Selwyn district
Growth and demand

Population, household, and dwelling projections 2021 to 2051

selwyn.govt.nz

March 2021

Selwyn DISTRICT COUNCIL

Contents

This report is intended for Selwyn District Council's use and helps inform the development of its Long-Term Plan 2021-2031 and Infrastructure Strategies. This report projects population, household, and dwelling numbers out to 2051 as well as the growth in employment over that time. The information was developed and confirmed by March 2020 and used the latest Statistic New Zealand projections as its base point.

1. Executive Summary

Increasing demand for services means an increase in the scope and need for additional infrastructure. It is possible to have demand managed within existing system capacity or through the use of non-asset solutions, however, infrastructure to meet this demand is likely to require planning and funding. This will require population and employment projections for the medium (10 year) and long term.

Selwyn District continues to grow and is one of the fastest growing districts in the country. This has largely occurred following the earthquakes and has continued. Selwyn has almost doubled in population since 2006 (growth rates of 6%p.a. compared to the national 2%p.a. average) and this growth is 90% within townships. Growth is largely driven by internal net migration, meaning people, mostly young families, are moving from within New Zealand (mostly Christchurch) to the district. Selwyn is still a young district though as ageing-in-place continues, the percentage over 70 will grow.

This growth contributes to a well-performing economy. Selwyn saw its GDP and employment grow faster than the national average and this in turn led to higher productivity and household incomes. As the district changes and becomes more urbanised, the nature of employment in the district will continue to change, with a rise in more service and retail jobs.

High levels of growth lead to positive opportunities for investment and improved services but need to be coordinated in a strategic manner.

2. Population

The population in Selwyn has continued to grow over the past thirty years, with increased growth following the Canterbury Earthquakes (in 2010 and 2011). Selwyn's demographic is young, with a large percentage between 40 and 50 as well as under 14. Growth in the district is largely driven by internal net migration and largely from Christchurch. This has driven high levels of net new housing being built within the district, increasing demand for council infrastructure. The district's household size is about 2.9 people per household, with higher sizes in those townships closer to Christchurch. Household sizes in Leeston and Darfield is closer to 2.6.

2.1. Demographics and Overview

Selwyn's population has grown from 46,700 in 2013 to 65,600 in 2019, almost a third of the total population. This growth is around 6% per year compared to the 2% national average. The population has almost doubled since 2006. The following figure (Figure 1) shows the rate of growth in the district.

The demographics show more and more young families arriving, as well as more people in the later stages of their working life. The changing demographics has led to new schools being built, as well as new retirement villages.

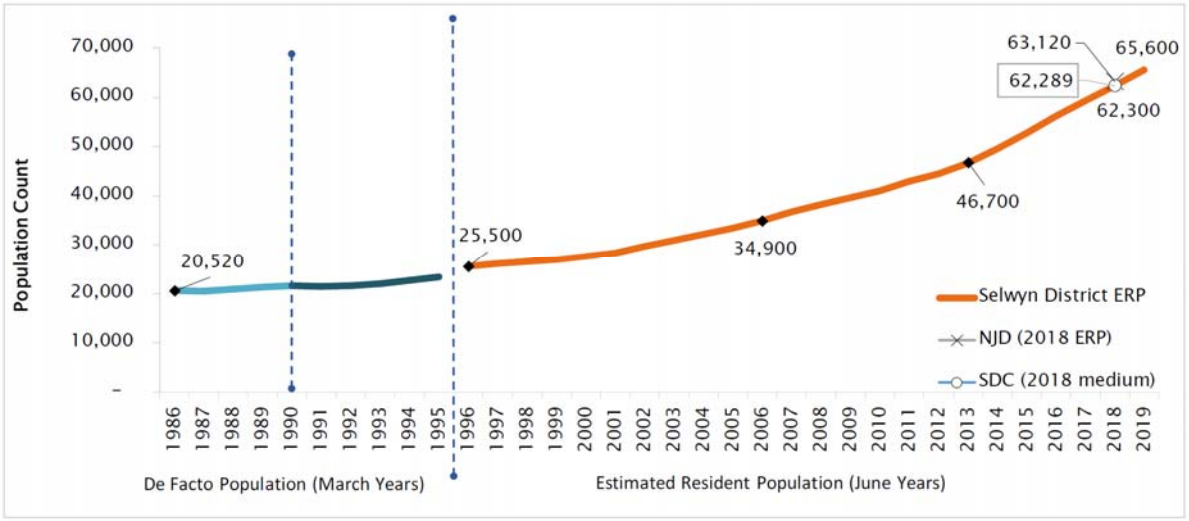


Figure 1: Estimate Resident Population Growth[1]

As the population grows, it is important to see in which demographics the changes are occurring. The following figure (Figure 2) shows the percentage change in age groups between 2006 and 2018. The unshaded sections are 2006 and shaded bars are 2018. This figure shows that some ages have decreased in terms of percentage of overall population and some have increased. The decreases are between 30 and 50 year olds and some under 19 year olds, while the bigger increases are 65 to 75 year olds.

Selwyn generally has a younger age structure than New Zealand and is the third-youngest territorial authority in the country. Further, there is evidence to suggest that Selwyn is experiencing 'ageing-in-place', which will lead to a greater level of over 70 year olds in the district[3], with more retirement villages and over-60 developments occurring.

[1] Natalie Jackson 2020 Part A Pg14

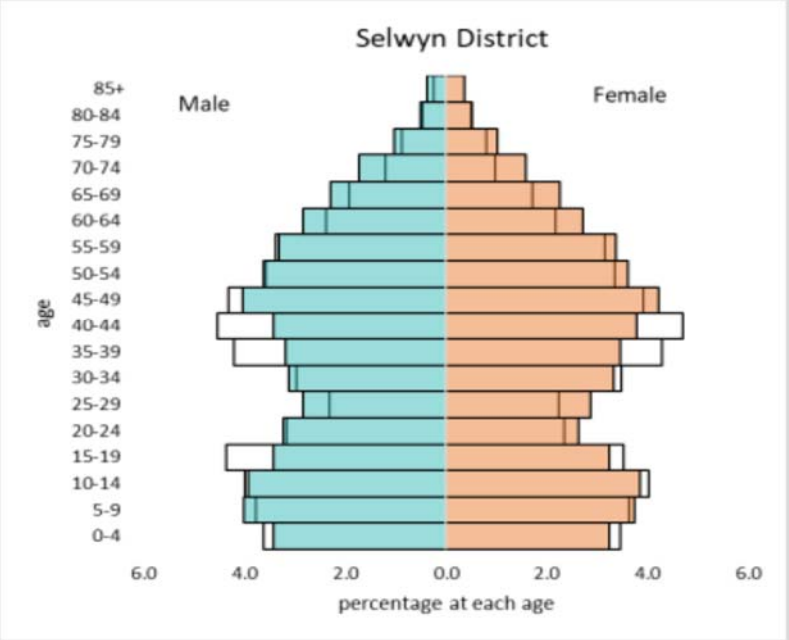


Figure 2: Selwyn District Demographics 2006 and 2018[2]

Source of growth

Most of Selwyn's population gains have been driven by regional migration. In recent years this has accounted for over 80% of total growth. Figure 3 shows the growth from migration. The majority of this growth (around 70%) is coming from Christchurch City. Regional migrants are on average younger than the current population and are seeking safe and modern housing on the city fringe. This increases the workforce population and leads to higher natural increase[3]. Further, comparatively high natural increase, compared to the rest of the country, has also occurred, indicating that the internal net migration is of people wanting to start a family. Recent large projects undertaken by the Government and Council are largely in response to this growth, including schools, parks and other services.

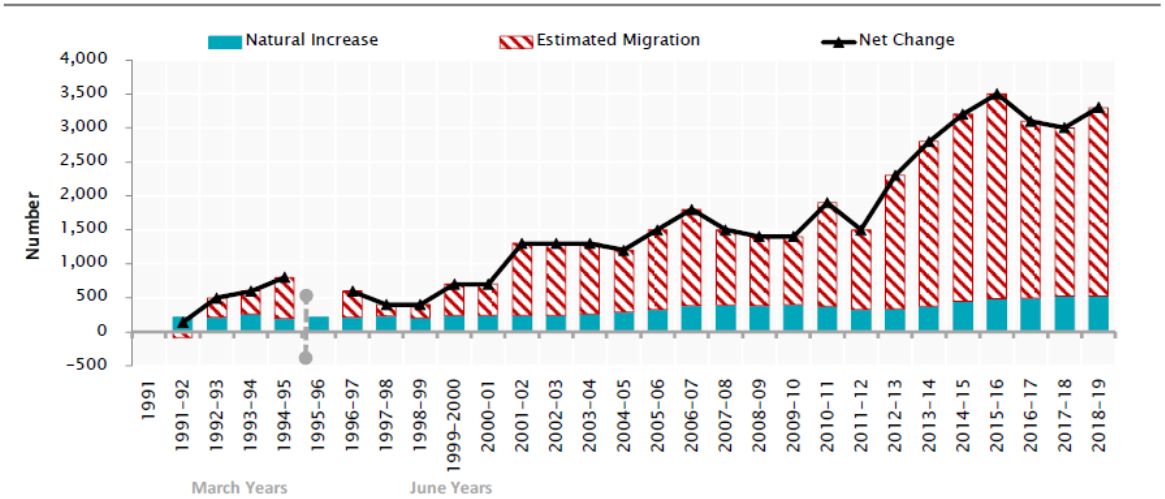


Figure 3: Estimated components of change[4]

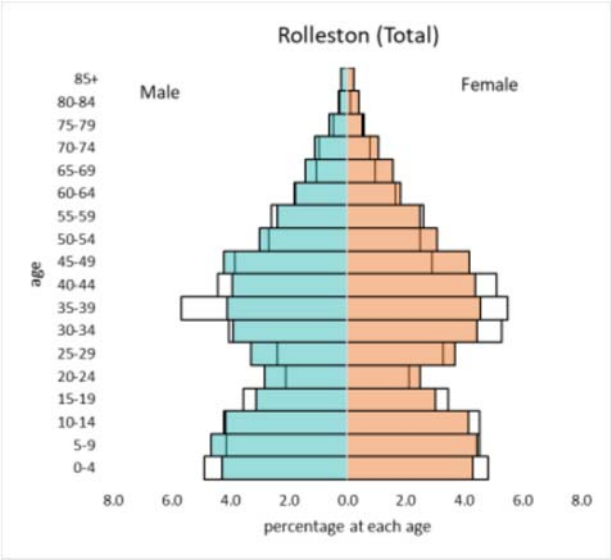
[2] Natalie Jackson 2020 Part B Pg 36
[3] Natalie Jackson 2020 Part A Pg 8
[4] Natalie Jackson 2020 Part A Pg18

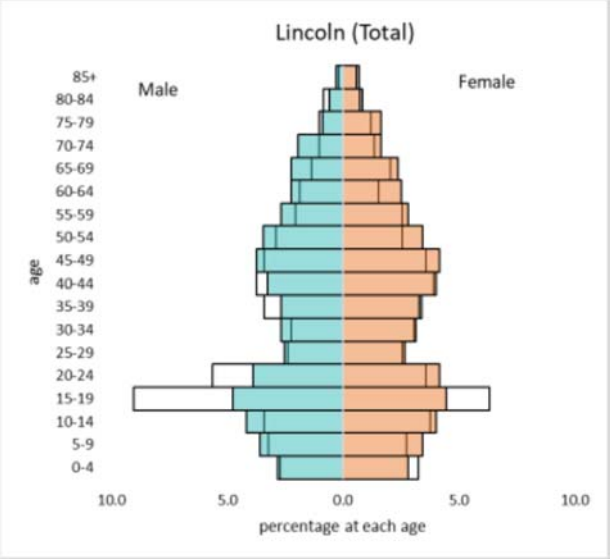
Living Standards

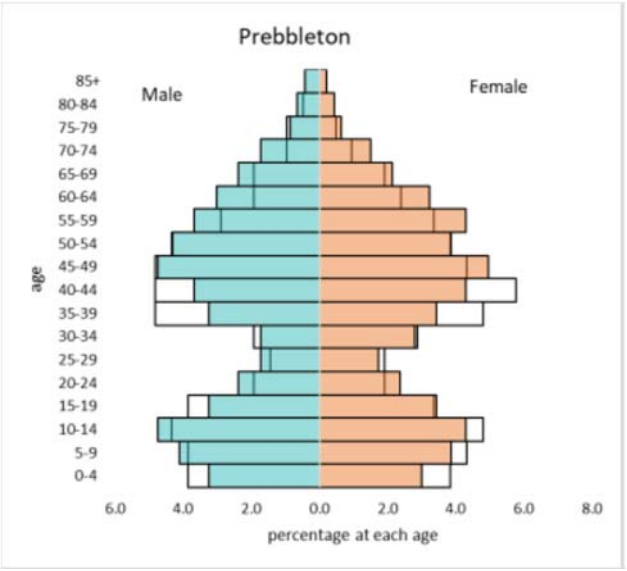
Selwyn residents experience a good standard of living. Incomes have, on average, exceeded national growth. Unemployment is low and Ministry of Social Development (MSD) data shows 2.3% of the working population receiving any benefit compared to 9% nationally. Looking at the Canterbury Wellbeing Survey 2019, Selwyn has performed well in health, quality of home, safety, and satisfaction of community facilities. Areas for improvement are a sense of community and suitability of transport to daily activities. This reinforces the idea that Selwyn is meeting the needs of its ratepayers and is attracting those people looking for their first home and starting a family.

2.2. Major Township Demographics

Major townships are defined by Stats NZ and their Statistical Area 2's, where these boundaries largely reflect township boundaries. This provides an ease of access to information. There are six townships, four within Greater Christchurch and two others beyond the district. Figures 4 and 5 detail the current township demographics. The unshaded section relates to 2006 while the shaded sections are 2018. The townships within Greater Christchurch have a similar makeup as the overall district, with a decrease in ages 15 to 30. Lincoln, however, does not show the decrease because of the presence of a younger student demographic studying at Lincoln University.







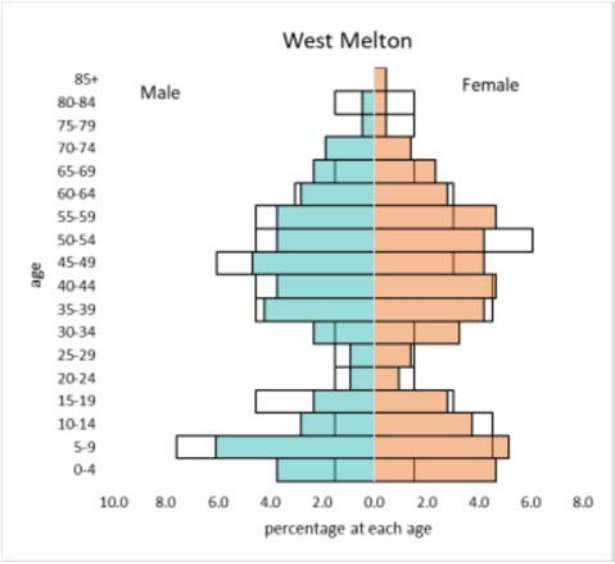


Figure 4: Selwyn District's Greater Christchurch Township Demographics 2006 and 2018[5]

[5] Natalie Jackson 2020 Part B Pg 36

The townships outside of Greater Christchurch show a more consistent demographic, possibly reflecting the distance from Christchurch and therefore reducing the willingness to move.

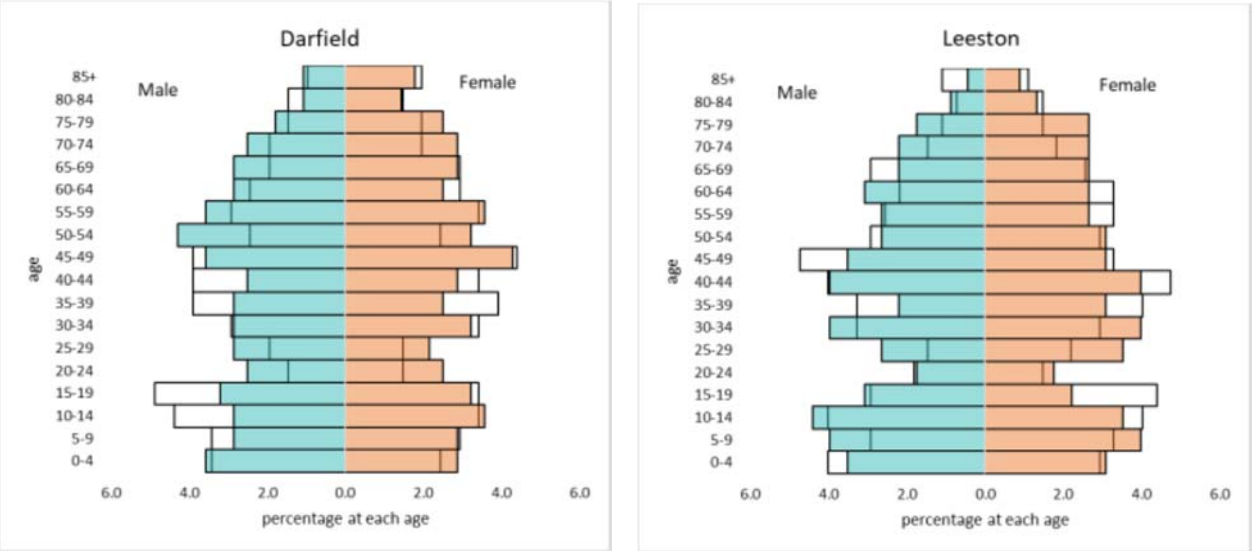


Figure 5: Selwyn District's Rest of District Demographics 2006 and 2018[6]

2.3. Household Size

The district has on average a household size around 2.9 people per household. This is a ratio of occupied dwellings and population. This ratio is expected to decrease as the population ages and household make-up changes[7]. This ratio changes across the district with Rolleston, Prebbleton, Lincoln and West Melton having a higher ratio (over 3.0) and the more rural townships being closer to a ratio of 2.6.

2.4. Recent Growth Rates

Selwyn District Council's monitoring shows take-up over the last five years averaging around 1,100 and the ten year trend just under 1,000. Without a recent update to Statistic New Zealand's projections, these projections are lower, e.g. for the 2023 – 2028 time, with a Medium-High projection around 750 dwellings a year. This shows that while Stats projections provide a good baseline for future growth, there is need to adjust the rates to reflect current take-up. For a breakdown of township take-up, see Appendix 4.

Rate per Year	Medium 2023 – 2028	Medium-High 2023 – 2028	5 Year Trend	10 Year Trend
Dwellings	600	750	1,160	977

Table 1: Dwelling Rates per Year

[6] Natalie Jackson 2020 Part B Pg 36
[7] Natalie Jackson 2020 Part B Pg39

2.5. Key changes

The district is urbanising with close to 90% of total population growth occurring in townships. This has led to the urban population of Selwyn growing to around 60% compared to 43% ten years ago. Further, a high proportion of rural workers are reaching retirement. This will lead to changes in farming employment, which is discussed later on.

The long-term implications from the Covid-19 restriction on travel could result in greater growth than anticipated as those who would have emigrated typically exceed those arriving[8]. However, the indirect impact of those arriving on people choosing to move to Selwyn is uncertain and hard to measure.

A key demographic milestone is when the percentage of population aged 65 or older passes 20%. This means natural increase is limited and population growth is largely dependent on migration (both international and internal). Selwyn is projected to pass this around 2038 whereas the Canterbury region will pass that in 2028[3]. It is key that Selwyn District Council continues to understand its growth drivers and begins supporting housing and communities that support this.

3. Population, Household and Dwelling Projections

3.1. Methodology

Population, household, and dwelling projections underpin the growth model. The model is developed and maintained by Market Economics. The model forecasts household growth in terms of dwelling and employment. For more information, see Appendix 2. The model provides various household projections as inputs and then spatially identifies available capacity within the district. Capacity in the district is based on historic trends of development though can be based on what the District Plan enables. The projections are allocated based on recent take-up trends and then, once township capacity is reached, allocated to other townships.

For the Long Term Plan (LTP), the projections are constrained to available or likely to be available land within the district. This is calculated using site-by-site spatial analysis and the application of the District Plan provisions. For the Infrastructure Strategy's 30 year projection, an unconstrained strategic approach was used where current trends in development were adjusted by broad strategic growth trends creating demand for townships. This may not be able to be catered for within current boundaries and leads to more strategic planning needed.

3.2. Growth Model Capacity

The following is a breakdown of capacity within the Selwyn District as at December 2019, as calculated by the Growth Model. Capacity can generally be summarised into Greater Christchurch or not, and either urban or rural. This is shown in Figure 5. While the district has a lot of capacity, most of this is rural where demand, especially for lifestyle blocks, is decreasing. Figure 6 shows capacity by townships. Note: this includes land not yet zoned for urban development but identified in Our Space as Future Urban Land.

[8] Natalie Jackson 2020 Part A Pg7

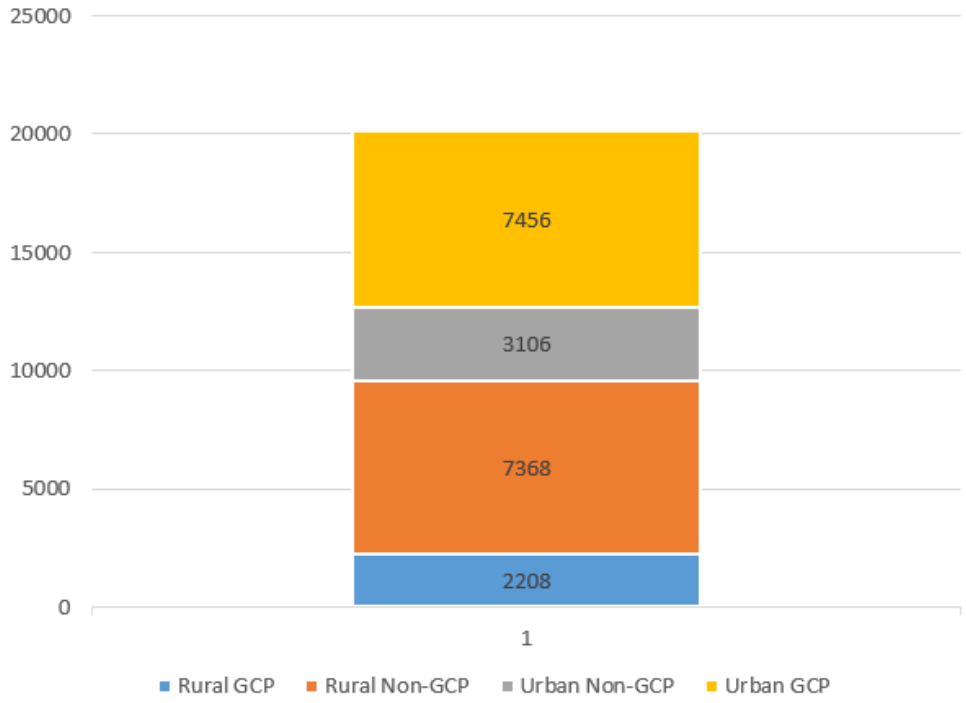


Figure 5: Land Capacity by broad location within the Growth Model

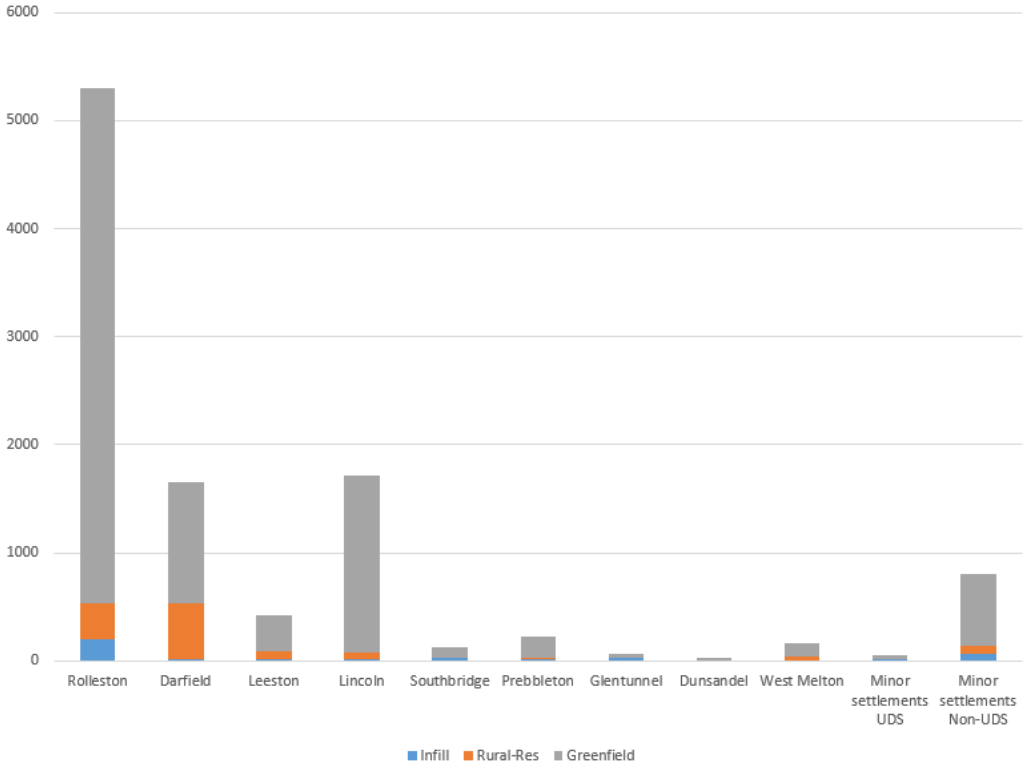
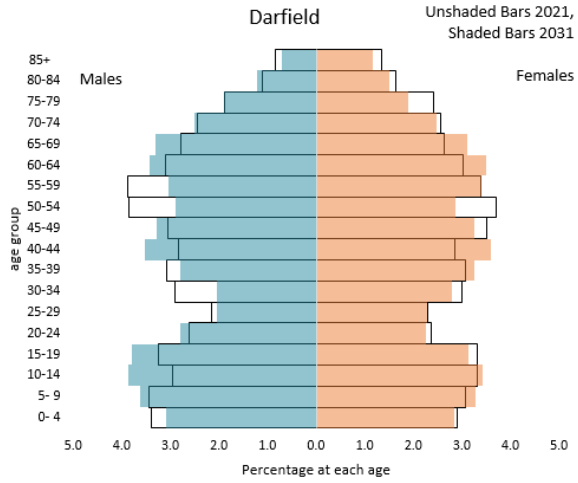
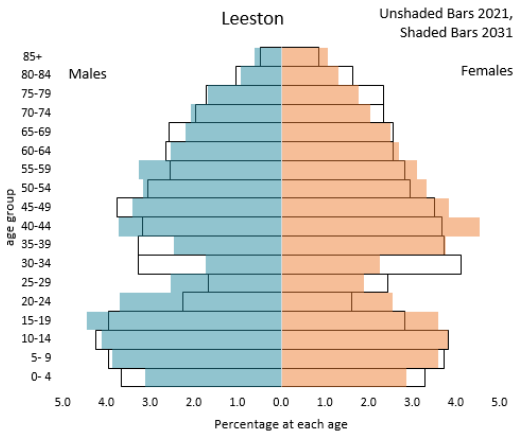


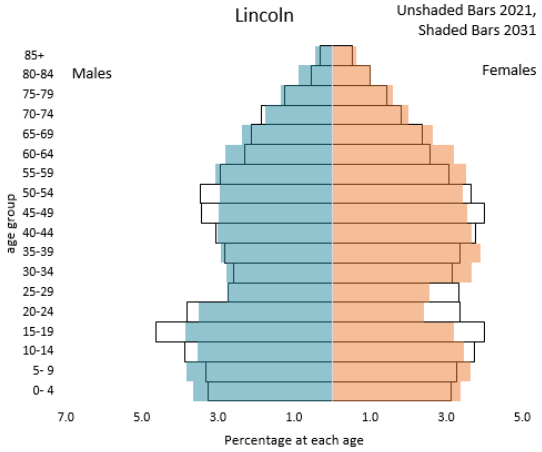
Figure 6: Land Capacity by Township within the growth model

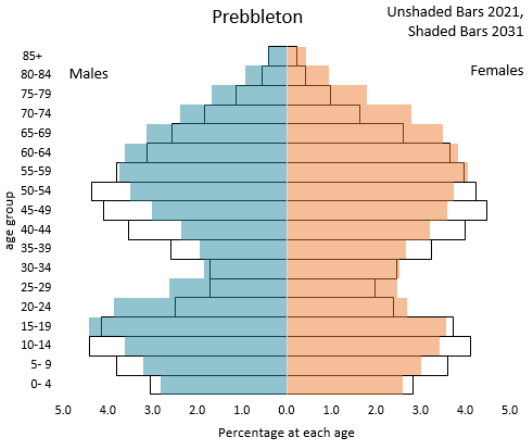
3.3. 10 Year Projections

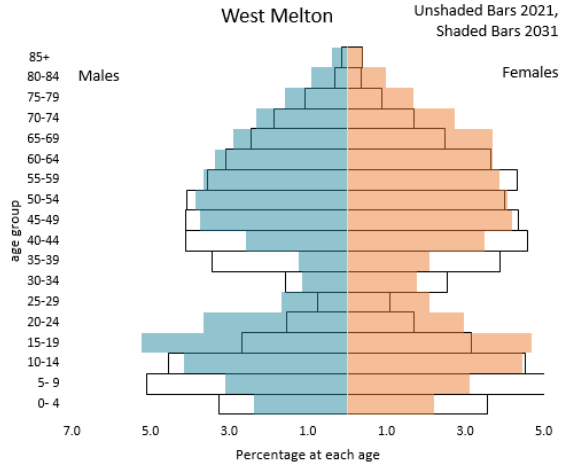
The LTP projections begin with the Stats Medium-High but area adjusted to reflect recent trends and the uncertainty around Covid-19. The Council decided that, due to the uncertainty around the impact of Covid-19, to follow a medium projection till 2023, with a medium-high projection after that. The projection table is in Appendix 1. This uses a district-wide migration rate.

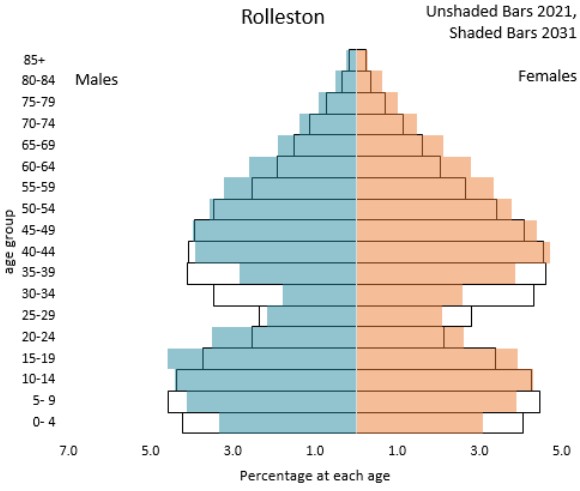












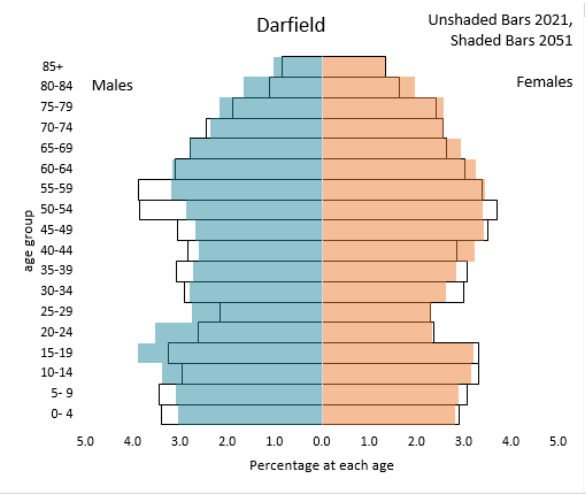
3.4. 30 Year Projections

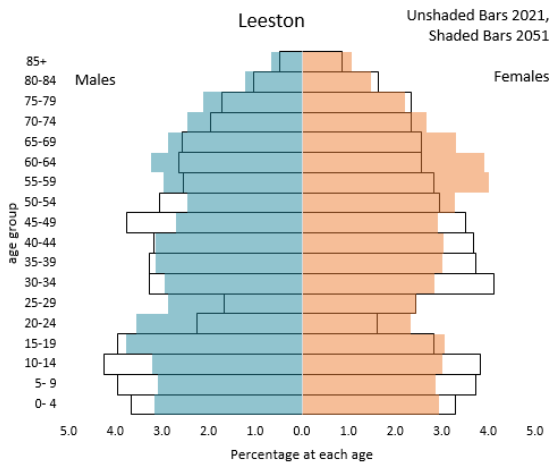
The approach to the 30 year projection to inform the Infrastructure Strategy was to use an 'unconstrained' growth allocation, following from the LTP constrained 10 year approach. The projection table is in Appendix 1. The Council chose to allocate based on a strategic allocation that slightly adjusted the consent allocation approach. This is outlined in Table 2.

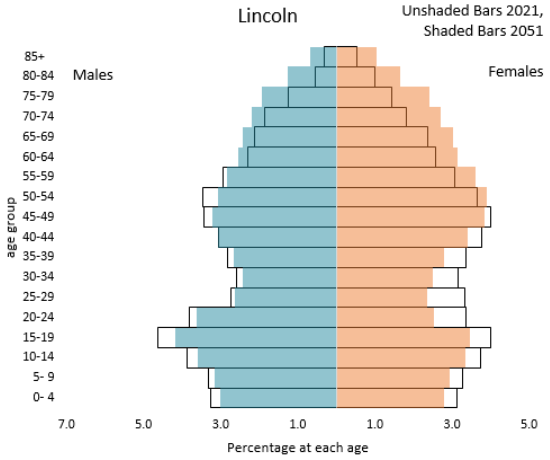
Area	Consent Allocation	Strategic Allocation	Comment
Rolleston	44%	50%	Increase that reflects the ongoing strategic approach as developing Rolleston as the hub of the district.
Lincoln	18%	12%	Decrease that reflects the difficulty and/or cost involved in subdividing and developing the land.
Prebbleton	8%	8%	
West Melton	10%	5%	Decrease that reflects the reduction in available land.
Burnham	0%	0%	
GCP Rural	8%	8%	
Darfield	2%	5%	Increase as there is capacity and is a key town.
Leeston	2%	5%	Increase as longer term trend of retiring farmers, affordability and attractiveness.
Rural	8%	7%	Slight Decrease to reflect trend in Rural take-up.

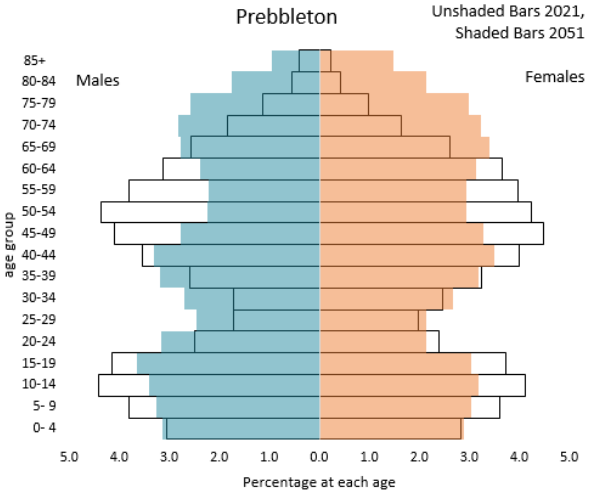
Table 2: Strategic Allocation

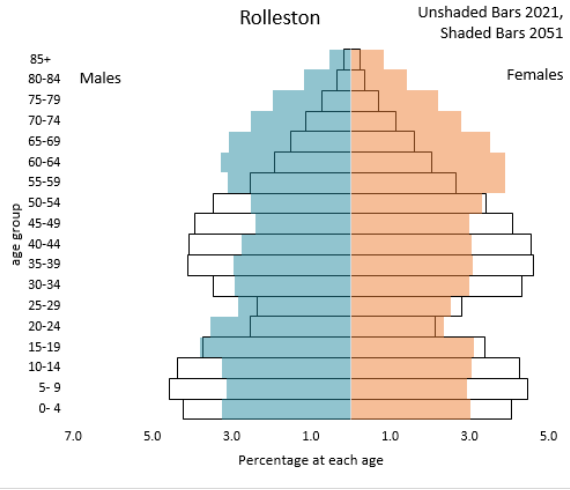
The demographics shown below outline the changes from 2021 (unshaded) through to 2051 (shaded).

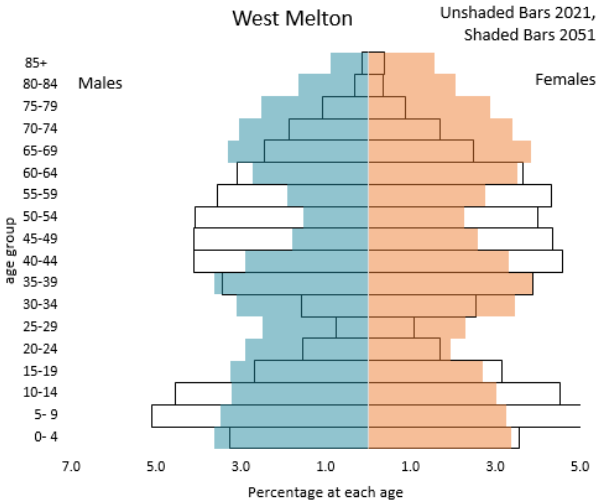




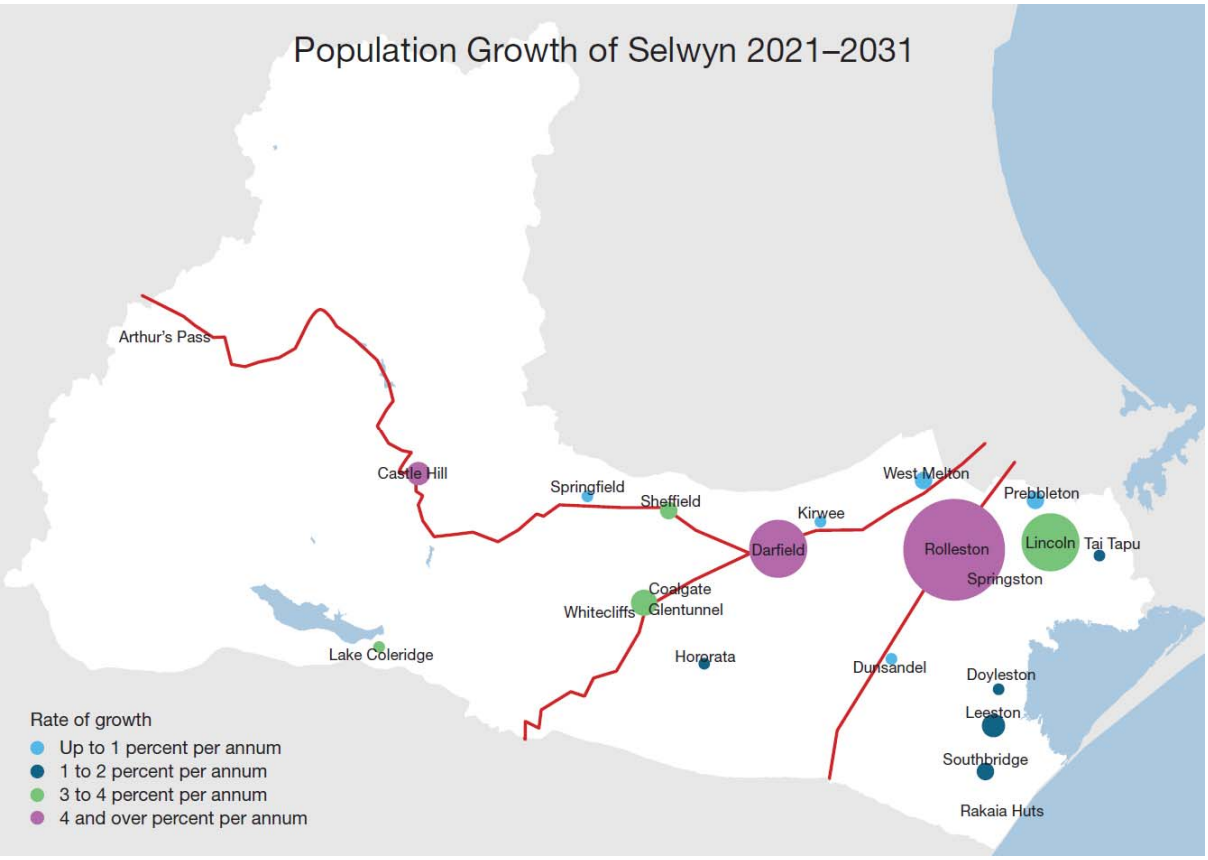


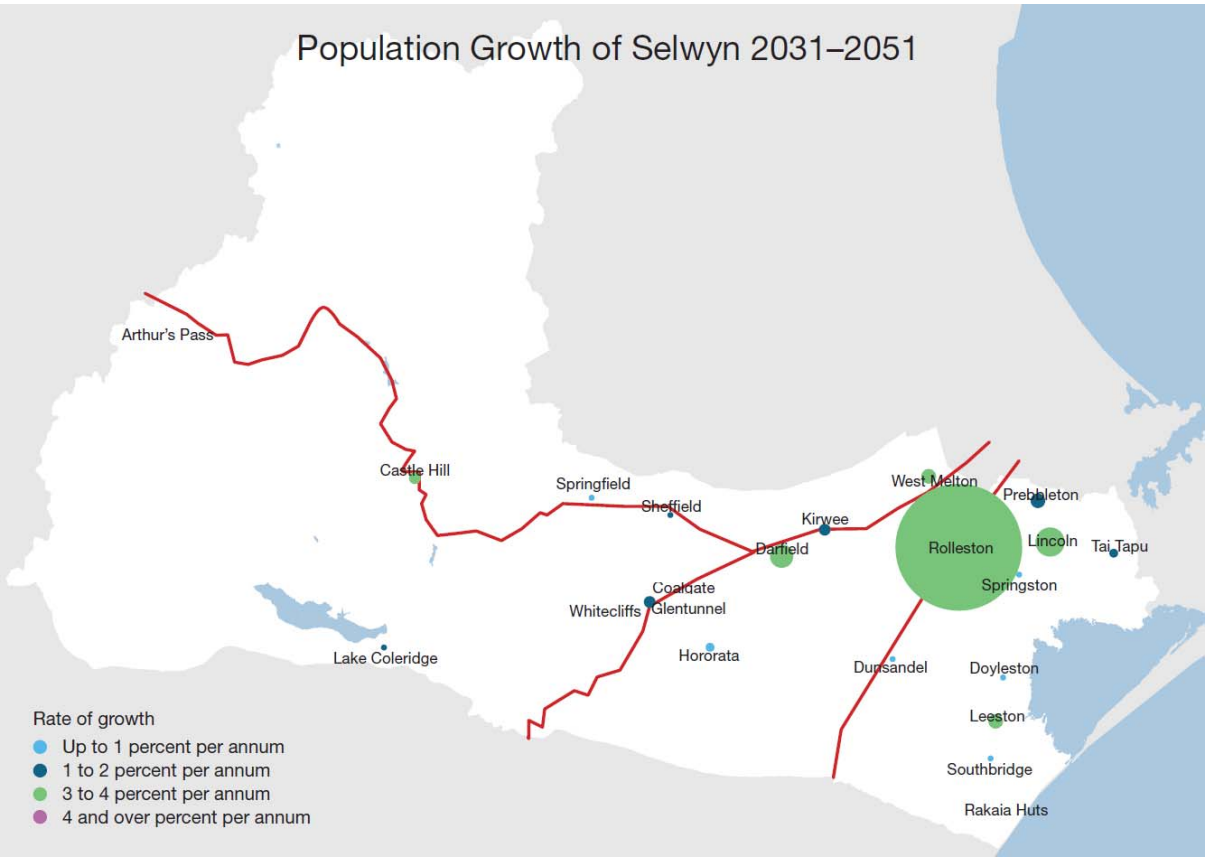






3.5. Maps


Population Growth of Selwyn 2021–2031
Arthur's Pass
Castle Hill
Springfield
Sheffield
Kirwee
West Melton
Prebbleton
Darfield
Rolleston
Lincoln
Tai Tapu
Springston
Coalgate
Whitecliffs
Glentunnel
Lake Coleridge
Hororata
Dunsandel
Doyleston
Leeston
Southbridge
Rakaia Huts
Rate of growth
Up to 1 percent per annum
1 to 2 percent per annum
3 to 4 percent per annum
4 and over percent per annum


Population Growth of Selwyn 2031–2051
Arthur's Pass
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Leeston
Southbridge
Rakaia Huts
Rate of growth
Up to 1 percent per annum
1 to 2 percent per annum
3 to 4 percent per annum
4 and over percent per annum

4. Economy

The Selwyn economy is outperforming the rest of the country. Selwyn saw its GDP and employment grow faster than the national average and this in turn led to higher productivity and household incomes. As the district changes and becomes more urbanised, the nature of employment in the district will continue to change, with a rise in more service and retail jobs. Currently, employment is around 60% in the business zones though this will change as the nature of new jobs change. The key employment category is currently agriculture, but other categories, such as services and community, are growing faster.

As with the population growth, employment growth is largely seen in the urban areas. While rural areas still offer the most employment, the opportunities are in the urban areas, especially Rolleston. However, Selwyn's economy is not as diverse as the rest of the country, and relies on several key industries.

4.1. Overview

Selwyn has generated around $2.7b in 2019 and around 22,500 people employed. This has increased significantly in the last ten years where Selwyn's GDP was $1.4b with 14,000 jobs. This translates to an average growth rate of around 6.5% compared to the national average of 2.5%. Agriculture is still the highest employee area but the public sector and services is area growing. Recent trends, seen in Figure 7, show steady agriculture category but growth in services and food mirrors population growth.

Selwyn is linked across political boundaries, most notably as part of Greater Christchurch. Where people live, work, and play aren't constrained by these boundaries. As Selwyn grows, the level of self-sufficiency will grow but Selwyn's economy will always be inextricably linked with Christchurch City.

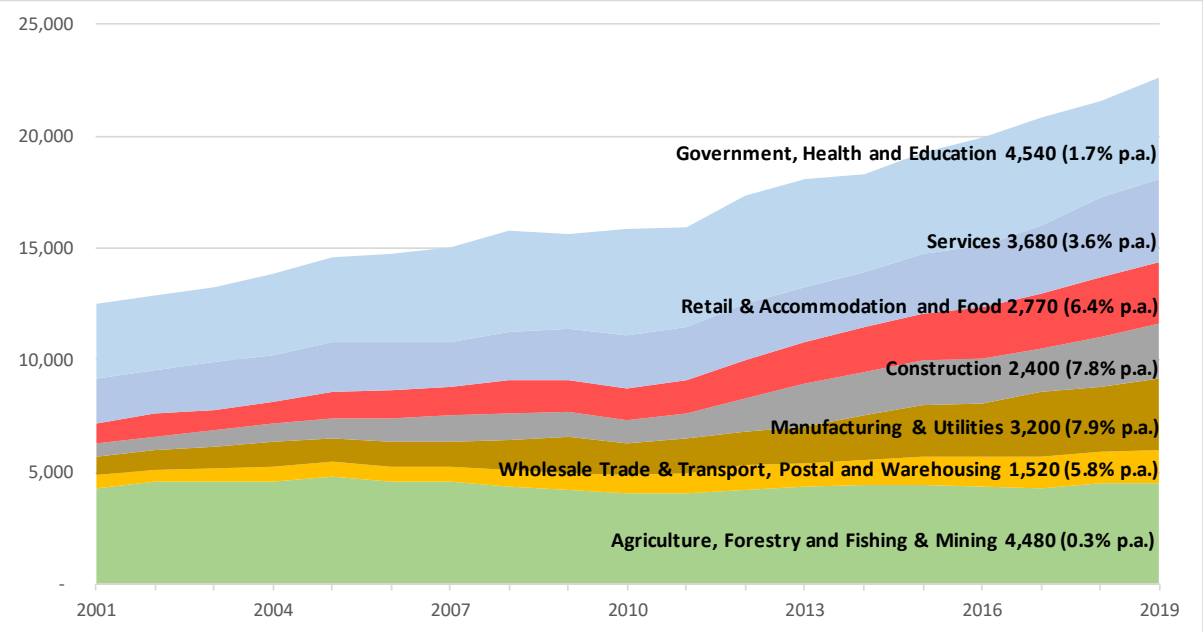


Figure 7: Market Economics Economic Structure of Selwyn District

Support for new businesses

Selwyn has a flourishing business environment with the total number of businesses increasing from 5,421 in 2009 to 6,828 in 2019. Selwyn has seen good growth in new businesses as well, though the job growth of the district seems more dependent on existing businesses growth than new businesses.

Spend

Spending data from Marketview shows that spending from Selwyn residents is still occurring within Christchurch, about 57% or $397m per year. Spending from Christchurch residents within Selwyn totals about $68m.

4.2. Location of Employment

Employment categories have different requirements for locating within Business Zones or not. Community and agriculture have specific needs to be located outside of the Business Zone, while self-employed people are classified as being located at their home address. Below in Table 3, is a breakdown of employment location. Community and service categories are locating in other zones when it fits the community they serve. There are improvements to be made and as the commercial centres grow, more businesses will locate for agglomeration benefits.

Category	Business Zone	Other Zone
Retail	60.8%	39.2%
Services	33.5%	66.5%
Community	25.8%	74.2%
Other	36.8%	63.2%
Agriculture		100%

Table 3: Location of Employment by Zone

4.3. Growth Model Commercial and Industrial Capacity

The Growth Model identifies capacity in two forms, vacant and vacant potential. Vacant is unused land, whereas vacant potential is being used but not to similar levels as other land. Most vacant land is in Rolleston, shown in Figure 8, with a lot of potential capacity in Darfield and Leeston.

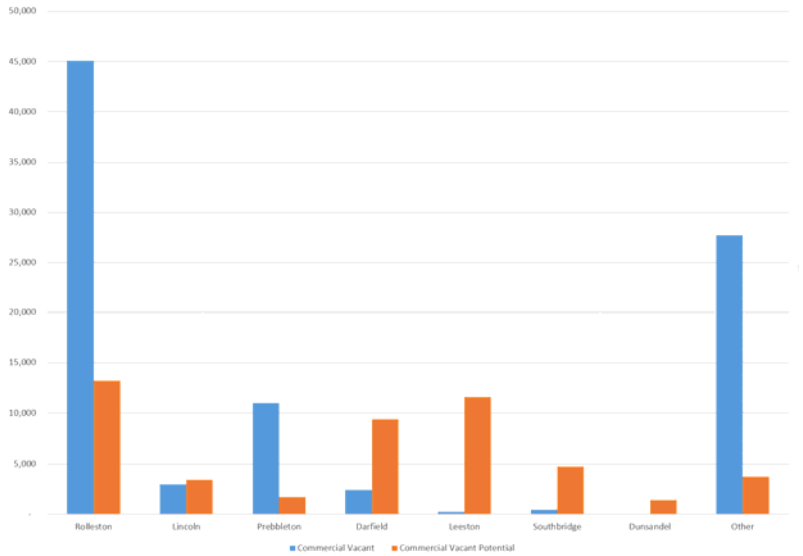


Figure 8: Commercial land by Selwyn Growth Model

Industrial land is also mainly available in Rolleston, as shown in Figure 9, with a significant amount in Darfield.

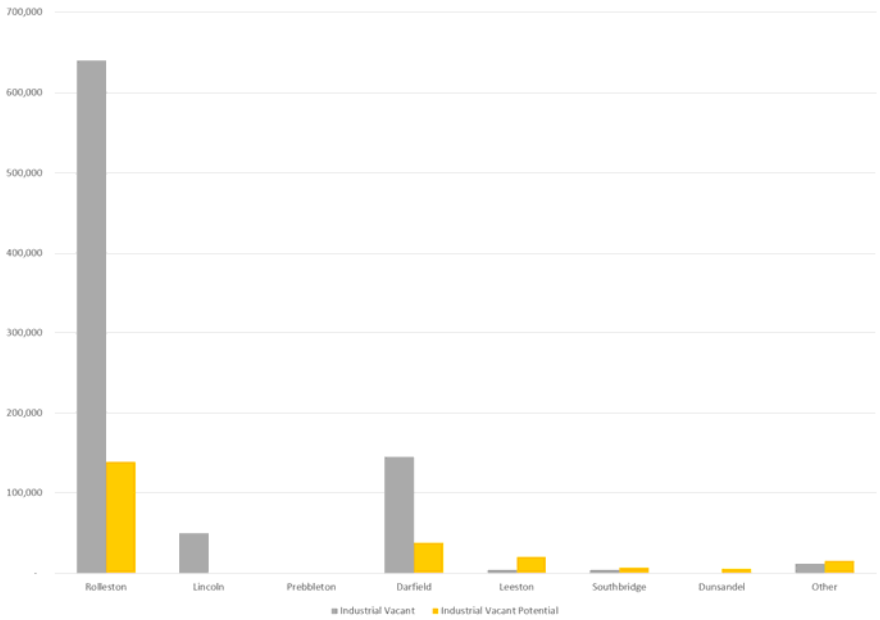


Figure 9: Industrial land by Selwyn Growth Model

4.4. Employment Trends

Employment in the district can be understood through broad employment categories – Retail, Service, Community, Agriculture, and Other. These are aggregated from ANZIC 1 or industrial employment codes, for a breakdown of employment types within each category, see Appendix 3.

Retail

Growth in retail is largely connected to population growth and the increasing scale of towns. Further, this relationship is not a straight linear relationship, and so more population growth leads to even more retail growth. This increase in current employment will be in areas such as supermarkets and food and beverage services immediately servicing the growing population. Further, larger townships will attract new retail, which will bring employment, known as agglomeration benefits.

Service

Service industry employment is expected to continue to grow with large increases in professional, scientific, and technical services. The scale of demand continues to grow and that supports new types of services to establish. Further increase in population and changes in travel or more people working from home will lead to an increase in service employment in the district.

Community

The Community employment area covers government, health and education employment. This sector will continue to grow as population growth demands these services but at a slower rate.

Agriculture

Agriculture continues to be an important part of the economy. However, employment remains rather similar as the trend is for larger commercial farms and a higher use of machinery than labour. Further, there is a change in the types of employment, for example, the Dairy industry is continued to grow while sheep and beef will remain steady or decrease. This increase in dairy does not lead to immediate employment growth but generates demand for support services.

Other

The other group covers wholesale trade, warehousing, utilities, and construction. This will continue to grow as iZone continues to grow, dairy processing remains, and high construction levels persist. Growth in these industries may be relocations post-earthquake though, as this growth continues, it seems it is supported by the growth in dairy farming and general population growth.

Tourism Industry

Selwyn has many visitors exploring the natural environment. Selwyn is also part of key routes south from Christchurch and through to the West Coast. Tourism in Selwyn is small compared to the rest of the county but it has been growing fast, at almost 10% compared to 8% nationwide. This has led to tourism-related employment growing by 3%, double the national rate.

The district have many small settlements that are popular places for holiday homes and recreation activities and facilities. These include Arthurs Pass, Lake Coleridge, Porters and Castle Hill. There are also several settlements along the state highways that service long-distance traffic.

4.5. Employment Category Projections

The growth model projects growth out to 2051 based on the trends described above. Table 4 shows the main growth is coming from Services and Community, which nearly doubles over thirty years, whereas Retail growth is limited to population growth and Agriculture is transitioning from labour intensive to capital intensive limiting its employment growth.

Category	2021	2031	2051		Growth 21 - 31	Growth 21 - 51
Retail	1,694	2,342	3,237		648	1,543
Services	5,722	7,458	9,811		1,736	4,089
Community	5,252	6,904	9,197		1,652	3,945
Other	7,663	9,116	11,099		1,453	3,436
Agriculture	4,814	5,330	5,629		516	815
Total	**25,145**	**31,555**	**38,973**		**+6,005**	**+13,828**

Table 4: Employment Projections by Category

5. About the District

This section discusses key points relating to the district.

5.1. Environment

Selwyn district has a beautiful and diverse natural environment flowing from the alpine mountains in the Southern Alps through to Te Waihora on the coast. This is a drawcard for visitors and residents alike and provides unique opportunities to access and enjoyment. The council needs to continue to work on protecting and promoting the environment.

5.2. Urban Capacity

The Selwyn district had planned capacity for the medium and long term, though current rates of growth has meant that capacity is being taken-up faster than previously anticipated. The Council has previously developed major plan changes to provide for the strategic growth of the Districts main towns located within the Greater Christchurch Urban Development Strategy, namely Lincoln and Rolleston, known as Plan Change 7 and Prebbleton via the Land Use Recovery Plan (LURP). The LURP rezoned an additional 4,000 sections for residential use and also rezones significant additional land for industrial use in both Lincoln and Rolleston. Both these plan changes have provided for the significant release of Greenfield land within these townships as well as intensifying land from low density residential to more appropriate densities.

For the Greater Christchurch area, development beyond the Greenfield priority areas is restricted due to direction contained within the Canterbury Regional Policy Statement (CRPS). A key direction to reconsidering the CRPS direction and allow for further growth will be Selwyn's, and surrounding Territorial Authorities, response to the National Policy Statement on Urban Development. This will involve revisiting and reviewing the urban settlement pattern and growth areas identified in the Urban Development Strategy.

Under the previous National Policy Statement on Urban Development Capacity, the Greater Christchurch Partnership undertook a Housing and Business Capacity Assessment and a Future Development Strategy called the 'Our Space'. Our Space identified demand of 17,290 over the long term. The capacity within Selwyn was 9,725, leaving a shortfall in the long-term of around 5,500. Our Space response was to identify land in Rolleston, which is within the Projected Infrastructure Boundary but not zoned for urban development. This land was included within the LTP as it's already planned for infrastructure and is the area where urban capacity will be identified when there is a shortfall.

Historic Trends

Growth in the district has reached unprecedented levels following the Canterbury Earthquakes in 2010 and 2011. This growth has continued since, taking advantage of the strategically planned urban capacity. Figure 10 shows growth in the Greater Christchurch area staying around 1,000 since 2013.

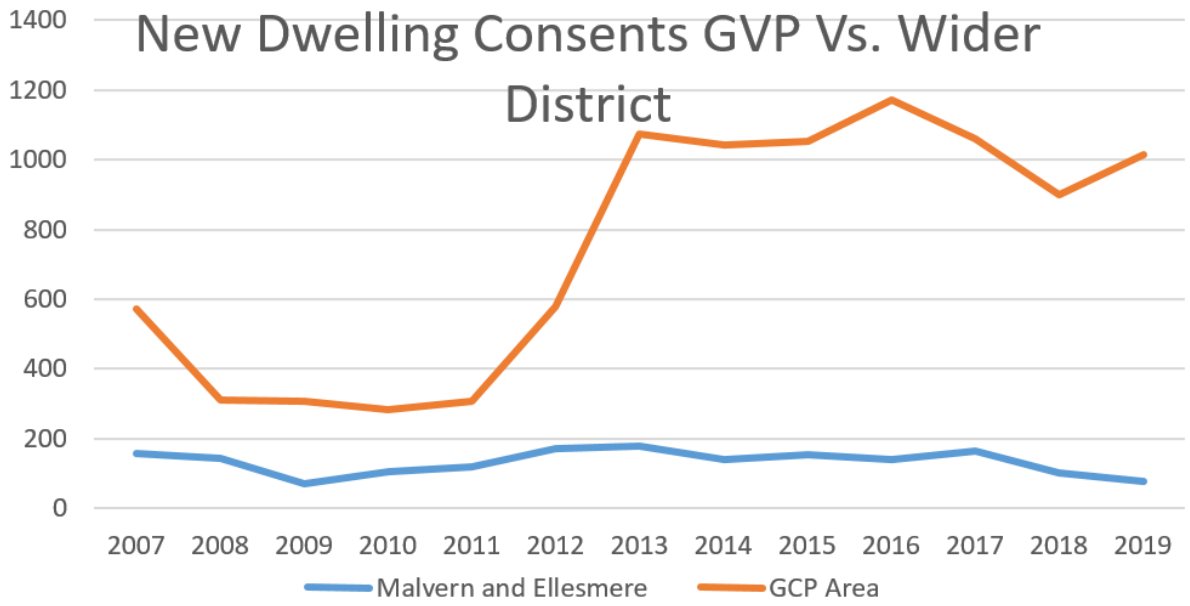


Figure 10: Net New Dwelling

5.3. Other Key Infrastructure

The Selwyn district has some important infrastructure that impacts on growth and demand. These key companies or institutions provide direction for growth as well as being key employers in the district.

There is a large irrigation scheme called Central Plains Irrigation Scheme. This provides water supply across the central plains area with the aim of supporting agricultural production and assisting water usage.

Synlait and Fonterra have established large milk processing plants within the district that, combined, processes over 10m litres of raw milk a day.

Lincoln University is located on the outskirts of Lincoln Township, along with some Crown Research Institutes, provide significant employment as well as a significant contribution to the district's economy.

Burnham Military Camp also provides significant employment.

5.4. Travel to Work

From the new commuter app[9], 11,601 people (33%) leave Selwyn District to areas outside the district for work or school, with Christchurch Central-South (1,311 departures) the top. To depart to work or school, people in these 28 areas most often drive a private car, truck or van (45%).

There are 966 people traveling to the district for work or school (4%), while 23,364 people (96%) also live in these 28 areas. The most common way to arrive to work or school is to drive a private car, truck or van (31%).

5.5. Covid-19

The national response to Covid-19 was to lockdown New Zealand in order to contain and slow the virus. This has saved lives and allowed New Zealand the best chance of recovery but did cause a drop in GDP and uncertainty in employment and this has flow-on effects throughout the economy, notably housing prices, and international visitors and migration. The long-term implications are yet to be fully understood but range from more flexible work arrangements, more resiliency in trade networks, and a re-shaping of the tourism industry.

The Selwyn District will be less disrupted due to the nature of its employment due to a large share of employment being agriculture or food manufacturing related. The tourism industry also has less reliance on international visitors.

Infometric's Economic Impact Report for Selwyn District

Selwyn commissioned Infometric in April 2020 to provide an overview of the potential economic impact of Covid-19 for the Selwyn District[10]. Generally, the forecast shows Selwyn performing comparatively better than most other districts in New Zealand, though the impacts are still significant. Generally, tourism and tourism supported businesses are directly impacted, with indirect impacts on the whole economy because of global decreases and uncertainty. Infometric forecasts an economic contraction of 5.4% for Selwyn leading to a rise in unemployment to 7.1% in early 2021 and house prices falling by around 10% by December 2021.

Selwyn performs better as primary exports are still strong and tourism in the district is not primarily international tourists. Further, Selwyn is generally more affordable than much of Christchurch and internal growth is not directly linked to international migration. The level of Government investment is critical in determining the more medium term impact of Covid-19.

Further monitoring will be required to understand how these projections develop and Infometric will continue to provide information.

[9] https://commuter.waka.app/

[10] You can find the report here - https://www.selwyn.govt.nz/services/business/our-economy

5.6. Potential Global Long-Term Trends

It is important to note several international trends that have potential to impact the long-term growth of the district. This is not an exhaustive list nor is it worth adjusting any projections but there is value in noting them.

1. Growing middle-class in developing countries. Increased incomes change people's preferences and this can create new markets for high-quality agriculture products.
2. Rising nationalism. This can lead to limits or tariffs on imports to support domestic producers and potentially will impact exporters.
3. The nature of work is changing as well as increased use of automation. As the type of jobs change and people's desire to work flexibly will change the shape of employment.
4. Focus on wellbeing rather than chasing increased GDP. Though these aren't mutually exclusive, there is a growing desire that development considers how it improves wellbeing on top of increasing GDP.

6. Key Strategies

The following lists key strategies relating to growth to consider.

6.1. Regional Strategies

6.1.1. Canterbury Regional Policy Statement

Environment Canterbury has produced the Canterbury Regional Policy Statement and the Council will be required to ensure the District Plan gives effect to the CRPS. The CRPS is a strategic document requiring the integration of land use with infrastructure. The CRPS is due for review in 2023.

Chapter 5

This chapter generally focuses outside of Greater Christchurch and on development which results in changes to urban, rural-residential and rural areas, together with the infrastructural services which support this development. This is done through strategic integration recognising appropriate regionally significant infrastructure that supports the community's wellbeing.

Chapter 6 and Map A

This chapter focuses on Greater Christchurch and principally establishes the urban boundary. It provides a resource management framework for the recovery of Greater Christchurch, to enable and support earthquake recovery and rebuilding, including restoration and enhancement, for the area through to 2028.

6.1.2. Urban Development Strategy and Our Space

Urban Development Strategy

The Greater Christchurch Urban Development Strategy sets a plan that coordinates urban development that protects the natural environment, improves transport links and creates more liveable centres. The UDS was developed in 2007. A fundamental requirement of the strategy was to anchor the settlement pattern within the CRPS and District Plans, which is relied on heavily.

To a degree the UDS was overtaken by earthquake recovery documents, most notably the LURP which was one of the main focusses of the Strategy and Policy teams activities for the past few years.

There is general agreement that the UDS is a highly desirable outcome for Greater Christchurch to overcome the adverse effects of relatively unconstrained peripheral urban growth around Christchurch and the towns within the Waimakariri and Selwyn Districts.

For more information - https://www.greaterchristchurch.org.nz/projects/strategy/

The vision for Greater Christchurch

By the year 2041, Greater Christchurch has a vibrant inner city and suburban centres surrounded by thriving rural communities and towns, connected by efficient and sustainable infrastructure.
There are a wealth of public spaces ranging from bustling inner city streets to expansive open spaces and parks, which embrace natural systems, landscapes and heritage.
Innovative businesses are welcome and can thrive supported by a wide range of attractive facilities and opportunities.
Prosperous communities can enjoy a variety of lifestyles in good health and safety, enriched by the diversity of cultures and the beautiful environment of Greater Christchurch.

6.1.3. Canterbury Transport Strategies

Greater Christchurch Transport Statement

This document provides an overarching framework to enable a consistent, integrated approach to planning, prioritising, implementing and managing the transport network and services in the Greater Christchurch area.

For more information -
https://www.greaterchristchurch.org.nz/assets/Documents/greaterchristchurch/Projects/GCTSDec2012.pdf

6.2. Selwyn Strategies

The following are key strategies developed by Selwyn District Council that deal with long-term growth.

6.2.1. Selwyn 2031

The Council adopted Selwyn 2031 in November 2014 This strategy applies to the whole of the district and will be a guiding document for the future development of Selwyn District. The vision of Selwyn 2031 is:

"To grow and consolidate Selwyn District as one of the most liveable, attractive and prosperous places in New Zealand for residents, businesses and visitors."

The development and implementation of Area Plans for Malvern and Ellesmere wards (a key action of Selwyn 2031) was a significant activity for the Strategy and Policy Planning Team through 2015 and 2016.

6.2.2. Selwyn Area Plans

The primary purpose of the Area Plans is to provide high-level planning direction to guide the growth and sustainable management of each township in the Ellesmere and Malvern areas through to the year 2031. All of the Selwyn District is located within the takiwa of Ngai Tahu and their ancestors who have held mana whenua over these areas for many generations.

The Ellesmere and Malvern Area Plans is a key strategy for the council that identifies initiatives to assist in the delivery of the Selwyn 2031: District Development Strategy (Selwyn 2031) vision.

The Area Plans identify a broad range of implementation steps to deliver social, economic, cultural and environmental outcomes for each township. These steps range from investigations into the appropriateness of resource management regulatory controls as part of the DPR or town centre studies, through to the establishment of forums to determine, for example, how to incorporate Ngai Tahu values and interests in local government decision-making, how best to manage natural hazards, and how to ensure townships and settlements have access to educational, health, and employment opportunities, services and facilities which meet their needs, including the needs of mana whenua.

6.2.3. Rolleston Structure Plan

This aspirational plan identifies principles for future development, notably good urban design and sustainability. This provides guidance for developing master plans and outline development plans for specific areas of Rolleston. It helps inform district plans, infrastructure programmes, long term plans and other guidance.

Special Housing Areas

There are two Special Housing Areas within Selwyn and are on the southern boundary of Rolleston Township. These areas were established through the Housing Accord and Special Housing Areas Act 2013. South Farringdon is essentially development with Acland Park currently underway, providing nearer to 1,400 new dwellings.

6.3. Selwyn Monitoring Strategy

A draft monitoring strategy is being developed. The level of monitoring required, especially for growth, will be largely driven by the requirements within the NPS-UD, which are outlined in Part 3.9 (bold added).

3.9 Monitoring requirements

1. Every tier 1, 2, and 3 local authority must monitor, quarterly, the following in relation to each urban environment in their region or district:
    a. the **demand** for dwellings
    b. the **supply** of dwellings
    c. **prices** of, **and rents** for, dwellings
    d. housing **affordability**
    e. the proportion of housing development capacity that has been **realised**:
        i. in previously urbanised areas (such as through **infill** housing or redevelopment); and
        ii. in previously undeveloped (ie, **greenfield**) areas
    f. available data on **business** land.
2. In relation to tier 1 urban environments, tier 1 local authorities must monitor **the proportion of development capacity that has been realised in each zone** identified in clause 3.37(1) (ie, each zone with development outcomes that are monitored).
3. Every tier 1, 2, and 3 local authority must **publish the results of its monitoring at least annually**.
4. The monitoring required by this clause must relate to the relevant urban environments, but may apply more widely (such as, for example, where the relevant data is available only on a region or district-wide basis).
5. If more than one tier 1 or tier 2 local authority has jurisdiction over a tier 1 or tier 2 urban environment, those local authorities are jointly responsible for doing the monitoring required by this subpart.

7. Bibliography

- SDC; 2018; LTP Activity Management Plan, Section 7.
- *Patterson, Benje*; 2020; Selwyn District Strategic Economic Action Plan
- ME; 2020: Selwyn Council Growth Model, V5
- Jackson, N.O. (2020). Selwyn – 2020 Review of Demographics Report (Part A). Commissioned by Selwyn District Council. Natalie Jackson Demographics Ltd. Tairua, New Zealand. March.
- Jackson, N.O. (2020). Selwyn – Review of Demographics Report (Part B) – SA2s Commissioned by Selwyn District Council. Natalie Jackson Demographics Ltd. Tairua, New Zealand.

Appendix 1: Population / Household / Dwelling Tables

The year number is the total population / household / dwelling at the 30th of June in that year.

Population by Township

Township	LTP 2021 – 2031 (Constrained)											Infrastructure Strategy 2031 – 2051 (Unconstrained)																				
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Rolleston	19,720	20,618	21,516	22,189	22,862	23,534	24,207	24,879	25,820	26,760	27,707	28,650	29,591	30,511	31,430	32,346	33,260	34,172	35,070	35,966	36,861	37,754	38,646	39,492	40,338	41,182	42,026	42,869	43,655	44,441	45,227
Lincoln	7,783	8,153	8,524	8,865	9,206	9,547	9,887	10,228	10,283	10,337	10,553	10,769	10,985	11,196	11,407	11,618	11,829	12,039	12,247	12,454	12,661	12,868	13,075	13,274	13,473	13,672	13,870	14,069	14,255	14,441	14,626
Prebbleton	4,977	5,228	5,478	5,697	5,916	6,136	6,355	6,574	6,674	6,773	6,918	7,063	7,207	7,349	7,490	7,631	7,773	7,914	8,053	8,191	8,330	8,469	8,607	8,740	8,873	9,006	9,139	9,271	9,395	9,520	9,644
West Melton	2,420	2,581	2,743	2,733	2,722	2,712	2,702	2,692	2,680	2,668	2,762	2,855	2,948	3,039	3,130	3,220	3,311	3,401	3,490	3,579	3,667	3,756	3,844	3,928	4,012	4,096	4,180	4,264	4,343	4,421	4,499
Leeston	2,592	2,647	2,703	2,739	2,775	2,812	2,848	2,884	2,873	2,861	2,953	3,044	3,136	3,225	3,315	3,404	3,493	3,583	3,670	3,758	3,846	3,933	4,021	4,104	4,188	4,271	4,354	4,438	4,516	4,594	4,672
Darfield	3,374	3,461	3,549	3,619	3,689	3,760	3,830	3,900	3,967	4,033	4,122	4,211	4,300	4,387	4,474	4,561	4,648	4,735	4,821	4,906	4,992	5,077	5,163	5,245	5,328	5,410	5,493	5,575	5,652	5,729	5,807
Burnham	867	867	866	862	859	855	851	848	844	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840
Tai Tapu	531	546	562	567	573	579	584	590	588	586	596	607	617	627	637	647	657	668	678	688	698	708	718	727	737	747	757	767	776	785	794
Springston	506	509	512	511	510	509	508	507	506	504	507	510	513	516	519	522	525	528	531	535	538	541	544	548	551	555	558	562	565	569	572
Castle Hill	371	393	415	434	453	471	490	509	540	571	573	575	576	578	580	582	584	586	588	590	592	594	596	598	600	602	605	607	609	611	613
Coalgate / Glentunnel / Whitecliffs	1,194	1,232	1,271	1,291	1,311	1,330	1,350	1,370	1,403	1,436	1,443	1,451	1,459	1,467	1,475	1,483	1,491	1,499	1,507	1,515	1,524	1,532	1,540	1,549	1,558	1,567	1,575	1,584	1,593	1,601	1,610
Doyleston	310	315	320	322	324	326	329	331	335	339	339	338	338	338	338	338	338	338	338	338	339	339	339	339	340	340	341	341	342	342	343
Dunsandel	477	481	485	487	489	491	493	495	497	499	501	504	507	509	512	515	518	521	523	526	529	532	535	538	541	545	548	551	554	557	560
Hororata	574	589	605	610	615	620	625	630	638	646	649	652	655	658	661	665	668	671	675	678	681	685	688	692	696	699	703	707	710	714	718
Kirwee	999	1,020	1,042	1,043	1,045	1,046	1,047	1,049	1,052	1,055	1,071	1,088	1,105	1,121	1,138	1,154	1,171	1,188	1,204	1,220	1,237	1,253	1,270	1,286	1,302	1,318	1,335	1,351	1,366	1,381	1,397
Lake Coleridge	168	172	176	179	182	185	188	190	195	200	201	202	203	204	205	205	206	207	208	209	210	211	212	213	214	215	217	218	219	220	221
Rakaia Huts	308	308	308	306	305	304	303	302	300	299	300	300	300	301	301	302	302	303	304	304	305	305	306	307	308	309	310	311	312	313	314
Sheffield / Waddington	471	490	510	520	529	539	549	559	574	590	593	596	600	603	606	609	612	616	619	622	626	629	632	636	639	643	646	650	653	657	660
Southbridge	983	1,006	1,029	1,040	1,052	1,063	1,075	1,086	1,098	1,109	1,110	1,111	1,113	1,114	1,116	1,117	1,119	1,121	1,122	1,124	1,126	1,128	1,130	1,133	1,136	1,139	1,142	1,144	1,147	1,150	1,153
Springfield	475	479	483	486	489	492	494	497	502	508	511	514	518	521	525	528	532	535	539	542	546	549	553	557	561	564	568	572	576	579	583
Rural	22,372	22,745	23,119	23,402	23,686	23,969	24,252	24,536	24,876	25,215	25,348	25,483	25,621	25,756	25,894	26,034	26,176	26,320	26,462	26,606	26,751	26,898	27,046	27,203	27,360	27,518	27,677	27,837	27,990	28,145	28,299
Total	71,471	73,843	76,215	77,904	79,592	81,280	82,968	84,656	86,243	87,829	89,596	91,363	93,130	94,861	96,592	98,322	100,053	101,784	103,488	105,193	106,898	108,602	110,307	111,951	113,595	115,239	116,883	118,527	120,069	121,610	123,151
Annual Change		2,372	2,372	1,688	1,688	1,688	1,688	1,688	1,587	1,587	1,767	1,767	1,767	1,731	1,731	1,731	1,731	1,731	1,705	1,705	1,705	1,705	1,705	1,644	1,644	1,644	1,644	1,644	1,541	1,541	1,541

Households by Township

Township	LTP 2021 – 2031 (Constrained)											Infrastructure Strategy 2031 – 2051 (Unconstrained)																				
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Rolleston	6,755	7,067	7,380	7,647	7,914	8,181	8,448	8,715	9,095	9,475	9,859	10,242	10,626	11,004	11,382	11,759	12,137	12,515	12,889	13,264	13,638	14,012	14,386	14,728	15,069	15,411	15,753	16,094	16,408	16,721	17,035
Lincoln	2,666	2,795	2,924	3,056	3,188	3,319	3,451	3,583	3,620	3,657	3,749	3,841	3,933	4,024	4,115	4,205	4,296	4,387	4,476	4,566	4,656	4,746	4,836	4,918	5,000	5,082	5,164	5,246	5,321	5,396	5,471
Prebbleton	1,705	1,792	1,879	1,964	2,049	2,133	2,218	2,303	2,350	2,397	2,458	2,520	2,581	2,641	2,702	2,762	2,823	2,883	2,943	3,003	3,063	3,123	3,183	3,237	3,292	3,346	3,401	3,456	3,506	3,556	3,606
West Melton	829	885	941	941	942	942	942	943	943	944	982	1,020	1,059	1,097	1,134	1,172	1,210	1,248	1,285	1,323	1,360	1,397	1,435	1,469	1,503	1,537	1,571	1,606	1,637	1,668	1,700
Leeston	888	907	927	944	960	977	994	1,010	1,011	1,012	1,050	1,089	1,127	1,165	1,202	1,240	1,278	1,316	1,353	1,391	1,428	1,465	1,503	1,537	1,571	1,605	1,640	1,674	1,705	1,736	1,768
Darfield	1,156	1,186	1,217	1,247	1,277	1,307	1,336	1,366	1,397	1,427	1,466	1,504	1,542	1,580	1,618	1,656	1,694	1,731	1,769	1,806	1,844	1,881	1,918	1,953	1,987	2,021	2,055	2,089	2,121	2,152	2,183
Burnham	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297
Tai Tapu	182	187	193	195	198	201	204	207	207	207	212	217	221	226	230	235	240	244	249	253	258	262	267	271	275	279	283	287	291	295	299
Springston	173	175	176	176	177	177	177	178	178	178	180	182	184	186	188	189	191	193	195	197	199	200	202	204	206	207	209	211	212	214	215
Castle Hill	127	135	142	150	157	164	171	178	190	202	203	205	206	207	208	209	210	212	213	214	215	216	217	218	219	221	222	223	224	225	226
Coalgate / Glentunnel / Whitecliffs	409	422	436	445	454	462	471	480	494	508	513	517	522	527	531	536	540	545	549	554	558	563	567	571	576	580	584	588	592	595	599
Doyleston	106	108	110	111	112	113	115	116	118	120	120	121	121	121	122	122	123	123	123	124	124	125	125	125	126	126	126	127	127	127	128
Dunsandel	163	165	166	168	169	171	172	173	175	176	178	180	182	183	185	187	188	190	192	193	195	197	198	200	201	203	204	206	207	209	210
Hororata	196	202	207	210	213	215	218	221	225	228	230	232	234	236	238	240	242	244	246	248	250	252	254	256	258	259	261	263	265	266	268
Kirwee	342	350	357	359	361	363	365	367	370	373	381	389	396	404	412	419	427	435	442	450	457	465	473	479	486	493	500	507	513	520	526
Lake Coleridge	58	59	60	62	63	64	65	67	69	71	71	72	73	73	74	74	75	75	76	77	77	78	78	79	79	80	80	81	81	82	82
Rakaia Huts	105	105	105	106	106	106	106	106	106	106	106	107	108	108	109	109	110	111	111	112	112	113	114	114	115	115	116	116	117	117	118
Sheffield / Waddington	161	168	175	179	183	187	192	196	202	209	211	213	214	216	218	220	222	223	225	227	229	231	232	234	236	237	239	241	242	244	245
Southbridge	337	345	353	358	364	369	375	381	386	392	394	396	398	400	402	403	405	407	409	411	413	414	416	418	420	421	423	424	426	428	429
Springfield	163	164	166	167	169	171	172	174	177	180	182	184	186	187	189	191	193	195	197	199	201	203	205	207	209	210	212	214	215	217	219

Rural	7,662	7,796	7,930	8,063	8,196	8,329	8,462	8,595	8,759	8,922	9,006	9,091	9,175	9,257	9,340	9,423	9,506	9,588	9,670	9,752	9,834	9,916	9,998	10,073	10,148	10,223	10,298	10,372	10,441	10,510	10,578
Total	24,479	25,311	26,142	26,845	27,548	28,250	28,953	29,656	30,369	31,083	31,850	32,617	33,385	34,140	34,896	35,651	36,407	37,162	37,911	38,659	39,408	40,156	40,905	41,588	42,271	42,954	43,637	44,320	44,948	45,575	46,202
Annual Change		832	832	703	703	703	703	703	713	713	767	767	767	756	756	756	756	756	749	749	749	749	749	683	683	683	683	683	627	627	627

Dwellings by Township

Township	**LTP 2021 – 2031 (Constrained)**											**Infrastructure Strategy 2031 – 2051 (Unconstrained)**																			
	2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
Rolleston	7,501	7,849	8,196	8,493	8,789	9,086	9,383	9,679	10,101	10,523	10,949	11,375	11,801	12,221	12,640	13,060	13,479	13,899	14,315	14,730	15,146	15,561	15,977	16,356	16,736	17,115	17,494	17,874	18,222	18,570	18,919
Lincoln	2,960	3,104	3,247	3,394	3,540	3,686	3,833	3,979	4,020	4,061	4,164	4,266	4,368	4,469	4,570	4,670	4,771	4,872	4,971	5,071	5,171	5,271	5,370	5,461	5,553	5,644	5,735	5,826	5,909	5,993	6,076
Prebbleton	1,893	1,990	2,087	2,181	2,275	2,369	2,463	2,558	2,610	2,662	2,730	2,798	2,866	2,933	3,001	3,068	3,135	3,202	3,268	3,335	3,401	3,468	3,534	3,595	3,656	3,717	3,777	3,838	3,894	3,949	4,005
West Melton	920	983	1,045	1,045	1,046	1,046	1,047	1,047	1,048	1,048	1,091	1,133	1,176	1,218	1,260	1,302	1,344	1,386	1,427	1,469	1,510	1,552	1,593	1,631	1,669	1,707	1,745	1,783	1,818	1,853	1,888
Leeston	986	1,008	1,030	1,048	1,067	1,085	1,104	1,122	1,123	1,124	1,166	1,209	1,251	1,293	1,335	1,377	1,419	1,461	1,503	1,544	1,586	1,628	1,669	1,707	1,745	1,783	1,821	1,859	1,894	1,928	1,963
Darfield	1,283	1,318	1,352	1,385	1,418	1,451	1,484	1,517	1,551	1,585	1,628	1,670	1,713	1,755	1,797	1,839	1,881	1,923	1,964	2,006	2,047	2,089	2,131	2,168	2,206	2,244	2,282	2,320	2,355	2,390	2,425
Burnham	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330
Tai Tapu	202	208	214	217	220	223	226	230	230	230	235	241	246	251	256	261	266	271	276	281	286	291	296	301	305	310	315	319	323	328	332
Springston	193	194	195	196	196	196	197	197	198	198	200	202	204	206	208	210	212	214	216	219	221	223	225	226	228	230	232	234	236	237	239
Castle Hill	141	150	158	166	174	182	190	198	211	225	226	227	229	230	231	232	234	235	236	238	239	240	241	243	244	245	246	247	248	249	250
Coalgate / Glentunnel / Whitecliffs	454	469	484	494	504	513	523	533	549	564	569	575	580	585	590	595	600	605	610	615	620	625	630	635	639	644	648	653	657	661	665
Doyleston	118	120	122	123	125	126	127	129	131	133	134	134	134	135	135	136	136	137	137	137	138	138	139	139	140	140	140	141	141	141	142
Dunsandel	181	183	185	186	188	190	191	193	194	196	198	200	202	204	205	207	209	211	213	215	217	218	220	222	224	225	227	229	230	232	233
Hororata	218	224	230	233	236	239	242	245	249	254	256	258	260	263	265	267	269	271	273	276	278	280	282	284	286	288	290	292	294	296	297
Kirwee	380	388	397	399	401	404	406	408	411	414	423	432	440	449	457	466	474	483	491	500	508	516	525	532	540	548	556	563	570	577	584
Lake Coleridge	64	66	67	69	70	71	73	74	76	79	79	80	81	81	82	82	83	84	84	85	86	86	87	87	88	89	89	90	90	91	91
Rakaia Huts	117	117	117	117	117	117	117	117	117	118	118	119	120	120	121	122	122	123	124	124	125	126	126	127	127	128	129	129	130	130	131
Sheffield / Waddington	179	187	194	199	203	208	213	217	225	232	234	236	238	240	242	244	246	248	250	252	254	256	258	260	262	264	265	267	269	271	272
Southbridge	374	383	392	398	404	410	416	423	429	436	438	440	442	444	446	448	450	452	454	456	458	460	462	464	466	468	470	471	473	475	476
Springfield	181	182	184	186	188	190	192	193	196	199	202	204	206	208	210	213	215	217	219	221	223	226	228	230	232	234	236	237	239	241	243
Rural	8,509	8,658	8,807	8,954	9,102	9,250	9,398	9,546	9,727	9,909	10,002	10,096	10,189	10,281	10,373	10,465	10,557	10,649	10,740	10,831	10,922	11,013	11,104	11,187	11,270	11,353	11,436	11,519	11,596	11,672	11,748
Total	27,186	28,109	29,033	29,813	30,594	31,374	32,155	32,935	33,727	34,520	35,372	36,224	37,076	37,915	38,754	39,594	40,433	41,272	42,103	42,934	43,766	44,597	45,428	46,187	46,945	47,704	48,463	49,221	49,918	50,615	51,311
Annual Change		924	924	780	780	780	780	780	792	792	852	852	852	839	839	839	839	839	831	831	831	831	831	759	759	759	759	759	697	697	697

Appendix 2: Growth Model Memo

Introduction

The purpose of this memo is to briefly outline the inputs and assumptions that have been adopted within the first two modules that have been updated for the Selwyn Capacity for Growth Model (SCGM). The methods adopted within the modules are the same as the 2017 versions, just with new data to record the growth between 2016 to 2019. This memo focuses on the demand modules:

1. Module 1 - Selwyn Population Cohort Model (& Dwl Demand) 2019.xlsx
2. Module 2 - Selwyn Economic Forecast (Floorspace and Land) 2019.xlsx

Module 1 - Selwyn Population Cohort Model (& Dwl Demand)

The first module (Module 1) in the growth modelling establishes a set of projections of the number of people that are expected to live within the district over the coming decades and the associated demand for dwellings and residential land. The population projections are important because the community generates demand, most importantly for dwellings and business activity.

In summary, the first step in the Module is a cohort-component population model which projects future population based on existing population structure combined with fertility, mortality and net migration. This modelling method is the same as the method applied by SNZ to develop the official projections.

The age-cohort groups used in the cohort-component population model are the same as SNZ five year groupings, i.e. 0-4, 5-9, 10-14, 15-19,……., 80-84, 85+. In summary, a cohort-component population model uses the following equation to project population in each cohort group through time,

$$P_{t+n} = P_t + B_t - D_t - I_t + E_t$$

where P_t is the population at time t, B_t and D_t are a few births and deaths occurring between t and t+n (combined gives the natural growth). The net migration is established by combing, I_t the number of immigrants and E_t of emigrants from the district during the period t to t+n.

The cohort-component population projection uses the fact that every year of time that passes, every member of a population becomes a year older. Thus, after 5 years the survivors of the cohort aged 0-4 years at some baseline date will be aged 5-9 years, 5 years after that they will be aged 10-14 years, and so on.

The cohort model in the SCGM is constructed with a combination of SNZ base assumptions and results from Jackson (2020) study of net migration to Selwyn District.

The following input data is used in the population cohort model,

1. **Base Population**: 2019 population is sourced from Statistics New Zealand[11], which is extracted by sex and 5 yearly age groups. The data shows a total resident population of 65,560. We note that Stats NZ also provides total population in the same table, which is rounded to the nearest hundred (i.e. 65,600). The difference in rounding is considered to be immaterial to the modelling.

[11] Statistics New Zealand (2020) Subnational population estimates (TA, SA2), by age and sex, at 30 June 1996, 2001, 2006-2013, 2018-2019 (2019 boundaries).

2. **Fertility**: the rates of births by mothers age is sourced from Statistics New Zealand[12]. This data is the official rates used in the Statistics New Zealand 2013-based projections.
3. **Mortality**: the survivorship rates by age and sex is sourced from Statistics New Zealand[13]. This data is the official rates used in the Statistics New Zealand 2013-based projections.
4. **Net Migration**: the migration by age and sex is sourced from Statistics New Zealand[14] or the research conducted by demographer Jackson 2019.

The second step in the module is to establish an estimate of the number of households and dwellings that the future population will require. The estimate of the expected number of households in the District is important as there is close to a one-to-one relationship to dwelling demand.[15] Therefore, the estimation of households is an important step in the estimate of demand for residential land in Selwyn District.

The module allocates the population into households based on standard groupings, Living Arrangement Types and then further into household/family units. The household projections are calculated using two sets of assumptions,

1. **Living Arrangement Type Rates**: the living arrangement of the population is sourced from Statistics New Zealand.[16] The LATR takes population by sex, cohort and year then allocates to eleven groupings.
2. **Household formation rates**: the rates at which LATR groupings form households is sourced from Statistics New Zealand.[17]

Finally, relationship between households and dwellings is never one-to-one, as there will be several dwellings that are unoccupied (on the market for sale or rent, under renovation) or only occupied for short periods (private holiday homes, short term rentals).

In the module allows the user to select three dwelling to household ratios which are based on data from the last three Census (excluding 2018 which is still not entirely released by SNZ),

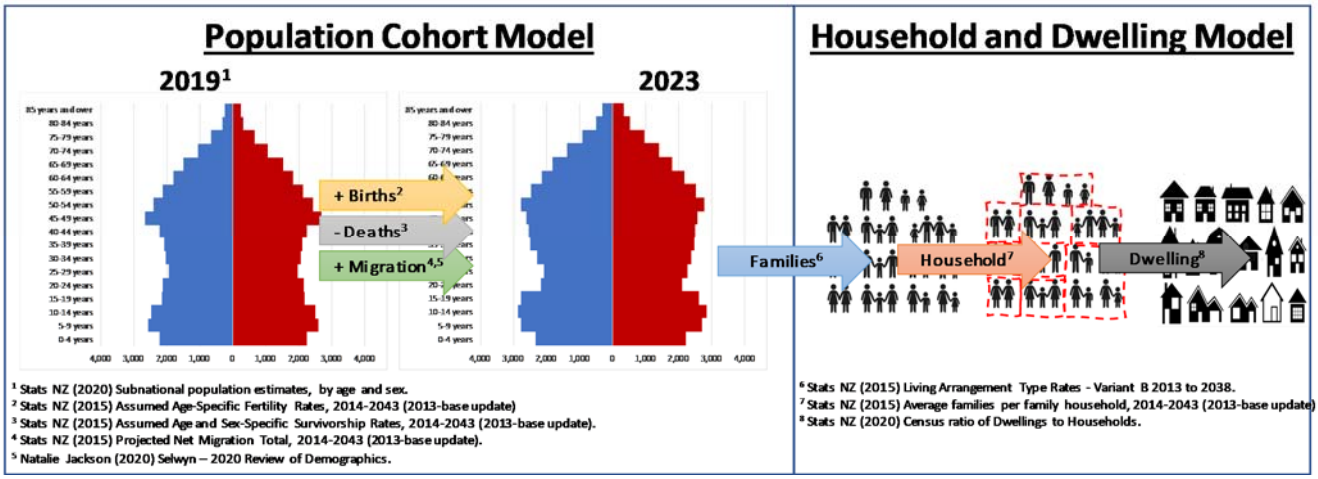
- Medium: 1.11 dwelling to 1 household.
- Medium-High: 1.12 dwelling to 1 household.
- High: 1.13 dwelling to 1 household.

The census data shows that the number of dwellings that are unoccupied in Selwyn District increased from 1,060 in 2001 (10% of the dwelling stock) to 1,520 in 2013 (9% of the dwelling stock). This means that the ratio of dwellings to households has decreased marginally over the last 12 years, from 1.13 dwellings for every household in 2001 down to 1.11 dwellings for every household in 2013.

The Module has two core projection scenarios, medium and high growth which are comparable to the SNZ official projections and a third medium-high which is a mid-point between the two official projections i.e. Medium-high. The Medium-High scenario was developed using cohort-component population model and the fertility, mortality (survivorship rate) and net migration assumptions from

[12] Statistics New Zealand (2015) Assumed Age-Specific Fertility Rates, 2014-2043 (2013-base update).
[13] Statistics New Zealand (2015) Assumed Age and Sex-Specific Survivorship Rates, 2014-2043 (2013-base update).
[14] Statistics New Zealand (2015) Projected Net Migration by Age and Sex, 2014-2043 (2013-base update).
[15] Note for most districts the relationship is normally around 1.05 to 1.1 dwellings for every household.
[16] Statistics New Zealand (2015) Living Arrangement Type Rates - Variant B 2013 to 2038.
[17] Statistics New Zealand (2015) Average number of families per family household and people per other multi-person household from Subnational Family and Household Projections, 2013(base)-2038.

both the Medium and High scenarios. Specifically, the fertility, mortality (survivorship rate) and net migration assumptions used to develop the Medium-High scenario are the midpoint or average of the assumptions from the Medium and High scenarios.



In terms of structure the module is in xlsx and has three tabs,

1. **Comparison**: which simply shows the new projections compared to the old projections.
2. **Population Module**: which allows the user to select which fertility, mortality and migrations rates are applied within the module, along with the population by year, sex and age cohort.
3. **Dwelling Module**: which allows the user to select which dwelling per household formation rates are applied within the module, along with the Household type and dwelling demand.

Module 2 - Selwyn Economic Forecast (Floorspace and Land)

The second module (Module 2) in the growth modelling was developed to establish a set of economic forecasts of the demand for floorspace and business land.

The employment forecasts are important input into Module 2, because they indicate the nature of business activity which drives the types of space that is likely to be demanded in the future. The employment forecasts used in Module 2 are drawn from Market Economics Economic Forecast model[18] that was developed specifically for this report. This Economic Forecasts provide forecasts of employment (MEC) for 106 sectors, 2019-2053.

The Module assesses the intensity of land use in the business zones, both in terms of building footprint and floorspace. In this assessment, we estimate Floor Area Ratio (FAR) and Workspace Ratio (WSR), which are commonly applied metric which measures the intensity of land use. This estimation provides an understanding of the location and intensity of the land use in the business zones across the District.

The assessment estimates WSR using the following method:

1. **Floorspace by zone**: was estimated using Rateable Property data[19], LINZ building Footprint[20], M.E Built-Form assessment[21] and parcels in each zone. In summary, the

[18] Market Economics (2020) Selwyn District Economic Forecasts 2019.
[19] Selwyn District Council (2020) Rateable Property data.
[20] LINZ (2019) Building Outlines.
[21] Market Economics (2020) Desktop Survey using Streetview.

Module uses the building footprint (LINZ) and several floors (M.E Built-Form) to backfill the floorspace data in the Rateable Property database.

2. **Employment by zone**: was estimated using 2019 employment by SA1[22] and parcels in each zone. In New Zealand, there is no data that records either employment or business activity at the property level. Given this data limitation, the Module undertakes an assessment that compares the employment by SA1 to the zones in the District. The method is outlined in detail in the 2017 Technical report.

For each Business Zone the floorspace is then divided by the employment, which provides a Workspace ratio. The Module also allows the user to select a range of WSR and it is assumed that WSR remains constant in all time periods.

The assessment estimates FAR using the following method:

1. **Parcel Land**: was estimated using LINZ parcels[23] and each zone. In summary, the Module uses the LINZ parcels (with non-developable areas removed) to estimate the total land that could be developed in each zone.
2. **Building footprint**: was estimated using LINZ building footprint[24] .

For each Business Zone the building footprint is then divided by the parcel land area, which provides a Floor Area Ratio. The Module also allows the user to select a range of FAR and it is assumed that FAR remains constant in all time periods.

The module then converts the employment forecasts from 106 sectors into each zone based on the current preferences of each sector for business zoned land and floorspace. For example, retail sectors mostly locate within commercial zones (Business 1), with limited activity in other zones. Another example is manufacturing sectors that mostly locates within industrial zones (Business 2), with limited activity in other zones. While other sectors (e.g. Primary, Health, Education) are mostly located in non-business zones. The module applies the existing preferences to allocate employment into each business zone. The resulting employment in each zone is converted to floorspace demand using the WSR, which is then converted to land demand using FAR.

In terms of structure the module is in xlsx and has three tabs,

1. **Comparison**: which simply shows the new forecasts compared to the old projections.
2. **Emp, Floorspace and Land Module**: which allows the user to select which economic forecast, WSR and FAR that are applied within the module, along with the employment, floorspace and land for each year.
3. **Forecast Settings**: which provides the detail of the FAR and WSR that are applied within the module.

Note:

The reader should refer to the 2017 Technical report if they need more detail on the method.[25]

[22] Market Economics (2020) Modified Employment Count – SA1 and 6D ANZSIC.
[23] LINZ (2019) Land Parcels.
[24] LINZ (2019) Building Outlines.
[25] Market Economics (2017) Selwyn District Growth Model 2017 – Technical Report.

Appendix 3: Employment Codes

Category	Related ANZIC 1 Codes
Retail	G – Retail Trade.
Services	H – Accommodation and Food Services; K – Financial and Insurance Services; L – Rental, Hiring and Real Estate Services; M – Professional, Scientific and Technical Services; N – Administrative and Support Services; R – Arts and Recreation Services; and S – Other Services.
Community	O – Public Administration and Safety; P – Education and Training; and Q – Health Care and Social Assistance.
Other	C – Manufacturing; D – Electricity, Gas, Water and Waste Services; E – Construction; F – Wholesale Trade; I – Transport, Postal and Warehousing; and J – Information Media and Telecommunications.
Agriculture	A – Agriculture, Forestry and Fishing; and B – Mining.

Floor Space Ratios

This is based on the NPS-UDC guidelines[26] (Pg64) that broadly outlines ratios. This is also supported by ME and the averages within business zoned land within Selwyn.

Category	Average Floor Space Ratio
Retail	40m^2
Services / Office	20m^2
Community	50m^2
Other / Industrial	170m^2
Agriculture	n/a

[26] NPSUDC guide lines

Table of Employment by Township

Total Employment	2021						2031						2051					
	Retail	Services	Community	Other	Agriculture	Total	Retail	Services	Community	Other	Agriculture	Total	Retail	Services	Community	Other	Agriculture	Total
Arthurs Pass		43	1			**44**		56	1			**57**		74	4			**78**
Castle Hill	1	3		3		**7**	1	4		4		**9**	2	6		5		**13**
Darfield	110	303	340	363	103	**1219**	152	395	447	432	114	**1540**	210	522	603	525	120	**1980**
Doyleston	7	21		1	5	**34**	10	28		1	6	**45**	14	36		2	7	**59**
Dunsandel	2	55	28	117	7	**209**	3	72	37	139	8	**259**	3	94	50	169	7	**323**
Glentunnel	8	34	1	40	3	**86**	11	44	1	48	3	**107**	15	55	3	57	3	**133**
Hororata	4	18	19	2		**43**	6	24	25	2		**57**	8	29	34	4		**75**
Kirwee	24	38	30	78	12	**182**	33	50	39	93	13	**228**	45	64	53	113	14	**289**
Lake Coleridge																		**0**
Leeston	95	246	275	240	68	**924**	131	321	362	286	75	**1175**	181	423	493	349	79	**1525**
Rakaia Huts		1		5		**6**		1		6		**7**		2		7		**9**
Rural	35	486	106	1,542	2,663	**4832**	48	632	139	1834	2948	**5601**	69	837	242	2,233	3,114	**6495**
Selwyn Huts				2		**2**				2		**2**				2	1	**3**
Sheffield	1	15	10	105	29	**160**	1	20	13	125	32	**191**	3	26	20	152	34	**235**
Southbridge	12	39	28	163	31	**273**	17	50	37	194	34	**332**	23	67	49	236	36	**411**
Springfield	5	46	12	37	2	**102**	7	60	16	44	2	**129**	9	74	21	52	2	**158**
Non-UDS	**304**	**1348**	**850**	**2698**	**2923**	**8123**	**420**	**1757**	**1117**	**3210**	**3235**	**9739**	**582**	**2309**	**1572**	**3906**	**3417**	**11786**
Burnham	5	3	1,336	29		**1,373**	7	4	1756	35		**1,802**	4	3	1,156	27		**1190**
Lincoln	330	1,408	1,230	327	94	**3,389**	456	1835	1617	389	104	**4,401**	632	2,412	2,169	474	109	**5796**
Prebbleton	21	312	135	256	24	**748**	29	407	178	304	27	**945**	40	540	241	371	28	**1220**
Rolleston	825	1,489	909	2,614	160	**5,997**	1141	1941	1195	3110	177	**7,564**	1,579	2,552	2,322	3,801	187	**10441**
Rural	99	1,004	631	1,552	1,590	**4,876**	137	1308	830	1846	1761	**5,882**	189	1,720	1,443	2,250	1,858	**7460**
Springston	9	12	30	27	1	**79**	13	16	39	32	1	**101**	18	20	55	40	2	**135**
Tai Tapu	19	51	33	36	5	**144**	26	66	43	43	6	**184**	36	91	68	52	7	**254**
West Melton	82	95	98	124	17	**416**	113	124	129	147	19	**532**	157	164	171	179	20	**691**
UDS	**1,390**	**4,374**	**4,402**	**4,965**	**1,891**	**17,022**	**1,922**	**5,701**	**5,787**	**5,906**	**2,095**	**21,411**	**2,655**	**7,502**	**7,625**	**7,194**	**2,211**	**27,187**
Grand Total	**1,694**	**5,722**	**5,252**	**7,663**	**4,814**	**25,145**	**2,342**	**7,458**	**6,904**	**9,116**	**5,330**	**31,150**	**3,237**	**9,811**	**9,197**	**11,100**	**5,628**	**38,973**

Growth in Employment	2031						2051					
	Retail	Services	Community	Other	Agriculture	Total	Retail	Services	Community	Other	Agriculture	Total
Arthurs Pass	0	13	0	0	0	**13**	0	31	3	0	0	**34**
Castle Hill	0	1	0	1	0	**2**	1	3	0	2	0	**6**
Darfield	42	92	107	69	11	**321**	100	219	263	162	17	**761**
Doyleston	3	7	0	0	1	**11**	7	15	0	1	2	**25**
Dunsandel	1	17	9	22	1	**50**	1	39	22	52	0	**114**
Glentunnel	3	10	0	8	0	**21**	7	21	2	17	0	**47**
Hororata	2	6	6	0	0	**14**	4	11	15	2	0	**32**
Kirwee	9	12	9	15	1	**46**	21	26	23	35	2	**107**
Lake Coleridge	0	0	0	0	0	**0**	0	0	0	0	0	**0**
Leeston	36	75	87	46	7	**251**	86	177	218	109	11	**601**
Rakaia Huts	0	0	0	1	0	**1**	0	1	0	2	0	**3**
Rural	13	146	33	292	285	**769**	34	351	136	691	451	**1663**
Selwyn Huts	0	0	0	0	0	**0**	0	0	0	0	1	**1**
Sheffield	0	5	3	20	3	**31**	2	11	10	47	5	**75**
Southbridge	5	11	9	31	3	**59**	11	28	21	73	5	**138**
Springfield	2	14	4	7	0	**27**	4	28	9	15	0	**56**
Non-UDS	**116**	**409**	**267**	**512**	**312**	**1616**	**278**	**961**	**722**	**1208**	**494**	**3663**
Burnham	2	1	420	6	0	**429**	-1	0	-180	-2	0	**-183**
Lincoln	126	427	387	62	10	**1,012**	302	1004	939	147	15	**2407**
Prebbleton	8	95	43	48	3	**197**	19	228	106	115	4	**472**
Rolleston	316	452	286	496	17	**1,567**	754	1063	1413	1187	27	**4444**
Rural	38	304	199	294	171	**1,006**	90	716	812	698	268	**2584**
Springston	4	4	9	5	0	**22**	9	8	25	13	1	**56**
Tai Tapu	7	15	10	7	1	**40**	17	40	35	16	2	**110**
West Melton	31	29	31	23	2	**116**	75	69	73	55	3	**275**
UDS	**532**	**1,327**	**1,385**	**941**	**204**	**4,389**	**1,265**	**3,128**	**3,223**	**2,229**	**320**	**10,165**
Grand Total	**648**	**1,736**	**1,652**	**1,453**	**516**	**6,005**	**1,543**	**4,089**	**3,945**	**3,437**	**814**	**13,828**

Appendix 4: Township Take-up

The take-up rate for each township is as follows:

Township	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Castle Hill	7	8	5	3	1	6	5	10	6	11	**6.2**
Coalgate	4	1	3	5	4	7	3	2		2	**3.4**
Darfield	23	15	26	24	23	39	24	39	26	9	**24.8**
Doyleston	4	9	6		1	1	4	1	1		**3.4**
Dunsandel		2	1		1	1					**1.3**
Glentunnel	2	1	1			1	2	1	1		**1.3**
Hororata			3	4			3	2	4	2	**3**
Kirwee	12	8	12	22	9	6	14	14	9	16	**12.2**
Lake Coleridge	1			1			1		2		**1.3**
Leeston	11	19	51	61	47	48	40	23	9	3	**31.2**
Lincoln	19	48	108	144	181	233	217	292	253	216	**171.1**
Prebbleton	32	14	61	160	91	110	160	100	35	51	**81.4**
Rakaia Huts	2	1		2			1				**1.5**
Rolleston	138	144	137	481	627	588	639	352	325	507	**393.8**
Rural	96	112	128	144	100	129	118	307	261	214	**160.9**
Sheffield	1					2	1	2		1	**1.4**
Southbridge	3	2	1		2	3	3	2	1	7	**2.7**
Springfield	2	2	1	7		1	4	5	5	2	**3.2**
Springston	2	2	4	1	6	1				1	**2.4**
Tai Tapu	11	2	4	3	3		6	16	14	8	**7.4**
Waddington			1	1	1		1				**1**
West Melton	14	31	189	184	69	24	33	49	52	40	**68.5**
Whitecliffs	2	1	4	2		3		2	1	2	**2.1**

This is sourced from SDC internal monitoring