Wellington Regional Growth Framework

Employment Analysis

October 2020

Introduction

Ka ora te wai ***If the water is healthy***
Ka ora te whenua ***the land will be nourished***
Ka ora te whenua ***If the land is nourished***
Ka ora te tangata ***the people will be provided for***

Mo te iti - mo te rahi ***For the little - for the large***

As outlined in the Foundation Report[1] for the Wellington Regional Growth Framework (the Framework), employment in the region[2] is concentrated in central Wellington and a significant number of commuters travel into central Wellington from other parts of the region for employment.

Regional employment is dominated by knowledge-based sector employment. With these jobs typically working conventional hours, a large number of people want to travel into and out of central Wellington at the same time each day.

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.

Purpose of this report

The purpose of this report is to summarise existing research and data to assist with regional spatial planning. No new analysis has been undertaken. This report should be read as an input into other work, and not as a final conclusion on the spatial direction for the Framework or as policy for any of the partner organisations.

This report builds upon the Foundation Report to provide background information to assist in analysing employment patterns and information and determine what changes may/could occur with regards to employment and the Framework.

A key direction during development of the Framework with regards to employment has been to ensure that Wellington Central remains as the core place of employment for the region but also that employment is more dispersed so people can work closer to where they live.

This direction will impact on a number of things such as changes to transport patterns and demand, lowering carbon emissions, creating nodes and major centres with housing and employment options and providing reduced travel time (and therefore increased social time) for workers.

More detailed work, than has been undertaken in the Framework, will need to be undertaken to understand in more detail:

1. How many jobs do we expect in each geographical area as of 2050?
2. What change is that from the current situation?
3. What type of jobs are they?
4. What do we need to do to make this change?

[1] WRGF Foundation Report 2020

[2] For the purpose of the Framework and this report, the region includes the territorial authorities of Masterton, Carterton, South Wairarapa, Upper Hutt, Lower Hutt, Wellington, Porirua, Kāpiti Coast and Horowhenua. **Note: Data referencing "the region" refers to this geographic areas, whereas data references that refer to the "Wellington region" exclude Horowhenua.**

Contents

Current regional employment trends

How many people are employed in the region?

In 2019, 302,802 people living in the region were employed[3].

The number of employed people in the Wellington region increased by 40,188 between 2013 and 2018. In 2018, 78.7% of employed people living in the Wellington region were employed full-time and 21.3% part-time[4]. Over the same period (2013-2018) the number of employed people in Horowhenua increased by 900[5]. 75.4% of employed people living in Horowhenua were employed full time and 24.6% part-time in 2018[6].

What kinds of employment?

Over half of the workforce in the region is employed in knowledge intensive sectors. The Wellington region possesses a highly skilled population and has proximity to business and innovation resources including the government, research, and education sectors. In addition, advanced manufacturing, one of the main technology hubs for New Zealand and a large proportion of the country's creative sector are based here[7].

Education qualifications are one of the most important indicators of socio-economic status.

Analysis of the qualifications of the population in the Wellington region in 2018 compared to the North Island shows that there was a higher proportion of people holding formal qualifications [Higher degrees, Bachelor degrees and Post School (excluding university) qualifications], and a lower proportion of people with no formal qualifications[8]. Incomes are generally highest in Wellington city[9].

Analysis of individual income levels in the Wellington region in 2018 compared to the North Island shows that there was a similar proportion of persons earning a high income (those earning more than $70,000 per annum) and a lower proportion of low income persons (those earning less than $15,000 per annum).[10] The median income in Horowhenua was less than $23,900 in 2018[11].

By employment, the five largest industries in the Wellington region (year-end March 2018) are shown in Diagram 1.[12]

Diagram 1: Top 5 Employment Sectors (Wellington region only)

[3] Infometrics (Horowhenua and Wellington region)
[4] Profile ID – GWRC Industries
[5] Infometrics (Horowhenua)
[6] StatsNZ 2018
[7] Deloitte
[8] Profile ID GWRC qualifications
[9] HBA Regional Summary
[10] Profile ID GWRC qualifications individual incomes
[11] StatsNZ 2018
[12] Arataki Wellington regional summary

By GDP, the five largest industries in the Wellington region are:

- Professional scientific and technical services
- Public administration and safety
- Financial and insurance services
- Health care and social assistance
- Information media and telecommunications.

By GDP, the five largest industries in the Horowhenua District are[13]:

- Agriculture, forestry and fishing
- Electricity, Gas, Water and Waste services
- Manufacturing
- Rental, hiring and real estate services
- Construction

Industries with the most growth between 2013 and 2018 (resident population in the Wellington region) were for those employed in:

- Public administration and safety (+8,433 persons)
- Professional, scientific and technical services (+8,130 persons)
- Construction (+6,285 persons)
- Accommodation and food services (+4,911 persons)[14].

By employment, the five largest industries in Horowhenua (2019) are shown in Diagram 2.

[13] Infometrics (Horowhenua)
[14] Profile ID – GWRC Industries

Diagram 2 Top 5 employment industries (Horowhenua)[15]

Industries which created the most jobs in Horowhenua between 2009 and 2019[16]:

- Health Care and Social Assistance (+205)
- Other Services (+161)
- Public Administration and Safety (+126)
- Wholesale Trade (+97)
- Construction (+95)

[15] Infometrics (Horowhenua)
[16] Infometrics (Horowhenua)

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

- The high importance of government, professional services, finance and ICT for Wellington City is singular for a territorial authority area in New Zealand.
- 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 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.

Wellington is home to a large and thriving software development industry, and the region has a high proportion of employees in other knowledge-intensive industries, from ICT to financial and insurance services.

In 2015, the Wellington region had the highest proportion of information and communications technology employment (ICT) in New Zealand[17].

[17] NZIER 2015

Wellington is home to a number of software and technological companies who have been internationally recognised for their rapid growth.

The film industry has also agglomerated in Wellington and generates 60% of the gross revenue generated by production and post production of feature films in New Zealand[18].

43.5% of the public service workforce is located in the Wellington region. This represented 23,662 full time employment (FTE) jobs in 2019. However, when including wider state sector employment (including education, health, public sector, state owned enterprises, local government employment) the region accounts for just 11.5% of national public sector employment (or 262,900 employees).[19]

The government's Ultra-Fast Broadband (UFB) programme and Rural Broadband Initiative (RBI) are recognised critical drivers of productivity growth and employment. As of March 2020, 46% of premises within the Wellington region with access to UFB have connected. 45% of target households or businesses for RBI2 have access[20]. There are however gaps in provision of ultra-fast broadband, particularly in the Wairarapa and Horowhenua.

Employment in the regional economy is diversified through the strength of the food bowls of the Wairarapa and Horowhenua. Winemaking and brewing have also increased in importance over the past few decades. There is a strong relationship between food and (mostly domestic) tourism in the region[21].

Māori economy

The Māori economy is an (integrated) subset within the broader regional economy and cannot be seen in isolation. It encompasses all people, entities and enterprises that self-identify as Māori.

In 2018, Māori made up almost 24.5% of the population in Horowhenua, with over half aged under 26 years.[22] While participation of Māori over 15 years in the labour force in Horowhenua was higher than the district average (65.8% compared to 58.1%), the unemployment rate for Māori was double the district average in 2018 (9.6% compared to 4.8%). 46% of Māori in Horowhenua have an average income of $20,000 or less.

The most common occupations for Māori in the Horowhenua District is as a labourer (21.7%) and community or personal service workers (16.5%). There is a notable difference in the most common occupations for Māori in Horowhenua by sex. [23]

A 2018 report for GWRC[24] (excluding Horowhenua) found Māori business thriving, with a strong presence in film, technology and business services.

Māori owned entities play a key role in commercial property, housing and social developments.

Māori make up 11% of the labour force of the Wellington region. The Māori labour force of Porirua City is particularly large, making up almost one fifth of the labour force of the city. The lowest proportion of the labour force that are Māori is in Wellington City, with only 7% of the labour force being Māori.

Māori in the Wellington region generate an income from salaries and wages of $1.2 billion per annum. However, overall Māori earn significantly less than the regional average. 30% of Māori in the region are employed in high-skill jobs, compared to 47% for non-Māori.

Notably lower home ownership rates constrained the ability of Māori to enter into self-employed or SME business enterprise.

Nearly 60% of Māori in the Wellington region are aged under 30 years old.

Within the Wellington region there are significant differences in the level of qualification of the Māori workforce between the eight Territorial Authorities. Wellington City has the highest proportion of Māori with a bachelor's degree and post graduate qualifications. Masterton, Carterton and South Wairarapa District have the highest proportion of the Māori workforce with no qualifications.

More than one third of working Māori in the Wellington region are employed in the social services

[18] StatsNZ Screen industry: 2017/18
[19] SSE 2018
[20] MBIE quarterly connectivity update (2020)
[21] Deloitte 2019
[22] StatsNZ 2018
[23] StatsNZ 2018
[24] BERL 2018

sector and half the working Māori work in retail trade and business services.

Some of the project partners have recently participated in developing "Te Matarau a Mauī: Collaborative pathways to prosperous Māori Futures in Te Upoko o Te Ika". There are a number of actions in that plan that are relevant for the Framework, in particular, Iwi, Māori collectives and Māori business growth and Investing in education, training and employment for Māori.

Geographical extent

Where do we live?

The presence of employment opportunities is a key driver of migration and where people choose to live.

Most of the region's population lives in its four cities, which are home to over 75% of the total population. This trend is projected to continue through to 2038[25].

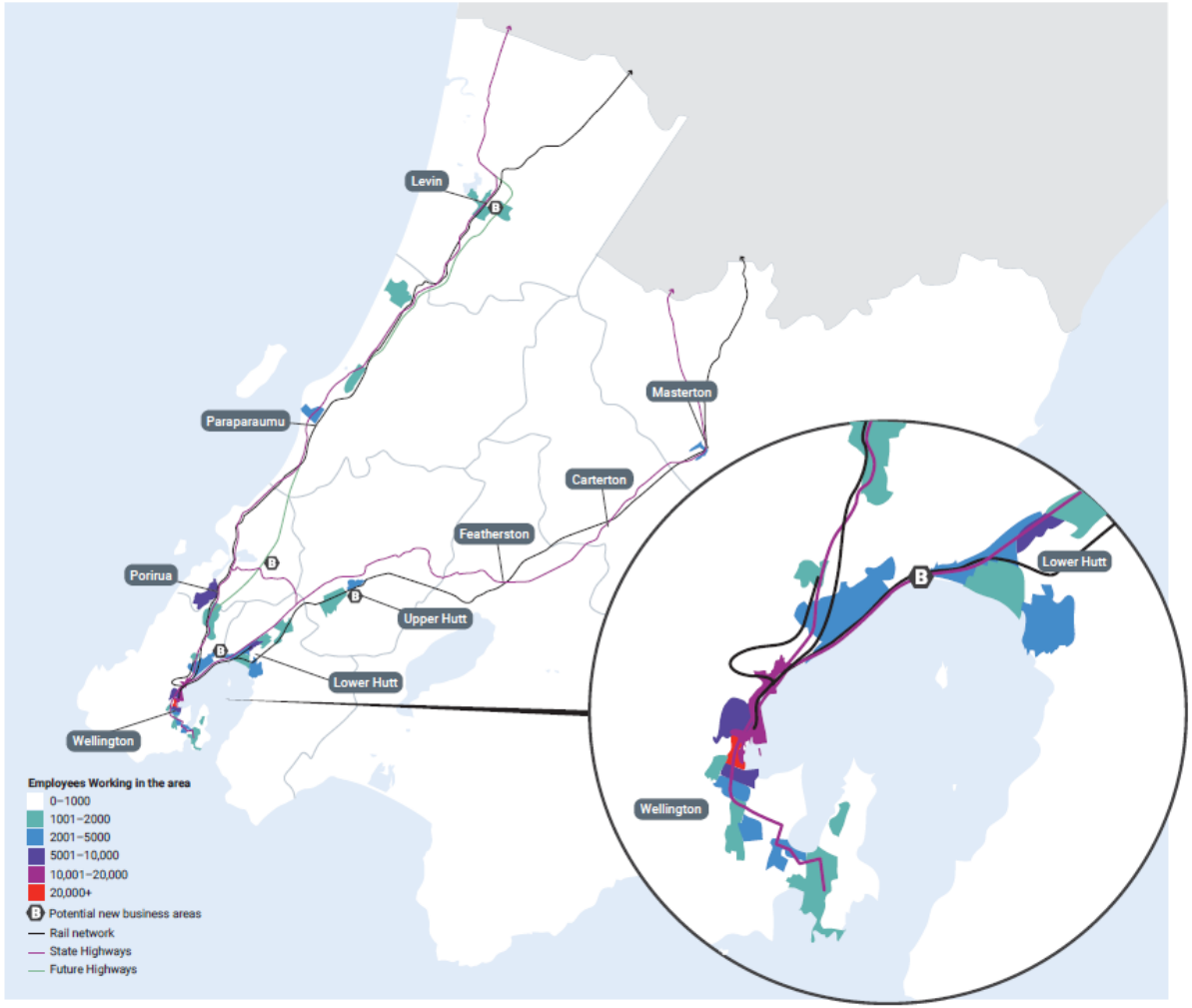
Where do we work?

Most of the region's residents (who are employed) work within the region. At the time of the 2018 census just 0.8% of the region's population primarily travelled outside of the region for employment[26].

The economic reach of the Wellington region extends to Horowhenua and beyond. In 2018, approximately 12.3% of the workers employed within the region lived outside of the region[27].

49.6% of the people who are employed and living in the Wellington region work in Wellington City (in both full and part time employment). 24.9% of these workers commute to the city, primarily from Lower Hutt, Porirua, Upper Hutt and the Kāpiti Coast[28].

Diagram 3 Number of employees by area unit 2013



[25] StatsNZ

[26] Profile ID – GWRC residents

[27] Profile ID – GWRC workers

[28] Profile ID – Wellington workers and Profile ID – GWRC employment status

Wellington City is the main regional employment centre[29]. During the work week Wellington City supports an additional 82,000 commuters[30]. Despite a much smaller regional workforce, central Wellington employs just 4000 fewer employees than central Auckland[31]. More than a quarter of Wellington City centre employment is public sector.

There are a number of other major employment centres in the western and eastern transport corridors and a number of smaller regional service towns in Kāpiti, Horowhenua and the Wairarapa. Diagram 3 highlights that jobs are centred within the region's city and town centres and particularly in Wellington City.

All of these centres 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).

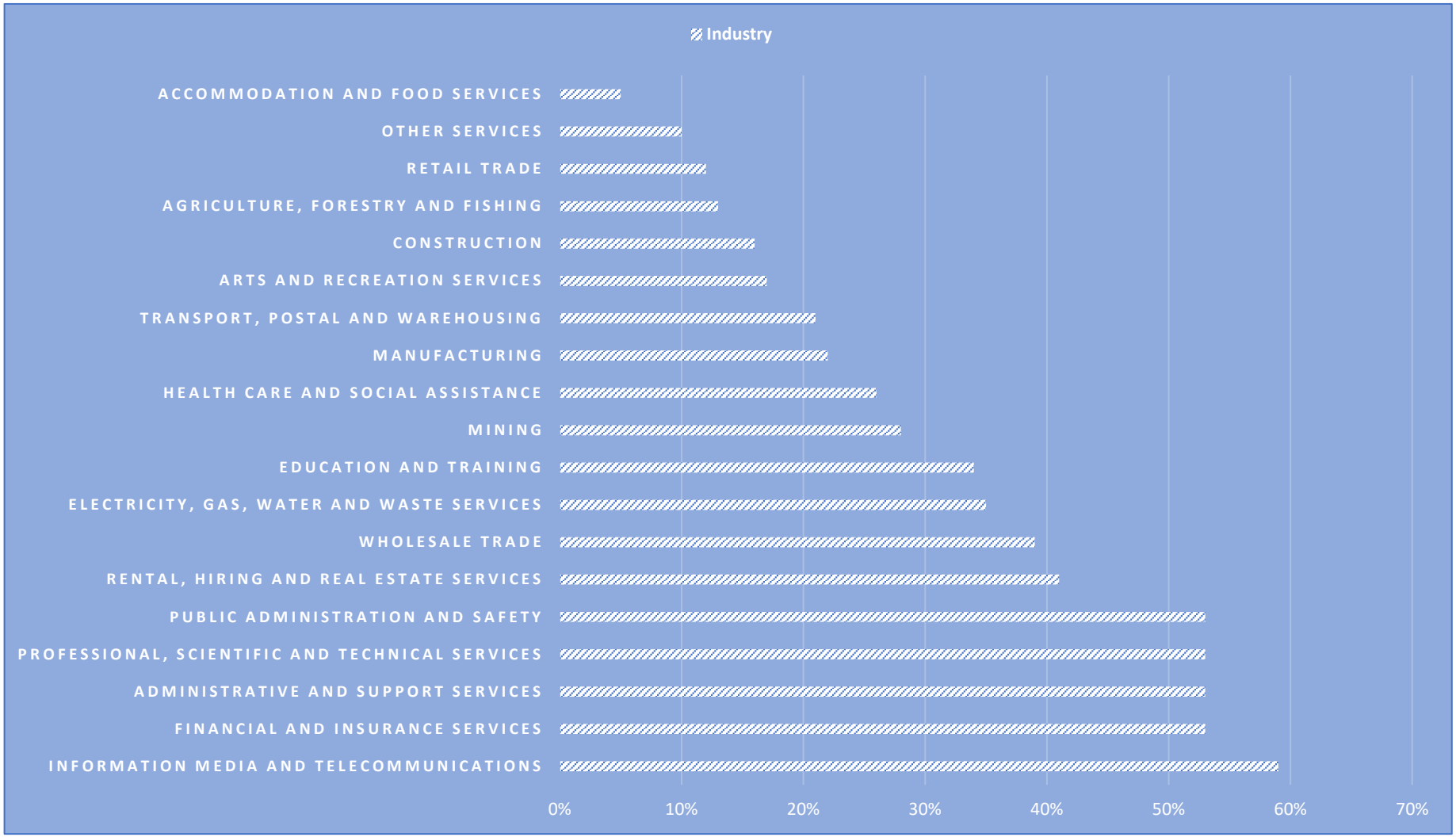
There has been a growth recently in flexible workspaces in the region, with 12 co-working spaces located in cities and towns across the region[32].

Some employment hubs are located outside of the region's centres. The Wellington film industry has agglomerated on the Miramar peninsular and is home to one of the world's premier visual effects companies, sound stages, manufacturing and design studio, post production facilities, camera and lighting equipment hire businesses and Victoria University's Miramar Creative Centre. More than 2,000 Weta Group employees, clients, contractors, and crew work on the Peninsula, and Weta Digital are one of the largest employers in Wellington City.

Other large regional employers such as our hospitals, schools and education facilities, result in workers largely based in fixed locations within the region. The percentage of employees who can work from home by industry, as estimated by Infometrics, is represented in diagram overleaf[33].

[29] HBA regional summary
[30] Productivity Commission 2019
[31] Deloitte 2019
[32] Wellington NZ
[33] Infometrics April 2020

Diagram 4 Percentage of employees able to work from home by industry



Employment related journeys

The concentration of regional employment in Wellington City, coupled with the dominance of the knowledge-based sector working conventional hours, results in a large number of people want to travel into and out of central Wellington at the same time.

This creates a significant and concentrated peak commuter demand on main transport corridors, creating significant travel time delays and unreliable journeys.

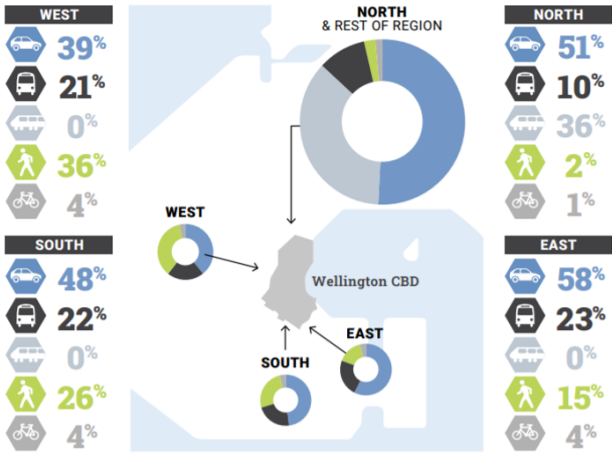
Table 1 from the 2013 census journey to work data gives a sense of the scale of commuter movements within, into and out of each district.

Table 1: Journey to work movements within, into and out of each district 2013

Council area	Within	Into	Out of
Wellington City	81,306	29,574	5,022
Hutt City	21,837	7,965	13,659
Porirua City	7,434	3,459	9,030
Upper Hutt City	6,828	987	7,545
Kapiti Coast District	10,668	531	5,334
Wairarapa Councils	14,424	21	1,143
Horowhenua District	7,395	255	1,317

Diagram 5 demonstrates the mode of travel into the Wellington CBD. More than half the commuter movements coming into Wellington City are made by car.

Diagram 5 Morning peak transport into Wellington CBD by area of origin and mode (2016)



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

Diagram 6 shows the proportion of regional jobs accessible by different transport modes within a 45 minute travel time.

Diagram 6 Access to percentage of regional jobs by different modes

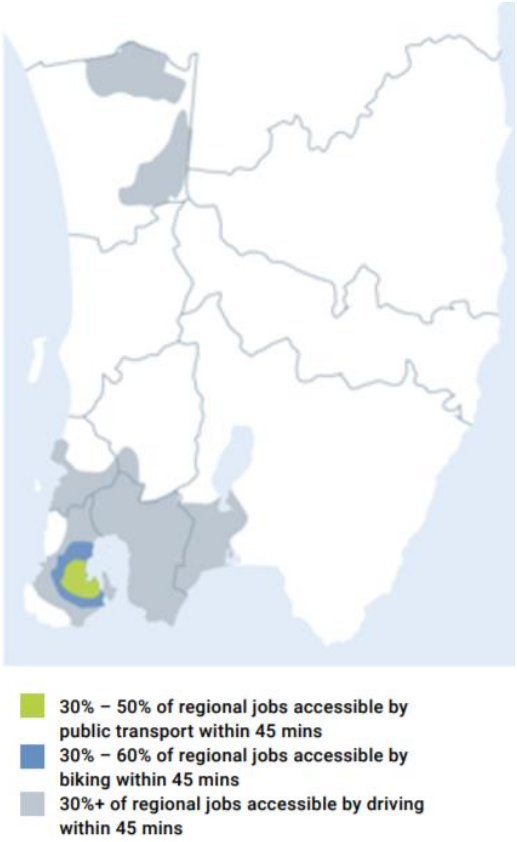


Diagram 7 summarises spatially the 2013 journey to work movements within the region. This highlights the significant flows into central Wellington and the importance of Wellington City as an employment centre within the region.

This diagram also indicates how self-sufficient the region is in terms of its labour market, with very few journeys to work (proportionally) starting from outside of the region.

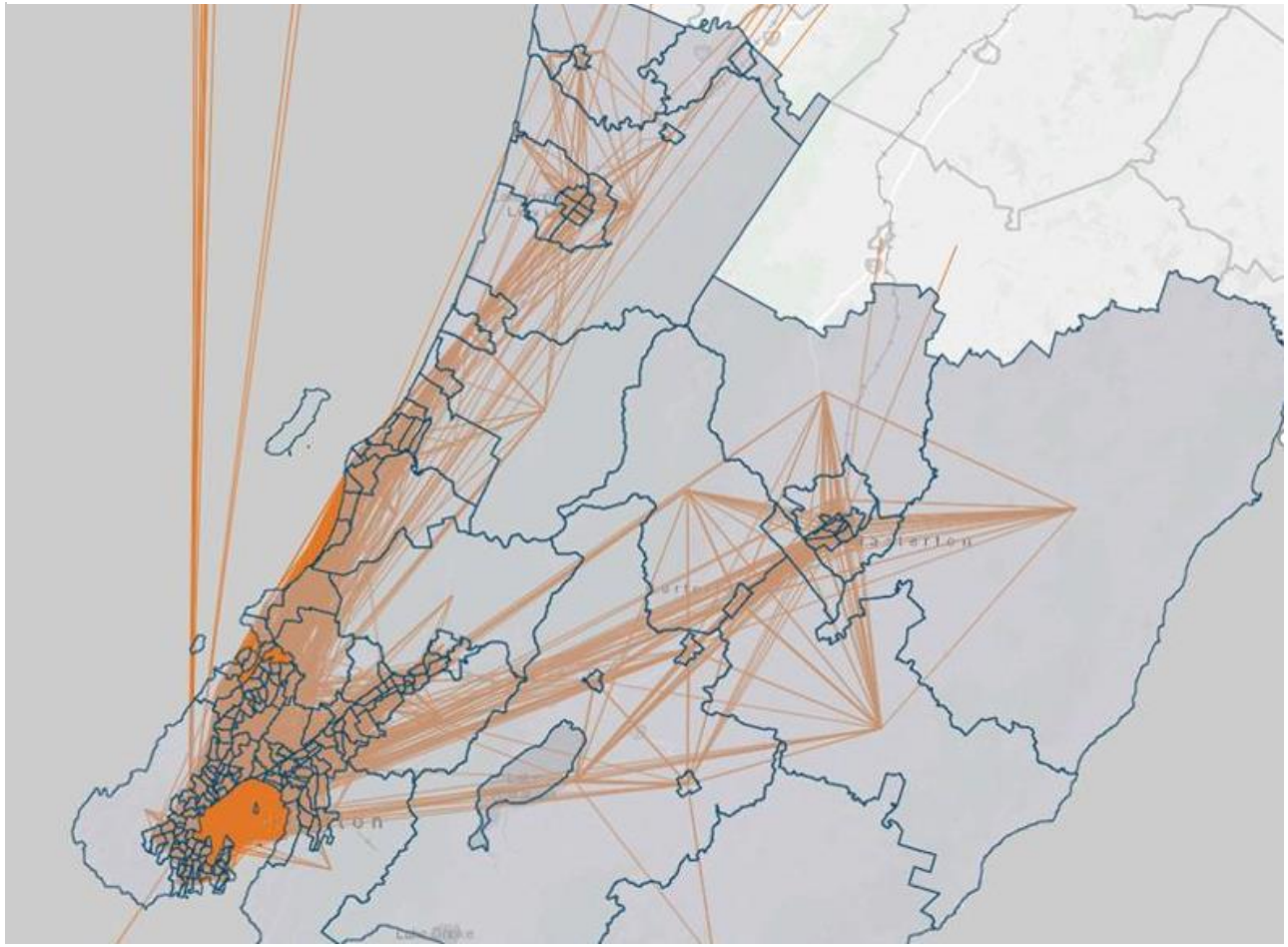
Freight movements

The region has a number of existing key freight hubs and destinations including central Wellington City, CentrePort, Seaview/Gracefield, Porirua/Tawa and Waingawa. Access to CentrePort, and the safety and reliability of road and rail corridors north of Wellington are critical to supporting journeys between these destinations.

The tables overleaf demonstrate data from the Ministry of Transport's October 2019 National Freight Demand Study[34]. These show that most goods produced within the region, but not exported, are consumed within the region or the lower half of the North Island.

One quarter of movements of horticultural products in the Wellington region originate from the Auckland region. 58.3% of meat and meat product movements originate from the mid-lower North Island. Similarly, 57.1% of livestock movements in the Wellington region come from other regions[35].

Diagram 7 Journey to work movements within the region 2013



[34] MoT National Freight Demand Study 2017/18

[35] Stock slaughter carried out in Wellington region as a percentage of the national total: Dairy cattle: 1.5%, Beef cattle: 3.7%, Lambs: 5.3%, Other Sheep: 5.5% and Deer 1.3%.

Between 2012-2018 there was a 64% growth in horticultural production in the region and a 9% drop in liquid milk production.

Table 2: Movement of produced goods from the Wellington region (2018)

Goods	Quantity	% of national total	Destination
Liquid milk production	0.28 billion litres	1.3%	Manawatu-Wanganui
Log harvest	1.03 million tonnes	3%	Wellington port (94%) manawatu-wanganui (6%)
Timber products	0.54 million tonnes	5.4%	Various north island destinations
Meat and meat products	0.04 million tonnes	3.6%	Wellington
Livestock	0.15 million tonnes	2.7%	Wellington, Manawatu-Wanganui, Hawkes Bay and Taranaki.
Wool	7699 tonnes	5.5%	Hawkes Bay and Auckland
Fish	0	-	-
Horticultural products	18 million tonnes	0.7%	Wellington and Manawatu-Wanganui
Other agricultural products	0.16 million tonnes	2.9%	Wellington (88%) and Manawatu-Wanganui
Aggregates	1533 million tonnes	4.2%	Wellington
Fertiliser	0.18 million tonnes	1.8%	Wellington, Manawatu-Wanganui and Taranaki

Approximately 10.5 million tonnes of cargo is handled by CentrePort on an annual basis, including interisland volumes.

There was a 118% growth in log exports from the Wellington seaport between 2012 and 2018. 0.7 million tonnes of these logs originated from Manawatu-Wanganui. Over the same period (2012-2018) there was a significant decline in fish exports.

Table 3: Export of goods from Wellington (2018)

Goods	Origin	Tonnage	% National total
Dairy	Wgtn Seaport	0.07 million tonnes	2.2%
Logs	Wgtn Seaport	1,314 million tonnes	6.4%
Timber products	Wgtn region	0.04 million tonnes	1.1%
Meat and meat products	Wgtn seaport	77 million tonnes	8.2%
Horticultural produce	Wgtn Seaport	0.005 tonnes	>1%
Wool	Wgtn region	0.02 million tonnes	7.14%
Scrap steel	Wgtn region	64.6 million tonnes	10.5%
Scrap aluminum	Wgtn region	6.7 million tonnes	12.7%
Other manufactured and retail goods	Wgtn Seaport	0.03 million tonnes	1.8%

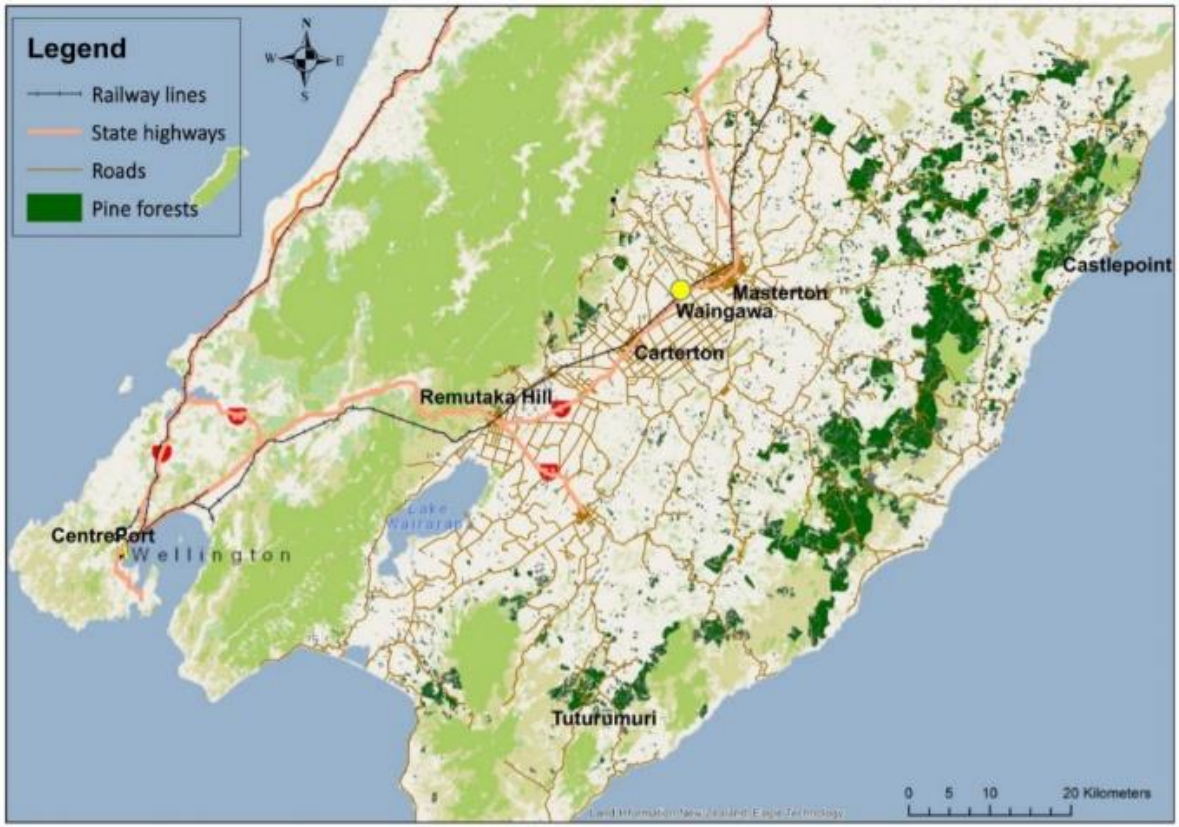
Freight movements in the region are also generated by imports. Imports include 0.01 million tonnes of manufactured timber products (1.3% national total) 7.4 million tonnes of imported meat and meat products, 0.16 million tonnes of other manufactured and retail goods and 1.18 tonnes of petroleum.

Road transport is the highest carbon emitting activity within the transport sector for the Wellington region. Between 2001 and 2019 road, air and marine transport emissions have all been trending upwards[36]. Work is underway to reduce the carbon intensity of regional transport associated with freight.

New Zealand Green Investment Finance has announced a green credit facility of $15 million for CentrePort. This fund will be used exclusively to fund low carbon projects to reduce CentrePort's carbon footprint. This may include the introduction of electric vehicles, on-site renewable energy generation and energy efficiency upgrades[37].

In 2019, the volume of logs handled by CentrePort increased to 1.7 million tonnes. Many of these logs have historically been transported to the port from the Wairarapa by road. Diagram 8, from a BERL report on the cost savings of the Waingawa log hub, shows the location of pine forests in the Wairarapa relative to the location of CentrePort[38]. Over the last three years the log hub has been developed at Waingawa to transfer Wairarapa logs onto rail for the haul to CentrePort. CentrePort have recently announced plans for additional 'log hubs' in Woodville and Marton. BERL's study[39] which estimates that shifting 357,000 tonnes of logs a year from road to rail would result in savings of $5.5 million a year, as well as reducing externality costs (emissions, road accidents, congestion and damage to roads).

Diagram 8: Wairarapa pine forests relative to CentrePort and Waingawa



[36] AECOM 2020
[37] NZGIF 2020
[38] BERL Feb 2020
[39] BERL Feb 2020

Employment specific challenges and opportunities

15-24-year cohort NEETs

Studies show that in some areas in the region there are high numbers of youth (15 to 24 year olds) not in employment, education, training (NEET).

For the Wellington region, the figure in March 2020 was 14.3%. This was an increase of 2.3% when compared to the same quarter last year (March 2019 quarter), and is slightly higher than the national average of 14% (also up 2.3% from March 2019 quarter).[40] Latest figures from June 2020 show the NEET rate at 9.2%, which is 1% higher than for June last year.[41]

For Horowhenua, 20.4% of 15-24 year olds were NEET in 2019.

Unemployment

Currently unemployment for the Wellington region is at 4.1% (up 0.7% from the same quarter last year). This is slightly higher than the national average of 4%. Unemployment rates for Māori in the Wellington region were 4.6% in June 2020 (down 2.8% from June last year). [42]

The average unemployment rate in Horowhenua was 5.5% in June 2020, down from 6.2% the previous year[43].

Deprivation and 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. These communities also often have poorer access to employment. Unemployment rates in areas of high deprivation, such as Cannons Creek in Porirua and Taita in Lower Hutt, are higher than the national average[44].

Disruptive technologies

46% of New Zealand jobs are at risk of automation over the next two decades. Our ability to manage technological change depends on the extent to which we adapt to the changes fuelled by the digital economy.

While the number of jobs at risk within the Wellington region are significantly lower than for other regions, the number of jobs at risk of automation is estimated at more than 95,000. So far automation has impacted the most on blue-collared employment. However, the coming wave of innovation threatens to upend white-collar work as well. Examples of technology changes which are anticipated to result in business and social transformations in the near future include smart cars and green energy transformations.[45]

While advances in technology may displace certain types of jobs, historically they have also resulted in net job increases.

The flexibility of the regional economy will determine how well we can respond to disruptive technologies and capitalise on opportunities made, whilst successfully managing the associated risks and challenges.[46]

Greening the economy

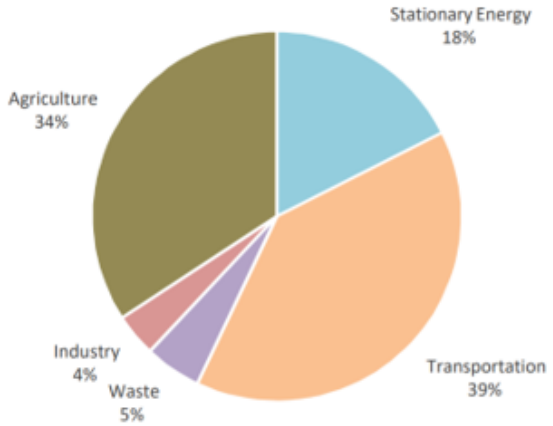
The Climate Change Response (Zero Carbon) Amendment Act 2019 provides a framework by which New Zealand can meet our Paris Agreement commitments. It includes a legally binding commitment to living within 1.5 degrees Celsius of global warming and sets up a framework of five-year emissions budgets to meet long term carbon emission reduction targets.

In the 2018/19 reporting year, the Wellington region (excluding Horowhenua) emitted gross 4,190,050 tCO2e. The breakdown of emission sources is shown

[40] MBIE Labour Market Snapshot March 2020
[41] MBIE Labour Market Snapshot June 2020
[42] MBIE Labour Market Snapshot June 2020
[43] Infometrics June 2020
[44] Arataki Version 1.1 Wellington regional summary
[45] NZIER October 2015
[46] NZIER October 2015

in the diagrams below taken from the Wellington Region Greenhouse Gas Inventory May 2020.

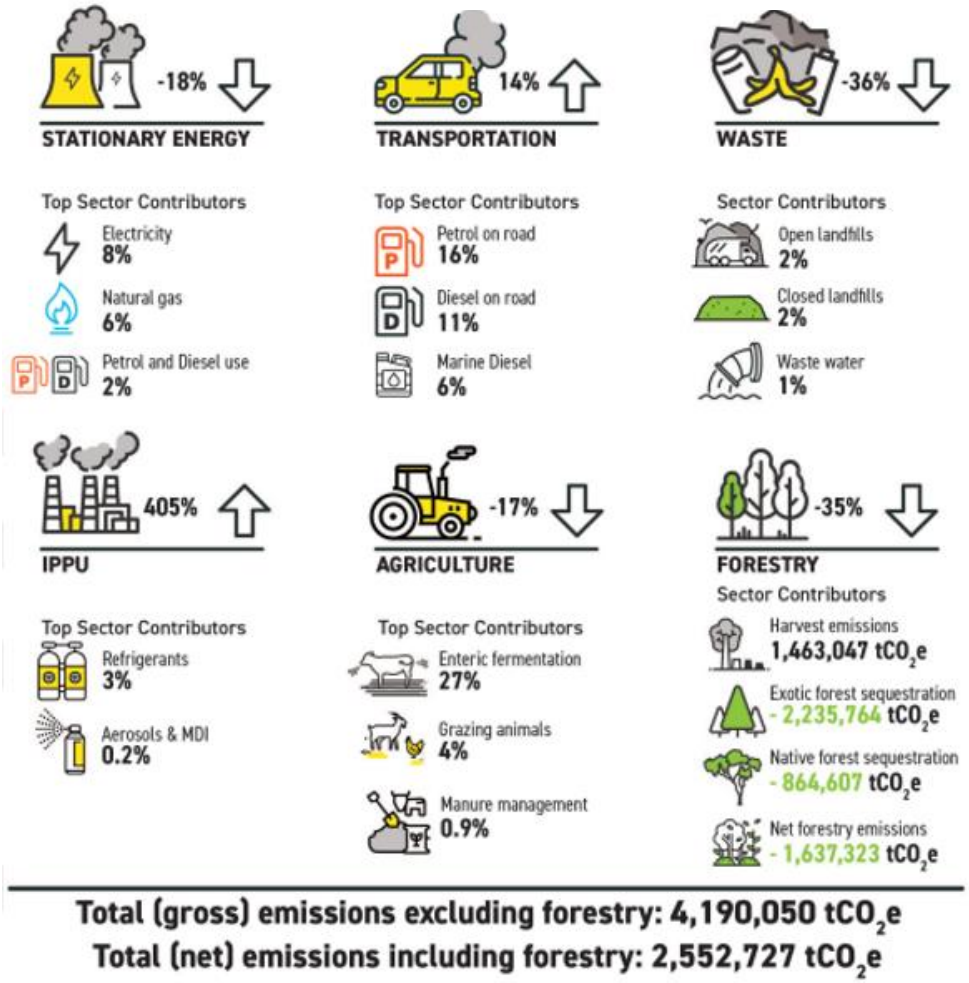
Diagram 9: Wellington regional sources of Greenhouse Gas emissions[47]



The biggest emitting districts in the Wellington region are Wairarapa and Wellington City, with each area emitting 41% and 25% of total gross emissions respectively (or 1,734,320 tCO^2e and 1,061,383 tCO^2e respectively).

Total gross emissions in Horowhenua in 2018/2019 were 819,053 tCO^2e. This is the third largest emissions profile in the region. The largest source of GHG emissions in Horowhenua is Agriculture and Transportation[48].

Diagram 10: Wellington regional GHG emissions by Type [49]



[47] AECOM 2020

[48] AECOM 2019

[49] AECOM 2020

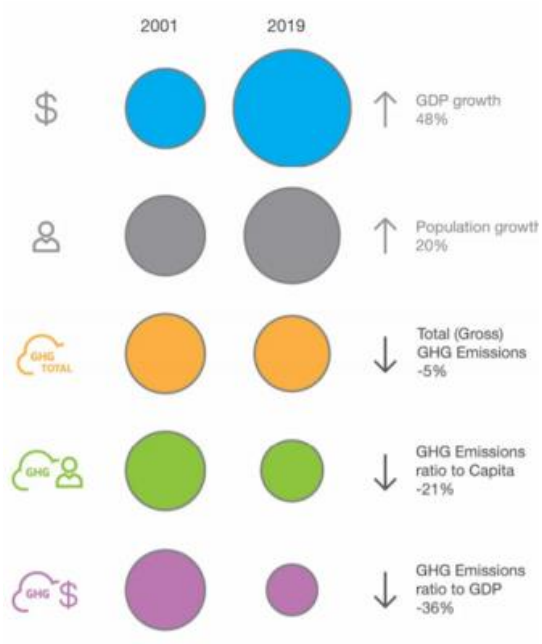
Transport (road, rail, and air travel) is the biggest source of emissions accounting for 40% of total gross emissions for the Wellington region. Agriculture (emissions from cattle, pigs and sheep) is the second largest emitter, 34% of total gross emissions. Stationary Energy (consumption of electricity or natural gas) is the third highest emitting sector in the region, producing 18% of total gross emissions.

After consideration of carbon sequestration (carbon captured and stored in plants or soil by forests), the Wellington region emitted net 2,552,727 tCO2e emissions. Carbon sequestration reduces gross emissions by 1,637,323 tCO2e, a 39% reduction. Most sequestration, 84% occurs in the Wairarapa district.

Transport emissions and industry emissions both increased between 2001 and 2019, by 14% and 405% respectively in the Wellington region. Within the transport sector road emissions from petrol and diesel use increased by 8% from 2001 to 2019. In the industrial sector many emissions are caused by industrial refrigerant use which has increased by 405% in this period[50].

As demonstrated in Diagram 11, from the AECOM Wellington Region Greenhouse Gas Inventory May 2020, the Wellington regional economy has started to decouple GDP growth with GHG emissions, however the rapid rate of decoupling that is required will be significant.

Diagram 11: Wellington regional GDP growth in relation to GHG emissions (2001-2019)



While green energy transformations have potential to cause disruption to the regional economy and employment, it also represents a significant opportunity to strengthen competitive advantages in green technologies and reduce the greater long term costs of adaptation.

Emissions reductions, electrification of the regional economy and forestry are likely to play a significant role in our future economy.

Reducing travel distance and using active and public transport modes will make a significant impact on our regional emissions profile and may influence where people work in the future, with more people predicted to work from or work closer to home.

Responding to Covid-19

The Covid-19 pandemic has caused substantial economic disruption globally. A recent analysis undertaken by BERL on behalf of Greater Wellington Regional Council assesses three scenarios for the Covid-19 recovery for the Wellington region (a best case, mid case and worst-case scenario out to 2030)[51].

Peak unemployment for the Wellington region between the three scenarios ranges from 6.3% (best case) to 11% (worst case); compared to the base 2020 level of 4.7%. Māori will be disproportionately affected by the crisis, and the worst hit industry sectors will be accommodation and food services, arts and recreational and retail trade.

All three scenarios predict that the Wellington regional economic impact of Covid-19 will be short term, with employment recovering under all scenarios by 2030: with regional full-time employment (FTE) above pre-Covid levels.

[50] AECOM (2020)

[51] BERL June 2020

This analysis generally reflects that shown in Waka Kotahi's recent update to Arataki[52]. This analysis shows that the Wellington region is one of just two main urban centres forecast to return to business as usual employment levels by 2031.

This report notes that the Wellington region is comparatively well-placed to recover from the pandemic, as it will be shielded from the worst impacts due to the dominance of the public sector and major professional service employment. This report noted that there may even be an increase in domestic migration to the Wellington region due to employment opportunities in government.

The Wellington region's decline in overall employment is predicted to be relatively mild, with less negative flow-on effects for consumer spending, the housing market, and construction. This resilience is expected to benefit areas such as Upper Hutt, Kāpiti Coast, and parts of the Wairarapa. South Wairarapa district is forecast to be hit harder than the rest of the region due to its reliance on the tourism and hospitality sectors. Māori and Pasifika, and youth, are likely to experience the greatest impacts. An increase in youth not in employment, education or training (NEETs) is expected.

Both reports noted the significant levels of uncertainty which remains regarding the scale and duration of Covid-19 impacts.

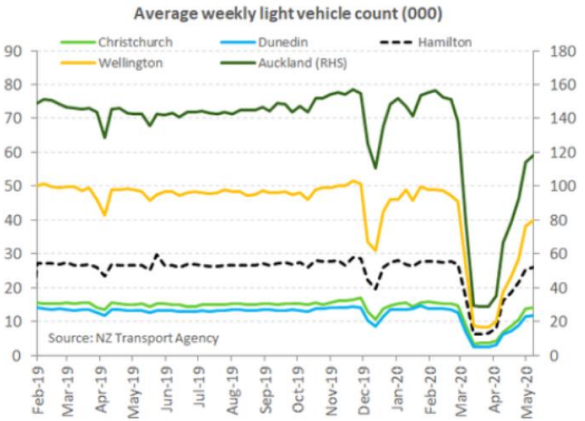
Covid-19 and the climate crisis

The Covid-19 pandemic is also likely to have dramatic consequences on climate change progress. In the short term the pandemic has resulted in a contraction of the global economy and a significant restriction on the movement of people. Global aviation volumes and oil demand have collapsed. Globally, GHG emissions might fall by 8% or 2.6 GtCO2 in 2020 which is more in absolute terms than in any other year on record.[53]

However, in the short-medium term both the economic response to the crisis and the fallout and cost of the crisis response will impact on the ability of economies to decarbonise at the pace that is required. This will have lasting impacts in the long term, as unprecedented actions are required to cut global emissions over the next decade. The climate impact of fiscal recovery packages could either reinforce economic reliance on fossil fuels or support decoupling of emissions from economic activity.

During lockdown, by April 10, Wellington traffic was down 83.5% compared to last year (see Diagram 12 from news article Woolf, 2020). By the halfway point of lockdown, air pollution from traffic emissions in Wellington had also dropped by 72%.[54]

Diagram 12: Drop reduction in vehicle count during April Covid-19 lockdown



Energy use from commercial buildings and manufacturing and construction emissions would have fallen, while residential buildings would have increased their energy use; however overall electricity demand reduced during lockdown. Aviation and cruise ship emissions, both significant, were significantly reduced by the lockdown[55].

The lockdown resulted in severe economic hardship for significant parts of the economy, as is reflected by the recent increase in regional unemployment above.

However, the Covid-19 lockdown provides an insight into the scale of change that is required in the regional economy to respond to the climate crisis.

[52] Arataki Covid-19 Implications

[53] Hepburn, O'Callaghan, Stern, Stiglitz and Zenghelis 2020

[54] Woolf 2020

[55] Woolf 2020

Working from home, reducing travel distances and using active and public transport modes may make a significant impact on the regional GHG emissions.

Resilience and employment locations

The region's geology, tectonic setting and climate mean that it is prone to many hazards. Many parts of our urban areas are also situated in low lying coastal areas, vulnerable to the impacts of sea level rise, or on flood plains, steep hillsides, reclaimed land, subject to other natural hazards[56].

All regional urban centres are subject to earthquake hazards. Parts of Wellington, Lower Hutt, Upper Hutt and Porirua cities, and the Waikanae centre, are built directly over active fault rupture zones. Some key pieces of regional infrastructure, including bulk water supply pipelines and main transport routes also cross over active fault rupture zones[57].

Movement of residents, visitors and freight faces significant seismic and resilience risk due to the presence of natural hazards throughout the region. There is a 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.

The need for resilience is critical not only for the region but also for the nation as it is the seat of Government and transport hub between the North and South Islands. Resilience of core infrastructure is key to ensuring rapid economic recovery following a major natural hazard event.[58]

Relocation of jobs out of central Wellington whilst keeping a strong centre

There has been an increasing discussion regarding relocating government jobs to other parts of the region to increase resilience of the public service due to the hazard profile of the region. 350 employees for the Ministry of Business, Innovation and Employment for example have moved into an office space in Porirua.

The Covid-19 crisis saw an increased support for working from home, with many staff indicating they would like to keep working from home after the lockdown (at least some of the time).[59] Other commentators have raised concerns that if employees continue to work from home central Wellington would be seriously affected; particularly hospitality, cafés, hairdressers and retail stores.

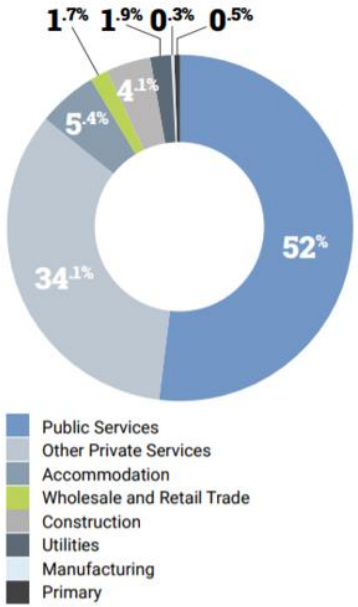
This highlights the challenge of maintain a vibrant Wellington economy, with Wellington City currently the regional centre of employment, while responding to the climate crisis, the prospect of future pandemics and a local resurgence of community transmission of Covid-19.

[56] WRGF Constraints Report
[57] WRGF Constraints Report
[58] Wellington Lifelines Project
[59] Hill 2020

Employment projections

As established in the Foundation Report[60], the region is projected to have over 100,000 additional jobs over the next 30 years. The diagram below shows the projected share of employment growth for each sector.

Diagram 13: Share of predicted employment growth by sector 2018-2050



[60] WRGF Foundation Report 2020

A number of studies and assessments, including the Housing and Business Capacity Assessments for the metro areas, provide predictions in relation to future economic. business land demand and supply, activity, journeys to work and competitive advantages for the region[61].

It should be noted that these studies and assessments were written before the development of the Framework and we would expect initiatives and projects in the Framework to have some impact on some of these predictions.

Arataki - 10-year outlook

Key points are:

- Given the relative resilience of the Wellington regional economy, no significant changes are expected in the nature, scale and location of transport demand over the medium to long term.
- Changes to the nature of work for professional services may see a reduction in peak trips to central Wellington, due to more people working remotely.
- Work to ensure the effective integration of land-use and transport remains a priority, to support mode-shift and reductions in greenhouse gas emissions. This includes sequencing of development, ensuring growth areas are serviced with active mode and public transport infrastructure and services, and linking housing to employment and essential services.
- There will be an on-going need for transport services to support Covid-19 recovery by improving access to employment and essential services for vulnerable communities.

[61] These assessments were completed pre-Covid. For analysis on the impacts of Covid-19 on the regional economy see Challenges and opportunities section.

Housing and Business Capacity Assessments[62]

The Housing and Business Capacity Assessment regional economy summary shows:

- The Wellington regional economy differs in several ways from other parts of New Zealand.
- Incomes are generally higher in Wellington with almost half of all jobs in the region earning $60,000 or more.
- The workforce is highly educated, with a greater amount of tertiary qualifications, and a greater likelihood of having a higher degree.
- Wellington firms have a competitive advantage borne of the region's deep labour pool and high human capital.
- In turn, firms operating in Wellington engage in complex industries.
- However there has been a relative underperformance when compared to other centres and the national growth rate.
- The 2008 Global Financial Crisis had a significant impact on the regional economy. Regional employment numbers only returned to pre-GFC

[62] Housing and business capacity assessments.

levels in 2017; in the Hutt Valley at the time of the report, employment numbers were yet to return to pre-GFC levels.

- A key strength of the regional economy is the government sector which continues to bolster the regional economy in the face of decline in other sectors such as manufacturing.
- The economies of the region are closely tied together highlighting the complementarities and also highlighting that a shock to one economy can reverberate through the region.

Projecting economic activity

Commercial employment is projected to flourish to 2047 with history suggesting retail will return to strong growth rates and the outlook for industrial employment is more mixed.

The slump in industrial employment after the GFC implies a weak growth outlook although the precise numbers are very uncertain.

Growth in the government sector is predicted to continue steadily. Our numbers suggest government activity decreases as a share of the national economy but increases a little as a share of the regional Wellington economy.

The past twenty years implies strong growth for health, education and training as an industry to 2047. Employment in a "grab bag" of other industries is predicted to lift more slowly in the future.

The local activity outlook

The share of each district's industry employment is used to allocate future activity across the region. Results show:

- Wellington City has, retains, and grows the lion's share of government workers across the region (83% in 2047) and commercial employment in Wellington City is also a little bit larger.
- Kāpiti increases its share of workers in health, education and training a little by 2047.
- Wellington City accounts for about half of employment in health, education and training sector over time.
- Kāpiti also has many self-employed workers that leave the average firms' size at 2.5 – unchanged from 2000 and much lower than the national average of 3.8.
- Industrial employment across the region is flat or declining over the forecast horizon to 2047.
- Outright declines in Lower Hutt where the share of industrial employment declines over time. This decline stems from Lower Hutt's exposure to a declining manufacturing sector. The other growing components of industrial activity lift the relative shares of other districts.
- Retail employment is relatively stable across the districts and districts share of "other" industry employment are stable.
- The industrial sector declines over the forecast period and is almost 50% smaller in 30-years times.
- In contrast, the government sector increases over time and is a materially larger share of the economy in 30-years' time. Government sector employment includes local government with central government employment within the Wellington region growing at a faster pace than local government.
- Construction is the largest industry in Porirua. Growth in housing construction will help to offset a temporary slowdown in construction following the completion of the Transmission Gully Motorway. The motorway is expected to be the catalyst for new industrial and commercial businesses establishing in Porirua.

GDP calculations show:

- Economic output in Upper Hutt is expected to hit $1 billion by 2035.
- Economic activity in Lower Hutt is expected to increase by $1.1 billion over a 30-year period.
- Kāpiti requires a lift in productivity to substantially boost activity.
- Activity within Wellington City is expected to increase by a little over 50% over time next 30-years.

Business Land Demand

Business land is dispersed across the Wellington region. Commercial and office activity dominates Wellington City, while industrial land is concentrated in Lower Hutt and Upper Hutt. Porirua has a mix of commercial and industrial zoned land. Kāpiti contains a mix of activity. Retail activity is spread across all metro councils. Lower Hutt and Wellington City contain the most business land.

Regional transport projects are anticipated to impact upon the location and size of demand for business land. Land area demand for the region is projected to be 346,162 square metres. Generally, industrial activity will likely decline over the 30-year period.

The assessment considered capacity in three forms – currently vacant sites, infilling of existing sites, and redevelopment. Capacity from those three sources is significant. There is a collective capacity of over 1.8 million square metres of floorspace available on sites that are currently zoned and vacant within the region. A further 3.89 million square metres is available through infill development and redevelopment of existing areas could provide for an additional maximum of 15 million square metres.

The HBA accordingly concluded that the cities have sufficient capacity to meet projected demand for business land over the study period.

Key points:

- Land area demand is projected to be 346,162 square metres
- The five cities have a projected business floorspace demand of 1,340,472 square metres.
- Demand for industrial floor area is negative in some council areas as the nature of industrial activity changes and existing activity rationalises into new areas both in and out of the Wellington region.
- Conversely, other councils see growth in industrial floorspace demand.

Analysis shows that:

- A range of industries lift total floorspace demand in Wellington City by 625,750 square metres or about 11%.
- Less demand for industrial space reduces total demand for Lower Hutt.
- Industrial land demand holds up for Upper Hutt. It is expected Upper Hutt will continue to increase its share of industrial employment in the region. Partly this reflects an expected continuation of recent trends towards firms seeking to reduce earthquake risks with some locations in Upper Hutt offering more stable land.
- By 2047, it is expected many more health and education workers will be needed in Kāpiti and this boosts demand for business land in Kāpiti. Industrial demand falls a little.
- Estimates suggest Wellington City needs more business land over the next 30-years. Additional land is required across all sectors, particularly retail, health and education, the commercial and government sector but also some for the industrial sector. The demand sums to 238,313 square metres of business land (equivalent to perhaps 100 supermarkets) or a 4% increase in business land.
- Demand for land in Lower Hutt is expected to decline over the next 30-years. Lower Hutt has a substantial area of industrial land. A mild decline is expected in industrial activity across the region. Lower Hutt is also losing its share of industrial activity, exacerbating the overall decline. These factors all sum to a material 40% decline in the demand for business land in Lower Hutt.
- Demand for business land in Upper Hutt is expected to grow over the 30-years to 2047. Increasing market share for industrial land is sufficient to generate an increase in land requirements even though industrial requirements overall are declining across the region. Mild increases in commercial and retail activity also boost the outlook.
- Porirua has 200 ha of commercial and industrial zoned land in total. Industrial activity will require approximately 26-63ha by 2048 in Porirua. Commercial office (ex. Retail and commercial service) activity will require 8-10 ha of land by 2048.
- Estimates suggest the health, education and training sector is the primary driver of business land demand in Kāpiti. An ageing population is likely to continue to increase the strong demand for services in the region that has grown rapidly in recent years. Population growth is also expected to generate some additional retail activity which impacts demand for land, although the region is relatively well serviced. Like elsewhere, a mild decline in industrial activity reduces land demand overall.

Using a StatisticsNZ high population forecast shows that:

- By the end of the forecast period, the Statistics New Zealand high population forecast is 14% higher than the medium projection.
- Wellington City requires substantially more business land – a little over 1,000,000 extra square metres over the 30-years to 2047, an increase of about 17%.
- In aggregate, higher regional population growth approximately offsets the decline in industrial land demand in Lower Hutt. Demand for land increases substantially across most sectors. Demand for retail land increases by almost 25% and health and education also increase substantially.

- For Upper Hutt under the high population growth scenario the industrial sector requires substantial land to accommodate the new population track.
- Population growth has a large influence on demand for business land in Kāpiti. Additional workers are predominantly employed in the health and education sector with additional workers in retail and the industrial sector. A little over 20% more business land could be required.

Demand for floor space

These assessments 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 analysis shows:

- Commercial - From an estimated 1.3 million square metres in 2016, we expect demand to hit 1.59 million square metres in 2048.
- Government - from an estimate of about 400,000 square metres in 2016 the Government sector is set to grow to 550,000 square metres by 2047. Assumptions on the space required per worker have a marked effect on the outlook. If footprint per worker is kept static at the current requirement, then the sector requires 720,000 square metres by 2047 – an increase of 72%.
- Retail - retail space would hit 1.5 to 1.62 million square metres by 2048 (upper figure allows for Transmission Gully Motorway scenario in Porirua). That represents a 10% increase in floorspace over the entire period.
- Industrial – for most metro councils, in the near-term industrial land demand grows a little, reflecting a recent lift in activity. But over the long-term, the shift from industrial activity towards services, and the assumption that the floorspace required for each industrial worker declines, produces a mild decline in the demand for industrial floorspace. For Porirua, trended growth shows an increase in demand by 69,000 square metres over 30-years. By contrast the 30-year Transmission Gully Motorway scenario shows an increase in demand by 168,705 square metres.
- Health, education and training - Over the projection horizon, demand for floorspace to grow by 216,000 square metres, comprising a 25% increase over 30-years.
- Other - a 12% growth in floorspace in demand over the next 30-years, requiring an additional 86,000 square metres by 2047.

Business capacity

- Existing business floorspace of all types across the five councils currently measures 3.1 million square metres.
- Infill development of existing business sites to the maximum expected extent under District Plan standards could provide for an additional 3.3 million square metres of floor space.
- Redevelopment of all business zoned sites across the five councils would provide for 14.4 million square metres of floor area.
- The assessment of feasibility of business areas was undertaken by way of a Multi Criteria Analysis. All of the Councils show above average feasibility scores based on the assessment undertaken. On some measures, the council's score poorly. Access to rail routes are generally poor, and reflective of the nature of business uses in the area. Assessment of measures such as access to the airport or seaport reflect the distance between the business areas and the airport.

Deloitte 2019 report

Modelling by Deloitte has suggested there are regional opportunities to leverage off the synergies between the film and creative, food and beverage, and tourism sectors.

With the country's highest concentration of web-based and digital companies per capita, Wellington is also poised to continue growing its creative digi-tech industry.

Most students do not stay on to take jobs in Wellington upon graduation. Wellington is viewed as an attractive and safe place to study. But finding a solution to the steep house prices caused by the housing shortage in the capital will be imperative to keep growing the number of students choosing Wellington for tertiary education.

Appendix A – Shared evidence base

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

REPORTS	WEBSITE REFERENCE
ACEOM Horizons Region Community Carbon Footprint 2018/19	http://www.horizons.govt.nz/HRC/media/Media/Publication/SoE_2020_Horizons-Region-Community-Carbon-Footprint-2018-19.pdf?ext=.pdf
AECOM Wellington Region Greenhouse Gas Inventory May 2020	https://www.gw.govt.nz/assets/Climate-change/GHG-Summary-Report-Wellington2019WRFinal.pdf
Arataki 2021–31 Regional Summary Wellington – Version 1.1	https://www.nzta.govt.nz/assets/planning-and-investment/arataki/docs/regional-summary-wellington.pdf
Arataki Covid-19 Implications 2020	https://www.nzta.govt.nz/assets/planning-and-investment/arataki/docs/regional-summary-9-wellington-potential-impacts-of-covid-19.pdf
BERL (March 2018) - Making sense of the numbers, Māori economy in the Greater Wellington region	http://www.gw.govt.nz/assets/Mana-WhenuaPartnership-Page-Images/BERL-Report-GWRC-finalreport-29-March-2018.pdf
BERL (February 2020) - CentrePort Waingawa log hub, Cost savings from a transport mode shift	https://berl.co.nz/research/centreport-waingawa-log-hub-cost-savings https://berl.co.nz/sites/default/files/2020-03/BERL%20Transport%20mode%20shift%20study.pdf
BERL (June 2020) - Greater Wellington Region Covid-19 economic impact scenario one summary	https://www.gw.govt.nz/assets/Uploads/GWRC-COVID-19-Impacts-for-LTP-Summary-FINAL.pdf
Deloitte 2019 Shaping our slice of heaven Regions of opportunity	https://www2.deloitte.com/content/dam/Deloitte/nz/Documents/Economics/nz-en-DAE-Slice-of-Heaven-2019-Report.pdf
Wellington Regional Housing and Business Development Capacity - Chapter 7 - Appendix 1,2, and 3	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0021/3288/Wellington-Regional-HBA-Chpt-7-Appendix-Appendix-1,-2-and-3.pdf
Hepburn, O'Callaghan, Stern, Stiglitz and Zenghelis (2020) *Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?* Prepared for the Oxford Review of Economic Policy 36(S1).	https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-02.pdf
Hill, R (June 2020). *Plea for workers to return to Wellington CBD to support businesses*. Published by RNZ.	https://www.rnz.co.nz/news/national/418511/plea-for-workers-to-return-to-wellington-cbd-to-support-businesses
Housing and Business Development Capacity Assessment – Regional summary	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0020/3287/Wellington-Regional-HBA-Chpt-1-Regional-Summary.pdf
Housing and Business Development Capacity Assessment – Hutt City	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0016/3283/Wellington-Regional-HBA-Chpt-3-Hutt-City-Council.pdf

Housing and Business Development Capacity Assessment – Wellington City	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0015/3282/Wellington-Regional-HBA-Chpt-2-Wellington-City-Council.pdf
Housing and Business Development Capacity Assessment – Upper Hutt	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0019/3286/Wellington-Regional-HBA-Chpt-6-Upper-Hutt-City-Council.pdf
Housing and Business Development Capacity Assessment – Kāpiti Coast	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0018/3285/Wellington-Regional-HBA-Chpt-5-Kapiti-Coast-District-Council.pdf
Housing and Business Development Capacity Assessment – Porirua	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0017/3284/Wellington-Regional-HBA-Chpt-4-Porirua-City-Council.pdf
Housing and Business Development Capacity Assessment - Appendix 1,2, and 3	https://planningforgrowth.wellington.govt.nz/__data/assets/pdf_file/0021/3288/Wellington-Regional-HBA-Chpt-7-Appendix-Appendix-1,-2-and-3.pdf
Infometrics April 2020	https://www.infometrics.co.nz/what-sectors-are-best-equipped-to-work-from-home/
Infometrics Horowhenua District Employment	https://ecoprofile.infometrics.co.nz/Horowhenua%20District/Employment/Growth
Infometrics Wellington Region Employment	https://ecoprofile.infometrics.co.nz/Wellington%20Region/Employment
Infometrics Quarterly Economic Monitor Horowhenua District June 2020	https://ecoprofile.infometrics.co.nz/Horowhenua%20District/QuarterlyEconomicMonitor
MBIE broadband deployment update December 2018	https://www.mbie.govt.nz/assets/aae2c79c33/december-18-broadband-quarterly-update.pdf

MBIE quarterly connectivity update for 1 January to 31 March 2020	https://www.mbie.govt.nz/assets/quarterly-connectivity-update-q1-31-march-2020.pdf
MBIE Labour Market Snapshot March 2020	https://www.mbie.govt.nz/dmsdocument/11466-labour-market-statistics-snapshot-march-2020
MBIE Labour Market Snapshot June 2020	https://www.mbie.govt.nz/dmsdocument/11654-labour-market-statistics-snapshot-june-2020
Ministry of Transport (MoT) National Freight Demand Study 2017/18	https://www.transport.govt.nz/assets/Import/Uploads/Research/Documents/NFDS3-Final-Report-Oct2019-Rev1.pdf
Manawatū-Whanganui Regional Indicators (MWRI) Horowhenua District Economic Impact Assessment August 2020	https://www.mwri.co.nz/economic-impact-indicators/horowhenua-district-dashboard/
New Zealand Institute of Economic Research (NZIER) 2015 data sourced from Figure.NZ	https://figure.nz/chart/j824qA5SCC0V3R2M
NZGIF 18 August 2020 Press Release	https://nzgif.co.nz/latest-news
NZIER Digital Nation: New Zealand From a tech sector to digital nation April 2016	https://nzier.org.nz/static/media/filer_public/4e/8b/4e8b28e2-0fb1-48b3-aada-224e3c7f55e5/digital_nation_nz.pdf
NZIER Future [inc]:Disruptive technologies. Risks, opportunities – Can New Zealand make the most of them? October 2015	https://nzier.org.nz/static/media/filer_public/ad/63/ad632820-dbb4-4982-a244-b4e80a5efa6d/0915-11_futureinc_tech_disruption.pdf
Productivity Commission Local government funding and financing report November 2019	https://www.productivity.govt.nz/assets/Documents/a40d80048d/Final-report_Local-government-funding-and-financing.pdf
Profile ID – Greater Wellington City community profile	https://profile.idnz.co.nz/wellington/workers

Profile ID – Greater Wellington Regional Council community profile	https://profile.idnz.co.nz/greater-wellington/industries https://profile.idnz.co.nz/greater-wellington/residents https://profile.idnz.co.nz/greater-wellington/workers https://profile.idnz.co.nz/greater-wellington/employment-status https://profile.idnz.co.nz/greater-wellington/qualifications https://profile.idnz.co.nz/greater-wellington/individual-income
State Services Commission – Our People Public Service Workforce Data 2018	https://ssc.govt.nz/assets/Legacy/resources/2018-Public-Service-Workforce-Data_pdf_0-v2.pdf
Statistics New Zealand Dataset: Subnational ethnic population projections, by age and sex, 2013(base)-2038 update	http://nzdotstat.stats.govt.nz/OECDStat_Metadata/ShowMetadata.ashx?Dataset=TABLECODE7566&ShowOnWeb=true&Lang=en
StatsNZ 2018 Census place summaries: Horowhenua District	https://www.stats.govt.nz/tools/2018-census-place-summaries/horowhenua-district#work-income-and-unpaid-activities
StatsNZ Screen industry: 2017/18	https://www.stats.govt.nz/assets/Uploads/Screen-industry/Screen-industry-201718/Download-data/screen-industry-2017-18.xlsx
Wellington Lifelines Regional Resilience Project	https://wremo.nz/assets/Uploads/Wellington-Lifelines-PBC-MAIN-Combined-20191009.pdf

Wellington NZ	https://www.wellingtonnz.com/work/co-working-spaces-around-wellington/
Wellington Regional Investment Plan - 2019	http://iportal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=5572617
Woolf, A (April 2020) *Lockdown emissions have dropped to levels only seen on Christmas Day*. Published by Stuff Limited.	https://www.stuff.co.nz/environment/climate-news/121046437/lockdown-emissions-have-dropped-to-levels-only-seen-on-christmas-day
WRGF Constraint Report	https://wrgf.co.nz/wp-content/uploads/2020/09/WRGF-FINAL-Constraints-Report_0.10.pdf
WRGF Foundation Report	https://wrgf.co.nz/wp-content/uploads/2020/04/1190-GWRC-Framework-Report-APRIL-2020-02-1.pdf

Wellington
Regional
Growth
Framework