

# Growth scenarios for the Wellington Region: Towards 2041

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## Background

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## Executive Summary

What could the Wellington Region look like in 2021, 2031 or 2041 if long-term investments and plans were made now in different areas of the economy? The BERL CGE model has been used to consider four alternative futures for the Wellington Region. Two of these scenarios are based on the Wellington Regional Strategy (WRS) focus areas of commercialisation of innovation and building world-class infrastructure. The aspirational scenario considers what the Wellington Region could look like if the economic development activities proposed under the WRS are achieved, if sustainable economic activity is built on the key strengths of the Region, and if the resident population was to grow due to the attraction of businesses and investment, and improved connections to and from the Region. These three scenarios are compared to a Business as Usual scenario, which considers the size and shape of the economy if short to medium-term economic growth trends continue.

Our companion report, *The Wellington Region Situation Analysis 2013: A snapshot*, provides a detailed roadmap of capability within each of the local authorities and the Wellington Region as a whole. This roadmap indicates the journey each of the local authorities and the Wellington Region has travelled over the last 10 years, and the path that could be taken if a business as usual approach is adopted. This roadmap is the platform for growth that we explore through the scenarios.

The Wellington Region has the ability to achieve significant economic growth between now and 2041. How it achieves this growth is a matter of debate and strategic planning. A focus on employment growth, population targets, infrastructure investment or creative and knowledge-based industries has been considered and discussed in the WRS. Each of the scenarios modelled here therefore takes this data and information and considers what are the next step in terms of growth and development – what could happen to employment and GDP if these other factors were to also occur.

The purpose of the economic modelling and the scenarios is to create and grow momentum to achieve the outcomes sought from the WRS. The scenarios show snapshots of data and points in time – namely 2021, 2031 and 2041 – and compare these snapshots to the situation in 2013. The scenarios do not outline the steps required to achieve this level of growth, instead they illustrate what is possible. The next step is for the individual local authorities and the Regional council to consider what scenario or group of scenarios best illustrates what they are trying to achieve through their various annual plans, long-term plans, district plans, economic development strategies, and growth strategies, and what is required to achieve this level of growth. The focus of this next step should therefore be on outcomes and wellbeing, not inputs and outputs.

Across each of the scenarios there is a positive change in GDP and employment. The size of this change varies depending on the focus area, with the largest outcomes occurring under the Aspirational Scenario and the smallest if we continue operating under a business as usual mind-set.

The Business as Usual scenario indicates that employment growth in the Wellington Region towards 2041 will be largely driven by population growth and the demand for population-based services such as health and education. At an average of 0.8 percent per annum, employment growth in the Region will be lower than the national average of 1.2 percent per annum. This could have implications for the Region if firms relocate to growth areas outside of the Wellington Region. Another implication of employment growth under this scenario is that land requirements in the Region may change, as there is employment growth projected in those industries that require commercial land and lower growth is expected in those industries that require industrial land. This may have implications for the Region in terms of land zoning and land prices, and impact on firm location.

Under the Business and IT connections scenario, GDP generated by the Wellington Region is higher towards 2041 than the New Zealand average. This strong growth is largely driven by GDP from the communications and IT industry in the Wellington Region being higher than nationally. Firms in these industries are engaged in activities such as telecommunication services, scientific research, engineering and technical services, computer systems design, sound recording and music publishing, motion picture and video activities, and Internet Service Portals and web search portals.

This scenario assumes that greater collaboration is occurring among businesses in these high-tech innovative sectors, and that this collaboration generates further research activity within the tertiary education institutions. To support this level of collaboration, new ventures in the Region may need assistance through the various levels of business start-up including incubation, acceleration and commercialisation, along with the opportunity to connect with like-minded individuals, businesses and investors through appropriate networking events and functions.

The employment growth under this scenario, of 1.3 percent per annum towards 2041, indicates that there may be a need to develop and adopt an appropriate workforce strategy. Employment is projected to grow from 226,800 FTEs in 2013 to 323,400 FTEs in 2041, and the majority of this growth will be within the communications and IT industry. Any workforce strategy that is developed should therefore focus on how to train and retain skilled labour for this sector, or attract people with the appropriate skills to this Region. To do this, this strategy could consider the story the Region is telling their audience regarding Wellington and the communications and IT industry, and the compelling offer that is available. This story and offer is the outcome of this scenario, as it will illustrate how the Wellington Region could gain the level of economic development achievable under this scenario.

The growth that could occur under the Business and IT connections scenario is larger than that which could occur under the Infrastructure connections scenario. The Infrastructure connections scenario focuses on building infrastructure to improve connections between the Wellington Region and the rest of New Zealand and the world. Our global connections are focused on trade and this is apparent in the increase in employment and economic activity that occur under this scenario.

Overall, employment grows under this scenario by 1.2 percent, from 226,800 FTEs in 2013 to 319,700 FTEs in 2041. There is employment and GDP growth in the wholesale and distribution, retail trade and services, social services and arts and recreation services, and infrastructure sectors. GDP growth is higher than the national average during this period, at 2.8 percent per annum, and the positive effects of this growth are felt across the Region.

This scenario assumes that there is no additional economic growth in the Wellington Region beyond that under the BAU scenario between 2013 and 2021. This is because the BAU scenario includes all committed large-scale infrastructure projects such as Transmission Gully, the MacKays to Pekapeka section of the Kapiti expressway, bus and rail investment, earthquake strengthening of buildings and infrastructure, and Ultra-Fast Broadband (UFB) infrastructure.

Employment growth under this scenario occurs in the earlier part of the projection period, as infrastructure investment tapers off between 2031 and 2041. This growth indicates the need to train, retain and attract people with relevant skills and experience to the Region, and to ensure that ongoing opportunities are available to ensure they settle here. The working age population in the Region is projected to grow at a slower rate than overall employment growth under this scenario, which also indicates the need to develop appropriate workforce strategies to mitigate this risk.

Another implication of infrastructure investment under this scenario is that land requirements in the Region may change, as industries that require industrial or commercial land locate next to or near key arterial routes, the port or airport. The services and infrastructure that these industries require may drive development in these industrial and commercial areas, and the need for auxiliary roads, public transport, and services such as childcare facilities. In addition, existing auxiliary roads may need to be upgraded and aligned to key roading infrastructure projects, which will impact on employment and economic activity at a local authority level.

As mentioned earlier, the Aspirational scenario focuses on significant population and employment growth, and a marked increase in economic activity. On average, employment in the Wellington Region grows by 1.7 percent per annum towards 2041 which results in an additional 136,000 FTEs being in employment. Similar to the Business and IT connections and Infrastructure connections scenarios, workforce strategies will need to be put in place to ensure an efficient match between skilled workers, firms and growth industries. This scenario, however, also assumes that the Region embraces change and recognises success. These are values that are known to drive innovation and entrepreneurship.

This scenario results in substantial population and labour force growth. It is estimated that the regional population will grow at 0.8 percent per annum between 2013 and 2041. This will result in the regional population increasing by 123,000 people, from a resident population of 471,000 people in 2013 to 594,000 people in 2041. This is greater than the regional population growth expected under the other scenarios, 0.6 percent per annum. Under these scenarios the regional population will increase by just under 78,000 people, from 471,000 people in 2013 to 549,000 people by 2041.

The aim of putting these scenarios in front of Councils, community and business is to inform their deliberations as to the potential future of the Region's development. The scenarios are not forecasts of a future outcome. Rather, they are a selected sample of potential outcomes given the range of external and internal influences facing the Region.

The Wellington Region is not short of choices. These scenarios inform those choices with a view to ensuring the Region (and the nation) capitalise from the opportunities that arise.

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# 1 Introduction

This report has been prepared for the Greater Wellington Regional Council (GWRC) to quantify and assess the potential for economic growth in the Wellington Region between 2013 and 2041. The purpose of this report is to provide alternative growth scenarios to inform GWRC planning and future decision-making. Our companion report, *The Wellington Region Situation Analysis 2013: A snapshot*, provides detailed data and information on the economy of the Region and each TLA in 2013, and considers trends in employment and GDP growth and/or change between 2003 and 2013.

## What are scenarios and why are they useful?

Scenarios are stories that consider “what if?” questions. Whereas forecasts focus on probabilities, scenarios consider a range of plausible futures and how these could emerge from the realities of today. They incorporate different perspectives and views to support various avenues of reality for the future.

Looking out to 2041, there will be many factors that will influence the economy of the Wellington Region. Scenarios are a useful tool to explore the various alternatives that might emerge. The scenarios presented in this report will enable decision-makers to consider the impact of various strategies on employment and GDP.

This report begins with an overview of the results of the four scenarios. Sections three to six of the report then discuss each scenario in more detail, while section seven looks at the results of the modelling at a sub-regional level. The appendix of this report provides technical information on the CGE model, the industry groupings that were used, and the methodology that was employed.

## Data used in this report

Employment and GDP data used in this report is from the BERL Regional Database. Our employment data is measured by Full-Time Equivalents (FTEs). FTE employment measures the number of people in employment for 30 hours or more per week. BERL generates GDP estimates using national accounts and FTE employment. We also exclude Owner Occupied Dwellings from GDP totals. Our GDP figures are expressed in 2013 dollars and are expressed as real values.

This data is different from data presented in the Ministry of Business, Innovation and Employment ‘2014 Regional Economic Activity Report’ and Infometric’s ‘Annual Economic Profiles’. The differences in these figures are explained in more detail in Appendix B.

## 2 Overview of the scenario results

This section of our report provides an overview of the scenario results. Table 2.1 summarises the change in FTEs under each of the four scenarios. It shows the 2013 base year (common across all scenarios) and the alternative growth scenarios for the Wellington Region for 2021, 2031 and 2041.<sup>1</sup>

**Table 2.1: Summary of FTEs by scenario, 2013-2041**

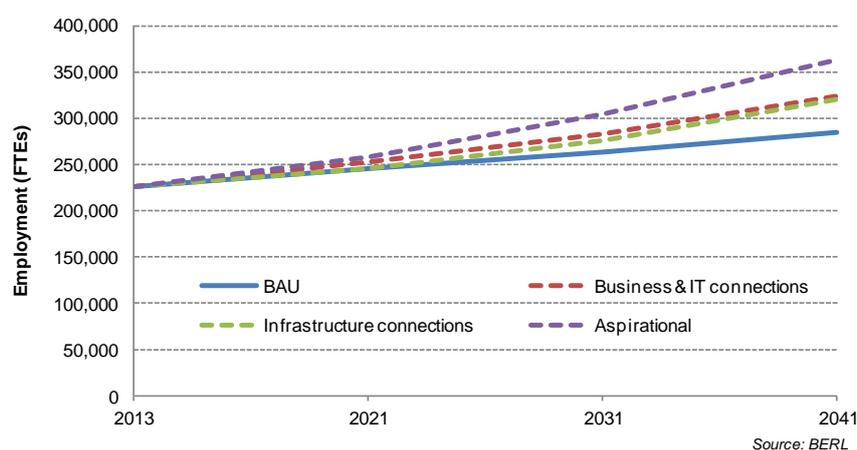
FTEs	Wellington region							NZ
	FTEs				Change in FTEs 2013-2041			
	2013	2021	2031	2041	Total	FTEs p.a.	% p.a.	
BAU (Scenario 1)	226,800	244,900	262,700	285,300	58,500	2,090	0.82	1.15
Business and IT connections (Scenario 2)	226,800	252,900	283,700	323,400	96,600	3,450	1.28	
Infrastructure connections (Scenario 3)	226,800	244,900	275,000	319,700	92,900	3,320	1.23	
Aspirational (Scenario 4)	226,800	258,600	303,500	362,800	136,000	4,860	1.69	

Note: Totals are rounded to the nearest hundred.

Source: BERL

Figure 2.1 illustrates the change in FTEs under each scenario between 2013 and 2041.

**Figure 2.1 Wellington Region employment (FTEs) by scenario, 2013-2041**



Source: BERL

### In summary:

- Scenario one (BAU): Employment in the Wellington Region is weak between 2013 and 2041. Employment in the Wellington Region grows by 0.96 percent per annum between 2013 and 2021. It then drops to 0.71 percent per annum between 2021 and 2031 before increasing to 0.83 percent per annum between 2031 and 2041. Overall, average employment growth between 2013 and 2041 is expected to be 0.82 percent per annum. This equates to 2,090 jobs being added to the Wellington Regional economy each year. Nationally, employment is projected to grow by an average of 1.15 percent per annum during this period.
- Scenario two (Business and IT connections): Employment grows by 1.37 percent per annum between 2013 and 2021. Employment growth drops to 1.16 percent per annum between 2021 and 2031 before increasing to 1.32 percent per annum between 2031 and 2031. Overall average employment growth between 2013 and 2041 is 1.28 percent per annum. This equates to around 1,360 more jobs per annum than under the BAU scenario.

<sup>1</sup> 2013 Employment and GDP data presented in this report is different to data presented in the Ministry of Business, Innovation and Employment '2014 Regional Economic Activity Report' and Infometric's 'Annual Economic Profiles'. These differences are explained in detail in Appendix B.

- Scenario three (Infrastructure connections): Employment growth in the infrastructure and related industries<sup>2</sup> is the same under this scenario as the BAU scenario between 2013 and 2021 (0.96 percent per annum). Employment growth then increases to 1.17 percent per annum between 2021 and 2031, and to 1.52 percent per annum between 2031 and 2041. Over the 2013 to 2041 period average annum employment growth is 1.23 percent per annum. This equates to an average of 3,320 more jobs being added to the Wellington regional economy each year, 1,230 more jobs than under the BAU scenario.
- Scenario four (Aspirational): Employment grows by 1.65 percent per annum between 2013 and 2021. It then drops to 1.61 percent per annum between 2021 and 2031, before increasing to 1.80 percent per annum between 2031 and 2041. Overall, average employment growth between 2013 and 2041 is expected to be 1.69 percent per annum. This equates to an average of 4,860 jobs being added to the Wellington region each year. Nationally, employment is projected to grow by an average of 1.15 percent per annum during this period.

Table 2.2 summarises the growth in GDP across the four scenarios. It shows the 2013 base year (common across all scenarios) and the alternative growth scenarios.

**Table 2.2: Summary of GDP (\$m) by scenario, 2013-2041<sup>3</sup>**

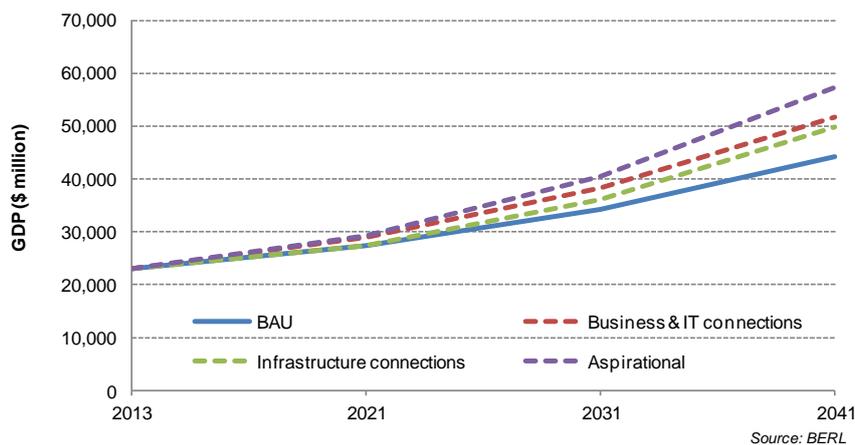
GDP (\$m)	Wellington region					NZ		
	GDP				Change in GDP 2013-2041			
	2013	2021	2031	2041	Total	GDP p.a.	% p.a.	% p.a.
BAU (Scenario 1)	23,020	27,530	34,420	44,180	21,160	756	2.36	2.51
Business and IT connections (Scenario 2)	23,020	28,890	38,220	51,740	28,720	1,026	2.93	
Infrastructure connections (Scenario 3)	23,020	27,530	36,170	49,930	26,910	961	2.80	
Aspirational (Scenario 4)	23,020	29,370	40,460	57,350	34,330	1,226	3.31	

Note: Totals are rounded to the nearest ten million. GDP totals exclude Owner Occupied Dwellings.

Source: BERL

Figure 2.2 presents projected GDP growth under each of the scenarios between 2013 and 2041.

**Figure 2.2 Wellington Region GDP (\$m) by scenario, 2013-2041**



Source: BERL

<sup>2</sup> Appendix C outlines how the industry groupings used in this report align with the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006.

<sup>3</sup> GDP totals outlined in this report exclude Owner Occupied Dwellings (OOD). OOD is an industry that measures the services provided to people living in the houses they own. The value of these OOD services is calculated as an imputed rent. In other words, the output of owner-occupied dwellings is valued as the estimated rent that a tenant would pay for the same accommodation. For the purposes of projecting economic activity, OOD distort actual economic activity generated by FTEs as OOD do not generate jobs or income.

***In summary:***

- Scenario one (BAU): GDP grows by 2.26 percent per annum between 2013 and 2031, increasing to 2.53 percent between 2031 and 2041. Overall average GDP growth between 2013 and 2041 is 2.36 percent or \$756 million per annum. Nationally, GDP will grow by an average of 2.51 percent per annum over the period.
- Scenario two (Business and IT connections): Annual average GDP growth is 2.88 percent between 2013 and 2021. It drops to 2.84 percent 2021 and 2031 before increasing to 3.08 percent between 2031 and 2041. On average, GDP increases by 2.93 percent per annum or \$1,026 million between 2013 and 2041. This is \$270 million more per annum than under the BAU scenario.
- Scenario three (Infrastructure connections): Annual average GDP growth is 2.26 percent between 2013 and 2021, increasing to 2.77 percent between 2021 and 2031, and 3.28 percent between 2031 and 2041. Overall, GDP increases by an annual average of 2.80 percent or \$961 million each year between 2013 and 2041, \$205 million more than under the BAU scenario.
- Scenario four (Aspirational): Annual average GDP growth is 3.09 percent between 2013 and 2021, increasing to 3.26 percent between 2021 and 2031, and 3.55 percent between 2031 and 2041. As a result, an additional \$1,226 million is added to the regional economy each year between 2013 and 2041 (an average of 3.31 percent per annum), around \$470 million more per annum than the BAU scenario.

### 3 Scenario one: Business as Usual (BAU)

The Business as Usual (BAU) scenario is our comparator and the outcome against which we compare the results of the other three scenarios.

The BAU scenario is based on a set of assumptions about national and regional growth trends towards 2041. The Wellington region BAU scenario assumes that the difference between regional and national growth at an industry level remains relatively unchanged. Historical growth levels were informed by data and information that is provided in our companion report, *The Wellington Region, Situation Analysis 2013: A snapshot*.

#### 3.1 Results

Employment in the Wellington Region is projected to grow from 226,800 FTEs in 2013, to 285,300 FTEs in 2041.

**Table 3.1: FTEs, BAU scenario, 2003-2041<sup>4</sup>**

FTEs	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	9,500	8,900	9,500	9,800	10,000	0.42	0.80
Product manufacturing	11,800	8,200	8,600	8,100	7,400	-0.37	2.42
Infrastructure	13,700	18,800	22,400	22,800	23,000	0.72	1.08
Wholesale and distribution	17,300	16,400	16,500	15,800	14,900	-0.34	1.29
Communications and IT	25,700	32,300	36,300	39,100	41,900	0.93	-1.57
Retail trade and services	39,100	39,200	43,300	48,700	54,500	1.18	1.31
Business services	21,700	24,400	23,700	22,000	20,200	-0.67	2.25
Social services and arts & recreation services	57,300	78,700	84,500	96,400	113,400	1.31	1.09
<b>Total</b>	<b>196,000</b>	<b>226,800</b>	<b>244,900</b>	<b>262,700</b>	<b>285,300</b>	<b>0.82</b>	<b>1.15</b>

Note: Sub-totals are rounded to the nearest 100.

Source: BERL

- Five industries are expected to have employment growth over the period. Only two of these industries will grow at a faster rate than is expected nationally.
- Employment growth is expected to be strong in the social services and arts and recreation services industries (up 34,700 FTEs over the period or 1.31 percent per annum). Employment growth in this industry is expected to be greater than national employment growth of 1.09 percent per annum. Strong regional employment growth is largely driven by population growth and the demand for population-based services such as health and education.
- Employment is expected to grow in the communications and IT industry by 0.93 percent per annum (up 9,600 FTEs over the period). National employment in the communications and IT industry is expected to decline by 1.57 percent per annum over the period.
- Employment will decline in three industries, with the largest decline occurring in the business services industry (down 4,200 FTEs over the period or -0.67 percent per annum). National employment in the business services industry will increase by 2.25 percent per annum between 2013 and 2041.
- Annual average employment growth for the Wellington Region is 0.82 percent per annum between 2013 and 2041, which is lower than national average employment growth of 1.15 percent per annum.

<sup>4</sup> Appendix C outlines how the industry groupings used in this report align with the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006.

**Table 3.2: GDP (\$m), BAU scenario, 2003-2041**

GDP (\$m)	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	1,170	1,490	1,850	2,410	3,160	2.72	3.59
Product manufacturing	1,520	1,180	1,350	1,460	1,550	0.98	2.71
Infrastructure	1,380	1,750	2,430	3,210	4,270	3.24	3.25
Wholesale and distribution	2,070	2,160	2,580	3,090	3,660	1.90	2.01
Communications and IT	5,860	5,800	6,500	7,360	8,560	1.40	0.54
Retail trade and services	1,700	2,130	2,710	3,710	5,130	3.19	3.44
Business services	2,250	2,800	3,110	3,540	4,060	1.34	6.12
Social services and arts & recreation services	3,990	5,730	7,000	9,640	13,790	3.19	2.87
<b>Total</b>	<b>19,930</b>	<b>23,020</b>	<b>27,530</b>	<b>34,420</b>	<b>44,180</b>	<b>2.36</b>	<b>2.51</b>

Note: Totals are rounded to the nearest 10 million. GDP totals exclude Owner Occupied Dwellings.

Source: BERL

GDP in the Wellington Region is projected to grow from \$23,020 million in 2013, to \$44,180 million in 2041.

- GDP will grow across all industries in the Region, most notably in the social services and arts and recreation services industry, which will increase by \$8,060 million or 3.19 percent per annum.
- Annual average GDP growth for the Wellington Region of 2.36 percent per annum is lower than national GDP growth of 2.51 percent per annum.

## 3.2 Implications and considerations

Key implications and considerations regarding the BAU scenario results include:

- **Labour force and employment growth:** This scenario results in annual average employment growth of 0.82 percent between 2013 and 2041. This is much lower than employment growth in the Region between 2003 and 2013, of 1.48 percent per annum. While annual employment growth is higher than annual estimated regional labour force growth of 0.70 percent between 2013 and 2041, overall growth in the labour force over this period is expected to be greater than employment growth.<sup>5</sup> Labour force participation in the Region is expected to decrease from 72.3 percent in 2013 to 67.3 percent in 2041, with a growing proportion of people not in the labour force due to an ageing population. Each of these alternative futures has implications for the productivity potential of the Region and wage rates.
- **Workforce development and planning:** Employment is expected to decline in three of the eight broad industry groupings under the BAU scenario. This is at a time when employment nationally is expected to grow. This could result in workers leaving the Region, leaving the labour force or moving into unemployment. Similarly, in industries where national employment growth is greater than regional employment growth, firms may leave the Region to locate in other growth areas. To counter this, the Region should consider working with affected industries and firms to develop strategies to retain or retrain employees.

<sup>5</sup> The latest Statistics New Zealand national labour force projections (released in August 2012) have been used to estimate Regional labour force growth out to 2041. In doing this we have assumed the 50th percentile or median for these projections and adopted the cyclic migration scenario. The median projection assumes:

- A total fertility rate of 1.9 births per woman in the long term
- Life expectancy at birth to reach 88.1 years for males and 90.5 years for females in 2061
- Annual net migration to fluctuate between -10,000 and 30,000 over a 10-year cycle with an average of 12,000
- The average working life to age 80 years, increases to 49.4 years for males and 43.4 years for females.

- **Land use:** The results of the BAU scenario indicate that absolute industry growth will be stronger in industries that require that commercial land (e.g. retail trade and services) compared to industries that may require industrial land. Many industries that require industrial land are likely to decline under the BAU scenario (e.g. product manufacturing), and this has implications for the Region in terms of land zoning and land prices, and could impact on land use as firms currently located on industrial land may relocate due to price pressures.

### 3.3 Scenario assumptions

The BERL CGE model is a standard economic model that estimates changes in macroeconomic variables due to a 'shock'. Each of these variables has specific economic assumptions. These assumptions are detailed in the Appendix and summarised below. The 'shock' that is modelled is often expressed as a scenario and compared to no change.

Under the BAU scenario, we have divided the economic parameters into one eight year interval (2013 to 2021), and then 10 year intervals (2021 to 2031, and 2031 to 2041). We assume that economic growth in the Wellington Region until 2021 will largely mirror trends in the New Zealand economy that occurred between 2003 and 2013. However, there are exceptions to this assumption, including:

- Increased activity in the dairy sector in line with global dairy forecasts that indicate increasing commodity prices, growing demand from developing countries, and increased capacity in countries such as New Zealand.
- Significant economic activity associated with the Canterbury rebuild.
- Between 2021 and 2041, GDP growth is expected to be 2.50 percent per annum, employment will grow on average by 1.50 percent per annum, and labour productivity growth will average 1.00 percent per annum.
- Economic growth during this period will be largely driven by net inward migration, which will increase labour supply and economic activity through the purchase of additional goods and services. This growth will be tempered to some extent by the continued shift offshore of manufacturing and increasing energy costs.

The BAU scenario includes infrastructure projects committed to in Budget 2014 but excludes non-committed and pipeline infrastructure projects.

## 4 Scenario two: Business and IT connections

Scenario two is broadly consistent with the WRS focus area of 'commercialisation of innovation'. In this scenario, science and technology-based innovation is supported, particularly in the IT industry, and is a key driver of economic performance. Stronger business and IT connections result in increased economic activity and employment in the businesses services and information technology industries within the Wellington Region.

### 4.1 Results

Employment in the Wellington Region is projected to grow from 226,800 FTEs in 2013, to 323,400 FTEs in 2041.

**Table 4.1: FTEs, Business and IT connections scenario, 2003-2041**

FTEs	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	9,500	8,900	9,500	9,800	10,000	0.42	0.80
Product manufacturing	11,800	8,200	8,600	8,100	7,400	-0.37	2.42
Infrastructure	13,700	18,800	22,400	22,800	23,000	0.72	1.08
Wholesale and distribution	17,300	16,400	16,500	15,800	14,900	-0.34	1.29
Communications and IT	25,700	32,300	42,500	55,600	72,500	2.93	-1.57
Retail trade and services	39,100	39,200	43,300	48,700	54,500	1.18	1.31
Business services	21,700	24,400	24,800	24,400	23,900	-0.07	2.25
Social services and arts & recreation services	57,300	78,700	85,300	98,500	117,200	1.43	1.09
Total	196,000	226,800	252,900	283,700	323,400	1.28	1.15

Note: Sub-totals are rounded to the nearest '00.

Source: BERL

- Employment growth in the communications and IT industry will result in an additional 40,200 FTEs in employment over the period, or an annual average employment growth rate of 2.93 percent per annum. National employment in the communications and IT industry will decline by an average of 1.57 percent per annum over the period.
- Employment will decline in the business services industry by 500 FTEs or -0.07 percent per annum. This is in contrast to an increase in employment in this industry nationally of 2.25 percent per annum.
- Annual average employment growth for the Wellington Region under this scenario is 1.28 percent per annum. This is less than the trend witnessed between 2003 and 2013 of 1.47 percent per annum.

**Table 4.2: GDP (\$m), Business and IT connections scenario, 2003-2041**

GDP (\$m)	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	1,170	1,490	1,850	2,410	3,160	2.72	3.59
Product manufacturing	1,520	1,180	1,350	1,460	1,550	0.98	2.71
Infrastructure	1,380	1,750	2,430	3,210	4,270	3.24	3.25
Wholesale and distribution	2,070	2,160	2,580	3,090	3,660	1.90	2.01
Communications and IT	5,860	5,800	7,600	10,450	14,750	3.39	0.54
Retail trade and services	1,700	2,130	2,710	3,710	5,130	3.19	3.44
Business services	2,250	2,800	3,320	4,110	5,130	2.19	6.12
Social services and arts & recreation services	3,990	5,730	7,040	9,780	14,090	3.27	2.87
Total	19,930	23,020	28,890	38,220	51,740	2.93	2.51

Note: Totals are rounded to the nearest 10 million. GDP totals exclude Owner Occupied Dwellings.

Source: BERL

Overall GDP in the Wellington Region will grow from \$23,020 million in 2013, to \$51,740 million in 2041.

- GDP will grow in the communications and IT industry by \$8,950 million or an average of 3.39 percent per annum.
- Annual average GDP growth for the Wellington Region of 2.93 percent per annum between 2013 and 2041 is greater than under the national BAU scenario, where GDP growth averages 2.51 percent per annum.

## 4.2 Implications and considerations

Key implications and considerations regarding the business and IT connections scenario results include:

- **Labour force employment growth:** This scenario results in employment growth of 1.28 percent per annum between 2013 and 2041. During the same period, the Working Age Population (WAP) is expected to grow by 1.02 percent per annum. Overall, labour force participation is expected to be similar to employment growth during this period. However, a growing proportion of people may not be in the labour force due to an ageing population. This may have implications for the productivity potential of the Region and wage rates.
- **Workforce development and planning for specific industries:** Results for this scenario are very positive for the communications and IT industry relative to the national average, but weak for the business services industry. Workforce strategies may therefore need to focus on growing local talent and increasing the number of skilled migrants in the Region. Without the development and implementation of such strategies it is possible that employment growth and economic development will be constrained.
- **Embracing change and recognising success:** The results of this scenario assume the Region embraces change and recognises success. These types of values are shown to drive innovation and entrepreneurship. However, it is noted in the WRS that New Zealand has a cultural discomfort with recognising success and that not everyone wants to be innovative. A change in culture is therefore required. The Region could help to support this by continuing to support new ventures through incubation, acceleration and commercialisation, identifying and celebrating success, and encouraging related business activities to feed off these successful models.
- **Cross fertilisation of knowledge and ideas:** The results of this scenario assume strong connections are built between the business and IT sector as well as tertiary institutes and the public and private sectors. In most instances, these connections are currently weak, both in the Wellington Region and nationally. In order to build these connections, the Region needs to develop mechanisms for leveraging value between these groups.
- **Commercial land:** This scenario results in significant employment in industries that require commercial land relative to industries that require industrial land. This could have implications at a regional and local level in regards to planning and land zoning, and could impact on land prices and land use. Appropriate zoning and a better understanding of the needs of firms that use commercial and industrial land will be required to plan for this type of development, and to ensure efficient land use.

### 4.3 Scenario assumptions

This scenario assumes that the Wellington Region creates an environment for innovation that rewards industries that collaborate. As a result, the economic advantages of increased connections and collaboration are realised with high-tech innovative sectors, the broader services sector and the tertiary sector in the Wellington Region growing at a faster rate than is expected under the BAU scenario between 2013 and 2041.

Annual employment and GDP growth per annum in IT related industries in the Wellington Region is two percentage points greater than under the BAU scenario. This industry includes firms in:

- Telecommunication services
- Internet service providers and web search portals
- Motion picture and video activities
- Sound recording and music publishing
- Scientific research services
- Computer system design and related services
- Engineering and technical services.

We also assume that the finance and property industry will benefit from increased business and IT connections and collaboration. As more firms in the business and IT industries are established in the Region, we expect some 'flow on' of economic activity as business and IT firms require office space and business loans.

We also assume that increased collaboration and innovation, particularly in IT related industries, will have an impact on employment, and innovation and research at tertiary education institutions in the Region. This means employment in the education industry is slightly higher under this scenario than the BAU.

## 5 Scenario three: Infrastructure connections

Scenario three focuses on measuring the impact of increased infrastructure investment in the Wellington Region between 2021 and 2031, with investment tapering off between 2031 and 2041. This scenario is consistent with the WRS focus area of 'building world-class infrastructure', which is centred on building infrastructure to improve the Region's national and international connectedness and overall economic performance.

In this scenario improved infrastructure connections in the Wellington Region result in increased activity in the transportation, wholesale trade, and product manufacturing industries. This attracts more business services firms to the Region, and increases economic activity in the education industry. To a lesser extent, growth will also occur in tourism-related industries.

### 5.1 Results

Employment in the Wellington Region is projected to grow from 226,800 FTEs in 2013, to 319,700 FTEs in 2041.

**Table 5.1: FTEs, Infrastructure connections scenario, 2003-2041**

FTEs	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	9,500	8,900	9,500	9,800	10,000	0.42	0.80
Product manufacturing	11,800	8,200	8,600	8,600	8,800	0.25	2.42
Infrastructure	13,700	18,800	22,400	27,800	31,000	1.80	1.08
Wholesale and distribution	17,300	16,400	16,500	16,900	18,100	0.35	1.29
Communications and IT	25,700	32,300	36,300	41,500	51,400	1.67	-1.57
Retail trade and services	39,100	39,200	43,300	49,900	59,400	1.50	1.31
Business services	21,700	24,400	23,700	22,400	21,500	-0.45	2.25
Social services and arts & recreation services	57,300	78,700	84,500	98,200	119,600	1.51	1.09
<b>Total</b>	<b>196,000</b>	<b>226,800</b>	<b>244,900</b>	<b>275,000</b>	<b>319,700</b>	<b>1.23</b>	<b>1.15</b>

Note: Sub-totals are rounded to the nearest '00.

Source: BERL

Employment growth is strong in the infrastructure, communications and IT, social services and arts and recreation services, and retail trade and services industries.

- Employment growth is weaker in the primary production, product manufacturing and business services industries.
- Annual average employment growth in the Wellington Region is noticeably stronger than New Zealand BAU employment growth between 2013 and 2041 in the infrastructure, communications and IT, and social services and arts and recreation services industries.
- Annual average employment growth for the Wellington Region of 1.23 percent per annum between 2013 and 2041 is higher than national employment growth of 1.15 percent per annum.

**Table 5.2: GDP (\$m), Infrastructure connections scenario, 2003-2041**

GDP (\$m)	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	1,170	1,490	1,850	2,410	3,160	2.72	3.59
Product manufacturing	1,520	1,180	1,350	1,550	1,850	1.62	2.71
Infrastructure	1,380	1,750	2,430	3,890	5,700	4.31	3.25
Wholesale and distribution	2,070	2,160	2,580	3,310	4,420	2.59	2.01
Communications and IT	5,860	5,800	6,500	7,810	10,400	2.11	0.54
Retail trade and services	1,700	2,130	2,710	3,810	5,600	3.51	3.44
Business services	2,250	2,800	3,110	3,630	4,430	1.65	6.12
Social services and arts & recreation services	3,990	5,730	7,000	9,770	14,370	3.34	2.87
<b>Total</b>	<b>19,930</b>	<b>23,020</b>	<b>27,530</b>	<b>36,170</b>	<b>49,930</b>	<b>2.80</b>	<b>2.51</b>

Note: Totals are rounded to the nearest 10 million. GDP totals exclude Owner Occupied Dwellings.

Source: BERL

GDP in the Wellington Region is projected to grow from \$23,020 million in 2013, to \$49,930 million in 2041.

- Annual average GDP growth for the Wellington Region at 2.80 percent per annum is greater than the national average of 2.51 percent per annum.

## 5.2 Implications and considerations

Key implications and considerations regarding the infrastructure connections scenario results include:

- **Labour force and employment growth:** Between 2013 and 2041, the labour force in the Region is projected to grow by 0.70 percent per annum. This is similar to employment growth under this scenario, so workforce strategies may be needed to train, retain and attract people with the relevant skills and experience to the Region. This is particularly relevant as the Region already has a higher labour force participation rate than the national average (72.3 percent compared to 68.4 percent in 2013).
- **Workforce development and planning for specific industries:** In this scenario, employment growth is expected to be greater than nationally in some industries, and/or greater than historical trends. To mitigate these issues, workforce development plans should be developed in partnership with industry, education providers, and firms to ensure the matching of workers to jobs occurs in a way that maximises human capital and firm productivity.
- **Land use:** The zoning and location of industrial and commercial land will become more important with increased infrastructure investment. New industrial and commercial land developments will need to be in the right location to encourage businesses to locate there, and provide appropriate services and infrastructure. To facilitate this, a stocktake of industrial land – location, size and use - may need to be undertaken to better understand industry needs now and in the future.
- **Local infrastructure:** The full economic benefits of completing key infrastructure projects are not likely to be realised if supporting local infrastructure is not aligned. This means that supporting auxiliary roads may need to be upgraded and aligned to key roading infrastructure projects, and this may involve additional investment in drainage, water and wastewater facilities, lighting and footpaths.

### 5.3 Scenario assumptions

This scenario assumes that there is no additional economic growth in the Wellington Region beyond that under the BAU scenario between 2013 and 2021. This is because the BAU scenario includes all committed large-scale infrastructure projects including: Transmission Gully, the MacKays to Pekapeka section of the Kapiti expressway, bus and rail investment, earthquake strengthening of buildings and infrastructure, and Ultra-Fast Broadband (UFB) infrastructure.

Between 2021 and 2031, this scenario assumes that all of the infrastructure projects started between 2013 and 2021 are completed and that a series of new large-scale projects are started. These projects include:

- Northern Corridor project (Wellington International Airport to Levin)
- CentrePort development
- Wellington International Airport runway extension and related developments
- The Petone to Grenada cross link road
- Other 'yet to be committed' infrastructure projects.

The bulk of the investment in these large-scale projects will occur between 2021 and 2031, with some economic activity spilling over into 2031 to 2041. Economic activity under this scenario is therefore two percentage points greater than under the BAU scenario between 2021 and 2031, and one percentage point greater between 2031 and 2041.

This scenario assumes that increased infrastructure investment will lead to increased business activity in the transport, business services, education and tourism-related industries in the Wellington Region relative to the BAU scenario for the Region. This increased activity will start to be felt between 2021 and 2031, and is fully felt between 2031 and 2041 as all of the infrastructure projects are completed.

- Increased transportation and infrastructure investment will result in increased economic activity in the transportation industry. For example, the proposed CentrePort development is likely to result in increased freight transport (shipping, rail and road) to and from the Region.
- Improved infrastructure connections are expected to reduce firms operating costs, increase business services activity, and attract more firms to the Region. As a result, we assume there will be increased activity in the professional and technical services, communications, and finance and property industries.
- Improved infrastructure such as the Wellington Airport runway extension and developments could increase the number of international visitors to the Wellington Region, including international students. We therefore assume these improvements have a positive impact on the education and tourism-related industries such as accommodation and retail trade.

## 6 Scenario four: Aspirational

Scenario four considers what would happen if the Wellington Region was to develop and build on its strengths between 2013 and 2041, and attract firms and workers in a way that is consistent with the goals and focus areas of the WRS. In this scenario the WRS focus areas of 'commercialisation of innovation', 'world-class infrastructure' and 'attracting business and talent to the Region' are realised, resulting in significant population growth and improved economic activity.

### 6.1 Results

Employment in the Wellington Region is projected to grow from 226,800 FTEs in 2013, to 362,800 FTEs in 2041.

**Table 6.1: FTEs, Aspirational scenario, 2003-2041**

FTEs	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	9,500	8,900	9,700	10,500	11,400	0.89	0.80
Product manufacturing	11,800	8,200	8,900	9,300	9,600	0.56	2.42
Infrastructure	13,700	18,800	22,400	27,800	34,200	2.16	1.08
Wholesale and distribution	17,300	16,400	17,800	18,900	20,100	0.73	1.29
Communications and IT	25,700	32,300	42,500	55,600	72,500	2.93	-1.57
Retail trade and services	39,100	39,200	46,100	56,100	69,300	2.06	1.31
Business services	21,700	24,400	25,500	25,900	26,300	0.27	2.25
Social services and arts & recreation services	57,300	78,700	85,600	99,300	119,400	1.50	1.09
<b>Total</b>	<b>196,000</b>	<b>226,800</b>	<b>258,600</b>	<b>303,500</b>	<b>362,800</b>	<b>1.69</b>	<b>1.15</b>

Note: Sub-totals are rounded to the nearest '00.

Source: BERL

- Employment growth under this scenario is stronger than the New Zealand BAU scenario across five out of the eight industries.
- Annual average employment growth for the Wellington Region of 1.69 percent per annum between 2013 and 2041 is greater than both national BAU employment growth of 1.15 percent per annum and Regional BAU employment growth of 0.82 percent per annum.

**Table 6.2: GDP (\$m), Aspirational scenario, 2003-2041**

GDP (\$m)	Wellington Region					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn Rgn	NZ (BAU)
Primary production	1,170	1,490	1,880	2,570	3,540	3.14	3.59
Product manufacturing	1,520	1,180	1,410	1,670	2,000	1.90	2.71
Infrastructure	1,380	1,750	2,430	3,890	6,270	4.66	3.25
Wholesale and distribution	2,070	2,160	2,790	3,680	4,910	2.98	2.01
Communications and IT	5,860	5,800	7,600	10,450	14,750	3.39	0.54
Retail trade and services	1,700	2,130	2,890	4,270	6,500	4.07	3.44
Business services	2,250	2,800	3,360	4,200	5,320	2.32	6.12
Social services and arts & recreation services	3,990	5,730	7,020	9,730	14,070	3.26	2.87
<b>Total</b>	<b>19,930</b>	<b>23,020</b>	<b>29,370</b>	<b>40,460</b>	<b>57,350</b>	<b>3.31</b>	<b>2.51</b>

Note: Totals are rounded to the nearest '0 million. GDP totals exclude Owner Occupied Dwellings.

Source: BERL

GDP in the Wellington Region is projected to grow from \$23,020 million in 2013, to \$57,350 million in 2041.

- GDP will grow across all industries in the Region, most notably in the communications and IT industry, which will increase by \$8,950 million (3.39 percent per annum compared to 0.54 percent per annum nationally under the BAU scenario).
- Other industries that have strong GDP growth are social services and arts and recreation services (up 3.26 percent per annum and a total of \$8,340 million over the period) and retail trade and services (up 4.07 percent per annum and a total of \$4,370 million over the period).

- Annual average GDP growth in the Wellington Region, at 3.31 percent per annum between 2013 and 2041, is greater than the national average of 2.51 percent per annum.

## 6.2 Implications and considerations

Key implications and considerations regarding the Aspirational scenario results include:

- **Population growth:** Under this scenario, the population of the Wellington Region grows at a faster rate than under scenarios one to three. This population growth is largely due to an increase in investment and improved connections to the Region attracting a greater number of migrants. Here, the resident population is estimated to grow by 0.83 percent per annum between 2013 and 2041.<sup>6</sup> Under scenarios one to three, the resident population is projected to grow by 0.55 percent per annum.
- **Labour force and employment growth:** This scenario results in annual average employment growth across the Region of 1.69 percent between 2013 and 2041. This employment growth is higher than the labour force participation projections for the region. These indicate that the regional labour force is expected to grow by 1.02 percent per annum between 2013 and 2041.<sup>7</sup> As a result, the Region will need to attract or retrain an additional 25,000 people in the labour force. To do this, various strategies need to be put in place to attract skilled workers from other parts of New Zealand and from overseas.
- **Workforce development and planning for specific industries:** Results from this scenario show that five of the broad industry groupings will grow at a faster rate per annum than is the case nationally between 2013 and 2041. These industries are likely to require different strategies to attract and retain employees than the three broad industry groupings that are expected to grow at a slower rate than the national average. Similarly, growing industries that require higher skill levels, such as the communications and IT industry will require different strategies to attract workers than those industries that require lower skill levels, such as the wholesale and distribution industry. The Region should consider developing strategies aligned to each industry to ensure the right mix of skills.
- **Local infrastructure and coordinated investment:** The full economic benefits of completing key national and regional infrastructure projects are not likely to be realised if supporting local infrastructure is not aligned. This means having the right local infrastructure in place, such as auxiliary roads, lighting, footpaths, and water and wastewater systems. A coordinated approach across local authorities may be the most appropriate way forward to ensure infrastructure is appropriate, to scale, and meets the needs of businesses and residents.

<sup>6</sup> The Statistics New Zealand population projections we have applied to the Wellington Region under the Aspirational scenario are the 'very high migration' scenario. This scenario assumes:

- A total fertility rate of 1.9 births per woman in the long term
- Life expectancy at birth to reach 88.1 years for males and 90.5 years for females in 2061
- Annual national net migration of 25,000 per annum.

<sup>7</sup> Under the aspirational scenario we have applied national 'very high' labour force projections to the Wellington Region.

- **Embracing change and recognising success:** This scenario assumes that the Region embraces change and recognises success. These types of values are shown to drive innovation and entrepreneurship. However, it is noted in the WRS that New Zealand has a cultural discomfort with recognising success and that not everyone wants to be innovative. A change in culture is therefore required. The Region could support this by continuing support for new ventures through incubation, acceleration and commercialisation; identifying and celebrating success; and encouraging related business activities to learn from these successful models.
- **Cross fertilisation of knowledge and ideas:** This scenario also assumes that strong connections are built across all industries in the public and private sectors. In most instances these connections are currently weak, both in the Wellington Region and nationally. In order to build these connections the Region needs to develop mechanisms for leveraging value between these groups, and create networking opportunities.
- **Land use:** This scenario results in substantial population and employment growth. As a result, more residential, commercial and industrial developments will be required than under the BAU scenario. This could impact on land use planning and zoning, and the price of land.

### 6.3 Scenario assumptions

This scenario assumes the combined impacts of the business and IT connections scenario (scenario two) and the infrastructure connections scenario (scenario three) are realised between 2013 and 2041. Further assumptions include:

- That increased investment in the Region and better connections to and from the Region will attract more people to live in the Wellington Region. Using Statistics New Zealand 'very high migration' national population projections, we estimate that the resident population of the Region will grow by 0.83 percent per annum between 2013 and 2041, much greater than the estimated population growth of 0.55 percent per annum under scenarios one to three.<sup>8</sup>
- The significant increase in the resident population under this scenario will mean additional investment in supporting infrastructure will be required. We therefore assume that annual employment and economic growth in the infrastructure industry remains two percentage points above that witnessed in the BAU scenario between 2031 and 2041, instead of dropping to one percentage point above.
- Activity in the public administration and defence (central and local government administration and the defence forces), and health and social services (including hospitals, health services, and residential care services) industries is determined by national trends. Regional growth rates for these industries are therefore assumed to be equal to national BAU growth rates.
- Annual employment and economic growth in the primary production (food and food product manufacturing) industries is slightly greater than BAU growth in these industries.
- The significant increase in the population in the Wellington Region places an increased demand on the business services, retail trade and services, and social services and arts and recreation industries compared to scenarios two and three. As a result, we expect greater economic activity and employment in these industries.

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<sup>8</sup> Population projections under the Aspirational scenario assume annual net migration of 25,000 people nationally. Under scenarios one to three, migration fluctuates between -10,000 and 30,000 people arriving over a 10-year cycle, with an average of 12,000 additional people arriving each year.

## 7 The impact of the scenarios at a sub-regional level

This section of our report discusses employment and GDP figures under each of the four scenarios for Wellington, Lower Hutt, Upper Hutt and Porirua cities as well as the Kapiti Coast District.

We have combined the results for the Wairarapa TLAs (South Wairarapa, Carterton and Masterton districts). As we have reduced confidence in generating useful BAU forecasts for the three Wairarapa TLAs separately.

Annual percentage changes at a sub-regional level are presented to one decimal place in this section of our report. This is because we have reduced confidence in the provision of growth projections at a sub-regional level.

### 7.1 Wellington City

Table 7.1 shows that overall employment growth for Wellington City under the BAU, infrastructure connections and aspirational scenarios is the same as the regional average between 2013 and 2041. In contrast, GDP growth under the BAU, infrastructure connections and aspirational scenarios is lower than the regional average between 2013 and 2041.

**Table 7.1: Wellington City FTEs and GDP (\$m), four scenarios, 2013-2041**

	Wellington City				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Wgtn City	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	134,840	145,570	155,820	168,550	0.8	0.8
Business and IT Connections Scenario	134,840	152,090	173,510	201,490	1.4	1.3
Infrastructure Connections Scenario	134,840	145,570	161,900	187,430	1.2	1.2
Aspirational Scenario	134,840	154,810	182,120	217,110	1.7	1.7
<b>GDP</b>						
BAU Scenario	14,970	17,720	21,640	26,940	2.1	2.4
Business and IT Connections Scenario	14,970	18,900	25,030	33,770	2.9	2.9
Infrastructure Connections Scenario	14,970	17,720	22,570	30,140	2.5	2.8
Aspirational Scenario	14,970	19,110	25,840	35,420	3.1	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.2 and Table 7.3 provide a breakdown of FTE and GDP growth by industry across the four scenarios.

**Table 7.2: FTEs, Wellington City, four scenarios, 2003-2041**

FTEs	Wellington City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn City	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	1,880	2,140	2,480	2,850	3,310	1.6	0.4
Product manufacturing	3,900	2,220	2,030	1,650	1,350	-1.8	-0.4
Infrastructure	5,110	6,780	7,440	6,420	4,970	-1.1	0.7
Wholesale and distribution	9,250	8,660	8,620	8,020	7,220	-0.6	-0.3
Communications and IT	18,440	25,990	30,800	34,520	38,060	1.4	0.9
Retail trade and services	20,280	20,380	21,940	23,730	25,220	0.8	1.2
Business services	16,940	18,640	17,760	15,910	13,980	-1.0	-0.7
Social services and arts & recreation services	35,660	50,020	54,510	62,720	74,440	1.4	1.3
<b>Total</b>	<b>111,450</b>	<b>134,840</b>	<b>145,570</b>	<b>155,820</b>	<b>168,550</b>	<b>0.8</b>	<b>0.8</b>
<b>S2 Business and IT Connections Scenario</b>							
Primary production	1,880	2,140	2,480	2,850	3,310	1.6	0.4
Product manufacturing	3,900	2,220	2,030	1,650	1,350	-1.8	-0.4
Infrastructure	5,110	6,780	7,440	6,420	4,970	-1.1	0.7
Wholesale and distribution	9,250	8,660	8,620	8,020	7,220	-0.6	-0.3
Communications and IT	18,440	25,990	35,970	49,050	65,810	3.4	2.9
Retail trade and services	20,280	20,380	21,940	23,730	25,220	0.8	1.2
Business services	16,940	18,640	18,680	17,900	16,900	-0.3	-0.1
Social services and arts & recreation services	35,660	50,020	54,940	63,890	76,710	1.5	1.4
<b>Total</b>	<b>111,450</b>	<b>134,840</b>	<b>152,090</b>	<b>173,510</b>	<b>201,490</b>	<b>1.4</b>	<b>1.3</b>
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	1,880	2,140	2,480	2,810	2,860	1.0	0.4
Product manufacturing	3,900	2,220	2,030	1,760	1,620	-1.1	0.3
Infrastructure	5,110	6,780	7,440	7,810	6,690	0.0	1.8
Wholesale and distribution	9,250	8,660	8,620	8,630	8,780	0.0	0.4
Communications and IT	18,440	25,990	30,800	36,630	46,670	2.1	1.7
Retail trade and services	20,280	20,380	21,940	24,300	27,420	1.1	1.5
Business services	16,940	18,640	17,760	16,220	14,980	-0.8	-0.5
Social services and arts & recreation services	35,660	50,020	54,510	63,760	78,410	1.6	1.5
<b>Total</b>	<b>111,450</b>	<b>134,840</b>	<b>145,570</b>	<b>161,900</b>	<b>187,430</b>	<b>1.2</b>	<b>1.2</b>
<b>S4 Aspirational Scenario</b>							
Primary production	1,880	2,140	2,550	3,070	3,330	1.6	0.9
Product manufacturing	3,900	2,220	2,110	1,900	1,750	-0.8	0.6
Infrastructure	5,110	6,780	7,440	7,810	7,430	0.3	2.2
Wholesale and distribution	9,250	8,660	9,330	9,600	9,760	0.4	0.7
Communications and IT	18,440	25,990	35,970	49,050	65,810	3.4	2.9
Retail trade and services	20,280	20,380	23,370	27,360	32,110	1.6	2.1
Business services	16,940	18,640	19,130	18,810	18,290	-0.1	0.3
Social services and arts & recreation services	35,660	50,020	54,900	64,510	78,620	1.6	1.5
<b>Total</b>	<b>111,450</b>	<b>134,840</b>	<b>154,810</b>	<b>182,120</b>	<b>217,110</b>	<b>1.7</b>	<b>1.7</b>

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

**Table 7.3: GDP (\$m), Wellington City, four scenarios, 2003-2041**

GDP	Wellington City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wgtn City	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	340	630	770	970	1,220	2.4	2.7
Product manufacturing	430	320	370	400	410	0.9	1.0
Infrastructure	630	730	910	1,010	1,070	1.4	3.2
Wholesale and distribution	1,120	1,160	1,380	1,610	1,830	1.6	1.9
Communications and IT	4,310	5,040	5,870	6,780	7,970	1.7	1.4
Retail trade and services	870	1,060	1,310	1,730	2,280	2.8	3.2
Business services	1,800	2,250	2,490	2,810	3,190	1.3	1.3
Social services and arts & recreation services	2,560	3,790	4,620	6,330	8,960	3.1	3.2
Total	12,070	14,970	17,720	21,640	26,940	2.1	2.4
<b>S2 Business and IT Connections Scenario</b>							
Primary production	340	630	770	970	1,220	2.4	2.7
Product manufacturing	430	320	370	400	410	0.9	1.0
Infrastructure	630	730	910	1,010	1,070	1.4	3.2
Wholesale and distribution	1,120	1,160	1,380	1,610	1,830	1.6	1.9
Communications and IT	4,310	5,040	6,860	9,620	13,740	3.6	3.4
Retail trade and services	870	1,060	1,310	1,730	2,280	2.8	3.2
Business services	1,800	2,250	2,660	3,280	4,070	2.1	2.2
Social services and arts & recreation services	2,560	3,790	4,640	6,410	9,140	3.2	3.3
Total	12,070	14,970	18,900	25,030	33,770	2.9	2.9
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	340	630	770	950	1,000	1.7	2.7
Product manufacturing	430	320	370	430	490	1.5	1.6
Infrastructure	630	730	910	1,220	1,430	2.4	4.3
Wholesale and distribution	1,120	1,160	1,380	1,730	2,220	2.3	2.6
Communications and IT	4,310	5,040	5,870	7,190	9,680	2.4	2.1
Retail trade and services	870	1,060	1,310	1,770	2,490	3.1	3.5
Business services	1,800	2,250	2,490	2,880	3,490	1.6	1.7
Social services and arts & recreation services	2,560	3,790	4,620	6,410	9,340	3.3	3.3
Total	12,070	14,970	17,720	22,570	30,140	2.5	2.8
<b>S4 Aspirational Scenario</b>							
Primary production	340	630	780	1,010	1,110	2.0	3.1
Product manufacturing	430	320	390	460	530	1.8	1.9
Infrastructure	630	730	910	1,220	1,580	2.8	4.7
Wholesale and distribution	1,120	1,160	1,490	1,920	2,460	2.7	3.0
Communications and IT	4,310	5,040	6,860	9,620	13,740	3.6	3.4
Retail trade and services	870	1,060	1,390	1,990	2,890	3.6	4.1
Business services	1,800	2,250	2,690	3,340	4,180	2.2	2.3
Social services and arts & recreation services	2,560	3,790	4,600	6,290	8,930	3.1	3.3
Total	12,070	14,970	19,110	25,840	35,420	3.1	3.3

Note: Totals are rounded to the nearest 10 million. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

### 7.1.1 Results – implications and considerations

- **Historic and future employment and GDP growth:** The four scenarios are based on historic growth trends (2003 to 2013) in Wellington City relative to national and regional growth projections.
- Employment and GDP growth in Wellington City between 2003 and 2013 was strong, with employment growth of 1.9 percent per annum (1.5 percent per annum regionally) and GDP growth of 2.2 percent per annum (1.5 percent per annum regionally).
- At an industry level, employment growth was strong in the communications and IT and social services and arts and recreation services industries (up 3.5 percent and 3.4 percent per annum respectively) and negative in the product manufacturing and wholesale and distribution industries (down 5.5 percent and 0.7 percent per annum respectively).

- These trends flow through into employment and GDP projections, with the assumption that they will continue into the future relative to national and regional trends. When examining the results of the scenarios it is therefore important to consider questions such as, is employment in the infrastructure industry in Wellington City likely to decline by 1.1 percent under the BAU scenario (total decline of 1,810 FTEs), when regional employment is expected to grow by 0.7 percent per annum over the period?
- **Labour force and employment growth:** The labour force in Wellington City is expected to grow by 0.7 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.0 percent per annum under the aspirational scenario. Employment growth is expected to range from 0.8 percent per annum under the BAU scenario, to 1.7 per annum under the aspirational scenario. To meet this employment growth, Wellington City will need to attract workers. To do this, appropriate workforce strategies may need to be developed. These strategies could include attracting more skilled migrants from overseas and from other parts of New Zealand.
- **Industry specific workforce planning:** Across all of the scenarios, Wellington City is expected to have higher rates of employment growth in the primary production, communications and IT, and social services and arts and recreation services industries relative to the wider Wellington Region. Conversely, across all of the scenarios employment is expected to decline in the product manufacturing, infrastructure and business services industries.
- To support the expected growth in the primary production, communications and IT, and social services and arts and recreation services industries, Wellington City may want to consider developing specific workforce strategies or plans for growing industries to ensure that the skills needs of firms are met, either from within or outside of the city. Wellington City may wish to develop workforce strategies in conjunction with industry, training providers, professional bodies and associations, and employers to grow and retain firms and workers in sectors that are projected to decline, and to consider how to attract talent to those sectors that are expected to expand.
- **Land use and local infrastructure:** The employment growth outlined in the aspirational scenario will have implications for land use and local infrastructure in the city and region. If employment growth is met by migrants moving to the city to live, additional housing may be required. This could lead to new housing developments, potential changes to residential zoning, and additional local infrastructure. If the employment growth is met from residents living across the Wellington Region, transport (including public transport) infrastructure may need to be improved to facilitate this and cope with the additional capacity.
- Further, results from the scenarios show that demand is expected to be greater in industries that require commercial land (e.g. communications and IT, retail trade and services, and social services and arts and recreation services) relative to industries that require industrial land (e.g. product manufacturing and wholesale and distribution). This is particularly the case in the BAU and business and IT connections scenarios where employment in industries that require industrial land is expected to decline. This could have land zoning and planning implications for Wellington City.

## 7.2 Lower Hutt City

Table 7.4 provides an overview of employment and GDP growth between 2013 and 2041 in Lower Hutt City under each of the four scenarios. In each scenario annual employment and GDP growth is expected to be lower in Lower Hutt City than the Wellington Region.

**Table 7.4: Lower Hutt City FTEs and GDP (\$m), four scenarios, 2013-2041**

	Lower Hutt City				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Lower Hutt	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	40,650	42,360	42,700	43,630	0.3	0.8
Business and IT Connections Scenario	40,650	43,200	44,520	46,390	0.5	1.3
Infrastructure Connections Scenario	40,650	42,360	44,990	48,890	0.7	1.2
Aspirational Scenario	40,650	44,810	49,780	56,260	1.2	1.7
<b>GDP</b>						
BAU Scenario	3,680	4,290	5,130	6,240	1.9	2.4
Business and IT Connections Scenario	3,680	4,380	5,360	6,650	2.1	2.9
Infrastructure Connections Scenario	3,680	4,290	5,460	7,160	2.4	2.8
Aspirational Scenario	3,680	4,530	5,990	8,150	2.9	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.5 and Table 7.6 provide a breakdown of FTE and GDP growth or change by broad industry grouping across the four scenarios.

**Table 7.5: FTEs, Lower Hutt City, 2003-2041**

FTEs	Lower Hutt City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Lower Hutt	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	1,670	1,220	1,140	1,020	970	-0.8	0.4
Product manufacturing	4,940	3,620	3,820	3,420	2,840	-0.9	-0.4
Infrastructure	4,340	5,560	5,930	4,930	3,670	-1.5	0.7
Wholesale and distribution	5,380	4,680	4,340	3,700	3,060	-1.5	-0.3
Communications and IT	3,820	3,670	3,310	2,680	2,150	-1.9	0.9
Retail trade and services	6,850	7,320	8,810	11,090	13,940	2.3	1.2
Business services	2,870	3,620	3,860	3,970	4,000	0.4	-0.7
Social services and arts & recreation services	8,730	10,960	11,160	11,900	13,000	0.6	1.3
Total	38,600	40,650	42,360	42,700	43,630	0.3	0.8
<b>S2 Business and IT Connections Scenario</b>							
Primary production	1,670	1,220	1,140	1,020	970	-0.8	0.4
Product manufacturing	4,940	3,620	3,820	3,420	2,840	-0.9	-0.4
Infrastructure	4,340	5,560	5,930	4,930	3,670	-1.5	0.7
Wholesale and distribution	5,380	4,680	4,340	3,700	3,060	-1.5	-0.3
Communications and IT	3,820	3,670	3,880	3,850	3,780	0.1	2.9
Retail trade and services	6,850	7,320	8,810	11,090	13,940	2.3	1.2
Business services	2,870	3,620	3,980	4,270	4,550	0.8	-0.1
Social services and arts & recreation services	8,730	10,960	11,300	12,240	13,570	0.8	1.4
Total	38,600	40,650	43,200	44,520	46,390	0.5	1.3
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	1,670	1,220	1,140	1,020	960	-0.9	0.4
Product manufacturing	4,940	3,620	3,820	3,630	3,410	-0.2	0.3
Infrastructure	4,340	5,560	5,930	6,000	4,950	-0.4	1.8
Wholesale and distribution	5,380	4,680	4,340	3,960	3,690	-0.8	0.4
Communications and IT	3,820	3,670	3,310	2,850	2,660	-1.1	1.7
Retail trade and services	6,850	7,320	8,810	11,360	15,210	2.6	1.5
Business services	2,870	3,620	3,860	4,010	4,190	0.5	-0.5
Social services and arts & recreation services	8,730	10,960	11,160	12,160	13,830	0.8	1.5
Total	38,600	40,650	42,360	44,990	48,890	0.7	1.2
<b>S4 Aspirational Scenario</b>							
Primary production	1,670	1,220	1,180	1,130	1,120	-0.3	0.9
Product manufacturing	4,940	3,620	3,970	3,940	3,690	0.1	0.6
Infrastructure	4,340	5,560	5,930	6,000	5,500	0.0	2.2
Wholesale and distribution	5,380	4,680	4,710	4,440	4,150	-0.4	0.7
Communications and IT	3,820	3,670	3,880	3,850	3,780	0.1	2.9
Retail trade and services	6,850	7,320	9,370	12,750	17,680	3.2	2.1
Business services	2,870	3,620	4,140	4,640	5,180	1.3	0.3
Social services and arts & recreation services	8,730	10,960	11,630	13,050	15,160	1.2	1.5
Total	38,600	40,650	44,810	49,780	56,260	1.2	1.7

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

**Table 7.6: GDP (\$m), Lower Hutt City, 2003-2041**

GDP	Lower Hutt City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Lower Hutt	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	220	170	190	230	280	1.8	2.7
Product manufacturing	650	500	550	510	440	-0.5	1.0
Infrastructure	370	500	710	930	1,160	3.1	3.2
Wholesale and distribution	640	600	660	700	720	0.7	1.9
Communications and IT	780	420	360	330	320	-1.0	1.4
Retail trade and services	300	420	560	840	1,260	4.0	3.2
Business services	250	320	390	470	580	2.1	1.3
Social services and arts & recreation services	580	750	870	1,120	1,480	2.5	3.2
Total	3,790	3,680	4,290	5,130	6,240	1.9	2.4
<b>S2 Business and IT Connections Scenario</b>							
Primary production	220	170	190	230	280	1.8	2.7
Product manufacturing	650	500	550	510	440	-0.5	1.0
Infrastructure	370	500	710	930	1,160	3.1	3.2
Wholesale and distribution	640	600	660	700	720	0.7	1.9
Communications and IT	780	420	430	480	560	1.0	3.4
Retail trade and services	300	420	560	840	1,260	4.0	3.2
Business services	250	320	410	540	710	2.9	2.2
Social services and arts & recreation services	580	750	880	1,140	1,520	2.6	3.3
Total	3,790	3,680	4,380	5,360	6,650	2.1	2.9
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	220	170	190	230	280	1.8	2.7
Product manufacturing	650	500	550	540	530	0.2	1.6
Infrastructure	370	500	710	1,110	1,530	4.1	4.3
Wholesale and distribution	640	600	660	740	860	1.3	2.6
Communications and IT	780	420	360	360	400	-0.2	2.1
Retail trade and services	300	420	560	860	1,380	4.3	3.5
Business services	250	320	390	480	630	2.4	1.7
Social services and arts & recreation services	580	750	870	1,140	1,550	2.6	3.3
Total	3,790	3,680	4,290	5,460	7,160	2.4	2.8
<b>S4 Aspirational Scenario</b>							
Primary production	220	170	200	250	330	2.4	3.1
Product manufacturing	650	500	570	590	570	0.5	1.9
Infrastructure	370	500	710	1,110	1,690	4.4	4.7
Wholesale and distribution	640	600	720	830	970	1.7	3.0
Communications and IT	780	420	430	480	560	1.0	3.4
Retail trade and services	300	420	600	960	1,590	4.9	4.1
Business services	250	320	410	560	760	3.1	2.3
Social services and arts & recreation services	580	750	900	1,210	1,680	2.9	3.3
Total	3,790	3,680	4,530	5,990	8,150	2.9	3.3

Note: Totals are rounded to the nearest 10 million. GDP to totals excludes Owner Occupied Dwellings.

Source: BERL

## 7.2.1 Results – implications and considerations

- Historic and future employment and GDP growth:** The four scenarios are based on historic growth trends (2003 to 2013) in Lower Hutt City relative to national and regional trends. Between 2003 and 2013, employment and GDP growth in Lower Hutt City was weak, with employment growing by 0.5 percent per annum (1.5 percent per annum regionally) and GDP declining by 0.3 percent per annum (up 1.5 percent per annum regionally). We expect lower employment and GDP growth in Lower Hutt City between 2013 and 2041 relative to the Wellington Region.
- While historic trends are important in helping to forecast future growth levels, one-off events such as a large firm closing down need to be considered in terms of their ability to impact on future growth. In Lower Hutt City expected employment growth in the product manufacturing and communications and IT industries is influenced by historic trends, as large firms from these industries have left the area over the past decade.

- **Labour force and employment growth:** The labour force in Lower Hutt City is expected to grow by 0.7 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.0 percent per annum under the aspirational scenario. Expected employment growth in Lower Hutt City ranges from 0.3 percent per annum to 1.2 percent per annum.
- Under the aspirational scenario estimated employment growth of 1.2 percent per annum is expected to be in excess of labour force growth of 1.0 percent per annum. Assuming that Lower Hutt City's relatively high labour force participation rate (69 percent in 2013) remains steady, it is likely that any increase in employment will be met by labour force growth.
- However, under the aspirational scenario it is unlikely that projected labour force growth and an increase in the labour force participation rate will be adequate to meet expected employment growth, and firms will need to look outside of the city for workers or face skills shortages.
- **Industry specific workforce planning:** Across all of the scenarios, Lower Hutt City is expected to have higher rates of employment growth in the retail trade and services and business services industries relative to the wider Wellington Region, and a decline in employment in the primary production, product manufacturing, and wholesale and distribution industries.
- To support the expected growth in the retail trade and services and business services industries, Lower Hutt City may want to consider developing specific workforce strategies or plans for growing industries to ensure that the skills needs of firms are met, either from within or outside of the city. Lower Hutt City may wish to develop workforce strategies in conjunction with industry, training providers, professional bodies and associations, and employers to grow and retain firms and workers in sectors that are projected to decline, and to consider how to attract talent to those sectors that are expected to expand.
- **Land use:** Scenarios one to three result in employment growth in industries that require commercial land and declines in employment in industries that require industrial land (e.g. manufacturing). Lower Hutt City may wish to take this into consideration when evaluating land zoning and undertaking planning activities. Similarly, under the aspirational scenario increased industrial, commercial and residential land is likely to be required. This too has implications when considering how land is zoned. It is however, important to note that regional trends in employment also have an impact on requirements for land (e.g. a shortage of zoned land in one TLA may result in increased demand in neighbouring TLAs), and expected regional employment trends also need to be taken into consideration.

### 7.3 Upper Hutt City

Table 7.7 provides an overview of FTE and GDP growth between 2013 and 2041 in Upper Hutt City under each of the four scenarios. Overall, it shows that employment in the City is expected to be lower than the regional average across all four scenarios. However, GDP growth in Upper Hutt City is expected to be greater than the regional average between 2013 and 2041.

**Table 7.7: Upper Hutt City FTEs and GDP (\$m), four scenarios, 2013-2041**

	Upper Hutt City				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Upper Hutt	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	10,650	10,950	11,770	12,920	0.7	0.8
Business and IT Connections Scenario	10,650	11,040	11,960	13,190	0.8	1.3
Infrastructure Connections Scenario	10,650	10,950	12,250	14,060	1.0	1.2
Aspirational Scenario	10,650	11,560	13,450	15,860	1.4	1.7
<b>GDP</b>						
BAU Scenario	990	1,180	1,650	2,500	3.4	2.4
Business and IT Connections Scenario	990	1,190	1,670	2,530	3.4	2.9
Infrastructure Connections Scenario	990	1,180	1,720	2,680	3.6	2.8
Aspirational Scenario	990	1,240	1,850	2,930	4.0	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.8 and Table 7.9 provide a breakdown of FTE and GDP growth in Upper Hutt City by broad industry grouping across the four scenarios.

**Table 7.8: FTEs, Upper Hutt City, four scenarios, 2003-2041**

FTEs	Upper Hutt City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Upper Hutt	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	310	250	280	290	300	0.7	0.4
Product manufacturing	1,080	820	990	1,120	1,240	1.5	-0.4
Infrastructure	790	1,030	1,120	950	720	-1.3	0.7
Wholesale and distribution	790	780	800	800	780	0.0	-0.3
Communications and IT	850	380	200	90	40	-7.7	0.9
Retail trade and services	2,270	1,960	1,930	1,880	1,830	-0.2	1.2
Business services	260	330	380	430	490	1.4	-0.7
Social services and arts & recreation services	3,360	5,100	5,240	6,210	7,520	1.4	1.3
Total	9,700	10,650	10,950	11,770	12,920	0.7	0.8
<b>S2 Business and IT Connections Scenario</b>							
Primary production	310	250	280	290	300	0.7	0.4
Product manufacturing	1,080	820	990	1,120	1,240	1.5	-0.4
Infrastructure	790	1,030	1,120	950	720	-1.3	0.7
Wholesale and distribution	790	780	800	800	780	0.0	-0.3
Communications and IT	850	380	240	130	70	-5.9	2.9
Retail trade and services	2,270	1,960	1,930	1,880	1,830	-0.2	1.2
Business services	260	330	390	450	520	1.6	-0.1
Social services and arts & recreation services	3,360	5,100	5,290	6,330	7,730	1.5	1.4
Total	9,700	10,650	11,040	11,960	13,190	0.8	1.3
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	310	250	280	290	260	0.1	0.4
Product manufacturing	1,080	820	990	1,190	1,480	2.1	0.3
Infrastructure	790	1,030	1,120	1,160	970	-0.2	1.8
Wholesale and distribution	790	780	800	850	950	0.7	0.4
Communications and IT	850	380	200	90	50	-7.0	1.7
Retail trade and services	2,270	1,960	1,930	1,930	1,990	0.1	1.5
Business services	260	330	380	430	500	1.5	-0.5
Social services and arts & recreation services	3,360	5,100	5,240	6,310	7,850	1.6	1.5
Total	9,700	10,650	10,950	12,250	14,060	1.0	1.2
<b>S4 Aspirational Scenario</b>							
Primary production	310	250	290	310	300	0.7	0.9
Product manufacturing	1,080	820	1,030	1,290	1,600	2.4	0.6
Infrastructure	790	1,030	1,120	1,160	1,080	0.2	2.2
Wholesale and distribution	790	780	870	950	1,060	1.1	0.7
Communications and IT	850	380	240	130	70	-5.9	2.9
Retail trade and services	2,270	1,960	2,060	2,180	2,330	0.6	2.1
Business services	260	330	400	500	620	2.3	0.3
Social services and arts & recreation services	3,360	5,100	5,550	6,940	8,800	2.0	1.5
Total	9,700	10,650	11,560	13,450	15,860	1.4	1.7

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

Table 7.9: GDP (\$m), Upper Hutt City, four scenarios, 2003-2041

GDP	Upper Hutt City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Upper Hutt	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	40	50	70	120	200	5.1	2.7
Product manufacturing	200	130	150	180	220	1.9	1.0
Infrastructure	60	90	140	200	270	4.0	3.2
Wholesale and distribution	90	100	120	150	190	2.3	1.9
Communications and IT	460	110	40	10	10	-8.2	1.4
Retail trade and services	100	110	130	160	200	2.2	3.2
Business services	30	30	40	40	50	1.8	1.3
Social services and arts & recreation services	220	360	490	790	1,360	4.9	3.2
Total	1,200	990	1,180	1,650	2,500	3.4	2.4
<b>S2 Business and IT Connections Scenario</b>							
Primary production	40	50	70	120	200	5.1	2.7
Product manufacturing	200	130	150	180	220	1.9	1.0
Infrastructure	60	90	140	200	270	4.0	3.2
Wholesale and distribution	90	100	120	150	190	2.3	1.9
Communications and IT	460	110	50	20	10	-8.2	3.4
Retail trade and services	100	110	130	160	200	2.2	3.2
Business services	30	30	40	50	60	2.5	2.2
Social services and arts & recreation services	220	360	490	800	1,370	4.9	3.3
Total	1,200	990	1,190	1,670	2,530	3.4	2.9
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	40	50	70	110	160	4.2	2.7
Product manufacturing	200	130	150	190	270	2.6	1.6
Infrastructure	60	90	140	230	350	5.0	4.3
Wholesale and distribution	90	100	120	170	230	3.0	2.6
Communications and IT	460	110	40	20	10	-8.2	2.1
Retail trade and services	100	110	130	160	220	2.5	3.5
Business services	30	30	40	40	50	1.8	1.7
Social services and arts & recreation services	220	360	490	800	1,390	4.9	3.3
Total	1,200	990	1,180	1,720	2,680	3.6	2.8
<b>S4 Aspirational Scenario</b>							
Primary production	40	50	70	120	170	4.5	3.1
Product manufacturing	200	130	160	200	290	2.9	1.9
Infrastructure	60	90	140	230	390	5.4	4.7
Wholesale and distribution	90	100	130	180	260	3.5	3.0
Communications and IT	460	110	50	20	10	-8.2	3.4
Retail trade and services	100	110	140	180	250	3.0	4.1
Business services	30	30	40	50	70	3.1	2.3
Social services and arts & recreation services	220	360	510	860	1,490	5.2	3.3
Total	1,200	990	1,240	1,850	2,930	4.0	3.3

Note: Totals are rounded to the nearest 10 million. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

### 7.3.1 Results – implications and considerations

- Historic and future employment and GDP growth:** The four scenarios are based on historic growth trends (2003 to 2013) in Upper Hutt City relative to national and regional growth projections. Employment and GDP growth in Upper Hutt City between 2003 and 2013 was weak, with employment growing by 0.9 percent per annum (1.5 percent per annum regionally) and GDP declining by 1.9 percent per annum (up 1.5 percent per annum regionally). At an industry level, employment growth was strong in social services and art and recreation services (up 4.3 percent per annum) and negative in communications and IT (down 7.7 per annum). These historical trends flow through into the development of employment and GDP projections, with the assumption that these trends relative to national and regional trends will continue.

- When examining the results of each scenario, it is important to consider whether these historic trends will continue into the future. For example, is the communications and IT industry likely to continue to decline at a rate of 7.7 percent per annum under the BAU scenario between 2013 and 2041 compared to regional growth of 0.9 percent per annum?
- **Labour force and employment growth:** The labour force in Upper Hutt City is estimated to grow by 0.7 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.0 percent per annum under the aspirational scenario. The four scenarios show that expected employment growth in Upper Hutt City could range between 0.7 percent and 1.4 percent per annum.
- Under scenario one, employment growth is estimated to be lower than labour force growth, meaning that if the labour force participation rate in the region remains at current levels (in 2013 it was 68 percent) a greater proportion of Upper Hutt City residents will need to find employment outside of Upper Hutt City.
- Under scenarios two and three, employment growth is expected to be similar to labour force growth while under the aspirational scenario, employment growth is expected to be greater. If the employment and GDP projections under each of these scenarios are to be realised, Upper Hutt City should consider the development of workforce strategies to increase its labour force participation rate and/or encourage people to move to the area.
- **Industry specific workforce planning:** Upper Hutt City is expected to have strong employment growth in the product manufacturing, and business services relative to the regional average across each of the four scenarios. Conversely employment in the communications and IT industry is expected to decline across each of the four scenarios.
- To support growth in the product manufacturing, business services and primary production industries, Upper Hutt City may want to consider developing specific workforce strategies to ensure that the skills needs of firms are met. Upper Hutt City may also wish to develop strategies for the city to retain firms and workers in the communications and IT industry, or identify possible next steps for affected workers in terms of up-skilling and continuing to contribute to the local economy. Any workforce plans developed should be linked to regional plans to reduce duplication of effort and make best use of labour and other resources within the Region.
- **Land use:** Expected employment growth across the scenarios could result in increased demand for commercial land. Upper Hutt City may wish to take this into consideration when undertaking planning and zoning evaluations, and in determining land use requirements. Similarly, under the Aspirational Scenario increased industrial, commercial and residential land is likely to be required. This too has implications when considering how land is zoned. However, regional trends in employment may also impact on requirements for land (e.g. a shortage of zoned land in one TLA may result in increased demand in neighbouring TLAs) and expected regional employment trends also need to be taken into consideration.

## 7.4 Porirua City

Table 7.10 provides an overview of overall FTE and GDP growth between 2013 and 2041 in Porirua City under each of the four scenarios. Overall growth under each scenario is expected to be greater than regional growth. This is particularly the case for scenario three, Infrastructure connections.

**Table 7.10: Porirua City FTEs and GDP (\$m), four scenarios, 2013-2041**

	Porirua City				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Porirua	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	14,270	17,190	21,620	27,420	2.4	0.8
Business and IT Connections Scenario	14,270	17,400	22,020	27,940	2.4	1.3
Infrastructure Connections Scenario	14,270	17,190	23,410	31,950	2.9	1.2
Aspirational Scenario	14,270	17,380	23,370	32,730	3.0	1.7
<b>GDP</b>						
BAU Scenario	1,140	1,520	2,270	3,520	4.1	2.4
Business and IT Connections Scenario	1,140	1,540	2,310	3,580	4.2	2.9
Infrastructure Connections Scenario	1,140	1,520	2,440	4,090	4.7	2.8
Aspirational Scenario	1,140	1,550	2,480	4,290	4.8	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.11 and Table 7.12 provide a breakdown of FTE and GDP growth in Porirua City by broad industry grouping across the four scenarios.

**Table 7.11: FTEs, Porirua City, four scenarios, 2003-2041**

FTEs	Porirua City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Porirua	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	350	410	570	800	1,120	3.7	0.4
Product manufacturing	740	530	550	480	390	-1.1	-0.4
Infrastructure	940	2,340	4,280	7,050	10,450	5.5	0.7
Wholesale and distribution	680	880	1,120	1,390	1,680	2.3	-0.3
Communications and IT	960	810	610	380	240	-4.3	0.9
Retail trade and services	3,370	3,040	3,190	3,360	3,530	0.5	1.2
Business services	450	590	680	780	900	1.5	-0.7
Social services and arts & recreation services	4,250	5,650	6,200	7,370	9,120	1.7	1.3
Total	11,740	14,270	17,190	21,620	27,420	2.4	0.8
<b>S2 Business and IT Connections Scenario</b>							
Primary production	350	410	570	800	1,120	3.7	0.4
Product manufacturing	740	530	550	480	390	-1.1	-0.4
Infrastructure	940	2,340	4,280	7,050	10,450	5.5	0.7
Wholesale and distribution	680	880	1,120	1,390	1,680	2.3	-0.3
Communications and IT	960	810	720	560	430	-2.2	2.9
Retail trade and services	3,370	3,040	3,190	3,360	3,530	0.5	1.2
Business services	450	590	700	830	970	1.8	-0.1
Social services and arts & recreation services	4,250	5,650	6,280	7,550	9,380	1.8	1.4
Total	11,740	14,270	17,400	22,020	27,940	2.4	1.3
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	350	410	570	800	1,090	3.6	0.4
Product manufacturing	740	530	550	510	470	-0.4	0.3
Infrastructure	940	2,340	4,280	8,470	13,790	6.5	1.8
Wholesale and distribution	680	880	1,120	1,490	2,020	3.0	0.4
Communications and IT	960	810	610	410	300	-3.5	1.7
Retail trade and services	3,370	3,040	3,190	3,440	3,840	0.8	1.5
Business services	450	590	680	790	930	1.6	-0.5
Social services and arts & recreation services	4,250	5,650	6,200	7,500	9,510	1.9	1.5
Total	11,740	14,270	17,190	23,410	31,950	2.9	1.2
<b>S4 Aspirational Scenario</b>							
Primary production	350	410	590	890	1,320	4.3	0.9
Product manufacturing	740	530	570	560	510	-0.1	0.6
Infrastructure	940	2,340	4,280	8,470	15,240	6.9	2.2
Wholesale and distribution	680	880	1,210	1,660	2,250	3.4	0.7
Communications and IT	960	810	720	560	430	-2.2	2.9
Retail trade and services	3,370	3,040	3,400	3,870	4,500	1.4	2.1
Business services	450	590	730	910	1,160	2.4	0.3
Social services and arts & recreation services	4,250	5,650	5,900	6,460	7,320	0.9	1.5
Total	11,740	14,270	17,380	23,370	32,730	3.0	1.7

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

**Table 7.12: GDP (\$m), Porirua City, four scenarios, 2003-2041**

GDP	Porirua City					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Porirua	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	40	60	90	160	260	5.4	2.7
Product manufacturing	120	90	100	90	80	-0.4	1.0
Infrastructure	80	170	340	680	1,290	7.5	3.2
Wholesale and distribution	80	110	170	270	400	4.7	1.9
Communications and IT	160	90	70	40	30	-3.8	1.4
Retail trade and services	150	180	230	300	400	2.9	3.2
Business services	50	60	70	80	100	1.8	1.3
Social services and arts & recreation services	280	370	460	650	960	3.5	3.2
<b>Total</b>	<b>960</b>	<b>1,140</b>	<b>1,520</b>	<b>2,270</b>	<b>3,520</b>	<b>4.1</b>	<b>2.4</b>
<b>S2 Business and IT Connections Scenario</b>							
Primary production	40	60	90	160	260	5.4	2.7
Product manufacturing	120	90	100	90	80	-0.4	1.0
Infrastructure	80	170	340	680	1,290	7.5	3.2
Wholesale and distribution	80	110	170	270	400	4.7	1.9
Communications and IT	160	90	80	60	50	-2.1	3.4
Retail trade and services	150	180	230	300	400	2.9	3.2
Business services	50	60	70	90	120	2.5	2.2
Social services and arts & recreation services	280	370	470	660	980	3.5	3.3
<b>Total</b>	<b>960</b>	<b>1,140</b>	<b>1,540</b>	<b>2,310</b>	<b>3,580</b>	<b>4.2</b>	<b>2.9</b>
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	40	60	90	150	260	5.4	2.7
Product manufacturing	120	90	100	100	90	0.0	1.6
Infrastructure	80	170	340	810	1,690	8.5	4.3
Wholesale and distribution	80	110	170	290	480	5.4	2.6
Communications and IT	160	90	70	40	30	-3.8	2.1
Retail trade and services	150	180	230	300	430	3.2	3.5
Business services	50	60	70	90	110	2.2	1.7
Social services and arts & recreation services	280	370	460	660	990	3.6	3.3
<b>Total</b>	<b>960</b>	<b>1,140</b>	<b>1,520</b>	<b>2,440</b>	<b>4,090</b>	<b>4.7</b>	<b>2.8</b>
<b>S4 Aspirational Scenario</b>							
Primary production	40	60	90	170	310	6.0	3.1
Product manufacturing	120	90	100	100	100	0.4	1.9
Infrastructure	80	170	340	810	1,860	8.9	4.7
Wholesale and distribution	80	110	180	320	540	5.8	3.0
Communications and IT	160	90	80	60	50	-2.1	3.4
Retail trade and services	150	180	240	340	500	3.7	4.1
Business services	50	60	80	100	140	3.1	2.3
Social services and arts & recreation services	280	370	440	580	800	2.8	3.3
<b>Total</b>	<b>960</b>	<b>1,140</b>	<b>1,550</b>	<b>2,480</b>	<b>4,290</b>	<b>4.8</b>	<b>3.3</b>

Note: Totals are rounded to the nearest 10 million. GDP to totals excludes Owner Occupied Dwellings.

Source: BERL

### 7.4.1 Results – implications and considerations

- Historic and future employment and GDP growth:** The four scenarios for Porirua City are based on historic growth trends (2003 to 2013) in Porirua relative to national and regional growth projections. Employment and GDP growth in Porirua City between 2003 and 2013 was strong, with employment growing by 2.0 percent per annum (1.5 percent per annum regionally) and GDP increasing by 1.7 percent per annum (1.5 percent per annum regionally). Over this period, employment growth was strong in the infrastructure industry (up 9.5 percent per annum) but declined in the product manufacturing (down 3.3 percent per annum), communications and IT (down 1.7 percent per annum), and retail trade and services industries (down 1.0 percent per annum).

- We assume that the historic trends noted flow through into the employment and GDP projections. However, when examining the results of the scenarios, it is important to apply a sense check on this assumption. For example, is employment in Porirua City in the infrastructure industry likely to grow by 5.5 percent under the BAU scenario (total growth of 8,110 FTEs) when regionally employment growth in the infrastructure industry is only expected to increase by 0.7 percent per annum over the period?
- **Labour force and employment growth:** Porirua City's labour force is estimated to grow by 0.7 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.0 percent per annum under the aspirational scenario. In turn, employment growth is expected to range from 2.4 percent per annum under the BAU scenario, to 3.0 percent per annum under the aspirational scenario.
- The labour force participation rate in Porirua City was 69 percent in 2013, which was higher than the national average of 67 percent. It is therefore unlikely that large gains would be made by increasing labour force participation.
- To achieve the strong employment growth outlined in the aspirational scenario, Porirua City will have to increase its resident population beyond the current expected projections or increase the number of people living outside of Porirua City that commute to the area to work. Porirua City should therefore consider developing workforce strategies that attract workers to the City towards 2041.
- **Industry specific workforce planning:** Employment growth in the infrastructure, primary production, wholesale and distribution, and business services industries is expected to be strong between 2013 and 2041 under each of the four scenarios. Conversely employment is expected to decline in the product manufacturing and communications and IT industries under the four scenarios. These growth trends represent potential opportunities and risks for the City. In industries that are expected to have strong employment growth, there is likely to be a shortage of skilled labour, which in turn could constrain economic growth. Conversely for industries that are expected to decline, the City risks losing productive resources to other areas or underutilising resources. In each of these cases, Porirua City has the opportunity to shape how it and firms in the city mitigate the potential for skills shortage and bring about economic growth. This could be achieved by the development of specific workforce strategies in consultation with industry and local firms.
- **Land use and local infrastructure:** Each scenario has implications for land use and local infrastructure. If the employment growth is met by people moving to the City to work and live, additional housing will be required. This is likely to result in changes to residential zoning and require additional local infrastructure. If the employment growth is met by residents who live across the Wellington Region commuting to work in the City, transport infrastructure (including public transport and active modes) may need to be improved to cope with this additional capacity.

## 7.5 Kapiti Coast District

Table 7.13 provides an overview of the change in FTEs and GDP between 2013 and 2041 in the Kapiti Coast District under each of the four scenarios. It shows that overall FTE growth in the Kapiti Coast District under the BAU, infrastructure connections, and aspirational scenarios is expected to be greater than regional growth between 2013 and 2041. FTE growth in the business and IT connections scenario is expected to be similar to the regional average over the period. GDP growth under each scenario is expected to be greater than regional growth between 2013 and 2041.

**Table 7.13: Kapiti Coast District FTEs and GDP (\$m), four scenarios, 2013-2041**

	Kapiti Coast District				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Kapiti	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	10,630	11,840	13,130	14,630	1.1	0.8
Business and IT Connections Scenario	10,630	12,020	13,500	15,170	1.3	1.3
Infrastructure Connections Scenario	10,630	11,840	13,830	16,340	1.5	1.2
Aspirational Scenario	10,630	12,180	14,440	17,340	1.8	1.7
<b>GDP</b>						
BAU Scenario	860	1,100	1,480	2,020	3.1	2.4
Business and IT Connections Scenario	860	1,120	1,530	2,110	3.3	2.9
Infrastructure Connections Scenario	860	1,100	1,560	2,230	3.5	2.8
Aspirational Scenario	860	1,130	1,620	2,350	3.7	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.14 and Table 7.15 provides a breakdown of the change in FTEs and GDP in the Kapiti Coast District by broad industry grouping across the four scenarios.

**Table 7.14: FTEs, Kapiti Coast District, four scenarios, 2003-2041**

FTEs	Kapiti Coast District					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Kapiti	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	860	680	620	520	430	-1.6	0.4
Product manufacturing	500	410	500	560	590	1.3	-0.4
Infrastructure	1,370	1,460	1,740	1,770	1,780	0.7	0.7
Wholesale and distribution	430	450	490	520	530	0.6	-0.3
Communications and IT	620	650	600	490	390	-1.8	0.9
Retail trade and services	3,080	3,210	3,750	4,510	5,340	1.8	1.2
Business services	440	510	520	530	550	0.3	-0.7
Social services and arts & recreation services	2,350	3,260	3,610	4,230	5,010	1.5	1.3
Total	9,650	10,630	11,840	13,130	14,630	1.1	0.8
<b>S2 Business and IT Connections Scenario</b>							
Primary production	860	680	620	520	430	-1.6	0.4
Product manufacturing	500	410	500	560	590	1.3	-0.4
Infrastructure	1,370	1,460	1,740	1,770	1,780	0.7	0.7
Wholesale and distribution	430	450	490	520	530	0.6	-0.3
Communications and IT	620	650	710	710	690	0.2	2.9
Retail trade and services	3,080	3,210	3,750	4,510	5,340	1.8	1.2
Business services	440	510	550	580	620	0.7	-0.1
Social services and arts & recreation services	2,350	3,260	3,660	4,340	5,190	1.7	1.4
Total	9,650	10,630	12,020	13,500	15,170	1.3	1.3
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	860	680	620	520	430	-1.6	0.4
Product manufacturing	500	410	500	590	710	2.0	0.3
Infrastructure	1,370	1,460	1,740	2,160	2,390	1.8	1.8
Wholesale and distribution	430	450	490	560	650	1.3	0.4
Communications and IT	620	650	600	520	490	-1.0	1.7
Retail trade and services	3,080	3,210	3,750	4,630	5,870	2.2	1.5
Business services	440	510	520	540	570	0.4	-0.5
Social services and arts & recreation services	2,350	3,260	3,610	4,310	5,290	1.7	1.5
Total	9,650	10,630	11,840	13,840	16,400	1.6	1.2
<b>S4 Aspirational Scenario</b>							
Primary production	860	680	630	550	480	-1.2	0.9
Product manufacturing	500	410	520	640	760	2.2	0.6
Infrastructure	1,370	1,460	1,740	2,160	2,640	2.1	2.2
Wholesale and distribution	430	450	530	620	720	1.7	0.7
Communications and IT	620	650	710	710	690	0.2	2.9
Retail trade and services	3,080	3,210	4,000	5,190	6,780	2.7	2.1
Business services	440	510	560	620	710	1.2	0.3
Social services and arts & recreation services	2,350	3,260	3,500	3,960	4,620	1.3	1.5
Total	9,650	10,630	12,180	14,450	17,410	1.8	1.7

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

Table 7.15: GDP (\$m), Kapiti Coast District, four scenarios, 2003-2041

GDP	Kapiti Coast District					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Kapiti	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	80	90	110	150	210	3.1	2.7
Product manufacturing	60	60	70	80	90	1.5	1.0
Infrastructure	120	120	170	230	300	3.3	3.2
Wholesale and distribution	50	60	80	110	140	3.1	1.9
Communications and IT	70	80	80	80	80	0.0	1.4
Retail trade and services	130	180	250	360	530	3.9	3.2
Business services	50	60	60	70	80	1.0	1.3
Social services and arts & recreation services	150	210	280	400	580	3.7	3.2
Total	720	860	1,100	1,480	2,020	3.1	2.4
<b>S2 Business and IT Connections Scenario</b>							
Primary production	80	90	110	150	210	3.1	2.7
Product manufacturing	60	60	70	80	90	1.5	1.0
Infrastructure	120	120	170	230	300	3.3	3.2
Wholesale and distribution	50	60	80	110	140	3.1	1.9
Communications and IT	70	80	90	120	140	2.0	3.4
Retail trade and services	130	180	250	360	530	3.9	3.2
Business services	50	60	70	80	100	1.8	2.2
Social services and arts & recreation services	150	210	280	400	600	3.8	3.3
Total	720	860	1,120	1,530	2,110	3.3	2.9
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	80	90	110	150	210	3.1	2.7
Product manufacturing	60	60	70	90	110	2.2	1.6
Infrastructure	120	120	170	280	400	4.4	4.3
Wholesale and distribution	50	60	80	110	170	3.8	2.6
Communications and IT	70	80	80	90	100	0.8	2.1
Retail trade and services	130	180	250	370	590	4.3	3.5
Business services	50	60	60	70	90	1.5	1.7
Social services and arts & recreation services	150	210	280	400	610	3.9	3.3
Total	720	860	1,100	1,560	2,270	3.5	2.8
<b>S4 Aspirational Scenario</b>							
Primary production	80	90	110	160	230	3.4	3.1
Product manufacturing	60	60	70	100	120	2.5	1.9
Infrastructure	120	120	170	280	440	4.7	4.7
Wholesale and distribution	50	60	90	130	180	4.0	3.0
Communications and IT	70	80	90	120	140	2.0	3.4
Retail trade and services	130	180	260	420	670	4.8	4.1
Business services	50	60	70	80	100	1.8	2.3
Social services and arts & recreation services	150	210	260	350	500	3.1	3.3
Total	720	860	1,130	1,620	2,390	3.7	3.3

Note: Totals are rounded to the nearest 10 million. GDP to totals excludes Owner Occupied Dwellings.

Source: BERL

### 7.5.1 Results – implications and considerations

- **Historic and future employment and GDP growth:** The four scenarios are based on historic growth trends (2003 to 2013) in the Kapiti Coast District relative to national and regional growth projections. Between 2003 and 2013, employment and GDP growth in the Kapiti Coast District was weak compared to the rest of the Region. Employment in the District grew by 1.0 percent per annum (1.5 percent per annum regionally), while GDP increased by 1.8 percent per annum (1.5 percent per annum regionally).
- Between 2013 and 2041, annual average growth in social services and arts and recreational services, and retail trade and services industries contributes to strong GDP growth in the Kapiti Coast District under the BAU scenario (3.1 percent per annum compared to 2.4 percent per annum regionally).

- Labour force and employment growth:** The labour force in the Kapiti Coast District is estimated to grow by 1.0 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.2 percent per annum under the aspirational scenario. Employment growth in the Kapiti Coast District is expected to range from 1.1 percent per annum under the BAU scenario, to 1.8 percent per annum under the aspirational scenario. The labour force participation rate in the Kapiti Coast District in 2013 was 59 percent, much lower than the national labour force participation rate of 67 percent. This suggests that a large proportion of the expected increase in employment under each of the four scenarios could come from Kapiti residents, assuming they have the appropriate skills. This could present challenges for the district in terms of developing strategies to increase labour force participation.
- Annual employment growth in the infrastructure connections scenario (1.5 percent) and the aspirational scenario (1.8 percent) is much greater than estimated labour force growth. It is likely that additional workers will be required under these scenarios beyond that provided by increases in labour force participation in the District. If these scenarios are developed further, the Kapiti Coast District may want to develop strategies to attract people to live and work or commute to work in the area.
- Industry specific workforce planning:** Employment growth is expected to be strong in the product manufacturing, and social services and arts and recreation services industries across the four scenarios. Conversely employment growth is expected to fall in the primary production and communication and IT industries over the period. The social services and arts and recreation industry requires a range of skill sets; people within the District could be trained to meet these specific requirements and increase local participation in the labour market. In the declining primary production industries, the District may want to consider how affected workers could be supported into other areas of employment or retrained.

## 7.6 Wairarapa

Table 7.16 provides an overview of the change in FTEs and GDP between 2013 and 2041 for the three combined Wairarapa TLAs (South Wairarapa, Carterton and Masterton districts) across the four scenarios. Employment under each scenario is expected to be lower in the Wairarapa than the regional average; however, GDP is expected to grow at a higher rate.

**Table 7.16: Wairarapa FTEs and GDP (\$m), four scenarios, 2013-2041**

	Wairarapa				2013-2041 (% p.a.)	
	2013	2021	2031	2041	Wairarapa	Wgtn Rgn
<b>FTEs</b>						
BAU Scenario	15,760	16,960	17,650	18,100	0.5	0.8
Business and IT Connections Scenario	15,760	17,180	18,220	19,180	0.7	1.3
Infrastructure Connections Scenario	15,760	16,960	18,640	21,060	1.0	1.2
Aspirational Scenario	15,760	17,940	20,970	24,910	1.6	1.7
<b>GDP</b>						
BAU Scenario	1,370	1,720	2,250	2,960	2.8	2.4
Business and IT Connections Scenario	1,370	1,740	2,320	3,100	3.0	2.9
Infrastructure Connections Scenario	1,370	1,720	2,410	3,640	3.6	2.8
Aspirational Scenario	1,370	1,810	2,680	4,210	4.1	3.3

Note: Sub-totals are rounded to the nearest 10. GDP totals excludes Owner Occupied Dwellings.

Source: BERL

Table 7.17 and Table 7.18 provide a breakdown of the change in FTEs and GDP by broad industry grouping across the four scenarios.

Table 7.17: FTEs, Wairarapa, four scenarios, 2003-2041

FTEs	Wairarapa					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wairarapa	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	4,470	4,230	4,460	4,280	3,840	-0.3	0.4
Product manufacturing	670	580	720	840	970	1.9	-0.4
Infrastructure	1,160	1,640	1,880	1,720	1,420	-0.5	0.7
Wholesale and distribution	750	890	1,090	1,350	1,650	2.2	-0.3
Communications and IT	980	760	820	900	1,000	1.0	0.9
Retail trade and services	3,210	3,250	3,660	4,160	4,670	1.3	1.2
Business services	730	650	520	380	270	-3.1	-0.7
Social services and arts & recreation services	2,920	3,750	3,810	4,010	4,300	0.5	1.3
Total	14,900	15,760	16,960	17,650	18,100	0.5	0.8
<b>S2 Business and IT Connections Scenario</b>							
Primary production	4,470	4,230	4,460	4,280	3,840	-0.3	0.4
Product manufacturing	670	580	720	840	970	1.9	-0.4
Infrastructure	1,160	1,640	1,880	1,720	1,420	-0.5	0.7
Wholesale and distribution	750	890	1,090	1,350	1,650	2.2	-0.3
Communications and IT	980	760	960	1,280	1,720	3.0	2.9
Retail trade and services	3,210	3,250	3,660	4,160	4,670	1.3	1.2
Business services	730	650	550	420	310	-2.6	-0.1
Social services and arts & recreation services	2,920	3,750	3,870	4,170	4,600	0.7	1.4
Total	14,900	15,760	17,180	18,220	19,180	0.7	1.3
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	4,470	4,230	4,460	4,340	4,410	0.1	0.4
Product manufacturing	670	580	720	890	1,160	2.5	0.3
Infrastructure	1,160	1,640	1,880	2,240	2,170	1.0	1.8
Wholesale and distribution	750	890	1,090	1,440	1,970	2.9	0.4
Communications and IT	980	760	820	950	1,230	1.7	1.7
Retail trade and services	3,210	3,250	3,660	4,260	5,080	1.6	1.5
Business services	730	650	520	380	280	-3.0	-0.5
Social services and arts & recreation services	2,920	3,750	3,810	4,130	4,750	0.8	1.5
Total	14,900	15,760	16,960	18,640	21,060	1.0	1.2
<b>S4 Aspirational Scenario</b>							
Primary production	4,470	4,230	4,510	4,590	4,880	0.5	0.9
Product manufacturing	670	580	750	970	1,250	2.8	0.6
Infrastructure	1,160	1,640	1,880	2,240	2,260	1.2	2.2
Wholesale and distribution	750	890	1,180	1,610	2,210	3.3	0.7
Communications and IT	980	760	960	1,280	1,720	3.0	2.9
Retail trade and services	3,210	3,250	3,890	4,790	5,930	2.2	2.1
Business services	730	650	560	450	350	-2.2	0.3
Social services and arts & recreation services	2,920	3,750	4,210	5,060	6,300	1.9	1.5
Total	14,900	15,760	17,940	20,970	24,910	1.6	1.7

Note: Sub-totals are rounded to the nearest 10.

Source: BERL

**Table 7.18: GDP (\$m), Wairarapa, four scenarios, 2003-2041**

GDP	Wairarapa					2013-2041 (% p.a.)	
	2003	2013	2021	2031	2041	Wairarapa	Wgtn Rgn
<b>S1 BAU Scenario</b>							
Primary production	440	490	620	790	980	2.5	2.7
Product manufacturing	60	70	110	190	310	5.5	1.0
Infrastructure	110	120	150	170	170	1.3	3.2
Wholesale and distribution	90	120	170	250	380	4.2	1.9
Communications and IT	80	70	80	110	150	2.8	1.4
Retail trade and services	140	180	240	330	460	3.4	3.2
Business services	70	70	70	60	50	-1.2	1.3
Social services and arts & recreation services	200	250	290	360	450	2.1	3.2
<b>Total</b>	<b>1,190</b>	<b>1,370</b>	<b>1,720</b>	<b>2,250</b>	<b>2,960</b>	<b>2.8</b>	<b>2.4</b>
<b>S2 Business and IT Connections Scenario</b>							
Primary production	440	490	620	790	980	2.5	2.7
Product manufacturing	60	70	110	190	310	5.5	1.0
Infrastructure	110	120	150	170	170	1.3	3.2
Wholesale and distribution	90	120	170	250	380	4.2	1.9
Communications and IT	80	70	100	160	250	4.7	3.4
Retail trade and services	140	180	240	330	460	3.4	3.2
Business services	70	70	70	70	70	0.0	2.2
Social services and arts & recreation services	200	250	290	370	480	2.4	3.3
<b>Total</b>	<b>1,190</b>	<b>1,370</b>	<b>1,740</b>	<b>2,320</b>	<b>3,100</b>	<b>3.0</b>	<b>2.9</b>
<b>S3 Infrastructure Connections Scenario</b>							
Primary production	440	490	620	810	1,290	3.5	2.7
Product manufacturing	60	70	110	200	360	6.0	1.6
Infrastructure	110	120	150	240	300	3.3	4.3
Wholesale and distribution	90	120	170	270	450	4.8	2.6
Communications and IT	80	70	80	120	180	3.4	2.1
Retail trade and services	140	180	240	340	510	3.8	3.5
Business services	70	70	70	60	60	-0.5	1.7
Social services and arts & recreation services	200	250	290	360	490	2.4	3.3
<b>Total</b>	<b>1,190</b>	<b>1,370</b>	<b>1,720</b>	<b>2,410</b>	<b>3,640</b>	<b>3.6</b>	<b>2.8</b>
<b>S4 Aspirational Scenario</b>							
Primary production	440	490	630	860	1,440	3.9	3.1
Product manufacturing	60	70	120	220	390	6.3	1.9
Infrastructure	110	120	150	240	310	3.4	4.7
Wholesale and distribution	90	120	180	300	500	5.2	3.0
Communications and IT	80	70	100	160	250	4.7	3.4
Retail trade and services	140	180	250	380	590	4.3	4.1
Business services	70	70	70	70	70	0.0	2.3
Social services and arts & recreation services	200	250	310	450	660	3.5	3.3
<b>Total</b>	<b>1,190</b>	<b>1,370</b>	<b>1,810</b>	<b>2,680</b>	<b>4,210</b>	<b>4.1</b>	<b>3.3</b>

Note: Totals are rounded to the nearest 10 million. GDP to totals excludes Owner Occupied Dwellings.

Source: BERL

### 7.6.1 Results – implications and considerations

- **Historic and future employment and GDP growth:** The four scenarios are based on historic growth trends (2003 to 2013) in the Wairarapa relative to regional and national projections. It is assumed that these trends will continue. However, when examining the results of each scenario it is important to consider the feasibility of these historic trends continuing. For example, is employment growth in the product manufacturing and wholesale and distribution industries going to be greater in the Wairarapa than the rest of the region towards 2041?
- Employment and GDP growth in the Wairarapa was weak between 2003 and 2013, with employment growing by 0.6 percent per annum (compared to 1.5 percent per annum growth regionally). GDP grew by 1.4 percent per annum, which was also below the regional average of 1.5 percent per annum.

- **Labour force and employment growth:** The labour force in the Wairarapa is estimated to grow by 0.5 percent per annum between 2013 and 2041 under scenarios one to three, and by 1.2 percent under the aspirational scenario. Results from the four scenarios show that employment growth is expected to range from 0.5 percent per annum under the BAU scenario, to 1.6 percent per annum under the aspirational scenario. The labour force participation rate in the Wairarapa was 66 percent in 2013, below the national average of 67 percent. This indicates that there is the potential to increase labour force participation in the area. However, under the aspirational scenario an increase in the labour force participation rate alone will be insufficient to meet the increased demand for labour. A workforce development strategy may be required to train and retain skilled workers, and attract skilled labour from outside of the Wairarapa to work in the area. This strategy should be developed in conjunction with employers, industry and training providers (including secondary schools), and take in to account population growth and demographic change that could occur in the area towards 2041.
- **Industry specific workforce planning:** Employment growth in the Wairarapa is expected to be strong in the product manufacturing and wholesale and distribution industries between 2013 and 2041 across the four scenarios. This employment growth represents potential opportunities and risks for the area in terms of attracting skilled workers, providing appropriate infrastructure and services to firms, and ensuring firms have access to markets and suppliers.

## Appendix A Methodology

The purpose of providing projections for the Wellington Region is to outline the potential for economic growth between 2013 and 2041. In providing these projections, two key questions have been addressed:

- What does the economy of the Wellington Region and its constituent TLAs look like in 2013?
- What could this economy look like in 25 to 30 years time?

### Situation analysis

To address the first question, BERL prepared a situation analysis of Wellington in 2013 at a regional and territorial authority level. This situation analysis used data from the BERL 2013 Regional Database and the Statistics New Zealand 2013 Census of Population and Dwellings. This report included data on FTEs, GDP, productivity, business units and business size, and provided a snapshot of economic indicators. Trends between 2003 and 2013 were also examined and discussed.

### Growth forecasts

Drawing on the situation analysis, discussions with the GWRC and a meeting with officials from each of the Councils in the Wellington Region, BERL developed four growth scenarios. The first scenario was a Business as Usual (BAU) scenario. The other three scenarios made assumptions about growth in the Wellington economy compared to the BAU scenario.

### BAU scenario

The BERL CGE model was used to develop a national BAU scenario. This scenario estimates likely changes in macroeconomic variables to 2041. This resulted in employment and GDP projections for 53 industries from 2013 to 2021, 2021 to 2031, and 2031 to 2041.

Drawing on the national BAU scenario, we projected growth in the Wellington regional economy. This was done by applying the differential between the Wellington Region and New Zealand between 2003 and 2013 for employment and GDP at an aggregate industry level.

- Industries used in the Wellington Situation Analysis report (sourced from the 2013 BERL Regional Database) were aligned with the 53 industries from the BERL CGE model. This alignment process resulted in 19 comparable industries.
- For the 19 comparable industries, the difference in employment and GDP growth between 2003 and 2013 was applied to the national BAU growth rates for 2013 to 2021, 2021 to 2031 and 2031 to 2041. This provided us with employment and GDP growth rates for the Wellington Region out to 2041 for 19 industries.
- Employment and GDP growth rates for the 19 industries were then applied to the relevant aggregated industries for the Wellington Region. This process enabled BERL to calculate employment and GDP levels in the Wellington Region at 2021, 2031 and 2041 for 19 industries.
- Employment and GDP levels for the 19 industries were then further aggregated to eight industries for ease of reporting.

The same process was undertaken for the eight TLAs in the Wellington Region with the following variations:

- The three Wairarapa TLAs (Masterton, Carterton and South Wairarapa Districts) were aggregated prior to undertaking the three steps. This step was undertaken as BERL had reduced confidence in generating useful BAU forecasts for the three Wairarapa TLAs separately due to the potential for artificially high growth rates based on small numbers.
- Having generated employment and GDP levels for five TLAs and the combined Wairarapa TLAs for the 19 industries at the snapshot years 2021, 2031 and 2041, we then aligned these to the Wellington Region for each industry and snapshot year. This step was undertaken as we have increased confidence in this process at a regional level.

## Appendix B Data clarification

Employment and GDP data for 2013 and earlier is from the BERL Regional Database. The database is built from publicly available data from Statistics New Zealand including the NZ Business Demography statistics, the Household Labour Force Survey, the National Accounts, and the sub-national Population Estimates. The data in the BERL Regional Database is for the March year.

Employment and GDP data from the BERL Regional Database differs from that presented by the Ministry of Business, Innovation and Employment (MBIE) in their '2014 Regional Economic Activity Report' and Infometric's 'Annual Economic Profiles'.

This note uses data from the three sets of estimates for the Wellington Region to outline the key differences.

### *Employment*

BERL, MBIE and Infometrics estimates draw on data sets with comparable underlying base data. Each organisation also makes similar assumptions and adjustments, such as accounting for self-employment. The main difference, as shown in the table below, is that BERL reports Full-Time Equivalent (FTE) employment while MBIE and Infometrics report Employee Counts (ECs).

### ***BERL, MBIE and Infometrics employment figures for the Wellington Region, 2013***

Employment	2013
	Wellington region
BERL (FTEs)	226,800
MBIE (Employment count)	265,518
Infometrics (Employment count)	264,870

Employee counts measure the total number of people in employment, regardless of the number of hours they work. For example, a person in employment for two hours a week is captured in the same way as someone working 40 hours a week.

FTE employment measures the number of people in employment for 30 hours or more per week. Two people who are employed part-time are measured as one full-time person. Reporting FTEs is more suitable for economic analysis and forecasting as it enables consistent comparisons across industries and time.

## GDP

BERL generates GDP estimates using national accounts and FTE employment. Infometrics follows a similar process, while MBIE has used Provisional 2013 Regional Gross Domestic Product from Statistics New Zealand in their 2014 Regional Economic Activity Report.

BERL excludes Owner Occupied Dwellings (OOD) from GDP totals. OOD is an industry that measures the services provided to people living in the houses they own. The value of these OOD services is calculated as an imputed rent. In other words, the output of Owner Occupied Dwellings is valued at the estimated rent that a tenant would pay for the same accommodation. For the purposes of projecting economic activity, OOD distorts actual economic activity generated by FTEs as OOD do not generate jobs or income.

### ***BERL, MBIE and Infometrics GDP figures for the Wellington Region, 2013***

GDP (\$m)	2013
	Wellington region
BERL (excl. OOD) - \$2013	23,024
BERL (incl. OOD) - \$2013	26,023
MBIE - \$2013	28,472
Infometrics (incl. OOD and unallocated GDP) - \$2010	28,132
Infometrics (encl. OOD and unallocated GDP) - \$2010	24,981

MBIE GDP figures are nominal, meaning they measure production in current prices. Infometrics and BERL GDP figures are real, meaning they have been adjusted from a nominal value to remove the effects of general price inflation over time. Infometrics GDP figures are expressed in 2010 dollars while BERL figures are expressed in 2013 dollars.

Infometrics and MBIE GDP figures include OOD and GDP that is not allocated to a specific industry.

Using FTE estimates and national accounts BERL and Infometrics have developed a series of GDP estimates to understand the drivers of growth in each territorial authority and region. This level of industry and sub-regional breakdown over time is not possible using Statistics New Zealand Regional GDP.

## Appendix C Industry groupings

Industry groupings used in this report:

Industry grouping	ANZSIC 2006 Level 2 description
Primary production	A01 Agriculture A02 Aquaculture A03 Forestry and Logging A04 Fishing Hunting and Trapping A05 Agriculture Forestry and Fishing Support Services B06 Coal Mining B07 Oil and Gas Extraction B08 Metal Ore Mining B09 Non- Metallic Mineral Mining and Quarrying B10 Exploration and Other Mining Support Services C11 Food Product Manufacturing C12 Beverage and Tobacco Product Manufacturing C14 Wood Product Manufacturing C15 Pulp Paper and Converted Paper Product Manufacturing
Product manufacturing	C13 Textile Leather Clothing and Footwear Manufacturing C16 Printing C17 Petroleum and Coal Product Manufacturing C18 Basic Chemical and Chemical Product Manufacturing C19 Polymer Product and Rubber Product Manufacturing C20 Non- Metallic Mineral Product Manufacturing C21 Primary Metal and Metal Product Manufacturing C22 Fabricated Metal Product Manufacturing C23 Transport Equipment Manufacturing C24 Machinery and Equipment Manufacturing C25 Furniture and Other Manufacturing
Infrastructure	E30 Building Construction E31 Heavy and Civil Engineering Construction E32 Construction Services D26 Electricity Supply D27 Gas Supply D28 Water Supply Sewerage and Drainage Services D29 Waste Collection Treatment and Disposal Services
Wholesale and distribution	F33 Basic Material Wholesaling F34 Machinery and Equipment Wholesaling F35 Motor Vehicle and Motor Vehicle Parts Wholesaling F36 Grocery Liquor and Tobacco Product Wholesaling F37 Other Goods Wholesaling F38 Commission- Based Wholesaling I46 Road Transport I47 Rail Transport I48 Water Transport I49 Air and Space Transport I50 Other Transport I51 Postal and Courier Pick- up and Delivery Services I52 Transport Support Services I53 Warehousing and Storage Services
Communications and IT	J54 Publishing (except Internet and Music Publishing) J55 Motion Picture and Sound Recording Activities J56 Broadcasting (except Internet) J57 Internet Publishing and Broadcasting J58 Telecommunications Services J59 Internet Service Providers Web Search Portals and Data Processing Services J60 Library and Other Information Services M69 Professional Scientific and Technical Services (exc Comp Sys Dsn & related) M70 Computer System Design and Related Services

Industry grouping	ANZSIC 2006 Level 2 description
Retail trade and services	G39 Motor Vehicle and Motor Vehicle Parts Retailing G40 Fuel Retailing G41 Food Retailing G42 Other Store- Based Retailing G43 Non- Store Retailing and Retail Commission Based Buying and/or Selling H44 Accommodation H45 Food and Beverage Services S94 Repair and Maintenance S95 Personal and Other Services S96 Private Households Employing Staff
Business services	K62 Finance K63 Insurance and Superannuation Funds K64 Auxiliary Finance and Insurance Services L66 Rental and Hiring Services (except Real Estate) L67 Property Operators and Real Estate Services N72 Administrative Services N73 Building Cleaning Pest Control and Other Support Services
Social services and arts & recreation services	R89 Heritage Activities R90 Artistic Activities R91 Sport and Recreation Activities R92 Gambling Activities O75 Public Administration O76 Defence O77 Public Order Safety and Regulatory Services P80 Preschool and School Education P81 Tertiary Education P82 Adult Community and Other Education Q84 Hospitals Q85 Medical and Other Health Care Services Q86 Residential Care Services Q87 Social Assistance Services

## Appendix D The BERL CGE model

This appendix briefly describes what a CGE model is, what it does, and how it can be used to quantify the potential economic impacts of a change or 'shock' to the economy.

### A Computable General Equilibrium (CGE) model

Economists use economic models to simplify and understand the behaviour and interrelationships between the various sectors and participants in the economy. The Computable General Equilibrium (CGE) model is a standard economic model widely used in estimating the impact of a change in one sector on other sectors and the whole economy.

CGE models allow us to perform computer simulations to investigate the effects of particular events on macro-economic variables (e.g. GDP and consumption) and industries. For example, we can estimate the changes in macro-economic variables resulting from a:

- change in population growth, which affects household spending
- technological breakthrough, which results in increased productivity in particular sectors
- world event (e.g. political turmoil) that reduces the demand for our exports
- change in policy (e.g. increased government spending on hospitals)
- change in the price of commodities (e.g. milk solids or oil).

The model is made up of data and equations that depict the workings/flows of economic transactions in an economy. The equations are developed by combining input-output tables<sup>9</sup> with national accounts data (GDP, household and government consumption, investment, exports and imports) and behavioural equations that reflect behavioural responses to price changes. Behavioural responses are made by firms and consumers.

### BERL CGE model parameters

The BERL CGE model:

- measures a range of economic indicators, including employment (by occupation), output (or production or sales), and exports at an industry level
- employment, Gross Domestic Product (GDP), and exports at the macro aggregate level
- the trade balance and government balance.

Currently, the BERL CGE model identifies 53 industries and 40 occupations (i.e. labour types). It is based on unofficial inter-industry data for the 2005/06 year, which has been derived by BERL from a variety of sources.<sup>10</sup>

The model uses a set of 279 macroeconomic variables in the growth projections that link the model to the reality of the New Zealand economy.

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<sup>9</sup> Input-output tables indicate how much each industry requires of the production of each other industry in order to produce each dollar of its own output. It shows how the output of one industry is an input to each other industry.

<sup>10</sup> The latest generally available official inter-industry data is for the 1995/96 year.

The model's macroeconomic variables are grouped into the following nine categories:

- Demographics
  - Including labour supply and unemployment
  - Total population, people over 65, welfare recipients, households and Owner Occupied Dwellings (OODs)
- World commodity demand growth and changes in export prices for these commodities
  - For each of the 25 commodities
- Change in world import prices
  - For each of the 53 industries
- Labour productivity growth
  - Based on the 53 industries
- Investment to capital shift factor
  - Based on the 53 industries
- Change in average return on capital
- Government to household consumption shift factor
- Stock change to gross output shift factor
- Change in trade balance payments.

### Modelling assumptions

The model must always be in equilibrium. Equilibrium is where the supply of a product is equal to its demand. The CGE model calculates the new equilibrium between the demand and supply of factors of production, and goods and services when there is a change in one sector in the model, which is described as a “shock”. That is, producers, consumers, workers and investors must adjust their supply or demand until they are satisfied with the current market prices and quantities.

In order to assess the interrelationships between changes in one sector on the rest of the economy, these models follow various standard *neoclassical* assumptions to ensure the impact can be measured. These assumptions are:

- **Market-clearing prices** – In line with the condition for equilibrium, prices adjust to their ‘market-clearing’ level; that is to the level where demand in a particular market equals the supply in that market.
- **Zero (pure) economic profit** - Zero economic profit means the return to capital invested in a sector is equivalent to the returns to capital available in alternative investment opportunities.
- **Cost-minimising firms** – Firms are assumed to shift between alternative production processes in order to minimise the unit costs of production of goods and services. The alternative choices are between relatively labour-intensive or capital-intensive processes, as well as between imported or domestically-sourced material inputs.
- **Utility-maximising consumers** – Consumers are assumed to shift their demand for goods and services in response to price and income changes in order to maximise their individual well-being.

