise and more frequent storm or flooding events.

Some recent work by NIWA, '*Exposure to coastal flooding – 2019*' and '*Exposure to river flooding – 2019*' identified that 1515kms of road, 37km of railway, 43,360 buildings and 93 kilometres of National Electricity Grid Transmission lines and 138 National Grid Transmission structures within the Wellington region are at exposure to coastal and fluvial (river) flood hazards. Within the Manawatu-Whanganui region there are 1680kms of road and 234km of railway at risk – this includes Horowhenua and others areas within that region.

Key parts of the transport system as seen in the diagram overleaf have been assessed as being extremely, very high, or highly vulnerable to earthquake, tsunami, or storm risk. These includes SH2 Petone to Ngauranga, SH1 Ngauranga Gorge and coastal sections, rail infrastructure such as the Remutaka Rail Tunnel Approaches, Northern Rail Overbridge and other local road bridges. In the event of a major seismic event or a very large landslide, some of these corridors could be closed for several weeks, even months.

¹⁶ Mean high water springs – this is the highest level that spring tides reach on the average over a period of time.

Diagram 25: Resilience Criticality Rating¹⁷ of Transport Corridor



The heavy reliance on a limited number of corridors, and a lack of viable alternatives routes in many areas, makes Wellington's transport system highly susceptible to disruption. In addition, the close physical proximity of road and rail corridors to each other exacerbates resilience risks as unplanned events can impact on the operation of road and rail, with significant impacts for customers, particularly at peak times.

Following a significant event, the land transport system will play a critical role in the roll out of emergency lifeline services in the short term, as well as enabling social and economic recovery in the medium to long term. For example, following a major seismic event, the outage times for SH2 (Ngauranga and Petone) and SH1 (Ngauranga Gorge) are predicted to be between 6 to 12 months.

Buildings including earthquake prone buildings provide another challenge for the region. This is with regards to the physical nature of the impacts in or after an earthquake and the potential economic impact for businesses in both having confidence to operate in the region and also potentially not being able to re-establish their business in the short term after an event and moving their business elsewhere.

¹⁷ Criticality is a metric used to appraise the overall resilience risk of a corridor, considering the combination of route importance, the level of disruption, and presence of rail or utilities within the corridor. Criticality ranges from 'low' to 'extreme' and is used to prioritise resilience risks.

Natural Environment

The region has a good base with regards to the natural environment but increasing pressures from development coupled with higher expectations for better environmental outcomes and lower emissions from legislation like the Zero Carbon Bill and the proposed Natural Resources Plan mean we will need to do better.

Given the coastal and geological nature of the region we need to consider how to manage the tension between enabling development to provide for residential and economic growth (e.g. tourism), meeting the expectations of residents and protecting the natural environment from the effects of this growth. This includes consideration of aspects such as building on or near vulnerable areas, as well as iwi land, protecting highly productive land and protecting our drinking water supply and quality.

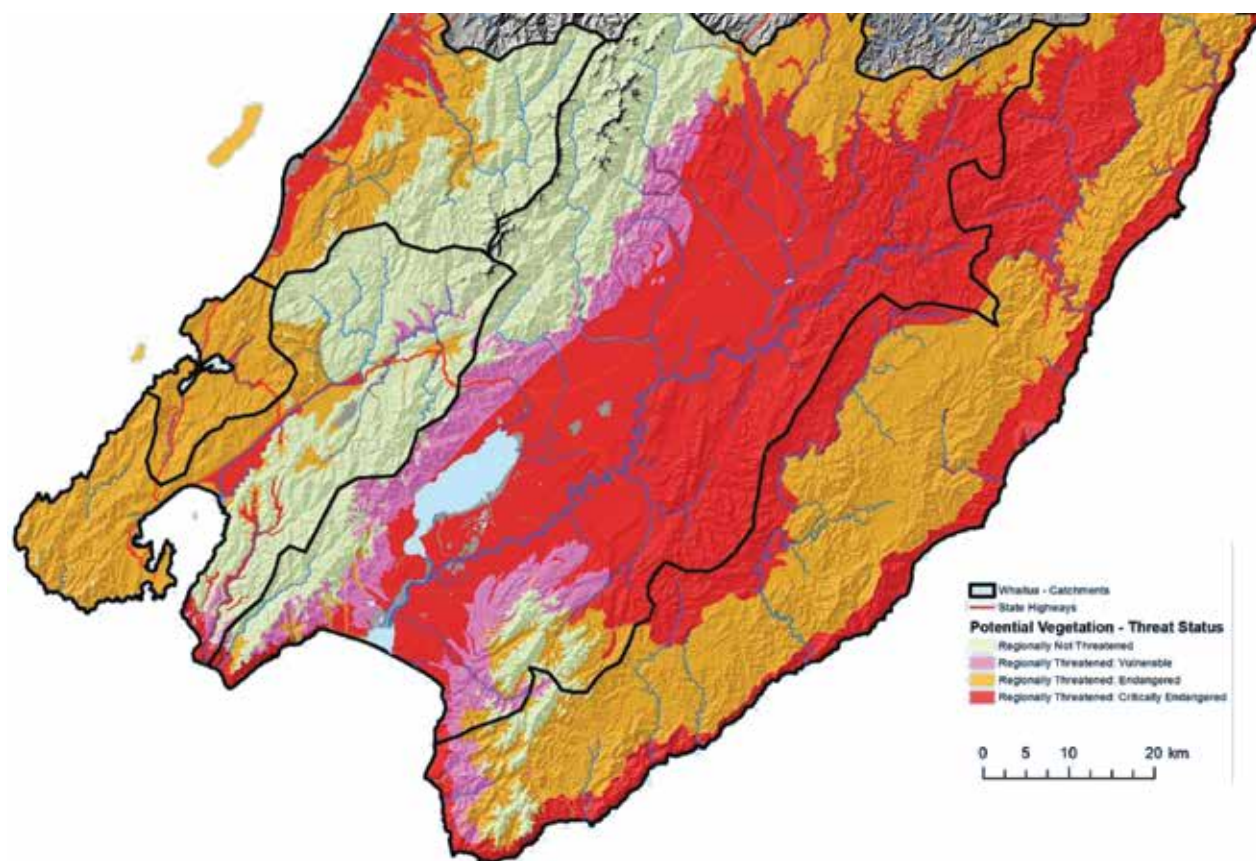
Since European settlement began in the region land use and development has had a significant effect on the natural environment within the region. In addition, current land use and development practices can continue to have an adverse effect on the natural environment. This includes impacts such as vegetation clearance, disturbance of landscapes, discharges of contaminants to waterbodies (including sediment), increased water takes and loss of streams.

Before human arrival forests covered about 98% of the landscape. Other natural ecosystems, such as wetlands covered a greater extent also. Today in the Wellington region 27% of original forest cover remains, and less than 3% of the region's natural freshwater wetlands remain. Many of the region's native species are nationally threatened or at risk, including 71 birds, 10 reptiles and 11 fishes.

A Greater Wellington Regional Council report, *'Forest Ecosystems of the Wellington region – 2018'* identified the potential vegetation threat for various forest ecosystem types as can be seen in the diagram below.

It notes vegetation using a four-scale system being regionally not threatened, critically endangered (less than 10% remaining), endangered (less than 30% remaining) and vulnerable (less than 50% remaining).

Diagram 26: Forest Ecosystem Threat Status



Vegetation in the Wellington region is now dominated by grassland (and other herbaceous vegetation) comprising about 46% of the land area. Forests cover about 36% of the region with scrub/shrubland covering a further 12%. Urban areas, cropland and water bodies make up the remaining land area. In recent years exotic forests, croplands and urban areas have expanded at the expense of indigenous forest and scrub and exotic scrub and grassland.

The proposed National Policy Statement for Highly Productive Land proposes that councils will be required to consider the availability of highly productive land within their region or district for primary production now and for future generations. This is being proposed to prevent the loss of more of the productive land and promote its sustainable management. This will have an impact on where housing can be developed in the region.

Within the region these areas can be found mainly in Horowhenua, the Kāpiti Coast and the Wairarapa. The diagram to the right identifies land by Land Use Capability (LUC) ratings, which show that the land with a rating of 1-3 comprise the region's most versatile soils.

Within the region there are numerous competing demands for water; we use water for drinking, agriculture and horticulture, disposal of stormwater and wastewater, transport and recreation and cultural activities. There will be an increasing need to balance the protection of our waterways with an increased population and the need for access to waterways for liveability.

The Wellington Water 'Three Waters Strategy – 2018' identifies that the water quality in the Wellington metropolitan area is variable. It noted, in 2018, that degraded fresh water bodies include the upper and

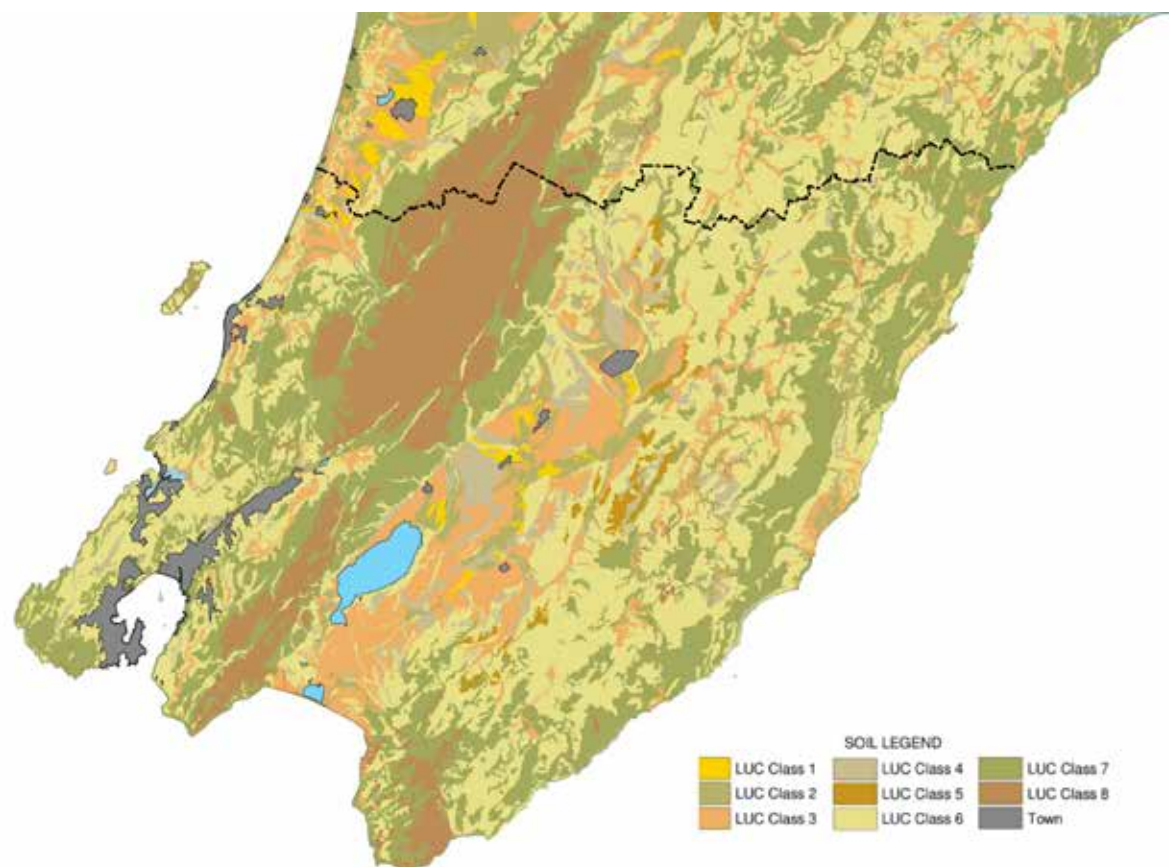
lower reaches of the Porirua stream, the Waiwhetū stream and the Karori and Kaiwharawhara streams and that these streams often contained elevated E.coli concentrations, nutrients and poor water quality.

The National Policy Statement on Freshwater Management provides national direction for freshwater

and will require an integrated approach to managing land use, fresh water, and coastal water.

Within the region we need to build housing taking into account natural hazards, preservation of highly productive soils and protection of biodiversity identified areas, wetlands and streams.

Diagram 27: Land Use Capability Ratings for the Region



Challenge 3: There is Inequitable Access to Social, Educational and Economic Opportunities Across the Region.

Inequitable Access

Whilst the region overall has a highly productive workforce and high average household incomes, this is not consistent across the region and can be an issue for those areas where wage levels are not keeping up in a region where the cost of housing is increasing.

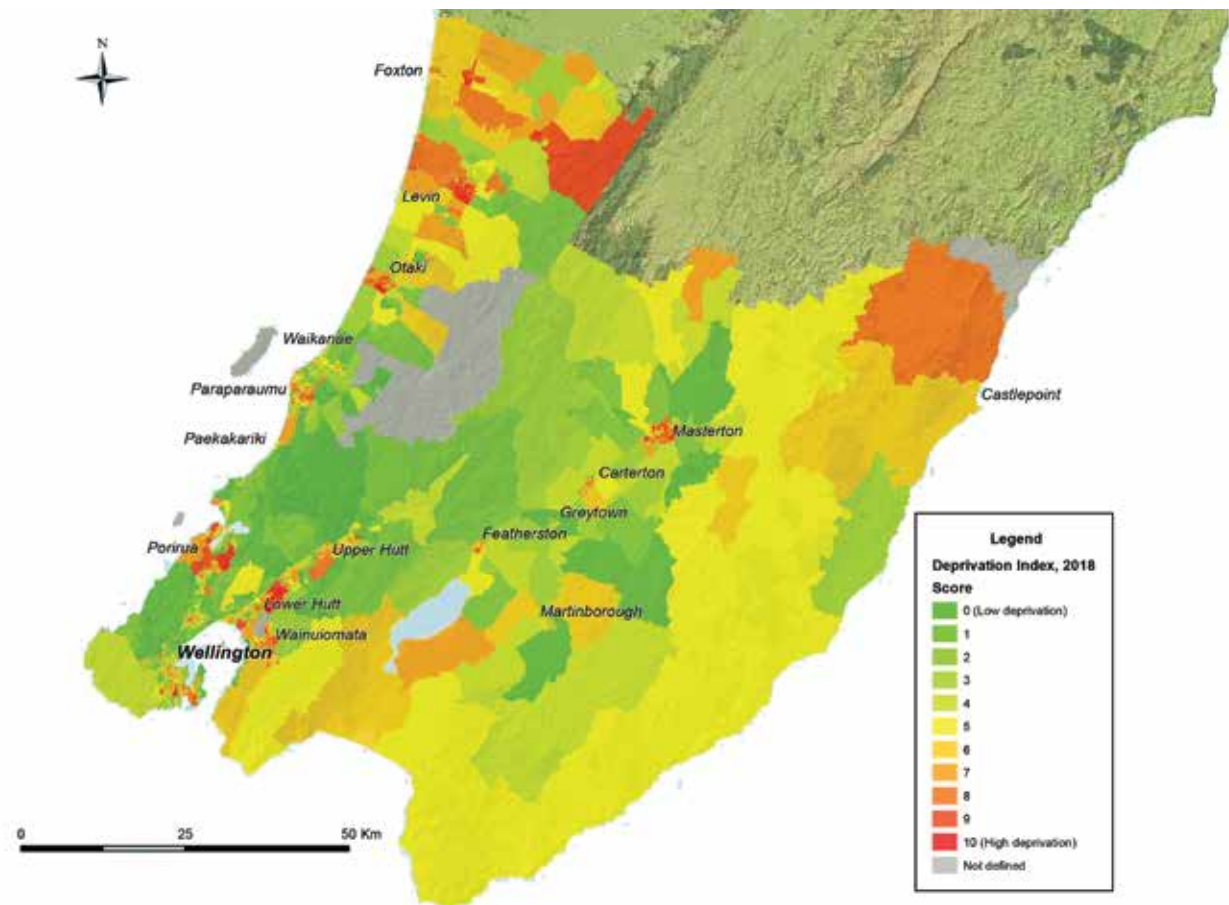
There are communities across the region with high levels of deprivation as seen in the diagram to the right. These communities also often have poorer access to employment. Key areas within the region identified as having high deprivation are Taita and parts of eastern and western Porirua, with additional noted areas being Masterton, Ōtaki, Levin and parts of Wellington City.¹⁸

The 'Wellington Regional Genuine Progress Indicator (GPI)' identifies that in 2013, 24.3% of the Wellington region population were living in deprivation (areas with decile ratings of 8, 9 or 10).

¹⁸ The map makes an assessment of deprivation based on meshblock boundaries rather than population so whilst some areas might look large this is because the meshblock is large, not the number of people who live there.

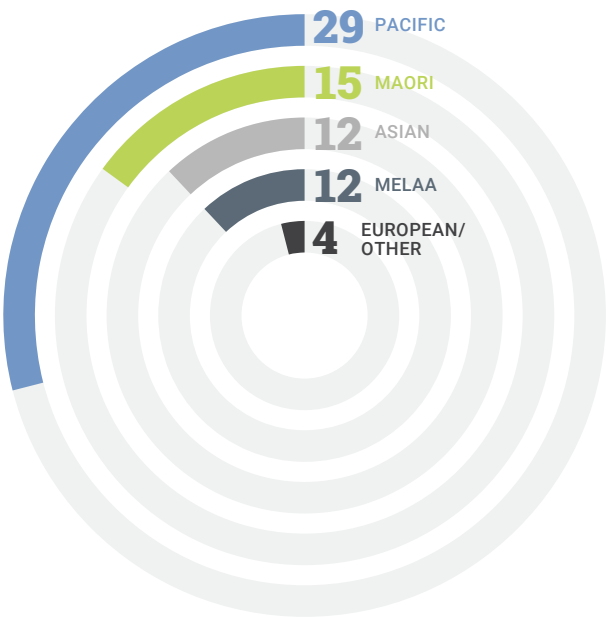
¹⁹ The NZDep2018 Index of Deprivation reflects eight dimensions of material and social deprivation. These dimensions reflect – lack of income, employment, communication, transport, support, qualifications, owned home, living space

Diagram 28: Deprivation Index¹⁹ 2018



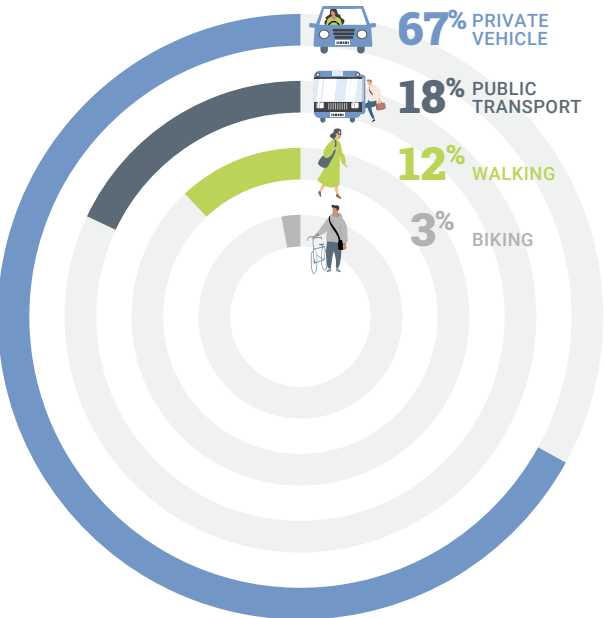
Social isolation, marginalisation, gentrification and displacement are all threats to community and individual wellbeing. For example, increasing housing costs are pushing long term residents out of communities such as Eastern Porirua and Ōtaki to more peripheral areas of the region. This is disrupting long term family and community relationships and social networks, including those of Iwi and hapū and Pacific communities. The diagram below shows rates of severe housing deprivation from 2013, with the highest rates in our Pacific communities.

Diagram 29: Severe Housing Deprivation Prevalence per 1,000 Population by Ethnicity in the Wellington Region



With 40% of the region's workforce working in central Wellington communities that live near central Wellington or along one of the north-south corridors have a range of transport choices, and relatively good access to the jobs and opportunities located in central Wellington. This is reflected in diagram on mode share split. It reflects the Wellington region having the highest public transport and active transport share of any New Zealand region; with 33% of all peak and off-peak journeys being undertaken either by public transport, walking or cycling.

Diagram 30: Wellington Region Mode Share Split 2013

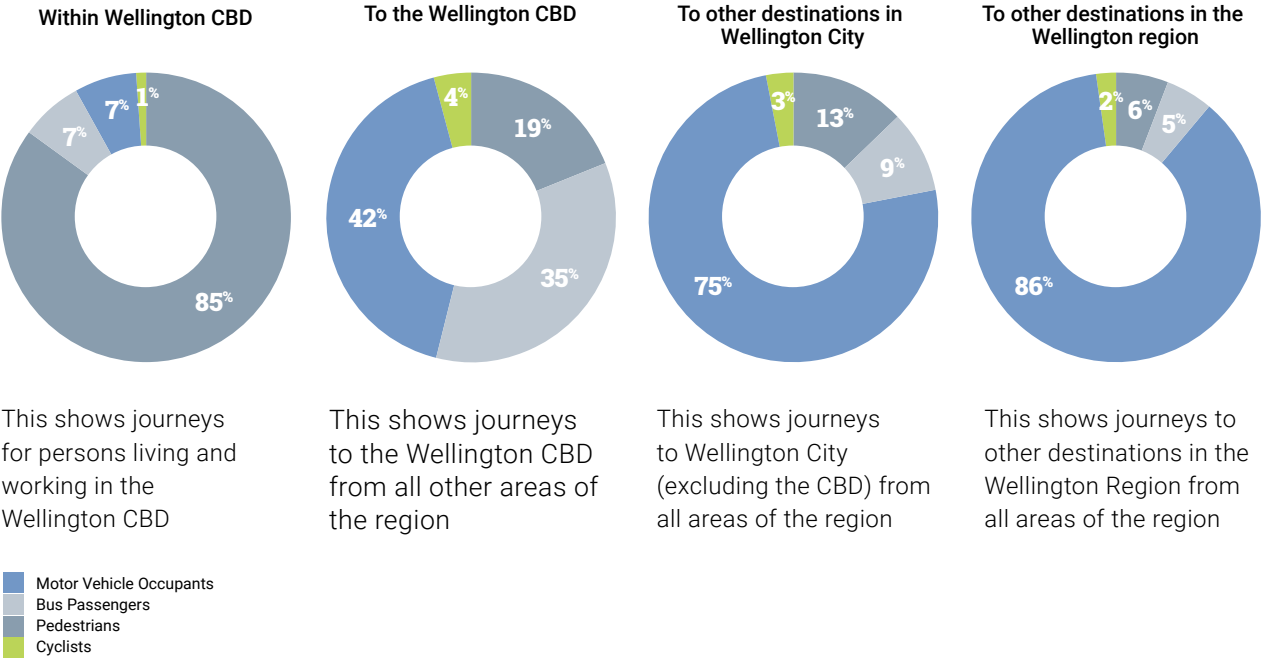


This however is not the case for people not living near the north-south corridors or working in other parts of the region.

Journey to work trip information from the 2013 census as seen in the diagrams overleaf shows the travel choices utilised by people and the extent to which the use of active modes/public transport decreases and the use of motor vehicles increases as the journey to work becomes longer and possibly more complicated.

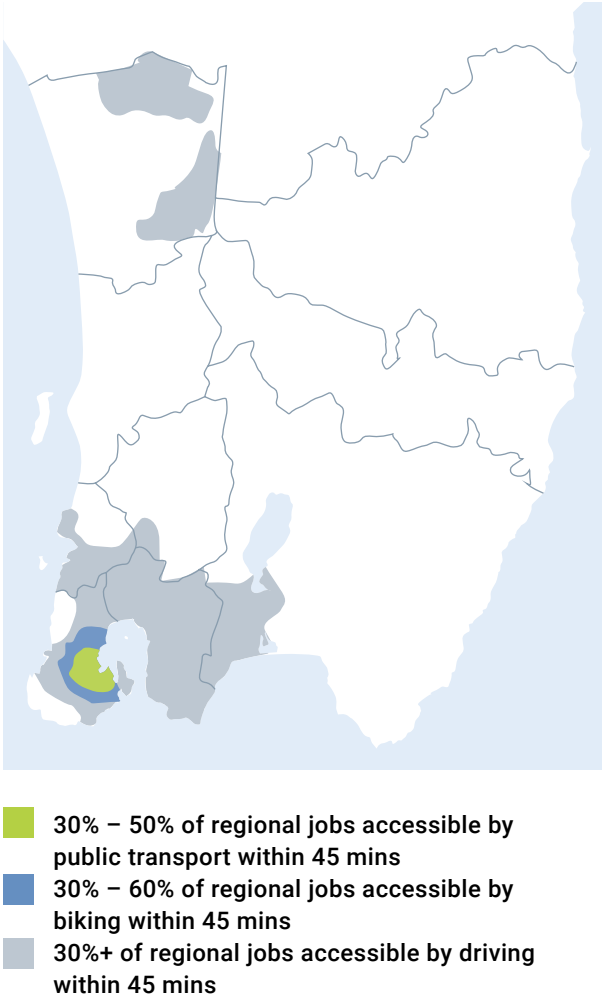
This ranges from short trips to work within the Wellington CBD with very high levels of active transport and public transport and a corresponding very low level of motor vehicle occupants to longer and more possibly complicated trips to destinations in the Wellington region with the opposite pattern – a very low level of active modes/public transport and a very high level of motor vehicle use.

Diagram 31: Journey to Work Trips 2013



Consistent with this the map shows spatially, access to employment opportunities by public transport, bike and car. It shows how those living close to the employment centre have good access to jobs by public transport (bus); slightly wider access by 30-minute bike ride; and that more jobs can be accessed by driving. However, it must be interpreted with care as this is based on door to door journeys and shows jobs within a certain timeframe by mode of travel, divided by total regional jobs.

Diagram 32: Access to Percentage of Regional Jobs by Different Modes



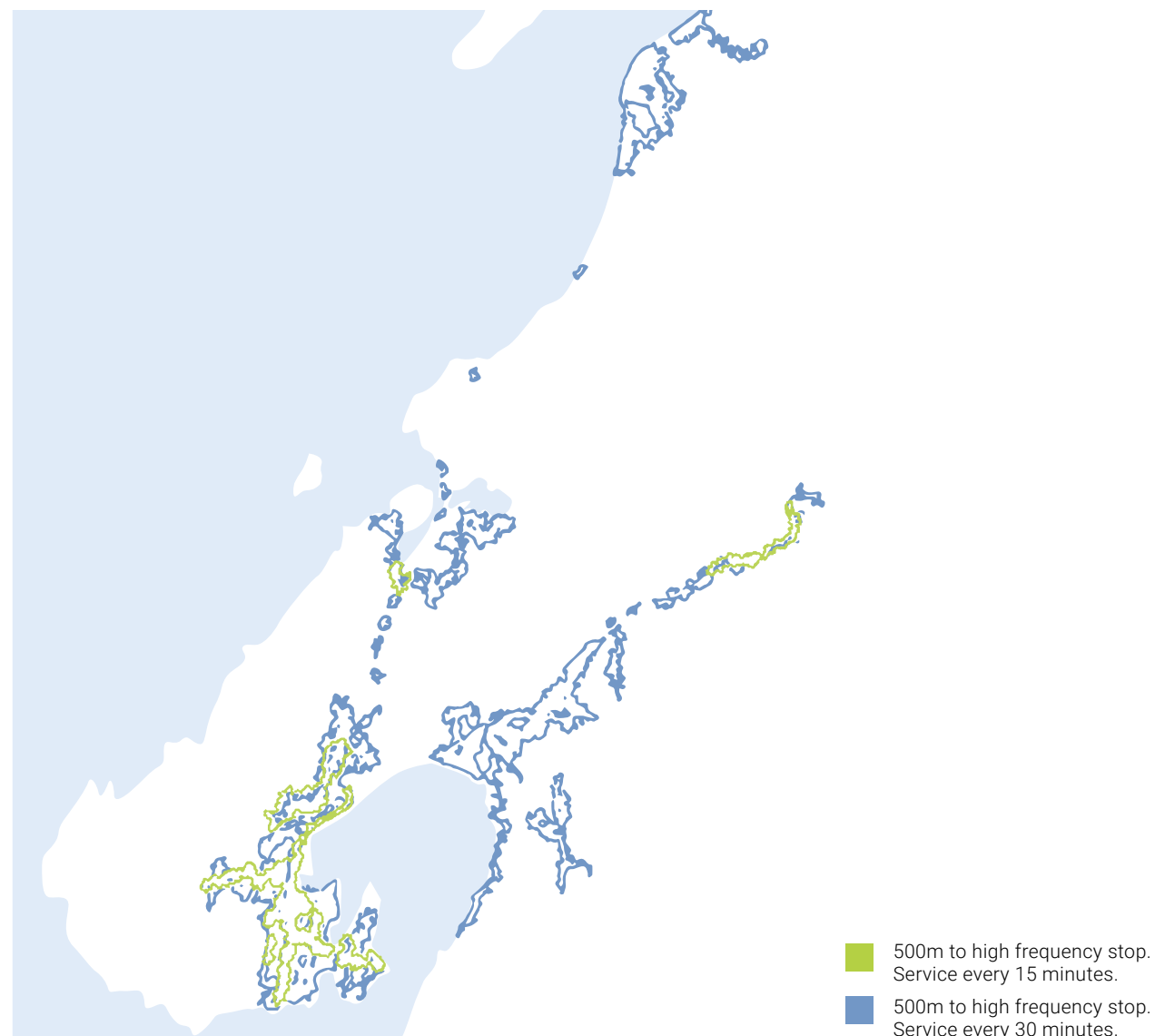
In some parts of the region the ability to travel to access social and economic opportunities is constrained by factors such as unaffordability of travel, the lack of east-west corridors, the predominance of jobs in central Wellington, jobs that cannot be accessed by public transport such as shift work or where people work in multiple locations, and the location of social infrastructure in places with limited public transport.

It is also impacted by aspects such as public transport networks across the region not being well connected (eg between east and west, and sometimes between bus and rail), ticketing systems not being integrated (e.g. train to bus) and the cost of public transport.

Across the region the predominant pattern of low-density suburban development that is not well served by public transport, continues to place reliance on private vehicle use. All these aspects add barriers and costs for communities marginalised on the geographical fringes.

The diagram to the right shows the areas that are within 500 metres of a high frequency (every 15 minutes) bus or rail service; as well as those that are within 500 metres of a service at a frequency of every 30 minutes. The high frequency services are mainly available to those within Wellington City; and where express services are offered.

Diagram 33: Access to Frequent Public Transport



These factors combine to provide inequitable access for those who do not own a car, cannot afford to operate a car, or who do not have a license.

The physical environment plays a significant role in the health and wellbeing of communities; affecting lifestyle choices and environmental quality. Public Health Advisory Committee research demonstrates that car dependant lifestyles in New Zealand are implicit in prevalent health issues including obesity, type 2 diabetes, hypertension, emphysema, asthma and cardiovascular disease.

Car dependant urban form is also linked to neurodevelopment and cognitive function problems, hearing loss, sleep disturbance, poor mental health, increased road traffic injuries and deaths and social isolation. Urban forms dominated by cars typically have increased levels of air, water and noise pollution as well as higher carbon emissions per capita.

Populations in New Zealand most adversely affected by car dominated urban forms include children, the elderly, Māori, those with disabilities and persons in more deprived neighbourhoods. It is interesting to note that whilst the region has one of the highest uptakes of public and active travel modes in the country, public space within our central city areas is largely dominated by roads and car parking.

With much of the economic activity in the region occurring in central Wellington we need to identify how to retain this central economic strength²⁰ whilst maximising opportunities for people to work closer to where they live as one way to improve access to jobs.

Internationally achieving 30 minutes by public transport access to social, educational and economic opportunities is used to guide development and enabling more equitable access for all. This may be a measure that the Framework can utilise.

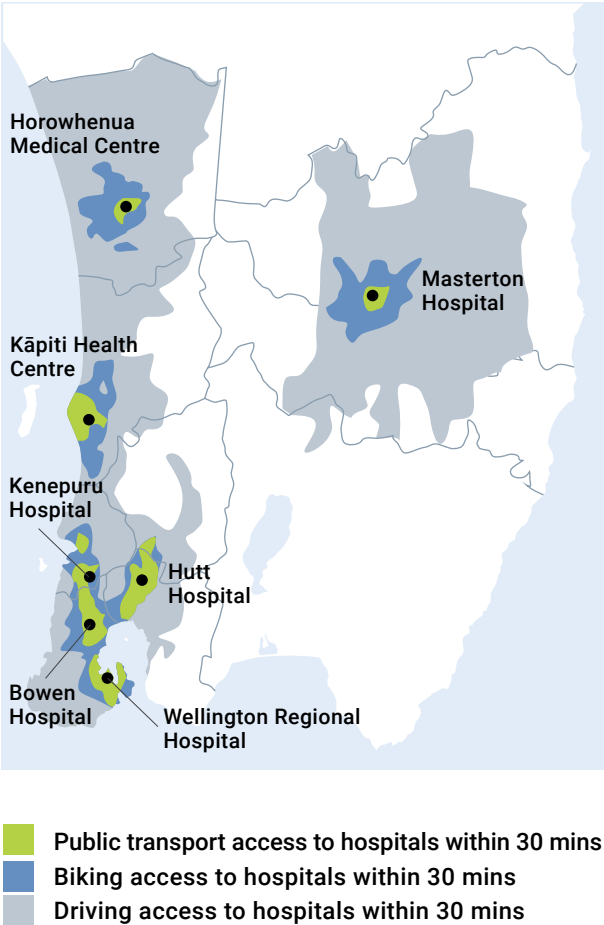
Access to Social Infrastructure

Where social infrastructure is located, along with the services provided can contribute to limiting access to these facilities and services for people. Both local government and central government in the region are major investors in social infrastructure such as libraries, parks, schools, universities and polytechnics, health centres, hospitals, cultural centres, marae, emergency community centres, museums and community and sporting facilities. The location of these facilities has a significant impact on how urban areas grow and change over time; where, how and why people move around urban areas; how socially connected they feel within their communities and carbon emissions.

Within the region, planning and investing in this social infrastructure is often done in silos, without considering wider urban development and wellbeing outcomes. Developing a Framework offers an opportunity to collaborate across agencies to plan and invest in social infrastructure and embed wellbeing into spatial planning.

The map to the right indicates the access to hospitals across the region with, not surprisingly, more options for travel to a hospital the closer people live to a hospital facility.

Diagram 34: Access to Hospitals by Public Transport, Bike and Car



²⁰ The recent 'Housing and Business Development Assessment' report identified that the economic output of the Wellington CBD is expected to be \$35 billion by 2047.

Access to educational opportunities

The Wellington Regional Investment Plan (WRIP) completed in early 2019, identified one of its four outcomes as building a modern, low carbon, high enterprise economy. It identified the challenge to develop and grow an enterprise economy. Supporting a step change in businesses from start-up to corporate through leadership skills and globalisation.

The “brains trust” of research and education providers enables a foundation for leading in the science and technology areas supporting the continual development and growth of the knowledge economy. This needs to be partnered with an equally strong vocational system to support development across areas such as construction, high value manufacturing and tourism.

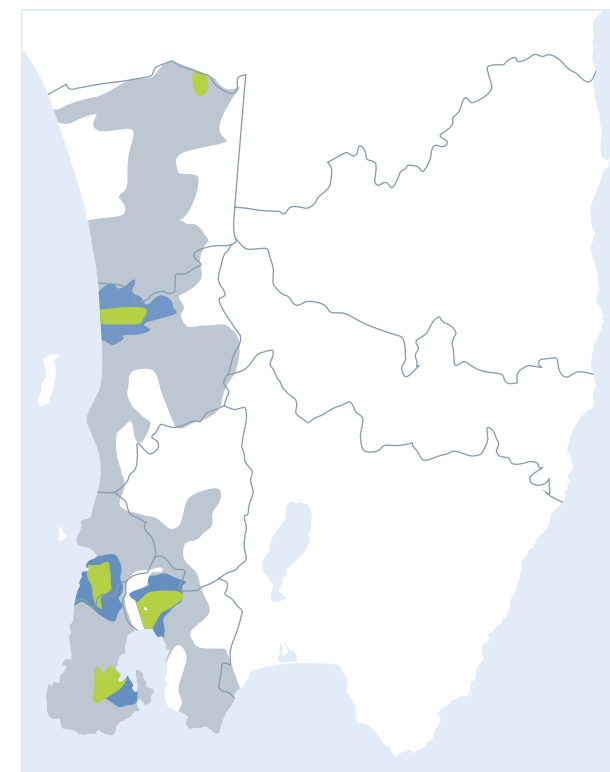
The region has a number and range of education and research entities in both the public and private sector. There are over 23,000 full time (full year) students, over 6,300 full time (part year) students and 22,900 part time students in the region. The Tertiary Education Commission expects the number of enrolments over the next five years to remain stable.

Whilst these opportunities exist across the region there is inequitable access to these opportunities that need a solution for the future and to enable the region to transition to a low carbon economy.

Studies show that in some areas in the region there are high numbers of youth not in employment, education, training (NEETs). For the Wellington region, as a whole, the figure is 10.4%; below the national average of 12.0%.

Transport opportunities to access tertiary studies varies across the region as can be seen in the map. For instance, those that live in areas where public transport stops at a certain time or is limited or difficult (e.g. between the Hutt Valley and Porirua) have their access to opportunities limited.

Diagram 35: Access to Tertiary Institutes by Public Transport, Bike and Car



- Public Transport access to tertiary institutes within 30 mins
- Biking access to tertiary institutes within 30 mins
- Driving access to tertiary institutes within 30 mins

Challenge 4: Mana Whenua and Māori in the Region have Poor Access to Affordable Housing Choices.

This project is an important opportunity for regional spatial planning to incorporate Te Ao Māori. The Framework seeks to support mana whenua aspirations, strengthen existing regional partnerships.

Regional Profile

The 2013 census reported that 64,824 Māori live in the region. 16% of Māori living in the region mana whenua to the region.

As noted elsewhere in this report, nearly 60% of Māori are currently under 30 years old. At the 2013 census 35% of Māori were aged under 15 years in the Horowhenua District.

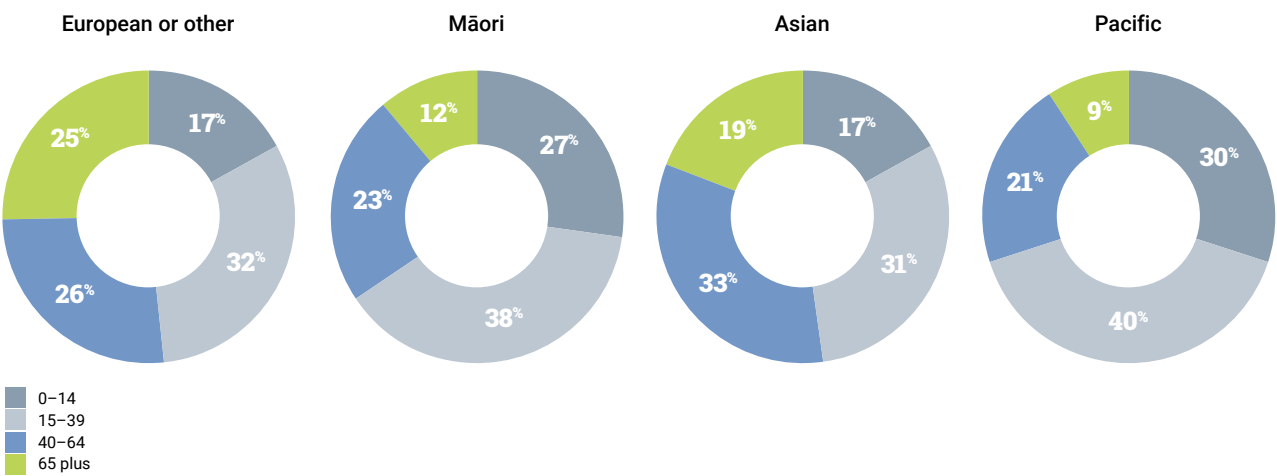
Statistics New Zealand population projections for 2038 show that 53% of Māori will still be under 30 years old, while for the rest of the population only 31% will be under 30 years old. The diagram below shows a higher level of 0-14 years population and 15-39 years for Māori with a similar picture for Pacific population.

Because the Māori youth population is so much larger than the region average, the Māori share of the working age population will grow in the coming years.

The over 65-year category will double for Māori from 5% in 2013 to 11% in 2038. For the rest of the population the over 65-year category will also nearly double from 15% to 26% in 2038.

A recent Berl report *“Making sense of the numbers – Māori economy in the Greater Wellington region – March 2018”* noted that Māori in the Wellington region earn \$1.2 billion in salaries and wages per annum and 11% of the region’s labour force are Māori. They also noted that Māori earn \$165 per week less than the regional average and that 10% of Māori are self-employed, much lower than the 17% of non-Māori. The median income for Māori in the Wellington region was \$24,100; which is \$8,600 less than the median income for the total population.

Diagram 36: Age Profile Projected for 2038 by Ethnicity



There are significant differences in the qualification levels of the Māori workforce across the region. The Berl report above identified that Wellington City has the highest proportion of Māori with a bachelor's degree and post graduate qualifications and also the lowest level of the Māori workforce with no qualifications. Masterton, Carterton and South Wairarapa District have the highest proportion of the Māori workforce with no qualifications.

These income and educational results would seem to translate into lower access to affordable housing choices, which in turn impacts opportunities for Māori to support whānau and build wealth.

Māori home ownership rates fell by over 2% between 2001 and 2013. Whilst the overall population of the Wellington region has a 50% home ownership rate at the 2013 census, only 28% of Māori own their own home. Severe housing deprivation data for 2013 shows the high level of severe housing deprivation for Māori; being 15 per 1000 population compared to 4 per 1000 for Pakeha.

Berl estimated that the average sale price of a house in the Wellington region was 8.8 times the median Māori household income.

For the overall New Zealand population, the ratio of average house sale price to median household income had increased from 4.8 to 5.1.

Why is Poor Access to Housing a Problem?

Te Puni Kokiri noted in its publication *'The Māori Housing Network – Investment Strategy 2015-2018'* that having access to safe and healthy homes in the right location, of the right size, and at the right price for current and future generations is important to whānau.

It also identified that secure, quality housing enables whānau to create and participate in communities (whether urban or rural), contributes to continuity of school attendance and educational achievement, and leads to better health and justice outcomes.

A MBIE publication, *'He Whare Ahuru He Oranga Tangata – The Māori Housing Strategy – Directions 2014-2025'* identifies that nationally Māori are significantly over-represented in severe housing deprivation and social housing. It notes that one third of all state houses are occupied by Māori tenants and Māori represent 28% of households receiving the Accommodation Supplement. We need to confirm equivalent figures for this region, but we would expect a similar pattern.

Increases in housing costs and changes to housing settlement patterns over recent years have resulted in some people in communities having their continuity of schooling and long-term family and community relationships and social networks disrupted. For instance long term residents of Porirua moving further out towards Ōtaki for affordable housing.

Housing Development

Access to affordable housing is a significant issue for Māori. The Framework recognises the aspirations of mana whenua, and the existing work being undertaken in partnership between mana whenua and the Crown; such as the management of state housing in Western Porirua by Te Āhuru Mōwai (Ngāti Toa Rangātira's community housing provider). The Framework seeks to build upon existing partnerships between central government, local government and mana whenua.

A number of papakāinga communities already exist or are underway within the region including Hurunui-o-Rangi Marae Papakāinga outside Carterton, Te Aro Pā Trust papakāinga housing in Wellington City and Te Puna Wai Papakāinga Housing Project in Wainuiomata.

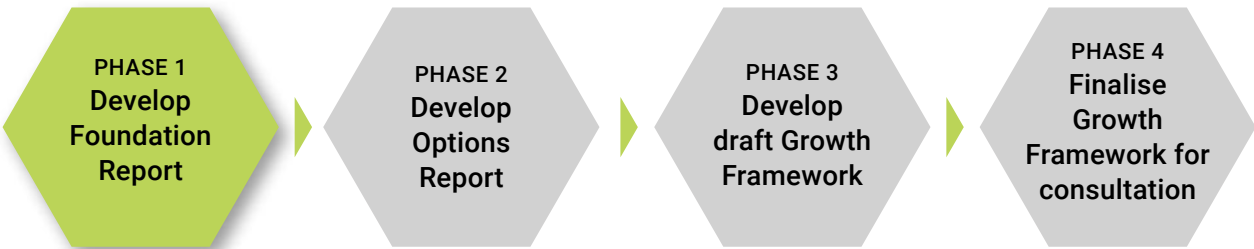
Through the Framework process we will continue to work with mana whenua in the region to identify opportunities for housing, education, protection of land and water and other taonga and economic opportunities. We will be continuing to work with a range of people; including mana whenua, Māori health providers, Māori business owners, Iwi in the region and others. Ongoing consultation and participation will ensure the aspirations of iwi and hapū are taken into account through the spatial plan.

Next Steps

This Foundation Report

As noted earlier in this report, this Foundation Report completes the end of Phase 1 of the Wellington Regional Growth Framework as seen below

Diagram 37: Phases of the Wellington Regional Growth Framework



This report has been developed based on readily available data. With Horowhenua included in this Framework but some data being based on the Greater Wellington Regional Council area, for some parts of this report we do not have complete or consolidated information.

We also expect that more up to date data (e.g. 2018 census data) will become available during development of the Framework and that our partnerships with mana whenua will evolve. Also we may commission additional work.

We intend to update this Foundation document so that an update is available at the end of phase 4 of the project that incorporates the most recent data.

The diagram overleaf identifies how the Framework Objectives and Challenges relate, that is if the identified challenges are resolved, which project objectives will be met. We expand upon this assessment in the next stage of work.

Diagram 38: Assessment of Objectives and Challenges

	CHALLENGE 1	CHALLENGE 2	CHALLENGE 3	CHALLENGE 4
Objective 1: Increase housing supply, and improve housing affordability and choice	✓		✓	✓
Objective 2: Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future		✓		
Objective 3: Improve multi-modal access to and between housing, employment, education and services	✓		✓	✓
Objective 4: Encourage sustainable, resilient and affordable settlement patterns/ urban form that make efficient use of existing infrastructure and resources	✓	✓	✓	✓
Objective 5: Build climate change resilience and avoid increasing the impacts and risks from natural hazards		✓		
Objective 6: Create employment opportunities.	✓		✓	✓

Scenario Development

This Foundation Report provides information about how the region is now and its current challenges. Work is also underway on Phase 2: Develop Options Report. We are developing our aspirations for the future.

We are using scenario planning to think about how the future might be in the region or how we might want it, using the agreed key challenges, and considering our aspirations for the future development of the region. We will use the scenarios to test what might be required under each possible future or think about how things might be. For instance, what transport solutions would be required under a particular scenario? What housing types and form might be more prevalent under a particular scenario? How would the environment be impacted?

Scenario planning is a tool. It does not assume that any of the scenarios will themselves be how the region is in 30 years but tests some thinking about how it might be.

The outcome from the analysis of scenarios will provide us with some strategic responses and programme options for consideration for the draft Wellington Regional Growth Framework.

The four scenarios we are examining at present are²¹:

- 1. Base case** – this scenario takes the region as it is now and adds some activity that we know is happening and will impact this. The Base Case will be used as a comparison against the other scenarios.
- 2. Respecting the natural environment, climate change and hazards when creating a low impact region** - this scenario assumes that in 30 years' time living and working within the region increasingly occurs where people are less impacted by natural hazards and they have less impact on the natural environment. This scenario is also aware of the long-term impacts of hazards and responds to them, including an element of "moving to higher or better ground".
- 3. Ensuring a vibrant economy in the context of transitioning fast to a low carbon future** - this scenario assumes that in 30 years' the region will have transitioned to a low carbon economy and society. This means that a whole system approach is taken to understanding and reducing carbon, and this approach has been rapidly implemented across the region.
- 4. Creating a socially equitable region**– this scenario assumes that in 30 years' every person living in the region will have better access and opportunities. While a true "equal level of service" is unlikely to be possible due to realities of travel times and distances, or costs of providing significant services, actions have been taken to make sure those people and areas disadvantaged are not under-resourced.

²¹ The scenarios are working to a 30 year timeframe but some will extent into the 30-100 year period

Shared Evidence Base – Technical Reports

This section outlines the various technical reports that have been used to inform the Foundation Report and provide a robust level of data and analysis as the basis of the shape of the report and identification of key challenges.

TECHNICAL REPORTS	WEBSITE REFERENCE (WHERE AVAILABLE)
2018 Quality of Life reports	http://www.qualityoflifeproject.govt.nz/
BERL - Making sense of the numbers, Māori economy in the Greater Wellington region – March 2018	http://www.gw.govt.nz/assets/Mana-Whenua-Partnership-Page-Images/BERL-Report-GWRC-final-report-29-March-2018.pdf
Competitive Cities: A Decade of Shifting Fortunes – Spotlight on Wellington – 2019	https://www.pwc.co.nz/insights-and-publications/2019-publications/citiesinstitute.html
GWRC – Preparing coastal communities for climate change, Assessing coastal vulnerability to climate change, sea level rise and natural hazards (Mitchell Daysh June 2019)	https://www.gw.govt.nz/assets/Uploads/Wellington-Regional-Coastal-Vulnerability-Assessment-June-2019-Final.pdf
GWRC - Forest Ecosystems of the Wellington region – 2018 Regional overview	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Forest-ecosystems-of-the-Wellington-region-reduced.pdf
GWRC - Air, land and water in the Wellington region – state and trends	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Regional-Overview-low-res.pdf
GWRC - Air quality in the Wellington region: State and trends	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Air-Quality-SoE-report.pdf
GWRC - Coastal water quality and ecology in the Wellington region: State and trends.	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Coastal-water-quality-and-ecology-SoE-report.pdf
GWRC - Freshwater allocation and availability in the Wellington region: State and trends	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Freshwater-Allocation-and-Availability-SoE-report.pdf

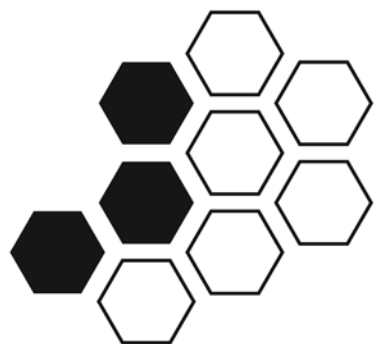
GWRC - Groundwater quality in the Wellington region: State and trends.	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Groundwater-Quality-SoE-report.pdf
GWRC - Recreational water quality in the Wellington region: State and trends.	https://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Recreational-Water-Quality-SoE-report.pdf
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Glossary

CDC	Carterton District Council
GDP	Gross Domestic Product
GWRC	Greater Wellington Regional Council
HBA	Housing and Business Capacity Assessment
HCC	Hutt City Council
HCV	Heavy Commercial Vehicles
HDC	Horowhenua District Council
HUD	Ministry of Housing and Urban Development
KCDC	Kāpiti Coast District Council
LUC	Land Use Capability
LGNZ	Local Government New Zealand
MDC	Masterton District Council
NIWA	National Institute of Water and Atmospheric Research
NLTF	National Land Transport Fund
NLTP	National Land Transport Programme
NPS-FM	National Policy Statement on Freshwater Management
NZTA	Waka Kotahi – New Zealand Transport Agency
PCC	Porirua City Council
PCE	Parliamentary Commissioner for the Environment
SWDC	South Wairarapa District Council
Three (3) waters	Wastewater, stormwater and drinking water
UGA	Urban Growth Agenda
UHCC	Upper Hutt City Council
WCC	Wellington City Council
WRIP	Wellington Regional Investment Plan



Wellington
Regional
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Framework

