Greater Christchurch Partnership

Te Tira Tū Tahi

One Group, Standing Together

Business Development Capacity Assessment

October 2018

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Glossary

The following table defines commonly used acronyms and abbreviations in this document.

Term	Definition
BDCA	Business Development Capacity Assessment
CCC	Christchurch City Council
ECAN	Environment Canterbury / Canterbury Regional Council
EFM	Economic Futures Model
FDS	Future Development Strategy
GC	Greater Christchurch
GCP	Greater Christchurch Partnership[1]
HBDCA	Housing and Business Development Capacity Assessment
LA	Local Authority (city, district and regional councils)
LTP	Long Term Plan
ME	Market Economics
NPS	National Policy Statement
NPS-UDC	National Policy Statement on Urban Development Capacity
ODP	Outline Development Plan (in Christchurch District Plan)
PEL	Property Economics Limited
RMA	Resource Management Act
RPS	(Canterbury) Regional Policy Statement
SDC	Selwyn District Council
TA	Territorial Authority (city and district councils)
UDS	Urban Development Strategy
WDC	Waimakariri District Council

[1] Environment Canterbury, Christchurch City Council, Selwyn District Council, Waimakariri District Council, Te Rūnanga o Ngāi Tahu, New Zealand Transport Agency, Canterbury District Health Board, Greater Christchurch Group – the Department of Prime Minister and Cabinet, Regenerate Christchurch.

1. Executive Summary

This Business Development Capacity Assessment ('Capacity Assessment') has been prepared by the Greater Christchurch Partnership as part of a Settlement Pattern Review of the Greater Christchurch Urban Development Strategy (the 'UDS').

It has been compiled collaboratively by the organisations that comprise the Partnership and fulfils the requirements of the National Policy Statement on Urban Development Capacity (NPS-UDC) released by Government in December 2016.

The overall objective of the capacity assessment is to provide a comprehensive and robust evidence base to inform spatial planning decisions across Greater Christchurch, including the Future Development Strategy also required by the NPS-UDC. The assessment will be updated at least every three years and integrates monitoring of urban development indicators published on a quarterly basis.

The Partnership has been working collaboratively for over a decade to foster and manage growth in the Greater Christchurch area, including as part of earthquake recovery. The impacts of the Canterbury earthquakes during 2010 and 2011 and the recovery and regeneration activity that has followed, presents unique circumstances for the Greater Christchurch area that need to be considered as part of this capacity assessment. An overriding issue for Christchurch City in particular, relates to the relative priority of planning for, and funding of, infrastructure to support long term urban growth, versus the more immediate needs of earthquake recovery. This assessment commenced on the understanding that it was likely that CCC's challenging financial position would mean that it may not be possible, efficient or financially prudent to provide now, for all development infrastructure to meet the City's longer term business growth needs, let alone with the additional 15% / 20% buffer now required by the NPS-UDC.

That said, this first capacity assessment concludes that the Partner Councils and other infrastructure providers are well placed in terms of planning for urban growth and providing sufficient business development capacity to meet projected needs in Greater Christchurch, at least over the medium term (10 years) and to a large extent over the longer term (to 30 years). This is particularly the case in terms of industrial land supply which the Government's NPS-UDC guidance indicates should be prioritised, given the lack of locational flexibility and potential effects associated with this business sector[2].

The Partnership has worked to complete this first business development capacity assessment (BDCA) within the prescribed timescales and with the resources available to them. This has by necessity meant utilising existing information and consultant input wherever possible. For Selwyn and Waimakariri District Councils, this meant adapting growth models previously prepared or under preparation for their respective district plan reviews; whilst Christchurch City has recently completed its District Plan Review and so built upon the assessment undertaken for that process. Any limitations of not adopting a single growth model for the Greater Christchurch area have sought to be overcome by working collaboratively to understand and agree each other's methodologies and in particular by using a common model for projecting future business employment demand[3]. For Christchurch City, this was complemented by the use of a Retail Expenditure Model for forecasting retail land demands and which was seen as appropriate given the relatively greater significance of retail provision in the City (quantitatively)

[2] MfE and MBIE (2017) National Policy Statement on Urban Development Capacity: Guide on Evidence and Monitoring pages 50, 65 & 72.
[3] Noting however that there are a few outstanding matters still to be agreed by Partner Councils

compared with the surrounding districts. In combination, the result is a bottom-up approach to assessing business land needs in Greater Christchurch (i.e. assessment at TA level to aggregate up to the Greater Christchurch sub-regional area).

An analysis has been undertaken of the business development capacity (supply) enabled through district plans and the Canterbury Regional Policy Statement, as well as an assessment of whether that supply is serviced or planned to be serviced by infrastructure and is commercially feasible to develop. Partner Councils agreed that it was appropriate to establish capacity based on the level of development that was *likely to be undertaken* (based on historical trends) rather than assess the *maximum theoretical development capacity* that was plan-enabled. This position was taken in recognition that (unlike the financial tool used for assessing the feasibility of plan-enabled housing capacity) the Government's recommended methodology for assessing the commercial feasibility of business land[4] was such that it was likely to over-estimate the amount of potential plan-enabled capacity that would actually be realised in the market.

For Christchurch City, Selwyn and Waimakariri Districts, the assessment identifies that there is likely to be sufficient, serviced, feasible industrial land supply for the next 30 years and beyond[5]. That does not necessarily mean that *all* plan-enabled capacity (in terms of land extent) is serviced, but that sufficient opportunities exist to meet projected needs.

Land demand and supply for commercial activities in Christchurch paints a different picture, with the assessment concluding that there is sufficient commercial land supply in the Christchurch area over the short and medium term but an estimated shortfall of 119 hectares over the longer term[6]. This shortfall falls disproportionately (77ha) in the central quadrant of the City, reflecting the shift in the City's employment composition to a projected higher proportion of employees in the service sector. The focus for the Future Development Strategy will be to determine what response (if any) may be required to address these longer term commercial space requirements and to address identified limitations with infrastructure availability. However, this assessment concludes that given the significant quantum of older industrial land in the central city, there exists plenty of opportunity for redevelopment of this land for commercial activities, as industrial activities are naturally displaced to outlying zones, particularly in the south and north of the City.

For Selwyn, the modelling indicates that there may be a shortfall of three hectares of commercial land in the medium term and 31 hectares in the long term planning horizons based on the availability of wholly vacant land supply[7], with these medium term shortfalls likely in Lincoln, West Melton and Rolleston. It is important to note that if 'Vacant Potential supply'[8] is included, this would indicate sufficient land to meet medium term demand, but relies on developers making more optimal use of the available land. These shortfalls are influenced by a number of factors that need to be evaluated on an ongoing basis, including the regular monitoring of population growth and land take up. Infrastructure

[4] i.e. Multi-criteria assessment
[5] Based on an capacity of total vacant land (whole and part sites included)
[6] Based on historical average building heights and total vacant land supply (i.e. whole and part vacant sites and vacant floorspace)
[7] Vacant supply includes the properties that have no building footprint or floorspace at 2016
[8] Properties that have low levels of floorspace and for which capacity has been identified based on their redevelopment potential

availability has not been identified as an immediate constraint to developing the identified plan-enabled commercial areas in Selwyn District.

In regards to land demand and supply for commercial activities in Waimakariri District, there is projected to be a shortfall of land of around 17ha over the long term (when considering the sufficiency of only wholly vacant commercial land). Options to consider addressing this shortfall could be to use existing under-utilised commercially zoned land (including intensification within Rangiora and Kaiapoi), providing additional greenfield land, or a combination of these options. These potential options will be a focus of consideration though the Future Development Strategy.

The assessment also flags that further business development along with the projected significant additional population growth in Greater Christchurch is likely to lead to reductions in the level of service and capacity of transport infrastructure, with increasing delays and congestion on the network, and which may have a constraining impact on economic growth if not carefully managed. This is matter of importance to broader land use patterns, including residential growth and will need careful consideration as part of the Future Development Strategy and broader Settlement Pattern Review.

2. Context

2.1 Introduction

National Policy Statements are issued by the Government to provide direction to local authorities on matters of national significance that contribute to meeting the purpose of the Resource Management Act 1991 (RMA). The National Policy Statement on Urban Development Capacity 2016 (NPS-UDC) is concerned with recognising the national significance of:

- Urban environments and the need to enable these environments to develop and change; and
- Ensuring sufficient development capacity is provided to meet the needs of people, communities and future generations within the urban environments where they work, live, recreate or socialise.

The NPS-UDC directs local authorities to provide sufficient development capacity in their resource management plans for housing and business growth to meet demand over the short (3 years), medium (3-10 years) and long terms (10-30 years). 'Development capacity'[9] refers to the amount of urban development allowed by zoning and regulations in plans that is supported by local authority controlled infrastructure. This development could be expansions to the urban form of townships through development of 'greenfield' sites and/or intensification or redevelopment of existing neighbourhoods or commercial and industrial areas.

Sufficient development capacity is necessary for urban land and development markets to function efficiently to meet anticipated population growth and community needs. The Ministry for the Environment identifies that the precursor for well-functioning markets is that the supply of land for housing and business space matches demand at efficient (affordable) prices.

Local authorities must give effect to the objectives and policies in the NPS-UDC when making decisions. These concern:

- The outcomes that urban planning decisions should support;
- The evidence underpinning those decisions;
- Responsive planning approaches; and
- Co-ordination between local authorities and providers of infrastructure.

Key deliverables of the NPS-UDS include:

- Quarterly monitoring of a range of market indicators to ensure that Councils are well informed about demand for housing and business development capacity, urban development activity and outcomes and to inform their assessment of Housing and Business Land Capacity ;

[9] See definition in NPS-UDS (page 7) and refer to methodology section for how this has been applied for this project.

- Completion of a Housing and Business Land Capacity Assessment (this project);
- Setting of minimum housing targets in Regional Policy Statements and District Plans; and
- Preparation of a Future Development Strategy (FDS) to demonstrate sufficient, feasible development capacity in the medium and long terms. The FDS will set out how the minimum housing targets are to be met and identify the broad location, timing and sequencing of future development capacity over the long term in both new Greenfield areas and through intensification opportunities.

In June 2017 the government issued guidance on the first two deliverables, quarterly indicators monitoring and the capacity assessments[10]. Further guidance was published in December 2017 on price efficiency indicators, setting of minimum housing targets and Future Development Strategies.

2.2 Greater Christchurch Context

Greater Christchurch is the largest urbanised area in the South Island. Christchurch is New Zealand's second largest City and the sub-region is home to 80% of the Canterbury region's population (40% of the South Island population). Christchurch Airport and Lyttelton Port of Christchurch are respectively the principal hubs for international visitors and freight, emphasising the sub-region's importance as a strategic regional centre and economic gateway. This has been boosted in recent years through the creation of inland ports at the I-Zone southern business hub in Rolleston.

Figure 1. Strategy Principles

The Greater Christchurch Urban Development Strategy (UDS) was adopted in 2007. The Strategy sets out a vision for 2041 and outlines a 35 year growth management and implementation plan for continued prosperity across the sub-region. Coordinated planning for this urban area, including the provision of housing, transport, social, health and recreational facilities provides long-term benefits for the people and communities living and working here. The strategy is underpinned by strategic principles and goals to support overall economic, social, cultural and environmental wellbeing.

Following the Canterbury earthquakes, the UDS has been a key source document in the development of both the Land Use Recovery Plan (LURP) and the Christchurch Central Recovery Plan. The time invested in shaping the UDS future settlement pattern enabled land use recovery to be advanced quickly, with confidence and in an integrated manner.

While greenfield development around the edge of the city and in the larger townships in Selwyn and Waimakariri has occurred faster than anticipated at the time the UDS was conceived, it is still consistent with the envisaged longer term growth and development of Greater Christchurch and has brought greater levels of self-sufficiency to those areas. A scenario of significant population flight from the sub-region due to a lack of timely relocation options has largely been averted.

[10] National Policy Statement on Urban Development Capacity: Guide on Evidence and Monitoring.

2.3 Housing and Business Capacity Assessments

The NPS-UDC requires local authorities that have part or all of a high growth urban area within their District to prepare a Housing and Business Development Capacity Assessment (HBDCA) every three years that:

a) *Estimates the demand for dwellings, including the demand for different types of dwellings, locations and price points, and the supply of development capacity to meet that demand, in the short, medium and long-terms; and*

b) *Estimates the demand for the different types and locations of business land[11] and floor area for businesses, and the supply of development capacity to meet that demand, in the short, medium and long-terms; and*

c) *Assesses interactions between housing and business activities, and their impacts on each other. (Policy PB1)*

As part of this HBDCA, high growth councils must assess the sufficiency of development capacity provided in their resource management plans and infrastructure planning documents, their district plans and the regional policy statement, and Long Term Plans and Infrastructure Strategies prepared under the Local Government Act. This assessment must consider:

(a) The cumulative effect of all zoning, objectives, policies, rules and overlays and existing designations in plans, and the effect this will have on opportunities for development being taken up;
(b) The actual or likely availability of development infrastructure and other infrastructure in the short, medium and long term;
(c) The current feasibility of development capacity;
(d) The rate of take-up of development capacity, observed over the past 10 years and estimated for the future; and
(e) The market's response to planning decisions, obtaining through monitoring.

This assessment of the sufficiency of development capacity must estimate the additional development capacity needed if any of the factors in (a)-(e) above indicate that the supply of development capacity is not likely to meet demand in the short, medium and long term.

This will then inform the setting of minimum housing targets for inclusion in regional and district plans and a Future Development Strategy, both required under the NPS-UDC by December 2018[12].

[11] Business land is defined in the NPS as land that is zoned for business uses in urban environments, including but not limited to land in the following examples of zones: industrial, commercial, retail, business and business parks, centres (to the extent that this zone allows business uses) and mixed use (to the extent that this zone allows business uses).
[12] NPS Deadline for all high growth councils.

2.4 Scope and Interpretation

Development Capacity is defined in the NPS-UDC *as:*

In relation to housing and business land, the capacity of land intended for urban development based on:

a) the zoning, objectives, policies, rules and overlays that apply to the land, in the relevant proposed and operative regional policy statements, regional plans and district plans; and

b) the provision of adequate development infrastructure to support the development of the land.

The four local authorities have agreed the framework for assessing what is included as Development Capacity for the purpose of this HBDCA. This includes the following:

- land *zoned* for housing and business activities in the urban areas of Christchurch City and townships within the boundary of the Greater Christchurch boundary;
- 'greenfield priority areas for business' as identified in the Canterbury Regional Policy Statement 2016 (CRPS) for Greater Christchurch (Chapter 6); and
- Two Special Housing Areas within Selwyn District approved under the Housing Accord and Special Housing Areas Act (2013)[13].

It has also been agreed that the assessment of development capacity should exclude:

- land within the Projected Infrastructure Boundary (as shown on Map A of the CRPS) that is not zoned or identified as a greenfield priority area for business activities; and
- land outside the Projected Infrastructure Boundary.

It should be emphasised from the outset that the three territorial authorities are at different stages in terms of reviewing their district plans. CCC has recently completed a review of their District Plan, with the plan made fully operative in December 2017. This review zoned significant areas of commercial and industrial land to accommodate the projected needs over the plan period and beyond. As part of this review, CCC zoned all land identified in the CRPS as Greenfield Priority Areas for Business, with the exception of two areas where development constraints could not be satisfactorily addressed to be zoned.

SDC and WDC are both in the initial phases of reviewing their District Plans. Notwithstanding the early stages of these reviews, SDC and WDC have zoned all of the GPAs identified for business activities, excluding the site of the future Lincoln hub (Refer to section 2.8 for an explanation) and an area in Woodend that WDC have no current plans to zone for business activities. This has enabled the capacity assessment to be based on established business zonings that are consistent with the Greater Christchurch Urban Development Strategy, Land Use Recovery Plan and related provisions in Chapter 6 of the CRPS.

[13] South Farringdon legally described Lot 1 DP327430, Lot 2 DP327430, Lot 1 DP424089, Lot 2 DP424089, Lot 1 DP75986, Lot 2 DP75986 and the Dryden Trust / Geddes block legally described as Lot 1 DP305373, and Lots 1 and 2 DP411402.

2.5 Engagement

The NPS-UDC anticipates engagement in preparation of the BDCA, with Policy PB5 setting requirements for Councils as follows:

PB5: In carrying out the assessment under Policy PB1, local authorities shall seek and use the input of iwi authorities, the property development sector, significant land owners, social housing providers, requiring authorities, and the providers of development infrastructure and other infrastructure.

As well as meeting the requirements of Policy PB5, there has been engagement with key stakeholders to raise awareness of the Settlement Pattern Review and the future phases of work, including the preparation of a Future Development Strategy. For the purposes of stakeholder and public engagement the Settlement Pattern Review is referred to as *'Our SPACE'*.

Engagement undertaken as part of the Capacity Assessment phase used a range of methods, including the following methods, which are explained further in Appendix 10.

- Information on the Greater Christchurch Partnership website;
- Email notifications;
- Electronic surveys of business landowners and development sector interests to inform the assessment of feasibility;
- Hard copy notices to significant landowners;
- One-to-one stakeholder meetings;
- Discussions with a Business stakeholder focus group; and
- Presentations to forums and meetings.

2.6 Methodology

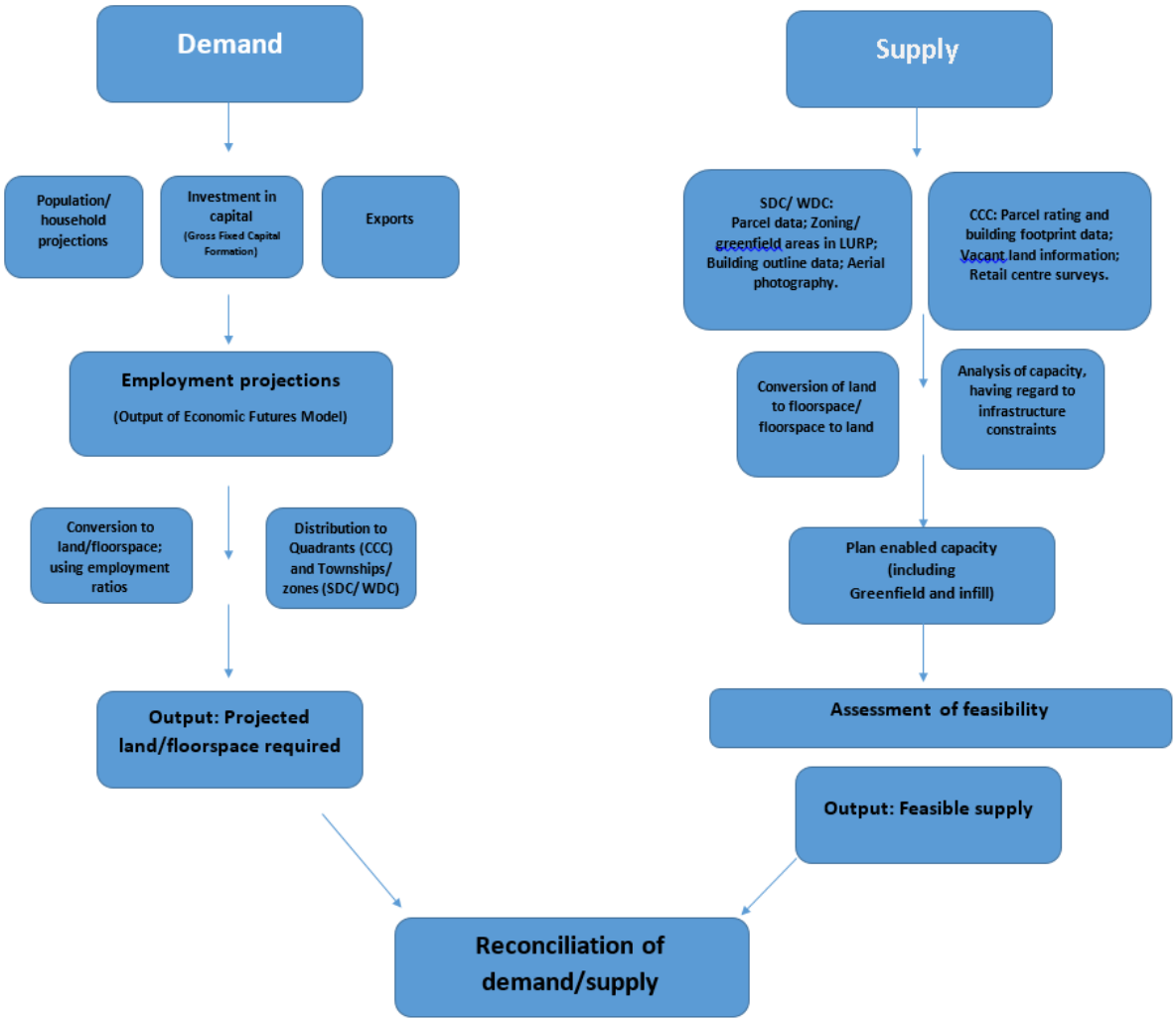
This first BDCA brings together the demand and supply results for business land by Territorial Authority[14] to present an overview of the sufficiency of business land at a Greater Christchurch level. In effect, a bottom up approach has been applied to collating results at a TA level.

Existing information and models have been relied on to the extent possible and in some cases, the recommended approach in the guide has not been followed due to the timeframes and resources available. Notwithstanding this, the BDCA gives effect to the evidence and monitoring requirements of the NPS-UDC.

The following diagram (Figure 2) summarises the methodology applied to the BDCA, which is explained in detail in Appendix 11.

[14] Refer below for the Study area, which comprises those parts of Christchurch City, Selwyn District and Waimakariri District within the existing boundary of the Greater Christchurch Urban Development Strategy (UDS).

Figure 2. Summary of methodology applied to the BDCA



2.7 Study Area

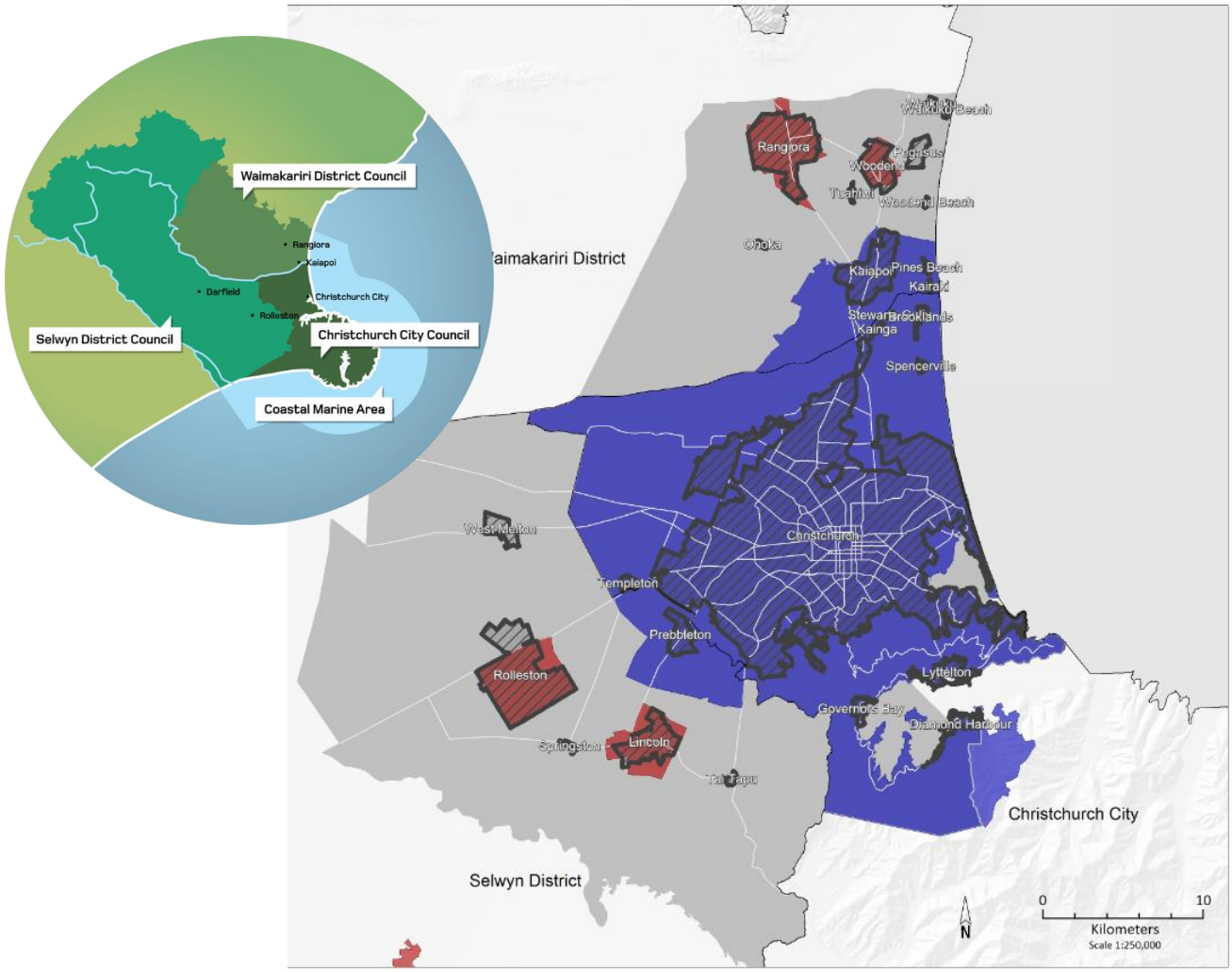
Statistics New Zealand identifies the 'Christchurch Urban Area' as including most of Christchurch City (excluding part of Banks Peninsula and the settlement of Akaroa), along with the urban settlements of Prebbleton and Kaiapoi in Selwyn and Waimakariri Districts respectively. The extent of the Christchurch Urban Area is shown in blue on Figure 3.

The Christchurch Urban Area has been identified as 'high-growth' in the NPS-UDC on the basis that the population exceeds 30,000 people and is expected to grow by more than 10% between 2013 and 2023. As a consequence, all of the related objectives and policies for 'high-growth urban areas' apply to Environment Canterbury, Christchurch City Council, Selwyn District Council and Waimakariri District Council.

NPS-UDC Policy PD1 strongly encourages local authorities that share jurisdiction over an urban area to work together to implement the requirements of the NPS-UDC. The four Councils that form part of the Greater Christchurch Partnership (GCP) have been collaborating in this manner since 2004. Over this time, the Partnership has developed the Urban Development Strategy (and subsequent 2016

update), the Land Use Recovery Plan and the Greater Christchurch Transport Statement. This collaboration has continued in the preparation of this first HBDCA, with the Greater Christchurch area (shown in grey and encompassing the areas in blue and red in Figure 3) defined as the geographic area of study. The areas marked blue and red represent the SNZ Main and Minor Urban Areas respectively whilst the black hatched area represents the area within the Projected Infrastructure Boundary shown on Map A of the Canterbury Regional Policy Statement.

Figure 3. High Growth Urban Area and HBCA Study Area



2.8 Description of Business Land in Greater Christchurch

Having regard to the NPS definition of business land[11], for the purposes of this assessment business land in Greater Christchurch is shown on Figure 4 and includes land zoned as follows:

Christchurch City

- Industrial Heavy Zone

  The Industrial Heavy Zone (IH zone) recognises and provides for industrial activities that generate potentially significant adverse effects on the surrounding environment (such as high levels of noise, odour and heavy traffic movements), or involve significant use and storage of hazardous substances, necessitating separation from more sensitive land use activities. The established industrial heavy zones are located in the east at Bromley and Woolston, along Blenheim Road and the rail corridor between Addington and Hornby, and at Belfast. To the north of the City, areas at Chaneys and along Johns Road provide for mostly rural industries such as timber, aggregate processing and construction materials storage. More recently a large area of industrial IH Zone have been created by rezoning (from rural) at South West Hornby through the Christchurch District Plan Review.

- Industrial General Zone

  The Industrial General Zone recognises and provides for industrial and other compatible activities that can operate in close proximity to more sensitive zones, due to the nature and limited adverse effects of those activities (such as noise, odour and traffic), and provides a buffer between residential areas and the Industrial Heavy Zone. The largest areas of Industrial General zoning are located within the established industrial areas of Wairakei, Hornby, Sydenham, Phillipstown and Woolston, whilst new areas have been zoned IG zone in South West Hornby, Islington and North West Belfast through the Christchurch District Plan Review.

- Industrial Park Zone

  The Industrial Park Zone recognises and provides for industrial activities in the high technology sector and other similar industries that seek to locate in a high amenity environment, dominated by open space and landscaping. These activities have the potential to generate higher volumes of traffic than other industry, but have negligible effects in terms of noise, odour or the use and storage of hazardous substances. They are mostly located in the vicinity of the Airport, at Wairakei Road and Memorial Avenue and also at Awatea in South West Christchurch.

- Commercial Central City Business Zone

  The Commercial Central City Business Zoned area is the principal employment and business centre for the City and wider region and the primary destination for a wide range and scale of activities, including comparison shopping, dining and night life, entertainment activities, recreation, community, civic and cultural activities as well as events and tourism activities. Visitor accommodation and residential activities are permitted above ground floor level.

- Commercial Central City (South Frame) Mixed Use Zone

  This relatively small zone in the Central City is intended to provide a clear delineation between the Commercial Central City Business Zone and the Commercial Mixed use Zone, and enables a range of activities which support the Commercial Central City Business Zone. It is distinctive in that it encourages technology based businesses and research and health related activities in a high amenity setting.

- Commercial Central City Mixed Use Zone

  The Commercial Central City Mixed Use Zone provides for the continuation of existing activities (including industrial) and a wide range of other community, commercial and business activities, while supporting the role of the Commercial Central City Business zone as the focus for retail activity, offices and commercial services. Residential activities and visitor accommodation are permitted in this zone, including at ground floor level.

- Commercial Core Zone

  The Commercial Core Zone provides for the major commercial development in centres other than the CBD and is often the part of a suburban centre dominated by a mall or supermarket. The zone provides for a range of convenience and comparison shopping as well as community and employment activities. Visitor accommodation and residential activity is also permitted above ground floor level. The Commercial Core zone can be found in all District and Neighbourhood centres as defined in the Christchurch District Plan.

- Commercial Banks Peninsula Zone

  Within the Greater Christchurch study area, the Commercial Banks Peninsula Zone is confined to the established commercial centre of Lyttelton. The zone provides for a range of commercial and community activities and supports their role in meeting the needs of the surrounding community and visitors to the area. District Plan provisions for Lyttelton also recognise and protect the special character of the centre. Visitor accommodation and residential activity is permitted generally above ground floor, provided it is located outside of the Lyttelton Port Influences Overlay Area.

- Commercial Local Zone

  The Commercial Local Zone primarily comprises small groups of convenience shops and community facilities that serve the immediate area. There are 131 of these centres located around the City.

- Commercial Retail Park Zone

  The Commercial Retail Park Zone is made up of those areas that provide for larger format commercial activities as well as trade suppliers, e.g. large scale hardware stores, and yard-based retailing, e.g. car sales yards. It provides for a larger scale of development reflecting the types of activities in these locations, with rules limiting the range of activities. These zones are located at Tower Junction, Shirley (Homebase), Hornby, Papanui and along Moorhouse Avenue.

- Commercial Mixed Use Zones (outside the central city)

  The Commercial Mixed Use Zone recognises areas at Addington, New Brighton, Blenheim Road and around Mandeville Street where a significant proportion of commercial activity has historically established, but where the growth and development of additional commercial activities is limited (mostly to existing commercial activity) to ensure that commercial activity is focused within the network of commercial centres. These areas continue to enable growth of predominantly industrial activities.

- Commercial Office Zone

  The Commercial Office Zone recognises and enables office activities in existing office park areas at Addington and Russley. These areas have large scale office activities which were lawfully established but have located in less than optimal locations (e.g. with poor public transport accessibility in some cases and outside of commercial centres). They are discouraged from expansion in support of a centres based strategy for commercial development in the City.

- Specific Purpose Airport Zone – Development Precinct only

  The Development Precinct of the SP Airport Zone includes part of the terminals and land effectively outside the "airport security fence" and includes areas of business development to the north and south of the main airport area. Predominantly owned by Christchurch International Airport, the District Plan enables a range of business activities including light industrial development, visitor accommodation, entertainment and tourism based ventures, retail and offices (both subject to limitation on scale within the precinct). Much of the zone is also designated for airport purposes, which enables a range of airport related business activities including car rental.

These are the locations within Christchurch City that are zoned[15] and generally available for the general business market to operate and are shown in Appendix 1. It excludes business land zoned for a specific purpose and which is generally not available or has less availability for general business use e.g. Port, Hospital, Education and Council buildings/facilities.

The assessment of business land also includes two areas of unzoned land that are identified in the Canterbury Regional Policy Statement as Greenfield Priority Areas for (primarily Industrial) Business. These are identified in green on Figure 4 and are located in the vicinity of Christchurch International Airport at 711 Johns Road and north of Avonhead Park Cemetery (Hawthornden GPA)[16].

Selwyn District Council

- Industrial Zone – Business 2

  Business 2 Zones are areas where activities likely to be considered less pleasant by people are located, including light and heavy industrial developments. Aesthetic and amenity standards are less than what is anticipated in Living or Business 1 Zones, but activities are still managed to protect natural resources and people's health or well-being. Activities likely to cause 'reverse sensitivity' issues, such as residential activities, are discouraged in Business 2 Zones. The primary industrial node serving the district and wider region is located in Rolleston across State Highway 1 and the Main Trunk Line west of the town centre and residential environments. This node accommodates some light industrial activities along Jones Road but is dominated by the established I-Zone industrial park and the more recently zoned I-Port business park that is progressively being developed for industrial activities and includes a defined area for some Large Format Retail. The Port of Lyttelton and Port of Tauranga inland ports are both located within the Rolleston Business 2A zone. A secondary light industrial node is provided for in Lincoln, south of Lincoln University along Springs Road opposite the Te Whariki subdivision, although it is substantially smaller in size and has yet to be developed.

[15] In the Christchurch District Plan, operative December 2017

[16] These two GPA areas are zoned rural. Industrial zoning was considered but not confirmed in the recent Christchurch District Plan review on account of (predominantly) infrastructure constraints.

- Commercial Zone – Business 1

  Business 1 Zones are the primary commercial and retail centres serving the district's townships. These environments are recognised as being noisier and busier than Living zones, with more traffic, people, signs and building coverage. Business 1 Zones are still pleasant areas for people to live or work in, with good amenity/aesthetic values. They are also areas where higher density housing can be established as a permitted activity. The town centre's in Rolleston and Lincoln are recognised Key Activity Centres (KACs) that are subject to precinct based provisions to enable them to be a focus for community, commercial and service activities in the context of the Greater Christchurch Centre's Network. This KAC status comes with a number of prerequisites, including the need for these locations to be serviced by the strategic transport network and for the scale of development to be sufficient to service the specified catchment while ensuring it complements other centres within the network. This includes the Christchurch Central Business District that is the principal commercial, office and retail centre for Greater Christchurch. There are a range of business environments within Selwyn that are managed through the Business 1 Zone provisions, ranging from the larger centres in Rolleston and Lincoln, to the more localised town centres of Prebbleton and West Melton and neighbourhood centres servicing the residential subdivisions in the larger townships.

  Neighbourhood and Local Centres

  Neighbourhood[17] and Local Centres[18] are enabled in the District Plan to provide small convenience shopping for residents living within the larger subdivisions in Rolleston and Lincoln. These local commercial developments retain a Living Z zoning, but are subject to the Business 1 Zone provisions of the District Plan where they are identified as a Neighbourhood or Local Centre on an outline development plan. The size and type of retail offerings within these centres are managed to ensure they complement the town centre environments.

  Rolleston has three Neighbourhood or Local Centres at Brookside, Falcon's Landing, and Geddes/Dryden Trust that have capacity to support additional development. Two additional Neighbourhood Centres have been established within Rolleston's Faringdon and Lincoln's Rosemerryn subdivisions. These localised shopping areas have been fully developed.

These are the locations that are enabled for industrial and commercial purposes through District Plan zones and provisions that have some vacant land or redevelopment capacity. It excludes business land zoned for a specific purpose and which is generally not available or has less availability for general business use, including specifically the Lincoln University and the Crown Research Institutes that have a specific tertiary education and research purpose under the Business 3 Zone. A further Neighbourhood Centre was provided for in Lincoln to the south of the New World Supermarket, but this has been absorbed into the Town Centre KAC.

[17] Neighbourhood Centres provide for retail floor space up to a total of 2,000m^2 and individual retail tenancy areas less than 350m^2 GFA.
[18] Local Centres provide for retail floor space up to a total of 450m^2 and individual retail tenancy areas less than 350m^2 GFA.

Business 1 Zone

The Business 1 Zone includes key activity centres which are significant focal points for business, social, community, cultural and administration activities in those towns. Business activities are the predominant activity in the zone. For individual townships, the zone includes:

- Kaiapoi & Rangiora which are primary employment and civic destinations.
- Ravenswood which is a focus for local shopping and community activities.
- Pegasus with a grouping of community buildings, local shops and other commercial activities (social and business focus).

Business 2 Zone

The Business 2 Zone includes industrial and commercial areas which are characterised by large-scale buildings, low density of development and industrial type activities. The Business 2 Zone is intended to cater for activities with potential environmental effects unsuited to a town centre location, or which are conducted in conjunction with a primary activity.

Business 3 Zone

The Business 3 Zone is a single, spot zone for the Carter Holt Harvey MDF panel plant at Sefton (approximately 167ha). The first building consent for the site was to 'erect a fibreboard factory' which was issued in 1974, therefore the activity has been established for over 40 years.

Business 4 Zone

The Business 4 Zone provides for local community business at four locations, being Kaikanui shops, Lilybrook shops, West Kaiapoi (Silverstream) and Mandeville North. They service a localised residential catchment, generally within walking or cycling distance of the zone.

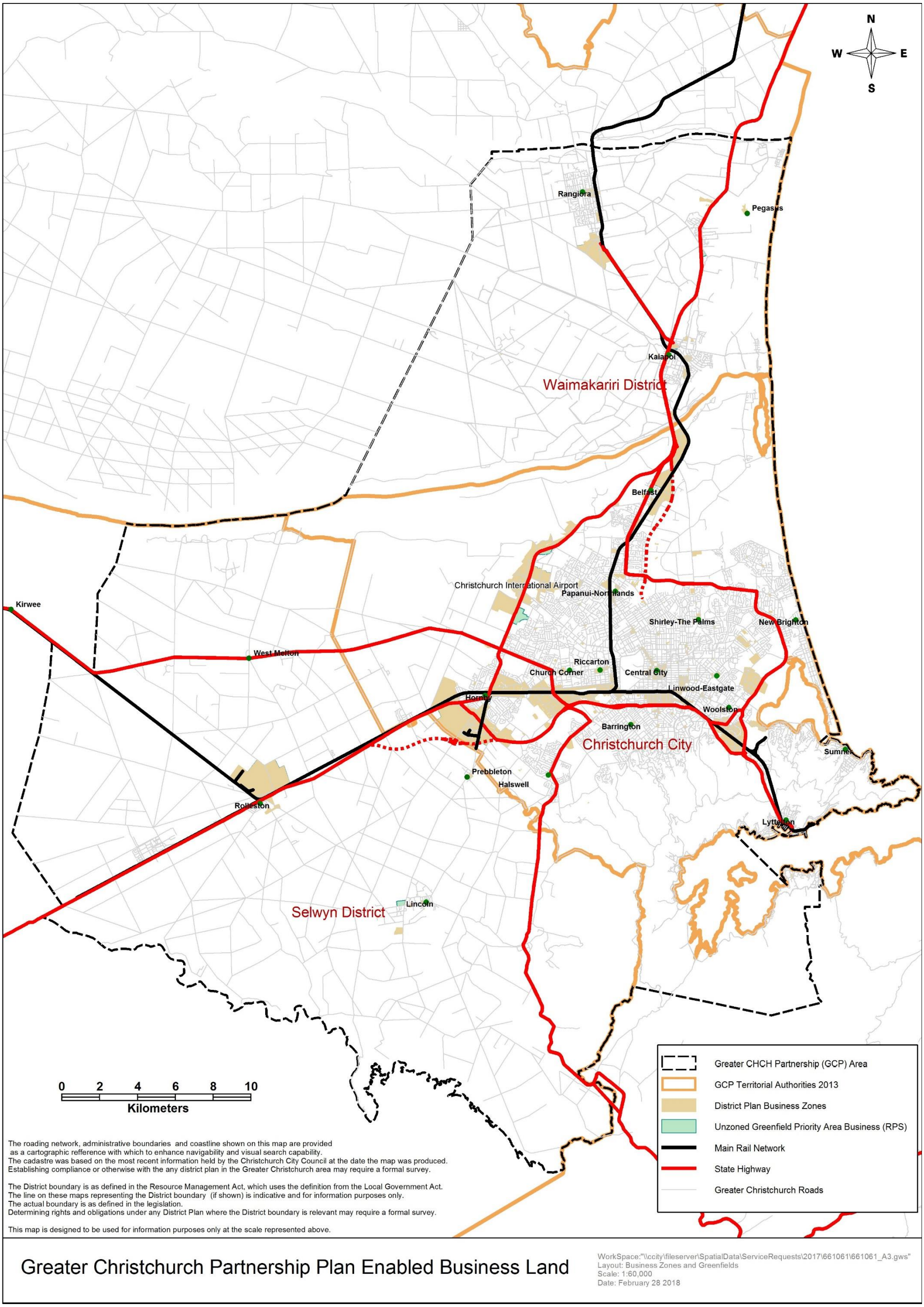
Business 5 Zone

The Business 5 Zone is a spot zone which provides for trade supplier and large floorplate office activities in a distinct area at Kaiapoi. The site is approximately 8ha and is bound by State Highway 1, Smith Street and the Kaiapoi River (added to the District Plan in 2015 via Private Plan Change 20). The zoning recognises the unique locational characteristics of the area, opportunities for enhanced connectivity with road, pedestrian, cycle and reserve networks, and suitability for the development of space extensive activities not easily located within the Kaiapoi Town Centre.

Business 6 Zone

The Business 6 Zone is a spot zone which provides for a museum, wedding venue, tavern and conference facility with associated non-permanent accommodation. The site is approximately 4.2ha and is located at the corner of Fernside Road and Flaxton Road, Southbrook, Rangiora. This site has not yet been developed and it is unclear if this will occur.

Figure 4. Greater Christchurch Partnership Plan Enabled Business Land



3. Population and Household Projections

3.1 Introduction

To achieve the BDCA requirements, having robust population and household projections is key to addressing the level of demand and subsequent supply required in both housing and business markets in the Greater Christchurch area.

As outlined in the NPS-UDC, policy PB2a states:

PB2: The assessment under policy PB1 shall use information about demand including:

a) Demographic changes using, as a starting point, the most recent Statistics New Zealand population projections…"

The capacity assessment guidance[19] cites several advantages to using Statistics NZ Projections namely:

- The projection methodology is applied consistently across TA areas;
- Projections are regularly reproduced over time using consistent and internationally-accepted methods, rather than on an ad-hoc basis; and
- The projections are produced by an independent agency with access to the most comprehensive data inputs.

The guidance acknowledges that "the future is inherently uncertain and impossible to accurately predict, especially over the long term" and therefore that this risk should be managed by:

- Using the most up-to-date and robust projection methodologies that address the key drivers of uncertainty;
- Presenting a range or results of sensitivity testing, as well as the chosen projection; and
- Frequently updating information.

Statistics New Zealand considers the medium projection to be the most suitable for assessing future population and household changes but advises that if a local authority wishes to depart from that projection, the rationale should be explained in the assessment in a way that can be traced and audited[20].

The methodology section (Appendix 11) more detail about population and household projections including the rationale for projections used in the first business capacity assessment. Key points are replicated below.

3.2 Statistics New Zealand Projections

The latest population projections[21] that are relevant for Territorial Authorities (TAs) were released by Statistics New Zealand on 22 February 2017. In addition, area unit projections which breakdown the overall TA projections into small individual catchments were released for Selwyn District on 31 March 2017, Waimakariri District on 5 July 2017 and Christchurch City on 9 August 2017. These area unit projections are important for the BDCA, as they generally align to the Greater Christchurch BDCA study area. For the detailed population

[19] MfE/MBIE (2017) NPS-UDC: Guide on Evidence and Monitoring, page 26.
[20] MfE/MBIE (2017) NPS-UDC: Guide on Evidence and Monitoring, page 28.
[21] Subnational Population Projections: 2013 (base)-2043 update for Regional Councils, Territorial Authorities and Auckland Local Board Areas

projections for all growth rates for Greater Christchurch, refer to Appendix 3 and for a full list of the area units that form the study area, refer to Appendix 4.

As recommended by the guide, the population projections to be used in the BDCA will utilise the recently released Statistics New Zealand projections. The annual growth rates from the latest population projections are set out below.

Table 1. Average annual population growth rate for the Greater Christchurch HBDCA study area

	Low Growth Rate	*Medium Growth Rate*	*High Growth Rate*
Waimakariri	0.7%	1.6% (19,800 additional people)	2.3% (38,200 additional people)
Selwyn	1.7%	2.6% (38,900 additional people)	3.3% (58,800 additional people)
Christchurch	0.3%	0.8% (79,900 additional people)	1.3% (151,000 additional people)

Source: Statistics New Zealand - Subnational Population Projections 2013(base) - 2043 update – 22 February 2017

3.3 Which growth rate to use?

The GCP Councils have considered what growth rate to adopt for strategic planning purposes (to 2048) including whether to adopt the Statistics NZ medium projections recommended in the NPS-UDC guidance. Further detail is provided in the methodology section (Appendix 11).

A low growth rate is not considered to be appropriate on the basis that Christchurch City, Selwyn District and Waimakariri District Councils have collectively been determined as part of a high growth urban area under the NPS-UDC, based on projected growth[22]. Also, a low growth rate would not be appropriate, having regard to historical growth rates.

Consideration has therefore focused on whether the medium or a higher projection is appropriate for Greater Christchurch or a combination thereof for each TA. This consideration was informed by an analysis of:

- Actual (2013) and estimated population (2017) and historical growth rates;
- Source of growth (e.g. natural /migration);
- Impact of growth; and
- Population projections and projected growth rates.

(Refer to Appendix 11).

[22] To be a "High-growth urban area", the NPS specifies criteria. This states that "*the resident population of that urban area is projected to grow by more than 10% between 2013 to 2023, according to the most recent Statistics New Zealand medium urban area population projections for 2013(base)-2023.*"

The results of this analysis suggest that the most appropriate growth rates to adopt for this assessment are the Statistics NZ Medium growth rate for Christchurch City and a Medium-high[23] growth rate for Selwyn and Waimakariri Districts respectively.

3.4 Projections to be used for each Council

Adopting a medium-high growth rate for Selwyn District Council and Waimakariri District Council and a medium growth rate for Christchurch City Council results in the following population projections to 2048:

Population Projections

Table 2. Subnational/Area unit population projections 2017

	2018	2023	2028	2033	2038	2043	2048	Additional Population 2018-2048
Selwyn GCP (Medium High Growth Rate)	49,500	59,900	67,900	75,700	83,600	91,300	98,400	48,900
Waimakariri GCP (Medium High Growth Rate)	48,800	54,800	59,900	64,800	69,400	73,700	77,800	29,000
Christchurch GCP (Medium Growth Rate)	383,800	405,200	420,000	433,600	445,100	455,000	463,700	80,000
TOTAL GCP	**482,100**	**519,900**	**547,800**	**574,100**	**598,100**	**620,000**	**639,900**	**157,900**

Source: Statistics New Zealand, GCP

This analysis projected that population is expected to increase by nearly 158,000 by 2048 to 640,000 in the Greater Christchurch study area.

Households Projections

Based on the methodology described in Appendix 11, the projected number of households was determined (refer to Table 4) using the population projections in Table 2 and average household sizes provided below in Table 3, i.e. population divided by average household size.

Table 3. Average Household Size Projections

	2018	2023	2028	2033	2038	2043	2048
Selwyn GCP	2.9	2.8	2.8	2.7	2.7	2.7	2.6
Waimakariri GCP	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Christchurch GCP	2.5	2.5	2.5	2.4	2.4	2.4	2.4

Source: Statistics New Zealand

[23] The mid-point between the medium and high growth rates.

Table 4. Household Projections 2017

	2018	2023	2028	2033	2038	2043	2048	Additional Households 2018-2048	NPS-UDC Additional Households 2018-2048[24]
Selwyn GCP (Medium High Growth Rate)	17,100	21,400	24,300	28,000	31,000	33,800	37,800	20,800	24,200
Waimakariri GCP (Medium High Growth Rate)	18,800	21,100	24,000	25,900	27,700	29,500	32,400	13,700	16,000
Christchurch GCP (Medium Growth Rate)	153,500	162,100	168,000	180,700	185,500	189,600	193,200	39,700	46,400
TOTAL GCP	**189,400**	**204,600**	**216,300**	**234,600**	**244,200**	**252,900**	**263,400**	**74,200**	**86,600**

Source: Statistics New Zealand, GCP

For planning purposes, this results in a projected demand for an additional 86,600 households in Greater Christchurch. Applying this growth to the current distribution in Greater Christchurch, results in a projected demand for approximately 40,000, 21,000 and 14,000 additional households in Christchurch City, Selwyn and Waimakariri Districts respectively. Population and household growth projections have been used as an input into the Economic Futures Model discussed in section 5.

[24] Household Growth with additional margin of capacity as required under the NPS, e.g. Short Term (20%), Medium Term (20%) and Long Term (15%).

4. Economic context and recent past

4.1 Introduction

The NPS-UDC emphasises the importance of undertaking an analysis of the current composition and recent trends in business activity in order to inform projections of future demand for business land/space[25]. This section summarises the results of this analysis for Greater Christchurch, focusing on the three main measures of local economic activity, namely employment, expenditure, and the value of goods and services produced in an economy. These three measures are all closely linked, with labour (employment) being an input to production which generates value (GDP) and sales (expenditure).

In line with the NPS-UDC guidelines, this context section focusses on the sectors that predominantly[26] locate within retail, office and industrial floorspace and land. However, this context report also covers the trends observed in the entire economy and other important growth sectors.

The following context draws upon the technical reports and commentary of economic experts27 and the Canterbury economic development agency, ChristchurchNZ, along with Councils' analysis of Statistics New Zealand Business Frame28 and population data.

4.2 Employment

The study of demand for floorspace and land in an urban economy commonly focusses on the relationship between workers and their space requirement. Specifically, for the NPS-UDC the employment metric is important from the planning perspective, because growth in employment in an urban economy commonly manifests as demand for floorspace and/or land – i.e. existing businesses expand into a new premises or new businesses commence operation.

Importantly, employment growth in office based sectors generally has a relationship to the demand for office floorspace i.e. increases/ decrease in employment results in an increase/ decrease in demand for office space. However, there are instances where growth can be accommodated in existing space (productivity improvement) and/or locate in non-business zones (e.g. home offices).

Employment can also be used to understand trends in industrial and retail activity. However, these two sector groupings can also be assessed in terms of value of goods (GDP - industrial) and expenditure (sales - retail).

4.2.1 Employment Composition

Economies are reflective of established investment patterns and the structures of their populations and institutions. Many of these characteristics or drivers of growth and change typically evolve slowly over time and therefore the existing structures can play an important role in projecting short to medium term employment land demands. That said, significant and sudden change to an economy can occur, as experienced in Greater

[25] NPS-UDS Policy PB2 and NPS-UDC Guidance, page 49.

[26] It is important to understand that economic sectors are defined from a perspective that focusses on the type of productive activity (ANZSIC). This perspective does not match perfectly with urban land use zones or rules that are used in planning frameworks. As a result, it is not possible to simply allocate employment from one economic sector to one land use or zone. Employment in almost every sector will be located across multiple land uses and zones - which includes non-business zones.

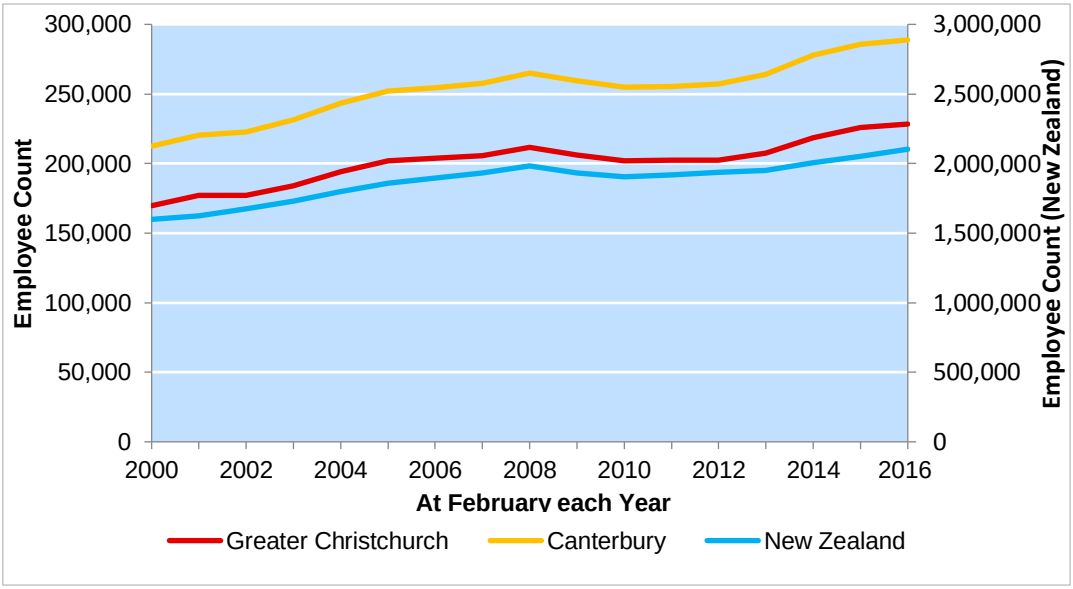
[27] Property Economics Limited and Market Economics Limited.

[28] Note that the Statistics New Zealand employment counts (EC) data does not record working proprietors and therefore undercounts the number of people working in an area, sometimes by a significant amount. This has implications for demand estimates for employment floorspace such that adjustments need to be made to either the EC numbers at the start of the demand estimation process (i.e. modify the ECs upwards) or when translating employment figures to floorspace requirements.

Christchurch following the Canterbury earthquakes of 2010-11 and the Global Financial Crisis of 2008. Periods of record levels of net migration can, and have, also driven faster growth than anticipated in many of the high growth areas of New Zealand.

Figure 5 and Figure 6 below show the total employment and number of businesses within Greater Christchurch over the past 16 years[29]. These graphs show that total employment has grown by 35% from 169,600 in 2000 to 228,600 in 2016 and the number of business units has increased by a similar rate over this time (32%), up from 32,900 in 2000 to 48,700 in 2016. Both graphs illustrate that increases and decreases in employment activity in Greater Christchurch are consistent with cyclical regional and national trends. However, the substantial growth in construction employment associated with the earthquake rebuild has concealed the impact of the earthquakes on employment in the Christchurch economy. If temporary construction employment was excluded from Greater Christchurch then the movements after 2011 would not have been similar to the national trend for the period immediately following the Canterbury earthquakes in 2010 and 2011.[30]

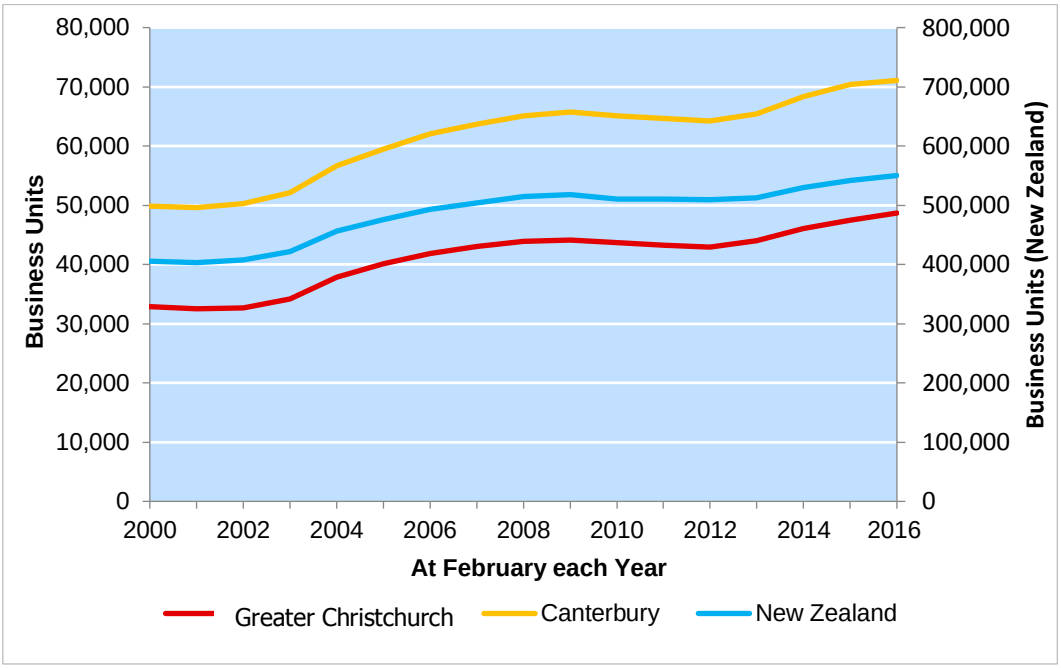
Figure 5. Total Employees in Greater Christchurch 2000-2016



Source: Statistics New Zealand, Annual Business Frame Update 2000-2016

[30] In the Christchurch Region the construction industry grew by an average of around 600 EC per annum between 2000 and 2010. After the earthquake (2011-2015) construction employment grew by 400% more than the historic rate (over 3,200 per annum). Construction employment associated with the rebuild may have accounted for around 17% of employment growth in the region.

Figure 6. Number of Business Units in Greater Christchurch 2000-2016



Source: Statistics New Zealand, Annual Business Frame Update 2000-2016

The sectoral composition of employment has important implications for the floorspace and land requirements associated with the economy. Businesses in each sector can have different requirements for premises (demand for floorspace and/or land). For example, office based industries typically have a higher intensity of employment relative to other industries, which is reflected in higher employee to floorspace ratios. The land requirements of these activities are therefore less compared with more space extensive industries such as manufacturing and other industrial activities. The latter have a lower density of employment and typically occupy buildings of a single level e.g. a warehouse, as opposed to office activities, which may occupy multiple storeys Therefore, changes in the composition of an economy can have important impacts on the nature and quantum of floorspace and land demanded.

Table 5 below identifies the employment composition of Greater Christchurch between 2000 and 2016 using the one digit ANZSIC classifications of activities used in the Statistics NZ Business Frame data. This shows that whilst Greater Christchurch experienced overall net employee growth of approximately 59,000 over this period, some sectors experienced growth and others declined.

The rebuild and recovery following the earthquakes has been the biggest driver of growth in the construction sector. Other than the impact of the rebuild on construction employment, most of the employment growth was associated with population driven sectors (Services, Retail, Café/Food, Health, Education and Government Services). Over this period the key driver of the demand from the population was the natural increase (births less deaths) in population, net migration (which has been at record levels), income and wealth effects (increase in households' ability to spend)[31] and the ageing population (which has begun to impact on certain sectors – i.e. healthcare). To a lesser degree, these sectors have also been positively impacted by the growing tourism activity – both international and domestic visitors.

[31] SNZ Household Economic Survey shows average spend per household in the Christchurch region has been increasing at more than inflation over the period (around 1% in real terms). This increase in spend is likely to be supported by increasing incomes and wealth.

In addition, many of the support sectors that provide services to the population driven sectors have also shown some growth (Administration and Support and Wholesale Trade).

The following nine sectors generated most of the growth (over 98%) over the last 16 years:

- Construction sector – has expanded rapidly from 7,200 in 2000 to almost 26,000 in 2016, equivalent to 31% of the employment growth in Greater Christchurch. This sector is now the largest employment sector, however much of this growth is related to the earthquake rebuild.
- Professional, Scientific and Technical Services – contributed to 18% of the growth in employment in Greater Christchurch.
- Healthcare and Social Assistance – contributed 10% of the growth in employment in Greater Christchurch.
- Retail Trade – contributed 9% of the growth in employment in Greater Christchurch.
- Public Administration and Safety, Education and Training and Accommodation and Food Services – each contributed 6% of the growth.
- Administrative and Support Services (8%) and Wholesale (5%) jointly contributed to a further 13% of the growth,

The growth in these sectors (excluding construction) reflects a trend towards service-oriented or support sectors, which was mainly driven by the demands of the growing population in the Greater Christchurch area.

The employment data shows that manufacturing has historically been the largest employment sector in Greater Christchurch which historically produced goods to service the regional/rural economy and for export. This sector has seen the largest decline in employment over the period (-4,000 or -14%), albeit the decline appears to have plateaued in recent years. The decline in manufacturing reflects global trends with a shift towards more service intensive sectors[32] and a shift of manufacturing out of developed economies to developing economies (especially China). Some local examples of this include the closure of Bridgestone factory in Papanui in December 2009, reportedly to focus on more efficient offshore locations in Japan, Thailand and Indonesia. More recently General Cable in Sockburn closed in March 2017 (with a loss of 170 jobs); retrenching in Asia and Pacific in favour of plants in North America and Europe[33].

The employment associated with Information, Media and Telecommunications and Transport, Postal and Warehousing sectors have also experienced significant decline (-21% and -10% respectively). The impact of technology on these sectors has been an important feature in recent times. The automation and supply chain improvements that have been driven by technology has reduced the requirement for labour. This has been greatest in the Information, Media and Telecommunications sector with the effect of technology being increased levels of productivity. Notwithstanding the decline in the Transport, Postal and Warehousing sectors, there may be higher levels of demand for land in the future associated with increased service activities and the emergence of industries reliant on just in time delivery e.g. Amazon. The measure of growth in these sectors is anticipated to be output rather than employment.

[32] https://www.rbnz.govt.nz/research-and-publications/speeches/2013/speech2013-02-20

[33] http://www.stuff.co.nz/business/2996409/Christchurch-factory-to-close-275-to-lose-jobs and http://www.stuff.co.nz/business/87502590/170-jobs-go-in-general-cable-closure

Industrial employment has been in decline but is now stabilising whereas population driven sectors are growing rapidly. In terms of the NPS-UDC, it is important to understand that the population driven sectors generally have a different demand for floorspace and land than the declining sectors (e.g. manufacturing (extensive) compared with professional services (intensive)).

Table 5. Employment Composition by Sector 2000-2016[34]

	2000	*2002*	*2004*	*2006*	*2008*	*2010*	*2012*	*2014*	*2016*	*Net Growth %*	*Net Growth #*
Agriculture, Forestry and Fishing	2,772	3,049	3,235.00	3,050	2,941	2,779	2,742	2,979	3,267	18	495
Mining	166	193	110	152	209	215	274	294	350	110.84	184
Manufacturing	29,565	30,017	31,245	30,665	30,171	26,776	26,012	25,523	25,466	-13.86	-4,099
Electricity, Gas, Water and Waste Services	653	714	677	808	1,091	1,161	1,490	1,521	1,217	86.37	564
Construction	7,940	8,433	10,715	13,014	14,093	11,962	16,727	24,455	25,953	226.86	18,013
Wholesale Trade	9,695	10,441	11,187	11,400	12,017	11,573	11,494	11,718	12,714	31.14	3,019
Retail Trade	18,677	19,491	21,502	22,703	23,257	21,838	21,400	22,686	24,112	29.1	5,435
Accommodation and Food Services	12,104	12,789	14,407	14,512	15,250	14,280	11,872	13,011	14,971	23.69	2,867
Transport, Postal and Warehousing	11,329	9,904	10,036	10,813	10,953	9,475	9,335	10,225	10,247	-9.55	-1,082
Information Media and Telecommunications	3,870	3,873	4,292	4,483	4,640	3,932	2,935	2,717	3,069	-20.7	-801
Financial and Insurance Services	3,187	3,292	3,882	4,499	5,400	4,674	4,723	4,544	4,866	52.68	1,679
Rental, Hiring and Real Estate Services	2,700	2,745	3,095	3,765	3,681	3,400	3,256	3,409	3,677	36.19	977
Professional, Scientific and Technical Services	9,068	10,166	11,428	14,251	14,708	14,545	15,817	18,298	19,763	117.94	10,695
Administrative and Support Services	8,532	9,068	10,789	10,749	11,480	9,543	10,706	11,689	13,181	54.49	4,649
Public Administration and Safety	7,165	7,814	8,506	8,761	10,238	10,379	10,384	11,040	10,778	50.43	3,613
Education and Training	14,044	14,987	16,339	16,259	16,324	18,096	17,402	17,487	17,711	26.11	3,667
Health Care and Social Assistance	19,269	20,916	22,200	22,624	23,745	25,434	25,015	25,947	25,323	31.42	6,054
Arts and Recreation Services	3,106	3,291	3,617	3,875	3,898	4,387	3,569	3,570	4,090	31.68	984
Other Services	5,785	6,104	7,035	7,355	7,641	7,668	7,128	7,431	7,810	35	2,025
Total	**169,627**	**177,287**	**194,297**	**203,738**	**211,737**	**202,117**	**202,281**	**218,544**	**228,565**	**35**	**58,938**

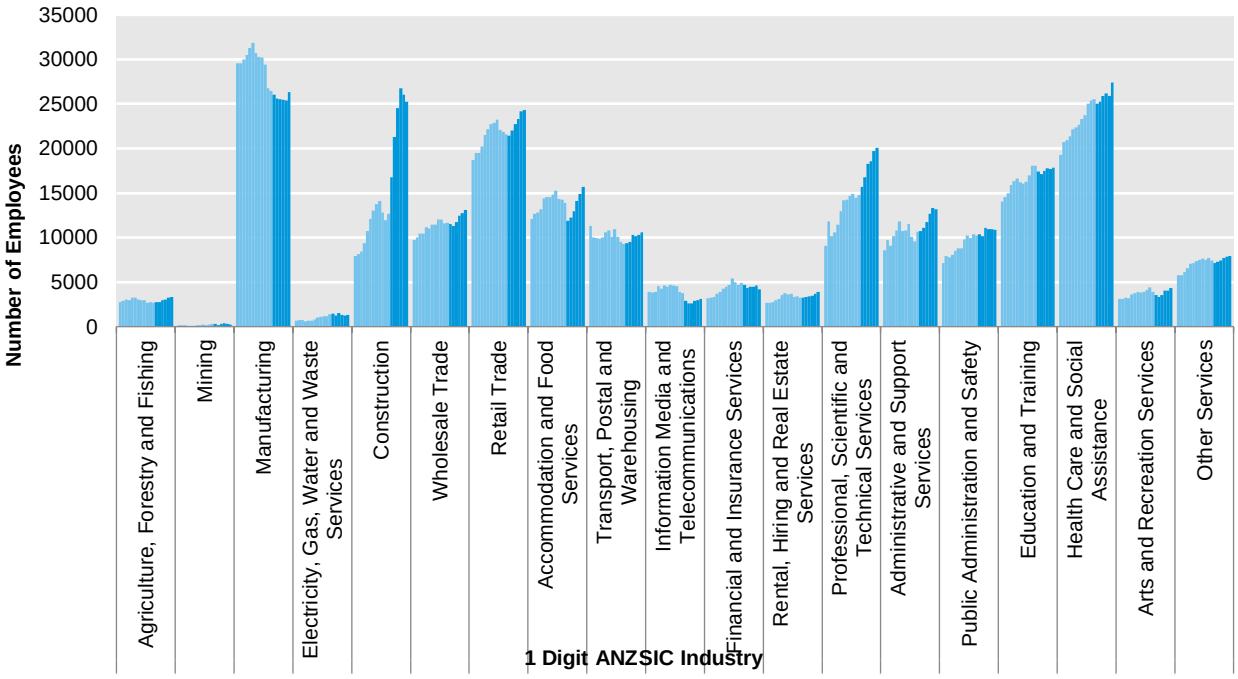
Source: Statistics New Zealand, Annual Business Frame Update 2000-2016

Figure 7 below shows the same information graphically, and highlights (in dark blue) the years following the devastating earthquakes that affected Canterbury in 2010 and 2011. It clearly shows that the sector with the most significant (and extraordinary) growth over this period was construction, which increased nearly 230% over the assessed period, most significantly following the earthquakes. A government report recently identified that this growth has now peaked and construction employment is declining, as rebuild activity similarly declines from its peak of 2016[35]. Over the past year, the report identifies that the sector has declined by 11% with the loss of 5,100 employees.

[34] Note that inclusion of working proprietors can increase employment significantly, particularly in certain industries such as construction, health and retail.

[35] Department of the Prime Minister and Cabinet (2017) Monitoring Greater Christchurch Regeneration June 2017 Report.

Figure 7. Employees by Sector in Greater Christchurch 2000-2016



Source: Statistics NZ Longitudinal Business Frame

The ANZSIC employment sectors have been grouped into more generic employment groups (retail, office, industry and other) in a way that is generally consistent with the NPS and the methodology employed by the Greater Christchurch councils for the subsequent assessment of development capacity.

In summary, the growth in the sector employment groupings have been driven by the following factors,

- **Earthquake rebuild** - has resulted in substantial growth in employment directly involved in construction and indirectly in supporting sectors (e.g. manufacturing, wholesale). This temporary spike in demand has had implications for industrial land, over the short term. This includes the associated demand for goods to support the rebuild e.g. manufacturing of materials for buildings.
- **Population demand** - has grown as a result of a natural increase, net migration, income/wealth effects and demographic changes (ageing) which has resulted in greater employment in retail and office (services and support) groups. This consistent growth in demand is likely to have implications for land in centres or commercial land.
- **Trade demand** - has grown in some sectors and declined in others. A key driver has been the continued increase in competition from developing countries (import growth) and the movement of production offshore. However, there have been some sectors (dairy manufacturing) which have maintained a competitive advantage and exports have grown. Trade competition is likely to have impacted on the demand for types of land, predominately for industrial land.
- **Tourism demand** - the earthquakes have caused significant disruption to the sector, with loss of infrastructure and a marked decline in tourist visitors. However, since 2011 the number of guest

nights, both by international and domestic, has nearly recovered to pre-earthquake levels[36].During this period, the level of spend generated by tourism has in fact increased (refer to section 4.4). The net result is that tourism is likely to have contributed positively to growth in employment in the retail, services and accommodation sectors. Similar to population demand, growth in demand is likely to have implications for centres and commercial land.

- **Technology Change** - has impacted most sectors in the economy. Broadly, there has been a slow but consistent shift towards automation and the use of personal computers. These changes have increased productivity per worker – which has implications for the quantum of employment required to deliver the same level of output and the associated land/floorspace required. Technology can have a wide range of implications for each sector. In summary there was an apparent increase in office based employment and a decline in manufacturing employment associated with technological change, the shift towards more service intensive industries and the movement of manufacturing out of developed economies as discussed earlier. Also, new technology has generated new sub-sectors (e.g. mobile phone stores) and some older sub-sectors have become obsolete (e.g. video stores).

- **Economies of Agglomeration** - are benefits that businesses obtain by locating near each other and is similar to the concept of economics of scale (however involving multiple businesses). It is broadly agreed that urban economies can generate additional growth as an economy grows in "density" – see NZTA Economic Evaluation Manual[37]. The aggregation of activity in an urban economy can have several positive effects, which includes greater specialisation (i.e. new activities become viable) and/or productivity. The largest share of the benefits of agglomeration generally relate to service, retail and other sectors e.g. office based companies that have a highly skilled workforce, while industrial, construction and primary sectors receive less benefits[38]. The impact of agglomeration on an urban economy is pervasive and as such is difficult to isolate. However, it is likely to be a key driver of the growth in activity in centres and commercial land. Conversely, it can lead to the dispersal of activity in industrial zones. There may be efficiencies in the use of space associated with agglomeration, which can manifest itself in the use of shared space or shared services across organisations. However, it is difficult to quantify this.

- **Global and National crises** - can have significant short term effects on employment. The recent example of the Global Financial Crisis is an example of a world event that impacted the scale of economic activity and employment across the regional economy. While these impacts can be significant, it is not possible to predict the nature or timing of these events. It is valuable to understand their impact, however the NPS-UDC reporting and Councils cannot be expected to plan for these short term fluctuations.

Construction employment has been excluded from this assessment so as to avoid distorting the results. With construction employment removed, Figure 8 below shows that the industrial sector is no longer the dominant employment sector due to the growth of the service oriented sectors, particularly commercial office.

This figure also shows the impact of the last recession (the Global Financial Crisis) illustrated by a decline in retail, office and industrial employment between 2008 and 2010, total employment falling from 212,000 in 2008 to 202,000 in 2010. The effects of this event were felt across all three of the key sectors, with lower productivity and consumption levels leading businesses to contract their employment base. Employment in the Arts and

[36] SNZ Accommodation Survey
[37] NZTA (2016) Economic Evaluation Manual.
[38] Ibid. Table A10.1

Recreation sector[39] dropped 19% between 2010 and 2012 whilst the Information, Media and Telecommunications dropped 25% over the same period. As service industries, they are primarily driven by population growth, but can also be influenced by trends e.g. use of social media, as well as the extent of government funding for the arts.

Other sectors including healthcare and education (in the 'other' category) were less affected by the GFC and continued to grow over this time, notwithstanding that the education sector suffered significant disruption in the aftermath of the earthquakes.

All the groupings of sectors experienced strong overall net growth. However, the performance of the office sector specifically is proportionally higher over the same period with 55% net growth, from an employment base of around 36,700 in 2000 to around 57,600 by 2016, equivalent to an additional 20,900 commercial office employees. Again, this has been driven by the trend towards more service oriented industries. The commercial office sector employment accounts for 46% of the total employment growth over the 2000 – 2016 period in Greater Christchurch, and now comprises a slightly larger proportion of the Greater Christchurch area's employment base than it did in 2000. (34% vs 30%)

Figure 8. Employees by Industry Sector Groups (excl. construction)

Source: Statistics NZ Longitudinal Business Frame, Christchurch City Council

4.2.2 Employment Specialisation

Simple Location Quotients (SLQs) can be used to determine the level of specialisation in an area. They can be used to assess employment intensity in a given area and compared to the national level. Any figure above one indicates a specialisation, with labour more concentrated in the given area than the national level. It is typical for cities to show specialisation in certain areas, especially those which service a wider rural area.

[39] A diverse sector which includes demand for events, recreational activities and sport amongst other activities.

Table 6 shows areas of specialisation for Christchurch and for the three territorial authorities combined (Christchurch, Waimakariri and Selwyn), using Statistics New Zealand 2016 business demography data on employee counts.

Table 6. Areas of employment specialisation for Greater Christchurch

Industry	*Christchurch SLQ*		*Industry*	*Three TA SLQ*
Construction	1.58		Construction	1.61
Administrative and Support Services	1.19		Rental, Hiring and Real Estate Services	1.12
Rental, Hiring and Real Estate Services	1.15		Administrative and Support Services	1.08
Transport, Postal and Warehousing	1.13		Transport, Postal and Warehousing	1.07
Wholesale Trade	1.12		Manufacturing	1.06
Professional, Scientific and Technical Services	1.09		Wholesale Trade	1.06
Health Care and Social Assistance	1.08		Retail Trade	1.05
Other Services	1.07		Other Services	1.04
Retail Trade	1.06		Professional, Scientific and Technical Services	1.03
Manufacturing	1.04		Health Care and Social Assistance	1.00

Source: Statistics New Zealand, ChristchurchNZ

Clearly this illustrates the current dominance of the construction sector in Greater Christchurch but this can be expected to change in the short to medium term as rebuild efforts come to an end. Whilst the SLQs identify some specialisation in several sectors, this is not surprising given that Christchurch is the country's second largest City where one would expect a greater intensity of activity across most sectors compared with the national average.

In most urban economies specialisation tends to focus on sectors that benefit from connectivity (to market or suppliers), highly skilled labour and construction. Therefore, the SLQs generally show greater specialisation in services (Health, Education, Professional), retail trade, industrial (manufacturing, wholesale, transport) and construction. Unsurprisingly, the primary sectors tend to have lower SLQs in urban economies,

There are also a number of other sectors that can be spatially concentrated within certain urban economics in New Zealand. For example, Christchurch has a lower SLQ for central government and financial employment than some other major urban economies in New Zealand (Wellington and Auckland).

4.2.3 Effects of the Earthquakes

The Canterbury Earthquakes also had a significant impact on the number and locational distribution of employment in Greater Christchurch. In the immediate aftermath of the February 2011 earthquake, there was a 6% or around 11,500 decline (since recovered) in employment numbers as the Central Business District was cordoned off and other commercial and industrial areas were severely damaged or otherwise disrupted. Figure 9 below shows the predominant displacements of businesses within Christchurch City as a result of the earthquakes.

ChristchurchNZ analysed various data sets[40] to identify employment change over time, presented as hot (red) and cold (blue) areas of economic activity. This indicated significant employment movement out of the central

[40] Including: - Statistics Employment (Source: Business frame survey -- Statistics New Zealand); Home location of residents enrolled with a primary healthcare organisation (Source: Canterbury DHB records); Business Postal Redirections (Source: NZ Post records); Electronic transactions in the

city and from eastern to western parts of the City. There was also significant movement from the City to the surrounding districts of Selwyn and Waimakariri. The two districts remain significant to the Christchurch economy with more than 21,000 people commuting into the City from the districts daily[41].

As the central city is redeveloped, economic activity is returning. ChristchurchNZ surveyed businesses that had relocated from the central city and survived into the first half of 2013. Not all indicated that they would return to the central city as it was rebuilt. Business owners who responded later in the survey period were generally more satisfied with their new premises and less likely to return, suggesting that the longer businesses spend in their new environments, the more satisfied they will become with them and the less likely they will be to return to an inner city location[42]. This implies that the occupants of business space in the central city may be different as tenants are found for new central city buildings.

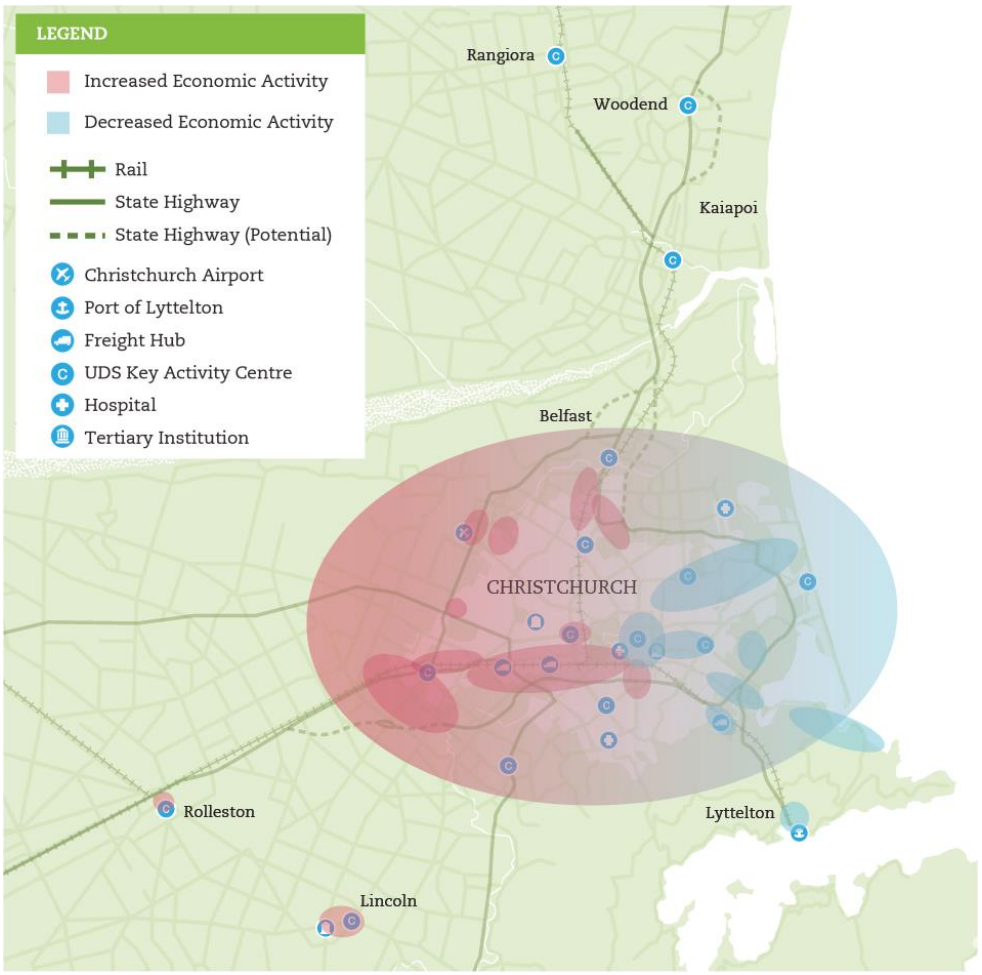
It is clear that the impact of the redistribution of residential population, business activity and visitor markets as a result of earthquake disruptions may not simply reverse over time (excluding construction sector activity). As the city develops there could be new distribution patterns and behaviours. Some locational decisions may have already become entrenched through the disruption period whilst others could develop in response to re-development decisions made by land owners/developers, businesses and government. However, there has been a move to enable greater flexibility of use in the CBD, with industrial land being zoned for intensification and mixed use activities. This enablement, along with significant government investment in the central city may attract development back into the CBD. While there has been information presented on the progress of the rebuild, there is no known research on the potential impacts of changes to the planning framework in the CBD.

retail, accommodation and food service sector (Source: Paymark); Mobile telephone use (Source: Telecom records); Business telephone connections and disconnections (Source: Telecom records); Regional GDP Estimates (Source: Infometrics) New Zealand (2014), "2013 Census Quickstats about Greater Christchurch", page 30.

[41] Source: Stats NZ Census 2013 data

[42] S Kemp, K Y Chan & C Grimm; "Australasian Journal of Disaster and Trauma Studies Volume 2013-2".

Figure 9. Composite economic activity indicator map as at November 2012



Source: ChristchurchNZ

4.3 Gross Domestic Product (GDP)

GDP is New Zealand's official measure of economic activity and growth. It represents the total value of output (or production) carried out by all firms, government bodies, non-profit institutions and households in a given area, in a given period, as a result of the goods and services being produced.

In terms of the NPS-UDC, GDP provides an additional metric to cross reference against employment. The GDP associated with a sector has a close relationship to the employment in that sector and will generally follow the same trend. However, in industrial sectors there has been a continuous substitution or move away from labour (employment) to capital (machines), which has resulted in greater productivity with fewer jobs. For the industrial sector it is useful to also assess the GDP generated, as well as the employment sustained.

The agricultural hinterland of Greater Christchurch is a foundation of the regional economy and the region's dominant export base, with the top export commodities being dairy, meat and forestry products and tourism. Christchurch City's economy is strong when the regional economy is performing well and equally the region benefits from a city that is performing well.

Within the Greater Christchurch urban area, primarily city-based business services and manufacturing sectors support the wider regional economy as well as servicing urban activities. Goods produced in the region for export are distributed primarily through the two major ports of Lyttelton Seaport and Christchurch International Airport. There are also two new inland ports at Rolleston and an established inland port in Woolston. Of interest is the increasing value of goods exported from Christchurch International Airport, illustrating a change towards higher value logistics in the City and potentially the changing manufacturing landscape.

The earthquakes had an immediate impact on the city and region's economic output. Infometrics Ltd estimated that Christchurch's output in the year to March 2012 was down 2.9 percent from the previous year in the immediate aftermath of the earthquakes. As construction began and businesses returned to normal operating conditions, GDP growth improved, with a peak of 5.2 percent growth estimated in the city in the year to September 2013.

As Figure 10 shows, between 2012 and mid-2014 Christchurch and Canterbury experienced exceptional economic performance in response to the earthquake rebuild, both in comparison with their historic growth rates and national GDP at this time.

The growth rate has begun to ease as the rebuild has come off a plateau, however estimates indicate that the economy itself continues to grow, albeit more slowly with the most recent annual estimates being 1.0 percent and 0.9 percent in Christchurch and Canterbury, respectively[43].

Figure 10. Gross Domestic Product – Annual Average Percent Change

Source: Statistics New Zealand, Infometrics, CDC

[43] Christchurch and Canterbury Quarterly Economic Report (2017)

Gross Output and Value Added are additional economic metrics that are commonly used to measure total economic activity in an economy – i.e. the value associated with production of goods and services.

The Gross Output measures the total sales value of goods and services generated in an economy. This measure is sales price of goods and services, which includes the value of intermediate inputs. For example, a supermarket sells a bunch of bananas at $3 per kg. The Gross Output value of this transaction is the entire sales price – i.e. $3. To deliver the bananas to the customer the supermarket will have purchased goods (bananas, power, rent etc.) and services (haulage, security etc.) from other businesses – these purchases from suppliers are called intermediate inputs. The intermediate inputs are values created by other sectors of the economy or even other economies (i.e. imports).

Value Added measures the marginal increase in the value of goods and services generated in an economy. This measure is broadly synonymous with Gross Domestic Product – which measures the value produced by the economy (simply removing the value of intermediate inputs). In the example above, the Value Added generated by the sale of the bananas in the supermarket is likely to be less than $1 – with most of the sales value being related to intermediate inputs that are imported (bananas and petrol) or related to value generated by other sectors (utilities - power, services - security/cleaning).

In summary, Gross Output is a much broader measure of the economy than Gross Domestic Product (GDP), which is limited to “Value Added” in the local economy (i.e. wages, salary and profits). Having regard to this, gross output is a more appropriate measure than GDP (refer to section 5.3.1 for projections by value added). At the time of this BDCA, there was no data available to present gross output by sector at a Greater Christchurch level.

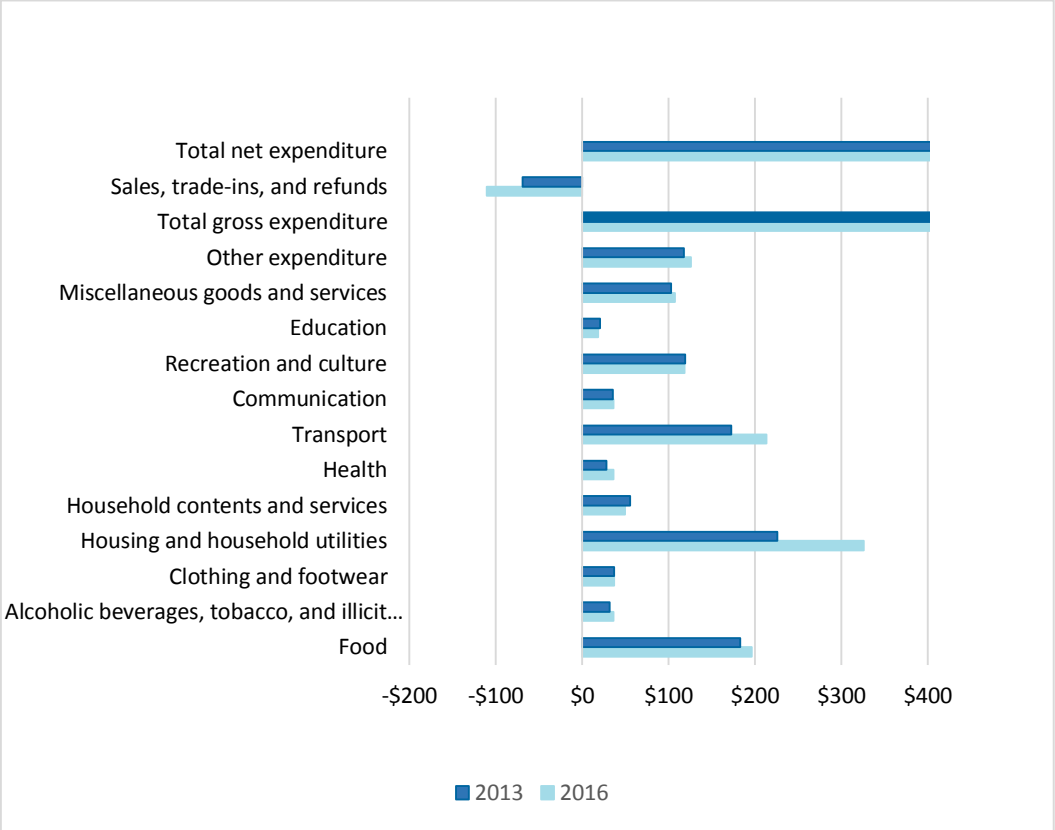
4.4 Retail Expenditure

Household, business and visitor expenditure is a key driver of retail growth i.e. the demand for retail floorspace is (mostly) derived directly from population/households, businesses and visitor spending. Growth in the number of households is therefore a key element driving growth in retail expenditure. Projections also take into account changes in the number and composition of the population and households.

Assumptions made in determining projected retail expenditure include an increase in spend per capita over time and decreasing household sizes, being reflected in increased demand for retail floorspace and therefore land.

Household expenditure has been growing at a relatively stable rate (or slow rate) in recent years as shown in Figure 11. For the Canterbury region over the period 2013-16, housing and household utilities are the only goods to have experienced a significant change.

Figure 11. Average weekly household expenditure - Canterbury



Source: Statistics NZ, ChristchurchNZ

For Christchurch City, current retail expenditure is estimated to be around $5 billion per year and which supports more than 900,000sqm of retail floorspace (GFA)[44]. Retail expenditure for Waimakariri District is estimated to be around $450m per annum, supporting around 74,000sqm of retail floorspace[45]. No information is presently available for Selwyn District.

The extent to which the projected growth in retail expenditure determines land requirements is influenced by the nature of the retail activity. However, a distinction can only be drawn between large format retail and specialty retail, the former having a larger store footprint and therefore a greater land requirement i.e. a distinction cannot be drawn between the land requirements of different types of specialty retailing e.g. fashion retailing and other types that may locate in the same zone and may have similar store size and location requirements.

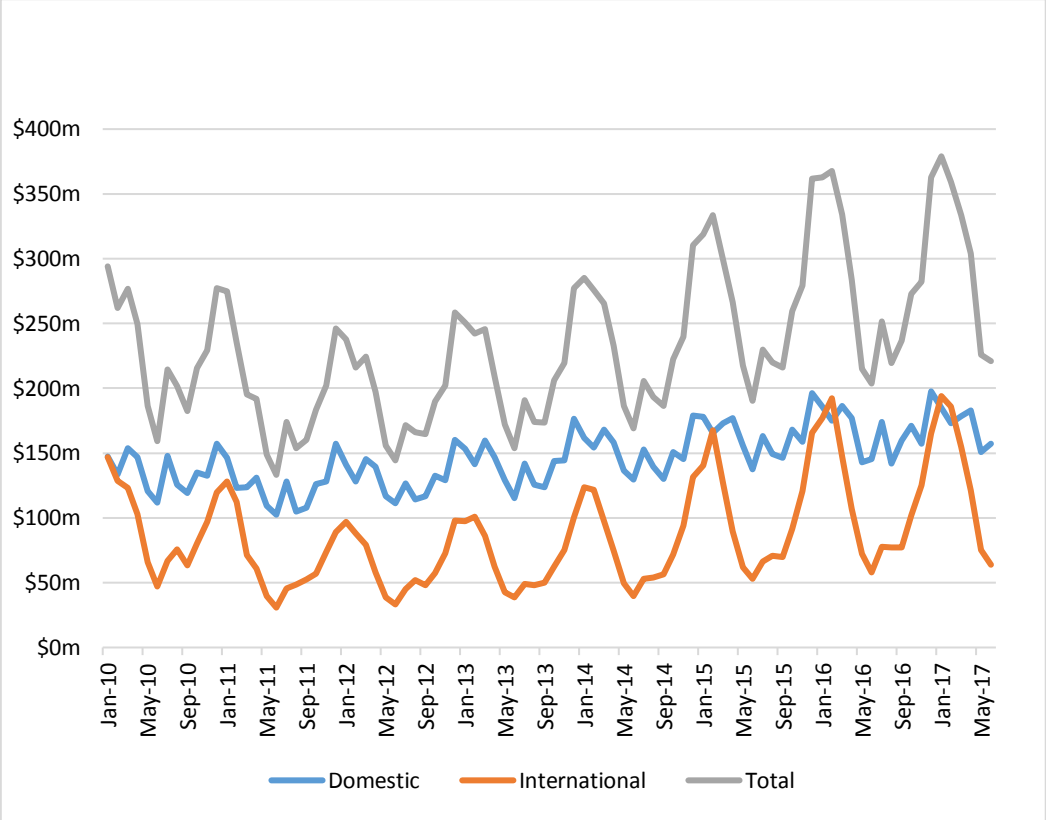
In terms of large format retailing, the projected growth in retail spend is anticipated to be similar in dollar terms to specialty retailing. However, the projected land requirement is greater for large format retailing due to the associated larger footprint.

The city and region also operate as an important gateway and destination for the South Island and there has been steady growth in visitor spending following the earthquakes (Figure 12). Most of this spending is through international visitors, with numbers increasing in the region over recent years, while domestic spending has remained stable. Visitor numbers are expected to continue growing, bringing further spending to the region, although the tourism sector is highly volatile and difficult to predict beyond the short term. International visitor spending is a factor of visitor numbers, which are influenced by international exchange rates, state of the

[44] Property Economics Limited (2017) Christchurch Business Land Capacity Assessment
[45] Property Economics Limited (December 2016), Waimakariri District Development Strategy

economy in the country of origin, the availability and standard of hotels e.g. capacity of international 5 star hotels, and changes in airline movements including the number of airlines and movements to NZ and Christchurch[46]. Given the uncertainty, a growth rate of 3% per annum has been adopted over the NPS-UDC assessment period.

Figure 12. Visitor Spending - Canterbury



Source: ChristchurchNZ, Min. Business, Innovation & Employment

Latest figures from ChristchurchNZ suggest that retail sales in Canterbury are beginning to stabilise following a downturn following very strong growth[47]. In the quarter to June 2017, retail spending in Canterbury increased by 2.6% on the previous year and has been below the NZ growth rate (6.7%) for over a year. Strong growth in retail spend following the earthquake was possibly due to spending on construction materials for earthquake repairs as well as migrant construction workers setting up their households.

[46] As an example, there has been growth in the number of airlines flying to Christchurch International Airport, including direct flights to / from China and the introduction of an A380 service to / from Dubai.
[47] ChristchurchNZ June 2017 Quarterly Economic Report

5. Future Demand for Business Land

5.1 Introduction

The NPS-UDC requires high growth Councils to estimate the demand for different types and locations of business land and floor area for businesses, and the supply of development capacity to meet that demand, in the short, medium and long terms[48].

The accompanying guidance recommends using the base demographic and economic structures discussed in sections 3 and 4.2.1 to this report, to generate economic projections for the three high level business sectors (retail, office, industrial), to enable future business space requirements to be established[49].

This section sets out the results of the detailed modelling undertaken to project employment growth to 2048. The projections in this section is reported at the Greater Christchurch level although a territorial level assessment has been undertaken. These employment projections are then translated into floorspace and land requirements by location, in order to subsequently compare projected land demands against the supply of business land enabled through the planning documents of each Council.

5.1.1 Economic Futures Model

The Greater Christchurch Partnership commissioned economic consultants, Market Economics, to update a customised multi-regional input-output model they had previously developed for Christchurch City Council and extend it to the Greater Christchurch area. The model, known as the Economic Futures Model (EFM) provides a comprehensive evaluation, including assessment of direct, indirect (i.e. through supply chains) and induced (i.e. brought about through consumer spending) impacts in its analysis to generate employment projections. A technical report is available which explains the methodology and assumptions used in the model[50].

Whilst the functionality of the EFM allows Councils to undertake multiple alternative scenarios and extract multiple different time series, the following summary outlines the total economic activity in the Greater Christchurch area, under the **Medium** population growth scenario for Christchurch City and **Medium-High** population growth scenario in Selwyn and Waimakariri Districts, as measured by four variables (Employment Count, Modified Employment Count, Gross Output and Value Added).

Briefly, the EFM growth is (mostly) driven by final demand estimates which rely on the following key projection sets:

- **Population Projections** – many of the sectors in the economy supply goods and services directly or indirectly to the local population. The EFM uses SNZ official projections to establish the growth in the local population. Included within the projections is an age/sex breakdown, which allows account to be taken of demographic changes over time. The local population generates demand for goods and services from the population driven sectors (retail, personal services, health, education etc.).[51]
- **Export Projections** – some sectors in the economy produce goods that are exported. Therefore, the growth of these sectors is linked to international markets. The growth projections

[48] NPS-UDC Policy PB1(b)
[49] National Policy Statement on Urban Development Capacity: Guide on Evidence and Monitoring, page 57
[50] Gordon and Kim (2017) Greater Christchurch Urban Development Strategy Economic Futures Model Technical Report
[51] SNZ (2016) Sub-national Population Projections.

for exports have been set based on an assessment of the historic trends observed in export activity.[52]

- **Construction Projections** – the Christchurch earthquakes (and to a lesser extent Kaikoura earthquakes) have resulted in unprecedented rebuild work in the region. The reconstruction work has generated a significant number of jobs in the construction sector and businesses providing goods to the sector. The rebuild will be completed in the medium term which has implications for the employment in the construction sector. The EFM uses the regional employment projections from the National Construction Occupation Model for the construction sector.[53]

- **Tourism Projections** – Regional tourism projections have been used to inform the growth in tourist spend in the EFM.[54]

- **Intermediate Demand** – many sectors provide goods and services to other sectors – i.e. as inputs to production. In the EFM, the demand for these goods and services is projected according to the growth in the final demand in the other sectors.[55] For example, in order for a supermarket to supply goods to a customer, it will purchase a range of goods and services from other sectors (intermediate demand). These sectors would include wholesalers, transport, utilities, professional services etc.

5.1.2 Retail Expenditure Model

Christchurch City also commissioned an expenditure model to project demand for retail floorspace and land. The model utilises the population and household projections agreed by the Greater Christchurch Partnership along with data about visitor and business retail spend to forecast projected total retail expenditure over time. A more detailed breakdown of the model and its inputs are set out in Appendix 5 to the Property Economics Capacity Assessment Report (January 2018) included as Appendix 9.

5.2 EFM Employment Projections

The EFM projects employment growth using two metrics – Employment Counts (ECs), and Modified Employment Counts (MECs), the latter of which includes working proprietors as well as employees. The study of demand for floorspace and land in an urban economy commonly focusses on the relationship between workers and their space requirement. Specifically, for the NPS-UDC, the employment metric is important from the planning perspective because growth in employment in an urban economy commonly leads to demand for floorspace / land.

In the following section, total employment is defined as all sectors in the economy which includes employment in sectors that commonly locate in business zones (retail, industrial, commercial office and visitor accommodation) and employment in other sectors that commonly locate in non-business zones (primary, utilities, community). The following sub-sections present the results of the EFM modelling for those sectors that typically locate in business zones.

The employment in the three groupings of sectors (retail, commercial office and industrial) shown in subsequent analysis cannot be simply converted into demand for floorspace in a single planning zone or location. These groups have been defined because the businesses in the sectors 'predominately' locate in a type of space that is generally in a business zone. It was beyond the scope of the EFM to establish an

[52] SNZ (2017) Exports by Port data.
[53] Market Economics (2017) National Construction Occupation Model
[54] GCP (2017) Tourism projections.
[55] Market Economics (2017) Regionalised Input Output tables.

understanding of the zone preference / distribution of each sector. Therefore the following four groupings of sectors presented in this report are only provided as context and are not intended to establish the employment that could be located in a business zone or specific types of floorspace. i.e. the EFM is unconstrained by policy changes or capacity and provides projections based on the existing distribution of employment.

Employment sectors classified by ANZSIC code have been aggregated into the following four groupings for the purposes of this assessment:

- **Retail Employment** – which is defined as Retail and some of Accommodation and Café ANZSICs. Demand for commercial services that locate in similar space as retail (for example banking and services), have been combined with projections for retail employment to determine future demand for commercial floorspace as presented in the results.
- **Commercial office employment** – which is defined as finance, insurance, professional services and personal other services ANZSIC sectors.
- **Industrial employment** – which is defined as manufacturing sectors, wholesalers and transport sectors. Construction results are reported separately because this sector has experienced significant growth as a result of the earthquake rebuild.

It is important to note that the relationship between sectors and business zones cannot be described using a simple one-to-one relationship. The employment associated with a sector could be located in multiple zones. A common example is sectors that have a large number of small businesses that operate from a home office. As a result there is normally a portion of the economy located in residential zones (which includes accountants, architects, builders, plumbers, retailers, hairdressers etc.). Another less common example is an industrial activity that could locate in multiple locations, for example a business that has a factory in a rural zone and a head office in a commercial zone and a warehouse in an industrial zone.

Finally, this section does not present results for sectors that predominantly locate in non-business zones e.g. primary (farming/mining), utilities (power, water, sewage) and community (government, education, health) sectors[56] on the basis that these sectors generally do not (directly) generate demand for business zoned land. However, it is important to note that some of these sectors are expected to grow strongly in the future (health and education) and will become more important in the economy. Given that most of the locations and the scale of these sectors are dictated by central government, there is limited value in councils attempting to plan for the unique requirements of these growth sectors[57]. Furthermore, Government Ministers and local Councils are 'requiring authorities' so have the ability to designate land for public works and are not therefore constrained by district plan zoning.

5.2.1 Total employment

The EFM projects that both the Employment Count (EC) and Modified Employment Count (MEC) will follow a similar growth pattern from 2016 to 2048. A slight dip in growth is foreseen between 2021 and 2026 due to the completion of earthquake rebuild. The dip in employment is mainly driven by an anticipated reduction in the construction workforce and a small decline in supporting sectors (manufacturing).

[56] However there will be some employment in these sectors that will locate in business zones. For example, some substations, refuse collection and sewage treatment facilities may be located in industrial zones. For Christchurch City, the assessment undertaken by Property Economics does assume that 10% of primary industrials, 10% of mining employment and 30% of utilities will locate in industrial zones.

[57] Some of the private healthcare and education providers/businesses and associated employment will be located in business zones. The capacity assessment undertaken by Property Economics for Christchurch City makes allowance for this.

From 2026 onwards, the growth is expected to continue at a rate of roughly 0.8% per annum over the remainder of the projection period.

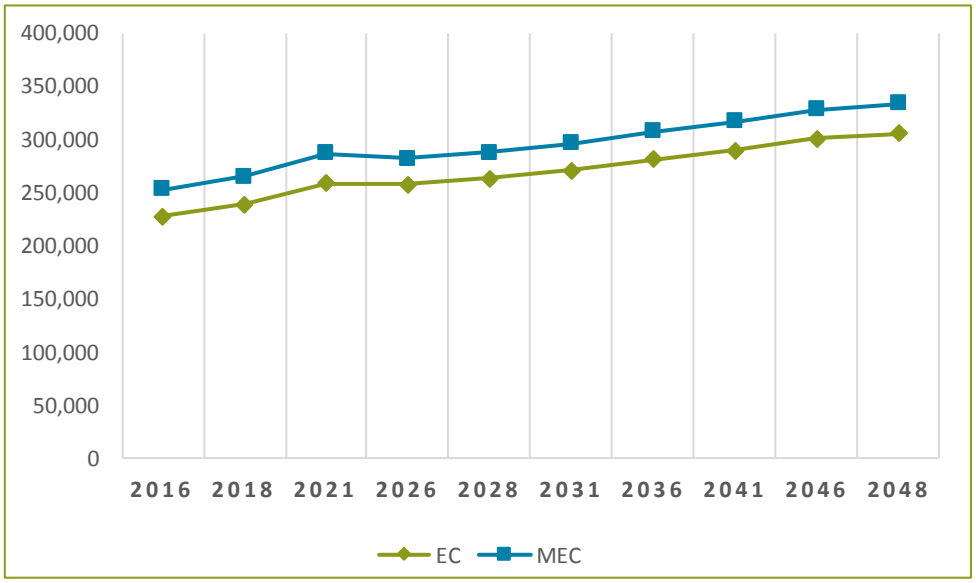
Most of the growth in employment in the EFM is driven by population growth in the Greater Christchurch area. The highest growth sectors are the ones that provide goods (retail contributes to 17% of growth), health/education (contributes to 42% of growth) and services (19% of growth). The structure and quantum of the employment growth discussed in this section could be different if the population growth projected by SNZ does not eventuate. The tourism sector is also expected to contribute to a significant proportion of the growth over the period (accommodation contributes to 16% of growth).

Employment in the primary and industrial sectors is expected to remain relatively stable – which contrasts with historic negative trends observed for these sectors.

EC is estimated to increase from 228,000 employment opportunities in 2016 to 259,000 employment opportunities by 2021. After the completion of the earthquake rebuild, employment opportunities are expected to reduce until 2026. After 2026 ECs are expected to grow more rapidly – reaching nearly 306,000 by 2048.

The MEC follows a similar growth path as the EC from 2016 to 2048, with a growth rate of 0.9%. Figure 13 shows that the MEC decreases from 284,000 in 2021 to 282,000 by 2026. This reflects the assumption that the job market is expected to return to a more stable growth rate after the earthquake rebuild. After 2026 MEC employment is expected to grow more rapidly – reaching 334,000 by 2048.

Figure 13. Greater Christchurch Total Employment – EC and MEC



Employment within the Selwyn and Waimakariri Districts' portion of the GCP area is expected to grow at a much faster rate than the total GCP and/or Christchurch. In the medium term MEC is expected to grow by 2.0% per annum in Waimakariri and 2.5% per annum in Selwyn compared to 0.9% per annum in Christchurch, while in the long term the employment is expected to grow by 1.2% per annum in Waimakariri and 1.6% per annum in Selwyn compared to 0.8% per annum in Christchurch. However the faster growth observed in Waimakariri and Selwyn is caused by the fact that both economies are relatively small compared to Christchurch (which still contributes to over 80% of growth over the long term).

One of the significant differences between Waimakariri and Selwyn over the period as compared to Christchurch is the difference in industrial employment, where Christchurch employment decreases from current level while Waimakariri and Selwyn employment increases. This difference is mostly driven by the construction sector and the completion of the rebuild in the medium term.

5.2.2 Retail employment

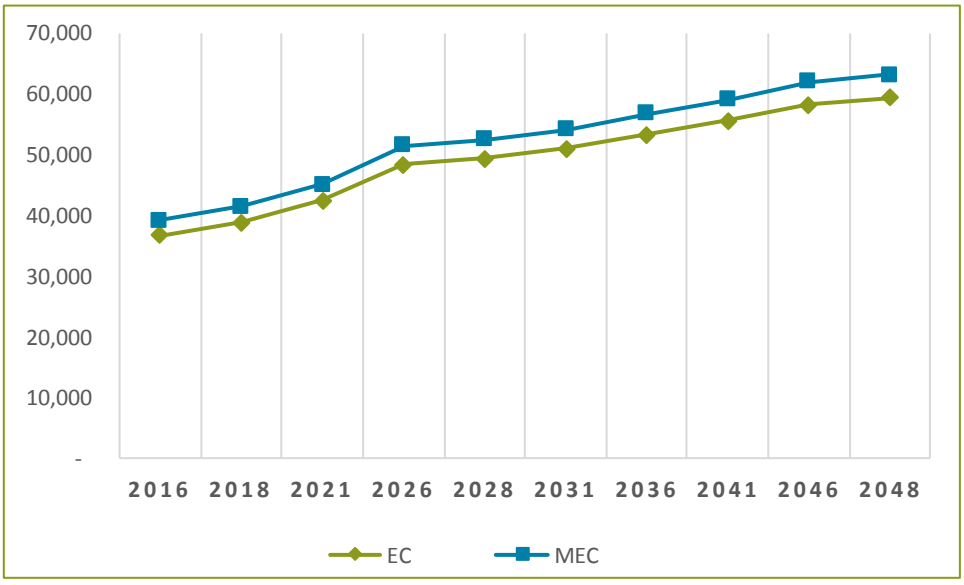
The retail grouping defined in this section is based on a traditional classification of retail (exchange of physical goods) and is combined with commercial services (provision of a service such as a bank or hairdresser that does not involve the purchase of goods) for the purpose of presenting demand results. However, commercial services are excluded from the overview below of projected retail employment.

Retail activity generally locates in centres or commercial zones at the ground floor[58]. However, there can be a significant amount of retail activity located in industrial type zones and non-business zones.

The employment projections for retail follow a similar path as the total employment in GCP. Overall, retail employment, primarily driven by local population growth, is anticipated to increase at a steady pace from 2016 to 2048, with a slowing growth rate after 2026.

In addition, tourism growth also has a positive impact on the retail sector. Regional tourism forecasts indicate a significant increase in the medium term (until 2026) – which influences the growth in retail over this period. After 2026 tourism growth returns to its historic rate of growth, with a resultant slower rate of growth anticipated in associated retail.

Figure 14. Greater Christchurch Projected Retail employment – EC and MEC



Between 2016 and 2048 the retail employment count in GCP is expected to grow at a quicker rate (1.4% per annum) than the total GCP employment (0.9% per annum). From 2016 to 2026 the total EC is projected to grow at a high rate of 2.8% per annum where after the growth rate decreases to 1.1 % per annum from 2028 to 2048. The MEC follows a similar path, again the total GCP employment has a slightly lower growth rate of

[58] Market Economics Consulting (2018) Greater Christchurch Partnership Economic Futures Model Context Paper

0.9% per annum from 2016 to 2048 compared to retail's rate of 1.5% per annum. The retail MECs are expected to increase from 39,000 opportunities in 2016 to 63,000 opportunities by 2048.

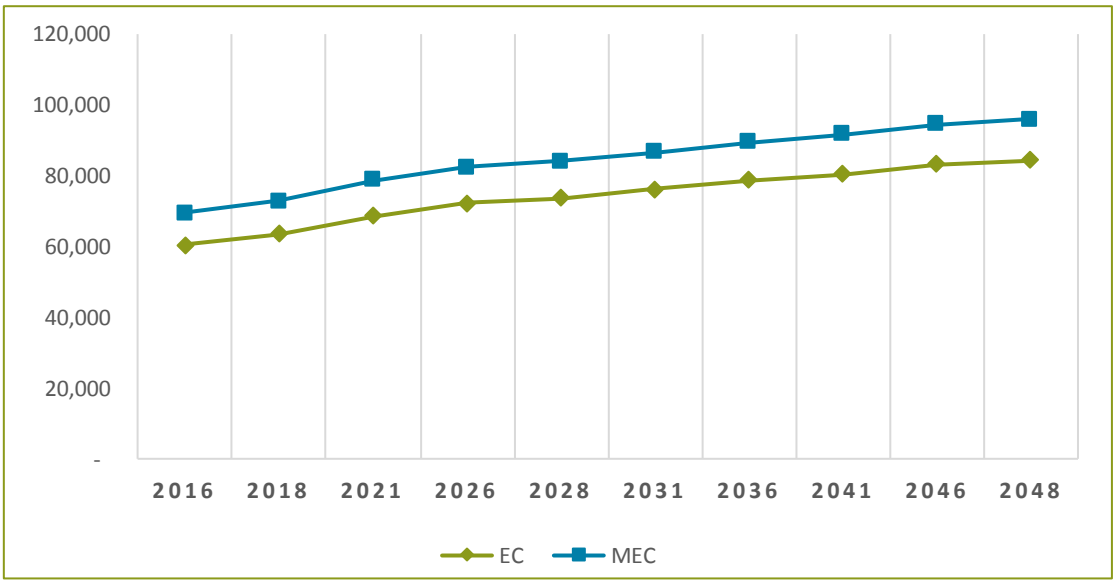
5.2.3 Commercial Office employment

The Commercial Office grouping in this section includes the sectors of the economy that mostly locate in an office environment. Much of the employment in these sectors will be located in multi-level office blocks in centre/commercial zones (above ground floor). However, there can be significant amounts of employment from these sectors located in non-business zones (home offices) and industrial zones (ancillary office activity).

Commercial office employment opportunities are expected to experience strong growth in EC and MEC employment from 2016 to 2048. Around one third of the growth in commercial office employment is related to the professional, scientific, technical, administration and support services sectors which service both businesses and residents. In the long term, commercial office ECs are expected to increase from 60,000 opportunities to just over 84,000 opportunities (1.1% per annum). Over this same period, MECs are expected to grow from 69,000 to 96,000 which is 1.0% per annum.

However there is one period where employment growth declines to almost zero (between 2021 and 2026) due to a reduction in demand for services from businesses in the construction and industrial sectors as the workforce completes earthquake rebuild work.

Figure 15. Greater Christchurch Commercial Office employment – EC and MEC



5.2.4 Industrial employment

The Industrial grouping is defined in this section of the report as sectors that undertake manufacturing, wholesale, storage, construction and transport. These sectors tend to locate in industrial zones. In some instances businesses from these sectors locate in rural (e.g. primary manufacturing, transport), residential, or commercial zones (e.g. transport, media, storage).

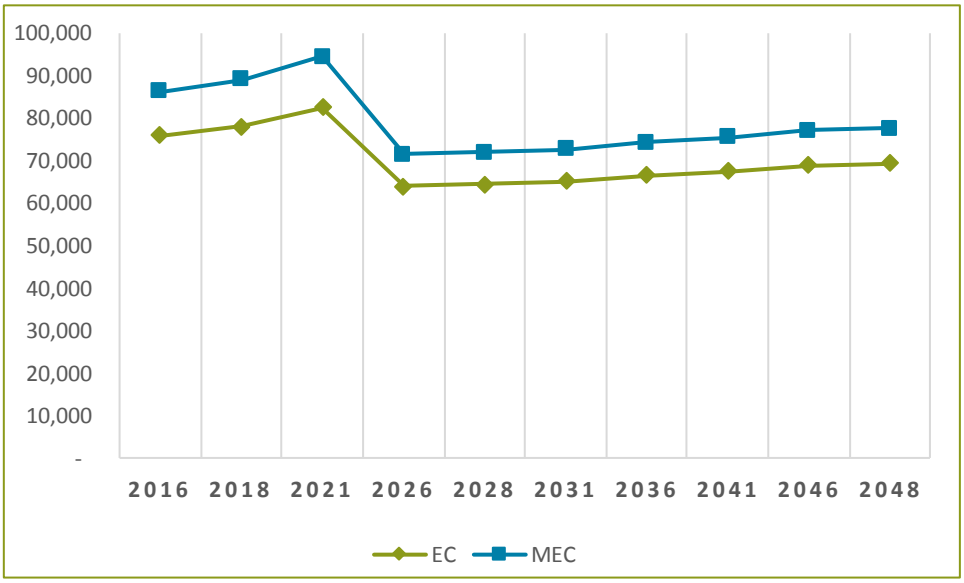
Between 2016 and 2021 industrial employment is expected to grow at a rate of 1.7% per annum. Between 2021 and 2026 the total EC is expected to decline at a rate of -5.0% per annum which is driven by the reduction

in demand from the construction sector. After 2026 the industrial employment is expected to grow at a rate of 0.4% per annum; this return to pre-earthquake levels of growth being primarily driven by export demand.

The MEC follows a similar growth path as the EC from 2016 to 2021, with a growth rate of 1.8%. Figure 16 shows that the MEC decreases from 94,000 in 2021 to 71,000 by 2026. This decrease is driven by the reduction in demand from the construction sector. After 2026, MEC employment is expected to grow – reaching just over 77,000 by 2048.

The sectors that have industrial employment mostly supply intermediate goods to other businesses in the economy or process primary sector outputs for export. The limited growth in the primary sector means that there is stable growth in processing for exports, while the intermediate goods to other businesses is expected to reduce after the earthquake rebuild (see Figure 17).

Figure 16. Greater Christchurch Industrial Employment – EC and MEC

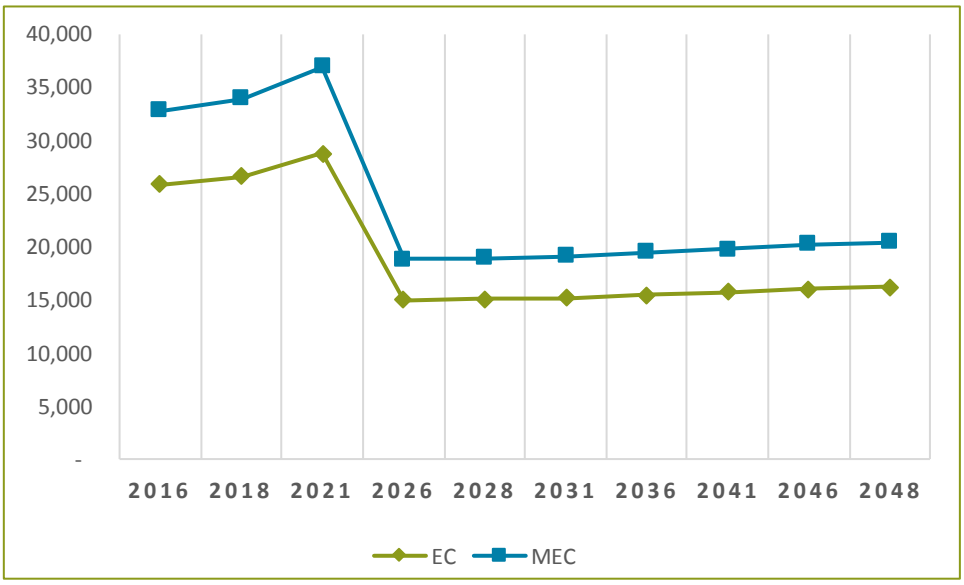


As a result of the earthquake rebuild the level of employment in the construction industry is currently well beyond the natural level. Additionally, the bulk of this sector does not operate from a permanent office or warehouse – commonly operating on-site or from a home office. As such, it is important to present construction as an independent sector for the GCP because the level of employment in the sector is likely to decline significantly in the medium term and much of this current employment is transient (i.e. not requiring business zoned premises). If this sector was included in the industrial employment, it could skew the interpretation of the results.

Between 2016 and 2021 the construction ECs are expected to increase marginally from almost 26,000 opportunities to nearly 29,000 opportunities with a growth rate of 2.4% per annum. Between 2021 and 2026 the rate grows at a negative rate of -12.3% per annum (nearly 13,900 opportunities). Although, it should be noted that from 2026, the growth trend is expected to remain at around 0.4% per annum up until 2048.

The growth in construction MECs from 2016 to 2021 is expected to increase at a rate of 1.1% per annum. From 2021 to 2026 the MEC experiences a negative growth rate of -12.6% per annum and is expected to grow at a positive and stable rate of 0.4% per annum from 2026 to 2048.

Figure 17. Greater Christchurch Construction Employment – EC and MEC



5.3 Greater Christchurch Gross Output and Value Added

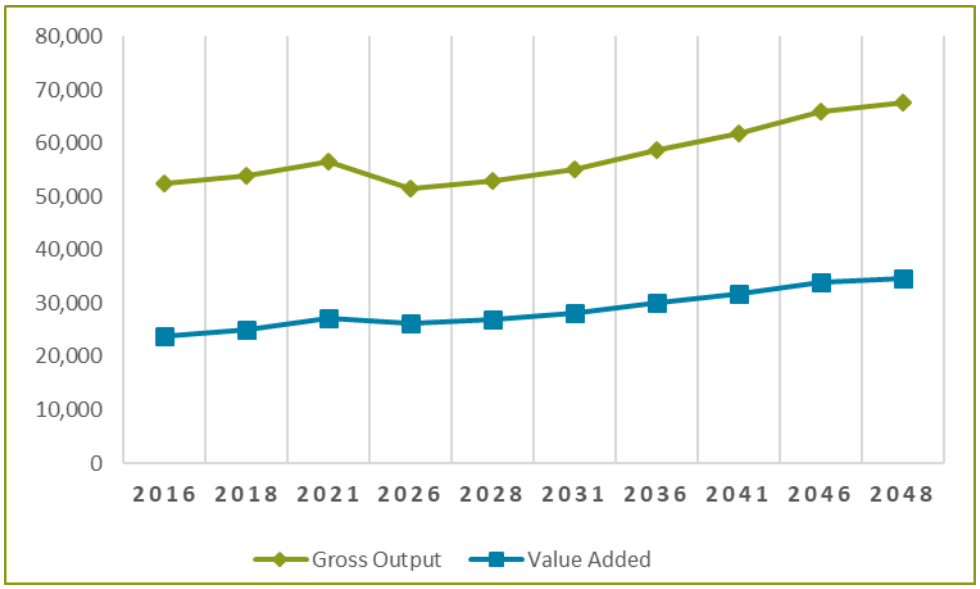
5.3.1 Gross Output

The Gross Output in Greater Christchurch is expected to have an overall positive growth trend over the long term even though there is expected to be a decrease in gross output between 2021 and 2026 of -1.8% per annum. Between 2021 and 2026, the gross output is expected to drop from $56 billion to $51 billion. The gross output is anticipated to recover and slowly increase with a 1.2% per annum, from roughly $51 billion in 2026 to just over $67 billion by 2048. Long term growth is expected to be primarily driven by the growing demand associated with population growth, export activity, tourism, and intermediate demand associated with a growth economy.

5.3.2 Value Added

The Value Added is expected to increase at 1.2% per annum over the projection period (2016 to 2048). As evident in Figure 18 below, between 2016 and 2021 the Value Added in the area is anticipated to increase at a rate of 2.6% per annum and decrease at a rate of -0.8% per annum between 2021 and 2026. The Value Added in 2026 is expected to be roughly $26 billion ($1 billion less than in 2021). From 2026 onwards, stable and positive growth is expected.

Figure 18. Greater Christchurch Gross Output and Value Added ($ million)



5.4 Retail Expenditure Projections – Christchurch City

The Property Economics (PEL) Retail Expenditure Model estimates the total level of retail expenditure generated by the Christchurch UDS area market on an annualised basis for the years 2018 to 2048. An additional 14% of total expenditure has been accounted for in determining the level of demand in a Christchurch context, based on the actual levels of spending inflow derived from MarketView shopping transaction pattern data. The total market opportunity therefore comprises the core catchment generated retail expenditure plus net retail inflow.

Table 7 below sets out the projected expenditure growth for Christchurch City and the four quadrant 'catchments'. Property Economics (PEL) explains that it is important to understand that retail expenditure generated in the identified market or 'quadrant' does not necessarily equate to the sales within that particular area. Residents can freely travel in and out of the area, and they will typically choose the centres with their preferred range of stores, products, brands, proximity, accessibility and price points. A good quality offering will attract customers from beyond its core market, whereas a low quality offering is likely to experience retail expenditure leakage out of its core catchment. For that reason, it is appropriate for modern retail markets to be assessed on the basis of "layered catchments" where consumers spread their retail spending across a wider spectrum of centres, with the majority of their "higher order" spend going to "higher order" centres (predominately large scale regional or main metropolitan shopping designations). Meanwhile, convenience spend tends to remain more localised. In other words, a consumer could be in the primary catchment of numerous centres, not just one.

Table 7. Projected retail expenditure for Christchurch City

NET RETAIL DEMAND ($m)	3 Year (2021)	10 Year (2028)	30 Year (2048)
South Quadrant	$110	$360	$1,200
North Quadrant	$60	$220	$720
East Quadrant	$40	$150	$450
Central Quadrant	$50	$170	$520
TOTAL CHRISTCHURCH	$260	$900	$2,890

PEL estimates that the Christchurch UDS area currently generates just under $5 billion per year in retail expenditure. In the next 30 years it is projected that retail expenditure (including the 14% net inflow) will increase by $260m, $900m and $2.9 billion in the short, medium and long terms respectively, relative to the current level of net retail demand.

The current level of annual retail expenditure is estimated to sustain around 903,300sqm of retail floorspace (GFA), increasing by around 525,000sqm to nearly 1.43 million sqm by 2048.

5.5 Retail Land Demand for Christchurch City

Property Economics (PEL) took their retail expenditure model projections of retail spend and used a sustainable footprint approach to assess retail demand. Sustainable floorspace in this context refers to the level of floor space proportionate to an area's retainable retail expenditure that is likely to result in an appropriate quality and offer in the retail environment. They explain that this does not necessarily represent the break-even point, but a level of sales productivity ($/sqm) that allows retail stores to trade profitably and provide a good quality retail environment and thus economic well-being and amenity.

PEL uses various assumptions around land to building ratios and the ratio of gross to net floorspace area (the sustainable net retail floorspace) and the extent to which retail activities might occupy lower and upper floors, to determine the net additional floorspace and land requirements for retail (including commercial service) activities[59].

Included in their projection of land demand for retail is an additional margin of 20% over the short and medium term and 15% over the long term, as required by the NPS-UDC Policy PC1.

The assessment concludes that the net additional land requirement for retail and commercial service activities in the Christchurch UDS area, including the NPS additional margin, is estimated to be around 161 hectares by 2048. By Christchurch sub-area or quadrant, the PEL results suggest that over the long term, retail demand will be greatest in the northern and southern quadrants with a land requirement of 40ha and 67ha respectively. These demands correspond to areas of significant population and household growth projected and planned for, in these parts of the City.

It is worth noting that CCC and PEL have also assessed the extent to which retail activities displaced by the Canterbury earthquakes may place additional demands on commercial land supply, when their temporary

[59] Refer to Methodology (Appendix 11) and the PEL report (Appendix 9)

recovery related concessions expire in June 2021[60]. However interrogation of the Council's Temporary Activities Permit database suggests that this amounts to only around 3,000sqm. Given the relative small scale of this additional demand, it has not been factored into this assessment.

Table 8. Projected retail demand for Christchurch City

	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$260	$900	$2,890
Retail GFA (sqm)	49,650	164,650	524,400
Non-Retail Commercial Services GFA (sqm)	24,825	82,325	262,200
Total Retail / Commercial Service Requirement GFA (sqm)	74,475	246,975	786,600
Likely Land Requirement (ha)	13.2	43.9	139.8
Likely Land Requirement (ha) + NPS buffer	15.9	52.7	160.8

Table 9 below shows the distribution of projected net retail demand in Christchurch by sub-area.

Table 9. Projected retail demand for the Christchurch City by sub-area

CENTRAL	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$50	$170	$520
Retail GFA (sqm)	9,600	30,250	93,750
Non-Retail Commercial Services GFA (sqm)	4,800	15,125	46,875
Total Retail / Commercial Service Requirement GFA (sqm)	14,400	45,375	140,625
Likely Land Requirement (ha)	2.6	8.1	25
Likely Land Requirement (ha) + NPS buffer	3.1	9.7	28.8

EAST	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$40	$150	$450
Retail GFA (sqm)	8,100	26,450	81,600
Non-Retail Commercial Services GFA (sqm)	4,050	13,225	40,800
Total Retail / Commercial Service Requirement GFA (sqm)	12,150	39,675	122,400
Likely Land Requirement (ha)	2.2	7.1	21.8
Likely Land Requirement (ha) + NPS buffer	2.6	8.5	25.0

NORTH	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$60	$220	$720
Retail GFA (sqm)	11,900	40,400	130,300
Non-Retail Commercial Services GFA (sqm)	5,950	20,200	65,150
Total Retail / Commercial Service Requirement GFA (sqm)	17,850	60,600	195,450
Likely Land Requirement (ha)	3.2	10.8	34.7
Likely Land Requirement (ha) + NPS buffer	3.8	12.9	40.0

SOUTH	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$110	$360	$1200

[60] This is the total floorspace that CCC has established was granted temporary activity permits under the Canterbury Earthquake (RMA Permitted Activities) Order 2011 and where the activity is unlikely to meet district plan requirements so would need to find alternative, permanent accommodation, when their approvals expire in June 2021.

Retail GFA (sqm)	20,050	67,550	218,750
Non-Retail Commercial Services GFA (sqm)	10,025	33,775	109,375
Total Retail / Commercial Service Requirement GFA (sqm)	30,075	101,325	328,125
Likely Land Requirement (ha)	5.3	18.0	58.3
Likely Land Requirement (ha) + NPS buffer	6.4	21.6	67.1

5.6 Retail and Office Land Demand for Selwyn and Waimakariri

Selwyn District

Market Economics Limited (MEL) has used the same method to assess demand in the Selwyn and Waimakariri Districts using Growth Models with the same functionality. The Growth Models have been developed using the most detailed spatial data available to establish the current and future potential location of demand by location within each district. This modelling is constrained by the supply of land (and floorspace) within each location (planning zones) i.e. the Growth Models impose supply constraints to the EFM District level projections.

Appendix 11 outlines the methodology adopted for projecting the growth in floorspace using the EFM projections of employment by sector, the current employment in the Business 1 Zone and the current developed floorspace. Of note is that a conservative approach was adopted when setting key assumptions.[61] This conservative approach was selected because of the inherent uncertainty associated with projecting demand over the timeframes of the NPS-UDC. This is likely to be more apparent in the long term.

Table 10 below shows the net additional demand for Business 1 zone land in the Selwyn District. The key output is the likely land requirement in hectares with the NPS-UDC requirements. The table also shows the split of demand between retail and non-retail commercial activity in terms of floorspace. The modelling to estimate the relative demand for commercial land is influenced by a number of factors that need to be monitored on a regular basis, including projected population increases.

In summary, the demand for retail, commercial services and office activity is projected to increase by 24 hectares in the medium term and 50 hectares in the long term. For the Business 1 zone the NPS buffer suggests that 29 hectares should be provided for in the medium term and 57 hectares for the long term.

Table 10. Projected commercial demand for Selwyn District

	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$30.7	$143.2	$314.3
RETAIL GFA (sqm)	4,091	19,091	41,910
Non-Retail Commercial Services (sqm)	6,815	50,421	102,799
Non-Retail Office (sqm)	3,480	28,907	58,936
Total Retail / Commercial Service / Office Requirement (sqm)	14,386	98,419	203,645
Likely Land Requirement (ha)	3.5	24	50
Likely Land Requirement (ha) + NPS buffer	4.2	29	57

[61] For example, the assumption of work space ratios were held constant in the modelling. In the absence of historic data for Selwyn and Waimakariri, it was not possible to build evidence on the potential trends. However, there is data for some of the larger urban economies in Australasia that indicates that commercial work space ratios are decreasing – i.e. demand for space is decreasing per worker. Therefore, the assumption of constant work space ratio is considered to be conservative – which may result in the projected demand being higher than is required.

Waimakariri District

Demand for the Waimakariri District is estimated using the same method described for Selwyn District and therefore this method is not repeated. However Waimakariri District has an additional commercial zone, the Business 1 (town) and the Business 4 (small neighbourhood). In the following tables these two zones area combined.

Table 11 below shows the net additional demand for land in the Business 1 and Business 4 zones in the Waimakariri District. In summary, the demand is projected to increase by 18 hectares in the medium term and reach 26 hectares in the long term. For the Business 1 and Business 4 zone the NPS buffer suggests that 22 hectares should be provided for the medium term and 30 hectares for the long term.

Table 11. Projected commercial demand for Waimakariri District

	3 Year	10 Year	30 Year
NET RETAIL DEMAND ($m)	$161.4	$294.0	$421.7
RETAIL GFA (sqm)	21,522	39,212	56,232
Non-Retail Commercial Services (sqm)	42,978	45,104	62,319
Non-Retail Office (sqm)	21,587	22,655	31,302
Total Retail / Commercial Service / Office Requirement (sqm)	86,087	106,971	149,853
Likely Land Requirement (ha)	15	18	26
Likely Land Requirement (ha) + NPS buffer	18	22	30

5.7 Office Land Demand for Christchurch City

As discussed in section 4, the Christchurch office sector has undergone significant change over the past decade. Prior to the earthquakes the City had seen a substantial amount of commercial office activity exiting the Central City and other commercial centres into other zones, notably industrial zones. The earthquakes exacerbated this trend, with increased activity in out of centre locations, including temporary and semi-permanent tenancies.

PEL advises that the distribution of commercial office activity in Christchurch is typically driven by the desirability (including profile and amenity), supply and pricing of commercial land and premises. Their assessment of office space demands explains that unlike industrial space, there is a much greater uniformity to the properties occupied by commercial office activities and so the level of flexibility within the industry both between businesses and the ability for premises to be 'divided' is significantly greater than that with industrial activities i.e. there is greater ability for office based businesses to relocate to alternative office space.

A key variance between floorspace requirements and land requirements is the number of floors/storeys assumed in any given area. PEL has tested two scenarios for assessing the level of above ground office demand, adopting a scenario which assumes that new buildings are developed to a slightly increased building height over the planning period than historical pre-EQ levels[62]. The assessment also makes assumptions

[62] Refer to Appendix 11 (Methodology) for more detail on the building height assumptions used.

about the extent to which office demand will met on the same land as retail or commercial service activity i.e. as vertical floorspace above ground floor retail[63].

The assessment concludes that within Christchurch City, there is projected to be a land demand for commercial office development of 18 hectares over the short term, 26 hectares over the medium term and 82 hectares over the long term (refer to Table 12).

Table 12 shows that almost half of this demand is projected within the central quadrant, suggesting that as the redevelopment and rebuild of Christchurch is completed, much of the growth that had been pushed (predominantly) into the North and South areas of the City, will start to come back into the central quadrant and that the central city can be expected to become a hub for retail, commercial and other sector employment[64].

CCC and PEL have also assessed the extent to which office activities displaced by the Canterbury earthquakes may place additional demands on commercial land supply, when their temporary recovery related concessions expire in June 2021[65]. However interrogation of the Council's Temporary Activities Permit database suggests that this amounts to only around 6,000sqm. Given the relative small scale of this additional demand, it has not been factored into this assessment.

[63] PEL assessment assumes that 40% of office floorspace will be accommodated within buildings with a retail or commercial floorspace activity on the ground floor.

[64] Property Economics Christchurch Capacity Assessment page 23.

[65] This is the total floorspace that CCC has established was granted temporary activity permits under the Canterbury Earthquake (RMA Permitted Activities) Order 2011 and where the activity is unlikely to meet district plan requirements so would need to find alternative, permanent accommodation, when their approvals expire in June 2021.

Table 12. Breakdown of demand for office land in Christchurch by sub-area

	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Land Requirement (with Infrastructure land) (Ha)			Land Requirement with NPS Buffer[66]		
Quadrant	*Current*	*Trended*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*
North	11,139	13,352	302	44	2,213	9,902	3,275	66,972	1.49	0.49	10.05	1.93	0.63	12.76	2.32	0.75	14.67
South	20,390	24,343	569	35	3,953	17,145	3,826	107,643	2.34	0.52	14.68	3.04	0.67	18.64	3.65	0.80	21.44
East	4,485	5,500	140	60	1,015	4,438	2,458	30,471	0.83	0.46	5.71	1.08	0.59	7.26	1.32	0.71	8.34
Central	20,312	33,867	3,403	7,814	13,556	104,725	239,303	399,698	6.83	15.61	26.07	8.88	19.98	33.11	10.65	23.97	38.07
Christchurch	56,325	77,062	4,413	7,953	20,737	136,209	248,862	604,784	11.49	17.08	56.50	14.93	21.86	71.76	17.92	26.24	82.53

[66] Applying 20% additional buffer margin for short to medium term demand and 15% to long term demand.

5.8 Retail and Office Land Demand at a Greater Christchurch level

Table 13 below summarises the total demand for retail and office activities at a Greater Christchurch level.

Table 13. Total demand for retail and office activities for Greater Christchurch

	Short term	*Medium term*	*Long term*
Christchurch	36	81	246
Selwyn	4	29	57
Waimakariri	18	22	30
Greater Christchurch	**58**	**132**	**333**

In terms of retail demand, there is significant growth in expenditure over the long term, rising from $452.1 million over the short term to $3,625.8 million over the long term (not identified in the table). This together with office demand is driven by population growth and reflects the role of Greater Christchurch and its contribution to the South Island economy.

As discussed in the supporting technical report, the specialisation that occurs in office based sectors reflects the spatial concentration of activity in an urban economy and the benefits of connectivity and a highly skilled labour force.

5.9 Industrial Land Demand

Christchurch City

Property Economics (PEL) reiterates that the EFM projects a shift in Christchurch's economic profile, with the industrial sector expecting to become less prominent between 2018 and 2048, dropping from 32% of total employment to 22%.

In terms of the spatial distribution of industrial land demand in Christchurch, Table 6 of the PEL report[67] identifies both the significant amount of new industrial building development that has occurred (particularly in the central and south quadrants) associated with the rebuild, but also the strength of demand for industrial land and floorspace in the southern sector (including south west), which has been occurring over the past two decades but at an accelerated pace following the rezoning of large rural land holdings in 2015. The attractiveness and hence uptake of land in the south / south west of the City can be attributed to its good access to the State Highway network linking north and south and to the airport, seaport and inland ports. Also, land in western Christchurch is generally less constrained geotechnically than eastern and northern parts and there has been a relatively large available supply to accommodate market demands.

Looking ahead, Property Economics tests a number of scenarios for assessing the likely industrial land demands in Christchurch for the next 30 years. These scenarios reflect the degree to which under-utilised and vacant industrial land and floorspace in declining and vacating industrial sectors will be taken up for use by new and growing sectors. The industrial land requirement varies between 285 ha and 775 ha depending on the extent to which existing industrial land is utilised by new industries as opposed to requiring new greenfield land. PEL considers that "*the most likely position would be where the flexibility afforded each industry increases*

[67] Property Economics Limited (2017), Christchurch Business Land Capacity Assessment, page 30

over time as the market is more likely to move towards equilibrium"[68]. They therefore assess the short to medium periods as having a 40% flexibility in the reuse of brownfield land associated with them, while the longer term period is assessed against 60% flexibility.

Adopting this scenario results in an industrial land requirement for Christchurch of 88 hectares in the short term, extending to over 480 hectares by 2048 (with allowance for both infrastructure requirements and the NPS-UDC additional margins). On first glance, the results on Table 15 appear incongruous as they project a significant drop in industrial employment in Christchurch across all time periods whilst at the time projecting increased industrial land demands. However, this can be explained by the significant decline in industrial employment between 2021 and 2026 driven by the reduction in demand from the construction sector as the rebuild subsides[69] and the fact that many of these jobs were transient and typically do not generate significant land demands. In essence, declining industrial employment sectors in the Christchurch context generate less space demands than the growing industrial sectors.

For Christchurch City, the EFM projected that demand will continue to be greatest in the southern quadrant and to a lesser extent the north, with both the eastern and central quadrants having only modest land demands over the planning period. It must be remembered that the EFM is an unconstrained model which does not consider recent policy shifts and supply constraints that may change the trajectory of past trends (i.e. it projects demand forward from current locations at projected growth rates). It is therefore possible that the south and north quadrants could have higher land demands than is projected by the EFM as a result of the declining desirability in the east, and the east-west employment and population shift exacerbated by the earthquakes. Demand in the central quadrant may also be less than projected on the basis that the Central City Mixed Use Zone provides for higher value commercial and residential uses. It is therefore important to continue to monitor the spatial distribution of uptake by this sector over time.

Note also that CCC and PEL have also assessed the extent to which industrial activities displaced by the Canterbury earthquakes may place additional demands on industrial land supply, when their temporary recovery related concessions expire in June 2021[70]. However interrogation of the Council's Temporary Activities Permit database suggests that this is small-scale (1,095sqm) and therefore has not been factored into this assessment.

Selwyn District

Again the MEL Selwyn Capacity for Growth Model has been used to project demand for industrial land. The Business 2 zone is the only industrial zone. It is important to note that 'industrial' demand presented for Selwyn and Waimakariri reflects the demand by the multiple activities that have traditionally located in the industrial zones. This means that some of the demand will be related to sectors that are not traditionally thought of as 'industrial' (like retail and office). Also there is some industrial demand that will be located in other non-industrial zones (like rural manufacturing) which are excluded from the assessment of demand for Business 2 zone.

[68] Ibid page 32.

[69] Refer to section 5.2.5 industrial employment

[70] This is the total floorspace that CCC has established was granted temporary activity permits under the Canterbury Earthquake (RMA Permitted Activities) Order 2011 and where the activity is unlikely to meet district plan requirements so would need to find alternative, permanent accommodation, when their approvals expire in June 2021.

Table 15 shows the results from the Selwyn Capacity for Growth model which indicates that the demand for industrial land reaches approximately 37 hectares, being around 46 hectares inclusive of roads and services. The NPS buffer would suggest a requirement of 53 hectares as reported in Table 14 below.

In the short term, the NPS-UDC requirement is around 9 hectares per annum. In the medium term the NPS requirement does not increase significantly. This small difference reflects the ending of the earthquake rebuild and the reduction in demands for inputs to the rebuild efforts, which has flow on impacts to sectors that tend to locate in industrial zones. In the long run, the NPS-UDC requirements indicate that 2 hectares per annum will be required. Initial discussions with a PB5 stakeholder has indicated that demand for vacant industrial land in Rolleston in particular may be higher that what has been projected by the SCGM. However, at the time this report was compiled there was no evidence provided to Council to substantiate the levels of demand outlined, but further engagement and scenario testing is recommended to validate the current estimates.

Waimakariri District

For Waimakariri District the results from the Waimakariri Capacity for Growth model indicates that the demand for industrial floorspace/land is around twice the level forecast in Selwyn. The demand is forecast to reach 89 hectares (including roads and services). The NPS buffer would suggest a requirement of 102 hectares in the long term as reported in Table 14 below.

In the short term the NPS-UDC requirement is around 30 hectares per annum. This high level of demand reflects the model assuming that demand in the medium term will come forward due to the availability of zoned and serviced land for development. In the medium term the NPS requirement decreases significantly. This difference reflects the culmination of the earthquake rebuild and the reduction in demands for inputs to the rebuild efforts which has flow on impacts to sectors that tend to locate in industrial zones. Over the thirty year period the NPS-UDC requirements indicate that 3.4 hectares per annum will be required.

Greater Christchurch

Table 14 below summarises the total industrial demand at a Greater Christchurch level.

Table 14. Total industrial demand at a Greater Christchurch level

	Short term	***Medium term***	***Long term***
Christchurch	89	32	482
Selwyn	27	29	53
Waimakariri	90	71	102
Greater Christchurch	**206**	**132**	**637**

At a Greater Christchurch level, the demand for industrial demand slows down significantly over the period from 2021 to 2028 with the end of the rebuild. The long term projections indicate growth in industrial demand although the sector will decline as a proportion of total employment (32% in 2018 to 22% in 2048). This reflects global trends including a shift towards service oriented sectors and the decline in manufacturing.

Reflecting the nature of the models, the growth in demand is projected in the locations of existing activity. However, it is possible that past trends continue and there are higher demands in the south west (e.g. Hornby,

Rolleston) and north (e.g. Belfast) with a preference for the flexibility of greenfield over brownfield land and the benefits of these locations in terms of accessibility.

Table 15. Industrial land demand in Christchurch, Selwyn, Waimakariri and Greater Christchurch

	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements (Ha)			Land Requirement with NPS Buffer[71]		
	Current	*Trended*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*
Christchurch	68,058	58,147	-2,951	-15,468	-9,911	181,838	68,845	1,086,762	55	20	311	74	27	419	88	32	482
Selwyn	1,443	2,221	382	414	778	63,923	69,449	130,721	18	20	37	22	24	46	27	29	53
Waimakariri[72]	2,909	5,038	1,804	1,414	2,129	216,426	169,669	255,511	60	47	71	75	59	89	90	71	102
Greater Christchurch	**72,410**	**65,406**	**-765**	**-13,650**	**-7,004**	**462,187**	**307,963**	**1,472,994**	**133**	**87**	**419**	**171**	**110**	**554**	**205**	**132**	**637**

Table 16. Breakdown of demand for industrial land in Christchurch by sub-area

	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements (Ha)			Land Requirement with NPS Buffer[73]		
Quadrant	*Current*	*Trended*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*	*3-Year Growth*	*10-Year Growth*	*30-Year Growth*
North	16,672	13,896	-920	-4,140	-2,777	45,524	10,598	280,946	13	3	80	18	4	108	22	5	125
South	28,325	24,330	-1,242	-6,321	-3,995	90,230	43,518	528,468	27	12	151	36	17	204	43	20	234
East	11,834	9,110	-782	-3,566	-2,724	27,731	-20,283	126,721	8	-6	36	11	-8	49	13	-9	56
Central	11,227	10,812	-7	-1442	-416	18,354	35,012	150,627	7	10	311	9	14	58	11	16	67

[71] Applying 20% additional buffer margin for short to medium term demand and 15% to long term demand.
[72] All employment located in Business 2 Zone, includes retail, services etc.
[73] Applying 20% additional buffer margin for short to medium term demand and 15% to long term demand.

6. Existing Land Supply

6.1 Introduction

The NPS-UDC requires Councils to understand and assess the sufficiency of development capacity that is provided by the relevant local authority plans and proposed and operative regional policy statements, and Long Term Plans and Infrastructure Strategies prepared under the Local Government Act 2002. This includes the cumulative effect of all zoning, objectives, policies, rules and overlays and existing designations in plans, and the effect this will have on opportunities for development being taken up (Policy PB3).

The accompanying guidance sets out a recommended framework for carrying out this assessment which can include a stocktake of vacant land and / or consideration of redevelopment potential. The guidance emphasises that assessments of redevelopment potential should be treated with some caution due to the multitude of reasons why development may not have occurred on a particular site. As such, it is recommended that TAs rely mostly on vacant land as having development potential in industrial and retail zones.

Essentially, the assessment requires a stocktake of vacant zoned land (and land with redevelopment potential if applicable) and calculation of how much development capacity that land can accommodate, having regard to district plan provisions. Capacity which is not currently zoned, but identified in a longer term planning document, may also be assessed.

In recognition that business activities can occur in residential zones and vice versa, Policy PB1(c) of the NPS-UDC emphasises the importance of reconciling the housing and business capacity assessments to ensure that capacity is not double counted or under – or over-estimated. Appendix 11 outlines the methodology adopted for this reconciliation process, to the extent that it relates to the business land capacity assessment.

For the purposes of this assessment, retail and office land supply is aggregated as 'commercial land supply' in recognition that commercial zones generally provide for either or both retail and office activities i.e. they compete for use of the same land.

It should be noted that for this assessment of vacant land supply SDC and WDC make a distinction between sites that are wholly vacant and those which are partly vacant. The latter is coined 'vacant potential' in the Selwyn and Waimakariri Capacity for Growth models and represents sites that have an existing building but is under-utilised and has capacity to accommodate additional building floorspace. CCC also records land in its vacant land database as wholly vacant or partly vacant but considers it more appropriate to combine the two for the purposes of this assessment to provide a total vacant land supply. CCC considers that together this total vacant land capacity still represents a conservative estimate of the City's commercial land capacity as the redevelopment potential of land has not yet been factored into the assessment.

6.2 Commercial Land Supply

Christchurch City

Commercial activity in Christchurch is primarily distributed within a network of centres (comprising Central City, District, Neighbourhood, Local and Large Format Centres, as shown in Appendix 1). The District Centres and two of the neighbourhood centres are also identified as Key Activity Centres in the Canterbury Regional Policy Statement, recognising the significant public and private investment made in, or intended for these areas and

identifying them as the preferred locations for future development as businesses shift around the city over the period of earthquake recovery and long term.

There are also areas where commercial activity has traditionally located but where growth is no longer supported by District Plan policy (e.g. Commercial Office and Suburban Commercial Mixed Use areas).

The commercial centres act as the focal points for community and business activity and each centre has a role that reflects their functions and catchment sizes. The Christchurch District Plan framework for commercial activity is to give primacy and support the recovery of the central city whilst supporting and enhancing the role of district centres and maintaining the role of the smaller neighbourhood, local and large format centres.

Each centre is comprised of zones (outlined in section 2.8) which gives effect to this centres based framework. Commercial zones generally provide for retail and office activities although the permitted scale and range of activity is influenced by the role of the centre in the hierarchy. For instance, office tenancy size is limited in district and neighbourhood centres to encourage larger office tenants back into central city and retail tenancy size is limited in neighbourhood and local centres to reflect their role in catering for the predominantly convenience needs of local residents. Residential activity and visitor accommodation is permitted within most centres although is generally required to be located at upper levels of a development[74], therefore maintaining ground level space for commercial activity. District Plan provisions therefore play an important role in determining the capacity of commercial land to accommodate multiple (sometimes competing) activities.

Commercial land supply (occupied and vacant land) in Christchurch City has been assessed by PEL using the Council's Vacant Land Register and carrying out a land use survey of all commercial centres (excluding local centres).

Table 17 identifies an existing supply of nearly 100 hectares of vacant commercially zoned land in Christchurch City along with a further 17 hectares of vacant land with a mixed (primarily commercial) zoning in the Central City.

As outlined below, there remains a significant amount (30ha) of vacant land in the Central City Business and Mixed Use Zones largely as a result of the significant earthquake related demolitions, along with extensive vacant commercial floorspace identified by Colliers International (see Table 18). CCC/PEL have also identified additional supply that has been signalled by the market[75] on existing developed land and this has been incorporated into the supply assessment. **In total, this brings the total plan-enabled supply identified in Christchurch to 129 hectares.** For this first BDCA redevelopment potential to provide additional commercial capacity has not been more widely assessed.

It is important to note that commercial activity also occurs outside of these centres, within industrial, specific purpose zones (e.g. hospital or airport) and residential zones in particular.

[74] Other than in the Central City Commercial Mixed Use Zone where is it permitted at ground floor level
[75] Redevelopment proposals identified through extant resource consents or signalled by developers.

Table 17. Vacant commercially zoned land in Christchurch City

COMMERCIAL	*Vacant (part)*	*Vacant (whole)*	*Total (ha)*
Commercial Banks Peninsula	1	3	4
Commercial Central City Business	3	10	13
Commercial Core	13	44	57
Commercial Local	1	7	8
Commercial Office	4	1	5
Commercial Retail Park	6	6	12
Commercial Total	**28**	**71**	**99**
MIXED USE	*Vacant (part)*	*Vacant (whole)*	*Total (ha)*
Commercial Central City (South Frame) Mixed Use	0	1	1
Commercial Central City Mixed Use	4	12	16
Mixed Use Total	**4**	**13**	**17**
TOTAL COMMERCIAL/MIXED USE	**32**	**84**	**116**

Source: CCC, Property Economics

Table 18 shows that there is a fairly equitable distribution of vacant commercial land around the City, except for in the East. The Eastern quadrant was, along with the central city, severely affected by the Canterbury earthquakes and has suffered from a consequential loss in both population and employment opportunities. The more limited land supply in this quadrant is matched with more limited demand, compared to other parts of the City.

Table 18. Distribution of vacant commercially zoned land and floorspace in Christchurch City by quadrant

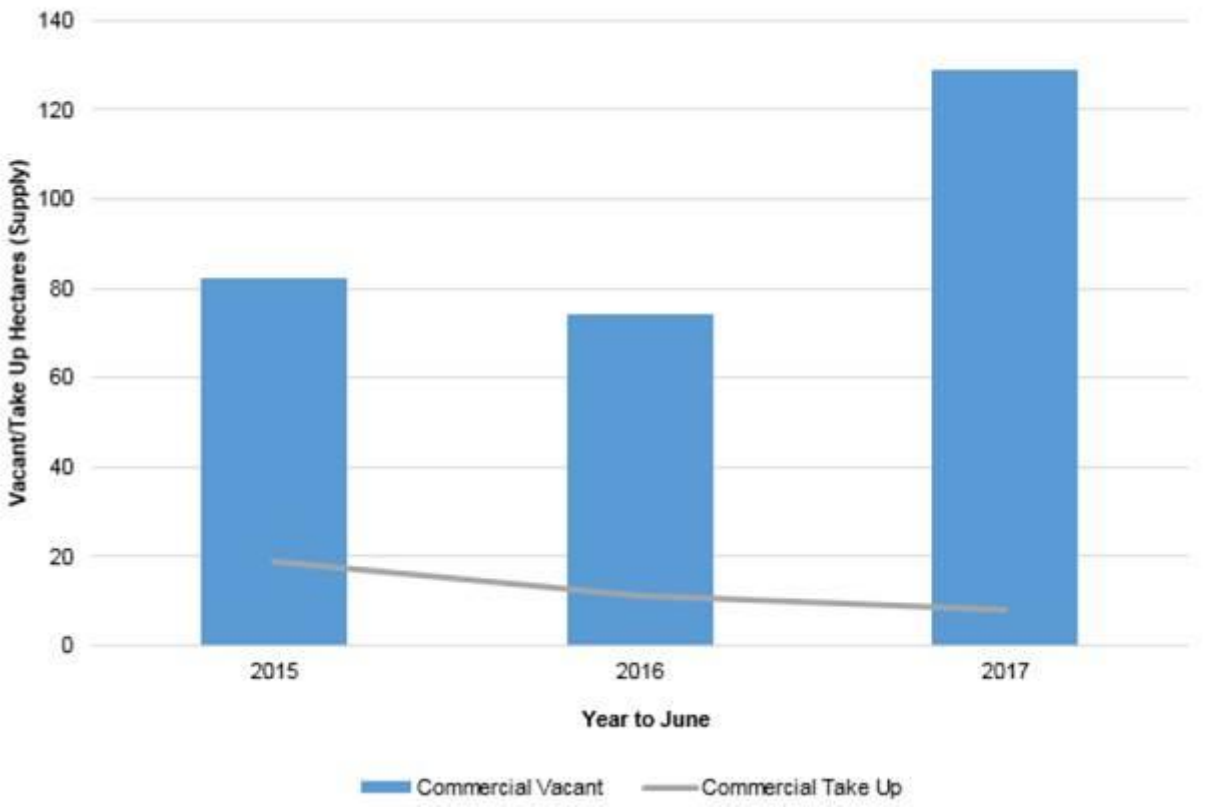
COMMERCIAL[76]	*Vacant (part)*	*Vacant (whole)*	*Vacant (floorspace)*	*Redevelopment potential*[77]	*Total (ha)*
Central	7	28[78]	90,761m^2		42
East	8	11		29,500m^2	23
North	8	21	11,706m^2	2,000m^2	30
South	8	24	10,651m^2	13,700m^2	34
Commercial Total	**32**	**84**			**129**

Source: CCC, Property Economics

The graph below shows that the supply of vacant commercial land in Christchurch has increased as a result of the Commercial chapter of the District Plan becoming operative in December 2017. This included the rezoning of 17ha of vacant land at North Halswell as a new Key Activity Centre, zoned to accommodate the needs of a rapidly growing south-west population. The graph also illustrates the spike in commercial land take-up associated with the City's rebuild. This, along with the commercial consents data[79], shows that this spike has now passed with commercial building activity and land development having dropped to a low level (8 hectares in 2017).

[76] Includes Commercial Central City Mixed Use Zone
[77] Only where known resource consent for redevelopment or indicative developer intention
[78] Includes 5.8ha Metro Sports site and 6.9ha Stadium site
[79] See GCP Urban Development Indications Quarterly Monitoring Report (June 2017) Indicator 7 and Table 5 of the PEL Report on Christchurch Business Land Capacity (page 29)

Figure 19. Commercial Vacant Land and Take-Up 2015-2017



Source: Adapted from the GCP Quarterly Monitoring of Urban Indicators Report

Table 19 shows the size distribution of vacant commercial land in Christchurch City for each quadrant or zone.

Table 19. Size distribution of vacant commercial land parcels in Christchurch City (by %)

	<1000m²	*1000m² - 5000m²*	*5000m² - 1 ha*	*1ha -2ha*	*2ha – 5ha*	*>5ha*
QUADRANT						
North	14.95	12.48	17.44	41.01	14.11	---
South	6.97	15.31	9.63	34.63	9.54	23.92
East	27.8	13.93	21.73	18.91	17.64	---
Central	44.90	35.31	6.88	8.46	4.44	---
ZONE						
Commercial Central City Business	46.07	43.09	2.81	8.03	---	---
Commercial Central City (South Frame) Mixed Use	92.87	7.13	---	---	---	---
Commercial Central City Mixed use	38.77	32.70	9.25	10.68	8.60	---
Commercial Core	14.8	10.5	8.49	34.11	18.01	14.10
Commercial Office	0.68	22.16	39.57	37.59	---	---
Commercial Retail Park	9.89	18.47	21.59	50.06	---	---
Commercial Local	39.11	31.89	29.10	---	---	---
Total vacant commercial parcels (%)	**26.53**	**22.55**	**11.76**	**23.60**	**9.51**	**6.05**

Source: CCC Vacant Land Register

As would be expected, the majority of commercially zoned land parcels are small, and many of these small sites are located in and around the CBD (noting that there is no minimum lot size in the Commercial Central City Business Zone). There is a more variable spread of site sizes in the Commercial Core zone as this zoning covers all the district centres (generally greater than 30,000m^2 retail GFA in size) and neighbourhood centres (generally between 3,000m^2 and 30,000m^2 retail GFA). Within the CC zone, there are varying patterns of parcel size, with the pattern of activities not necessarily reflecting the parcel size, due to prevalence of leasehold tenure. Shopping malls, for example, may be owned by one company but accommodate a large number of individual shops and some offices. Neighbourhood and local shopping areas are more likely to be in multiple land ownership.

The commercial land size distribution shown in Table 19 is "distorted" by the presence of two large zoned but undeveloped new commercial zones at Belfast/Northwood (south of Radcliffe Road) and North Halswell. Both these zoned areas comprise several large titles, with the former all in single ownership while the latter is not.

Because of tenure and site configuration variables, size of lot is less important for commercial than for industrial land. However it appears that there is presently a range of vacant commercial lot sizes across the City which provides sufficient choice for businesses.

Commercial floorspace Vacancy

A healthy functioning, efficient, commercial market sector requires an element of floorspace vacancy in order to maintain choice, competiveness and pricing and PEL advises that an 8% vacancy rate provides the market with sufficient flexibility to meet its short term needs (i.e. the movement of existing and new business)[80]. In Christchurch City, commercial development, particularly in the central city, has been at unprecedented levels since the earthquake rebuild began in earnest in 2012[81] and there is currently an over-supply of commercial (particularly office) floorspace, as exhibited by high vacancy levels. This is in turn is creating a downwards pressure on rental values and increasing the need for tenant incentivisation by landlords[82].

Whilst total floorspace has not re-established to its pre-EQ level of around 400,000m^2, Colliers International reported in October 2017 that the CBD was projected to have 356,403m^2 of office floorspace in the CBD by 2018, and had a current vacancy rate of 20.4% (72,691m^2). Their research also highlights that vacancy levels are not consistent even across the CBD, with the 'West End' having a much lower vacancy rate of 8.9% whilst the older southern part of the central city has experienced vacancies of around 30%. As context, pre-EQ vacancies in the central city were 10.6% in 2005 and 14.3% in 2010.

Less comprehensive information is available about suburban office vacancies, however Colliers regularly survey three of the large suburban office locations at Riccarton, Burnside/Airport and Addington and estimates that vacancies are still relatively healthy and ranging from 14-23% (refer to Table 20 below).

Allowing for an 8% freeboard of floorspace vacancy for market efficiency would still leave a total of 104,000sqm that could accommodate commercial business activities in these areas alone. This has been incorporated into the CCC/PEL assessment of supply (refer to Table 18).

[80] Property Economics Limited (2017) Christchurch Business Capacity Assessment page 61
[81] Ibid.
[82] Gary Sellers, Colliers, Presentation to the Property Council of New Zealand Market Summit, October 2017

Table 20. Office Floorspace Vacancy – Central City and Suburban Locations

CENTRAL CITY	
Total Central City	Office: 72,691m^2 (of 356,403 m^2 total stock) = 20.4%
SUBURBAN	
Addington/Lincoln Road	18,070m^2 (of 104,330m^2 total stock) = 17.3%
Riccarton	10,651m^2 (of 45,863 m^2 total stock) = 23.2%
Burnside/Airport	11,706m^2 (of 83,244m^2 total stock) = 14.1%
Total Suburban	40,427m^2 (of 233,437m^2 total stock) = 17.3%
TOTAL CHRISTCHURCH CITY (Surveyed areas only)	113,118m^2 (of total stock of 589,840m^2) = 19.18%

Source: Colliers International, Vacant Office Floorspace Survey October 2017

Recent market research by both Colliers[83] and JLL[84] indicates that vacancy rates in the Christchurch office market have, however, started to retract after a peak in 2016, as the end of the development pipeline looms and tenants continue to filter into vacant spaces. While the physical amount of available stock in the market is at high levels, it is an increasingly smaller proportion of the total market, a result of new stock being delivered with high pre-commitment levels and some long standing vacancies finally being filled.

Selwyn District

In order to estimate the amount of supply in the commercial (Business 1 Zones) a desktop assessment of the rates database and building footprints was undertaken in 2016[85]. In addition, as a ground-truthing exercise the GCP commissioned JLL to undertake a field survey (results received in early 2018) undertaken in Rolleston and Lincoln town centres. The results from any future surveys of floorspace will be incorporated in the next BDCA.

In the following section we present the results from the desktop analysis. While, the incorporation of the JLL results is likely to reduce the level of supply available within the district, the magnitude of the change is unlikely to change the findings of this study. Overall we consider that the results presented in this report provide a reasonable proxy of the supply currently available.

The following table presents the supply in terms of hectares of land and two key metrics,

- Vacant land - properties that have no floorspace or building footprint in 2016.
- Vacant Potential - properties that have low levels of floorspace and for which additional floorspace is enabled within the property (potential for redevelopment).

The commercial supply in the plan enabled Business 1 zone is estimated to comprise 26 hectares of Vacant land and 10 hectares of Vacant Potential, being between 26 to 36 hectares of available supply.

[83] Ibid
[84] NZ REIS Market Overview 2017 2H17
[85] Refer to the Market Economics Selwyn Capacity for Growth Model technical Report

The supply results exclude vacant floorspace within existing buildings. The initial results from the JLL survey suggest that vacancy is very low at well below 5%. The scale of the floorspace vacancy in the B1 zone is well below a natural level that is required to maintain a healthy functioning, efficient, commercial market. Therefore, it is sensible to exclude this supply from the following assessment. Secondly, the redevelopment potential from fully developed properties[86] was not modelled. Given the age of buildings and relativity between full development levels and plan enabled development, it is less likely that this capacity will be utilised even in the long term.

Table 21. Vacant commercial land in Selwyn[87]

COMMERCIAL	*Vacant*	*Vacant Potential*	*Total*
Business 1 Zones	26	10	26-36

Source: SDC, Market Economics Limited

Waimakariri District

The same approach used for determining land supply in Selwyn was also used in Waimakariri.

The concepts of vacant and vacant potential applied for Waimakariri are the same as Selwyn. Again, the supply results exclude vacant floorspace within existing buildings. The initial results from the JLL survey suggest that vacancy is very low at well below 5%. The scale of the floorspace vacancy in the B1 zone is well below a natural level that is required to maintain a healthy functioning, efficient, commercial market. Therefore, it is sensible to exclude this supply from the following assessment. Secondly, the redevelopment potential from fully developed properties[88] was not modelled. Given the age of buildings and relativity between full development level and plan enabled development, it is less likely that this capacity will be utilised even in the long term.

The commercial supply in the plan enabled Business 1 and 4 zone is estimated to comprise 13 hectares of Vacant land and 18 hectares of Vacant Potential, being between 13 to 31 hectares of available supply.

Table 22. Vacant commercial land in Waimakariri[89]

COMMERCIAL	*Vacant*	*Vacant Potential*	*Total*
Business 1 and 4 Zones	13	18	13-31

Source: SDC, Market Economics Limited

[86] Fully developed is a property that has buildings and floorspace that exceeds the level achieved in the local market.
[87] Note that these figures are currently under review and may be subject to change
[88] Fully developed is a property that has buildings and floorspace that exceeds the level achieved in the local market.
[89] Note that these figures are currently under review and may be subject to change

Greater Christchurch

Table 23 below summarises the quantum of vacant land at a TA and Greater Christchurch level.

Table 23. Summary of vacant commercial land at a TA and Greater Christchurch level

	Short, medium and long term	
	Vacant (whole)	*Vacant (All)*[90]
Christchurch	84	129
Selwyn	26	36
Waimakariri	13	31
Greater Christchurch	**123**	**196**

The above table presents vacant land as a range. The lower figure in the range comprises the total area of wholly vacant land within the districts. The upper figure represents the vacant land supply when under-utilized or partially vacant land capable of more intensive redevelopment is included.

[90] Vacant (all) includes wholly vacant and partly vacant sites in the context of Christchurch City , and wholly vacant and vacant potential in WDC and SDC

6.3 Industrial Land Supply

Christchurch City

Distribution of industrial land

The current distribution of industrial land is largely a result of historical settlement patterns and the rezoning of land through the district plan review on the periphery of the City. The earliest industry in Christchurch was in the Woolston area, near the Heathcote River, and focused on processing primary produce (e.g. tanneries, wool scouring, soap manufacture and flour milling.) Freezing works were established at Belfast and Islington and later a fertiliser works was built at Hornby. The rubber and plastics industry subsequently became important in the City, and further industry was established in the Sockburn area near the railway line and around the CBD. Christchurch also became a centre for clothing production for the domestic market, and later a centre for electronics.

While several of the longest established factories had closed down by the latter part of the 20th century, the locational pattern of industry in the City has not changed dramatically over time. The older established industrial areas are still predominantly used for industrial purposes, albeit that some retail uses moved into industrial areas during a period when a more permissive planning regime of the previous City Plan was in place.

There has however been a trend in recent years for industry to prefer locations in the west of the City closer to SH1 and the airport. The degree of westwards movement of industry appears to have increased since the Canterbury Earthquakes, with temporary activity displaced out of the CBD to the suburbs becoming permanent in some instances, and geotechnical costs not favouring redevelopment in the east. In the short term, it appears that the trend for industrial tenants to relocate within the City to higher quality newer buildings in the west may have peaked[91], with a slowdown in consents for industrial buildings[92] and industrial land take up (Figure 20).

The industrial policies and zoning pattern in the new Christchurch District Plan generally promote the use and redevelopment of industrial land for industrial purposes to assist earthquake recovery, and limit its use as a location for commercial activity. In general, the buffering of heavy industrial areas (IH zones) with lighter industrial surrounds (IG or IP zones) is intended to help limit any significant noise, odour, traffic or other adverse effects of industry on people and the environment.

Vacant Industrial Land

According to Council's Vacant Land Register, Christchurch has 736 hectares of zoned industrial land along with additional land zoned within the Specific Purpose Airport Zone (148ha) that enables industrial activities as a permitted activity[93].

In addition, there is 25 hectares of land which is available for industrial use within the Commercial Central City Mixed use Zones (i.e. industrial activities are permitted). However this land has not been counted as industrial

[91] JLL, Pulse, 3rd Quarter 2017.
[92] Property Economics (January 2018) Christchurch Capacity Assessment, Table 6, page 30.
[93] Note that this figure should be treated with caution. Subsequent desk-top analysis suggests the airport land supply is somewhat lower than indicated here. Confirmation has been sought from CIAL, the majority landowner in this Zone and any updates can be updated subsequently.

land supply for the purposes of this assessment on the basis commercial and residential uses are also enabled and it is considered more likely that land will be developed for these higher value uses than for industrial.

The City also has two areas of land that are unzoned but are identified as Greenfield Priority Areas for Business in the Canterbury Regional Policy Statement. These areas total 50 hectares but are not zoned nor serviced (see Table 31 in section 7.2) so have been deemed not currently available for industrial development.

Table 24. Vacant industrial land by zone in Christchurch[94]

INDUSTRIAL	*Vacant (part)*	*Vacant (whole)*	*Total*
Commercial Mixed Use Zone	2	3	5
Industrial General	139	143	282
Industrial Heavy	141	205	346
Industrial Park	71	32	103
711 Johns Road GPA (future potential)[95]	-	15	15
Hawthornden and Russley Road GPA (future potential)[96]	-	35	35
Industrial Total	**353**	**433**	**786**
SPECIFIC PURPOSE	*Vacant (part)*	*Vacant (whole)*	
Specific Purpose Airport (Development Precinct) Zone	108	40	148
Specific Purpose Total	**108**	**40**	**148**
CHRISTCHURCH TOTAL	**461**	**473**	**934**

Source: CCC, Property Economics

Table 25. Vacant industrial land by quadrant in Christchurch

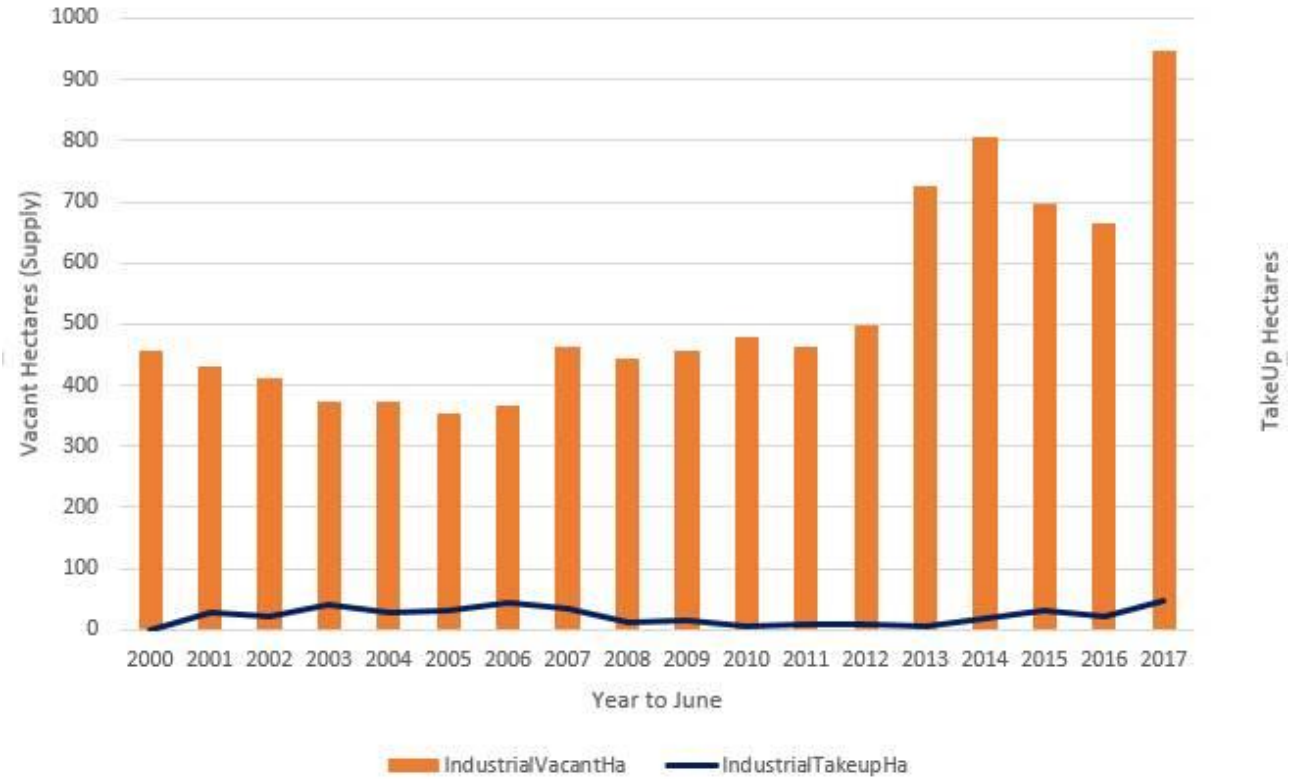
INDUSTRIAL	*Vacant (part)*	*Vacant (whole)*	*Total (ha)*
Central	2	6	8
East	36	27	63
North including airport precinct	163	262	425
South	260	178	438
Industrial Total	461	473	934

Source: CCC, Property Economics

CCC has been monitoring vacant industrial land and take up rates since 2000[97] and the results are shown in Figure 20.

Figure 20. Industrial Vacant Land Supply and Take-up[98]

[94] Note that these figures are currently under review and any updates will be reflected in a February amendment.
[95] Identified as a Greenfield Priority Area for Business in the Regional Policy Statement
[96] As above
[97] Refer to section A11.5.1 of the Methodology in Appendix 11 for detail about the Vacant Land Register
[98] Note that the supply for 2017 indicated by this graph (912ha) is less than identified in this capacity assessment (1,010) due to inclusions in the latter of unzoned Greenfield Priority Areas for Business (50ha) and different methodologies for assessing vacant land supply in the airport zone.



Source: Adapted from GCP Urban Development Indicators Quarterly Monitoring Report June 2017[99]

The graph shows that the supply of **vacant industrial land** increased significantly from 2013 onwards as a result of plan changes rezoning land to industrial in the southwest of the City, first at South West Awatea and Wigram, then at Waterloo Business Park, Hornby and Hornby South. This was followed by significant additional areas being rezoned to industrial as a result of District Plan decisions becoming operative in June 2016, at Belfast and in the North West, and via Plan Change 84, which provides for light industrial uses at Christchurch Airport. The result is a very large supply of industrial land, allowing for considerable choice of location for the market.

In the decade of the 2000s, take-up of industrial land as indicated by the blue line fluctuated, with a peak of around 44ha in 2006 but trended downward after that time until post-earthquake increases in take-up in 2014 and 2015. Information on where this take-up of land has occurred is not readily available at this stage, although Indicator 5 of the first Urban Development Indications Quarterly Monitoring report[100] suggests that it is mostly in the southwest on the basis that vacant land in the east and south is still proportionately higher than in the newer industrial suburbs in the southwest. Figure 20 indicates that the net take-up of new industrial land has been particularly slow recently, at only a few hectares per year.

Vacant Industrial Floorspace

[99] Note that the total vacant land shown here is slightly different from the totals included in elsewhere in this report. This is because of further ground-truthing of the 'vacant land register' since this graph was produced for the quarterly monitoring report.
[100] http://greaterchristchurch.org.nz/assets/Uploads/SPR-NPS-UDC-Quarterly-Monitoring-Report-for-GCP-Committee-final.pdf

As well as the considerable vacant industrial land identified above, JLL figures[101] indicate that there is additional supply available to the market in the form of industrial floorspace vacancy. Given the incomplete dataset for industrial floorspace vacancy (for example smaller industrial areas are not included, nor is the Airport Zone at this stage), and in light of PEL advice that an 8% vacancy rate wouldn't represent an oversupply, we have not factored this existing supply into the capacity assessment at this stage.

Table 26. Industrial floorspace vacancy in Christchurch

QUADRANT	*Vacancy Stock[102]*	*% Total Stock*	*Notes*
North (Belfast and Logistics Drive area only) – SPAZ excluded	320m^2	0.5%	
South	126, 718m^2	5.23%	8.8 % (Dec 2017) Sockburn/Middleton area; 2.80% Hornby area
East	49,296m^2	7.07%	
Central	39,789m^2	8.53%	NB 6.53% CBD; 8.74% CBD surrounds

Source: JLL

JLL's commentary indicates that despite the new supply of floorspace predominantly in the South quadrant (e.g. Wigram Waterloo Business Park and the "Hornby Quadrant") and take up of this space or committed tenants as is discussed below, overall floorspace vacancy in the industrial sector has risen slightly in the second half of 2017 to 6.3% of total floorspace. Vacancy rates do vary significantly and remain relatively higher in older industrial areas. JLL states that despite a decanting of businesses to the southwest area, most new floorspace there is being absorbed soon after construction, leaving secondary space in older areas to be backfilled or left vacant. (NB low vacancy rates in areas of growth may also be partly because financing does not usually allow speculative developments without tenants). Discussions with the development sector also highlighted the trend of local small businesses in older industrial areas expanding into larger premises in greenfield locations.

JLL indicates that tenants are seeking and moving to higher quality business space, post-earthquakes (described as modern, high stud, well located and often purposed built premises), leaving "secondary" space to be backfilled or removed from the total industrial stock (e.g. Skellerups in Woolston and General Cable site at Sockburn).

JLL records "prime vacancy" (rental ranges of $100-130/m2) at around 5.9% and "secondary vacancy" (rental ranges of $70-100/m2) at around 6.5%, with a risk of oversupply of secondary space as vacancy rates for the two ranges move in opposite directions. A recent slowdown in consents for industrial buildings applied for and issued compared to 2013-2016 is noted. In the medium term JLL expects that completion of the southern

[101] JLL half yearly vacancy survey of most industrial areas of Christchurch City – Real Estate Intelligence Service- and industrial sales data
[102] All figures are June 2017 half year except North quadrant areas which are December 2017 half year

motorway will increase the attractiveness of southern options such as Rolleston. They also note that the completion of the Western Belfast Bypass has significantly improved travel times to the west and north of the City. However these transport improvements need to be tempered by the results of modelling which is showing that population growth could result in increased congestion on routes into and out of Christchurch City within only a few years of completion[103] .

The NPS-UDC requires consideration of lot size in relation to business land, and "sufficiency" needs to reflect the demand for different types and locations of development capacity. Policy PA3 a) states that decision-makers need to provide for choice in working environments and places to locate businesses.

Table 27 shows the size distribution of vacant commercial land in Christchurch City for each quadrant or zone.

Table 27. Size distribution of vacant industrial land parcels (by %)

QUADRANT	*<1000m²*	*1000m² - 5000m²*	*5000m²- 1 ha*	*1ha -2ha*	*2ha – 5ha*	*>5ha*
North	0.16	3.54	4.75	13.59	22.46	55.49
South	0.55	6.70	12.34	12.70	23.23	44.48
East	4.73	19.46	27.19	20.00	10.14	18.48
Central	64.21	30.10	5.69	--	--	--
ZONE						
Industrial General	3.27	8.15	14.34	19.06	18.31	36.88
Industrial Heavy	0.66	8.53	10.28	11.27	26.27	42.99
Industrial Park	---	0.47	1.90	9.73	68.75	19.16
Commercial Mixed Use	19.55	57.32	23.14	--	--	--
Specific Purpose Airport	---	0.36	3.06	9.91	17.47	69.20
Total vacant industrial parcels (%)	**1.38**	**6.54**	**10.00**	**13.6**	**21.39**	**47.08**

Source: CCC Vacant Land Register

In reality size of lot is only one element of demand for industrial land and will be strongly influenced by type of activity under consideration, and the size of lots which the market makes available. Table 27 above indicates that there is existing choice in sizes of vacant lots (albeit more limited at the lower end of the range) and with capacity to subdivide larger sites to suit. Unsurprisingly, there are significant areas of large unsubdivided lots in industrial zones in the North and South quadrants, and across each of the three main industrial zone types. There are also large unsubdivided areas within the airport business area, although the size distribution figures above for the airport zone should be treated cautiously, as lots are often not subdivided on airport owned land, but rather nominated sites are leased to occupants.

There are a range of smaller sized vacant sites in the east, and in and around the CBD (Central) area. This is consistent with subdivision patterns in these older industrial areas, and the types of activities that have historically located there. Discussions with the development sector indicates that in the Christchurch context, demand across the City is being driven by smaller local enterprises that have outgrown their former sites and

[103] Settlement Pattern Review – Interim Traffic Modelling Report – January 2018

seek purpose built premises with 'room to grow'. Both Christchurch City and Selwyn Districts have also seen greater demand for large sites to accommodate buildings such as for the storage and distribution industries which can be up to or over one hectare in size. Sites of this size result in faster take-up rates of industrially zoned land, a factor which has probably contributed to low rates of vacant floorspace in the wider Hornby area (e.g. see Table 26).

Selwyn District

In order to estimate the amount of supply in the Industrial (Business 2 Zones) a desktop assessment of the rates database and building footprints was undertaken for 2016[104]. In addition, as a ground-truthing exercise the GCP commissioned JLL to undertake a field survey (results received in early 2018).

The results from any future surveys of floorspace will be incorporated in the next BDCA. In the following section, we present the results from the desktop analysis. While, the incorporation of the JLL results is likely to reduce the level of supply available within the district, the magnitude of the change is unlikely to change the findings of this study. Additional anecdotal evidence from stakeholders also signalled that there may be reduced supply due to the potential for a lag between when land is sold and when the modelling is able to record the land as being occupied. No evidence was provided at the time this report was written, but is a matter that will require ongoing monitoring and refinement. Overall it is considered that the results presented in this report provide a reasonable proxy of the supply currently available.

The following table presents the supply in terms of hectares of land and two key metrics,

- Vacant land - properties that have no floorspace or building footprint associated in 2016.
- Vacant Potential - properties that have low levels of floorspace and for which additional floorspace is enabled within the property (potential for redevelopment).

The following supply results exclude vacant floorspace within existing buildings. The initial results from the JLL survey suggest that vacancy is very low at well below 5% (except Lincoln). The scale of the floorspace vacancy in the B2 zone is well below a natural level that is required to maintain a healthy functioning, efficient, market. Secondly, the redevelopment potential from fully developed properties[105] was not modelled. Given the age of buildings and relativity between full development level and plan enabled development, it is less likely that this capacity will be utilised even in the long term.

The plan-enabled industrial supply in the Business 2 zone is estimated to contain 245 hectares of Vacant land and 27 hectares of Vacant Potential land, comprising between 245 and 272 hectares of available supply through to 2048.

Table 28. Vacant industrial land in Selwyn[106]

INDUSTRIAL	*Vacant*	*Vacant Potential*	*Total*
Business 2 Zones	245	27	245-272

Source: SDC, Market Economics Limited

[104] Refer to the Market Economics Selwyn Capacity for Growth Model technical Report
[105] Fully developed is a property that has buildings and floorspace that exceeds the level achieved in the local market.
[106] Note that these figures are currently under review and may be subject to change

Waimakariri District

The industrial land supply in the Business 2 zone is estimated to contain 109 hectares of vacant land and 52 hectares of Vacant Potential land.

The following supply results excludes vacant floorspace within existing buildings. The initial results from the JLL survey suggest that vacancy is very low at well below 5%. The scale of the floorspace vacancy in the B2 zone is well below a natural level that is required to maintain a healthy functioning, efficient market. Therefore, it is sensible to exclude this supply from the following assessment. Secondly, the redevelopment potential from fully developed properties[107] was not modelled. Given the age of buildings and relativity between full development level and plan enabled development, it is less likely that this capacity will be utilised even in the long term.

Table 29. Vacant industrial land in Waimakariri[108]

INDUSTRIAL	*Vacant*	*Vacant Potential*	*Total*
Business 2 Zones	109	52	161

Source: SDC, Market Economics Limited

Greater Christchurch

Table 30 below summarises the quantum of vacant land at a TA and Greater Christchurch level.

Table 30. Summary of vacant industrial land at a TA and Greater Christchurch level

	Short, medium and long-term	
	Vacant (whole)	*Vacant (all)[109]*
Christchurch	473	934
Selwyn	245	272
Waimakariri	109	161
Greater Christchurch	**827**	**1,367**

The above table presents vacant land as a range. The lower figure in the range comprises the total area of wholly vacant industrial land within the districts. The upper figure represents the vacant land supply when under-utilized or partially vacant land capable of more intensive redevelopment is included.

[107] Fully developed is a property that has buildings and floorspace that exceeds the level achieved in the local market.
[108] Note that these figures are currently under review and may be subject to change
[109] Vacant (all) includes wholly vacant and partly vacant sites in the context of Christchurch City , and wholly vacant and vacant potential in WDC and SDC

7. Availability of Development and Other Infrastructure

7.1 Introduction

This section considers the availability of Council and other infrastructure to service business land for the various time periods specified in NPS Policy PB3 (b) and PA1.

When assessing whether there is sufficient (land) capacity to meet future demand for housing and business land, Councils are to consider the "*actual and likely availability of development infrastructure and other infrastructure in the short, medium and long term…"* (NPS Policy PB3 (b)).

7.2 Assessment of Availability of Infrastructure

"*Development infrastructure*" is defined in the NPS as "network infrastructure for water supply, wastewater, stormwater, and land transport as defined in the Land Transport Management Act 2003, to the extent that it is controlled by local authorities". A standard term also used for "network infrastructure" is "bulk infrastructure". Both terms have the same meaning and exclude "local infrastructure" which is funded and provided by developers within their landholdings as development proceeds. Local infrastructure is usually subsequently vested in Councils to control and manage.

"Serviced" is not defined in the NPS-UDC, but is considered in this report as "serviceable by Council" i.e. there is capacity in the relevant network in the area which the developer may connect into. In some cases, the developer may need to provide a connection outside of their own landholding to reach that network, or where there is a wider community benefit Council may, if funding is available and allocated through its LTP, provide that connection, or enter into a cost sharing agreement with the developer to upsize that connection, to provide for other land to be serviced. It should be noted that some land is serviceable by Council, but there would be an issue if that land was being developed "out of sequence", where connections through intervening land are either not agreed or not yet in place. Such land is not included in the following table of vacant business land not serviced by Council infrastructure Table 31).

The approach to identifying the availability of development infrastructure involved reviewing plan-enabled business land with members of each Councils infrastructure planning team, to identify any areas where a lack of development infrastructure could constrain development in the three, ten and thirty year timeframes. During this process, both current and draft infrastructure planning and funding documents were reviewed.

*"*Other infrastructure" as defined in the NPS and (as relevant to business growth needs) includes land transport, telecommunications, energy and other infrastructure not controlled by Councils.

To determine whether 'other infrastructure' is, or is likely to be, available to meet business growth needs, information was sought from identified providers of other infrastructure both directly (through survey, email and phone communication) and indirectly (through information sourced from ChristchurchNZ)[110].

[110] ChristchurchNZ (2017) Infrastructure Situation Report July 2017.

Enquiries were made to determine:

1. How the provider plans for growth and increased demand for infrastructure/services in those areas zoned for business activities in District Plans and/or identified for future growth in the Canterbury Regional Policy Statement;

2. Whether any of the business areas are constrained in respect of the infrastructure the organisation provides; and

3. What plans are in place and/or funded to support development in business areas.

The results of these enquiries and Council analysis are set out in Appendices 7 and 8. The information enabled Councils to determine whether constraints would limit development and the availability of Development and/or Other infrastructure over the next 30 years. In such circumstances, it would suggest that this land should be removed from, or allocated to a later time period as part of plan-enabled capacity. These appendices also provide further information on development infrastructure provision and funding systems for that infrastructure.

The assessment concludes that access to 'other infrastructure' is either available or likely to be available to service all business land needs over the next 30 years. However it does identify areas of Greater Christchurch (notably in Christchurch City) that could be constrained by a lack of access to Development infrastructure. These areas are not serviced at present, generally for either water supply or wastewater, although some areas are planned to be serviced in the medium term, as indicated in the current and draft revised Long Term Plans. A few areas are not planned to be serviced by Council either in the medium or long term. Table 31 sets out the land in each of these categories, which are then discounted from supply for the relevant timeframes for the purposes of assessing sufficiency under the NPS-UDC.

Development in some of these areas could be advanced by developers providing a connection outside of their landholdings to the City Council wastewater network (indicated by footnotes in Table 31). There are however two areas where this cannot occur, either because the distance to the City Council's wastewater network is too great (Chaneys) or because there is inadequate capacity in the sewer in the area (Wairakei Industrial Park).

In Christchurch, the presence of aquifers across the City means that access to water supply may be obtained by drilling a well and obtaining a water right, so in general, a lack of access to a sewerage system (including for trade wastes or wet industry) is the only absolute constraint on industrial development. In the case of Chaneys, some dry industry is already established in the area relying on septic tanks, but this is not likely to be possible in the Wairakei ODP area for reasons of groundwater protection.

It should be noted that further business development is likely to lead to reductions in the level of service and capacity of transport infrastructure, resulting in increasing delays and congestion on the network,

which could have a constraining impact on economic growth if not carefully managed. This will be considered further through the Future Development Strategy.

The sequencing of residential development also influences the timing of when business land is viable to develop. This is evident in Selwyn District, where surrounding housing development needs to occur to establish the network infrastructure and critical population base to support the small Neighbourhood Centres in the Falcon's Landing subdivision and Geddes/Dryden Trust Special Housing Area and the Lincoln industrial park. These are either undeveloped or sit within partially developed 'greenfield' locations where sequencing of development and installation of infrastructure, including water and wastewater services, has yet to reach the property boundary of the identified commercial or industrial clusters.

In the context of Waimakariri District, there are no identified constraints in respect of development infrastructure. The Council's commitment over the past decade to major investment in infrastructure to cater for growth means that when considering development in the District over the next 30 years, the 'backbone' of the major infrastructure is already in place. In respect of transport, work is programmed over the next two to three years to improve the arterial link from the west of Rangiora and Southbrook commercial area to the State Highway and Kaiapoi via Fernside and Flaxton Roads. However, this does not preclude development occurring.

Table 31. Vacant business land not serviced by development (network) infrastructure – Christchurch City

Geographic Area	Short Term - Not Serviced		Medium Term (LTP[111]) - Not Serviced		Long Term (Infrastructure Strategy[112]) – Not Serviced	
INDUSTRIAL						
NORTH QUADRANT	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**
Chaneys (IH)	47.00[113]	No WW or WS services available.	47.00[92]	No provision for WW and WS servicing in either LTP.[114]	47.00[92]	No provision for WW and WS servicing infrastructure in IS.
North Belfast (IG)	78.87	Inadequate capacity in WW and WS services.	--	Provision in LTPs on staged basis for increased capacity of WW and WS network infrastructure to support development.	--	
Wairakei Rd west of Stanleys Rd (IP)	40.70	Inadequate capacity in WW service and no WS service.	40.70	No provision for increased capacity in WW network (limited capacity may be available).No provision for WS servicing in either LTP.[115]	40.70	No provision for increased capacity in WW network (limited capacity may be achievable) .Extension of WS network infrastructure not currently planned in IS.
Memorial Ave MAIL (IP)	22.76	No WW network infrastructure capacity. Inadequate capacity in WS service.	--	Provision in LTP to establish WW infrastructure to support development post 2023 (Avonhead Road wastewater upgrade). Provision in LTP to increase WS supply capacity.	--	--

[111] Info relates to both 2015-2025 and Draft 2018-2028 LTPs unless otherwise specified. Current and draft LTPs may specify programme funding only or alternatively set out individual projects.
[112] Current and draft IS may specify programme funding only or split out individual projects.
[113] Note though that industrial activities currently operate successfully from this zone. It is effectively a non-serviced rural industrial zone
[114] Too distant from Council infrastructure for developer connection to WW network as well as inadequate capacity in WW pump station.
[115] Limited capacity in WW system for developer to connect into.

Geographic Area	Short Term - Not Serviced		Medium Term (LTP[111]) - Not Serviced		Long Term (Infrastructure Strategy[112]) – Not Serviced	
SOUTH QUADRANT	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**
SW Hornby IH rural wastewater irrigation area (west of Shands Rd and south of IG).	61.5 ha	No WW or WS service.	61.5 ha	No provision for WW and WS network infrastructure in either LTP due to capacity issues.	61.5 ha	No provision for WW and WS services in IS.
Springs Road (IH)	15.92	No WW or WS service.	15.92	Access to WS network infrastructure to be provided through NZTA. No provision for WW network infrastructure in either LTP.[116]	15.92	No WW network infrastructure provided for in IS.
Awatea (south of motorway) (IP)	10.47	No WW service. WS service available in Mcteigue Road.	10.47	No provision for WW servicing in either LTP.[117]	10.47	No provision for WW servicing in IS.
INDUSTRIAL ZONED TOTAL HA NOT SERVICED	**277.22**		**175.59**		**175.59**	
GREENFIELD PRIORITY AREAS[118]	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**
711 Johns Road	15		15		15	Limited WW discharge capacity available, no WS planned in IS.

[116] Could be serviced in MT and LT by developer funded connection to Council system (restrictions will apply due to capacity limits of WW pump station).
[117] Could be serviced in MT and LT by developer funded connection to Council system.
[118] I.e. not yet zoned and therefore not considered part of supply except in long term.

Geographic Area	Short Term - Not Serviced		Medium Term (LTP[111]) - Not Serviced		Long Term (Infrastructure Strategy[112]) – Not Serviced	
Hawthornden Road	35.00		35.00		35.00	WW servicing available post 2025, but limited capacity for proposed development and uncertainties re WS mains upgrades in NW water supply zone, no heavy traffic access.
COMMERCIAL						
Belfast/Northwood (CC zone)	9.44	No WW or WS network infrastructure, cap on traffic until Northern Arterial in place.	--	Provision in LTP to increase WS supply capacity to provide for this area. Network WW infrastructure capacity could be provided by Council post 2023 (programme funding in each case). Northern Arterial expected to be opened around 2021.	--	
COMMERCIAL ZONED TOTAL HA NOT SERVICED	**9.44**		**0.0**		**0.0**	

Advice Note:
There are no identified infrastructure constraints for the balance of vacant and partly vacant land within already built-up Industrial and Commercial Zones that would preclude development.

Table 32. Vacant business land not serviced by development (network) infrastructure – Selwyn District

Geographic Area	Short Term – Not serviced		Medium Term (in LTP) – Not serviced		Long Term (Infrastructure Strategy) – Not serviced	
LINCOLN	**Area not serviced (ha)[119]**	**Notes**	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**
Business 2B Zone (Industrial)	14ha	No WS or WW service		Both WS and WW provided for in the 2018-28 LTP.		Area covered in 30 Year Infrastructure Strategy

[119] The size of the business areas have been calculated off GIS, with the overall size being inclusive of roads, reserves and utilities.

Table 33. Vacant business land not serviced by development (network) infrastructure – Waimakariri District

Geographic Area	Short Term – Not serviced		Medium Term (in LTP) – Not serviced		Long Term (Infrastructure Strategy) – Not serviced	
Waimakariri	**Area not serviced (ha)[120]**	**Notes**	**Area not serviced (ha)**	**Notes**	**Area not serviced (ha)**	**Notes**
All vacant business land is able to be serviced for each time period.						

[120] The size of the business areas have been calculated off GIS, with the overall size being inclusive of roads, reserves and utilities.

8. Feasibility of supply

8.1 Introduction

The NPS-UDC requires an assessment of whether or not any identified development capacity for business land would be commercially feasible to develop. Policy PB3 requires councils to assess the current feasibility of development capacity from the perspective of a developer.

The NPS defines feasibility as "development that is commercially viable, taking into account the current likely costs, revenue and yield of developing."

The accompanying guidance suggests that "at a minimum, local authorities need to rank the feasibility of different parcels of industrial land by comparing their attributes against a checklist of key business property requirements"[121]. This acknowledges the complexities involved in calculating feasibility for business land including the wide range of development options and the difficulties inherent in calculating costs.

The recommended method is to use a multi-criteria analysis that evaluates sites against attributes required by the intended sector and to rank the sites using weighted scores. According to MfE, this process should:

- *identify the key location, size, tenure, price and other characteristics important to the sector;*
- *define and weight the characteristics according to their importance;*
- *score each site, precinct or land parcel against the weighted score range;*
- *rank the sites and determine those that are deemed most suitable to meet demand within a sector and those that are unsuitable and not likely to be developed (and therefore not feasible).*[122]

Councils are encouraged to engage with industry stakeholders and large commercial or industrial operators to select the most appropriate assessment criteria and to better understand the relative weighting given to those criteria by developers.

The methodology section outlines the approach that the GCP partners have adopted for the feasibility assessment and the results of this assessment are set out in section 8.3 below.

8.2 Limitations

The multi-criteria analysis (MCA) approach assess clusters against attributes sought generally by the relevant development sector and does not consider key determinants of commercial feasibility such as residual land value, market demand, costs of labour and materials or location of competitors.

Feedback from the property sector was that by using a MCA approach and not looking at a specific development project on a specific site by a specific developer, it would be almost impossible to find a site that in absolute terms was not feasible for at least some form of economic activity. For industrial activities, it is difficult to imagine a site so constrained that it would not be possible to use the site for an activity like storage units, stockpiling of landscaping materials or equipment hire.

[121] Ministry for the Environment. *National Policy Statement on Urban Development Capacity: Guide on Evidence and Monitoring*. p.51.
[122] Ibid. p.72-73.

An alternative option is to undertake a site level assessment to gain a more detailed understanding of the feasibility of individual sites for development. SDC and WDC have elected to undertake a broad area assessment for consistency, but has commissioned further site level evaluations incorporating market values and costings to inform their District Plan Review processes. The site level assessment for SDC and WDC was unable to be carried out before the NPS-UDC report was finalised due to time constraints.

What the MCA does produce is a broad picture of the relative level of constraint on particular areas based on information presently known to Council planning staff. This is reflected in the tables in Appendix 12. These scores reflect the constraints that would apply to a generic commercial or industrial development anticipated by the relevant zone and would likely change if the requirements of a specific activity were considered. For example, the emerging "local centre" at Redmund Spur is relatively geographically isolated, not connected to the road network or bulk services and does not yet have an immediate residential catchment that would support a typical commercial activity in a local centre such as a row of local shops. However, it may be feasible and cost-effective to develop the site for a boutique destination use (like a guest house or function centre) assuming there was demand and that the developer was willing and able to pay for the costs of installing servicing and a connecting road.

Sites listed below as not feasible and recommended for removal from development capacity for the purposes of this assessment are sites that either:

a) meet the very high test of being so constrained that they are very unlikely to be feasible for the majority of industrial or commercial activities anticipated by the zone; or

b) have a resource consent with a high likelihood of implementation for a non-commercial or non-industrial activity.

8.3 Feasibility for Commercial Development

Christchurch City

Most commercial-zoned sites in Christchurch City are likely to be feasible for some form of commercial activity. Almost all of the centres are on arterial roads with good visibility. The highest scoring centres were generally established centres in residential areas with lower natural hazard risks and few contaminated sites.

Lower scoring centres were generally:

- greenfield emerging centres where servicing still needs to be established and/or the residential catchment has not developed or developed to the anticipated capacity (noting that whilst these centres may not be feasible to develop now, they are likely to be in the future); and
- established centres with more significant land contamination or natural hazards issues.

The centres listed in Table 34 have vacant land that is considered to be not feasible for the reasons discussed below:

Table 34. Centres with vacant land that is considered not feasible for commercial development

Centre	Area not feasible (m^2)	Reason
18A Belfast-Northwood	4,750	Narrow strip of land between the river and SH74. District Plan Outline Development Plan rules make buildings in this area a non-complying activity.
32A Central City Business	2,048	Site has recent consent to rebuild a historic church.
32F Central City Mixed Use	5,058	Three sites with recent consents for apartment complexes.
50A Redmund Spur	3,176	Centre is not connected to the road network or servicing, is relatively isolated and does not seem at the moment to have a sufficiently large existing residential catchment to support most commercial activities.
Total	**15,032**	-

Redmund Spur was the only centre where none of the vacant land was considered feasible. Three other emerging greenfield centres (North West Belfast, Highfield North and Highfield South) scored less than 80 (out of 104) because the surrounding residential catchment was considered not sufficiently developed to support commercial development at the current time.

The two established centres that scored less than 80 (out of 104) are Ferrymead and New Brighton. This reflects in part the fact that they are low-lying coastal centres in flood-prone areas where there is relatively high liquefaction risk and, in the case of Ferrymead, past uncontrolled filling that may increase the likelihood of contaminated soils.

While vacant land in these centres may be feasible to develop in the shorter term, over a longer horizon there is need to consider the increasing risk to these centres posed by sea-level rise and increased costs for developers associated with mitigating those risks (for example, by the need to raise floor levels).

At the moment there is still uncertainty about Christchurch City Council's and the national government's strategy for mitigating the effects of coastal hazards. However, it is likely that more frequent and severe flooding in these centres will render development increasingly less feasible for some sites, potentially within the next 50 years.

Three alternate scenarios considered most likely to affect the feasible land supply in Christchurch City over the next 30 years and which will be the subject of future BDCAs are:

1. Vacant land in coastal centres such as Ferrymead and New Brighton becoming increasingly less feasible to develop.
2. A higher than expected take-up of residential activities in mixed-use zones, particularly in zones like the CCCMU where a number of recent consents for apartments have been issued in a cluster around the North Frame. Under this scenario the proportion of mixed use land assumed to be in residential use may increase.
3. Greenfield emerging centres develop more quickly than anticipated meaning that centres which are were previously considered constrained by a lack of catchment or infrastructure would be more likely to come on-stream e.g. Redmund Spur.

It is recommended that the land supply in these areas is closely monitored to inform future capacity assessments.

Selwyn District

The MCA provided scores for the nine broad areas (Business 1 and Neighbourhood Centres) where there is plan enabled capacity, with there being little variation and most areas scoring highly. This signals that although some of the business clusters had constraints, these are unlikely to be so significant that it makes the land unfeasible to develop from a market perspective.

Lower scoring centres were generally:

- Broadly older centres (Lincoln and Prebbleton score of 3), which perform poorly for Land Assembly because of the fractured nature of land that may slow development in the areas.
- The Land Remediation score for the large centres (Rolleston Town Centre, Lincoln Town Centre and Prebbleton Town Centre) was lower than the smaller centres. These three centres have potential land contamination and/or fill issues which contribute to the lower score (3).
- Three broad areas have a lower score under the Infrastructure criteria. For Prebbleton town centre, there are issues associated with onsite stormwater management where part of the site may be managed on site while other areas fall within the catchment of an existing integrated scheme. The scores for the Falcons Landing and Geddes/Dryden Neighbourhood Centres are impacted by a current lack of utilities that have yet to be installed due to the timing of the surrounding residential development.
- The Planning Constraints criteria score for the large centres (Rolleston Town Centre, Lincoln Town Centre and Prebbleton Town Centre) was lower than the smaller centres. This variation is attributed to additional planning rules within the Key Activity Centre's of Rolleston and Lincoln that require an assessment of urban design and restrictions on activity types in these areas, which reduces the flexibility of land use for some types of commercial activity (for example Large Format Retail).
- Only two areas have a lower score (Falcons Landing and Geddes/Dryden Neighbourhood Centres) under the Proximity criteria. These two Centres are located within large-scale greenfield residential developments, where the proximity score will improve in the future as dwellings are completed
- The Falcon's Landing and the Geddes/Dryden Neighbourhood Centres have a lower score under the Visibility criteria. However, as the greenfield housing development is progressively completed this

score will improve. The Lincoln Town Centre also has a lower score, which is due to a portion of the town centre being located behind Gerald Street.

Overall, the business clusters scored highly on average across the board, establishing that there appear to be few constraints to the market to develop vacant land or to redevelop existing sites. This is consistent with the advice provided at the one on one engagement discussions held with the significant land owners who signalled an interest in meeting[123].

Waimakariri District

The MCA was completed for seven broad areas that have commercial zones (Business 1 and Business 4).

The scores under the Accessibility criteria are consistent across most areas, with only one area scoring a 3 (Ravenswood). In this instance, the accessibility of the area is expected to improve when a planned road is connected to State Highway 1 (in the operative District Plan). The uniformity of the scores means that this criterion is likely to have little impact when differentiating between areas.

Under the Land Assembly criteria there was larger variation in scores than most of the other criteria. Broadly older centres (Rangiora and Kaiapoi Town centres score of 2) perform poorly because of the fractured nature of land which may slow development in the areas. The newer areas (Ravenswood and Kaiapoi Silverstream score of 4) have not been subject to subdivision / purchase by multiple landowners and will be more able to readily supply land to meet the demand of the market.

The Remediation and Infrastructure criteria have the same score for all of the broad areas. Under the Natural Hazards criteria there is the most variation amongst all the centres assessed. The worst score is Kaiapoi Town Centre (score 1) and Kaiapoi Silverstream (score 2), which are both identified as high hazard areas. The remaining areas have no significant hazards.

The scoring against the Planning Constraints criteria is consistent across most areas, with only one area scoring a 3 (Rangiora Town Centre). There are some planning rules that necessitate an urban design assessment or restrict parking and pedestrian access in Rangiora which reduces the flexibility of the land in this area for some types of commercial activity.Finally, the scoring under the Other Development Constraints criteria is the same score for all of the broad areas.

Overall, the business clusters scored highly on average across the board, establishing that there appear to be few constraints to the market to develop vacant land or to redevelop existing sites.

Greater Christchurch

The preceding assessment indicates that all land is feasible across the TAs, with some exceptions in a Christchurch City context. As stated earlier, this reflects the nature of the assessment and feedback from the

[123] Davie Lovell-Smith on behalf of BHL and Hughes Developments Ltd, Gillman Wheelans Ltd, Nimbus Group; Lincoln Developments Ltd, Denwood Trustee, Suburban Estates, Sparr Developments Ltd and White Gold Ltd.

development sector that unless a site by site assessment is completed of costs and all possible scenarios, it is unlikely that land will be found to not be feasible.

8.4 Feasibility for Industrial Development

Christchurch City

Most industrial-zoned sites in Christchurch City are likely to be feasible for some form of industrial activity. There was not significant variability between the scores for most of the clusters which fell into an approximately 10 point range near the top of the scale. Almost all of the clusters were on arterial roads with good access to the rail network, airport or port. Most established clusters had some contaminated sites and some natural hazard related constraints but generally not to the point that it was considered that development would not be feasible.

Limited bulk servicing provision to some clusters affected the kinds of industries that could be expected to locate in those clusters but did not constrain feasibility overall. For example, a number of industrial clusters around southwest Hornby have limits on the amount of wastewater that can be discharged into the public wastewater network. This would constrain industries that rely on significant wastewater discharges but would not constrain “dry” industries like storage, light manufacturing or logistics.

The two lower-scoring clusters are identified as greenfield priority areas (GPAs) for business in the CRPS but were not rezoned in the last District Plan review. While they are more constrained than other clusters because they are still zoned for rural activities, are generally not serviced and have other infrastructure-related constraints, they are still considered potentially feasible. Even though industrial activities would require a non-complying a resource consent application, the application would have some policy support in the RPS.

The following clusters have vacant land that is considered not feasible for the following reasons:

Table 35. Clusters with vacant land that is considered not feasible for industrial development

Cluster	Area not feasible (m^2)	Reason
26C Bower Avenue	1,896	Several sites have very significant natural hazards constraints.
46C Woolston / Ferrymead	5,185	Site of a demolished apartment complex intended to be rebuilt
52B Lyttelton	2,529	Site has recent consent to rebuild a historic fire station
Total	**9,610**	-

In the context of the significant supply of industrial land within Christchurch City identified in the preceding section, this one hectare of ‘unfeasible’ land would appear to be insignificant.

Selwyn District

The MCA evaluations signal that all plan-enabled sites in Selwyn are likely to be feasible for some form of industrial activity.

The scores against most of the criteria are uniformly high across both broad areas (i.e. no difference on the score for Accessibility to the Transport Network, Land Assembly, Land Remediation Requirements, Natural Hazards, Planning Constraints and Other Development Constraints). It was only against one criterion (Location-specific Infrastructure) that there was a distinction between the two broad industrial areas. The Lincoln Industrial Hub (Business 2B Zone) has a lower score because of the onsite stormwater management requirements in this area and the likelihood that this will need to be managed within an integrated scheme developed at the same time as the adjoining residential subdivision.

In summary, the MCA scores show that there is very little difference between the broad areas that are zoned industrial and establishes that there are few constraints to the market to develop vacant land or to redevelop existing sites from a general feasibility perspective. This is generally consistent with the advice provided at the one on one engagement meetings held with the significant land owners, which included all of the respondents to the GCP MCA survey[124].

Waimakariri District

The MCA evaluation provided scores for seven clusters that have an industrial zoning (Business 2). In summary, there is more variation in the scores (although the differences are small). for the industrial clusters in Waimakariri than the commercial broad areas.

The scores for accessibility criteria are consistent across most areas, with three areas scoring a 3 (Rangiora, Kaiapoi 1, Ravenswood). These areas are expected to be connected to main roading infrastructure in the future (either via Collector Road, Strategic Road, Arterial or Urban State Highway).

Scores against the Land Assembly criteria had the larger variation than most of the other criteria. Broadly older centres (Rangiora and Kaiapoi Town centres score of 2) perform poorly because of the fractured nature of land which may slow development/redevelopment in the areas. While the newer areas (Ravenswood score of 4) have not begun land division and will be more able to readily supply land to meet the demand of the market.

The scores against the Remediation criteria are the same for most areas. Only Rangiora area has a lower score of 2, which is related to the potential contamination and landfill in the area.

Scores against the Infrastructure criteria are the same for all the clusters.

The most variation in scores was against the Natural Hazards criteria. Kaiapoi Centre and Kaiapoi Smith Street (score 1) had the lowest scores which reflects their location in high hazard areas. The Rangiora and Southbank

[124] Rolleston Square Ltd, Calder Stewart Ltd, I-Port and Denwoods Trustee

areas are identified as medium hazard areas which results in a score of 2. The remaining areas have no significant hazards.

In summary, the MCA scores show that there is very little difference between the clusters that are zoned industrial and establishes that there are few constraints to the market to develop vacant land or to redevelop existing sites from a general feasibility perspective.

Greater Christchurch

The preceding assessment indicates that all land is feasible across the TAs, with some exceptions in a Christchurch City context. Like Commercial land, this reflects the nature of the assessment and feedback from the development sector.

9. Sufficiency of Business Land

9.1 Introduction

The final step in the business development capacity assessment is to establish whether the amount of feasible, serviced development capacity is sufficient to meet the estimated demand for different types and locations of business land and floor area.

Sufficient/sufficiency is defined in the NPS-UDC as "the provision of enough development capacity to meet housing and business demand, and which reflects the demands for different types and locations of development capacity".

The results are set out below.

9.2 Commercial[125] Land Sufficiency

Christchurch City

Comparison of projected demands against available plan-enabled supply indicates that Christchurch City has sufficient commercial land over the short and medium terms (Table 36). However a projected shortfall of 119 hectares is projected over the long term, which PEL indicates may be realised within about 20 years.

Tables 37-40 show the differential between demand and supply at the quadrant level and indicates a proportional shortfall in commercial land for all quadrants over the long term, reflecting the shift in the economy's employment composition to a projected higher proportion of commercial employees[126]. The largest shortfall is within the central quadrant, at 77 hectares. It must be borne in mind that the sufficiency of commercial land development depends inherently on the assumptions used to calculate demand and supply projections. In the case of commercial land in Christchurch City, an average building height of 3.3 was adopted for the central quadrant[127]. A higher average building storey height assumption would obviously have a bearing on overall commercial land sufficiency citywide, but particularly for this quadrant where taller buildings are more likely.

Table 36. Sufficiency of commercial land in Christchurch City

Christchurch City	***Land Requirement (hectares)***		
	3 year growth	***10 year growth***	***30 year growth***
Commercial Offices	20	28	85
Commercial services	3	11	34
Retail	13	42	127
Total Demand	36	81	246
Total Supply	129	129	129

[125] Land available for offices, commercial services and retail activities
[126] Property Economics, Christchurch Business Land Capacity Assessment (2018) page 57-58.
[127] Note that the Christchurch District Plan enables buildings of 28m (around 7 storeys) in the Central City Business Zone and 17m (4 storeys) in the Central City Mixed Use Zone, as a permitted activity.

Less land that is not serviced[128]	-9.44	-	-
Less land that is not feasible[129]	-1.50	-1.50	-1.50
Sufficiency	**82**	**46.50**	**-118.5**

Christchurch City by sub-area

Table 37. Sufficiency of commercial land in the north quadrant of Christchurch City

North Quadrant		***Land Requirement (hectares)***		
		3 year growth	***10 year growth***	***30 year growth***
Demand	Commercial Office	3	2	16
	Commercial Services	1	1	8
	Retail	1	1	16
	Total Demand	5	4	40
Supply	Total Supply	30	30	30
	Less land that is not serviced	-9.44	-	-
	Less land that is not feasible	-0.48	-0.48	-0.48
Sufficiency	**Total Sufficiency**	**15**	**25.5**	**10.48**

Table 38. Sufficiency of commercial land in the south quadrant of Christchurch City

South Quadrant		***Land Requirement (hectares)***		
		3 year growth	***10 year growth***	***30 year growth***
Demand	Commercial Office	4	1	21
	Commercial Services	1	2	14
	Retail	2	2	26
	Total Demand	7	5	61
Supply	Total Supply	34	34	34
	Less land that is not serviced	-	-	-
	Less land that is not feasible	-0.32	-0.32	-0.32
Sufficiency	**Total Sufficiency**	**26.68**	**28.68**	**-27.32**

[128] i.e. excludes land that has a servicing constraint over the short, medium or long term
[129] i.e. excludes land that has been assessed by CCC as not feasible

Table 39. Sufficiency of commercial land in the east quadrant of Christchurch City

East Quadrant		*Land Requirement (hectares)*		
		3 year growth	*10 year growth*	*30 year growth*
Demand	Commercial Office	1	1	8
	Commercial Services	1	1	5
	Retail	1	1	10
	Total Demand	3	2	24
Supply	Total Supply	23	23	23
	Less land that is not serviced	-	-	-
	Less land that is not feasible	-	-	-
Sufficiency	**Total Sufficiency**	**20**	**21**	**-1**

Table 40. Sufficiency of commercial land in the central quadrant of Christchurch City

Central Quadrant		*Land Requirement (hectares)*		
		3 year growth	*10 year growth*	*30 year growth*
Demand	Commercial Office	12	25	39
	Commercial Services	1	1	6
	Retail	10	39	74
	Total Demand	22	65	118
Supply	Total Supply	42	42	42
	Less land that is not serviced	-	-	-
	Less land that is not feasible	-0.71	-0.71	-0.71
Sufficiency	**Total Sufficiency**	**19.29**	**23.71**	**-76.71**

Selwyn District

A comparison of projected demand against available plan-enabled supply utilising the wholly vacant land measure indicates that Selwyn has sufficient commercial land in the short term, but that there is a projected under-supply within the medium term of three hectares (Table 41). A shortfall of 31 hectares is projected in the long term, once again using the wholly vacant land supply measure, including within the townships of Lincoln and West Melton. Vacant Potential supply may provide additional capacity sufficient to meet medium term needs, although it is dependent upon more optimal uses of business land. The variations between the Vacant and Vacant Potential supply estimates emphasise the need for regular monitoring to gauge the extent to which commercial land is utilised or redeveloped to more optimal ratios in Selwyn than what is currently the case.

Table 41. Sufficiency of commercial land in Selwyn District

Selwyn District	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	4	29	57
Total Supply	26-36	26-36	26-36
Sufficiency	**22 to 32**	**-3 to 7**	**-31 to -21**

Waimakariri District

Comparison of projected demands against available plan-enabled supply indicates that Waimakariri has a potential shortfall of land of around 17ha in the long term (when considering only vacant commercial land) as outlined in Table 42. If the underutilization of existing commercial land is included into the total supply available, this changes the overall result from a shortfall of 17ha to an overprovision of land by 1ha.

Table 42. Sufficiency of commercial land in Waimakariri District

Waimakariri District	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	18	22	30
Total Supply	13-31	13-31	13-31
Sufficiency	**-5 to +13**	**-9 to + 9**	**-17 to +1**

Greater Christchurch

The results on sufficiency at a Greater Christchurch level indicate a sufficient supply of feasible commercial land to meet demand in the short and medium term. In the long term, there is an apparent shortfall. However, as stated above, this is premised on a number of assumptions to calculate demand and supply and further testing of these assumptions will be required together with active monitoring of take-up rates and projected changes in demand. The redevelopment of under-utilised sites and use of existing vacant floorspace may also affect the extent to which there is sufficient land.

Table 43. Sufficiency of commercial land in Greater Christchurch

Greater Christchurch	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	58	132	333
Total Supply	157-185	167-195	167-195
Sufficiency	**99-127**	**35-63**	**-167 to -139**

9.3 Industrial Land Sufficiency

Christchurch City

Table 44. Sufficiency of industrial land in Christchurch City

Christchurch City	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	89	32	482
Total Supply	934	934	934
Less land that is not serviced[130]	327.22[131]	225.60[130]	225.60[130]
Less land that is not feasible[132]	0.96	0.96	0.96
Sufficiency	**517**	**675**	**225**

Christchurch City by sub-area

Table 45. Sufficiency of industrial land in the north quadrant of Christchurch City

North Quadrant	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Demand	22	5	125
Supply	423	423	423
Less land that is not serviced[130]	204.33[133]	102.70	102.70
Less land that is not feasible[132]	-	-	-
Sufficiency	**196.67**	**315.30**	**195.30**

Table 46. Sufficiency of industrial land in the south quadrant of Christchurch City

South Quadrant	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Demand	43	20	234
Supply	438	438	438
Less land that is not serviced	122.89[134]	122.89	122.89
Less land that is not feasible	0.25	0.25	0.25
Sufficiency	**271.86**	**294.86**	**80.86**

[130] i.e. excludes land that has a servicing constraint over the short, medium or long term
[131] Includes 47ha at Chaneys which is part utilised for un-serviced industry
[132] i.e. excludes land that has been assessed by CCC as not feasible
[133] Includes 47ha at Chaneys part utilised for un-serviced industrial activities and 15ha rural zoned GPA area
[134] Includes 35ha rurally zoned GPA area

Table 47. Sufficiency of industrial land in the east quadrant of Christchurch City

East Quadrant	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Demand	13	-9	56
Supply	63	63	63
Less land that is not serviced	-	-	-
Less land that is not feasible	0.71	0.71	0.71
Sufficiency	**49.29**	**71.29**	**6.29**

Table 48. Sufficiency of industrial land in the central quadrant of Christchurch City

Central Quadrant	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Demand	11	16	56
Supply	8	8	8
Less land that is not serviced	-	-	-
Less land that is not feasible	-	-	-
Sufficiency	**-3**	**-8**	**-48**

Selwyn District

Table 49. Sufficiency of industrial land in Selwyn District

Selwyn District	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	27	29	53
Total Supply	231-258	245-272	245-272
Sufficiency	**204-231**	**216-243**	**192-219**

Waimakariri District

Table 50. Sufficiency of industrial land in Waimakariri District

Waimakariri District	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	90	71	102
Total Supply	109-161	109-161	109-161
Sufficiency	**19-71**	**38-90**	**7-59**

Greater Christchurch

At a Greater Christchurch level, there is a significant quantum of industrial land, based on an assessment of fully and part vacant land, sufficient to meet long term demand. If the plan enabled capacity is limited to wholly vacant sites, the assessment projects a shortfall of industrial zoned land in the long term of 37 ha at a Greater Christchurch level. However, this does not take account of partially vacant sites or redevelopment potential of existing developed sites, which in many areas makes a significant contribution to land supply. Nor does it consider land that is not serviced but will continue to be utilised for industrial activities (e.g. Chaneys), and land that may be serviced as a result of provision by developers and/or the reconsideration of funding priorities. There remains a need for monitoring and future capacity assessment to consider the supply at a finer grain and whether it is meeting the needs of specific industries.

Table 51. Sufficiency of industrial land in Greater Christchurch

Greater Christchurch	*Land Requirement (hectares)*		
	3 year growth	*10 year growth*	*30 year growth*
Total Demand	206	132	637
Total Supply	946-1,025	1,061-1,140	1,061-1,140
Sufficiency	**740-819**	**929-1,008**	**424-503**

10. Interaction between Housing and Business

A separate report has been produced for the GCP's Housing and Business Capacity Assessments on Housing and Business interactions. This is intended to address the requirement of the NPS PB1(c) to: "*Assess [spatial] interactions between housing and business activities, and their impacts on each other".*

This separate report states that living near workplaces is generally something people desire (although this often requires a trade-off with other factors such as the desire to live near shops, schools and parks, and the affordability of homes). The inverse of this is that commercial activities also seek locations which have good proximity to residential areas, for a customer base and nearby workforce.

Industrial activities do not however fit this pattern of interaction, as in general[135] they do not consider proximity to a nearby workforce to be a primary driver of locational preferences.

Planning documents such as the CRPS support the achievement of minimum densities to promote a compact urban form that supports existing activity centres and can be served efficiently by infrastructure, including public transport.

However, there are particular features of the Greater Christchurch sub-region that make these aims more difficult to achieve. There are high levels of access across the GCP area currently, based on car travel. This has led to a wide spread of trips, with trips originating from a range of destinations and terminating at a range of destinations across the sub-region. The City also has the highest rate of car ownership and usage of large New Zealand cities, with relatively low public transport usage. Most workers employed in Christchurch City did not live in the same part of the City as their place of work in the 2013 Census, meaning people travelled across the sub-region, to varying degrees, to get to work.

The benefits of these patterns include a fairly high level of access to key activity centres for much of the City, which suggests that the services and facilities provided in these activity centres are reasonably accessible to a significant share of the City's population. Access to jobs in Greater Christchurch is good, and highest in the central and western areas of Christchurch City, which reflects the concentration of jobs in this part of the GCP area. There are however higher levels of "employment deprivation" in the eastern parts of Christchurch City, mirroring the smaller number of jobs in that part of the City.

The average trip length for light vehicles in Greater Christchurch increased from 2006 to 2016, by 10% for PM peak and inter-peak periods, and by about 5% for the AM peak period. However, average trip lengths are still around only 7 to 8 km for the peak periods, when journeys to work will generally be occurring.

There are localised pinch points in the transport system in Greater Christchurch now, but given reliance on private cars in the region, there could be significant congestion in the medium and long term and greater deterioration of travel times. Barriers to change and to intensification include continued investment in infrastructure that makes car travel more convenient, and a willingness amongst GCP residents to commute longer distances to live in higher quality, new build homes in suburban and rural-residential areas.

[135] Based on consultation with a Christchurch focus group set up to consider the feasibility of different areas of the City for business

11. Conclusions and Recommendations

Christchurch City

Industrial Land

Overall, the capacity assessment indicates that Christchurch City is likely to have sufficient, feasible and serviced industrial land supply to meet projected needs for the next 30 years. There is 884 hectares of vacant industrial land in Christchurch City that is zoned for industrial purposes along with a further 50 hectares of rural zoned land that is identified in the Canterbury Regional Policy Statement as potential future industrial land. Whilst some of this land (around 230 hectares) has infrastructure servicing and other constraints that may limit the ability to bring the land to market over the planning period, even excluding this land would still leave a balance of 654 hectares available to meet a projected long term demand for 482 hectares of industrial land in the City. CCC considers some of this constrained land will nonetheless also be utilised for industrial purposes over the long term as a result of developer led provision of infrastructure, reconsideration of infrastructure funding priorities and / or because some land can be used for industrial purposes, even without being fully serviced.

There is considered to be a good distribution of industrial land, in a range of property sizes and tenures, around the City to meet foreseeable demands. Continued monitoring of vacant land and take-up rates around the City will be important to understand the locations of greatest demand and whether land supply is being responsive to those demands over time.

Based on this assessment, there is no evidential need to identify new industrial land supply in the short, medium or long terms. On the basis of this over-supply, neither does there appear to be a need to rezone the two rural areas currently identified in the CRPS as potential future industrial locations.

Commercial Land

Commercial land will require additional capacity in Christchurch City. Long term, the Christchurch area is estimated to require an additional 119 hectares above the current zoned provision. Based on the EFM employment distribution, nearly two thirds of this commercial land shortfall is in the central quadrant. All of the quadrants are estimated to require additional commercial zoned land to varying levels by 2048.

Given the relationship between population and household growth and commercial land demands, it is appropriate that this additional commercial land provision be focussed in centres to serve residential growth areas including the central city, key activity centres (with surrounding residential medium density housing zones) and new commercial centres which may be developed to support new suburban residential communities.

The Future Development Strategy will need to consider how to respond to this shortfall and which should consider the following:

- The extent to which existing industrial land in the central quadrant might be anticipated to meet future demands for commercial activity over the medium and longer term i.e. as older industrial land is naturally redeveloped for higher value commercial (and residential) uses.
- Opportunities for additional development capacity to be provided through making more efficient use of existing commercially zoned land including through the relaxation of current commercial floorspace

caps in some centres and through building office developments to higher levels. In particular, a sensitivity test of building office developments to the maximum height permitted by the Christchurch District Plan[136] in the Central City is recommended to be undertaken.

- Opportunities to provide additional commercial capacity through the redevelopment of surplus brownfield industrial land for commercial or mixed uses.

Selwyn and Waimakariri

For Selwyn, the modelling suggests that there will be more than sufficient supply to meet the demand for industrial land through to 2048. This plan-enabled land is serviced and relatively free from any development constraints that may limit its feasibility to be developed or redeveloped for some form of industrial activity. Ongoing stakeholder engagement and monitoring of the uptake of industrial land is required to quantify whether this projected over-supply reflects market realities.

For Waimakariri, the capacity assessment indicates that there is likely to have sufficient, feasible and serviced industrial land supply to meet projected needs for the next 30 years. However there are some questions around the distribution of existing industrial land supply, in order to meet foreseeable demands. Monitoring of vacant land and take-up rates around Rangiora and Kaiapoi will be important to understand the locations of greatest demand and whether land supply is being responsive to those demands over time.

Based on this assessment, there is no evidential need to identify new industrial land. However if ongoing monitoring suggests that existing land supply is not being brought to market in a timely manner, this position may need to be reconsidered in future capacity assessments.

Commercial Land

For Selwyn, the modelling of commercial demand and supply estimates are indicating that there is sufficient land available within the short term, but that there is a medium term shortfall of three hectares and long term shortfall of 31 hectares based on projected (wholly) vacant land supply. The amount of business land improves where Vacant Potential capacity is utilised, including the potential that there is sufficient capacity within the medium term. However, this assumes that business land will be used more optimally in the future. The medium term supply issues are projected in Lincoln, West Melton and Rolleston, where more immediate consideration under the Future Development Strategy may be required to determine possible responses to meet demand.

For Waimakariri, additional commercial land is likely to be required in the medium term. In considering only vacant land supply, Waimakariri is estimated to require up to 17 additional hectares above the current zoned provision over the long term. Options to consider addressing this shortfall could be to use existing underutilised commercially zoned land within Rangiora and Kaiapoi (up to 18 ha), providing additional Greenfield land, enabling higher densities or a combination of these two options.

The Future Development Strategy will need to consider how to respond to this shortfall and which should consider the following:

- Ability of Vacant Potential land supply to meet retail and industrial demand and if not, where this potential shortfall could be accommodated.

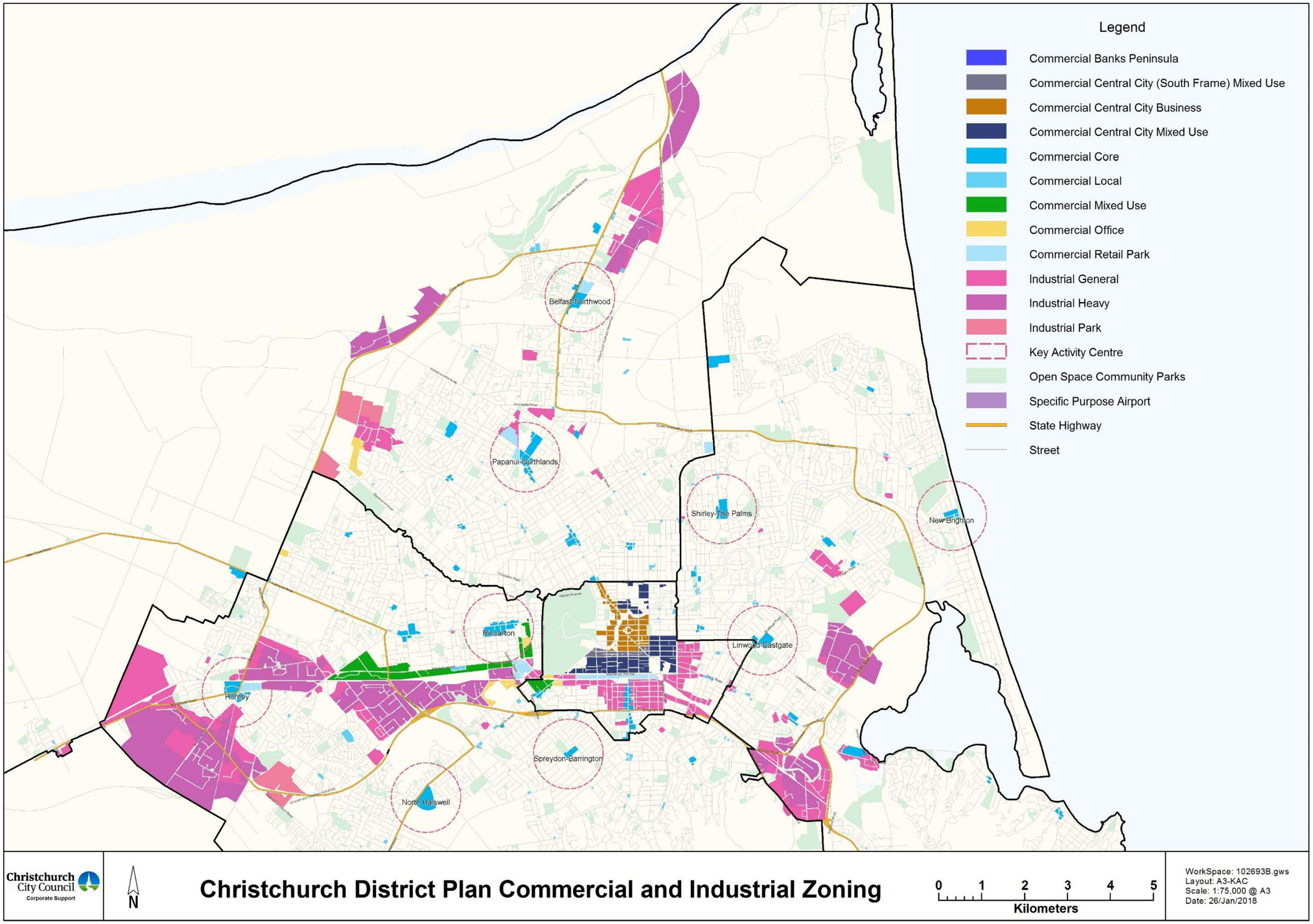
[136] That is 7 storeys in the Commercial Central City Business Zone (28m) and 4 storeys in the Commercial Central City Mixed Use Zone (17m)

- This will require detailed spatial analysis of all Vacant Potential land within Selwyn and Waimakariri to determine its viability.

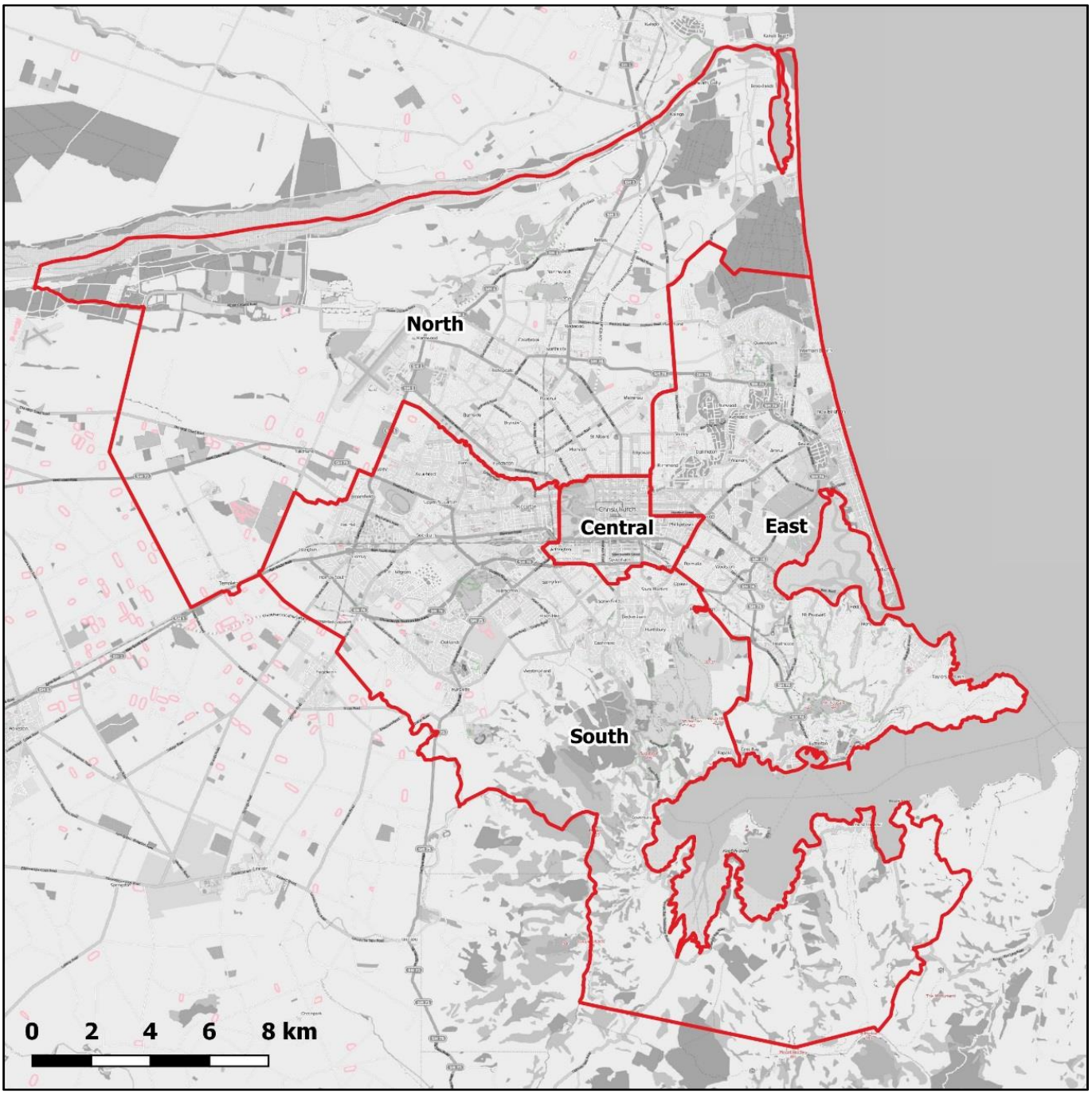
- Incorporation of the JLL vacant land survey results into the SCGM/WCGM to validate the current supply of commercial and industrial land in Rolleston, Lincoln, Rangiora and Kaiapoi.
- Regular ongoing monitoring of population and employment growth to reality check the rates of uptake and optimisation of business zoned land.
- Additional engagement during the course of preparing the Future Development Strategy.
- Consider the individual demand and supply requirements for commercial land at a township level in Selwyn and Waimakariri Districts.
- Consideration of the supply of land for specific types of commercial development, having regard to the size of parcels (e.g. small format / large format retail). This has not been addressed as part of this capacity assessment for SDC and WDC.

This results presented in this report are at the overall GCP area level for Selwyn and Waimakariri and does not consider the implications of demand and supply at a township level. This will need further discussion and investigation as part of the Future Development Strategy process.

Appendix 1 – Christchurch District Commercial and Industrial Zoning



Appendix 2 – Christchurch City Capacity Assessment Quadrants



Appendix 3 – Population / Household projections (Sensitivity testing)

Population Projections

Scenario 1 – Medium Growth Rate (All TAs)

	2018	*2023*	*2028*	*2033*	*2038*	*2043*	*2048*	*Additional Population 2018-2048*
Selwyn GCP	47,900	56,900	63,500	69,500	75,900	81,800	86,800	38,900
Waimakariri GCP	47,400	52,200	55,900	59,200	62,300	65,100	67,200	19,800
Christchurch GCP	383,800	405,200	420,000	433,600	445,100	455,000	463,700	79,900
TOTAL GCP	**479,100**	**514,300**	**539,400**	**562,300**	**583,300**	**601,900**	**617,700**	**138,600**

Scenario 2 – Medium High Growth Rate (Midpoint between Medium and High, for all TAs)

		2013	*2018*	*2023*	*2028*	*2033*	*2038*	*2043*	*2048*	*Additional Population 2013-2048*	*Additional Population 2018-2048*
Selwyn	Detail	34,400	49,480	59,945	67,930	75,690	83,640	91,320	98,359	63,959	48,879
	Rounded	34,400	49,500	59,900	67,900	75,700	83,600	91,300	98,400	64,000	48,900
Waimakariri	Detail	40,100	48,750	54,810	59,940	64,795	69,365	73,730	77,763	37,663	29,013
	Rounded	**40,100**	**48,800**	**54,800**	**59,900**	**64,800**	**69,400**	**73,700**	77,800	37,700	29,000
Christchurch	**Detail**	**353,525**	**388,412**	**414,924**	**435,242**	**454,618**	**472,309**	**488,563**	503,925	150,399	115,513
	Rounded	**353,500**	**388,400**	**414,900**	**435,200**	**454,600**	**472,300**	**488,600**	503,900	150,400	115,500
TOTAL UDS	**Rounded**	**428,000**	**486,700**	**529,600**	**563,000**	**595,100**	**625,300**	**653,600**	680,100	252,100	193,400

Scenario 3 – Medium High Growth Rate (Selwyn and Waimakariri) and Medium Growth Rate (Christchurch)

	2018	*2023*	*2028*	*2033*	*2038*	*2043*	*2048*	*Additional Population 2018-2048*
Selwyn GCP	49,500	59,900	67,900	75,700	83,600	91,300	98,400	48,900
Waimakariri GCP	48,800	54,800	59,900	64,800	69,400	73,700	77,800	29,000
Christchurch GCP	383,800	405,200	420,000	433,600	445,100	455,000	463,700	80,000
TOTAL GCP	**482,100**	**519,900**	**547,800**	**574,100**	**598,100**	**620,000**	**639,900**	**157,900**

Scenario 4 – High Growth Rate (All TAs)

	2018	*2023*	*2028*	*2033*	*2038*	*2043*	*2048*	*Additional Population 2018-2048*
Selwyn GCP	51,100	63,000	72,400	81,900	91,400	100,900	109,900	58,800
Waimakariri GCP	50,100	57,500	64,000	70,400	76,500	82,400	88,300	38,200
Christchurch GCP	393,100	424,700	450,500	475,600	499,500	522,100	544,100	151,000
TOTAL GCP	**494,300**	**545,200**	**586,900**	**627,900**	**667,400**	**705,400**	**742,300**	**248,000**

Household Projections

Assumptions – Average household size of the next 30 years

	2018	*2023*	*2028*	*2033*	*2038*	*2043*	*2048*
Selwyn GCP	2.9	2.8	2.8	2.7	2.7	2.7	2.6
Waimakariri GCP	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Christchurch GCP	2.5	2.5	2.5	2.4	2.4	2.4	2.4

Scenario 1 – Medium Growth Rate (All TAs)

									Household Growth with additional margin of capacity (as required under the NPS-UDC)				
	2018	*2021**	*2023*	*2028***	*2033*	*2038*	*2043*	*2048****	*Additional Households 2018-2048*	*Additional Households Short Term + (20%)*	*Additional Households Medium Term + (20%)*	*Additional Households Long Term + (15%)*	*Total Additional Households*
Selwyn GCP	16,500	18,800	20,300	22,700	25,700	28,100	30,300	33,400	16,900	2,700	4,600	12,300	19,700
Waimakariri GCP	18,200	19,300	20,100	22,300	23,700	24,900	26,000	28,000	9,800	1,300	3,600	6,500	11,500
Christchurch GCP	153,500	158,600	162,100	168,000	180,700	185,500	189,600	193,200	39,700	6,200	11,200	29,000	46,400
TOTAL GCP	**188,200**	**196,700**	**202,500**	**213,000**	**230,100**	**238,500**	**245,900**	**254,600**	**66,400**	**10,200**	**19,400**	**47,800**	**77,600**

Scenario 2 – Medium High Growth Rate (midpoint between Medium and High, for all TAs)

									Household Growth with additional margin of capacity (as required under the NPS-UDC)			
	2018	***2021***	***2023***	***2028***	***2033***	***2038***	***2043***	***2048***	***Additional Households 2018-2048***	***Additional Households Short Term + (20%)***	***Additional Households Medium Term + (20%)***	***Additional Households Long Term + (15%)***	***Total Additional Households***
Selwyn GCP	17,100	19,700	21,400	24,300	28,000	31,000	33,800	37,800	20,800	3,100	5,500	15,600	24,200
Waimakariri GCP	18,800	20,100	21,100	24,000	25,900	27,700	29,500	32,400	13,700	1,700	4,600	9,700	16,000
Christchurch GCP	155,400	161,700	166,000	174,100	189,400	196,800	203,600	210,000	54,600	7,600	14,800	41,300	63,700
TOTAL GCP	**191,300**	**201,500**	**208,500**	**222,400**	**243,300**	**255,500**	**266,900**	**280,200**	**89,100**	**12,400**	**24,900**	**66,600**	**103,900**

Scenario 3 – Medium High Growth Rate (Selwyn and Waimakariri) and Medium Growth Rate (Christchurch)

									Household Growth with additional margin of capacity (as required under the NPS-UDC)			
	2018	***2021***	***2023***	***2028***	***2033***	***2038***	***2043***	***2048***	***Additional Households 2018-2048***	***Additional Households Short Term + (20%)***	***Additional Households Medium Term + (20%)***	***Additional Households Long Term + (15%)***	***Total Additional Households***
Selwyn GCP	17,100	19,700	21,400	24,300	28,000	31,000	33,800	37,800	20,800	3,100	5,500	15,600	24,200
Waimakariri GCP	18,800	20,100	21,100	24,000	25,900	27,700	29,500	32,400	13,700	1,700	4,600	9,700	16,000
Christchurch GCP	153,500	158,600	162,100	168,000	180,700	185,500	189,600	193,200	39,700	6,200	11,200	29,000	46,400
TOTAL GCP	**189,400**	**198,400**	**204,600**	**216,300**	**234,600**	**244,200**	**252,900**	**263,400**	**74,200**	**11,000**	**21,300**	**54,300**	**86,600**

Scenario 4 – High Growth Rate (All TAs)

									Household Growth with additional margin of capacity (as required under the NPS-UDC)			
	2018	***2021***	***2023***	***2028***	***2033***	***2038***	***2043***	***2048***	***Additional Households 2018-2048***	***Additional Households Short Term + (20%)***	***Additional Households Medium Term + (20%)***	***Additional Households Long Term + (15%)***	***Total Additional Households***
Selwyn GCP	17,600	20,500	22,500	25,900	30,300	33,800	37,400	42,300	24,700	3,500	6,400	18,900	28,800
Waimakariri GCP	19,300	21,000	22,100	25,600	28,100	30,600	33,000	36,800	17,500	2,000	5,600	12,900	20,500
Christchurch GCP	157,200	164,800	169,900	180,200	198,200	208,100	217,500	226,700	69,500	9,100	18,400	53,500	81,100
TOTAL GCP	**194,100**	**206,300**	**214,500**	**231,700**	**256,600**	**272,500**	**287,900**	**305,800**	**111,700**	**14,600**	**30,400**	**85,300**	**130,400**

Appendix 4 – Area Units used in Population Projections

Christchurch	***Selwyn***	***Waimakariri***
All Area Units	587010 Kirwee (a portion of the Kirwee area unit is outside of the GCP Study Area) 587020 Burnham Military Camp 587848 Prebbleton 587849 Trents-Ladbrooks 587904 West Melton 587905 Taitapu 597200 Lincoln 597507 Rolleston North West 597508 Rolleston Central 597509 Rolleston North East 597510 Rolleston South West 597512 Springston 597513 Rolleston South East	586001 Camside 586002 Pines-Kairaki Beach 586112 Waikuku 586120 Woodend 586121 Fernside (a portion of the Fernside area unit is outside of the GCP Study Area) 586122 Lehmans 586124 Pegasus 586126 Woodend Beach 586127 Coldstream 586128 Ravenswood 586129 Tuahiwi 586130 Woodend West 586303 Rangiora East 586304 Southbrook 586305 Kingsbury 586306 Rangiora North 586307 Rangiora West 586308 Rangiora Central 586403 Kaiapoi South 586404 Mansfield 586405 Courtenay 586407 Kaiapoi East 586408 Kaiapoi North West 586409 Kaiapoi North East 586501 Clarkville 586503 Kaiapoi West 586504 Silverstream 586603 Mandeville 586604 Ohoka

Appendix 5 – Population Estimates / Migration Data

As census population count is every five years, there is a question on how accurate the estimates can be to help in between these events and to this assessment. Statistics New Zealand has considered this is a report entitled "How accurate are population estimates and projections?" The following is an extract of key points from this report.

Table A5-1. Key points relating to the accuracy of estimates

	Waimakariri		***Christchurch***		***Selwyn***	
	Under / over estimated	*Relative error of estimates*	*Under / over estimated*	*Relative error of estimates*	*Under / over estimated*	*Relative error of estimates*
1996-2001	Under by 850	2.3%	Over by 290	0.1%	Over 710	2.5%
2001-2006	Under by 950	2.2%	Under by 1,450	0.4%	Under by 2,320	6.6%
2006-2013	Under by 1,510	2.9%	Over by 9,300	2.6%	Under by 2,550	5.4%

Statistics NZ notes that in their report that:

- Estimates for larger geographic areas have smaller relative errors than those for smaller geographic areas. Uncertainty increases as geographic size decreases. (Except for the impact of the Canterbury earthquakes on Christchurch)
- Areas with the largest relative errors are generally those experiencing the most-rapid population change (either increase or decrease) and/or those experiencing significant swings in net migration
- Observed inaccuracies in estimates cannot be attributed to one particular factor. However, the external migration component is likely to play an important role. Eg the 'permanent and long-term' migration measure (based largely on passengers' stated travel intentions or stated durations of stay/absence), has tended to understate the contribution of net migration to New Zealand's population change, particular during 2001-06.

Migration data

Migration data is limited as it is difficult to track where people move to and from at any one time. Limited data is available from Census and a range of assumptions are made regarding net migration as part of the population estimates released by Statistics New Zealand.

Key Points:

- Recently high rates of international migration to NZ
  - between 1996 and 2013 average net migration = 10,300.
  - between 2014 and 2017 average net migration = 59,500.
- Major impact on Auckland and surrounding areas and in Christchurch as migrants have been playing a crucial part in the rebuild of the City as a result of the earthquakes
- Census 2013

- Table A5-2 outlines where people were living five years ago as compared to Census night 2013.

Table A5-2. Where people were living five years ago as compared to Census night 2013

	Waimakariri	*Christchurch*	*Selwyn*
Within New Zealand (outside of Waimakariri, Selwyn or Christchurch)	+3,456 (61%)	-14,667	+6,207 (73%)
Overseas	+2,187 (39%)	+23,238	+2,301 (27%)
Total	**+5,643**	**+8,571**	**+8,508**

Appendix 6 – Building Consents for New Residential Dwellings 1996 -2017

The following table shows the number of building consents for new residential dwellings between 1996 and 2017 for the Waimakariri District, Selwyn District and Christchurch.

Table A6-1. Building consents for new residential dwellings 1996 – 2017 (July to June year)

	Waimakariri	*Selwyn*	*Christchurch*
1996	392	271	2067
1997	429	320	2026
1998	444	317	2117
1999	456	323	1906
2000	449	325	1744
2001	297	284	1342
2002	307	388	1530
2003	398	477	2338
2004	588	588	2539
2005	569	533	2337
2006	522	739	2068
2007	489	803	2425
2008	542	700	1791
2009	283	297	1123
2010	477	497	1524
2011	416	364	1169
2012	815	578	1211
2013	1185	1064	1730
2014	1119	1290	3648
2015	794	1279	4236
2016	657	1284	3838
2017	653	1260	2620

Appendix 7 – Report on Availability of 'Development Infrastructure'

A7.1 Christchurch City

A7.1.1 Introduction

This section supplements Section 7 above by providing further information on the actual and likely availability of development infrastructure for which the Council is responsible i.e. water supply, wastewater, stormwater and land transport, to support the development of land in the short, medium and long term, as required under Policy PB3 b) of the NPS-UDC. Development infrastructure is defined in the NPS as meaning "network infrastructure" to the extent to which it is controlled by local authorities.

The infrastructure assessment considered whether any plan enabled capacity is:

- currently serviced with development infrastructure, or;
- to be serviced as a result of funding identified in Council's Long Term Plan (LTP): or
- indicated as being able to be serviced in the longer term within the Council's Infrastructure Strategy.

A7.1.2 Funding of Development Infrastructure

Council's current 2015-2025 Long Term Plan is available on the Council's website[137].

The Council's current Infrastructure Strategy 2015-2045 is one of the documents making up the Long Term Plan (refer Volume 2), and provides a 30-year perspective for the LTP. Both documents are now out-of-date and are under review. Considerably advanced drafts for each are available internally, have been provided to Audit NZ and will be considered by Councillors in early 2018 before being notified for public comments. The revised (potentially amended) documents for the 2018-2028 LTP and 2018-2048 Infrastructure Strategy are scheduled to supersede the current documents by mid-2018.

Because of the timing of the infrastructure planning and funding cycle in relation to NPS timeframes, it is difficult to make absolute statements about the timing of infrastructure availability for particular areas of land in the 10 and 30 year periods, as updated decisions have yet to be made. As well, although key capital projects are separately identified in both documents, there are also ongoing and yearly allocations to programme funding based on historical spending e.g. WS New Wells for Growth or WW New Pumping Stations for Growth. In other words individual projects are not always separated out initially, as some will proceed more quickly than others, and it is inefficient for public infrastructure to be provided for growth areas ahead of committed development. As the development of particular areas becomes more imminent during the LTP period, individual network projects are specified in revised LTPs and Annual Plans for funding, design and construction, i.e. growth areas with definite development plans are prioritised for servicing.

Implications of the Canterbury Earthquakes

An overriding issue for Christchurch City is that of funding, as a result of the immense financial demands caused by the Canterbury Earthquakes. Significant and widespread earthquake damage on top of already ageing infrastructure assets in the City mean that a large amount of asset renewals are needed, and as well

[137] https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/long-term-plan-and-annual-plans/long-term-plan-2015-25

the earthquakes shortened the remaining life of many assets. SCIRT[138] spent $2.2 billion on repairing and replacing earthquake damaged infrastructure, and Council also spent considerable amounts during the same period to continue providing services and to undertake repairs. Despite this, a significant amount of damage remains to be repaired, and asset condition has been revealed to be worse than previously assumed. Some of the additional expenditure by Council in recent years has been funded by deferring otherwise planned renewals. Asset renewal will of necessity be the biggest component of Council's planned capital expenditure over the next 30 years, with estimates of between $9.3 billion and $11.3 billion needing to be spent over that period to meet current and future needs for good quality infrastructure and local public services[139].

Draft Infrastructure Strategy (2018) and Draft Long Term Plan (2018-2028) (not yet publicly available)

As at December 2017, Council's Draft 30 Year Infrastructure Strategy 2018-2048 (which is part of and supports the 2018-2028 LTP), contains three spending options – low, medium, and high cost programmes. For the purposes of this report, the medium cost option (approximately the same budget as in the 2015-2025 LTP and current Infrastructure Strategy) will be adopted for timing of infrastructure provision.

Because of the Council's difficult financial situation, and despite an ongoing Development Contributions policy, it will not be possible for Council itself to provide all development infrastructure for all possible medium term business growth areas ahead of development, and certainly not for all possible long term business growth areas. Costs of growth may fall on Council in the first case, before they are reimbursed via Development Contributions, e.g. where there are multiple landowners and Council must act as the lead infrastructure provider, or where there is a wider public benefit e.g. the cost of increasing the size of a pipeline beyond that required by an individual development, to serve future adjoining developments. With an apparent oversupply of industrial land in Christchurch, as well as the 15% buffer required by the NPS, it would be especially inefficient for public infrastructure to be provided for all growth areas, until development becomes definite.

To provide certainty now about development infrastructure to service all medium and long term growth areas, the high cost option for expenditure would need to be adopted for the 2018 LTP. However this is considered unlikely, due to the implications of that option for rates rises and levels of service, and the need to consider intergenerational affordability.

Adoption of the medium cost programme option would result in development infrastructure being available for most medium term growth areas in the LTP. Such infrastructure would include water supply wells, major water and sewerage pump stations and larger mains servicing wider development areas; the transport of sewage to the Bromley treatment plant and treatment and disposal of sewage. As wel, the Council must provide most of the new and upgraded roading in the City, other than State Highways, which are the responsibility of NZTA. Where areas are not programmed to be serviced by Council infrastructure, developers may need to provide connections outside of their land holdings to the public network, at their expense, in order to advance development ahead of the planned sequence.

Water supply and waste water services

Council undertakes broad Water Supply Master Planning and Wastewater Master Planning for the long term (30 years) where necessary and where resources permit, to inform the Council's Infrastructure Strategy, e.g.

[138] Stronger Christchurch Infrastructure Rebuild Team – a contractor alliance group set up by government to repair earthquake damaged horizontal infrastructure e.g. roads, bridges, water and sewerage systems etc.
[139] 19 January 2018 version, Draft CCC 30 year Infrastructure Strategy 2018-2048, p3.

there is a Water Supply Master Plan for the Northwest and another for the Southwest. These inform general "programmes" for servicing growth in the Infrastructure Strategy and Long Term Plan and assist in identifying and prioritising projects to address particular capacity and network issues.

Transport projects

A slightly different system applies to transport projects, where they are identified in the LTP as projects only in the first case (although a package of improvements relating to a particular corridor may be grouped together) but may be reprioritised over time in subsequent LTPs e.g. brought forward or delayed due to changing priorities or budgetary constraints. Funding for transport activities comes from rates, development contributions (for growth projects), borrowing and financial assistance from the national Land Transport Fund managed by NZTA.

Stormwater management

Nearly all of Christchurch's greenfield business areas are on the northwest, west or southwest of the City, where on-site stormwater treatment and disposal to ground is often possible and encouraged. This results in additional development costs on-site, but does not directly impede development. Therefore stormwater is not specifically considered in the analysis of the availability of infrastructure.

Site-specific developer infrastructure

Developers are responsible for providing services within their own subdivisions as part of the costs of development and therefore are considered as part of assessing the feasibility of individual developments (refer to feasibility assessment). Water supply, sewerage and roading, once constructed to Council's Infrastructure Design Standards, are normally vested in the Council, and become part of Council networks.

Development Contributions do not fund servicing within subdivisions unless extra infrastructure (such as larger pipes) area required to service other land, but instead help fund downstream development infrastructure.

A7.1.3 Availability of Development Infrastructure

The following sections summarise potential infrastructure constraints for Christchurch City.

Wastewater

For several greenfield areas infrastructure is not currently available on the ground because of the nature of the funding and provision process, with development infrastructure only being provided when it is needed. This includes North Belfast Industrial General zone, and the MAIL site on Memorial Avenue. It will however be available when development begins, i.e. in the medium term, due to being included in the LTP either as specific projects or as programme funding. Some greenfield business areas are not currently programmed to be provided with wastewater servicing until sometime between 2019 and 2048. I.e. public sewer provision towards these areas might occur within the next 10 years but equally might not, depending on take-up of industrial land. Table 31 in Section 7.2 shows these areas as being able to be serviced in the medium term.

Parts of the City, especially peripheral ODP areas on the western side of the built up area will continue to have ""dry industry" only rules even when they are able to be serviced. This is to prevent wet industry in these locations because of distance to the Bromley treatment plant. Wet industry, because of greater flows and/or high concentration of wastewater, takes up capacity further down the system, and leads to greater corrosion on the system thereby shortening its lifespan. A range of industrial uses are still possible.

Two further zoned industrial areas, Chaneys and the Wairakei Road west of Stanleys Road area may not be serviced by bulk sewers within the 30 year period, meaning that satellite treatment systems might need to be considered for wastewater if development is to proceed earlier than this.

The greenfield priority areas still zoned rural are only included in land supply for the long term as they have servicing constraints, even in the long term.

Water Supply

A number of water supply wells service the City by drawing on the aquifers below it, and they are all interconnected by supply pipelines for normal operation but can be isolated out by valve closure. In the next few years it is intended that the system will be changed to normally operate with separate water supply zones (clusters of wells), to better control flows, for system resilience in isolating problems more rapidly and to allow pressure management in areas where pressure is high (generally central and to the east). An optimisation programme is also underway and demand management measures will be increasingly important in the future.

There are few major water supply constraints to development of business land within the Christchurch area, as several major upgrades have either been undertaken in recent years or are planned to be undertaken within the next 10 years, i.e. are provided for in the current LTP.

However, as for sewerage, some greenfield business areas are not currently programmed to be serviced for water supply until sometime between 2019 and 2048. Again similar to sewerage infrastructure provision, development timing could be advanced if developers fund and construct new water supply mains not only within their landholdings but outside of the ODP areas to enable connection to Council services. In some of these areas new wells and new network pump stations would also be required, in order to increase capacity.

A further area, the undeveloped parts of the Taits and east of Stanleys Road ODP area (IP and IG zones), would also require new wells and pump stations even though it is currently serviced for wastewater. This area is not included in Table 31 in Section 7.2 as being infrastructure constrained, as water supply in the NW is being assessed on an ongoing basis, and it is likely that Council would be responsible for these new wells and pump stations.

Stormwater

There are three stormwater discharge consents held by the City from ECan – effectively global consents – South West Area consent (covering the Upper Heathcote and Halswell), Styx River consent and an expired Interim discharge consent for the other catchments - with the first two having Stormwater Management Plans (SMPs) associated with them. The consents set out what is to be achieved (standards for peak flows to control flooding, treatment to remove contaminants etc.), while the SMPs set out how this will be done and by when. They are effectively a blueprint for how the water quality and quantity of urban development will be mitigated. There is a third SMP in draft for the Avon catchment, which has been finalised and adopted by Council but which has not yet been accepted by ECan. Additional SMPs area planned to cover the rest of the City including the settlement areas of Banks Peninsula.

It is proposed that there ultimately be a City-wide comprehensive stormwater consent which will supersede all the current consents and SMPs. This will be based on a City-wide stormwater model which is currently being created by combining all previous models for constituent catchments. An application for this comprehensive consent has been lodged and Council are working through conditions with ECan.

Where Council is mitigating new growth and allowing discharges, there is still a residual net increase in urban contaminants being discharged to receiving environments and therefore there is a requirement to balance this by retrofitting improved stormwater treatment for existing older development e.g. the Avon and Heathcote SMPs are largely retrofit driven. Non-growth driven retrofit capacity or treatment has to be funded by rates rather than DCs; therefore improvement in water quality largely depends on how much Council can spend. As already noted there are real financial constraints on Council at the present time.

For most sites in the northwest, west and southwest of Christchurch, stormwater capacity is not a significant constraint on new development, as these areas have the ability to provide their own stormwater detention and treatment and disposal on-site, or through a communal system nearby. This is because of the presence of subsurface gravel or coarse sand soils in these areas, and means that almost all new development does not have to rely on a reticulated stormwater system outfalling to a stream or river.

On-site treatment and disposal of stormwater needs to be carefully managed however, because the west of the City sits above layers of unconfined aquifers, which are the source of the City's drinking water. Development is not precluded, but provision of land and facilities for stormwater treatment and disposal does increase the cost of development, meaning that stormwater facilities such as swales and infiltration basins are often incorporated in landscape areas or are located along roads.

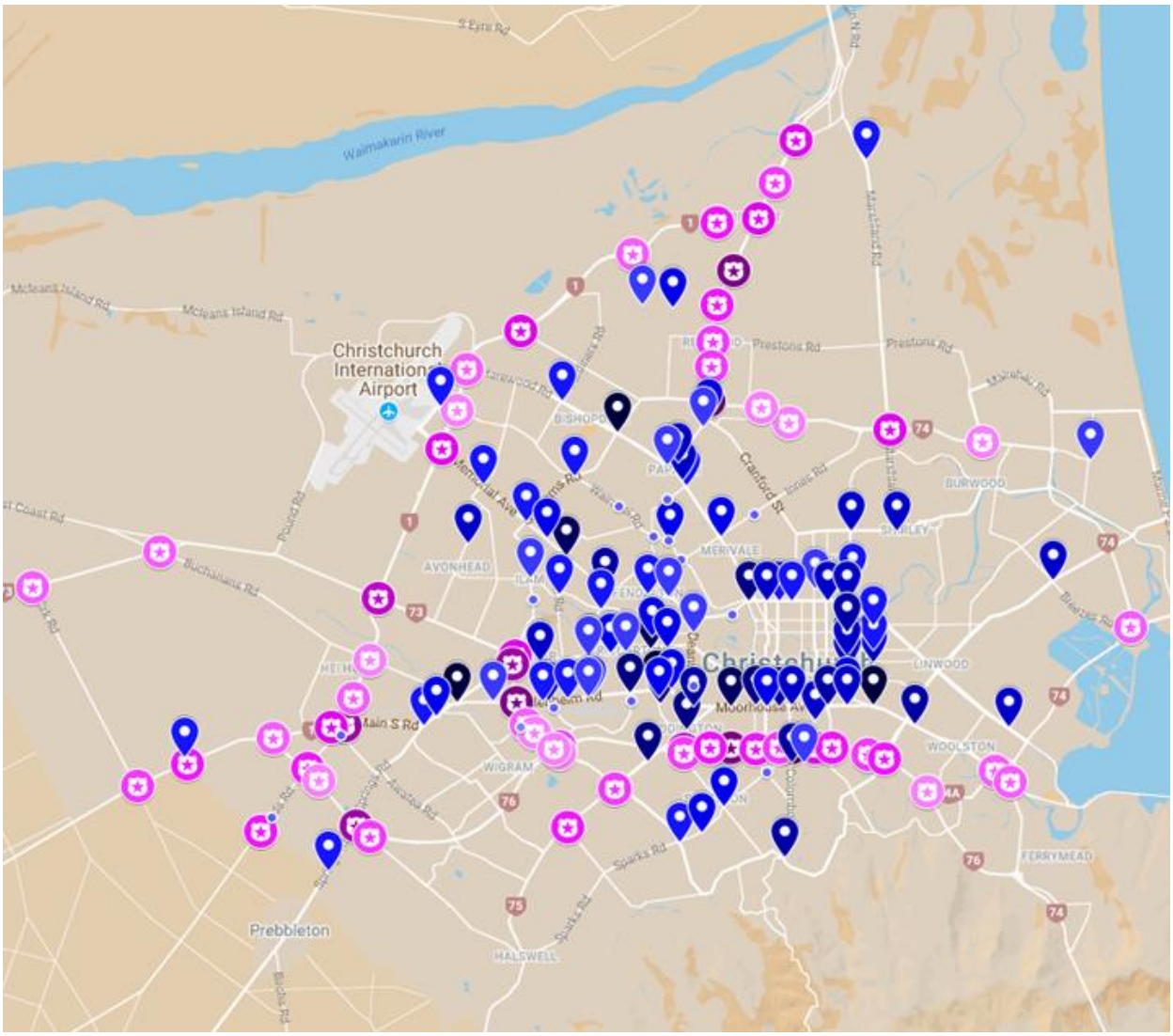
Transport

The Christchurch urban area is serviced and connected by strategic transport links, including State Highways 1, 73, 74, 75 and 76, with these corridors controlled by NZTA (see "other infrastructure").

Council works together with NZTA in a "one network" approach. Council's Transport Strategic Plan 2012-2042 sets out a 30 year "vision" for transport within the City. This plan includes supporting the state highways with accompanying downstream enhancements to arterial connections and local roads, promoting modal choice through improved public transport, cycling and pedestrian networks, and a Travel Demand Management Programme.

Council has developed a "Programme Business Case" for transport improvements, in order to obtain NZTA endorsement for central governments funding contribution to elements of the local transport programme, and to forward plan that programme. Figure A7-1 below illustrates the critical (very high or high) problem intersections in Christchurch City which were identified through this business case analysis. Darker colours e.g. black for Council roads and dark pink for the State Highways, indicate the most problematic locations.

Figure A7-1. Critical Problem Intersections in Christchurch City



Source: Christchurch Transport Investment Story, p.6

These areas have critical safety, reliability and travel choice issues that are presently affecting the operation of the transport system and require intervention to resolve.

The latest population projections are suggesting higher growth rates than were considered under the Business Case. This additional growth is likely to lead to further reductions in the level of service and capacity of some parts of this infrastructure, which will result in increasing delays and congestion on the network. This could have a constraining impact on economic growth, if not carefully managed. Modelling[140] is indicating for example that average speeds at the AM peak period could fall substantially by 2048, especially for trips between Selwyn, Waimakariri and Christchurch[141]. Average travel speeds in the morning peak could reduce by over 6km/h over the next 30 years (from 42km/h in 2013 to 36km/h in 2048). This is much more severe than previously envisaged under the previous population projections[142] (which envisaged a less than 1 km/h drop by 2041 across the Greater Christchurch area). These delays would be very noticeable for people. The drop in average speed would be considerably more severe for Selwyn and Waimakariri (nearly 15km/h drop

[140] Under a scenario of medium growth in CCC and medium-high growth in WDC and WDC, assuming 50% of growth occurring in the City and 50% in Selwyn and Waimakariri. This is subject to further refinement.
[141] Settlement Pattern Review- Interim Traffic Modelling Report, QTP, January 2018.
[142] 2013 (v16a) Christchurch Transport Model

and 11 km/h drop respectively). However most of the delays that would reduce these speeds would likely occur within Christchurch City Council boundaries, as a high proportion of Selwyn and Waimakariri residents travel into the City each day for work, education, shopping and recreation etc. These reductions in average speed would significantly increase travel time and inconvenience residents.

As shown in the Table A7-1 below average travel time from Selwyn to the Central City in the AM peak would increase by over 60% (from 26 minutes in 2013 to 44.4 minutes in 2048). Travel time from Waimakariri to the Central City in the AM peak will also increase by over 60% (from 33 minutes in 2013 to 53 minutes in 2048).

Table A7-1. Average Travel Times to Central City – AM Peak

Travel time (minutes)	From Selwyn	From Waimakariri
2013	26.3	32.8
2028[143]	32.8	35.6
2048[144]	44.4	52.6
2048 (Sensitivity Test)	38.2	43.1

It should be noted that transport modelling is based on unconstrained demand projections, and does not have specific regard to where demand should or can be accommodated in terms of land supply.

While the Council's LTP sets out upgrades planned to Council's transport links within the next 10 years, it is difficult to directly link network constraints to developments in greenfield areas, as these normally simply add transport demand to particular routes and corridors.

Table 31 in Section 7.2 showing infrastructure constraints in Christchurch City, does however indicate where the District Plan requirements for roading improvements act as constraints on the timing of development.

As for other Council infrastructure, developers are required to provide roading within new business subdivisions to Infrastructure Design Standards[145] and to vest these roads in Council.

A7.2 Selwyn District

7.2.1 Availability of Development Infrastructure

Wastewater

The East Selwyn Sewer Scheme has capacity to support the development of the business environments in Rolleston, Lincoln, Prebbleton and West Melton, with additional upgrades planned and undertaken when population thresholds are met or where developers need to extend sewer mains and install lateral connections at the time of subdivision. Further, master planning and supporting Development Contribution policies are in place in the 2015-25 LTP.

[143] GCP3-28
[144] GCP3-48
[145] https://www.ccc.govt.nz/consents-and-licences/construction-requirements/infrastructure-design-standards/download-the-ids/

Wastewater connections have yet to be installed to the boundaries of the proposed Neighbourhood Centres in the Falcon's Landing and Geddes/Dryden Trust Special Housing Area in Rolleston; the timing of which will be dependent upon the progressive development of the surrounding housing developments.

Although a connection is available to the trunk main to service the Lincoln Industrial Park, a wastewater main extension and pump station are required to be installed. These extensions and upgrades are likely to occur when the development of the adjoining housing areas is progressed.

Water Supply

Generally, bulk water infrastructure is planned and will be constructed in Rolleston, Lincoln, Prebbleton and West Melton as required, with developers needing to extend water mains and install lateral connections to the primary network at the time of subdivision. Further, master planning and supporting Development Contribution policies in place in the 2015-25 LTP. Some development areas in Lincoln, Rolleston, and Prebbleton require water supply and utility upgrades, which are programmed for upgrades by 2028. Developers have an option to progress these upgrades privately within a shorter timeframe in response to the timing and sequencing of development.

Water connections have yet to be installed to the boundaries of the proposed Neighbourhood Centres in the Falcon's Landing and Geddes/Dryden Trust Special Housing Area in Rolleston, the timing of which will be dependent upon the progressive development of the surrounding housing developments.

A water main is required to be extended to the Lincoln Industrial Park, the timing of which is dependent upon when the adjoining housing areas are developed.

Stormwater

Generally, stormwater capacity is available or possible for all sites that have been zoned for development, with an Integrated Stormwater Management System established in Lincoln to service the Rosemerryn Neighbourhood Centre.

The management of stormwater within the Lincoln Industrial Park may be able to be managed on-site, but it is likely that a combined scheme incorporating the adjoining undeveloped housing areas will need to be established to manage the wider site in an integrated way.

Transport

Urban areas have access to transport links, including the Main Trunk and Midland Lines and State Highway 1, 73 and 75. The Southern Motorway extension and Four-Laning State Highway 1 to Rolleston is under construction as a Road of National Significance. Future growth is enabled through progressive upgrades to transport links, which have been either undertaken or are programmed to ensure there is sufficient capacity within the strategic transport network to accommodate growth needs over time."

A7.3 Waimakariri District

A7.3.1 Availability of Development Infrastructure

Three waters infrastructure

Infrastructure services for stormwater, wastewater and potable water range from individual sewerage and water systems (such as in rural areas) to Council provided reticulated (piped) schemes. There has been a shift

in recent years towards connecting-up small community schemes to larger reticulated schemes, and it is expected that this trend will continue. The Council has invested heavily in response to higher growth rates, including those driven by the 2010 and 2011 earthquake events. Two major infrastructure investment decisions are an example of this:

The construction of the $36 million Eastern Districts Sewerage Scheme that connects and treats wastewater from nine eastern towns and communities (95% of properties in the District). The Eastern Districts Sewerage Scheme has capacity for projected growth until at least 2050. It also provides improved environmental benefits by replacing discharges to lowland rivers and streams or disposal onto land with an ocean outfall.

A $16 million major upgrade of the Rangiora water supply in 2011 that includes a new deep artesian water source with multiple bores and in-ground infrastructure. With the completion of all planned bores in the borefield and additional reservoir storage, sufficient capacity has been provided for a doubling in the size of Rangiora's population, thereby providing sufficient capacity to match the demand projected by the growth projections.

The Council's commitment over the past decade to major investment in infrastructure to cater for growth means that when considering development in the District over the next 30 years, the 'backbone' of the major infrastructure is already in place. The only work now required to meet growth demands is to integrate new development areas into the existing systems, and respond to national policy requirements and meet the changing expectations of the community regarding the standard of services provided.

Transport

The main roading projects (outside of the State Highway network within the Waimakariri District) relate to connecting the eastern part of the District with Christchurch and making sure local arterial roads have sufficient capacity to cope with the anticipated growth in traffic volumes. This includes ensuring safety considerations are taken into account particularly on key routes and at intersections.

Work is programmed over the next two to three years to improve the arterial link from the west of Rangiora and Southbrook commercial area to the State Highway and Kaiapoi via Fernside and Flaxton Roads. As population grows so does the likelihood and number of crashes. A number of safety projects have been planned, including the re-alignment of Skew Bridge, to allow for the increased volume and speed of traffic to and from the new arterial road at Silverstream.

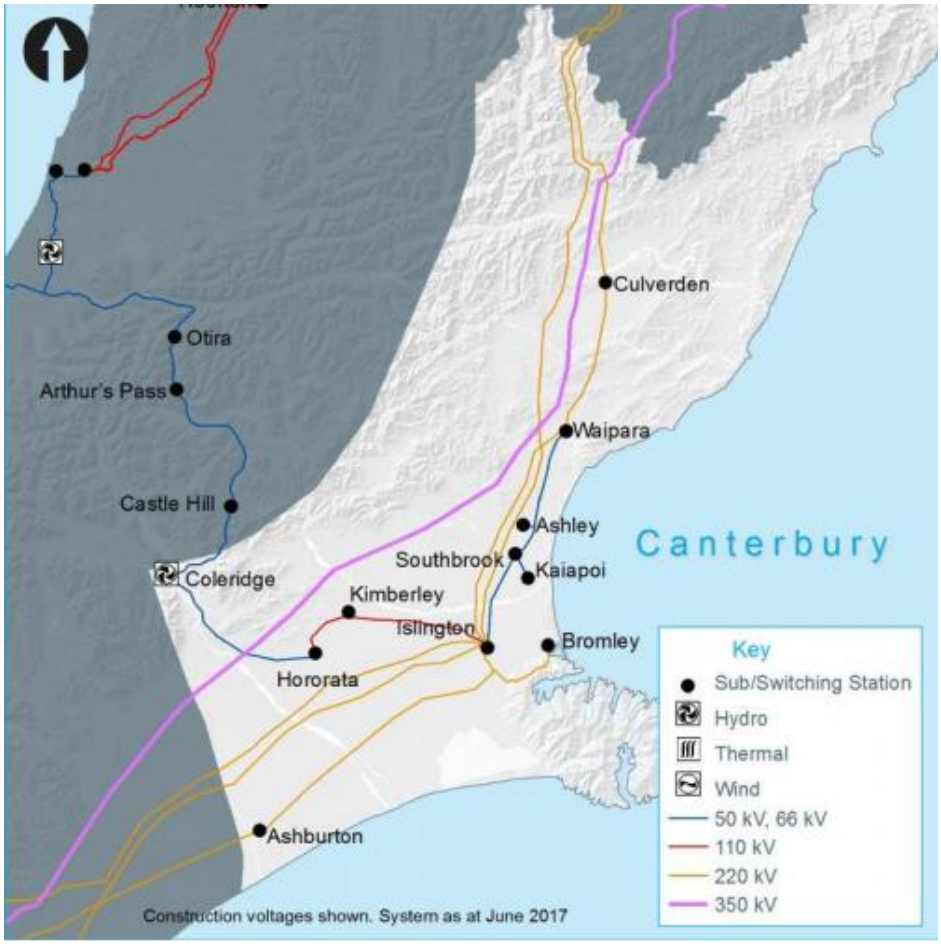
Other projects reflect the move towards providing alternatives to increased road construction and more cars. Council is already providing for an increased demand in cycle facilities and is looking longer term into Park 'n' Ride in Rangiora and Kaiapoi to encourage increased public transport uptake. Ongoing improvement to cycle lane facilities, such as the Belfast to Kaiapoi route will provide further opportunities for alternatives for commuters, particularly with the uptake of e-bikes.

Appendix 8 – Report on Availability of 'Other Infrastructure'

A8.1 Electricity Transmission Infrastructure

Transpower is the State owned enterprise that plans, builds, maintains, owns and operates NZ's electricity transmission network known as the National Grid. Transpower transports bulk electricity from where it is generated by companies such as Meridian Energy and Genesis Energy, to the local lines distribution companies like Orion which supply the electricity to homes and businesses. It also connects a number of larger industrial companies directly (like the aluminium smelter at Tiwai) although there are no such connections within the Greater Christchurch area. The region's transmission network is illustrated below.

Figure A8-1. Canterbury Region Transmission Network



Source: Transpower Planning Report 2017

Transpower's Development Strategy "Transmission Tomorrow" (2016) describes six trends that it believes are driving significant change in the electricity sector. Amongst these is "urbanisation" with a corresponding priority to "match the infrastructure build to need over time by:

- Anticipating and rapidly responding to change;
- Accommodating rapid generation connection and commissioning;
- Planning ahead for new renewables development;
- Managing 'wax and wane' capacity pressures and evolving their market systems"[146].

[146] Transpower Development Strategy "Transmission Tomorrow" (2016) page

Transpower regularly produces a Transmission Planning Report which sets out the grid asset capability and projects that it considers possible over the next 15 years. It forecasts annual peak demands at grid exit points (Bromley and Islington in Christchurch and Islington and Hororata for Selwyn) over this period. These forecasts are based largely on information provided by the distribution companies.

Transpower plans and funds for this forecast growth as it translates to the need for new and upgraded assets and renewals. At present, there are identified constraints with Christchurch's supply capacity from around 2025 and options to address these constraints are being investigated[147]. However Transpower will continue to plan for and be responsive to forecast growth in accordance with this model over the next 30 years and as such, electricity transmission infrastructure is likely to be available to meet business growth needs over this period to 2048.

A8.2 Electricity distribution infrastructure

Orion New Zealand Limited is the electricity lines company that provides and manages the distribution network for Christchurch City and Selwyn Districts. MainPower NZ Limited services the Waimakariri District.

In Christchurch, Orion takes power from Transpower grid exit points at Bromley and Islington, distributing electricity via predominately 66kV and 33kV sub-transmission and 11km distribution lines to businesses throughout the City. In Selwyn, Orion takes power from the Islington and Hororata grid exit points. In Waimakariri, Mainpower takes power from Transpower grid exit points at Southbrook, Kaiapoi and Ashley and distributes the electricity via 66kV sub-transmission overhead lines and underground cables[148].

Over the next 10 years Orion plans to invest more than $100 million in its Christchurch City network and a further $29M in (the whole of) Selwyn District and Mainpower plans to spend $19M, in order to strengthen and expand its urban electricity network to connect customers[149]. Both companies have a 10 year plan where it identifies forecast growth areas based on data supplied by all three Councils including vacant land and take-up rates along with projected growth areas. This is monitored on an annual basis and the information shared with Transpower[150].

This information is supplemented by additional specific information about development projects and plans. Proponents of new developments work with Orion to identify their projected electricity supply requirements. Small-scale renewals and improvements are paid for by user charges. Significant new infrastructure is funded by new customers.

Sometimes significant new developments come on-stream which necessitate bringing new and upgraded infrastructure investment forward to accommodate demand. An example of this is occurring in North Belfast at present with multiple new water bottling plants (high electricity users) under development which are increasing demands on the network in that area. Orion is currently investigating the need for upgrades to meet this demand.

Whilst the existing network may have capacity constraints in various areas, Orion and Mainpower's planning and funding models means that electricity infrastructure is either presently available or likely to be available to meet future business demands.

[147] Ibid, Ch17, Canterbury Regional Plan page 6.
[148] Mainpower Asset Management Plan 2016-2026, page 36.
[149] Orion Asset Management Plan 2017-2027, page 254 and Mainpower Asset Management Plan Update 2017-2027, page 6.
[150] Pers. comm, Richard Moylan, Orion New Zealand Limited.

A8.3 Land Transport

The aspects of land transport which are defined as 'Other Infrastructure' under the NPS-UDC, are the parts of the Land Transport network which are not controlled by Councils (i.e. the Rail network which is controlled by KiwiRail and the State Highway network which is controlled by the New Zealand Transport Agency). The other aspects of land transport which are controlled by Councils (i.e. local roads, public transport and most cycleways / footpaths) are considered 'Development Infrastructure' under the NPS-UDC and are outlined in Appendix 7.

A8.3.1 Rail

It is estimated that around 20% of total freight volume moved through Greater Christchurch is by rail, significantly higher than the national average of 7%[151]. Much of this rail freight traffic carries dairy, coal and timber products for export via the Port of Lyttelton. Consequently much of this freight travels through Greater Christchurch from locations both within and outside the Canterbury region including Darfield, Clandeboye, the West Coast, Southland and the North Island.

The rail lines in and out of Christchurch are shown in Figure 4 in Section 2.8 and include:

- **Auckland to Christchurch Line** – containerised general freight movement predominantly north to south traversing the North Island Main Trunk, Cook Strait via Ferry and the Main North Line (Picton to Christchurch);
- **Midland and West Coast Lines** – linking Greymouth with Christchurch and the Port of Lyttelton. It is used mostly for transporting coal from the West Coast to Lyttelton for export.
- **Main South Line** - linking south to coastal towns and cities including Timaru, Oamaru, Dunedin (with an extension to Port Chalmers), Gore, Invercargill (with an extension to Ohai) and Bluff. It transports general freight, empty containers from the Lyttelton Port Company's City Depot in Woolston returning south, milk products from Clandeboye and coal from Ohai to South Island industrial consumers. There is also a branch line from Hornby (the Hornby Industrial line, formerly the Southbridge Branch) that serve the Industrial areas of South Hornby.

In 2014, a study concluded that despite large volumes of export-related freight being moved by rail, there was still spare capacity on the rail network[152]. KiwiRail confirms that its infrastructure is sufficient to accommodate future growth and that being a service provider, they will respond as they can to meet clients' needs as they arise[153]. The company also states that it is unaware of any constraints that existing clients are experiencing in relation to rail.

Rail infrastructure is not considered to be an impediment to the development of business zones in Greater Christchurch because most businesses do not require or rely on rail transport and those that do, either locate in business zones with easy access to connect with the rail network (e.g. Middleton and Portlink Industrial areas) and/or provide their own rail infrastructure to suit their needs. For instance, Westland Milk's Rolleston plant in IZone, Rolleston I-Port, Metroport Christchurch and various lots within the Waterloo Business Park[154] provide rail sidings which enable packing and loading of containers onto rail for export through the Port of Lyttelton and/or the Port of Timaru. KiwiRail operates a freight interchange yard at Middleton which is used to stage freight from the north carrying domestic freight for local and regional distribution and export product to

[151] Aurecon for the Greater Christchurch Partnership: Freight Management Direction Statement, page 9.
[152] Aurecon for the Greater Christchurch Partnership: Freight Management Direction Statement, page 12.
[153] Pers comm. Rebecca Beals, RMA Team Leader KiwiRail, December 2017.
[154] www.waterloobusinesspark.co.nz/location

Lyttelton (by road)[155]. Access to rail infrastructure is not generally needed for industrial zoned land in Waimakariri as these zones mostly serve a localised need.

The capacity assessment identifies that there is a significant amount of industrial land supply available in locations which have rail freight access including at Rolleston, Waterloo Business Park, Middleton and Belfast. However if there was significant growth in rail use, there are some parts of the network where there are capacity constraints. The Main North Line is mostly a single track and there is no longer a direct connection between the Main North line and the Main South Line to Lyttelton. There is also a single track between Rolleston and Islington on the Main South Line, and through the Lyttelton tunnel

In the event that demand for rail access from industrial zones grows, there may be scope to consider additional opportunities to provide new railway infrastructure to link with the existing rail network in the north and south of the City in particular. Alternatively greater use of the container interchange facility at Middleton could be used, albeit with identified implications on level crossings in the vicinity of the Yard. Middleton Yard also has capacity constraints under its current configuration but has additional land available for expansion to meet the growth needs for freight volumes[156]. In conclusion, it is considered that access to rail infrastructure is, or is likely to be available, to support business development that is presently enabled in existing plans in Greater Christchurch.

A8.4 Land Transport – State Highway Network

The State Highway Network contributes to city-wide, inter-regional and international transportation of freight, and facilitates the movement of the Greater Christchurch population and visitors. The Network (shown on Figure 4 in Section 2.8) supports Christchurch as the main freight distribution hub for Canterbury and the South Island, linking production to markets in the City and elsewhere through the South Island's only deep water port at Lyttelton and Christchurch Airport (the South Island's only international airport offering long haul services). A highly efficient, safe and sustainable transport network is therefore vital to support businesses and the City's economic growth.

Rapid growth in and around Christchurch in recent years, particularly in the Selwyn and Waimakariri Districts, has placed demands on the State Highway network to the north and south of the city and around its western edge, reducing the efficiency of access to the City Centre, the Christchurch International Airport (SH1) and Port of Lyttelton (SH74 and SH73). The NZTA's Christchurch Motorways Project, one of seven Roads of National Significance (RoNS) projects nationwide, will provide additional capacity on these critical routes. The RoNS projects are described by NZTA as 'lead infrastructure', in that they enable economic growth rather than simply responding to it[157]. They are aimed at increasing road capacity, particularly for freight movements, as well as providing safety improvements for all road users.

The Christchurch state highway improvements support and integrate with the strategic land use pattern outlined in the 2007 Urban Development Strategy. The project also incorporates some cycleways along the Northern Arterial and parts of the Southern Motorway and diverts traffic away from Key Activity Centres like Hornby and Belfast which can reduce delays for walking, cycling and public transport in and around these areas. NZTA's primary investments in the state highway network in Greater Christchurch over the 2015-2018 period include:

[155] Aurecon for the Greater Christchurch Partnership: Christchurch Freight Infrastructure Statement page 9
[156] Aurecon for the Greater Christchurch Partnership: Christchurch Freight Infrastructure Statement page 10.
[157] https://nzta.govt.nz/roads-and-rail/state-highway-projects/roads-of-national-significance-rons/

- **Western Corridor** - connecting north and south Canterbury with the Christchurch International Airport and as a commuter route, providing safe and reliable access to homes and work and reducing congestion along Main North Road in Belfast. The project was anticipated to deliver an average peak journey time saving of five minutes over the route it replaces from Main North Road to Johns Road. It opened in November 2017.

- **Northern corridor and Cranford Street Extension** – This will provide the main connection between Christchurch and Waimakariri. It involves the construction of a new section of SH74 from just south of the Waimakariri River to QEII Drive near Winters Road and the connection to Cranford Street. This project will enable greater travel time reliability between Waimakariri and Christchurch, improve local travel and amenity in Belfast and improve travel time reliability for freight. A cycleway is also incorporated along the route. Expected completion date is mid-2020[158].

- **Southern Motorway Extension and four-laning of State Highway 1** – Work is underway to extend the Christchurch Southern Motorway from Halswell to Rolleston, linking with the important freight corridor to the Port of Lyttelton via Brougham Street. It is anticipated that travel times will be reduced by up to 15 minutes on the Southern Motorway from Rolleston to the central city[159]. Work began in October 2017 and is scheduled to take three and half years to complete.

In general it can be said that the majority of industrial zoned land in Greater Christchurch has access to the state highway network. However growth is likely to lead to reductions in the level of service and capacity of some parts of the network, which will result in increasing delays and congestion on the network, which could have a constraining impact on economic growth, if it is not carefully managed. Indeed, a significant part of the business case for the RoNS programme (and related Council investment) is to further improve those access opportunities, meaning that the network will be even more comprehensive in a few years' time[160].

The largest areas of industrial zoned land have access to both the state highway and rail network, with considerable enhancements recently achieved, currently underway or programmed for the coming few years. Given the importance of Christchurch as a centre for the distribution of local and regional commodities, and the size of the local market, a number of distribution centres and freight forwarders are located along the Main South Line corridor between Hornby and Middleton. Other areas including Rolleston and Islington (Waterloo Business Park) benefit from both good road and rail connections, whilst the airport provides predominantly for logistics and freight handling of goods transported by air. The smaller industrial areas including at Kaiapoi and Rangiora and in and around the eastern suburbs of Christchurch City (not including Woolston), also have access to the state highway and/or rail network.

The main issue with regards to the state highway network relates to levels of service. For instance, the completion of stage 1 of the Christchurch Southern Motorway linking with the residential growth areas in the south west of Christchurch and Selwyn has put additional pressure on Brougham Street (SH76), Shands Road and Springs Road during peak periods. The completion of stage 2 of the Southern Motorway will relieve some of the pressure on Shands and Springs Roads but will improve accessibility from Rolleston to the City centre and the Port of Lyttelton with consequential effects on journey times on Brougham Street. Whilst the opening of Christchurch Southern Motorway Stage 2 (CSM2) will improve travel times and average speeds from Selwyn in the short term, by 2028 (just 7 years after CSM2 is open) travel times from Selwyn into the Central City will be worse than what they are now, because of the increased population growth. Brougham Street is already

[158] https://www.nzta.govt.nz/assets/projects/christchurch-northern-corridor/northern-corridor-update-201701.pdf
[159] NZTA 2015-2018 National Land Transport Programme Regional Fact Sheet
[160] Pers.comm Tim Cheesebrough, Christchurch City Council (December 2017)

heavily constrained, particularly during peak periods, affecting levels of service on this route for all road users including freight. This could have a constraining impact on economic growth, if it is not carefully managed. The Transport Agency is working closely with the City Council on this issue. This 'one network' philosophy underpins the Greater Christchurch Transport Statement, an agreed framework for relevant partners[161] to plan, prioritise, implement and manage the transport network in Greater Christchurch. The impact of growth on this issue will be considered further through the Future Development Strategy.

A8.5 Telecommunications

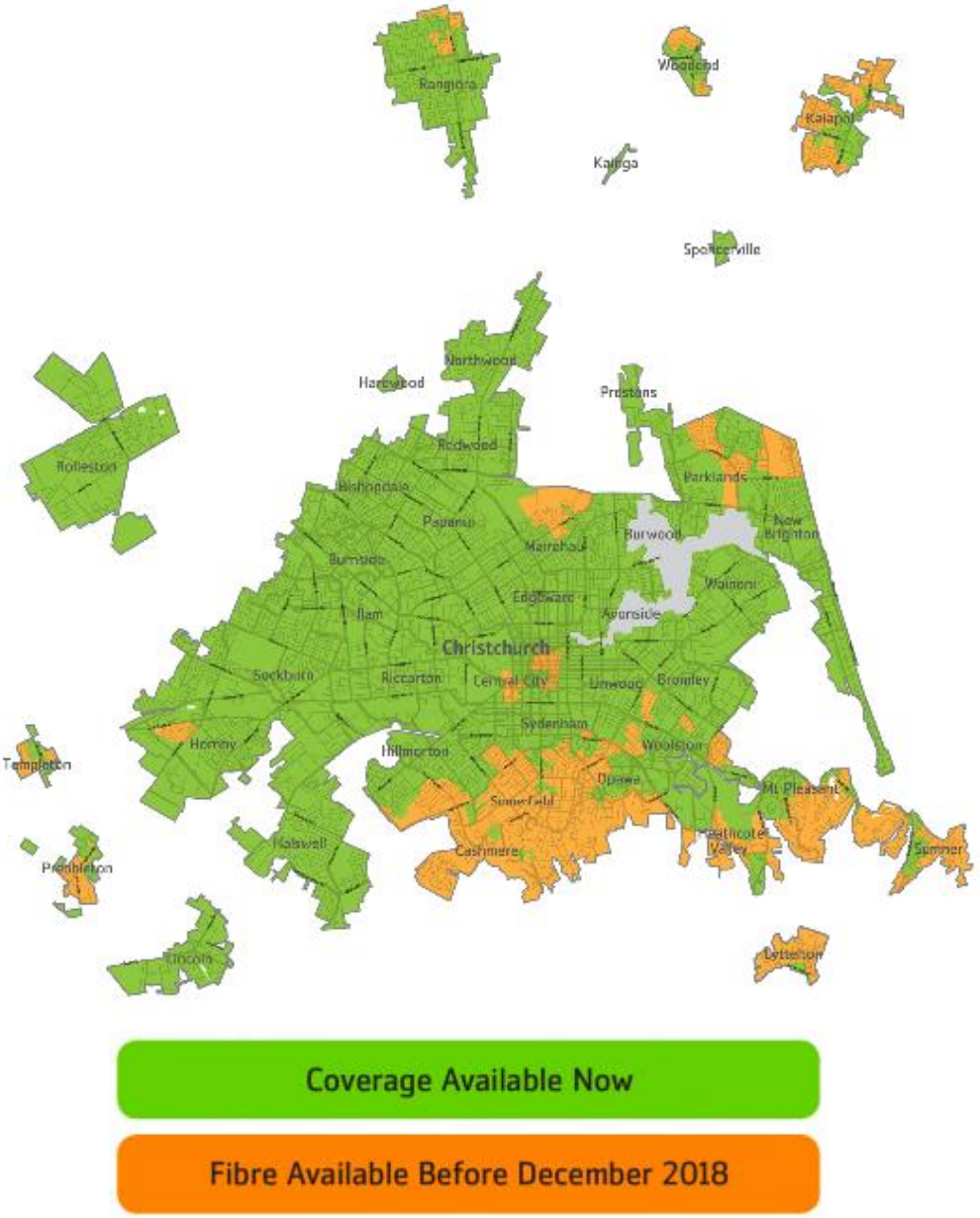
Broadband: All of Christchurch is covered by wi-fi with some very minor exceptions in the Port Hills. A combination of Cable internet, ADSL and VDSL cover Greater Christchurch comprehensively.

The vast majority of Greater Christchurch currently has access to fibre connection, with all remaining parts (other than the Residential Red Zone), scheduled to be serviced before December 2018 (Figure A8-2).

Internet access and coverage is therefore widely accessible although potentially at different levels of upload/download quality**.**

[161] Environment Canterbury, Christchurch City Council, Selwyn and Waimakariri District Councils, NZTA, Christchurch International Airport Limited, KiwiRail, Lyttelton Port of Christchurch, the Canterbury Earthquake Recovery Authority and the Ministry of Transport

Figure A8-2. Enable Fibre Broadband Coverage, Greater Christchurch



Source: https://www.enable.net.nz/our-network/our-coverage-map/

Mobile Networks: Mobile network coverage is available across Greater Christchurch[162]. Providers Vodafone, Spark and 2degrees own shares across the different band-widths of 2G, 3G, 4G and 4G+ to collectively provide coverage to Greater Christchurch at varying coverage reliability.

[162] As shown on network coverage ma on mobile provider websites.

Appendix 9 – Christchurch Capacity Assessment prepared by Property Economics

Appendix 10 - Engagement – Overview

The NPS-UDC anticipates engagement in preparation of the BDCA, Policy PB5 setting requirements for Councils as follows:

PB5: In carrying out the assessment under policy PB1, local authorities shall seek and use the input of iwi authorities, the property development sector, significant land owners, social housing providers, requiring authorities, and the providers of development infrastructure and other infrastructure.

As well as meeting the requirements of Policy PB5, there has been engagement with key stakeholders to raise awareness of the Settlement Pattern Review and the future phases of work, including the preparation of a future development strategy. For the purposes of stakeholder and public engagement the Settlement Pattern Review is referred to as *'Our SPACE'*.

Engagement undertaken as part of the Capacity Assessment phase included the following methods, which are explained below:

- Information on the Greater Christchurch Partnership website;
- Email notifications;
- Electronic surveys of business landowners and development sector interests;
- Hard copy notices to significant landowners;
- One-to-one stakeholder meetings;
- Business stakeholder focus group; and
- Presentations to forums and meetings.

Information on the Greater Christchurch Partnership website

Following adoption of the project scope by the Greater Christchurch Partnership Committee, summary information on the project was published on the Partnership's website: http://www.greaterchristchurch.org.nz/ourspace/. This page also contains the completed and published quarterly market indicators monitoring reports required under the NPS and will increasingly be used throughout the project to provide information and seek participation from stakeholders and the wider public. Individual councils will link to this Partnership webpage to ensure a consistent approach across Greater Christchurch.

Email notification

A stakeholder database was compiled, with input from Councils to include range of stakeholder organisations consistent with those identified under Policy PB5. This also included a number of professional groups and bodies, which have members or links to those PB5 stakeholders. As at 15 January 2018, the database contains around 3950 separate contacts.

A *mail chimp* email notification was sent to 403 contacts in October 2017. This email contained a summary overview of the Our SPACE project, a link to a questionnaire (see below) and a contact email for any enquiries. The email was opened by 148 (37%) of the recipients.

Electronic surveys – general

The mail chimp email notification circulated to contacts in the stakeholder database contained a link to a short generalised survey monkey questionnaire. This generalised survey sought feedback on:

- which aspects of the overall project (including the capacity assessment) stakeholder wished to be involved
- how stakeholders wished to be involved (updates, meetings, workshops etc)

- which council area(s) were of most interest, and
- what relevant information for the capacity assessment the stakeholder may have produced directly or be aware of that could assist the project evidence base

The survey link was accessed by 47 recipients and the survey completed by 24 recipients. The survey remains open as it will assist further stages of the project and reaching some stakeholders has highlighted contact information held by councils can be out-of-date.

Electronic survey – other infrastructure

A follow up mail chimp and survey monkey questionnaire was sent to 17 infrastructure providers in October 2017 with more specific requests relating to the planned infrastructure provision. The email was opened by 7 (41%) of the recipients. The survey link was accessed by 2 recipients and the survey completed by 0recipients. Given the poor response rate, Council staff liaised directly with relevant 'other' infrastructure providers where sufficient information could not be determined through desk-top analysis.

Electronic survey – business feasibility

A further mail chimp and survey monkey questionnaire was sent to 170 relevant PB5 stakeholders in November and December 2018 with a specific request to complete business feasibility assessments (see below) for identified business clusters of most interest to each recipient. A link to the general survey was also included. Circulation included any significant business landowners for which email addresses were available from council data sources. The email was opened by 58 (34%) of the recipients. The feasibility survey link was accessed by 14 recipients and the survey completed by 4 recipients

Hard copy notices to significant landowners

Significant landowners were identified using council data sources and adopting certain criteria relevant to housing or business capacity for each council area, principally on the basis of size or number of landholdings [163].

In November and December 2018, a hard copy notice, including Our SPACE summary information and web links to the general survey and where relevant the business feasibility assessment survey, was sent to significant landowners. This comprised around 2900 notices for significant residential landowners and 750 notices for significant business land owners (primarily within the City for both notices).

59 of the recipients completed the general survey monkey questionnaire. 12 of the recipients completed the business feasibility assessment. 72 notices resulted in 'return to sender' responses.

One-to-one stakeholder meetings

Nine[164] one-to-one meetings were arranged by council staff where stakeholders had sought such a meeting through the survey response or through direct contact with a respective council. Meeting schedules were coordinated and held jointly where the stakeholder has expressed interest in more than one council area.

Business stakeholder focus group

The business feasibility assessment was undertaken through a multi-criteria assessment (MCA) on identified business clusters across Greater Christchurch. To assist the development of the MCA a stakeholder focus

[163] For Selwyn and Waimakariri districts the significant landowner criteria for business was as follows: Business – 1. land owners of properties within the spatial areas identified for capacity assessments, and (a) have a contiguous area of not less than 5,000m^2 in a Business 1 Zone or not less than 5ha in a Business 2, 2A or 2B zone; or (b) Own five or more rateable properties OR 2. Land owners of other land known to be of strategic significance to Business development. For Christchurch City the business criteria was: Owners of business zoned land comprising more than 1,000sqm 9commerical zoned land), and or more than 5,000sqm industrially zoned land and / or more than 10 properties and all landowners within the two unzoned GPA areas and all owners of vacant land over 1,000sqm.

[164] As at 25 January 2018

group was established to test the approach and establish appropriate MCA criteria. The focus group representatives trialled an online business feasibility assessment prior to it being circulated to relevant PB5 stakeholders, including significant business landowners.

The focus group comprised organisations with an overview of and/or providing market data to the business sector and included the Property Council, Colliers, JLL, CBRE and Knight Frank Ltd.

Presentations to forums and meetings

Presentations at other relevant meetings and forums complemented this approach. These included:

- Christchurch Housing Matters developers event, organised by Beacon Pathway (1/12/17);
- CCC Developers Forum (29/11/17)
- Canterbury Government Leaders Group (20/10/17)
- Property Council seminar attendance (19/10/2017)
- Ngā Rūnanga consultation hui (3/7/17)

Appendix 11 - Methodology

A11.1 Introduction

This section summarises the methodology for this first BDCA, which brings together the demand and supply results for business land by Territorial Authority to present an overview of the sufficiency of business land at a Greater Christchurch level. In effect, a bottom up approach has been applied of collating results at a TA level.

Existing information and models have been relied on to the extent possible and in some cases, the recommended approach in the guide has not been followed due to the timeframes and resources available. Notwithstanding this, the BDCA gives effect to the evidence and monitoring requirements of the NPS-UDC. Appendix 13 summarises how the requirements of the NPS-UDC and guide have been met.

A11.2 Study area

The NPS-UDC places a strong emphasis on cross-boundary co-ordination between local authorities who occupy the same urban area and market. It notes that the application of the policies need not be restricted to the high-growth area. The NPS-UDC also encourages the use of existing co-ordination arrangements between local authorities and the agreement of a shared area.

The existing boundary of the Greater Christchurch Urban Development Strategy (UDS) aligns with the intent of the NPS-UDC and consequently is an appropriate boundary for the BDCA (refer to Section 2.7 for more detail).

For the purpose of the BDCA, the part of the study area within Christchurch City has been split into four quadrants in the assessment of demand and supply. The quadrants are an aggregation of 11 areas that employment projections are prepared for as part of the Economic Futures Model (Described in more detail in section 5.1.1 and below under Demand). The four quadrants (shown in Appendix 2) are described as North, South, East and Central and are derived from geographic parameters while reflecting the operations and (general) wider catchments of business areas. In the context of Selwyn and Waimakariri, results are at a TA level for those parts of the each District within the UDS boundary i.e. the results are not disaggregated.

Notwithstanding this, the areas do not represent centre catchments and for the purpose of assessing retail demand, the quadrants are for analytical purposes only.

A11.3 Population and Household Projections

A11.3.1 Introduction

To achieve the BDCA requirements, having robust population and household projections is key to addressing the level of demand and subsequent supply required in both housing and business markets in the Greater Christchurch area.

As outlined in the NPS-UDC, policy PB2a states:

PB2: The assessment under policy PB1 shall use information about demand including:

b) Demographic changes using, as a starting point, the most recent Statistics New Zealand population projections…"

The capacity assessment guidance[165] cites several advantages to using Statistics NZ Projections namely:

- The projection methodology is applied consistently across TA areas;
- Projections are regularly reproduced over time using consistent and internationally-accepted methods, rather than on an ad-hoc basis; and
- The projections are produced by an independent agency with access to the most comprehensive data inputs.

The guidance acknowledges that "the future is inherently uncertain and impossible to accurately predict, especially over the long term" and therefore that this risk should be managed by:

- Using the most up-to-date and robust projection methodologies that address the key drivers of uncertainty;
- Presenting a range or results of sensitivity testing, as well as the chosen projection; and
- Frequently updating information.

Statistics New Zealand considers the medium projection to be the most suitable for assessing future population and household changes but advises that if a local authority wishes to depart from that projection, the rationale should be explained in the assessment in a way that can be traced and audited[166].

A11.3.2 Statistics New Zealand Projections

Statistics New Zealand produces population projections every two to three years and provides the following guidance on how its projections are developed.

"Population projections are derived from an assessment of historical, current, and likely future trends in births, deaths, and migration – the three components of population change. Assumptions about future fertility (births), mortality (deaths), and migration are formulated after analysis of short-term and long-term historical trends, government policy, information provided by local planners and other relevant information. Assumptions are set first at the national level and used as a constraint for the subnational assumptions (this 'top-down' approach prevents implausible projections for any area).

Fertility

Fertility assumptions for each area are formulated in terms of age-specific fertility rates for each time period. The rates are based on the recent number of registered births in each area. The rates are then applied to the (female) population in each area to give the number of births for each time period.

Mortality

Mortality assumptions for each area are formulated in terms of male and female age-specific survival rates for each time period. The rates are based on the recent number of registered deaths in each area. The rates are then applied to the population in each area to give the number of people who survive each time period (the number of deaths is calculated indirectly).

Migration

The assumed net migration level and age-sex pattern for each area is based on a consideration of observed past patterns, the capacity of the area for further growth (for areas with net inflow), whether historical outflows

[165] MfE/MBIE (2017) NPS-UDC: Guide on Evidence and Monitoring, page 26.
[166] MfE/MBIE (2017) NPS-UDC: Guide on Evidence and Monitoring, page 28.

can be sustained (for areas with net outflow), and information available from and about local authorities relating to current and future developments which may affect population change".

The projections produced by Statistics New Zealand are not to be considered as predictions, but an indication of likely future population change given specific assumptions listed above. As the future is inherently uncertain and very challenging to predict with any precision, Statistics New Zealand provides three growth scenarios based on three changes to the assumptions that users can utilise depending on their circumstances, namely:

- Low Growth Rate – Low Fertility, High Mortality, Low Migration
- Medium Growth Rate– Medium Fertility, Medium Mortality, Medium Migration
- High Growth Rate – High Fertility, Low Mortality, High Migration

The latest population projections[167] that are relevant for Territorial Authorities (TAs) were released by Statistics New Zealand on 22 February 2017. In addition, area unit projections which breakdown the overall TA projections into small individual catchments were released for Selwyn District on 31 March 2017, Waimakariri District on 5 July 2017 and Christchurch City on 9 August 2017. These area unit projections are important for the BDCA, as they generally align to the Greater Christchurch BDCA study area. For the detailed population projections for all growth rates for Greater Christchurch, refer to Appendix 3 and for a full list of the area units that form the HBDCA study area, refer to Appendix 4.

As recommended by the guide, the population projections to be used in the BDCA will utilise the recently released Statistics New Zealand projections. The annual growth rates from the latest population projections are set out below.

Table A11-1. Average annual population growth rate for the Greater Christchurch BDCA study area

	Low Growth Rate	*Medium Growth Rate*	*High Growth Rate*
Waimakariri	0.7%	1.6% (19,800 additional people)	2.3% (38,200 additional people)
Selwyn	1.7%	2.6% (38,900 additional people)	3.3% (58,800 additional people)
Christchurch	0.3%	0.8% (79,900 additional people)	1.3% (151,000 additional people)

Source: Statistics New Zealand - Subnational Population Projections 2013(base) - 2043 update – 22 February 2017

[167] Subnational Population Projections: 2013 (base)-2043 update for Regional Councils, Territorial Authorities and Auckland Local Board Areas

A11.3.3 Which growth rate to use?

The following information (split into categories) in Table A11-2 has been used to determine the most appropriate population growth rate to use for the BDCA for each TA area within the Greater Christchurch study area:

Table A11-2. Criteria for determining the most appropriate growth rate to use for the HBDCA study

Relevant data sources used to determine the growth rate to be used	Reason
Historic Population Trends - Estimates (from 1996 – 2017) - Increase (overall) of 20 years - Change as a percentage - Annual Growth Rates	Statistics New Zealand produces population estimates and growth rates on an annual basis to inform TAs on how the population within New Zealand is changing over time. As the actual population in New Zealand is only determined via the five yearly Census process, it is important to understand the population estimates and growth trends on an annual basis using this data.
Origin of Growth and the Impact of the Canterbury Earthquakes (2010-2011)	For cities or districts, two factors determine if the population has either increased or decreased. They are: 1. Natural change in the existing population of cities or district – (via births / deaths) 2. Change in internal migration from within NZ or international migration to cities or districts It is important to understand the proportion of growth that is occurring in the GCP regarding both natural change and migration growth to understand the influence it may have in determining the future growth rate. (e.g. if growth in a particular area has been reliant on migration, there could be a risk that if it decreases for any reason in the future, it will impact on the growth rate). The Canterbury earthquakes in 2010 and 2011 had a significant impact on the population within the Greater Christchurch area and their impacts need to be considered as part of this assessment. Statistics New Zealand released a paper which outlined how they attempted to estimate the population after the earthquakes[168].
Impact of Growth Building Consents – Residential New Dwellings	A proxy indicator for considering the accuracy of population estimates and annual growth rates is to consider the level of new dwelling building consents being approved in TAs in-between the five year Census count. If new dwellings are being constructed it can be assumed that additional dwellings are required to meet the demand from population growth, particularly if a significant amount of population

[168] "Estimating local populations after the 2010/11 Canterbury earthquakes" released by Statistics New Zealand in October 2011

	growth is occurring from either international or internal migration within New Zealand.
Population projections released between - 1996-2006 - 2007-2017 - Growth rate	Statistics New Zealand produces population projections every two to three years. These projections provide an opportunity to assist future planning, with information about the likely future size and structure of the population helping territorial authorities, and communities, plan for infrastructure and facilities to meet the needs of a changing population.

The results of this information for Greater Christchurch is summarised in Table A11-3 below:

Table A11-3. Results used to determine growth rates

		Waimakariri	*Selwyn*	*Christchurch*
Population Estimates				
Population Estimates[169] (as at 30 June)	1996 2017	33,000 59,200	25,500 59,300	325,700 381,500
Population Increase	1996-2017	26,000	33,800	55,800
Percentage Change	1996-2017	+79%	+133%	+17%
Population Growth Rates	1996-2001 2001-2006 2006-2011 2011-2016 2017	2.81% 3.08% 2.30% 3.19% 2.42%	2.11% 4.28% 4.21% 5.55% 5.52%	0.58% 1.53% 0.03% 0.69% 1.76%
Population Average Yearly Growth Rate	1996-2017	**2.82%**	**4.10%**	**0.76%**
Source of Growth				
Natural (net Births/Deaths)	1996-2017	5,300 (20%)	7,200 (21%)	37,100 (67%)

[169] "How accurate are population estimates and projections?" released by Statistics New Zealand in September 2016. Refer to Appendix 5 for a summary of the results of this research.

Net Migration (Inflow/Outflow)[170]	1996-2017	20,700 (80%)	26,600 (79%)	18,700 (33%)
Impact of the Earthquake - Population Change 2011/12 and 2012/13[171]	Two years after the first Canterbury Earthquake	+2,900 people or 6% due to increase in migration levels	+3,400 people or 8% due to increase in migration levels	- 21,000 people or - 6%

Impact of Growth

Historical Building Consents for New Dwellings Issued[172] (July to June)[173]	1996-2001	2,467	1,840	11,202
	2002-2006	2,384	2,725	10,812
	2007-2011	2,207	2,661	8,032
	2012-2016[174]	4,570	5,495	14,663
	2017	653	1,260	2,620

Population Projections

Previous Population Projections 1996 – 2006 (at both the Medium and High Growth Rate)[12]	1997 (at 2011)	Under projected	Under projected	Under projected (medium rate only)
	2000 (at 2011)	Under projected	Under projected	Under projected (medium rate only)
	2002 (at 2011)	Under projected	Under projected	Under projected (medium rate only)
	2005 (at 2011)	Under projected	Under projected	Over projected
	Overall (from 1996 projected to 2011	Under projected -15.5%	Under projected -26.4%	Under projected -1.6%

[170] Figures for Net Migration (Total Population Increase in TAs minus Net Births/Deaths). There is limited information recorded from Census 2013 on the level of international and internal migration per TAs. Refer to Appendix 5 for a summary of the results from the Census
[171] RBNZ Bulletin Vol 79 No3 February 2016
[172] This excludes the demolition of dwellings associated with earthquake damage
[173] The number of building consents for new residential dwellings per year from 1996 to 2017 refer to Appendix 6 (these numbers do include replacement dwellings from the recovery from the Canterbury earthquakes)
[174] Earthquake Impact – Rebuilding of earthquake damaged/destroyed dwellings in existing location or movement to less affected areas within the Greater Christchurch area, for example Christchurch to Selwyn/Waimakariri

Previous Population Projections 2007 - 2017 Growth Rates		Medium High	Medium High	Medium High
	2007 Release	1.5% 2.0%	1.7% 2.4%	0.6% 0.9%
	2010 Release	1.6% 2.2%	2.0% 2.7%	0.6% 1.0%
	2012 Release	1.3% 2.2%	2.2% 2.9%	0.6% 1.0%
	2015 Release	1.3% 2.2%	2.2% 3.3%	0.7% 1.3%
Latest Population Projections Growth Rates		Medium High	Medium High	Medium High
	2017 Release	**1.6% 2.3%**	**2.6% 3.3%**	**0.8% 1.3%**

A11.3.4 Assessment for each Council

Based on the information from Table A11-3, the GCP Councils have considered what growth rate to adopt for strategic planning purposes (to 2048) including whether to adopt the Statistics NZ medium projections recommended in the NPS-UDC guidance.

A low growth rate is not considered to be appropriate on the basis that Christchurch City, Selwyn District and Waimakariri District Councils have collectively been determined as part of a high growth urban area under the NPS-UDC, based on projected growth[175]. Also, a low growth rate would not be appropriate, having regard to historical growth rates.

Consideration has therefore focused on whether the medium or a higher projection is appropriate for Greater Christchurch or a combination therefore for each TA. This consideration has been informed by the results contained in Table A11-3. This section provides an explanation behind the selection of growth rates for each of the TAs within the GCP study area which was informed by an analysis of:

- Actual (2013) and estimated population (2017) and historical growth rates;
- Source of growth (e.g. natural /migration);
- Impact of growth; and
- Population projections and projected growth rates.

The results of this analysis suggest that the most appropriate growth rates to adopt for this assessment are the Statistics NZ Medium growth rate for Christchurch City and a Medium-high[176] growth rate for Selwyn and Waimakariri Districts respectively.

Waimakariri District

- Significant amount of population growth in the District over the past twenty years.

[175] To be a "High-growth urban area", the NPS specifies criteria. This states that "*the resident population of that urban area is projected to grow by more than 10% between 2013 to 2023, according to the most recent Statistics New Zealand medium urban area population projections for 2013(base)-2023.*"

[176] The mid-point between the medium and high growth rates.

- 80% of this growth is occurring from migration.
- As migration (both internal and international)[177] has a significant influence on the level of growth in the District, any policy changes enacted by the government could have an impact on the population growth for this District[178]. This will need to be carefully monitored in between three yearly capacity assessments.
- The annual population growth rate has been significant over the past twenty years and consistently higher than projected by Statistics New Zealand.
- While building consents have been significantly higher from 2012 to 2014 (as a result of the recovery from the Canterbury earthquakes), this level has been returning to pre-earthquake levels.
- While the average growth rate (over the past twenty years) of 2.82% is higher than the projected high growth rate of 2.3%, consideration of the historical trend over the past twenty years suggests that using the Statistics New Zealand high growth rate would be too high (taking into account how quickly the growth rate could change in this district due to the high reliance on migration), while the medium growth rate would be too conservative. On the basis of the information contained in Table A11-3 it is considered appropriate to use a rate somewhere in-between medium and high growth rates (a medium-high growth rate). This is particularly prudent when the projections extend over such a long time period (projecting out 30 years) and where the three yearly cycle for preparing capacity assessments under the NPS-UDC requires a re-evaluation to be made at relatively regular intervals.

Recommendation: that Waimakariri District use a Medium-High Growth Rate as shown in section A11.3.5.

Selwyn District

- Significant amount of population growth in the District over the past twenty years.
- 80% of this growth is occurring from migration.
- As migration (both internal and international)[179] is a significant influence to the level of growth in the District, any policy changes enacted by the government could have an impact on the population growth for this District. This will need to be carefully monitored in between three yearly capacity assessments.
- The annual population growth rate has been significant over the past twenty years and consistently higher than projected by Statistics New Zealand.
- Building consents have been significantly higher from 2013 to the present day (this has been influenced by the internal migration changes as a result of the earthquake and the strategic planning and land use zoning that occurred in townships within Rolleston, Lincoln and Prebbleton that resulted in significant rural land onto the market for residential purposes).
- The average growth rate of 4.1% is higher than the projected high growth rate of 3.3%. The earthquake and relocation of households to Selwyn in the period from 2011 to 2016 has contributed to a higher growth rate than anticipated and it is considered unrealistic for this rate to continue into the long term. Confirmation of the influence of the earthquakes on the growth rates will be provided through the projections estimates undertaken to inform the next Capacity Assessment in three years' time.

[177] Refer to Appendix 5 – for the specific detail around the under and over estimates of population in each TAs
[178] Growth associated with migration may take a number of forms. For example, an international migrant may move from their original destination e.g. Christchurch to elsewhere e.g. Kaiapoi. Data on migration is only available through Census so there is a not a recent dataset.
[179] See Appendix 5 – migration data from Census 2013

Consideration of the historical trend over the past twenty years suggests that using the Statistics New Zealand high growth rate is too high (taking into account how quickly the growth rate could change in this district due to the high reliance on migration), while the medium growth rate is considered to be too conservative. On the basis of the information contained in Table A11-3, it is appropriate to apply a rate in-between medium and high growth rates (i.e. a medium-high growth rate). This is particularly prudent when the projections extend over such a long time period (projecting out 30 years) and where the three yearly cycle for preparing capacity assessments under the NPS-UDC requires a re-evaluation to be made at relatively regular intervals.

Recommendation: that Selwyn District use a Medium-High Growth Rate as shown in section A11.3.5.

Christchurch City

- The annual average growth rate for Christchurch (of 0.76% over the period 1996 - 2017) has almost matched the Statistics New Zealand medium growth rate (of 0.8%) projected for the next 30 years.
- On the basis of the information contained in Table A11-3, it is appropriate to apply a medium growth rate for Christchurch. This is particularly prudent when the projections extend over such a long time period (projecting out 30 years) and where the three yearly cycle for preparing capacity assessments under the NPS-UDC requires a re-evaluation to be made at relatively regular intervals.

Recommendation: the Christchurch City use a Medium Growth Rate as shown in section A11.3.5.

A11.3.5 Projections to be used for each Council

Adopting a medium-high growth rate for Selwyn District Council and Waimakariri District Council and a medium growth rate for Christchurch City Council results in the following population projections to 2048:

Population Projections

Table A11-4. Subnational/Area unit population projections 2017

	2018	2023	2028	2033	2038	2043	2048	Additional Population 2018-2048
Selwyn GCP (Medium High Growth Rate)	49,500	59,900	67,900	75,700	83,600	91,300	98,400	48,900
Waimakariri GCP (Medium High Growth Rate)	48,800	54,800	59,900	64,800	69,400	73,700	77,800	29,000
Christchurch GCP (Medium Growth Rate)	383,800	405,200	420,000	433,600	445,100	455,000	463,700	80,000
TOTAL GCP	**482,100**	**519,900**	**547,800**	**574,100**	**598,100**	**620,000**	**639,900**	**157,900**

Source: Statistics New Zealand, GCP

Households Projections

The projected number of households was determined (refer to Table A11-6) using the population projections in Table A11-4 and average household sizes provided below in Table A11-5, i.e. population divided by average household size.

Table A11-5. Average Household Size Projections

	2018	2023	2028	2033	2038	2043	2048
Selwyn GCP	2.9	2.8	2.8	2.7	2.7	2.7	2.6
Waimakariri GCP	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Christchurch GCP	2.5	2.5	2.5	2.4	2.4	2.4	2.4

Source: Statistics New Zealand

Table A11-6. Household Projections 2017

	2018	2023	2028	2033	2038	2043	2048	Additional Households 2018-2048	NPS-UDC Additional Households 2018-2048[180]
Selwyn GCP (Medium High Growth Rate)	17,100	21,400	24,300	28,000	31,000	33,800	37,800	20,800	24,200
Waimakariri GCP (Medium High Growth Rate)	18,800	21,100	24,000	25,900	27,700	29,500	32,400	13,700	16,000
Christchurch GCP (Medium Growth Rate)	153,500	162,100	168,000	180,700	185,500	189,600	193,200	39,700	46,400
TOTAL GCP	**189,400**	**204,600**	**216,300**	**234,600**	**244,200**	**252,900**	**263,400**	**74,200**	**86,600**

Source: Statistics New Zealand, GCP

A11.4 Demand

A11.4.1 Projections (Economic Futures Model)

The guide recommends using the base demographic and economic structures discussed in in A11.3 and 5.1 to this report, to generate economic projections for the three high level business sectors (retail, office, industrial) (referred to hereafter as 'sectors') to enable future business space requirements to be determined.

[180] Household Growth with additional margin of capacity as required under the NPS, e.g. Short Term (20%), Medium Term (20%) and Long Term (15%).

As is discussed in section 5.1.1 of this report, the GCP commissioned Market Economics to develop a multi-regional input-output model, known as the Economic Futures Model (EFM) to provide projections of employment to 2048. The EFM is consistent with the approach described in the Guide (2.3.2 Customised projections), which incorporates different growth scenarios as well as considering cross-border flows and generating estimates of employment and outputs.

The EFM is a demand driven model, which has no constraints for any inputs to production (labour, capital, floorspace, land or other natural resources). Being a demand driven model, the EFM does not include an assessment of capacity and there are multiple steps to conversion of the EFM projections into demand in order to enable an assessment of sufficiency i.e. comparison of demand and supply.

Two methods were adopted for the purpose of the BDCA to project future demand for land and floorspace based on the EFM. This reflects the different methodologies of Property Economics (PEL) (For Christchurch City Council) and Market Economics (ME) (For Selwyn and Waimakariri District Councils). These are described below:

A11.4.2 Christchurch City

PEL utilised base employment data and projections derived from the EFM by ANZSIC 2nd level categories to determine demand for industrial and office sectors. In respect of the retail sector, the future demand was derived from a retail expenditure model as described in section 5.1.2.

The projections by ANZSIC categories were aggregated up into the three sectors of retail, office and industrial, with ANZSIC categories split in some cases between the three sectors. This is on the basis that the ANZISC categories do not distinguish between those activities undertaken within or outside business areas, or the different types of premises that employees in the same sector may work in. For example, a proportion of employees coded within industrial categories work within other more commercial (office) arms of a business in other locations.

The output of the exercise above was projected employment by sector (Step 2 in Figure A11-1 below).

Figure A11-1. Process used by PE to determine land demand by sectors

To establish the demand for floorspace/ land for each sector, PEL translated the projections of employment into floorspace/ land using employment to floorspace/ land ratios. These ratios are dynamic in the sense that there are assumed changes in the ratios over time, reflecting national trends e.g. intensification of office space. This is discussed further below.

CCC undertook an empirical assessment of average floorspace by employee by business zones in 2015. This has acted as a useful reference to compare those ratios used by PEL although there were limitations that did not enable their use for the purpose of this BDCA.

Distribution of demand in Christchurch City

The guide states at 2.4 that "*Once a view of future output or employment is established for the short, median and long term, this needs to be translated into future requirements for business space by zone and location".*

PEL distributed demand for each of the sectors to the four quadrants described earlier. This is based on trended analysis, using historic trends in the number of employees by sector and businesses, using Statistics NZ data for the period 2000 – 2016. This aligns with the guide, which states "*…the assessment should be based on current distributions…"* (2.4.2).

Demand is not however distributed by zone in the context of Christchurch City. This reflects a number of factors including the:

- The current distribution of employment does not have regard to the policy framework introduced by the Christchurch District Plan, which has shifted towards a centres-based approach. In the absence of an alternative approach to the distribution of projected employment, there is not robust evidence base for distributing future demand by zone; and
- Employment is distributed across a diversity of zones in the City, including zones that are specific to geographic locations or sites. There is not a robust means of defining locational preferences across the different zones for each sector.

Notwithstanding the above, a finer grain of analysis in the spatial allocation of demand is more likely to be inaccurate. This reflects the guide, which states "*It is not appropriate to produce a fine-grained spatial allocation as it will inevitably be inaccurate, nor is it necessary in order to meet the broad objectives of the NPS-UDC."*

Demand associated with the relocation of business

The assessment of potential demand has included the demand for space in business zones from activities displaced following the earthquakes and which have been temporarily located in non-business zones. The Council has utilised information it holds on those activities, which obtained temporary approval to relocate to a non-business zones, and subsequently reviewed the list to determine the potential demand not yet realised.

In reviewing the database of those activities with temporary approval, the first task was to remove the following from the list:

- Car parking or the utilisation of land previously in car parking while a building on the same site was repaired. Also, any approval for a temporary approval on the site of the original activity was removed.
- Temporary art installations; changing rooms in parks;
- Temporary storage facilities, depots, portacoms, being activities that were required as part of the repair/ rebuild but are not anticipated to require land beyond the recovery;
- The business is no longer operating or approval was subsequently surrendered;
- Activities where a resource consent for a permanent location was obtained;
- Activities that have relocated from the address that temporary approval was sought for, and/or a new activity requiring temporary accommodation has relocated to the same site.

In circumstances where an activity is in a temporary location while repairs are undertaken on existing buildings in a business zone, this would not generate increased demand beyond what existed pre-earthquake.

Following the screening of the list, enquiries were made of the intentions for the activity to be relocated to a permanent location within a business zone. Based on the approach described, the potential demand from temporarily displaced businesses was quantified and the following has been incorporated into the modelling.

Table A11-7. Temporary Displaced activity – not district plan compliant (more certain to require relocation)

Activity	Location/floorspace				
	North	***South***	***East***	***Central***	***Total City***
Retail activity (including commercial services)	659m^2	711m^2	569m^2	942m^2	2,881m^2
Office activity	2,109m^2	1,286m^2	205m^2	2,210m^2	5,810m^2
Industrial activity	1,095m^2				1,095m^2
Healthcare				1,047m^2	1,047m^2
Gym	140m^2				140m^2
Education		682m^2			682m^2
Yard based supplier			130m^2		130m^2
Spiritual activity	1,057m^2				1,057m^2
Cultural activity		368m^2			368m^2
Entertainment activity			133m^2		133m^2

Retail demand

Property Economics (PEL) utilised their in-house retail expenditure model to forecast retail spend and then apply a sustainable footprint approach to assess retail demand. The expenditure model is explained in further detail in Appendix 7.1 of their report entitled, Christchurch City Council: Business Land Capacity Assessment.

Included in their projection of land demand for retail is an additional margin of 20% over the short and medium term and 15% over the long term, as required by the NPS-UDC Policy PC1.

A11.4.3 Selwyn and Waimakariri Districts

The methodology for Selwyn and Waimakariri Districts is the same and therefore summarised together.

ME utilised base employment data and projections derived from the EFM by ANZSIC 2nd level categories to determine demand for commercial zones (B1 and B4) and industrial zones (B2).

As a first step, ME determined the existing level of employment by sector and quantum of floorspace by zone. This enabled an understanding of the intensity of employment (including sector) by zone. Drawing on this information, the projected employment by ANZSIC categories was allocated to zones and employee to floorspace ratios by zone were determined.

As the zones comprise a range of activities, the employee to floorspace ratios calculated were an average for all of the sectors within a zone i.e. an average employee to floorspace ratio may include retail and office sectors in a commercial zone.

The floorspace data used was based on the Rateable Property database of SDC and WDC, LINZ building footprint data and ME's own assessment of built form. It included all floorspace, some of which may not be utilised e.g. vacant space, or that is used for other activities. The employee to floorspace ratios may therefore be conservative i.e. higher than is likely to be the case in respect of occupied space.

Using the employee to floorspace ratios derived from the existing environment, the projections of employment (apportioned to zones) were translated into floorspace. The employee to floorspace ratios are static and do not change over time in the model. This is discussed further below.

The final step in the model is to covert the demand for floorspace into demand for land. The Floor Area ratios (FAR) of existing development have been assessed to establish an understanding of the intensity of floorspace to land that is achieved in each zone. The resulting FAR is used to covert the demand for floorspace into demand for land.

The demand for floorspace/ land by retail, office and industrial sectors is based on the demand by zone, which can be summarised as follows:

- Demand in commercial zones = Retail and office demand
- Demand in industrial zones = Industrial demand

The future demand located in each zone reflects the types of activities that currently locate in the zone. For example, there is currently a proportion of the retail and office sectors that locate in industrial zones and it is assumed that this continues. This approach is considered appropriate in the context of Selwyn and Waimakariri District, having regard to the current District plan rules, in assuming that a similar level of economic activity will occur in the same zones as present.

The distribution of commercial activity may change in the future as a consequence of changes associated with District Plan reviews.

A11.4.4 Evaluation of the methodologies

In light of timing and resourcing constraints for completion of this first BDCA, the Partnership local authorities utilised existing information and consultants as much as possible. This meant that understanding and agreeing each other's methodologies including synergies and potential inconsistences, was extremely important.

During the course of preparing the BDCA, key elements of the methodologies of each of the Councils were identified, including differences. Through discussion amongst the staff from each of the Territorial Authorities utilising the economic expertise of PE and ME, these differences were reconciled to reach consensus on an agreed approach or differences were agreed as appropriate and documented.

A peer review was also completed of the methodologies applied to determining demand. The observations from this assessment are summarised below.

EFM – unconstrained nature

It is noted that the EFM is an unconstrained model, meaning it is not restricted by capacity (of the population or supply of land), or the planning framework in how employment is distributed.

In terms of capacity, the model projects growth in the absence of constraints, including land or floorspace supply. The effect is that the projections of employment in the EFM increase at a faster rate than population growth. The consequence is that employment growth and therefore land demand may be overstated or population and associated demand for housing may be understated. However, either scenario is plausible based on the advice of an independent economist.

In respect of distribution, the EFM distributes employment to clusters in the GCP area based on historical patterns of employment without regard to the current planning frameworks (including zone capacity). With the changes in the planning framework introduced by the Canterbury Regional Policy Statement and Christchurch

District Plan of a centres-based approach to the location of business activity, the historical pattern of commercial activity is less likely to reflect the historical pattern in the context of the City i.e. the EFM projects a greater level of employment growth in office and retail based sectors in industrial areas than will realistically occur. To address this, the projections of employment were aggregated up to a quadrant level in Christchurch City, rather than splitting demand by zone or in-centre/ out of centre.

In the context of Selwyn and Waimakariri, the Capacity for Growth models (SCGM and WCGM) allocate employment in the context of capacity in each zone. For the purpose of this BDCA, results as produced by the model are not presented to a detailed level beyond the existing areas zoned commercial or industrial in each district.

EFM - Rate of growth assumed

Historically, the Christchurch economy has grown at a faster rate than the national economy. The EFM projects growth in Greater Christchurch at a slower rate than the national economy over the long term as summarised in the following table and graphs. This is due to international exports, a driver of economic growth, growing at a slower rate in Canterbury relative to the national trend. While a conservative assumption, it is based on the best available data according to ME.

Table A11-8. EFM past and projected economic growth in Canterbury relative to the rest of NZ

	2011	***2016***	***2022***	***2028***	***2034***	***2040***	***2046***
Canterbury	12.3%	13.7%	12.9%	11.9%	11.6%	11.3%	11.1%
Rest of NZ	87.7%	86.3%	87.1%	88.1%	88.4%	88.7%	88.9%

The following graphs highlight a dip in Real GDP in Canterbury from 2021 relative to the national projections, which is associated with a reduced level of construction activity associated with the rebuild. This accentuates the rate of growth being slower in Canterbury.

Figure A11-2. Forecast growth in real GDP for Canterbury with a March 2013 base

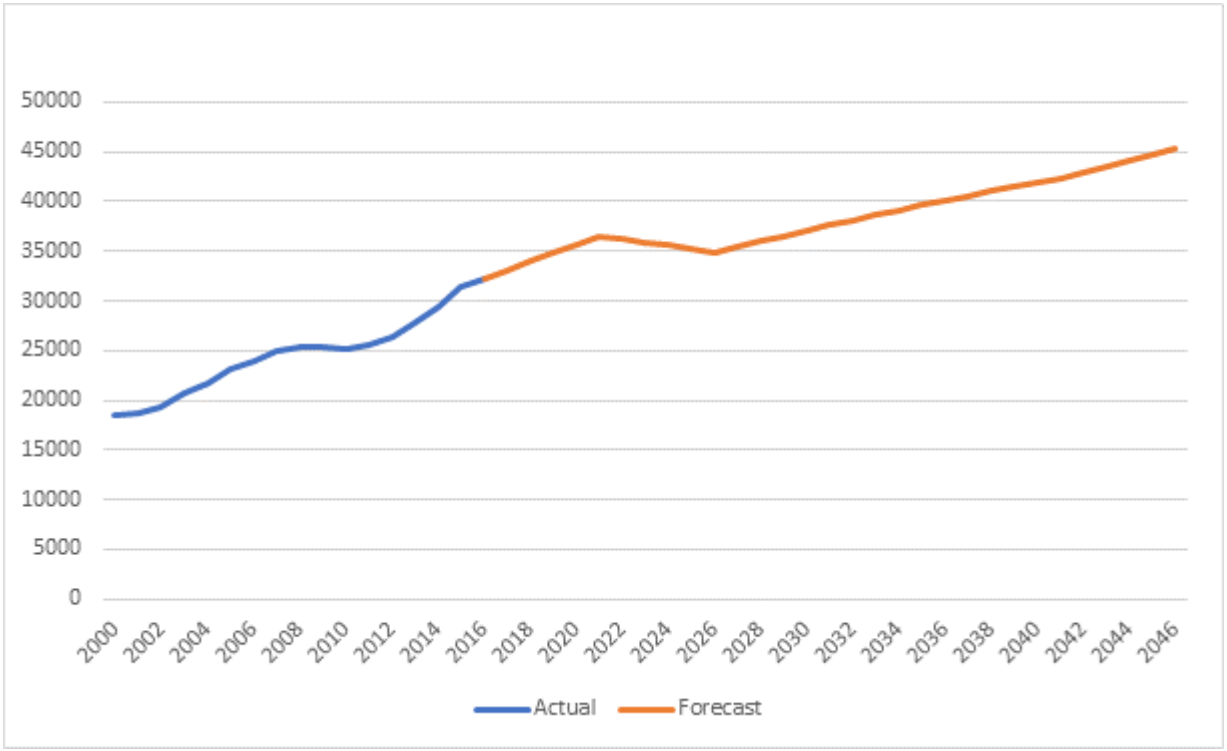
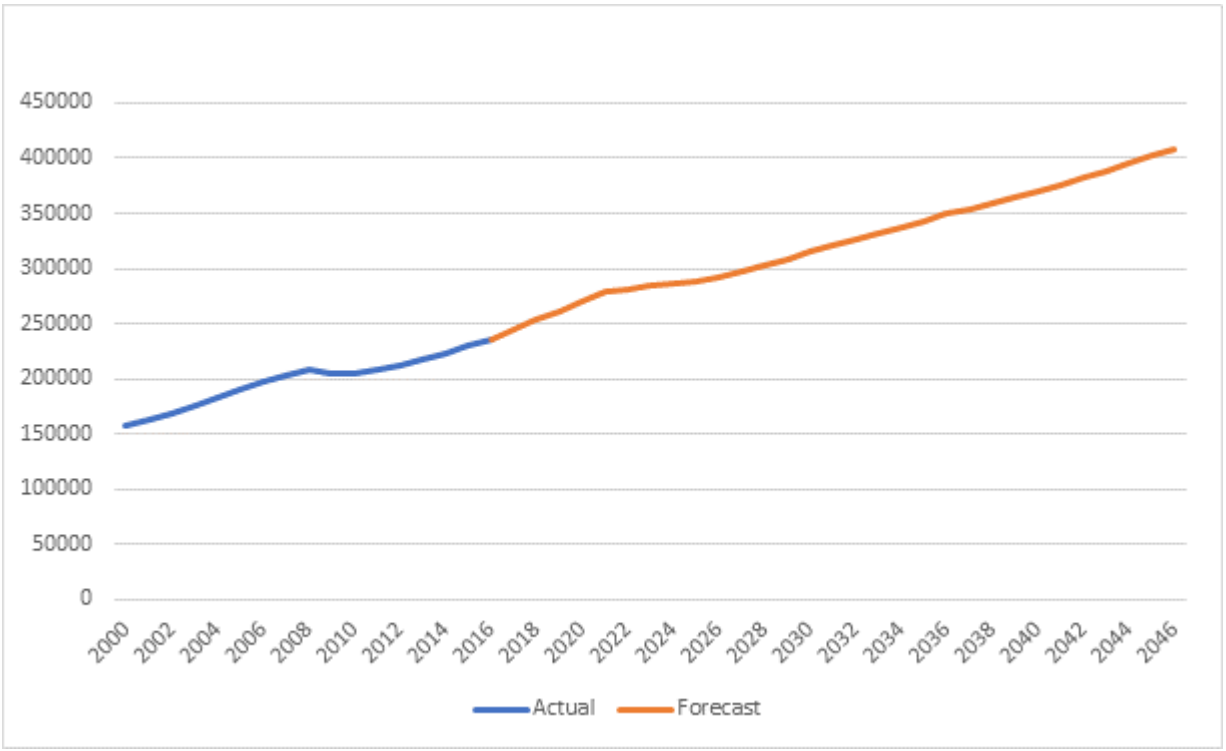


Figure A11-3. Forecast growth in real GDP for New Zealand with a March 2013 base



The projections will continue to be monitored and assumptions will be revisited at the time of the next BDCA in three-years' time.

EFM – other considerations

Other points to note in the EFM are as follows:

- The EFM projects growth in rural activities. There may be a point in the future where the projected growth in the rural economy cannot be supported in rural areas but this is not considered in the EFM, given the focus of the NPS-UDC on demand for land in urban areas.
- The EFM has not modelled projections for sub-sectors of employment to understand the specific requirements beyond those ANZSIC categories specified.
- The model allows for increases in productivity, however there is no attempt to account for the potential effect that disruptive technology could have.
- The model does not attempt to estimate changes in expenditure by Central and local government. In broad terms, it is assumed that government expenditure remains at current levels.

Employment to land/ floorspace ratios

Different ratios have been used by Christchurch City, Selwyn District and Waimakariri Districts in converting employment to land/ floorspace. As stated in section 2.4.1 of the guide, "*…local authorities could derive their own and any locally derived ratios…".*

There is anticipated to be differences in the ratios, based on the nature of business activities, their size, zone types, hierarchy of centres and geography amongst other factors. For example, the ratios applied to retail activity in industrial zones are generally lower compared with retail activity in the CBD. This may reflect the less efficient use of space in an industrial context as well as the types of retail e.g. large format retailing requires a larger floorspace, reflecting the nature of goods sold while having the same number of employees as other types of retailing.

As discussed earlier, PE have used dynamic ratios for Christchurch City to convert employment to land/ floorspace demand while ME have used static ratios for Selwyn and Waimakariri Districts. There are risks with either approach as summarised below:

- While dynamic ratios are based on evidence, there is inevitably some uncertainty in looking ahead and what may eventuate may differ to what is predicted. Also, in most smaller districts, there is no historic data from which trends can be drawn. As a result of the NPS-UDC, Selwyn and Waimakariri have begun collecting data which can be used in the next BDCA assessment.
- Static ratios may be overly conservative and overestimate the potential demand required for floorspace/ land. This could lead to over-investment or provision for demand that does not eventuate. Conversely, trends may not continue e.g. decline in the floorspace per employee in office based sectors, and there is reduced risk of not understating the potential demand that may eventuate in the future.

The ratios of both ME and PE are understood to account for other activities in each zone. For example, ancillary office space, which has a higher density of employment, may be absorbed within the ratios applied to industrial activities. The effect of this method is that the ratios may be conservative in assuming a greater density of employment than exists on the ground.

Measure of employment

The guide refers to key metrics of local economic activity including Statistics New Zealand Business Demography data on employment and working proprietors (section 2.2.1). PE and ME have used different measures of employment in this regard, the former using Employment counts as published by Statistics NZ, the latter using Modified Employment Counts.

- Employment count (EC) is sourced from Statistics NZ and provides a count of people employed.
- Modified employment count (MECs) is a combination of ECs and working proprietors (as defined by Statistics NZ), the latter not being recorded as an employee (EC).

The effect of using ECs is that the quantum of employment is potentially undercounted, having regard to the number of smaller businesses. PE have addressed this by incorporating an allowance for proprietors in their ratios such that the data used by each is consistent.

Notwithstanding the different measures used by ME and PE, there is not a difference in results of how much floorspace/ land is required if there is consistency in the ratios used i.e. for ECs, the ratio should be of ECs to floorspace/ land, while for MECs, the ratio should be of MECs to floorspace/ land. The peer review undertaken of the methodology has concluded that subject to the above, the demand results for each TA can be added together without any adjustment.

Leakage/ retention rates

The market operates across boundaries and as a consequence of where people work and live, there will be those who commute between Christchurch City, Selwyn and Waimakariri Districts as well as spending 'across boundaries' e.g. people travelling to buy goods.

To ensure consistency in the leakage and retention rates of employment and expenditure between districts, the same data has been used by PE and ME.

Other considerations in assessing demand

The NPS defines demand as follows, which in the context of this BDCA requires consideration of demand for different lot sizes, business activities, and different locations.

> *In relation to business land, the demand for floor area and lot size in an urban environment in the short, medium and long-term, including:*
>
> *a) the quantum of floor area to meet forecast growth of different business activities;*
>
> *b) the demands of both land extensive and intensive activities; and*
>
> *c) the demands of different types of business activities for different locations within the urban environment.*

The assessment of demand has been limited for this first assessment, drawing on existing information and for future capacity assessments, it is anticipated that a finer grain of analysis will be undertaken. However, this will need to be balanced with the uncertainties that arise with detailed analysis as referred to in the guide. However, at least in the case of Christchurch City, an assessment of the available lot sizes by location has been undertaken. This along with district plan zoning which is generally very flexible in terms of the range of business activities that can be undertaken in business zones, together means that the demand for a range of different business activities in different places on land of different sizes, has been adequately considered.

Waimakariri District Council has commissioned a more detailed assessment of business land, which will include research on demand for parcels by size and the supply.

A11.5 Supply incl. reconciliation

The concept of plan-enabled supply does not exist in the NPS-UDC itself but is referenced throughout the NPS guidance. Rather, the NPS refers to 'Development capacity', which is defined as:

> *"In relation to housing and business land, the capacity of land intended for urban development based on:*
>
> *(a) The zoning, objectives, policies, rules and overlays that apply to the land, in the relevant proposed and operative regional policy statements, regional plans and district plans; and*
>
> *(b) The provision of adequate development infrastructure to support the development of the land".*

In response, the three TAs have agreed the following framework for assessing what is included as development capacity:

- land zoned for business activities in the urban areas of Christchurch City and townships within the Greater Christchurch boundary[181]; and
- 'greenfield priority areas' identified in the Canterbury Regional Policy Statement 2016 (CRPS) for Greater Christchurch (Chapter 6). Note that some of these areas have not yet been zoned in District Plans and will therefore not be considered as short or medium term supply.

It has also been agreed that the assessment of development capacity should exclude:

- land within the Projected Infrastructure Boundary as defined in the CRPS that is not zoned or identified as a 'greenfield priority area' for business activities;
- land outside the Projected Infrastructure Boundary;
- land zoned for tertiary education and research in Christchurch City and the Greater Christchurch area of Selwyn District[182]; and
- Special purpose zones such as an MDF plant in Waimakariri District.

In addition to the above, what is deemed to be 'enabled' has also been considered, having regard to the references to "plan enabled capacity" in the Guide on Evidence and Monitoring. While in the context of housing, section 3.1 of part 2 on page 35 of the guide states "*Plan-enabled development capacity is development that Resource Management plans enable…"*.

Plan enabled capacity has been interpreted to include permitted, controlled and restricted discretionary activities within relevant zoned areas. Discretionary activities may also be included in plan enabled capacity if the relevant policies and objectives of the plan are enabling of urban development in that location. However, this will depend on the individual plan and whether this is actually providing additional capacity over and above what is a permitted, controlled or restricted discretionary activity.

[181] Rangiora, Kaiapoi, Woodend/Ravenswood/ Pegasus, Lincoln, Prebbleton, Rolleston, West Melton.

[182] Land zoned in Christchurch as Specific Purpose (Tertiary Education) Zone and Selwyn as Business 3 (Lincoln University and Crown Research) Zone is not included as 'plan enabled capacity'. This is due to both District Plans (Christchurch and Selwyn) having specific rules and definitions which only enable retail and office based activities that are ancillary to tertiary education and research facilities. Chapter 6 of the CRPS does not enable any other business activities within these zones (office, retail or industrial) as these activities are encouraged to be directed towards the identified centres of the activities based provisions of the respective district plans.

A11.5.1 Christchurch

For Christchurch City, plan-enabled capacity for all business activity draws on the Council's existing Vacant Land Register (VLR), which includes information on the total quantum and size of vacant parcels in both industrial and commercial zones (both partial and whole sites), zoning, location and other attributes of each parcel.

This information has been collected over a number of years and is based primarily on changes in the built form, identified through building consent data for construction and demolitions, and reviewed, where necessary, against aerial/ satellite photography. GIS layers are used to ensure parcel and zoning information is accurate. Some ground-truthing of the VLR was also undertaken, and which has led to the removal and addition of the areas identified in Table A11-9. The basis for the largest areas being removed, particularly in the North Quadrant of the City, was land was in the VLR that was in fact occupied by activities without a building e.g. car rental businesses.

Table A11-9. Land removed and added from the VLR

Land to be removed (ha)	Commercial	Industrial	Notes
Central Quadrant	12.1	1.78	Removal of land subject to designation for central city anchor projects (Stadium and Metro Sports Facility)
East Quadrant	0.29	5.76	
North Quadrant	0.49	50.22	Mostly airport land that was showing on the VLR but is actually occupied by activities without buildings e.g. car hire
South Quadrant	3.58	19.90	
Land to be added	**Commercial**	**Industrial**	
Central quadrant	0.56	-	
Eastern quadrant	2.84	-	

In addition, the following sources have been utilised in determining the supply of land and floorspace:

- **Land use surveys of all commercial centres**

  Surveys were carried out to quantify the actual retail floorspace and out of zone commercial activity. This identified the amount of existing occupied retail floorspace both in zone and out of zone, as well as quantifying vacant sites and floorspace. In doing so, the quantum of floorspace utilised for non-commercial activity could be determined which has been excluded from the assessment to avoid over-estimating the potential capacity.

- **Vacant office floorspace in the Central City**

  A number of developments in the Central City have relied on insurance proceeds and not the typical lending constraints, proceeding without tenants secured for their premises. This has contributed to the development of space, which there has not been demand for, contributing to an over- supply of office floorspace. Therefore, for the purpose of this assessment, account has been had of the vacant office floorspace available (in excess of the 8% vacancy rates deemed necessary for a efficiently operating

market) in determining short-term supply. This data was sourced from Colliers International, dated October 2017.

- **Redevelopment potential based on resource consents**

For Christchurch City, the focus of its assessment of plan-enabled supply was vacant land rather than redevelopment potential. However, some account was taken of known pipeline or likely redevelopment proposals, primarily within or immediately adjoining commercial centres. This included capacity that may be enabled by the following:

Table A11-10. Summary of potential redevelopment opportunities

	Site	Size	Activity type	Status	Quadrant	
1	Northlands Mall	2,024GLFA (3,010sqm GFA)	Food precinct addition with covered 'winter garden' and outdoor seating. Two new retail tenancies and centre entrance fronting Main North Road. Net loss of 104 parking spaces and landscaping.	Under construction	North	RMA/2016/2020 (expires 14/09/21)
2	Hornby Mall	3,000sqm GLFA	Additional capacity enabled by consent that hasn't yet been implemented.	Not commenced but recent application to extend the lapse period for consent. This floorspace is the balance of a previously implemented consent.	South	RMA92021123 and RMA/2017/2678 (expires 01/11/22)
3	Riccarton Mall	8,000sqm GLFA	Additional retail, car parking, outdoor hospitality	Not commenced.	South	RMA92021562 (expires 31/07/2019)
4	Riccarton Mall	Land Area: 2,703sqm site	No known development plans but has been purchased from CCC by Scentre/Westfield Mall. Existing buildings (Council community centre) to be demolished and rebuilt on adjacent land (complete end 2018)	No commenced and no resource or building consents have been lodged	South	n/a (Commercial Core Zone - may not require RC).
5	Palms Mall	9,329sqm GLFA	Additional retail floorspace, mall and service space located at	Not commenced.	East	RMA92015315 Expires 22/04/2020

			ground level adjacent to Marshland Road. Extension to existing car parking on level 2 and creation of 2 new car parking levels (3&4)			
6	Land adjoining the Palms Mall	Land area: 21,029sqm	Mall owner AMP has purchased a large number of residential properties surrounding the Mall and has obtained a change of zoning from residential to commercial core for this land. Therefore the District Plan is enabling of redevelopment of this land. NB that AMP also owns other land adjoining the Mall which is still in residential zoning (13,468sqm).	Not commenced and no resource or building consents have been lodged to date.	East	n/a
7	Eastgate Mall	Current resource consents for redevelopment of some of car parking area however this is already taken into account via the vacant land supply assessment so no need to consider again				
8	Church Corner	1,674sqm GLFA (net increase)	Redevelopment to provide new Liquor King, Briscoes and Farmers Market. Increasing GLFA from 19007sqm to 20681sqm and a loss of 82 car parks.	Building consent has been lodged.		RMA/2017/2306 (expires 01/12/22)

Aside from the extant resource consents referred to above, the **redevelopment potential** of existing developed sites has not been incorporated in the assessment. The estimates of supply are therefore conservative and any potential shortfall in supply could potentially be addressed through redevelopment opportunities elsewhere.

Also not accounted for is **vacant floorspace** for industrial activities. Data has been supplied by JLL but there are limitations with the datasets such that it cannot be relied on, namely that the dataset is not complete i.e. it does not capture all vacant floorspace.

In the assessment of vacant land and the potential floorspace on any given site, assumptions have been made, which are summarised below:

Building height in the Central City

An initial estimate of 2.06 stories was assumed, based on the average height of buildings in Christchurch's CBD prior to the earthquakes of 2010/2011. This is relatively consistent with and in some cases, higher than the average assumed in other centres including Auckland (1.8) and Hamilton (1.6). Wellington has a higher average of 2.4, which may reflect the limited area available for growth of the CBD.

Sensitivity testing has been undertaken with a revised assumption of 3.3 stories being used on the basis that building heights were likely to increase over time. This was informed by the following:

1. Research by Colliers and Beca in 2011 indicated that buildings above 12 floors were not likely to be economically viable, and the residual land value declined sharply as building heights increased above 6 stories. This suggests buildings of a lesser height (3 – 4 stories) are more viable[183].
2. A vision of the CCRP is a more compact central city, which implies a greater level of efficiency in the use of land i.e. utilisation of vertical space. Given the inefficient use of land in the Central City prior to the earthquake, a higher average in the height of buildings has been assumed.
3. Landowners who have been paid out by their insurance company may have more equity to build higher without the necessity of tenant guarantees.

As recommended in section 1.4 of part 3 to the guide, ground-truthing has been undertaken to understand the height of buildings developed in the Central City. The results of this analysis have enabled an understanding of the average building heights by zone and EFM area as presented in the table below. These two EFM areas comprise the whole of the Central Quadrant as shown in Appendix 2.

Table A11-11. Average building heights by zone and EFM area

	EFM Area 1 (Inner city)	EFM Area 2 (Inner City Edge)
Commercial Central City Business	4.23	-
Commercial Central City Mixed Use	1.81	-
Commercial Central City (South Frame)	2.4	-
Industrial General	-	1.1
Commercial Office	-	2.25
Commercial Core	-	1.3
Commercial Retail Park	-	1.55
Total by EFM Area	2.7	1.2
Grand Total	2.14	

This ground-truthing exercise confirmed that the original assumed average height in those areas (2.06 storeys) was consistent with historical built form but that a higher average building height (3.3) was appropriate to adopt

[183] Appendix G – Technical Appendix to the Draft Central City Plan – Financial Feasibility of Building Development in the Christchurch CBD (Colliers International and BECA) (14 November 2011)

for the reasons set out in (1)-(3) above. Recent building activity, particularly in the Central City Business Zone, indicates that new building activity in this central quadrant is likely to be at levels higher than the historical heights.

Reconciliation of land/ floorspace utilised for non-business activities

Part 4 of the guide requires consideration of the interactions between housing and business, including the need to consider how capacity may be utilised for non-business activities, to avoid under-estimating, over-estimating and double-counting supply. Section 2.1 suggests that Councils undertake "*a review of district plan activity tables to identify the types of activities that are enabled in different zones. However, it is also useful to 'ground-truth' these cases by analysing current land uses within zones that enable multiple types of use or discussing with stakeholders*".

The following describes assessments made of non-business activities in commercial zones.

Residential Activity in Business Zones

No reconciliation was considered necessary for the majority of business zones on the basis that district plan provisions do not enable residential activity to locate at ground floor (other than to the rear of commercial activities) and because there was little evidence of any ground floor residential activity occurring on business zoned land. Indeed, there is very little evidence of residential activity occurring above ground floor in business zones either, other than to a limited extent in the central city[184].

The exception to this is the Commercial Central City Mixed Use Zone which permits residential activity at ground floor, thus having the potential to compete with other activities for use of this land. A land use survey was undertaken by CCC in November 2017 to inform the extent to which land for various land uses within the CCCMU Zone is split between the Housing and Business Development Capacity Assessments. However it was difficult to find an area of the zone which was likely to be representative of the future proportional split of activities. This is because:

- The central city has sustained such considerable damage to land and buildings including significant building demolitions, that makes identifying the recent / current land use composition difficult; and

- The Christchurch Central Recovery Plan (and its incorporation into the Christchurch District Plan) resulted in a new planning framework for the central city, including this zone. This means that the historical composition of activities in this zone is unlikely to continue into the future and should not be used as a basis for future projections. This part of the City was previously an inner city industrial zone characterised by light industry, warehousing and service industries including a range of long established industries often on small sites. The new planning framework still enables these activities but now promotes redevelopment as a vibrant urban area where a diverse and compatible mix of activities can co-exist, including commercial and residential activities. It is anticipated that this zone will typically be redeveloped for these higher value uses.

[184] See also the section 2.1 of the HLCA which assumes that no residential activity will occur in commercial zones outside the central city. It also considers there to be no capacity in the CCCB and CCCMU Zones above ground floor level because there is no evidence to inform the potential capacity at this stage.

Notwithstanding these limitations, a survey area[185] was selected that is undergoing redevelopment of the kind anticipated by the new zone provisions. That survey identified the following proportional split of activities at ground floor level (Table A11-12).

Table A11-12. Proportional split of activities at ground floor level in survey area

Activity	Land area	%
Retail	34,685	38
Residential	9,217	10
Office	11,738	13
Industrial	7,695	9
Vacant/Carpark	20,884	23
Other	6,272	7
TOTAL	90,491	100

However it should be noted that the survey area comprises a very large residential development site[186] which the project team considered unlikely to be replicated throughout the CCCMU Zone over the next 30 years. For the purposes of this capacity assessment, it was assumed that 5% of the CCCMU (rather than 10%) will not be available for business activities at ground floor level.

Retirement Villages in Business Zones

Retirement Villages are a form of residential activity that is permitted at ground floor level in some commercial zones and in theory could compete with commercial activities for land. However, analysis of previous consents (past 10 years) shows that almost all retirement villages have located within residential zones; therefore for the purposes of this assessment, it has been assumed that no business land will be taken up for this use.

Visitor Accommodation in Business Zones

No reconciliation was made for visitor accommodation on the basis that in commercial centres, visitor accommodation is required to be located at upper floors, thus not competing for ground floor space/land. In the context of business land, this is most likely to be hotels locating within the central city. Other forms of visitor accommodation tend to locate outside of centres, mostly in residential zones within an Accommodation and Community Facilities overlay. The HLCA has made allowance for this within that assessment.

Anchor Project designations

The most significant reconciliation exercise forming part of this assessment for Christchurch City relates to land which is commercially zoned but designated for other (non-business) purposes. This includes:

[185] The survey area was bound by St Asaph Street in the north, Madras Street in the east, Dundas Street and Eaton Place in the south and Colombo Street in the west.

[186] Atlas Quarter, Government-led development projecting comprise of 106 townhouses and apartments. https://www.stuff.co.nz/the-press/news/97271353/Crown-led-housing-project-triggers-transformation-of-Christchurchs-Welles-St

Table A11-13. Reconciliation of Anchor Project designations

Designation	Underlying Zoning	Size	Activity/Purpose
North and East Frames (designation reference V4) Requiring Authority: Ōtākaro Limited	Commercial Central City Business Zone and Commercial Central City Mixed Use Zones	9.1ha (6.8ha vacant)	Designation for housing by Ōtākaro Limited. Master Plan proposed 900 houses and approx. 1,000sqm commercial floorspace. Under construction.
Metro Sports Facility (V7) Requiring Authority: Ōtākaro Limited	Commercial Central City Mixed use Zone	7.2 ha (5.8 ha vacant)	Sports facility and ancillary activities.
Stadium including Spectator Events Facility (H4) Requiring Authority: Minister Supporting Greater Christchurch Regeneration	Commercial Central City Mixed Use Zone	6.9 ha (4.7 ha vacant)	Stadium including Spectator Events Facility and ancillary activities

This land was removed from the BDCA. The Housing Assessment includes the North and East Frame land as plan enabled housing supply (900 houses).

Business activities in non-business zones

This BDCA assumes that future business activities will locate within business zones. This assumption is made on the basis that there is no reliable data upon which to inform any assumption about the likely future extent of out-of-zone business activity. Whilst historical data shows that a significant amount of all commercial activity has occurred outside of commercial zones since 2000[187], the new District Plan has a centres-based commercial strategy, directing new commercial activities to centres such that it is anticipated that out of zone activity will be much more limited.

Allowance has however been made to recognise the extent of business activities that were displaced by the earthquakes and that currently operate 'out of zone' under special regulatory dispensation[188]. As discussed in earlier these activities will require space within business zones when their temporary accommodation permits expire in June 2021.

A11.5.2 Selwyn and Waimakariri Districts

The task of determining plan enabled capacity forms part of the Capacity for Growth Models, developed for Waimakariri and Selwyn District Councils respectively by ME. This involves the following steps:

[187] Property Economics Report (2017), Christchurch Business Land Capacity Assessment, page 41.
[188] Canterbury Earthquake (RMA Permitted Activities) Order 2011

1. Establishing the amount of zoned land for business

The first task was to define land that was capable of development. This involved the exclusion of some areas e.g. roads and railways, designations. Other restrictions on land, for example covenants, were not excluded due to the lack of data to make an informed decision.

The exercise of determining the quantum of zoned land required a review of parcel boundaries relative to zone boundaries, which did not match in some instances. A process was therefore carried out to allocate a proportion of each parcel split by a zone boundary to a business zone.

2. Identification of current development

As a second step, the amount of land that is already utilised was determined, having regard to the amount and location of existing development[189]. In commercial zones, the quantum of floorspace on each site was estimated using the building floor area and a street view survey of the height of buildings (in stories).

3. Determining the level of development that could theoretically occur, based on the zoned developable land area and rules of the District Plan.

The information from the previous two steps was then combined with the bulk and location rules from the District Plan to estimate the level of development that could be theoretically developed at a parcel level.

As a part of this exercise, vacant sites were identified, following which calculations were undertaken of the developable area, having regard to internal setbacks, recession planes, coverage and height limitations and any car parking allocated. An output of this step is an estimate of plan enabled capacity.

4. Contemporary development potential

Building on the preceding steps, an assessment was made to determine the 'contemporary development potential' that the market could be expected to deliver. This draws on data on existing development to provide outputs of what is "achievable". This highlights the level of development that has been achieved by the market which can be thought of as 'currently feasible'.

Data on existing development was used to determine the floor area ratio (FAR) of every parcel[190]. Analysis was then undertaken to establish the FAR at the 80th percentile for each zone, i.e. only 20% of the existing built form in each zone is more intensive. The FAR at the 80th percentile is considered to represent an achievable level of development. With development exceeding this level, it is considered reasonable to assume that other parcels in the zone could be developed to this level.

The 80th percentile was then applied to existing sites to determine their redevelopment potential and the 'contemporary development potential'.

It is important to note that the contemporary development capacity is significantly smaller than the plan enabled capacity. The estimate of development capacity based on existing intensities of development may in itself be overly conservative and unlikely to eventuate but provides a relevant base line for understanding the least amount of potential development that could be feasible in Selwyn and Waimakariri. Generally, in high growth economies, the intensity of development tends to increase with time. This means that the contemporary development potential is likely to underestimate the development level that is achieved in the future.

[189] The source of data on the amount and location of existing development included Rateable property and the LINZ building outline.

[190] The existing floorspace on each parcel was estimated using the building floor area for each Rateable Property and building coverage for each Building Outline.

A11.5.3 Evaluation of the methodologies

Plan enabled capacity – theoretical versus modified capacity

The NPS-UDC requires an assessment of plan enabled capacity, which is a theoretical concept, i.e. in theory how much could be built under the plan rules, and could result in a significant over-estimate of the area that is available or likely to be developed. In practise, the intensity of development that has been achieved in Christchurch, Selwyn and Waimakariri has been much lower than is enabled in the plans.

Whilst the intention of the NPS may have then been for the feasibility assessment to test how realistic that theoretical development capacity actually is in market terms (essentially reducing the theoretical capacity to a more realistic modified or feasible capacity), limitations with the MCA approach to assessing commercial feasibility means that it would be inappropriate to adopt the theoretical maximum development capacity in the BDCA. For instance, a lack of information about the full range of development costs is not available and not assessed and therefore it is not possible to discount land on the basis of overall costs that renders development commercially unfeasible.

As an alternative, Councils have adopted an approach of determining a 'modified development capacity', which it considers to be more realistic. For WDC and SDC this has been by the use of Floor Area Ratios[191]. For CCC, maximum building height assumptions based on historical actual development and likely future developments, have been used.

The result is that, the supply assessment has by default, built in an element of commercial feasibility. That is, assumptions have been built in that the market will not deliver to the maximum theoretical capacity enabled by district plan provisions, but will likely develop to existing (or for some areas slightly more intensive) levels.

Redevelopment potential

During the course of preparing the BDCA, key elements of the methodologies of each of the Councils was identified, including differences. Through discussion amongst the staff from each of the Territorial Authorities, these differences were reconciled to reach consensus on an agreed approach or differences were agreed as appropriate.

For all three TAs, no account is had of the redevelopment of developed sites in determining their plan enabled capacity i.e. the redevelopment of sites occupied by buildings is not included.

The consequences of this include underestimating the plan enabled capacity in Christchurch City, Selwyn and Waimakariri Districts by not accounting for redevelopment potential on fully developed sites or applying conservative assumptions based on existing levels of development.

CCC proposed to revisit the need to assess redevelopment potential of land, if the results indicated a shortfall of feasible, serviced development capacity. In light of the results showing shortfalls predominantly in the long term for commercial activity, no further assessment of redevelopment potential is now proposed. This can be considered as part of the next BDCA.

A11.6 Development Infrastructure

The assessment of 'Development Infrastructure' involved an evaluation of the plan enabled capacity to determine what area was serviced. In circumstances where it was not, an assessment was made to determine

[191] As stated above, ME have determined the 'contemporary development capacity' for SDC and WDC based on levels of development under recent market conditions (supply and demand). This scenario is an *ex post* projection, i.e. how much development would the market choose in the future if past market conditions (supply and demand) continue into the future.

whether infrastructure was identified in a Long Term Plan and Infrastructure Strategy consistent with Policy PA1. This involved dialogue with asset managers to understand what was emerging in the draft LTP as well as what consideration was being given to servicing areas that are not serviced and where infrastructure was not identified in a LTP.

Assumptions made in identifying and documenting Development infrastructure include:

- The Development Infrastructure identified does not include infrastructure constraints that are anticipated to be borne by the private developer. These fall within the scope of the feasibility assessment as a consideration that may render land less commercially feasibility to develop.
- The areas identified for the purpose of the BDCA are serviced, or infrastructure is identified in the Draft or Proposed Long Term Plan or an Infrastructure Strategy. Where an area is not, it is excluded from the assessment of Development Infrastructure.
- For the purpose of the assessment, both the existing and draft LTP for 2018 – 2028 have been considered in determining the Medium Term supply. This is on the basis that the draft LTP has been through a statutory process including consultation and adoption while also taking into account Council's most up to date position as reflected in the draft.
- In some cases, it is considered inappropriate to discount unserviced industrial land on the basis that it provides an alternative type of industrial land (essentially rural industry) that forms an important role and is currently successfully taken up (e.g. at Chaneys). This is documented in the report.

A11.7 Feasibility

A11.7.1 MfE guidance on assessment of Feasibility

Policy PB3 states "*The assessment under policy PB1 shall estimate the sufficiency of development capacity provided by the relevant local authority plans and proposed and operative regional policy statements, and Long Term Plans and Infrastructure Strategies prepared under the Local Government Act 2002, including:*

…

*(c) the **current** feasibility of development capacity;*

In the context of the NPS, ***"Feasible"** means that development is commercially viable, taking into account the **current** likely costs, revenue and yield of developing; and feasibility has a corresponding meaning.*

As described in the guide, the ability to determine the feasibility of commercial and industrial land is complex and problematic. This is because there are numerous and diverse development options and/or uses that could occur on any given piece of business land. This can give rise to very different scenarios in terms development costs and rents (returns), each of which would need to be tested.

Acknowledging the complexities involved in calculating feasibility for business land, MfE recommends that councils "*assess feasibility by comparing the attributes of zoned sites to the requirements of business users*."[192]. The recommended method is to use a multi-criteria analysis that evaluates sites against attributes required by the intended sector and to rank the sites using weighted scores. According to MfE:

This process should:

- *identify the key location, size, tenure, price and other characteristics important to the sector;*
- *define and weight the characteristics according to their importance;*

[192] Ibid. p.72.

- *score each site, precinct or land parcel against the weighted score range;*
- *rank the sites and determine those that are deemed most suitable to meet demand within a sector and those that are unsuitable and not likely to be developed (and therefore not feasible).*[193]

Councils are encouraged to engage with industry stakeholders and large commercial or industrial operators to select the most appropriate assessment criteria and to better understand the relative weighting given to those criteria by developers.

A11.7.2 Selection of Clusters for Analysis

Due to the large quantum of business land in the Greater Christchurch area, the task of completing a site by site assessment was not considered practicable in the timeframe. It was therefore determined that the assessment of feasibility be undertaken on a cluster basis, each cluster being a sub-area of commercial or industrial activity in the city or town that could be distinguished geographically from other areas and which had similar characteristics, constraints and zoning provisions. Where a number of smaller clusters were close together and had similar characteristics and/or the same zoning (in respect of undeveloped areas), these were grouped together as a single cluster.

The cluster based approach also recognised that sites within each cluster may score consistently against some criteria e.g. accessibility to the strategic road network.

This approach was agreed with the MBIE[194].

Assessments were completed for all vacant industrial land in the study area and two areas identified in the RPS for future business land but which where were not rezoned in the Christchurch District Plan review[195].

Assessments were completed for the majority of the commercial centres including emerging centres in new greenfield developments. In Christchurch City, the focus was on centres that had at least 1,000m^2 of vacant land; the threshold being determined to prioritise assessments of the most significant parcels of land where development may occur. In Selwyn and Waimakariri districts, all vacant commercial land was assessed and included established and developing town centre environments and local centres The Rolleston industrial cluster excluded the established Business 2 zone along Jones Road and the I-Zone business park. This is on the basis that the vast majority of land holdings within these locations have been recently developed.

A11.7.3 Criteria Selection and Weighting

Staff from Councils representing the GCP drafted a set of assessment criteria as a starting point for discussions with representatives of the development sector. This was based on criteria applied elsewhere for assessing the desirability/ attractiveness of different locations for development.

Thereafter, a focus group was established to engage with representatives of the Property Council and real estate industry[196]. A review was also undertaken by Market Economics Limited, who provided advice that assisted in refinements being made to the criteria (Table A11-14).

These criteria included:

[193] Ibid. p.72-73.
[194] Confirmed 6/12/2017 meeting with Peter Nunns, MBIE
[195] Hawthornden and Johns Road Greenfield Priority Areas (CRPS)
[196] Ben MacGibbon of McConnell Property and representing the Property Council; Gary Sellars of Colliers; Shane Dixon for the Property Council; Tom Barclay, JLL.

Table A11-14. Assessment criteria used as a starting point in development sector discussions

Retail/Office Activity	Industrial Activity
Size/configuration of sites	Size/configuration of sites
Proximity to housing	Access to arterial roads
Visibility to customers	Proximity to housing
Public transport accessibility	Public transport accessibility
Planning constraints	Planning constraints
Development constraints	Development constraints
Natural constraints	Natural constraints
Infrastructure (private)	Infrastructure (private)
Features/environment (e.g. amenity, parking)	Features/environment (e.g. amenity, parking)
Market availability	Market availability
Legal/property tenure	Legal/property tenure
Resource consent	Resource consent
Price	Price

The key feedback received from the focus group was that:

- Parking availability was best considered as part of a broader 'accessibility' criterion, namely for retail and office activity;
- Land contamination was the key development constraint likely to affect feasibility and should be included as a separate criterion;
- Geotechnical and flooding constraints were the key natural constraints likely to affect feasibility so could be specified as such;
- While high levels of amenity are relevant, they are not a key consideration with respect to feasibility, so should be removed from the assessment criteria;
- Access not just to arterial roads, but to the rail network, port and airport was important for industrial activities;
- Proximity to housing for the workforce was not a key consideration for industrial development but reverse sensitivity could be a concern; and
- Public transport links were not very important for industrial activities.

Some criteria were also combined as a result of discussions (e.g. size/configuration, market availability, and legal/property tenure were combined into single criteria of land assembly and access issues).

The focus group also indicated the relative importance that they placed on each of these criteria. This translated into the weighting given to the criteria in the assessments (Table A11-15).

Table A11-15. Weighting given to assessment criteria

Retail/Office Activity	Industrial Activity
Necessary (x4)	**Necessary (x4)**
Proximity to residential areas	Transport accessibility
Planning constraints	
Very important (x3)	**Very important (x3)**
Visibility	Planning constraints
Transport accessibility	Natural hazard constraints
Natural hazard constraints	Land assembly
Land assembly	
Somewhat important (x2)	**Somewhat important (x2)**
Land remediation	Land remediation
Private infrastructure requirements	Private infrastructure requirements

An "other constraint" criteria was also retained to account for other cluster specific constraints such as reverse sensitivity issues, significant community opposition to development, likely archaeological sites or other factors that could affect feasibility such as abnormally high land values or low rental rates where known.

The focus group also emphasised the importance of other potential feasibility criteria such as overall market demand, costs of material and labour, and access to financing. Whilst the project team agrees that these criteria significantly impact on commercial feasibility, these factors were not assessed as part of the MCA. This was on the basis that they could be assumed to apply in a relatively consistent manner across the partnership area at any given point in time (e.g. labour and materials costs), or could vary considerably depending on the individual circumstances of the developer (e.g. access to / need for financing), or in the case of demand, would be assessed as part of the wider BDCA. The focus of the assessments was on criteria where it was anticipated that there would be variability between clusters.

A11.7.4 Sources for Feasibility Assessments

The feasibility assessments were primarily desk-based studies using information available to councils in the timeframes available and supplemented by a survey of the development community and landowners of vacant sites. The latter included follow-up interviews with some respondents and discussions with relevant council experts (Refer below for a summary of this engagement).

Assessments generally relied on existing information as there was not sufficient time or resources to commission additional work (for example, to obtain rental rates for clusters not already studied for the Commercial Centres Fact Sheets project[197] and information contained on Council records and GIS). Where there were multiple sources of information (for example, several geotechnical or contamination investigations for a series of consents on the same site) efforts were made to find the most relevant and up-to-date report but it is likely that further investigations or later remediation work may render some information quickly out of date. By nature, the assessments are a snapshot of a sometimes rapidly evolving landscape.

Key inputs into the assessments were:

[197] CCC Urban Regeneration and Strategies Programme project to update baseline information about key commercial centres in Christchurch.

1. An online survey was sent to all property owners of vacant sites in the clusters studied asking respondents to rate the relative significance of development constraints in those areas with respect to the criteria identified above. The survey included opportunities to propose additional criteria or to comment in more detail on the constraints.
2. Follow-up interviews were had with most respondents as available to discuss responses in more detail and to identify specific planning constraints identified as causing feasibility issues or specific parts of clusters affected by contamination or natural hazards issues.
3. A planning assessment undertaken for each cluster identifying any District Plan rules likely to have a significant impact on feasibility and any relevant natural hazards constraints.
4. A review of any relevant land use or subdivision consents issued in the past five years for vacant sites and, in particular, any land contamination or geotechnical reports accompanying them. Vacant sites with a recent consent for a non-industrial or commercial activity and with a high probability of implementation (e.g. consent to rebuild an apartment complex in a mixed-use zone) were noted as making the site not feasible for a business activity.
5. A review of the Listed Land Use Register (LLUR) for any vacant sites to identify listed Hazardous Activities and Industries List (HAIL) sites, the extent of previous investigations and the outcomes of more recent Detailed Site Investigations (DSIs) where available.
6. In Christchurch City, for some greenfield areas that were recently rezoned or investigated for proposed rezoning, technical reports informing the s32 report[198] for the proposed rezoning were consulted.
7. In Christchurch City, the Urban Regeneration team regularly prepares Commercial Centre Fact Sheets for most District and Neighbourhood commercial centres and selected local centres. These fact sheets include statistics on the number of residents within a walkable catchment of the centre (based on analysis of 2013 census data), average rental rates for low-end, medium-end and high-end retail and office sites (prepared by CBRE in 2016) and assessments of transport accessibility (prepared by Abley Transport in 2016). These statistics and assessments were drawn on for centres where available, noting that the boundaries of the centres for the Fact Sheets do not precisely line up precisely with the boundaries of the study areas for the feasibility assessments in all cases.
8. Christchurch City and Selwyn District GIS information was obtained about contaminated sites (as a cross-check to the LLUR), location of public transport, cycle facilities and infrastructure servicing, archaeological sites not scheduled in the District Plan, landfill and uncontrolled fill sites, consent notices, assessments of high liquefaction risk areas and information on the roading hierarchy.
9. For Christchurch City, high level comments were sought from Council experts on liquefaction, flood risk and infrastructure servicing constraints.
10. Lists of current key activities were based on Google Maps and personal familiarity. A limited number of site visits were undertaken to ground truth desk-based research as part of a high level audit of the vacant land register.

A11.7.5 Scoring Methodology

Scale and weighting

Once information had been gathered to inform the assessment for each criteria, a score was assigned based on the following scale:

0 – Constrained to the extent that development would not be feasible solely on this criteria

[198] An evaluation report (including an assessment of costs and benefits) required under Section 32 of the Resource Management Act for plan/policy changes.

1 – Significantly constrained

2 – Moderately constrained

3 – Minor constraint

4 – Minimal or no constraint

Where no information was available, the score was assumed to be a 4. Where there was significant variability between sites in the same cluster (e.g. a 1 for one site and a 3 for another) a median score was generally selected (e.g. 2) except where the size of one site relative to the others and to the overall quantum of vacant land in the cluster suggested that greater weight should be given to that site.

These scores were then weighted to reflect the relative importance assigned to each criteria, based on input from the focus group to arrive at an overall weighted score for the cluster.

The Christchurch City assessments only scored the vacant sites in the cluster and may not reflect the score that would be assigned if the entire area were assessed. For example, there is only one vacant area in Elmwood at the back of existing shops so this centre scored poorly for visibility even though the developed part of the centre fronts onto an arterial road.

The Selwyn and Waimakariri assessments were initially carried out at the cluster level, with Market Economics Limited utilising the property level information contained within the Selwyn and Waimakariri Capacity for Growth Models to provide a site by site analysis of constraints targeted to vacant land holdings. This evaluation was initially based on the information outlined in Section A11.6.4 above, but may subsequently integrate property based land values and related costings to provide a more accurate understanding of the feasibility of vacant business land.

General assumptions

The assessments take into account the outcomes anticipated by the district plans for the relevant cluster and the context and scale of each business node. For example, the Christchurch District Plan anticipates local centres will primarily draw customers from within the local catchment so more consideration was given to walkability, local cycle access and an established residential catchment than to factors including public transport access. On the other hand, large format retail centres are assumed to be accessed primarily by car from further afield. More consideration was given to adequate parking provision and less to the number of households in the immediate walkable catchment in this context.

For greenfield emerging centres, current feasibility was assessed relative to the proximity and quantum of housing to make the centre viable, including whether it had reached the critical mass to support the centre and sequencing of development had installed the necessary infrastructure. This is on the basis of the NPS-UDC directing an assessment of whether development is currently feasible, not whether it could be feasible to develop in the future.

Some greenfield centres adjoin existing roads while other centres would require new roads to be built to connect to the transport network. Generally consideration was given to the distance that new roads and other infrastructure would need to traverse to connect into existing systems. Any information on how soon those connections could be expected was also considered. For example, one centre did not have road access but properties had been purchased to achieve the access required, with the demolition of former buildings completed and consent sought for earthworks. This centre was considered less constrained than sites where multiple landowner approval and/or land purchase was still required to connect the centre to the existing network.

Scoring for Criteria

The following summarises the basis for scores under each criteria.

a. Accessibility to the Transport Network

In Commercial Centres a '4' score was generally given if the centre had direct access to arterial roads and a level of public transport, parking and/or cycling provision consistent with what is anticipated for the type of centre.

Lower scores generally reflect:

a) emerging centres that do not currently have roads connecting them to the main network (e.g. North West Belfast, Redmund Spur);
b) Commercial Office-zoned areas that do not have direct public transport servicing or are serviced by only one low frequency bus route (e.g. Mandeville);
c) Neighbourhood or Local centres with a combination of comparatively poor public transport and cycle access, lack of alternative routes in the event of congestion, and less central locations (e.g. Port Hills Road, Lyttelton in Christchurch City and the Falcon's Landing and Geddes/Dryden Trust Neighbourhood Centres in Selwyn)

Industrial Clusters scored a '4' when they had direct access to the arterial road network and reasonably good access to either the rail network, port or airport.

Clusters which scored lower generally had a number of sites that could only access the arterial road network via local roads, often in close proximity to residential or rural-residential areas or where there were other known constraints such as difficulties associated with upgrading intersections to accommodate heavy vehicle movements.

b. Land Assembly

Clusters generally scored a '4' if there was the potential to easily provide for a range of site sizes (including by subdividing) consistent with other typical developments anticipated in the same zone.

Lower scores reflect:

a) a significant proportion of vacant sites in the cluster that were of a shape and/or held in ownership that was not conducive to development (e.g. long narrow sites in multiple ownership, where a row of shops was demolished). These sites would potentially be more difficult to amalgamate, to coordinate rebuilding or to develop as a stand-alone development without reference to the other sites;

b) significant earthworks being required on sloped sites.

c. Land Remediation Requirements

Clusters generally scored a '4' where there were no known or potential Hazardous Industries and Activities List (HAIL) sites or where previous investigations indicated that contamination levels were within acceptable guideline levels and/or had been successfully remediated.

Clusters with a '3' generally contain known or suspected HAIL sites that have not been investigated or which have been investigated and require remediation of only discreet hotspots (e.g. as a result of leaking storage tanks).

Clusters with lower scores generally reflects the presence of significant areas of known or probable contamination (e.g. former landfill sites), where the sites have either not been investigated or have been found to exceed guideline levels for commercial or industrial development. Some sites are subject to an ongoing site management plan (SMP) and in the case of other sites, planned remediation had not yet been certified as complete.

d. Location-Specific Private Infrastructure[199]

Most developed clusters scored a '4' on the basis that they did not require significant additional investment in private infrastructure other than standard service connections.

Some greenfield clusters scored lower because existing servicing would need to be extended to reach the cluster or because District Plan Outline Development Plan (ODP) requirements necessitate new roads or intersection upgrades to be installed at the developers cost.

Some District Plan ODPs make development contingent on the installation of larger scale on-site stormwater treatment facilities such as artificial wetlands and green corridors. Where these requirements necessitate coordination between multiple landowners or take up a significant amount of developable land, this could potentially constrain feasibility.

e. Natural Hazards

The score for natural hazard constraints was a composite of assessments of risks from liquefaction-induced settlement, flooding and coastal hazards.

Liquefaction

Assessments were completed based on a review of geotechnical reports accompanying recent subdivision consents for vacant sites or proposed plan changes and discussions with Council experts. Generally these reports referenced minor, moderate or significant liquefaction and lateral spread risk often in terms of the technical category (TC) system designed for residential developments. This acted as an indicator for overall ground conditions in the context of industrial or commercial developments. TC1 generally indicates unlikely future land damage from liquefaction and TC3 indicates that specific foundations would need to be designed or ground improvement undertaken to address relatively significant risks of liquefaction-induced damage. CCC is currently in the process of updating its modelling for liquefaction risk areas. This work was not available for the present study but could be including in future assessments.

Caution must obviously be applied in extrapolating geotechnical conditions assessed at recently subdivided sites to vacant land across an entire cluster. The geotechnical reports were also generally commissioned for specific development projects which may have varying requirements. A factory using laser-cutting tools will not have the same foundation requirements as a storage shed and a four-storey mixed-use retail and apartment building will not have the same requirements as a corner dairy. Site specific investigations would be required to accurately determine foundation design. Performance can also vary considerably depending on the location of the future earthquake event.

Levels of risk do not always translate directly into levels of costs and hence in reduced feasibility. In a large-scale development with varied ground conditions, for example, patches of higher risk TC3-type land could be used for stormwater treatment or parking instead of requiring more complex or expensive foundations.

[199] This criteria looks at private infrastructure that would need to be installed at the developer's cost and excludes public network infrastructure. For example it includes on-site servicing connections to the public network but not upgrades in capacity of the public network required as a result of new development or intensification.

However, for the purposes of the present exercise, increased risk has generally been used as a proxy for increased costs.

For Christchurch City, these assessments were cross-referenced with the Council's existing high level assessments of liquefaction risk. These were based primarily on observation of performance in the recent earthquake sequences. For clusters where recent geotechnical investigations were not available for specific sites, assessments were based on the extent to which vacant sites intersected known high or moderate liquefaction risk areas. For Selwyn and Waimakariri, these assessments utilised geotechnical information held on the respective Council's GIS systems, which for Selwyn, included layers referencing reports prepared by Geotech Consulting Limited.

Clusters generally scored a '4' where the majority of vacant land was not in an area where future land damage from liquefaction was considered likely. In Christchurch City, this meant the land was not in a Liquefaction Management Area (LMA), was in an area assessed as have low liquefaction risk and/or had recent geotechnical investigations indicating recently subdivided vacant sites were predominantly TC1-type land.

Clusters generally scored a '3' where the majority of land was in an area assessed as having a minor risk of land damage from liquefaction. In Christchurch City, this meant that most or all of the vacant land was in a LMA and/or recent geotechnical investigations identified a minor risk of liquefaction on the majority of sites with assessments (low end TC1 to high end TC2 or only parts of the cluster affected).

Clusters generally scored a '2' where the majority of land was in an area assessed as having a moderate risk of land damage from liquefaction. In Christchurch City, this meant that the entire cluster was within a LMA, most of the vacant land was in an area identified as moderate risk (potentially with some isolated high risk areas) and/or recent geotechnical investigations identified an overall moderate risk of liquefaction (TC2 across the cluster, potentially with patches of TC3).

Clusters generally scored a 1 where significant risks from liquefaction were identified. In Christchurch City, this meant that most of the vacant land was in a high risk area or geotechnical investigations indicated a likely and significant risk (TC3 across a significant portion of the vacant sites).

Flooding and Coastal Hazards

For Christchurch City, flood risk was generally assessed based on the percentage of the vacant sites in a Flood Management Area (FMA) or other overlay area indicating flood risk. Generally in FMAs, developments are required to raise their floor levels to mitigate flooding risk. Higher floor levels increase construction costs and can constrain design options – for example where part of a relatively small site needs to be dedicated to ramps for disabled access.

Some additional information was provided by survey respondents relating to the floor levels in some clusters. In parts of New Brighton, for example, floor levels for new buildings may be required to be raised almost a metre above the existing ground level.

In Christchurch City, clusters generally scored a '4' where few or none of the vacant sites were located within FMAs. Clusters generally scored a '3' where less than half of the vacant sites were in a FMA. Clusters scored a '2' where more than half of vacant sites were in an FMA and/or where survey responses indicated that high floor levels required for that cluster were a constraint.

Some clusters on the coast have also been modelled as being at significant risk of coastal inundation from a 1 in 100 year return period event in the next 50 years. Industrial or commercial developments may be less sensitive to these risks than residential development because flood-proofing can more easily be integrated

into the design (albeit at some additional cost). However, identified risks from coastal hazards can still make approval of financing and insurance more difficult or costly. It may also affect market perception. Clusters with a large percentage of vacant sites in a FMA and also in areas identified as at significant risk from coastal hazards scored a '1' for this part of the assessment.

f. Planning Constraints

Clusters were scored on the extent to which the feasibility of developing activities anticipated by the zone might be constrained by planning rules specific to that cluster. Generally the district plan provisions are enabling of the types of activities anticipated for the zone and restrictive of activities not anticipated. Those restrictions were not considered a constraint to development.

Clusters generally scored a '4' where there were no planning rules specific to the cluster or where any specific planning rules (such as setbacks) would likely be covered by the 30% of developable land assumed to be set aside for car parking, landscaping, stormwater requirements and building setbacks[200].

Clusters scored a '3' where there were cluster-specific rules that were somewhat more onerous than other provisions and would likely reduce the amount of developable land by more than 30%. For example, in some clusters there were 20 or 50 metre setbacks for some activities or significant areas set aside for stormwater treatment. Some clusters had additional requirements for acoustic attenuation for office activities near the rail corridor or the airport and this was considered to potentially impose minor additional costs for those activities.

Requirements for urban design assessments were considered a minor constraint where the District Plan requires a resource consent for any new building. While the costs may not necessary raise feasibility concerns for a large scale project, some uncertainty around outcomes could have a minor impact on feasibility and were perceived by some survey respondents as a development constraint.

Clusters scored a '2' where there were more restrictive provisions, for example, where development could not proceed until specific conditions such as public infrastructure upgrades were met.

Clusters scored a '1' where commercial or industrial activities were not enabled by the zoning, for example in the two proposed industrial areas in Christchurch City that still have rural zoning and where any new industrial activity would require resource consent as a non-complying activity.

Many centres include caps on tenancy sizes (for example 450m^2 GLFA for a retail or office activity) however these are not considered to significantly constrain the types of activities anticipated in those zones (supermarkets and department stores were exempt from these rules).

Centres that have overall caps on retail floorspace in the centre and that were known to be close to reaching those caps (e.g. the Specific Purpose Airport Zone retail cap in the Christchurch District Plan and Key Activity Centre Precincts and Neighbourhood and Local Centre thresholds in the Selwyn District Plan), were considered to have a minor to moderate constraint.

g. Proximity to Residential Areas (Commercial only)

Centres scored a '4' where they were generally surrounded by established residential areas. Alternately some centres, like the Central City, had fewer residential areas in close proximity but had a strong visitor accommodation and work catchment from which to draw potential customers.

[200] An assumption made in calculating plan enabled capacity of the ratio of building development to site area.

Centres with lower scores generally had smaller immediate residential catchments relative to other centres of the same type, including greenfield emerging centres where the surrounding residential catchment had not yet been built.

In some cases, centres with comparatively small residential catchments such as Ferrymead and Redcliffs were given higher scores than they would otherwise because they were on a commuter route to the coastal suburbs and could rely on drive-by trade.

Less weight was also given to large format centres and other centres were the market is assumed to be drawn from a wider area.

h. Visibility (Commercial only)

Centres generally scored a '4' where they fronted onto arterial roads and where most of the vacant sites were clearly visible from the road. Centres where the majority of the vacant land fronts onto side streets or is located at the back of existing shops were given a lower score. Where vacant land was not clearly visible from the road but formed part of a destination shopping mall complex (e.g. Linwood/Eastgate), generally the centre scored a '4'.

Local centres providing small convenience shopping were scored a '3' where the sequencing of development had not enabled infrastructure to be established to the boundary of the centre. Some centres had lower scores as a result of relative geographic isolation (e.g. Port Hills Road, Redmund Spur) and the fact that they were not directly connected to the arterial road network. Similarly, Geddes/Dryden Trust and Falcon's Landing Neighbourhood Centres in Selwyn also scored a '3' on the basis that there is currently an insufficient number of housing established in the adjoining subdivision to support the business node.

i. Other Development Constraints

Other potential development constraints have been noted including the presence of heritage buildings, archaeological sites, listed trees, underground semi- or unconfined aquifers, potential springs and sites of significance to Mana whenua.

For Christchurch City, generally heritage buildings and listed trees did not reduce the score for the cluster as impacts on heritage buildings would only be assessed for discretionary or non-complying activities and listed trees could generally be developed around.

Archaeological sites, potential springs and sites of significance to Mana whenua suggests additional investigations or consultation would be required which could potentially add costs or uncertainty to the development process.

Locations over aquifers was considered a minor constraint for industrial activities as it may restrict the types of activities that can locate there (e.g. wet industries) and the options for stormwater management.

A11.7.6 Sites Assessed as Not Feasible

Sites were assessed as not feasible where they scored a '0' in any one criteria. For example, the compound natural hazards risks associated with some sites in the Bower Avenue Industrial cluster resulted in those sites being assessed as not feasible. A '0' for specific sites, however, did not necessarily mean that the entire cluster was not feasible.

Some sites (e.g. Redmund Spur) were assessed as being not feasible as a result of scoring 1s for multiple criteria. These include greenfield emerging centres where the supporting residential catchment has not yet developed and lack of servicing and road access would significantly affect commercial feasibility in the short

term. This does not indicate, however, that those sites will not become feasible at some stage or would never be feasible for niche proposals.

Sites were also assessed as not feasible where they had a recent resource consent with a high probability of implementation for a non-commercial or non-industrial activity (e.g. apartment complexes, fire stations, churches).

However, it must be emphasised that given the complexities inherent in assessing commercial feasibility for the full and extensive range of business activities enabled by district plans, at a strategic level and using the methodology recommended in the guidance, our assessment is unlikely to provide an accurate and full assessment of whether land is commercially feasible to develop. Rather, the assessment indicates the major known constraints which may affect feasibility (from a planning perspective) and over and above the typical costs involved in developing business land (land price, financing, construction costs, rental/sales values etc.). As such, this assessment provides an indication of which land is more or less feasible, having regard to the assessed factors.

A11.8 Sufficiency

Once identification of demand and supply has been completed, a reconciliation of the two was undertaken to identify whether there is sufficient capacity to accommodate future growth. Unlike the guide, this assessment has been at a quadrant level for the city due to the limitations in determine demand at a zone level.

A11.9 Interaction with housing

Policy PB1 requires Local Authorities to assess the interactions between housing and business activities and their interactions. The guidance articulates this as being multi-facetted, including:

1. Reconciling the assessments of housing and business capacity e.g. to avoid double-counting;
2. Providing information on the spatial interaction between business and housing activities and impacts on accessibility e.g. the distance people are required to travel from home to work; and
3. Identifying barriers and opportunities for change and development e.g. a change in the use of industrial land.

Points two and three of the spatial interaction between housing and business capacity have been addressed by a separate section jointly prepared for the HDCA. It comprises two parts, being as follows, which draws on existing data and literature as described in the document.

1. Identification of any existing patterns in the location of housing and business, and any drivers/ trends for change that may contribute to integration and/or conflict.
2. Identification of past and future changes in land use and the barriers and opportunities for adaptable planning responses.

A11.10 Sensitivity Testing

Sensitivity testing has been undertaken in a number of ways for this first BDCA. This includes:

1. **Use of different models**

   Both WDC and SDC have had two modules to their growth models, being the EFM and Entity Relationships. The Entity Relationships Model recognises a relationship between housing and

employment growth and has different scenarios built into it (Low, Medium and High). These can be turned off and on to enable comparison of the outputs of EFM with the Entity Relationships Model.

2. Different growth rates

Different growth scenarios were considered by the Partnership and tested to determine an appropriate growth rate to assume by TA.

3. Other assumptions

Assumptions for which there has been sensitivity testing include:

- Assumed building heights (in stories) in the Central City for determining capacity/ supply as discussed above;
- Proportion of brownfield land/ existing developed land that will be developed relative to greenfield sites in the context of Christchurch City.

The assumptions in the growth models for Selwyn and Waimakariri can also be adjusted. This includes the following:

4. Floor Area Ratios i.e. the assumed level of development on a vacant site having regard to the surrounding development intensity
5. Workspace densities
6. Other
   - Floor Area Ratios i.e. the assumed level of development on a vacant site having regard to the surrounding development intensity
   - Large development vs Small i.e. lots size threshold where infrastructure % below is applied (similar to greenfield v infill in residential)
   - Infrastructure i.e. the 5 of infrastructure applied (non-developable land).

Growth Settings

7. Employment Model i.e EFM or Entity model. This includes being able test different rates (med, med-high, and High) for different sectors:
   a. Retail
   b. Services
   c. Community
   d. Agriculture

Projection settings

8. Work space densities for both Business 1 and 2

Appendix 12 – Feasibility Assessments

Due to document size restrictions, Appendix 12 is attached separately.

Appendix 13 – Requirements of the NPS-UDC and Guide

Key Requirements from the NPS-UDC Guidance	Achieved?	Comment
A good first business development capacity assessment would:		
Provide a narrative on the local economy, highlighting its current broad sectoral composition, employment densities and spatial characteristics. Emerging trends and the sectors that are expected to drive future land and space demands would also be outlined.	Yes.	See Chapter 4
Cover office, retail and industrial business space, but provide more focused analysis on dominant sectors or those that present particular issues. Industrial activities may require particular focus as these tend to use significant amounts of land, may be incompatible with other uses and have very specific space requirements. Even where industrial activities are not forecast to grow, there may be a need to find suitable alternative industrial locations to release brownfield space for higher value uses. Retail activities may also require particular focus given they actively compete for space against other land uses. It is assumed that office activities are much easier to provide for.	Yes.	See Chapter 6. Section 6.2 - Commercial Land Supply; Section 6.3 – Industrial Land Supply
Contain projections of demand and capacity for the medium and long term, and articulate the key drivers that might change these projections.	Yes	See Chapter 5. Eg see Section 5.2 - EFM Employment Projections; Section 5.5 - Retail Land Demand; Section 5.6 - Office Land Demand; Section 5.7 – Industrial Land Demand.
Analyse the requirements of different business uses for different locations, property types, sizes and tenure, and use this information to assess the feasibility of available capacity.	In part. Requirements of business uses so far as	A significant amount of engagement was undertaken with key stakeholders as set out in Appendix 10. Some useful information was obtained from one-to-one meetings and the business stakeholder focus group, but survey

	possible. Yes for feasibility.	response rates were generally poor. Therefore only limited information has been available in regard to matters such as preferred property types and sizes. Analysis of vacant land by parcel size and location along with feedback from the focus group indicated that there was sufficient flexibility available to the market to accommodate a range of business needs without the need for further investigation. Nevertheless feasibility of individual vacant land areas has been extensively investigated based on the information presently available to Council planning staff - see Chapter 8.
Compare the projections of demand with capacity to assess sufficiency.	Yes	See Chapter 9. Section 9.2 – Sufficiency of Commercial Land; Section 9.3- Sufficiency of Industrial Land.
Check this against the industrial zone differentials, and information about prices, leases and vacancy rates if this is available.	Yes	The separate report on Housing and Business Interactions discusses Price Efficiency Indicators at Section 4.2. Price differentials between zones will continue to be monitored as far as possible. Vacancy rates are already continuously monitored through Christchurch City Council's Vacant Land Register.
At a minimum when assessing demand for business space, local authorities need to:		
Present their understanding of their local economy.	Yes	See Chapter 4.

Use publicly available projections of regional sectoral employment, and territorial authority population and households.	Yes	See Section 5.2 for employment projections; Chapter 3 for population and household projections, and Appendix 5 on population estimates.
Construct simple long term projections and scenarios around these.	Yes	See above.
Apply standard ratios to convert projections into business space requirements.	Yes	See Chapter 5 e.g. section 5.5 re retail land demand using PEL and SDC/WDC's MEL ratios. The standard ratios in the guide on p61 are not considered sufficiently accurate for CCC, as empirical work by Council in the past (Business Growth Models) has established lower ratios. Note that PEL consider their ratios intellectual property, and ratios were therefore not disclosed to CCC. For SDC and WDC, MEL's SCGM and WCGM has studied the Business Demography data and the parcel base data, including rating information, to determine existing space requirements within each of the business zones. MEL's assessment produced estimates of the current Floor Area Ratio (FAR) and Workspace Ratio (WSR). These ratios have been utilised to convert the employment projections into floorspace and land requirements.
At a minimum when assessing capacity for business space, local authorities need to:		
Compare demand estimates with information in their rating property database about the amount of vacant zoned business land available.	Yes.	CCC's Vacant Land Register draws on information in the Council's rating property database, but that information changes as properties are subdivided. It is more efficient to use building consent records to

		update the base Vacant Land Register. The Council's VLR was the main source of supply information, as well as survey information on commercial centres, and that information is directly compared with demand estimates (discounted to account for infrastructure and feasibility constraints) in Chapter 9. MEL's SCGM and WCGM has incorporated parcel based, building footprints and rating information to determine vacant supply and enable a comparison to be made against the demand estimates at the property level.
Seek comment from local property experts.	Yes	See Appendix 10 - Engagement
Rank the feasibility of different parcels of industrial land by comparing their attributes against a checklist of key business property requirements.	In Part	See Chapter 8, the GCP has elected to undertake an assessment at a broad level. SDC and WDC will be undertaking further investigation at the parcel level. The results of this work will not be completed for this round of the NPS-UDC reporting.
At a minimum when assessing the sufficiency for business space, local authorities need to:		
Consider what industrial zone differentials suggest about the current sufficiency of different types of business land.	Yes	GCP Council's do not consider that price differentials between zones are always meaningful, e.g. Relatively high land prices (reflecting overall desirability of a location) can still exist in a situation of oversupply, especially if there is land banking and release of only a small number of subdivided and serviced sites at any one time. For example MBIE's Urban Development Capacity Dashboard indicates that industrial land values in the

		Harewood/Airport and South Hornby areas are four to nine times higher than the adjacent rural land, but both areas have significant amounts of vacant industrial land. .Also, it would be inefficient to zone and provide for servicing of so much land for business in peripheral locations, that prices dropped to near the levels of the adjoining rural land.
Compare demand and capacity estimates for the next three, ten and thirty years.	Yes	See Chapter 9
For more complex local areas, local authorities would desirably take further steps to also:		
Explore Statistics New Zealand's Business Demography data, estimates of territorial authority gross domestic product and demographic data, to understand trends.	Yes	See Chapters 3 and 4, and Appendix 11.
Calculate their own projections for sectoral employment and GDP growth.	Yes	See Chapter 5
Match Business Demography data with their rating property data base to calculate local activity and space ratios for each sector, and document their spatial distribution and allocation to zones.	In part	While the first part of this task has been done by CCC in past Business Growth Models (e.g. 2014-2015), it is a huge exercise with difficulties which include data-matching issues between the Stats Dept and the CCC property databases. NPS timetables, the resources available, and an intervening District Plan Review since the earlier work meant that a comprehensive update to the 2014-2015 work was not possible. Including spatial distribution and allocation of activities to zones would also be a significant exercise, and may be more efficiently done via future survey work. Only limited land use surveys are undertaken in the City

		at present. For SDC and WDC, MEL's SCGM and WCGM has studied the Business Demography data and the parcel based data, including rating information, to determine existing space requirements within each of the business zones. The MEL assessment produced estimates of current Floor Area Ratio (FAR) and Workspace Ration (WSR).
Explore capacity on under-utilised land, and the potential for redevelopment and rezoning based on more comprehensive ground truthing.	No	Underutilised land became less of a priority for CCC, as it was evident early on that there was an oversupply of both industrial and commercial land in the City, at least over the short to medium term and rezonings were not required over these time periods. It was initially intended to compare capital value vs land value as a measure of development efficiency, but this work was also not undertaken for the same reasons. Ground truthing on these topics does not justify the resources which would be required at present. It is a recommendation for future work to inform the FDS for Christchurch City to investigate further. This can be undertaken in a more targeted and therefore efficient manner. For SDC and WDC the MEL SCGM and WCGM assesses the underutilised land, which is referred to as Vacant Potential. Vacant Potential supply accounts for the redevelopment potential of underutilised land, with ongoing ground truthing to occur through the FDS, current District Plan

		Reviews and three yearly BDCA and HDCA evaluations.
Check the quantitative assessment of sufficiency against data on prices, leases, vacancy and absorption rates, and yields, if this is available. Property research companies hold this information and publish some of it. Local authorities are encouraged to obtain this information to inform their assessments and to meet the requirements under Policy PB6 to monitor market indicators.	In part.	Quarterly monitoring reports have been produced by the GCP. Again this is a task which does not warrant extensive time and effort at this stage. The GCP is working with the property sector to improve understanding of these matters. JLL field surveys are being undertaken to cover both vacancy (i.e. unoccupied building) and vacant sites (i.e. no building). This work will be updated every six months and will provide a time series of data that can be used in the quantitative assessment.