

## **Waikato sub-region Balance Sheet**

(Version 18.1)

**A report prepared for**

**Agenda Waikato**

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## **Waikato sub-region Balance Sheet**

### **Acknowledgements**

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## Waikato sub-region Balance Sheet

### *Table of contents*

|   |    |
|---|----|
| Executive Summary .....                                     | 5  |
| Introduction.....   | 9  |
| Context.....  | 12 |
| Selection Criteria for Indicators.....                      | 15 |
| Civic Engagement and Governance .....                       | 15 |
| Demographics.....   | 16 |
| Education and Skills.....                                   | 16 |
| Environmental Quality .....                                 | 16 |
| Healthcare.....   | 16 |
| Housing .....   | 16 |
| Income and Wealth.....                                      | 16 |
| Labour Market.....  | 17 |
| Safety and Security.....                                    | 17 |
| Social Facilities .....                                     | 17 |
| Transportation, Trade and Infrastructure .....              | 17 |
| Data and Methods .....                                      | 19 |
| Sources of data .....                                       | 19 |
| Indicators and their classification.....                    | 20 |
| Classification based on Agenda Waikato themes.....          | 20 |
| Classification based on the Treasury capital criteria ..... | 21 |
| Classification based on OECD well-being criteria.....       | 21 |
| Data standardisation .....                                  | 23 |
| Methods .....   | 23 |
| Ranking Method .....  | 23 |
| Index Method.....   | 24 |
| Results and Discussion .....                                | 25 |
| Results based on Agenda Waikato themes.....                 | 25 |
| Ranking Method .....  | 25 |
| Index Method.....   | 25 |

|   |    |
|---|----|
| Results based on the Treasury Capital Classification .....    | 26 |
| Ranking Method .....  | 26 |
| Index Method.....   | 27 |
| Results based on OECD well-being criteria.....                | 28 |
| Ranking Method .....  | 28 |
| Index Method.....   | 29 |
| Indicative Results for Auckland and Tauranga.....             | 31 |
| Linkage of Analysis to the Treasury and OECD Approaches ..... | 32 |
| Linkage of Analysis to Treasury Approach .....                | 32 |
| Linkage of Analysis to OECD Approach.....                     | 32 |
| Conclusions and Implications .....                            | 33 |
| Future Research .....   | 34 |
| References .....  | 35 |
| Appendices.....   | 36 |
| Appendix 1. Data description.....                             | 36 |
| Appendix 2. Indicators for Auckland and Tauranga .....        | 39 |
| Appendix 3. Results for Auckland and Tauranga .....           | 40 |

## Waikato sub-region Balance Sheet

### Executive Summary

**The purpose of Agenda Waikato is to support and drive initiatives that strengthen the voice of the region.**

Agenda Waikato has a five-point mandate:

- To be business-led and independent whilst working collaboratively with others;
- To identify issues and opportunities that helps the Waikato sub-region being the best;
- To reduce barriers to business that benefit the wider community and economy;
- To be action-based and outcomes focused – with specific time-frames, funding and reporting; and
- To solve problems via research and business experience.

**Agenda Waikato aims to be a strong business voice for the Waikato sub-region.**

Agenda Waikato has aspirations for the Waikato to be the best region in New Zealand to:

- Live;
- Work; and
- Play.

**Agenda Waikato addresses the community within approximately 45-minutes drive of Hamilton CBD.**

Agenda Waikato is focused on:

- Hamilton City (100%);
- Matamata-Piako District (100%);
- Waipa District (100%);
- Otorohonga District (approximately 96%);
- Waikato District Council (56%); and
- South Waikato District (40%).

The estimated population of this community in 2017 was 316,000.

**The attractiveness of the Waikato sub-region can be addressed by a set of indicators.**

Numerous reports have identical characteristics and the attractiveness of Waikato. Many of the reports from Councils and other organisations provide valuable information. However, they often include “one-off” measures and are for smaller or larger regions.

**This study is different from the other studies in New Zealand.**

This is the first study in New Zealand that has measured the attractiveness of a region with a comprehensive set of indicators which are carefully selected based on their relevance to the outcome and the availability of high quality data. Like Treasury and Ministry of Social Development analyses, this study focuses on well-being indicators, however, their research focuses at the national level.

**Indicators were identified, that are relevant for people attraction and retention.**

Over 100 indicators were identified for the sub-Waikato region. More indicators will be validated through time. 87 indicators were included in April 2018 analysis given their availability and validity.

**Indicators are classified in categories.**

Indicators were classified in three different ways: Agenda Waikato themes; The Treasury capital classification; and OECD well-being criteria.

Agenda Waikato themes:

- Live;
- Work; and
- Play.

The Treasury capital classification:

- Financial/Physical Capital;
- Social Capital;
- Human Capital; and
- Environmental Capital.

OECD well-being criteria:

- Civic Engagement and Governance;
- Demographics;
- Education and Skills;
- Environmental Quality;
- Healthcare;
- Housing;
- Income and Wealth;
- Labour Market;
- Safety and Security;
- Social Facilities; and
- Transportation, Trade and Infrastructure

**Data was collected from multiple credible sources.**

Data sources used included but were not limited to:

- The Ministry of Business, Innovation, and Employment
- The Treasury;
- NZ Statistics and the Census;
- Directory of Iwi and Māori Organisations;
- The National Institute of Water and Atmospheric Research;
- Aviation Security Service;
- New Zealand Police
- Waikato DHB; and
- City, District and Regional Councils.

**Data was standardised for comparability**

The Waikato sub-region and New Zealand data was standardised. The indicators were converted into ratios and percentages for comparability. For example: a per capita base is used for household earnings and household investments and house affordability is measured with a ratio of house price to household earnings.

**The study uses two methods to measure the attractiveness of the Waikato sub-region relative to New Zealand.**

First, the indicators were transformed into the score between 1 to 5. A higher score is given when the Waikato sub-region is more attractiveness relative to New Zealand and a low score is given when New Zealand is more attractiveness relative to Waikato sub-region. Equal weights were assigned to each category of indicators. The overall attractiveness was determined based on the average score.

Second, an index was developed that ranges from -87 to +87. The index increases by one unit if Waikato sub-region more attractiveness relative to New Zealand for an indicator and decreases by one unit if New Zealand is more attractiveness relative to Waikato sub-region for an indicator. The index remains unchanged if the value of an indicator is the same for Waikato sub-region and New Zealand.

**Overall the results show that the Waikato sub-region is more attractive relative to New Zealand. The result are based on analysis of the existing variables and are subject to change when more indicators will be included.**

With the first method (Ranking approach) where high and low score were given based on the performance, the results show that the Waikato sub-region is more attractive in terms of Live and Play theme while New Zealand is more attractive relative to Waikato sub-region for Work the theme. The scores are:

- Live (3.07);
- Play (3.17); and
- Work (2.96).

The overall score of 3.07 shows that Waikato sub-region is attractive relative to the rest of New Zealand.

Based on second method (Index approach), the Waikato sub-region scores higher than New Zealand in 47 and New Zealand scores higher than Waikato sub-region in 40 indicators. The calculated index value of 7 reveals that the overall Waikato sub-region is more attractive relative to New Zealand.

**The analysis is aligned with the approaches of both Treasury and the OECD.**

It is important to align the analysis with the approach of Treasury and OECD for engagement with the Government and public sector in New Zealand as well international business.

**Further analysis can be undertaken to extract valuable information from this data.**

The data assembled can be further analysed to improve robustness. It can also be analysed further to guide regional promotion and business, and policy decisions.

**This study only focuses on the attractiveness of Waikato sub-region relative to New Zealand.**

The study can be potentially extended to other regions and cities in New Zealand with improved methods. However, this depends on the availability of data.



## Waikato sub-region Balance Sheet

### Introduction

This study measures the attractiveness of the Waikato sub-region relative to New Zealand. The attractiveness of a location can be assessed by a set of indicators. This is the first study in New Zealand that has measured the attractiveness of a region with a comprehensive set of indicators which are carefully selected based on their relevance to the outcome and the availability of high quality data. Like analyses by Treasury and the Ministry of Social Development, this study focuses on well-being indicators, however, their research focuses at a national level. This study is important because it focuses on a region and it has a potential to complement the work of Treasury and the Ministry of Social Development. Further, the analysis is aligned with the approaches of both Treasury and the OECD. This is important for engagement with the Government and public sector in New Zealand as well international business. This study can also be used as a benchmark study for other similar studies on New Zealand regions or cities in future.

The indicators can be classified to different categories. For example: New Zealand Treasury categorises the indicators into *Financial/Physical Capital*, *Social Capital*, *Human Capital* and *Environmental Capital*. A complementary approach of Agenda Waikato suggests three themes for the classification of indicators which are *Live*, *Work* and *Play*. This suggests that results should be reported in ways that address multiple audience and fulfil multiple goals.

A conceptual framework for comparing the attractiveness of two locations is helpful. Budd and Hirmis (2004) suggested a conceptual framework for regional competitiveness based on combining the competitive advantage of firms and the comparative advantage of a regional economy. The comparative advantage of regions is dependent on their capacity to use and sustain production factors and to generate output and trade. The competitive advantage of firms in a region is determined by the degree to which productivity gains in the production of goods result from and the effectiveness of innovation. Market Economics Ltd. (2011) assessed the relative position of Auckland economy with respect to six other cities using the framework for city-region competitiveness. The framework assesses overall city-region competitiveness based on an array of factors that influence the productivity and competitiveness, including industry sources of advantage, city-region distinctiveness, and city-region factor endowments. Within this framework,

the report presented a comprehensive set of indicators relating to many dimensions of the attractiveness of Auckland. Davis (2011) developed a framework which focused on physical assets and infrastructure, land and natural environment, population, education and skills base, entrepreneurial base, governance, social and cultural capital, financial capital and investor base. The study provides identifies the strengths and weaknesses of Auckland relative to the other cities in the world.

This report provides a framework which contains a comprehensive set of indicators to measure the attractiveness of Waikato sub-region relative to New Zealand. The indicators are relevant for people attraction and retention. For this report, over 100 indicators were identified. However, 87 indicators were included in the analysis given the availability and validity of data. The indicators were classified and analysis were made on the basis of Agenda Waikato themes, New Zealand Treasury capital classification, and OECD well-being criteria. Data was collected from multiple credible sources which include: Ministry of Business, Innovation and Employment; The Treasury; New Zealand Statistics and the Census; Waikato District Health Board; and City, District and Regional Councils.

The study uses two methods to measure the attractiveness of the Waikato sub-region relative to New Zealand:

- First, the indicators were transformed into the score between 1 to 5. A higher score is given when the Waikato sub-region is more attractive relative to New Zealand and a low score is given when New Zealand is more attractive relative to Waikato sub-region. Weights were assigned to each category of indicators. The overall attractiveness was determined based on the average score.
- Second, we developed an index that ranges from -87 to +87. The index increases by one unit if Waikato sub-region is more attractive relative to New Zealand for an indicator and decreases by one unit if New Zealand is more attractive relative to Waikato sub-region for an indicator. The index remains unchanged if the value of an indicator is same for Waikato sub-region and New Zealand.

The report consists of eight sections. The first section provides context to the study. The second section discusses the selection criteria for indicators. The third section describes data, methods and data standardisation processes. The fourth section presents the results. The fifth section provides

indicative results for the Waikato sub-region relative to Auckland and Tauranga. The sixth section aligns the analysis with the Treasury and the OECD approach. The seventh section focuses on conclusions and recommendations and the last section directs to the future path.

## Context

This study develops a comprehensive set of indicators to measure the attractiveness of the Waikato sub-region relative to New Zealand. Numerous reports have identified characteristics and the performance of Waikato. Some of the reports are listed in Box 1 below:

| <b>Box 1:</b>  |   |
|--|---|
| <b>Reference Reports</b>   |   |
| <b>Report</b>  | <b>Author(s)</b>  |
| Connectedness  | Waikato Vital Signs and Momentum Waikato <sup>1</sup>                   |
| Waikato Region and Districts (Demographic Profile 1986-2031)                             | National Institute of Demographic and Economic Analysis <sup>2</sup>    |
| Hamilton and Waikato (Tourism Opportunities Plan)  | TRC Tourism <sup>3</sup>  |
| City Benchmarking:<br>An Overview of Auckland's Rankings in the Global Context           | Auckland Council <sup>4</sup>   |
| Waikato Progress Indicators  | Waikato Regional Council <sup>5</sup>                                   |
| Waikato Economic Strategy Governance Group   | Stephen Knuckey and EeMun Chen <sup>6</sup>                             |
| Compendium of OECD well-being indicators   | The Organisation for Economic Co-operation and Development <sup>7</sup> |
| Auckland Third-Best City For Quality Of Living: Mercer's Global Quality Of Living Survey | Mercer <sup>8</sup>   |
| Waikato Regional Economic Profile  | Waikato Regional Council <sup>9</sup>                                   |

<sup>1</sup> <https://www.momentumwaikato.nz/2016-report/>

<sup>2</sup> <https://www.waikato.ac.nz/nidea/research/population-profiles-and-statistics>

<sup>3</sup> <https://www.hamiltonwaikato.com/media/2877/hamilton-and-waikato-tourism-opportunities-plan-summary-report-by-trc-tourism-050716.pdf>

<sup>4</sup> <http://temp.aucklandcouncil.govt.nz/SiteCollectionDocuments/aboutcouncil/planspoliciespublications/technicalpublications/tr2015027citybenchmarkingoverviewaucklandsrankingsglobalcontext.pdf>

<sup>5</sup> <https://www.waikatoregion.govt.nz/services/publications/technical-reports/2017-technical-reports/tr201716/>

<sup>6</sup> <http://www.waikatomeansbusiness.nz/assets/Waikato-Means-Business/Key-documents/Background-report-final-October-2013.pdf>

<sup>7</sup> <http://www.oecd.org/sdd/47917288.pdf>

<sup>8</sup> <https://www.mercer.co.nz/newsroom/2018-quality-of-living-survey.html>

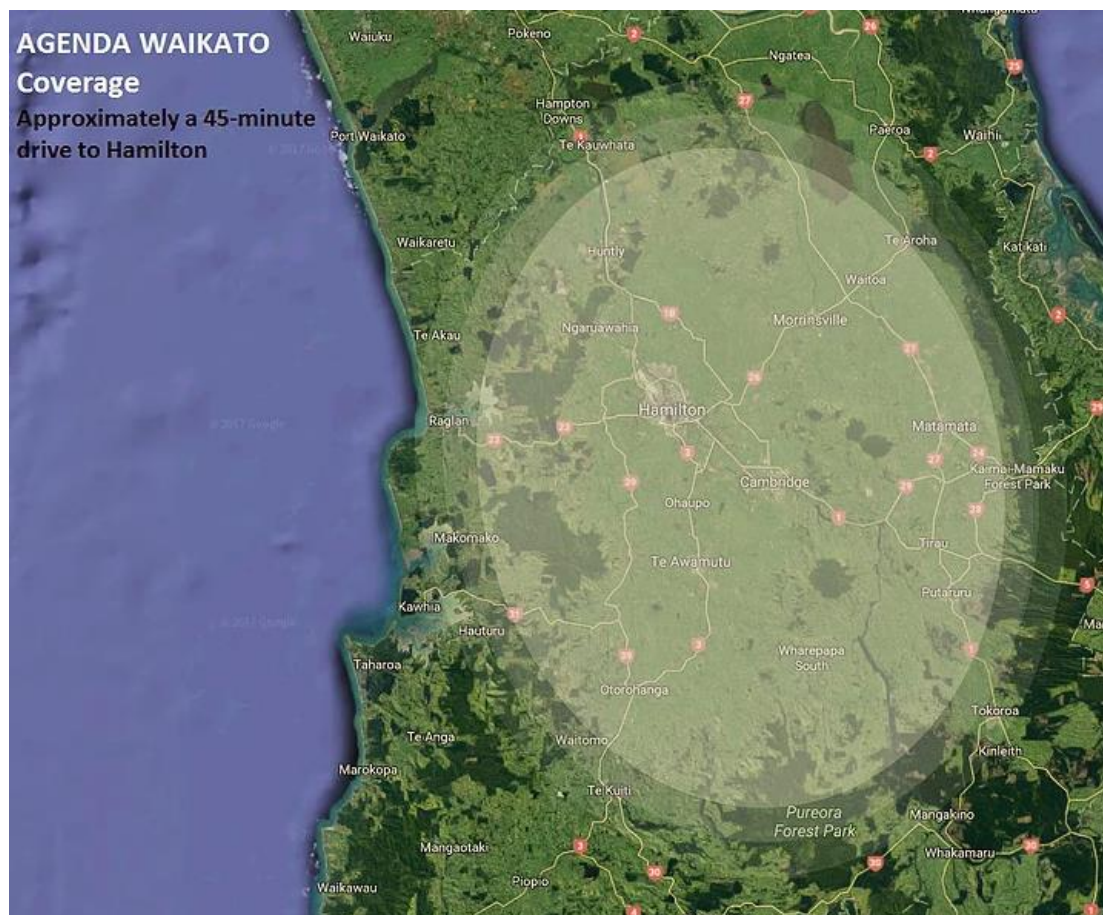
<sup>9</sup> <https://www.waikatoregion.govt.nz/assets/PageFiles/23558/brochure.pdf>

Many of the reports from Councils and other organisations provide valuable information. However, they often include “one-off” measures and are for a smaller or larger regions. We used analytical framework, based on data from credible sources, to compare attractiveness of the Waikato sub-region relative to New Zealand.

Agenda Waikato addresses the community within approximately a 45-minute drive to Hamilton. For the purpose of this report, we have identified the locations within the Waikato region which are located within 45-minute drive to Hamilton. This includes: Hamilton City (100%); Matamata-Piako District (100%); Waipa District (100%); Otorohonga District (96%); Waikato District Council (56%); and South Waikato District (40%). The estimated population of this sub-region in was 316,000 in 2017.

The following map shows the Agenda Waikato coverage.

### Agenda Waikato Coverage



The report is prepared for Agenda Waikato. The purpose of Agenda Waikato is to support and drive initiatives that strengthen the voice of the region. Agenda Waikato aims to be a strong business voice for the Waikato sub-region. The Agenda Waikato aspiration is that the Waikato sub-region be the best region in New Zealand to live, work and play.

Agenda Waikato has a five-point mandate:

- To be business-led and independent whilst working collaboratively with others;
- To identify issues and opportunities that helps the Waikato sub-region being the best;
- To reduce barriers to business that benefit the wider community and economy;
- To be action-based and outcomes focused – with specific time-frames, funding and reporting;  
and
- To solve problems via research and business experience.

## **Selection Criteria for Indicators**

The report contains a comprehensive set of indicators to measure the attractiveness of the Waikato sub-region relative to New Zealand. The indicators are carefully chosen from credible sources. The selection of these indicators is based on the framework for OECD well-being indicators (see OECD, 2011), which is based on both theory and practice in many OECD countries. The indicators selected for this study had to meet certain criteria such as:

- Conceptual soundness: The indicators should be relevant to social outcome;
- Data availability: High quality data should be available from credible sources;
- Comparability: The indicators should be comparable and consistent with the others indicators used internationally;
- Ease: The indicators should be easy to interpret.

The work including *The Compendium of OECD Well-Being Indicators (2011)* and *How's Life?* publication offer an comprehensive picture of well-being with eleven dimensions that shape peoples' lives. The dimensions include: income and wealth; jobs and earnings; housing; health status; work and life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; and subjective well-being. Based on the nature and availability of data, we have made some changes in the dimensions. For example, we exclude three indicators of the OECD well-being metrics: work and life balance; social connections; and subjective well-being, and add three relevant dimensions: demographics; trade and transportation; and social facilities. The additional indicators are important factors determining the design and implementation of policies that drive the well-being of people.

The following section provides the detail on why these indicators are important for well-being:

### ***Civic Engagement and Governance***

Civic engagement and governance is essential to individual well-being as it allows people to express their political voice, develop a sense of belonging and trust in the society.

### ***Demographics***

Population growth rate, and the death rate of population in working age play an important role in the growth of an economy. In the countries like New Zealand, population growth is even more important because of low population and a skills shortage.

### ***Education and Skills***

Education and skills are basic needs and an important aspiration of people that has a strong influence on other dimensions of well-being, such as jobs and earnings, health, civic engagement and governance, social connections, personal security, etc. At the entire society level, better education and skills leads to higher GDP growth, higher tax revenues and lower expenditures on social assistance.

### ***Environmental Quality***

Environmental quality is crucial to well-being because people attach importance to the beauty and cleanliness of the place where they live. Poor environmental conditions obviously have negative impact on health.

### ***Healthcare***

Health status is the most valued aspect of people's life that significantly affects other aspects of well-being. Work and life balance refers the allocation of people's time to work and private life so that they can attain desired standards of living without suffering negative impact on people's health or personal lives. This

### ***Housing***

Housing is one of the human material needs, accounting for the largest proportion of living expenditures. Housing conditions affect people's health status, family functioning and the conduct of basic social activities.

### ***Income and Wealth***

Income and wealth are essential components of the well-being of individuals and societies for expanding people's consumption possibilities, providing them with the resources to satisfy their



economic and non-economic needs, and smoothing consumption over time against unexpected shocks.

### ***Labour Market***

Jobs and earnings enable individuals to access resources to fulfil their own ambitions, develop skills and abilities, and build self-esteem. At the macro-level, societies with high levels of employment are richer and more politically stable.

### ***Safety and Security***

Personal security is a core element for the well-being of individuals. The feeling of vulnerability caused by crime reduces their quality of life. Subjective well-being captures life satisfaction of individuals evaluated by themselves. This indicator helps to understand the gap between objective life circumstances and conditions of people and their own evaluation.

### ***Social Facilities***

Social connections are important determinants of well-being because humans are social creatures. Social connections can provide support in times of need and access to jobs and other opportunities.

### ***Transportation, Trade and Infrastructure***

A good transport and trade are important for the country. Trade allows countries to import the products or services which cannot be produced in the country or sometimes more expensive to produce. Similar, countries can produce a surplus, and export the surplus to other countries. The trade has a significant influence on the economic growth of the countries. Trade and transportation are related to each other. The countries cannot trade if they do not have ports etc.

Most of these indicators have also been included in the World Bank's World Development Indicators<sup>10</sup>; The New Zealand Social Indicators<sup>11</sup>; and the Social Report 2016 by MSD<sup>12</sup>.

Overall it shows that the selected indicators are meaningful to national and local policy makers, political leaders, citizens and other stakeholders to better understand living conditions not only

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<sup>10</sup> <https://data.worldbank.org/indicator>

<sup>11</sup> [http://archive.stats.govt.nz/browse\\_for\\_stats/snapshots-of-nz/nz-social-indicators/Home/About.aspx](http://archive.stats.govt.nz/browse_for_stats/snapshots-of-nz/nz-social-indicators/Home/About.aspx)

<sup>12</sup> <http://socialreport.msd.govt.nz/documents/2016/msd-the-social-report-2016.pdf>

among nations (OECD, 2017) but also among regions, cities, and the different neighbourhoods within cities (OECD, 2014; 2015; 2016), and use these well-being metrics to improve the design and implementation of policies.

## Data and Methods

### *Sources of data*

Data were collected from multiple credible sources across different administrative levels. To be utilised, data had to be publically available and verifiable in a timely manner. The data sources include, but are not limited to:

- Statistics New Zealand;
- The Treasury;
- The Department of Internal Affairs;
- The Ministry of Business, Innovation, and Employment;
- The Ministry of Education;
- The Ministry of Health;
- The Ministry of Justice;
- The Ministry of Transport;
- New Zealand Police;
- Waikato Regional Council;
- Waikato District Health Board;
- Hamilton City Council;
- District Councils in the Waikato sub-region;
- Directory of Iwi and Māori Organisations;
- Civil Aviation Authority of New Zealand;
- Aviation Security Service;
- The National Institute of Water and Atmospheric Research (NIWA);
- The National Library of New Zealand; and
- Reports and directories available at DairyNZ, New Zealand Cinemas, New Zealand Golf, and NZ Museums.

Data used in this report are the latest available updates at the time of data collection. Estimations were applied when data were not available<sup>13</sup>. Detailed description of data and sources is provided in Appendix 1.

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<sup>13</sup> Tertiary institution enrolments were estimated for the Waikato sub-region since each institution may have various campuses located dispersedly across regions. Length of cycle-ways and walkways were partially estimated for the Waikato sub-region and New Zealand. Percentages of population having access to certain amenities of life were estimated for New Zealand.

### ***Indicators and their classification***

This report measures the attractiveness of the Waikato sub-region by comparing a set of 87 indicators relative to New Zealand. Indicators were classified in three different ways: Agenda Waikato themes; The Treasury capital classification; and OECD well-being criteria.

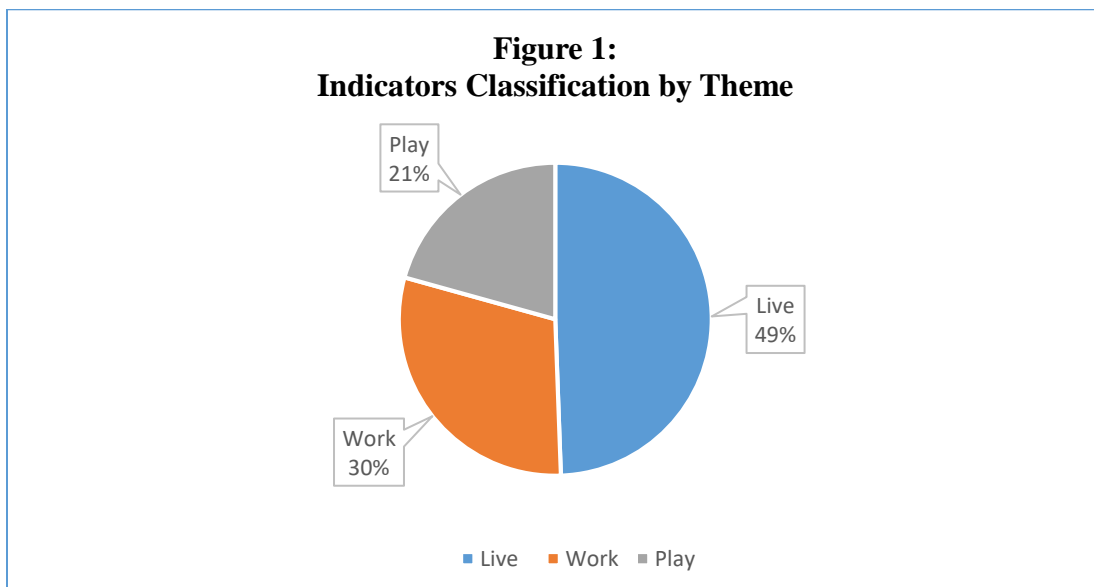
#### **Classification based on Agenda Waikato themes**

The first classification embraces the Live, Work, and Play themes of Agenda Waikato. Live reflects the quality of life, Work reflects business and labour market opportunities and constraints, and Play reflects to opportunities for residents external to their working life.

Table 1 and Figure 1 show the classification of indicators by Agenda Waikato themes. Out of total 87 indicators, almost half, 43 or 49% indicators come under the theme Live, while 26 (30%) and 18 (21%) are associated with Work and Play themes, respectively. It is expected that number of verified indicators will grow.

**Table 1: Indicators by Agenda Waikato themes**

| <b>Theme</b> | <b>Number of indicators</b> | <b>Coverage</b> |
|--------------|-----------------------------|-----------------|
| Live         | 43                          | 49%             |
| Work         | 26                          | 30%             |
| Play         | 18                          | 21%             |
| <b>Total</b> | <b>87</b>                   | <b>100%</b>     |

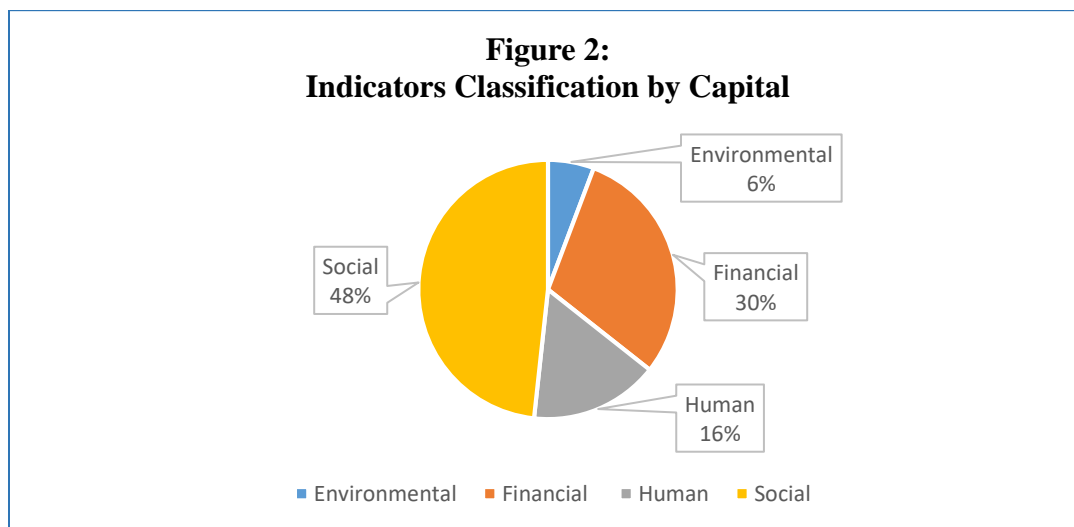


### Classification based on the Treasury capital criteria

The second approach is based on the Treasury capital classification (The Treasury, 2018)<sup>14</sup>, categorising the indicators into Environmental, Financial/Physical, Human, and Social Capital. Table 2 and Figure 2 summarise the distribution of the indicators across capital categories. Social Capital and Financial/Physical Capital accounts for nearly 80% of the indicators. 20% of the indicators fall into Human Capital or Environmental Capital.

**Table 2: Indicators by The Treasury capital classification**

| Classification     | Number of indicators | Coverage       |
|--------------------|----------------------|----------------|
| Environmental      | 5                    | 5.75%          |
| Financial/Physical | 26                   | 29.89%         |
| Human              | 14                   | 16.09%         |
| Social             | 42                   | 48.28%         |
| <b>Total</b>       | <b>87</b>            | <b>100.00%</b> |



### Classification based on OECD well-being criteria

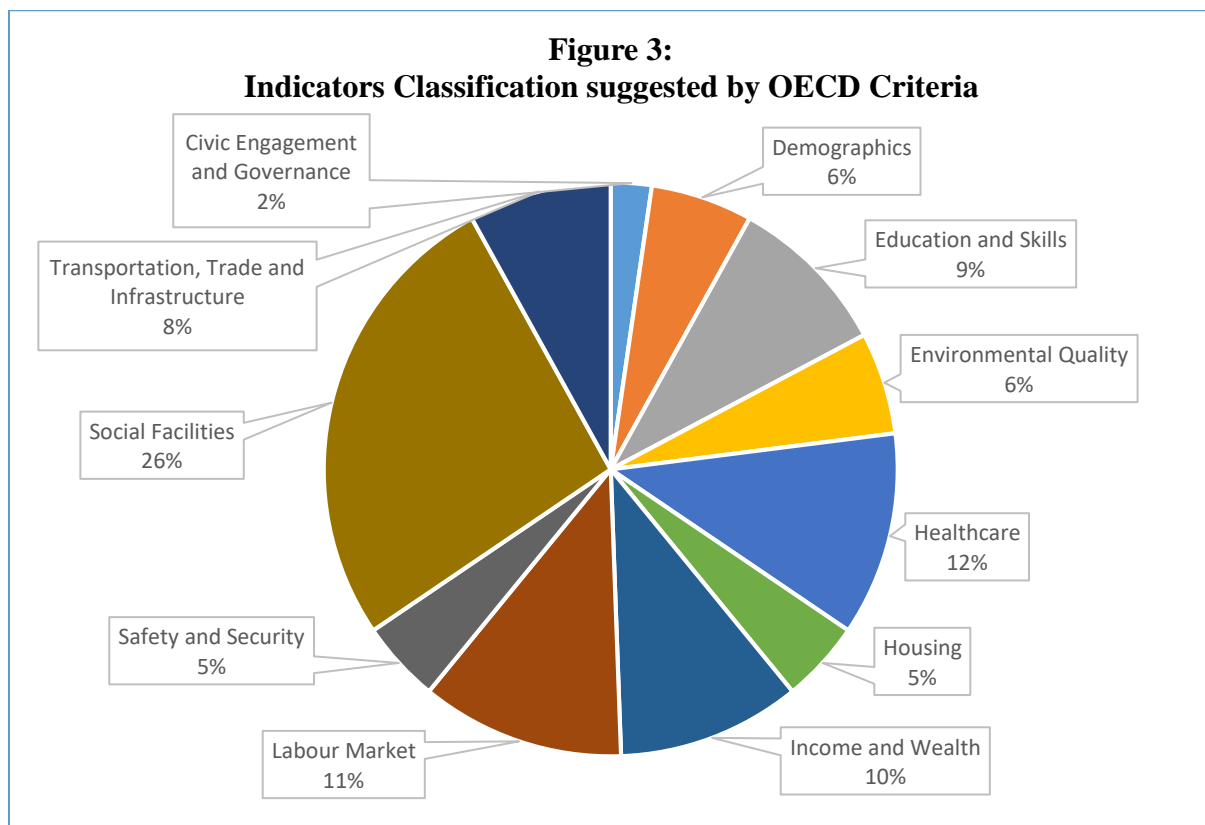
The third classification is developed on the basis of the well-being indicators suggested by the OECD (2011). Table 3 and Figure 3 show the classification of indicators. We have made some modifications based on our data. The indicators are classified into 11 categories. Social Facilities

<sup>14</sup> Please refer to Treasury's website for more details:  
<https://treasury.govt.nz/information-and-services/nz-economy/living-standards-0>.

category constitutes highest number of indicators (26%), followed by Healthcare (12%) and Labour Market (11%). The remaining categories vary from 2.3% to 10%.

**Table 3: Indicators by OECD well-being criteria**

| Classification                           | Number of indicators | Coverage       |
|--|----------------------|----------------|
| Civic Engagement and Governance          | 2                    | 2.30%          |
| Demographics                             | 5                    | 5.75%          |
| Education and Skills                     | 8                    | 9.20%          |
| Environmental Quality                    | 5                    | 5.75%          |
| Healthcare                               | 10                   | 11.49%         |
| Housing                                  | 4                    | 4.60%          |
| Income and Wealth                        | 9                    | 10.34%         |
| Labour Market                            | 10                   | 11.49%         |
| Safety and Security                      | 4                    | 4.60%          |
| Social Facilities                        | 23                   | 26.44%         |
| Transportation, Trade and Infrastructure | 7                    | 8.05%          |
| <b>Total</b>                             | <b>87</b>            | <b>100.00%</b> |



### ***Data standardisation***

Agenda Waikato addresses the community within approximately a 45-minute drive of Hamilton. Data for the sub-region are actual data complemented by estimates. More specifically, the population inside the Waikato sub-region contains: 100% population of Hamilton City, Matamata-Piako District, and Waipa District; 96% population of Otorohonga District; 56% population of Waikato District; and 40% population of South Waikato District. When there are no measures or alternative estimation methods, these respective percentages are applied to data at the territorial authority level when aggregating the variables.

This report measures the attractiveness of the Waikato sub-region by assessments of specific characteristics using New Zealand as a benchmark. Hence, for the purpose of comparability, all the Waikato sub-region and New Zealand indicators are transformed into ratios or percentages. For instance, a per capita base is employed for household earnings; a ratio of average house price to household earnings is used to indicate housing affordability; a ratio of population to the number of general practitioners presents population density per general practitioner; and households with internet access is measured as a share of population.

### ***Methods***

For many indicators presented higher values correspond with better conditions, whereas for others it the opposite is true. Hence, we have converted these values into indices. For the purpose of consistently, we constructed two methods to reflect the relative attractiveness of the Waikato sub-region relative to New Zealand. The methods are the Ranking method and Index method.

#### **Ranking Method**

When constructing the index, New Zealand is used as a benchmark. The indicators are transformed into a score between 1 to 5. A higher score is given when the Waikato sub-region is more attractive relative to New Zealand and a low score is given when New Zealand is more attractive relative to Waikato sub-region. Weights were assigned to each category of indicators. Table 4 summarises the ranking method.

**Table 4: Ranking Method**

| 1         | 2    | 3     | 4    | 5         |
|-----------|------|-------|------|-----------|
| Very poor | Poor | Equal | Good | Very good |

According to the ranking method:

- The Waikato sub-region was considered “Very good” and was assigned a score of 5 when performance of Waikato sub-region is 1.2x times or more better than New Zealand;
- Waikato sub-region was considered “Good” and was assigned a score of 4 when performance of Waikato sub-region is 1.1x to 1.2x times better than New Zealand;
- Waikato sub-region was considered “Approximately Equal” and was assigned a score of 3 when performance of Waikato sub-region and New Zealand is almost same;
- Waikato sub-region was considered “Poor” and was assigned a score of 2 when performance of New Zealand is 1.1x to 1.2x times better than Waikato sub-region; and
- Waikato sub-region was considered “Poor” and was assigned a score of 1 when performance of New Zealand is 1.2x times or more better than Waikato sub-region.

An overall score of greater than 3 signals that the Waikato sub-region is more attractive relative to New Zealand.

#### Index Method

The index ranges from -87 (the Waikato sub-region is worse than New Zealand across all the indicators) to 87 (the Waikato sub-region is better than New Zealand across all the indicators). The index increases by one unit if an indicator of the Waikato sub-region is better than that of New Zealand. Conversely, the index decreases by one unit if an indicator of the Waikato sub-region is worse than that of New Zealand. The index remains unchanged if an indicator of the Waikato sub-region is as good as New Zealand. Overall, a positive value of this index indicates that the Waikato sub-region is more attractive than New Zealand and a negative value indicates that New Zealand is more attractive than Waikato sub-region.



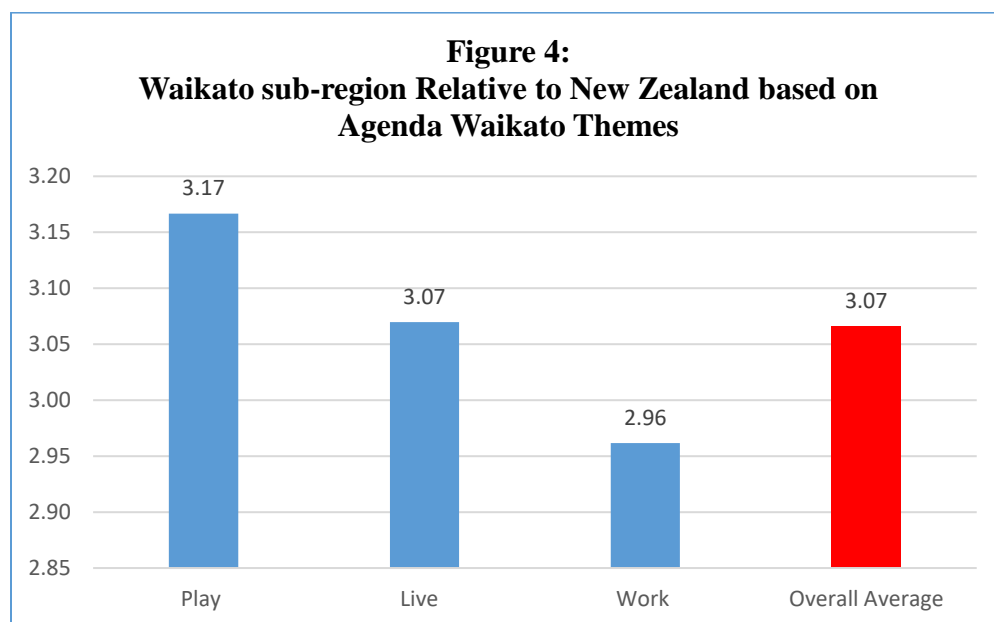
## Results and Discussion

This section provides the results which are based on the Ranking method and the Index method. The results are presented for three classifications: Agenda Waikato themes; The Treasury capital classification; and OECD well-being criteria.

### *Results based on Agenda Waikato themes*

#### Ranking Method

Figure 4 shows the average scores by themes in accordance with the ranking method. The results show that Waikato sub-region attractive in terms of Live and Play theme while New Zealand is more attractive relative to Waikato sub-region for Work theme.



Notes: Calculated average scores in as per the ranking method. Higher scores correspond with more attractiveness. “Very good”: 5; “Good”: 4; “Equal”: 3; “Poor”: 2; “Very poor”: 1.

The overall score of 3.07 shows that Waikato sub-region more attractive relative to New Zealand.

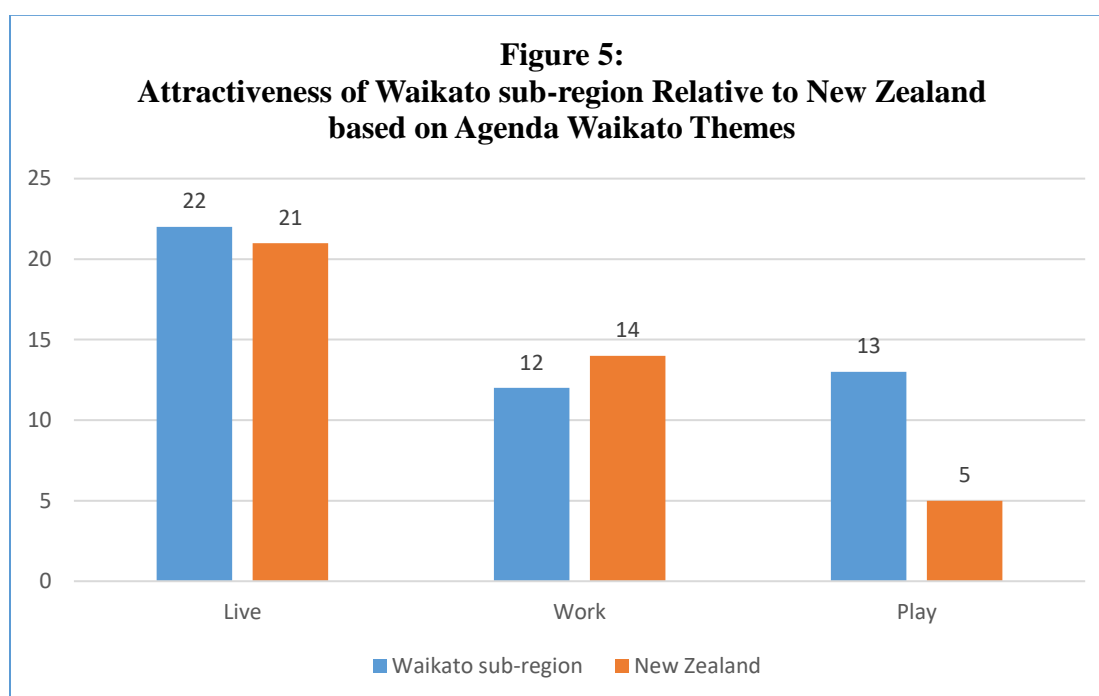
#### Index Method

As shown in Table 5 and Figure 5, Waikato sub-region is more attractive than New Zealand in 21 indicators out of 43 indicators associated with Live theme. In regard to the Work theme, the Waikato sub-region is attractive in 12 out of 26 indicators. In Play theme, Waikato sub-region is

attractive across 72% of the indicators associated with Play theme. The overall index value is 7 which shows that the Waikato sub-region is more attractive relative to New Zealand.

**Table 5: Results based on Agenda Waikato themes**

| Description          | Theme     |           |           | Total     |
|----------------------|-----------|-----------|-----------|-----------|
|                      | Live      | Work      | Play      |           |
| Waikato sub-region   | 22        | 12        | 13        | 47        |
| New Zealand          | 21        | 14        | 5         | 40        |
| <b>Overall index</b> | <b>+1</b> | <b>-2</b> | <b>+8</b> | <b>+7</b> |

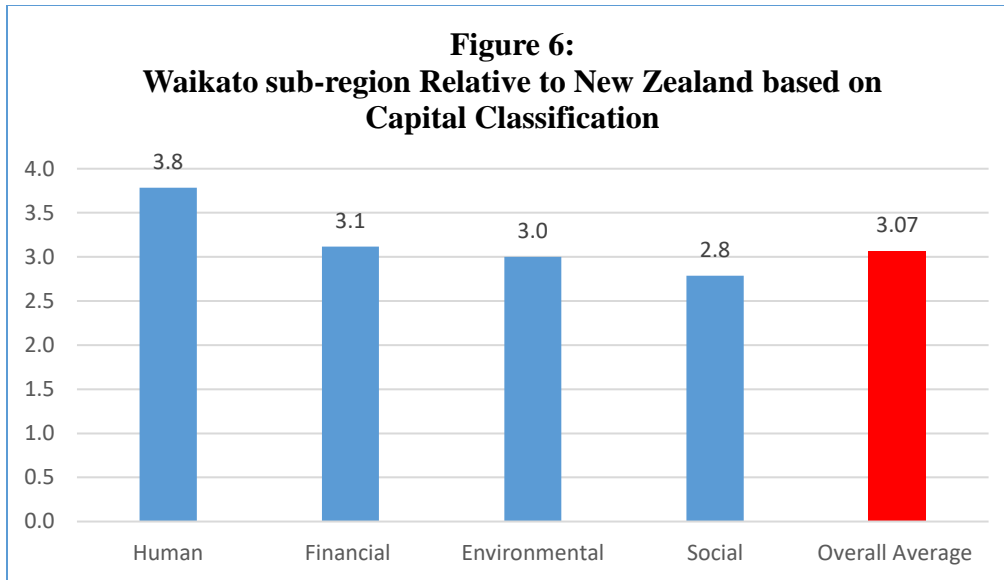


Notes: Indicators showing attractiveness of the Waikato-sub region and New Zealand relative to each other. Higher value of indicators refers to more attractiveness in particular theme

### ***Results based on the Treasury Capital Classification***

#### **Ranking Method**

Figure 6 shows the average scores by the Treasury capital classification based on the ranking method. The results show that Waikato sub-region is more attractive in terms of Human and Financial/Physical Capital with an average score of greater than 3 while it is at par relative to New Zealand for Environmental Capital with the average score of 3. On the other hand, New Zealand is more attractive relative to Waikato sub-region in terms of Social Capital.



Notes: Calculated average scores in as per the ranking method. Higher scores correspond with more attractiveness. “Very good”: 5; “Good”: 4; “Equal”: 3; “Poor”: 2; “Very poor”: 1.

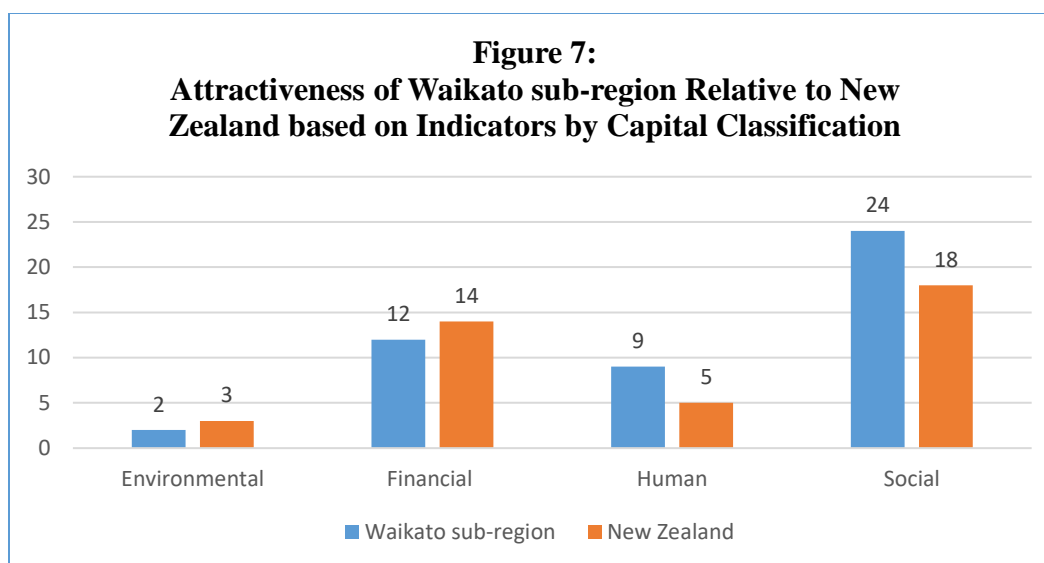
The overall score of 3.07 shows that Waikato sub-region is more attractive relative to New Zealand.

#### Index Method

As presented in Table 6 and Figure 7, the Waikato sub-region is more attractive in terms of human and social capital, contributing 10 points to the overall index. However, New Zealand is slightly more attractive than Waikato sub-region in terms of Environmental and Financial/Physical Capital. The overall index value is 7 which shows that the Waikato sub-region is more attractive relative to New Zealand.

**Table 6: Results based on the Treasury Capital classification**

| Description            | Capital       |                    |           |           | Total     |
|------------------------|---------------|--------------------|-----------|-----------|-----------|
|                        | Environmental | Financial/Physical | Human     | Social    |           |
| The Waikato sub-region | 2             | 12                 | 9         | 24        | 47        |
| New Zealand            | 3             | 14                 | 5         | 18        | 40        |
| <b>Overall index</b>   | <b>-1</b>     | <b>-2</b>          | <b>+4</b> | <b>+6</b> | <b>+7</b> |



Notes: Indicators showing attractiveness of the Waikato-sub region and New Zealand relative to each other. Higher value of indicators refers to more attractiveness in particular theme

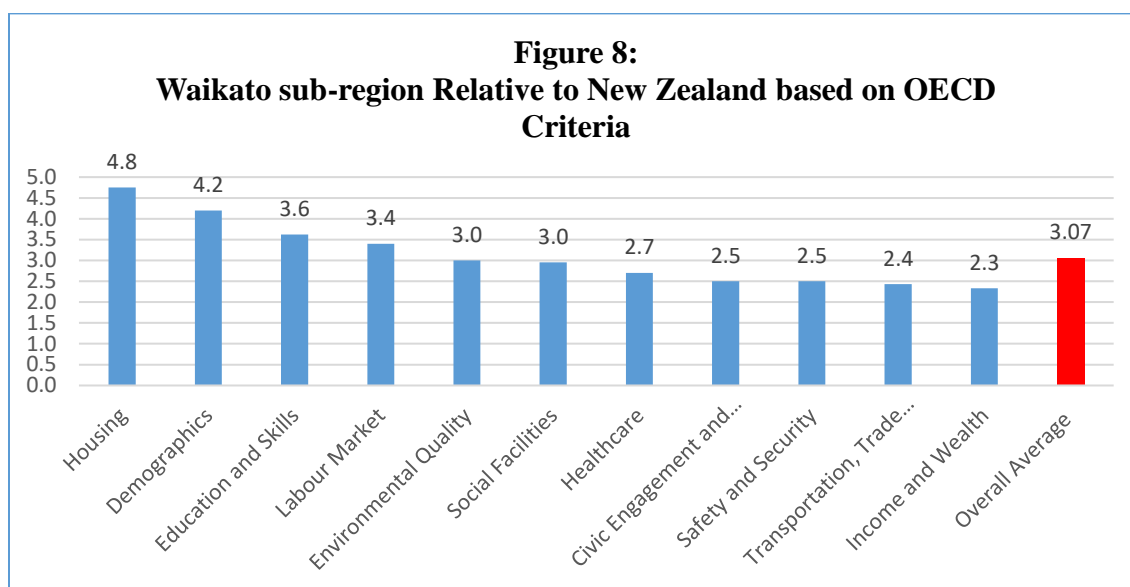
It is important to note that Waikato sub-region has a lower index value (-2) for Financial/Physical Capital (refer Figure 7) but its average score is higher, i.e., 3.1 (Figure 6). This inconsistency can be explained by decomposing the average scores. There are 12 indicators of Financial/Physical Capital where the disparity between the Waikato sub-region and New Zealand is not large enough to deviate from the average score of 3. However, the scores contributed by 8 “Very Good” and “Good” indicators of Financial/Physical Capital outweigh 6 “Very Poor” indicators. The same logic is applied to Environmental Capital. In terms of Social Capital, although Waikato sub-region has a higher index value, i.e., 24 (refer Figure 7) but its average score is lower than 3 (refer Figure 6). Again the scores contributed by 9 “Very Poor” and 3 “Poor” indicators of Social Capital outweigh 4 “Very Good” and 4 “Good” indicators.

### ***Results based on OECD well-being criteria***

#### **Ranking Method**

Figure 8 shows the average scores by the OECD well-being criteria based on the ranking method. The results show that Waikato sub-region is more attractive in four categories (Housing, Demographics, Education and Skills and Labour Market) with an average score of greater than 3 while it is attractive at par relative to New Zealand two categories (Environmental Quality and Social Facilities) with the average score of 3. On the other hand, New Zealand is more attractive

than Waikato sub-region in five categories (Healthcare, Civic Engagement and Governance, Safety and Security, Transportation, Trade and Infrastructure and Income and Wealth).

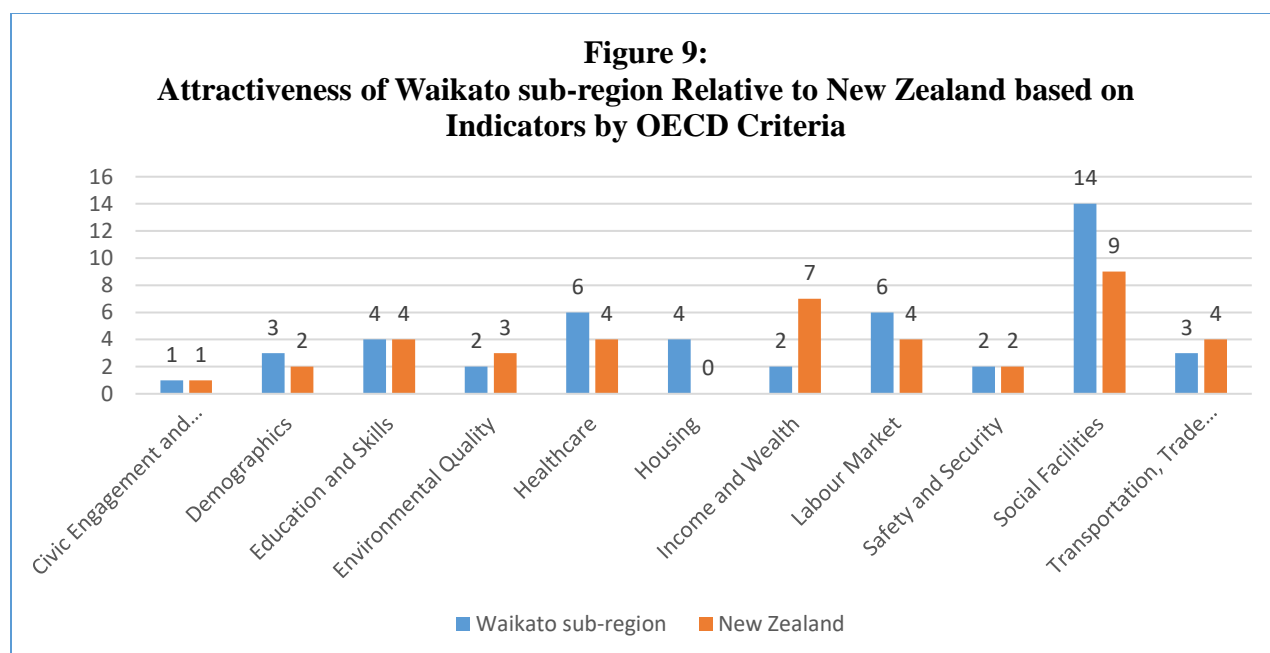


Notes: Calculated average scores in as per the ranking method. Higher scores correspond with more attractiveness. “Very good”: 5; “Good”: 4; “Equal”: 3; “Poor”: 2; “Very poor”: 1.

The overall score of 3.07 shows that Waikato sub-region is more attractive relative to New Zealand.

### Index Method

Figure 9 shows the attractiveness of the Waikato sub-region against New Zealand across 11 categories of well-being. Social Facilities, Housing, Healthcare, Labour Market, and Demographics are the areas where the Waikato sub-region has more favourable conditions. These areas contribute totally 14 points to the overall index. On the other hand, New Zealand is more attractive relative to Waikato sub-region in three areas such as Environmental Quality, Income and Wealth and Transportation, Trade and Infrastructure. Waikato sub-region is at par in terms of Education and Skills.



Note: Indicators showing attractiveness of the Waikato-sub region and New Zealand relative to each other. Higher value of indicators refers to more attractiveness in particular theme

It is important to note that the index value of Education and Skills category for Waikato-sub region and New Zealand is the same (refer Figure 9) but the average score for the Waikato sub-region is 3.6 (Figure 8). The reason is that Waikato-sub region has four “Very Good” and “Good” indicators, but only one “Very Poor” indicator. The same logic is applied to Civic Engagement and Governance and Safety and Security categories. These two categories have more “Very Poor” and “Poor” indicators than “Very Good” and “Good” indicators, explaining their average scores of less than three while their index values are same as of New Zealand. The index value of Waikato-sub region for Social Facilities is better than New Zealand, however the distribution is: 6 “Very Good” and “Good” indicators; 12 “Roughly Equal”; and 5 “Very Poor” indicators which results in an average score of 3. Again, despite having better index value for Healthcare, Waikato-sub region has an average score of 3. The reason is obvious because Health care does not have “Very Good” or “Good” indicators and but it has 2 “Very Poor” and “Poor” while 8 indicators are “Roughly Equal”.

## **Indicative Results for Auckland and Tauranga**

We have also measured the attractiveness of Waikato sub-region relative to Auckland and Tauranga.

For Auckland, the ranking method shows that Waikato sub-region is more attractive to Auckland. The Ranking Method shows an average score of 3.5 and Index method shows that Waikato sub-region is better in terms of 10 indicators while compared to 7 indicators of Auckland.

For Tauranga, both methods show that Tauranga is more attractive relative to Waikato sub-region. The Ranking Method shows that Tauranga is slightly attractive with an average score of 2.8. As per Index Method, Tauranga is better in terms of 11 indicators while Waikato sub-region is better in terms of 6 indicators.

Please refer to Appendix 2 Appendix 3 for more details on indicators and results.

## **Linkage of Analysis to the Treasury and OECD Approaches**

The analysis is linked to the Treasury and OECD approach. Linking analysis with the Treasury approach and the OECD approach is important for engagement with New Zealand Government and public sector and international business, respectively.

### ***Linkage of Analysis to Treasury Approach***

Treasury's advice impacts all Government departments in response to any material that Agenda Waikato produces. Hence, linking analysis with the Treasury approach is important for engagement with Government and public sector. Treasury's current view is focused on well-being which is similar to Agenda Waikato, however, Treasury categorises the indicators into four capitals, i.e., *Financial/Physical Capital, Social Capital, Human Capital* and *Environmental Capital*. It is important to note that though Treasury is conducting extensive research in this area, it is focused at the national level. Agenda Waikato's work has a potential to complement and critique the work of Treasury. This analysis can be interesting for Treasury because it is an in-depth analysis of a region and Treasury can seek improved mechanisms to improve the performance of regions and cities in New Zealand.

### ***Linkage of Analysis to OECD Approach***

Linking analysis with OECD approach is important for engagement with international business. Like Treasury and Agenda Waikato, the OCED also focuses on well-being, however, the OECD classifies variables in eleven dimensions, i.e., *income and wealth; jobs and earnings; housing; health status; work and life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; and subjective well-being*. Given this analysis also uses OECD framework, therefore, it is potentially useful for other countries (especially OECD) which are interested in knowing the attractiveness of their regions relative to Waikato sub-region.



## Conclusions and Implications

This study creates a framework that can be utilised by researchers who are interested in measuring the attractiveness of regions or cities relative to other regions or countries. This study also links the analysis with the OECD approach which is important for engagement with Government and the public sector in New Zealand and with international business.

Using 87 indicators collected from credible sources, our results suggest that the overall attractiveness of the Waikato sub-region is slightly better than New Zealand. The ‘Ranking Method’ was used to evaluate the attractiveness of the Waikato sub-region relative to New Zealand. We also used ‘Index Method’ to confirm the findings obtained through ‘Ranking Method’. Both methods suggested that the Waikato sub-region is attractive.

Indicators were classified in three different ways: Agenda Waikato themes; The Treasury capital classification; and OECD well-being criteria for the analysis purpose. Based on Agenda Waikato themes, the results suggest that Waikato sub-region is attractive in terms of Live and Play theme while New Zealand is more attractive relative to the Waikato sub-region for Work theme. Based on the Treasury Capital classification, the results suggest that Waikato sub-region is attractive in terms of Human and Financial/Physical Capital with an average score of greater than 3 while it at par with New Zealand for Environmental Capital with the average score of 3. On the other hand, New Zealand is more attractive relative to Waikato sub-region in terms of Social Capital. Based on OECD well-being criteria, the results suggest that Waikato sub-region is attractive in four categories (Housing, Demographics, Education and Skills and Labour Market) while it at par with New Zealand two categories (Environmental Quality and Social Facilities). On the other hand, New Zealand is more attractive relative to Waikato sub-region in five categories (Healthcare, Civic Engagement and Governance, Safety and Security, Transportation, Trade and Infrastructure and Income and Wealth). In all the cases, we found overall Waikato sub-region is more attractive relative to New Zealand.

## **Future Research**

It should be noted that the results are based on analysis of 87 variables and are subject to change when more indicators will be included. The data assembled can be further analysed to improve robustness. It can also be analysed to guide regional promotion and business; and policy decisions. It is anticipated future research will increase the number of indicators, and improve the mix of indicators across categories of interest.

It is also important to note that this study focuses only on the attractiveness of Waikato sub-region relative to New Zealand and provides some preliminary and indicative results for Auckland and Tauranga. The study can be potentially extended to other regions and cities in New Zealand with improved methods. However, this depends on the availability of data.

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## Appendices

### *Appendix 1. Data description*

| Agenda<br>Waikato<br>Theme | OECD Well-being<br>Classification | Treasury<br>Capital<br>Classification | Indicators   | Source  | Year |
|----------------------------|-----------------------------------|---------------------------------------|--|---|------|
| Live                       | Demographics                      | Human                                 | 5 year average population growth rate                              | Stats NZ  | 2017 |
| Live                       | Demographics                      | Human                                 | Arrival of refugees  | The Ministry of Business, Innovation, and<br>Employment     | 2017 |
| Live                       | Demographics                      | Human                                 | Death rate of population in working age                            | Stats NZ  | 2017 |
| Live                       | Demographics                      | Human                                 | Foreign-born population  | Stats NZ  | 2013 |
| Live                       | Demographics                      | Human                                 | Net number of international migrants                               | The Ministry of Business, Innovation, and<br>Employment     | 2017 |
| Live                       | Education and Skills              | Human                                 | Early childhood education services                                 | The Ministry of Education                                   | 2016 |
| Live                       | Education and Skills              | Human                                 | Schools/elite schools  | The Ministry of Education                                   | 2016 |
| Live                       | Education and Skills              | Human                                 | Tertiary enrolments  | The Ministry of Education                                   | 2016 |
| Live                       | Education and Skills              | Human                                 | Tertiary institutions  | The Ministry of Education                                   | 2016 |
| Live                       | Environmental Quality             | Environmental                         | Days without rain  | The National Institute of Water and Atmospheric<br>Research | 2010 |
| Live                       | Healthcare                        | Social                                | Claims accepted by ACC for work-related injuries                   | Stats NZ  | 2016 |
| Live                       | Healthcare                        | Social                                | Emergency department visits per 1,000 population                   | Waikato District Health Board                               | 2015 |
| Live                       | Healthcare                        | Social                                | Health expectancy (female)   | Stats NZ  | 2014 |
| Live                       | Healthcare                        | Social                                | Health expectancy (male)   | Stats NZ  | 2014 |
| Live                       | Healthcare                        | Social                                | In-patient events per 1,000 population                             | Waikato District Health Board                               | 2015 |
| Live                       | Healthcare                        | Social                                | Number of aged care residential services                           | Stats NZ  | 2017 |
| Live                       | Healthcare                        | Social                                | Number of dental services  | Stats NZ  | 2017 |
| Live                       | Healthcare                        | Social                                | Number of GPs  | Stats NZ  | 2017 |
| Live                       | Healthcare                        | Social                                | Number of pharmaceutical, cosmetic and toiletry goods<br>retailing | Stats NZ  | 2017 |
| Live                       | Healthcare                        | Social                                | Number of specialist medical services                              | Stats NZ  | 2017 |
| Live                       | Housing                           | Financial                             | House price  | The Ministry of Business, Innovation, and<br>Employment     | 2017 |
| Live                       | Housing                           | Financial                             | House rent   | The Ministry of Business, Innovation, and<br>Employment     | 2017 |
| Live                       | Housing                           | Financial                             | Housing affordability  | Calculated: House price/Household earnings                  | 2017 |
| Live                       | Housing                           | Financial                             | Renting affordability  | Calculated: Rent/Household earnings                         | 2017 |
| Live                       | Income and Wealth                 | Financial                             | GPD per capita   | The Ministry of Business, Innovation, and<br>Employment     | 2016 |
| Live                       | Income and Wealth                 | Financial                             | Household earnings   | The Ministry of Business, Innovation, and<br>Employment     | 2017 |

### Appendix 1. (cont.)

|      |  |               |   |  |      |
|------|--|---------------|---|--|------|
| Live | Income and Wealth                        | Financial     | Public assets   | The Treasury, Hamilton City Council, District Councils in the Waikato sub-region | 2017 |
| Live | Income and Wealth                        | Financial     | Rates incomes   | The Treasury, Hamilton City Council, District Councils in the Waikato sub-region | 2017 |
| Live | Safety and Security                      | Social        | Accident occurrences per 100,000 population                             | The Ministry of Transport  | 2016 |
| Live | Safety and Security                      | Social        | Homicides   | New Zealand Police   | 2017 |
| Live | Safety and Security                      | Social        | Number of road injuries   | The Ministry of Transport  | 2016 |
| Live | Safety and Security                      | Social        | Number of suicide deaths  | The Ministry of Justice  | 2017 |
| Live | Social Facilities                        | Social        | Number of cafes and restaurants   | Stats NZ   | 2017 |
| Live | Social Facilities                        | Social        | Number of libraries   | The National Library of New Zealand  | 2018 |
| Live | Social Facilities                        | Social        | Number of liquor retailing  | Stats NZ   | 2017 |
| Live | Social Facilities                        | Social        | Number of Mareas  | Directory of Iwi and Māori Organisations   | 2018 |
| Live | Social Facilities                        | Social        | Number of museums   | NZMuseums  | 2018 |
| Live | Social Facilities                        | Social        | Number of supermarket and grocery stores                                | Stats NZ   | 2017 |
| Live | Social Facilities                        | Social        | Religious services  | Stats NZ   | 2017 |
| Live | Social Facilities                        | Social        | Te reo Maori speakers   | Stats NZ   | 2013 |
| Live | Transportation, Trade and Infrastructure | Financial     | Length of state highway (km)  | The Ministry of Transport  | 2015 |
| Live | Transportation, Trade and Infrastructure | Social        | Aircraft movements  | The Ministry of Transport  | 2015 |
| Live | Transportation, Trade and Infrastructure | Social        | Total public transport passenger boardings                              | The Ministry of Transport  | 2016 |
| Play | Education and Skills                     | Social        | Arts education  | Stats NZ   | 2017 |
| Play | Environmental Quality                    | Environmental | Length of cycleways and walkways (km)                                   | The Ministry of Transport  | 2017 |
| Play | Environmental Quality                    | Environmental | Number of zoological and botanical gardens operation                    | Stats NZ   | 2017 |
| Play | Environmental Quality                    | Environmental | Number of nature reserves and conservation parks operation              | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Creative artists, musicians, writers and performers                     | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Horse and dog racing activities   | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Number of cinemas   | New Zealand Cinemas  | 2018 |
| Play | Social Facilities                        | Social        | Number of golf courses  | New Zealand Golf   | 2018 |
| Play | Social Facilities                        | Social        | Number of health and fitness centres and gymnasias operation            | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Number of performing arts venue operation                               | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Number of sports and physical recreation clubs and sports professionals | Stats NZ   | 2017 |

### Appendix 1. (cont.)

|      |  |               |   |  |      |
|------|--|---------------|---|--|------|
| Play | Social Facilities                        | Social        | Number of sports and physical recreation venues, grounds and facilities operation | Stats NZ   | 2017 |
| Play | Social Facilities                        | Social        | Percentage of population with access to beach within 1.5 hour drive               | Calculated   |      |
| Play | Social Facilities                        | Social        | Percentage of population with access to lakes within 60 minute drive              | Calculated   |      |
| Play | Social Facilities                        | Social        | Percentage of population with access to Ski within 3 hour drive                   | Calculated   |      |
| Play | Social Facilities                        | Social        | Percentage of population with river access within 30 minute drive                 | Calculated   |      |
| Play | Social Facilities                        | Social        | Sports and physical recreation training/instruction                               | Stats NZ   | 2017 |
| Play | Transportation, Trade and Infrastructure | Social        | Expenditure on cycling facilities   | The Ministry of Transport                            | 2017 |
| Work | Civic Engagement and Governance          | Social        | Representation of women councillors in District councils                          | The Department of Internal Affairs                   | 2016 |
| Work | Civic Engagement and Governance          | Social        | Voter turnout by district councils  | The Department of Internal Affairs                   | 2016 |
| Work | Education and Skills                     | Financial     | Number of apprentices   | The Ministry of Education                            | 2016 |
| Work | Education and Skills                     | Financial     | Number of international students  | The Ministry of Education                            | 2016 |
| Work | Education and Skills                     | Human         | Number of PhDs  | Stats NZ   | 2013 |
| Work | Environmental Quality                    | Environmental | Number of dairy cows  | DairyNZ  | 2017 |
| Work | Income and Wealth                        | Financial     | Building Consents issued - number   | Stats NZ   | 2017 |
| Work | Income and Wealth                        | Financial     | Building Consents issued - value  | Stats NZ   | 2017 |
| Work | Income and Wealth                        | Financial     | Commercial building consents - number   | Stats NZ   | 2017 |
| Work | Income and Wealth                        | Financial     | Commercial building consents - value  | Stats NZ   | 2017 |
| Work | Income and Wealth                        | Financial     | Tourism expenditure   | The Ministry of Business, Innovation, and Employment | 2017 |
| Work | Labour Market                            | Financial     | Manufacturing employment  | Stats NZ   | 2017 |
| Work | Labour Market                            | Financial     | Number of companies newly registered  | Stats NZ   | 2017 |
| Work | Labour Market                            | Financial     | Number of employers with more than 100 employees                                  | The Ministry of Business, Innovation, and Employment | 2017 |
| Work | Labour Market                            | Financial     | Number of employers with more than 5 employees                                    | The Ministry of Business, Innovation, and Employment | 2017 |
| Work | Labour Market                            | Financial     | Primary employment  | Stats NZ   | 2017 |
| Work | Labour Market                            | Financial     | Services employment   | Stats NZ   | 2017 |
| Work | Labour Market                            | Human         | Number of employees   | Stats NZ   | 2017 |
| Work | Labour Market                            | Human         | The annual-average quarterly worker turnover rate                                 | The Ministry of Business, Innovation, and Employment | 2016 |
| Work | Labour Market                            | Human         | Underutilised workforce   | The Ministry of Business, Innovation, and Employment | 2017 |
| Work | Labour Market                            | Human         | Working age employment rate   | The Ministry of Business, Innovation, and Employment | 2017 |

### Appendix 1. (cont.)

|      |  |           |  |  |      |
|------|--|-----------|--|--|------|
| Work | Social Facilities                        | Financial | Households with internet access                | The Ministry of Business, Innovation, and Employment               | 2013 |
| Work | Social Facilities                        | Financial | Ultrafast Broadband availability               | The Ministry of Business, Innovation, and Employment               | 2017 |
| Work | Transportation, Trade and Infrastructure | Financial | Rail freight forwarding movements (net tonnes) | The Ministry of Transport  | 2016 |
| Work | Transportation, Trade and Infrastructure | Financial | Total exports, gross weight (tonnes)           | The Ministry of Transport  | 2017 |
| Work | Transportation, Trade and Infrastructure | Social    | Number of passengers at airports               | Civil Aviation Authority of New Zealand, Aviation Security Service | 2017 |

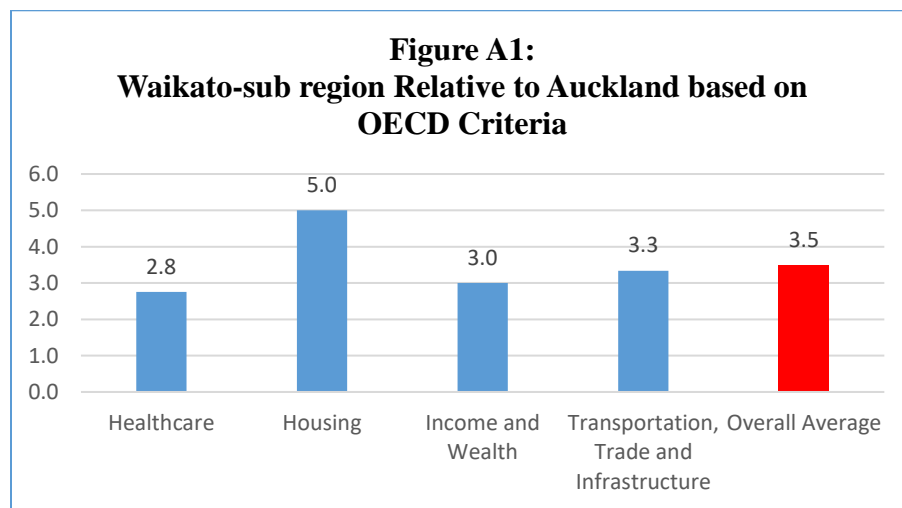
### Appendix 2. Indicators for Auckland and Tauranga

| OECD Well-being                          | Indicators                                       | Source   | Year |
|--|--|--|------|
| Healthcare                               | Claims accepted by ACC for work-related injuries | Stats NZ   | 2016 |
| Healthcare                               | Health expectancy (average)                      | Stats NZ   | 2014 |
| Healthcare                               | Number of aged care residential services         | Stats NZ   | 2017 |
| Healthcare                               | Number of GPs                                    | Stats NZ   | 2017 |
| Housing                                  | House price                                      | The Ministry of Business, Innovation, and Employment                             | 2017 |
| Housing                                  | House rent                                       | The Ministry of Business, Innovation, and Employment                             | 2017 |
| Housing                                  | Housing affordability                            | Calculated: House price/Household earnings                                       | 2017 |
| Housing                                  | Renting affordability                            | Calculated: Rent/Household earnings  | 2017 |
| Income and Wealth                        | Building Consents issued - number                | Stats NZ   | 2017 |
| Income and Wealth                        | Building Consents issued - value                 | Stats NZ   | 2017 |
| Income and Wealth                        | GPD per capita                                   | The Ministry of Business, Innovation, and Employment                             | 2016 |
| Income and Wealth                        | Household earnings                               | The Ministry of Business, Innovation, and Employment                             | 2017 |
| Income and Wealth                        | Public assets                                    | The Treasury, Hamilton City Council, District Councils in the Waikato sub-region | 2017 |
| Income and Wealth                        | Tourism expenditure                              | The Ministry of Business, Innovation, and Employment                             | 2017 |
| Transportation, Trade and Infrastructure | Aircraft movements                               | The Ministry of Transport  | 2015 |
| Transportation, Trade and Infrastructure | Expenditure on cycling facilities                | The Ministry of Transport  | 2017 |
| Transportation, Trade and Infrastructure | Number of passengers at airports                 | Civil Aviation Authority of New Zealand, Aviation Security Service               | 2017 |

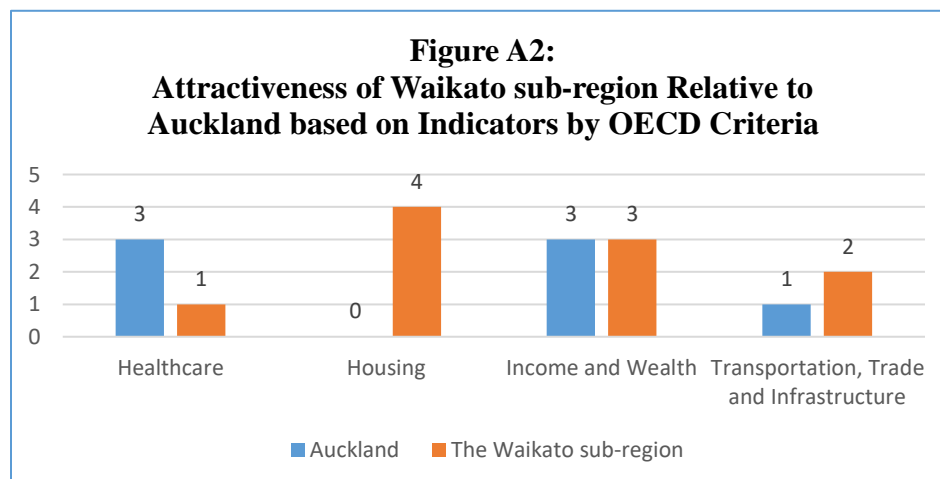
### Appendix 3. Results for Auckland and Tauranga

#### Waikato sub-region attractiveness relative to Auckland

Figure A1 and Figure A2 show the average scores by the OECD well-being criteria based on the ranking method and index method, respectively. These results are indicative and are based on 17 indicators that falls in four categories of OCED framework (Healthcare, Housing, Income and Wealth, and Transportation, Trade and Infrastructure). The ranking method shows that Waikato sub-region is more attractive with an average score of 3.5 and index method shows that Waikato sub-region is better in terms of 10 indicators while Auckland is better in terms of 7 indicators.



Notes: Indicators showing attractiveness of the Waikato-sub region and Auckland relative to each other. Higher value of indicators refers to more attractiveness in particular theme

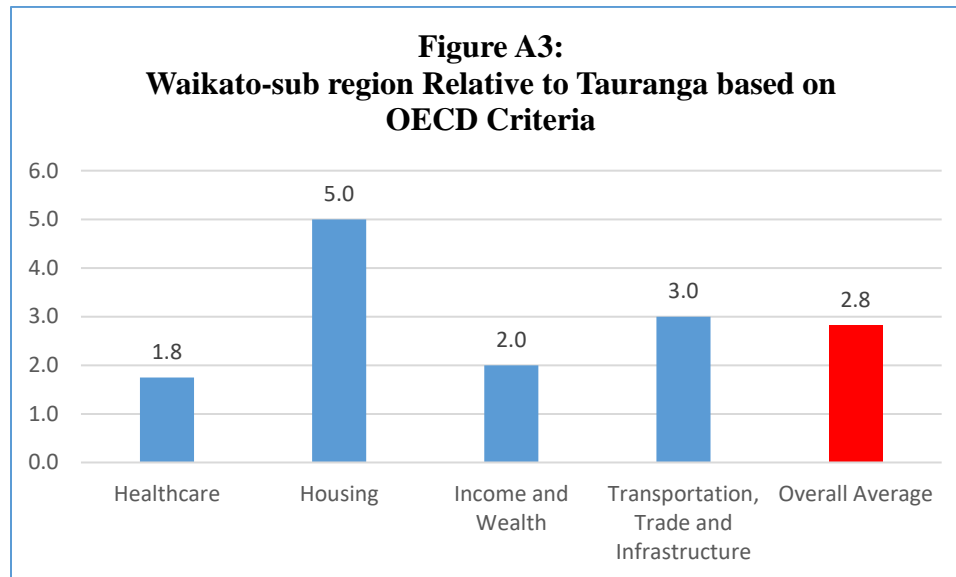


Notes: Calculated average scores in as per the ranking method. Higher scores correspond with more attractiveness. “Very good”: 5; “Good”: 4; “Equal”: 3; “Poor”: 2; “Very poor”: 1.

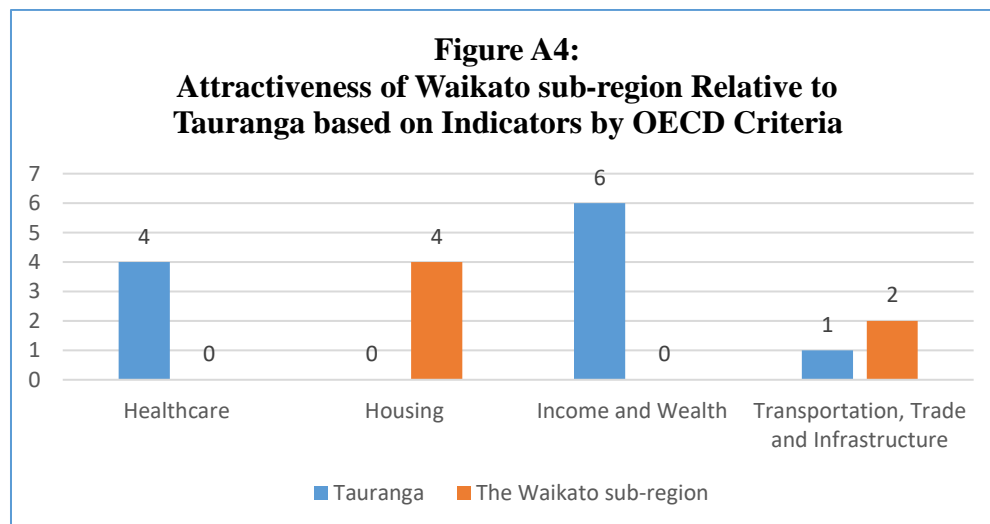


### Waikato sub-region attractiveness relative to Tauranga

Figure A3 and Figure A4 show the average scores by the OECD well-being criteria based on the ranking method and index method, respectively. These results are indicative and are based on 17 indicators that falls in four categories of OCED framework (Healthcare, Housing, Income and Wealth, and Transportation, Trade and Infrastructure).Both methods show that Tauranga is more attractive relative to Waikato sub-region.



Notes: Calculated average scores in as per the ranking method. Higher scores correspond with more attractiveness. “Very good”: 5; “Good”: 4; “Equal”: 3; “Poor”: 2; “Very poor”: 1.



Notes: Indicators showing attractiveness of the Waikato-sub region and Auckland relative to each other. Higher value of indicators refers to more attractiveness in particular theme