PROPERTY ECONOMICS

CHRISTCHURCH CITY COUNCIL

BUSINESS LAND

CAPACITY ASSESSMENT

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SCHEDULE

Code	Date	Information / Comments	Project Leader
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DISCLAIMER

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1. INTRODUCTION

Property Economics has been engaged by Christchurch City Council (**CCC**) to undertake an economic assessment on Business Land Capacity by determining the future business land requirements of the CCC component of the wider Urban Development Strategy (**UDS**) area over the next 30-years factoring in the current business zone provisions, capacity and implications of the NPS-UDC PC1[1] directive to provide an additional margin of feasible development capacity.

To assist in the understanding and consumption of this assessment, the report will be split into two sections - Retail / Commercial Service and Commercial Office / Industrial markets, because different methodologies are applied to each to determine future demand (and therefore land requirements). Increased retail GFA and land demand is considered more appropriately based on the level of annualised retail expenditure the market can generate and sustain, while office and industrial activities has a more wide spread catchment and is more appropriately based on employment sector growth forecasts. While the sectors will be assessed separately, it is acknowledged these sectors are intrinsically linked and 'feed off' each other in a commercial context.

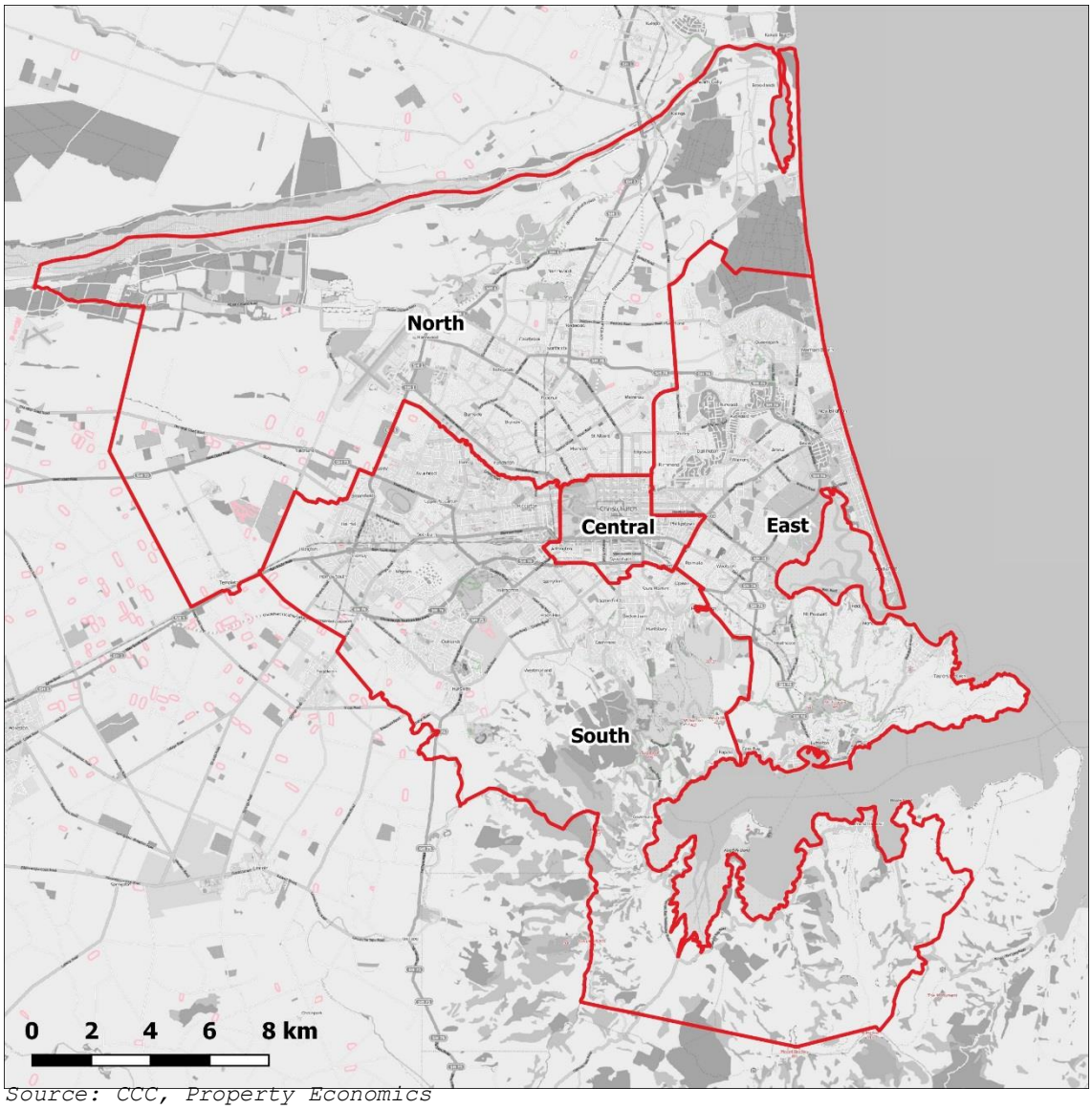
The base employment data and employment forecast data utilised in this assessment have been derived from the UDS EFM[2] generated for the Greater Christchurch Partnership group. Property Economics has not tested the veracity or underlying assumptions of the EFM employment projections, simply utilised them for the purpose of demand modelling to be consistent with the source

[1] *National Policy Statement on Urban Development Capacity*
[2] *EconomicFutures Model*

employment projection data utilised by the other Greater Christchurch Partners.

Property Economics, in conjunction with CCC, has also consolidated the 10 EFM areas in Christchurch, in the EFM, into four quadrant areas to better reflect the operations and wider catchments of business areas. EFM area 11 (in the Christchurch EFM which includes Little River and Akaroa areas) has been omitted from this assessment as it falls outside the UDS area.

FIGURE 1: CHRISTCHURCH UDS AREA QUADRANTS



Source: CCC, Property Economics

Also, current business zoned land in the city that is designated for other purposes has been removed from the vacant business land capacity analysis. This includes:

Land in the eastern frame block of the Central City where Fletcher Residential is to develop a mix of housing types;

Land in the Central City Mixed use Zones that is designated for the Metro Sports and Stadium anchor projects

The primary purpose of this report is to provide a sound economic foundation for CCC to assist their decision making relating to policy development for the provision of business land within the city's UDS area by assessing the current industrial and commercial markets and determining the net additional business land requirements to meet future market needs, to satisfy Council's NPS-UDC obligations.

1.1. KEY RESEARCH OBJECTIVES

The core objectives of this report are to:

- Profile the existing employment composition of Christchurch City by sector and highlight trends over the last 15 years to show shifts (positive and negative) in Christchurch City's employment base. This is to assist in understanding the Christchurch employment and business environment and contextualise the EFM employment projections.
- Determine the current market size of the City's UDS area in terms of population and households and forecast market growth based on the projections provided by CCC.
- Determine the level of retail expenditure by sector generated in the city as a whole, and delineated quadrant markets, over the next 30 years.
- Determine the subsequent level of sustainable retail and commercial service floorspace and land requirement that can be supported by the identified markets.
- Determine the quantum and location of the existing industrial and commercial zoned land in the identified markets geo-spatially.
- Breakdown and analyse the existing industrial and commercial employment and business composition by activity type in the assessed areas.

- Assess industrial and commercial employment trends by sector on a temporal basis over the 2000-2016 period.
- Identify the geospatial distribution and quantum of industrial and commercial zoned land in the assessment areas at present.
- Quantify the level of current vacant industrial and commercially zoned land provision geospatially.
- Determine whether any new / additional industrial and / or commercial land is required long-term to service the Christchurch UDS market factoring in current zoned land provision and appropriate NPS UDC buffers.

1.2. INFORMATION SOURCES

Information and data has been obtained from a variety of sources and publications available to Property Economics, including:

- Business Demographic Data – Statistics NZ, CCC
- Census of Population and Dwellings 2013 – Statistics NZ, CCC
- District Plan Business Zone Data and GIS Datasets – CCC
- Current Vacant Industrial and Commercial Zoned Land – CCC
- Household Economic Survey - Statistics NZ
- Retail Trade Survey - Statistics NZ
- Building Consent Data – Statistics NZ
- NZ Shopping Centre Directory 2016 Edition – Property Council NZ
- NZ Roading Network GIS Dataset – NZTA
- EFM Employment Projections – Market Economics
- Christchurch Centre Retail Audit – Property Economics
- Business Zone Land Parcel Data – CCC
- Christchurch Retail Transaction Data, June 2016 – July 2017 - MarketView

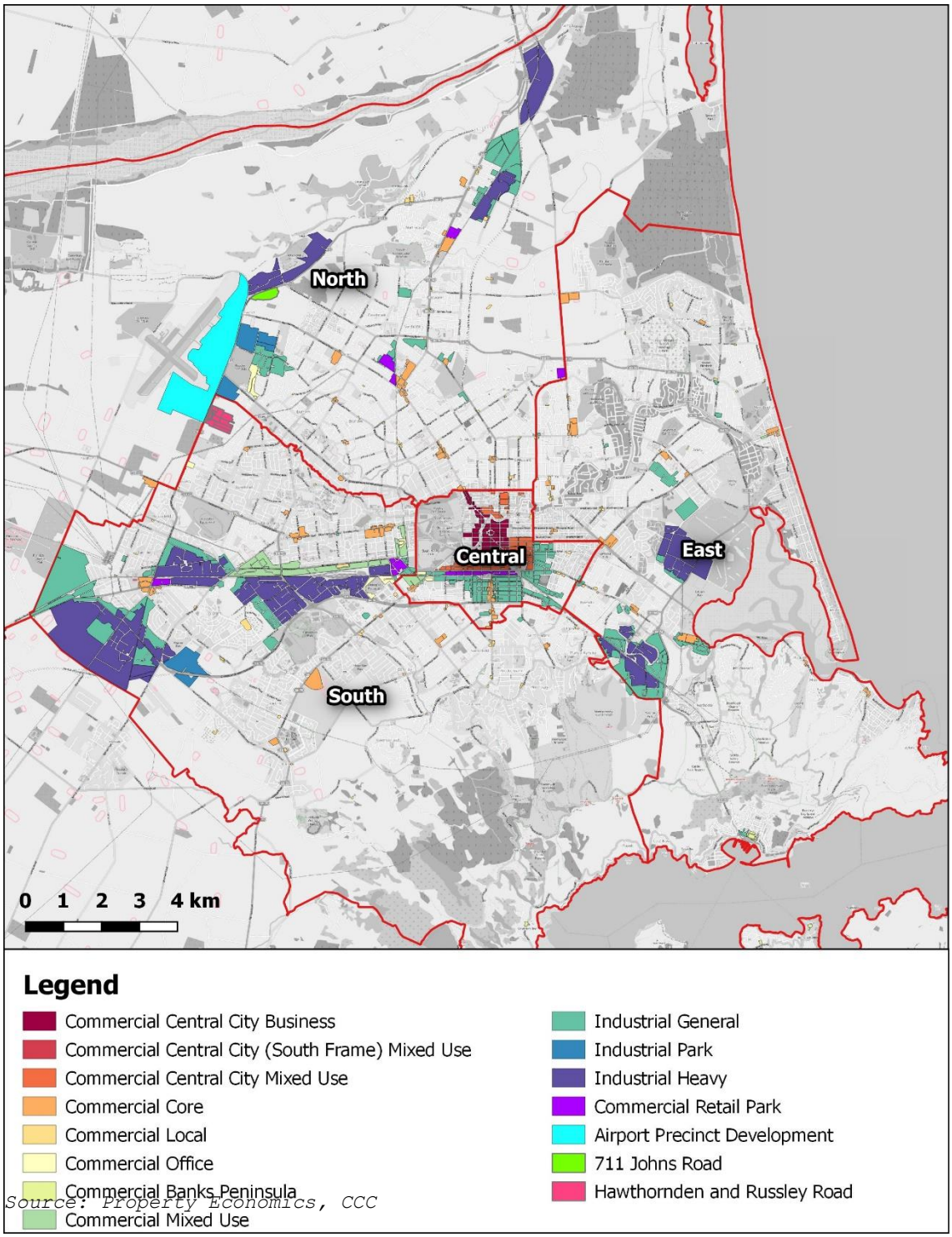
2. CHRISTCHURCH BUSINESS ZONES BY QUADRANT

As mentioned earlier, this assessment analyses the Christchurch business market by quadrant, and this section identifies the distribution of business zones within each quadrant. Figure 2 has been generated to better illustrate where business activity is occurring, where growth is occurring to enable planning documents to recognise and address the implications of such, and determine how and where best to appropriately accommodate future growth.

Any marginal reshaping of the quadrant boundaries is unlikely to materially change the population and household base, and therefore the catchment and market size. However, it may distort the practical picture of growth for strategic planning purposes and this is why the quadrant boundaries are derived from geographic parameters and not the distribution of the UDS area's population.

It is also important to note that the quadrant areas do not represent centre catchments and that residents within each quadrant will travel to commercial centres outside of their respective quadrant due to the layering of catchments. In this regard, the areas illustrated in Figure 7 are split purely for analytical purposes and for retail will be assessed on the basis that higher order centres will draw from a wider area than just their quadrant.

FIGURE 2: CHRISTCHURCH UDS AREA QUANDRANT AND BUSINESS ZONES [3]



Source: Property Economics, CCC

[3] *711 Johns Road and Hawthornden are Potential Future industrial zones and not yet zoned, only identified as potential industrial zones in the RPS. Also the CCCMU and CMU zones permit industrial activities.*

3. EXISTING CHRISTCHURCH BUSINESS ENVIRONMENT

This section of the report assesses Christchurch City's commercial and industrial markets, and evaluates the trends, size, distribution and composition of the different industrial and commercial ANZSIC[4] sectors that comprise the City's industrial and commercial economy.

3.1. EMPLOYMENT COMPOSITION AND TRENDS

Analysing the temporal employment trends within Christchurch's different market sectors over the last 16-years is valuable as it shows trends over the whole property and economic cycle with three distinct periods - an economic '*boom*' period, a market correction and period of economic recovery. Most economies of a similar size have experienced greater growth levels (post-GFC) than this while Christchurch has suffered lower overall rates due to the earthquakes experienced. In essence Christchurch has experienced lower than 'normal' market conditions since the earthquakes as its economy has been restructuring and recovering.

Property Economics utilise the most up-to-date version of Statistics New Zealand's Business Frame Data, Employment Counts with businesses assigned an industry sector according to their ANZSIC 2006 classification. For the purposes of this report classifications have been grouped into Industrial, Commercial Office[5], Other and Retail sectors that reflect the typical composition of employment on business zones. 'Other' employees refer to those working in businesses or organisations that would not typically be located on business zoned land. These include hospitals, schools, fire stations, community facilities, parks and recreation, etc.

The proportions utilised for the composition of employment within these industry sectors has been attached in Appendix 1.

It is important to note that the data shown in this section has been sourced from the Statistics NZ Business Frame database which uses the annual reference month of February. Given that immediately following the 22 February 2011 Canterbury Earthquake (the most damaging), employment movement would have yet to settle, and therefore the 2011 figures do not fully reflect the effects of the earthquake. The year 2012, where significant movements in employment are

[4] Australia New Zealand Standard Industrial Classification

[5] Commercial office has been separated out so as to not confuse with the District Plan definition of Commercial which includes retail, commercial service and offices.

likely to be more settled, is considered to provide a better indication of post-earthquake employment redistribution.

Table 1 displays Christchurch City's temporal employment trends over the 2000-2016 period by ANZSIC sector. Additionally, Appendix 2 breaks down Christchurch City's temporal employment trends by the four delineated areas and groups the sectors into four categories; industrial, retail, commercial office and other.

TABLE 1: CHRISTCHURCH UDS AREA TEMPORAL EMPLOYMENT TRENDS (2000-2016)

	2000	2002	2004	2006	2008	2010	2012	2014	2016	Net # Growth	Net % Growth
A Agriculture, Forestry and Fishing	1,498	1,383	1,349	1,347	1,348	1,433	1,408	1,468	1,719	221	15%
B Mining	166	195	98	143	191	190	252	253	282	116	70%
C Manufacturing	28,466	28,618	29,630	28,997	28,399	24,752	24,240	23,334	22,870	- 5,596	-20%
D Electricity, Gas, Water and Waste Services	628	677	647	761	1,019	1,056	1,249	1,244	1,014	386	61%
E Construction	7,272	7,700	9,632	11,628	12,571	10,645	14,741	21,710	22,921	15,649	215%
F Wholesale Trade	9,526	10,252	10,875	10,981	11,579	11,129	10,893	11,047	11,889	2,363	25%
G Retail Trade	17,437	17,979	19,735	20,888	21,235	19,903	19,046	20,206	21,332	3,895	22%
H Accommodation and Food Services	11,457	12,114	13,557	13,591	14,208	13,194	10,718	11,729	13,380	1,923	17%
I Transport, Postal and Warehousing	10,978	9,544	9,707	10,441	10,594	9,071	9,007	9,810	9,802	- 1,176	-11%
J Information Media and Telecommunications	3,835	3,836	4,185	4,440	4,559	3,867	2,862	2,640	2,973	- 862	-22%
K Financial and Insurance Services	3,068	3,196	3,777	4,402	5,256	4,570	4,595	4,368	4,679	1,611	53%
L Rental, Hiring and Real Estate Services	2,551	2,557	2,925	3,576	3,429	3,098	2,875	3,125	3,341	790	31%
M Professional, Scientific and Technical Services	7,973	9,054	10,201	13,017	13,395	13,252	14,603	16,998	18,446	10,473	131%
N Administrative and Support Services	8,299	8,784	10,290	10,462	11,245	9,307	10,245	11,217	12,700	4,401	53%
O Public Administration and Safety	5,501	6,159	6,565	6,782	7,560	7,608	7,702	8,446	8,232	2,731	50%
P Education and Training	12,462	13,282	14,541	14,382	14,379	15,942	15,018	15,172	15,210	2,748	22%
Q Health Care and Social Assistance	18,773	20,337	21,552	21,839	22,967	24,573	23,958	24,749	24,118	5,345	28%
R Arts and Recreation Services	2,984	3,099	3,424	3,696	3,716	4,088	3,293	3,242	3,695	711	24%
S Other Services	5,410	5,722	6,647	6,914	7,109	7,077	6,544	6,838	7,199	1,789	33%
Total Industries	158,284	164,488	179,337	188,287	194,759	184,755	183,249	197,596	205,802	**47,518**	**30%**

Source: Statistics NZ, Property Economics

Over the last one and half decades the UDS area of Christchurch has experienced a net growth of around 47,500 employees. The immediate aftermath of the February 2011 earthquake saw the Christchurch UDS area decline in employment numbers by around 11,500 employees (6%). This was followed by a sharp increase over the 2014-2016 years as a result of the rebuild programme.

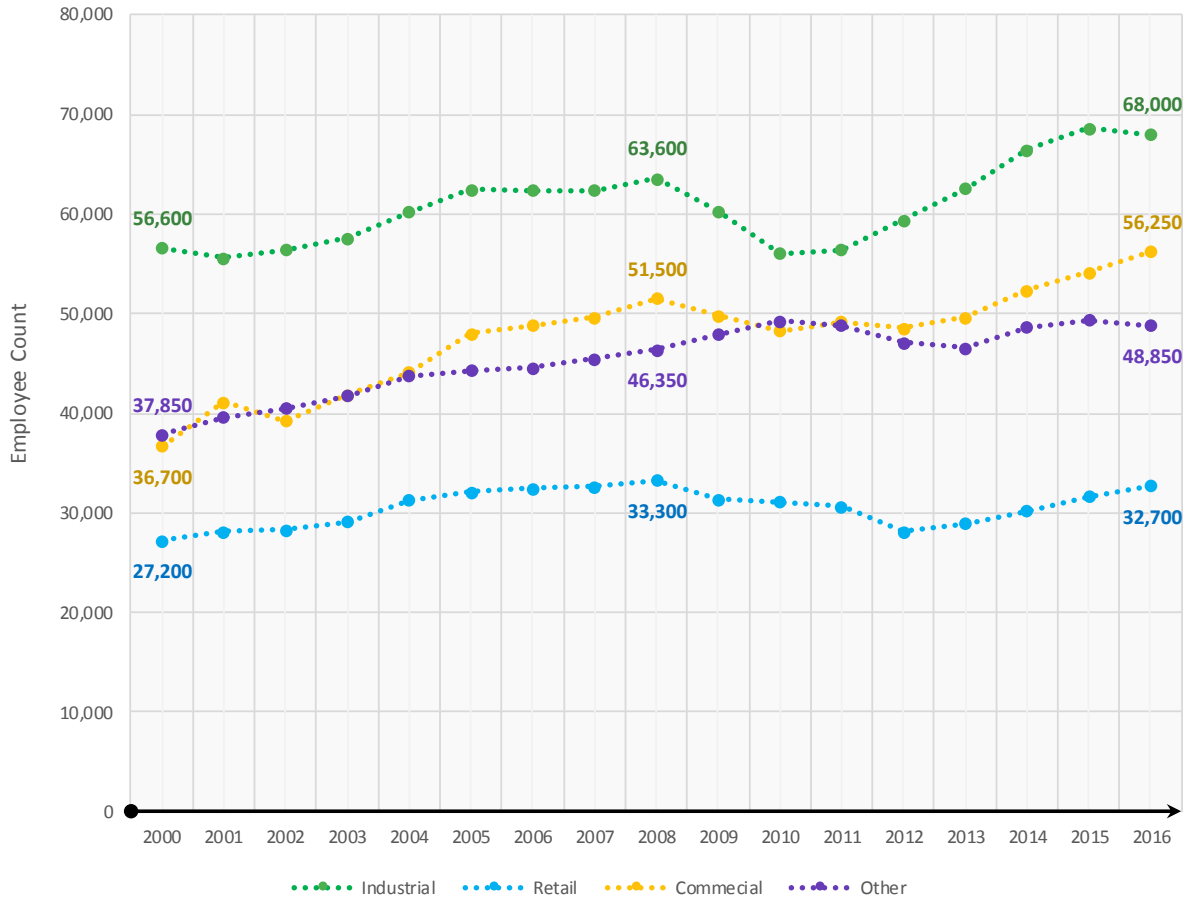
The performance of the commercial office sector specifically is proportionally higher over the same period with 53% net growth, from a commercial office employment base of around 36,700 in 2000 to around 56,300 by 2016, equivalent

to an additional 19,600 commercial office employees. The commercial office sector employment accounts for 41% of the UDS area's total employment growth over the 2000 – 2016 period, and now comprises a slightly larger proportion of the UDS area's employment base (27% vs 23% in 2000).

In respect of the quadrant areas, the commercial office sector has been a strong driver of growth in employment for the North (113% growth) and South (189% growth) areas specifically, while in the East (80% growth) improvement is more subdued. Only in the Central area was there a decrease, albeit small, over concerned period, however, this is primarily attributed to the Canterbury Earthquakes, which the Central City has started to recover from at a healthy rate recently.

Figure 3 graphically illustrates the trends over the 16-year period for the Christchurch UDS area by activity type.

FIGURE 3: CHRISTCHURCH UDS AREA EMPLOYMENT TRENDS BY ACTIVITY TYPE



Source: Property Economics, Statistics NZ

Figure 3 clearly highlights the boom / bust (market correction) and recovery phase of the economic cycle with all activity types having similar trend lines, with the exception of 'Other' activity types. These activities are less susceptible to market boom / bust cycles with school teachers, government employees, hospital staff, community facilities, etc, all requiring a more

consistent employment base irrespective of cyclical patterns in the wider economy.

Whilst proportional growth has not been as high in the industrial activity sectors comparatively over the assessed period, industrial activity remains the highest employment activity type in the UDS area. Commercial sector activities have grown the most proportionally and represents a shift in the UDS area economy, from a more productive base to a higher service industry economic base.

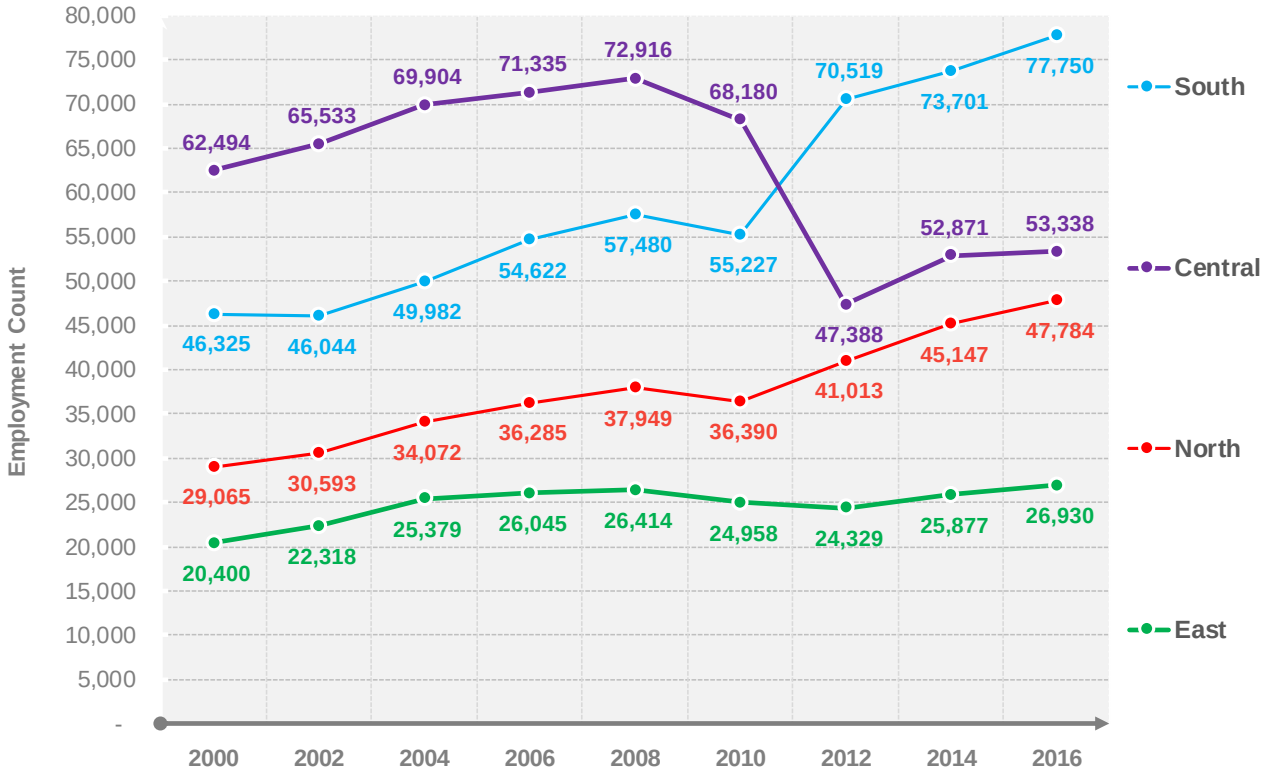
Assessing the Christchurch UDS area industrial employment shows a long-term trend of industrial activity moving away from the Central quadrant with this trend accelerating post-GFC (2008). This overall trend is not unexpected and is typical for growing cities as commercial nodes reach a critical mass where higher order land uses and increased rents force industrial activity out of the area, favouring high productivity per sqm activities such as commercial office and retail business to take their place. This reflects a natural evolution and maturing of a city.

Figure 4 illustrates the overall change in the total employment base for the four delineated quadrants within the Christchurch UDS area. Following the 2011 Canterbury Earthquakes and the disruption to and loss of business operations (and access to the City Centre), there has been a significant redistribution of employment across Christchurch City.

The year immediately following the most significant earthquake (2012), shows the extent of the effects on employment redistribution, within the Central quadrant employment fell by 18,450, marking a loss of around 27% of the Central quadrant's employment base compared to pre-earthquake 2010 figures. While total employment across the city temporarily decreased by 1,800 employees (bouncing back in 2013), Christchurch also experienced a redistribution of employees as businesses relocated to areas outside of the areas affected by the earthquakes, particularly the Central quadrant.

The South and North delineated quadrants absorbed the majority of this redistribution with the proportion of total employment within the Christchurch UDS area in the Central quadrant falling from 37% in 2010 to just 26% in 2012. Conversely, the South and North quadrants increased from 20% to 22% and 30% to 39% respectively over this period, increasing their commercial significance within the city.

FIGURE 4: CHRISTCHURCH UDS AREA EMPLOYMENT TRENDS BY QUADRANT



Source: Statistics NZ, Property Economics

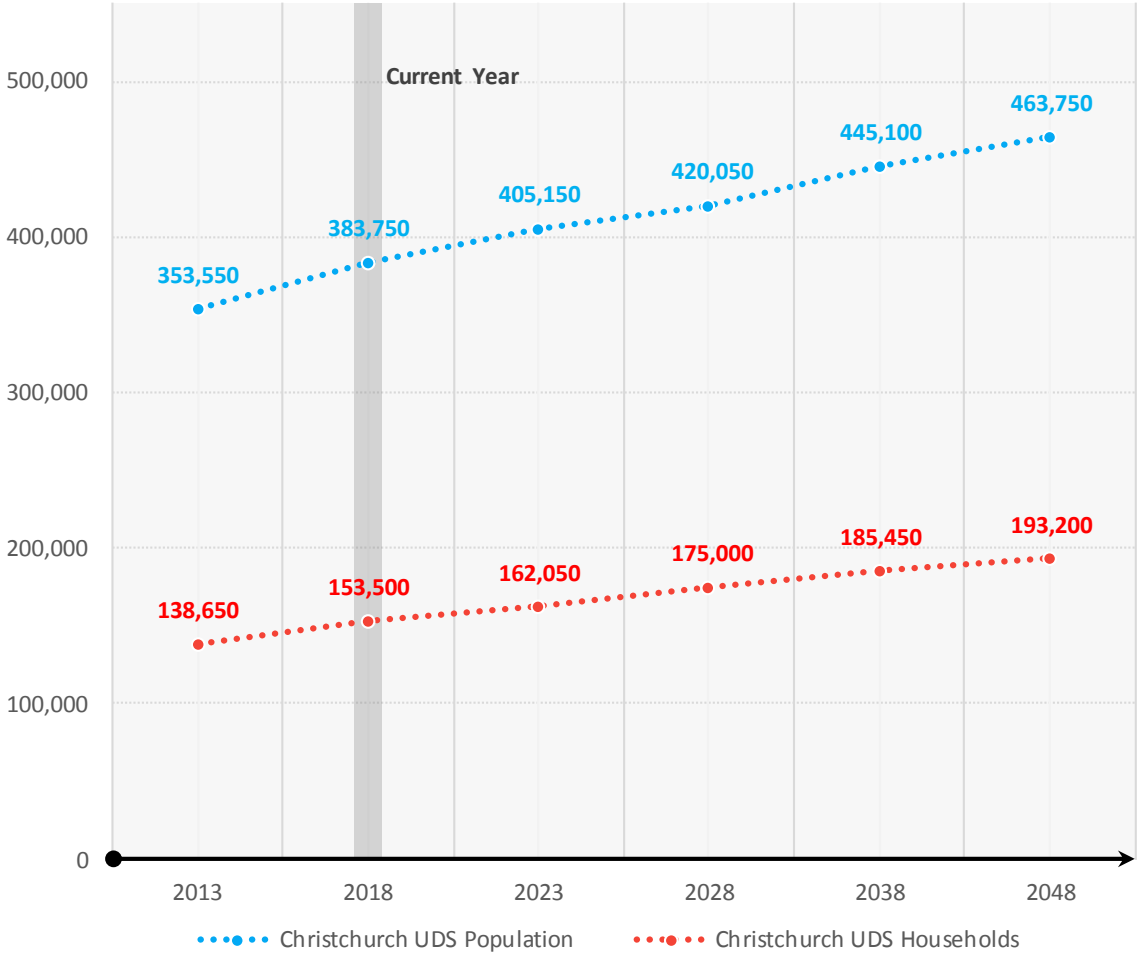
Overall, the Christchurch UDS area has experienced a net increase of around 47,500 employees, equivalent to a net percentage increase of 30% above the Christchurch UDS area's 2000 employment base (i.e. 159,000 to 206,800). This has translated to an increase in the ratio of employment to population as Christchurch UDS area from 49% in 2001 to 53% in 2013 and 56% in 2016.

This indicated that over the concerned period, the Christchurch UDS area has not only increased the number of people employed within the City, but has also seen increases in the level of employment relative to the population base. This has led to both a strong recovery from the Canterbury Earthquakes as well as an increase in the overall significance of the Christchurch economy.

4. POPULATION AND EMPLOYMENT GROWTH

Using the UDS growth projections, the Statistics NZ population and household growth projections[6] for the Christchurch UDS area under the medium growth scenario endorsed by the Greater Christchurch Partners are presented in Figure 5 which graphically illustrates the population projections to provide a more visual understanding of the growth profile projected for the Christchurch UDS area.

FIGURE 5: CHRISTCHURCH UDS AREA MEDIUM POPULATION PROJECTIONS



Source: Statistics NZ, Property Economics

The Christchurch UDS area current population base is estimated to sit at around 383,750 people, comprising around 153,500 households. Over the forecast period (to 2048), the total usually resident population for the Christchurch UDS area is expected to increase by around 80,000 residents (21%), resulting in an estimated increase of 39.700 households (26% growth).

Households are expected to increase at a faster rate than population mainly due to a projected fall in the person per dwelling ratio over the forecast period. This trend is not isolated to the Christchurch UDS area but a movement projected to occur across the whole country due to an aging population, smaller family structures and a higher proportion of 'split' or single parent households.

To provide deeper insight into the changing demographics of the Christchurch UDS area, Table 2 breaks down the Christchurch UDS area population projections into the corresponding age brackets, assessing the relative change in youth (0-14 years), the working aged population (15-64 years) and the older population (65+ years).

TABLE 2: SHARE OF TOTAL CHRISTCHURCH UDS AREA POPULATION BY AGE BRACKET

		2013	2018	2023	2028	2038	2048	Net # Growth (2018-2048)	Net % Growth (2018-2048)
Population	0 - 14 years	63,400	66,100	68,400	68,700	69,350	67,600	1,500	2%
	15 - 64 years	238,400	257,800	266,900	269,600	275,250	281,950	24,150	9%
	65 + years	51,750	59,850	69,850	81,750	100,500	114,200	54,350	91%
	Total Age	353,550	383,750	405,150	420,050	445,100	463,750	80,000	21%
Share of total population	0 - 14 years	18%	17%	17%	16%	16%	15%	-3%	-
	15 - 64 years	67%	67%	66%	64%	62%	61%	-6%	-
	65 + years	15%	16%	17%	19%	23%	25%	9%	-
	Total Age	100%	100%	100%	100%	100%	100%	-	-

Source: Statistics NZ, Property Economics

A potential challenge that NZ (and the rest of the world) will face in the future is the growing proportion of the population aged 65+ year as the 'Baby Boomers' begin reaching retirement age. As shown in Table 2, this situation is no different for the Christchurch UDS area, inducing 'Population Ageing' with the 65+ year age bracket expected to grow at rates significantly higher than the working aged population.

More than two thirds (68%) of the increase in the Christchurch UDS area's population base stems from the 65+ age bracket, and only 2% from youth up to 14 years of age.

The second portion of Table 2 illustrates the change in the total share of the population as per these age brackets. Most notably, the population share of the working aged population is expected to drop by 6% over the next 30 years, from 67% to 61%. Whereas the share of the over 65-year-old age bracket is expected to grow from 16% to 25% by 2048 (+9%).

While there has been (and will be) shifts in the proportions of residents and households within the four delineated quadrants which make up the Christchurch UDS area, the city overall is projected to sustain significant growth over the forecast period.

However, it is important to note that much of the growth is highly correlated with the current and planned developments both associated with development efforts to rebuild the city. If some of these developments are completed ahead of schedule, it is possible that the Christchurch UDS area could see greater growth rates than those currently projected. However, at this point it appears likely that some of the major anchor projects will be completed behind schedule, meaning the effect of the rebuild on population will be spread over a longer period.

5. EMPLOYMENT FORECASTS

The projections in this section have been provided by Market Economics Limited (**MEL**), derived from their EFM modelling, and CCC under the Greater Christchurch Partnership and have been extrapolated for the appropriate years by Property Economics.

To provide some context, over the past 16 years (as illustrated earlier), total employment for the Christchurch UDS area grew at a rate of 30%, which is considered to be a period of relatively balanced growth given the effects of the Canterbury Earthquakes.

Table 3 displays the employment projections for the period of 2018-2048 by first level ANZSIC sector. Figure 6 graphically illustrates the projected growth of the Christchurch UDS area's employment base, with a focus on the four grouped sectors; industrial, retail, commercial office and other. Appendix 3 contains a breakdown of Christchurch's employment projections by the four employment sector groupings and the four delineated quadrants.

Christchurch's UDS area total employment base is forecast to grow at a marginally lesser rate of 29% over the 2018 – 2048 period than it has in the past.

Much of the projected growth for the Christchurch UDS area is slowed down by a decrease in the industrial sector, decreasing by 12% (7,940 employees) over the next 30 years. However, a large proportion of this decrease can be attributed by the completion of earthquake-related rebuild projects as industrial sector employment decreases from just over 66,700 in the current period to a low of just under 52,800 in 2028. The subsequent 20 years sees industrial employment steadily grow to around 58,800 in 2048.

Additionally, the commercial sector, while in the past 16 years has increased by 53%, is projected to increase at a more moderate 35% to just over 78,350 employees by 2048. The retail and other sectors are expected to experience the most significant growth within the Christchurch UDS area, with retail expected to grow by 53% to just under 52,000 employees and the 'Other' sector having the highest growth of all the sectors growing by 58% to slightly below 81,000 employees.

This indicates a shift in Christchurch's employment profile as, between 2018 and 2048, the industrial sector is expected to become less prominent, dropping from 32% of total employment to 22%. The 'Other' sector is expected to replace the industrial sector as the most significant employment sector within Christchurch, growing by 6% to 30% of total employment. The retail sector is expected to grow to 19% of total employment in 2048 (up from 16% in 2018), however, remaining as the smallest employment sector.

As mentioned in the Population Growth section of this report, the ageing population demographic is expected to pose some challenges with regards to the relative demand and supply of certain goods and services such as health care and social assistance.

TABLE 3: CHRISTCHURCH UDS AREA EMPLOYMENT PROJECTIONS BY ANZSIC SECTOR

	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
A Agriculture, Forestry and Fishing	1,730	1,720	1,700	1,670	1,730	1,820	90	5%
B Mining	260	260	240	210	210	210	-50	-19%
C Manufacturing	22,380	21,980	20,870	19,300	20,010	21,060	-1320	-6%
D Electricity, Gas, Water and Waste Services	1,020	1,020	1,010	1,000	1,050	1,120	100	10%
E Construction	21,890	20,270	16,820	11,620	11,720	12,020	- 9,870	-45%
F Wholesale Trade	11,990	12,100	11,790	11,470	12,320	13,360	1,370	11%
G Retail Trade	22,070	23,150	23,750	25,330	28,470	32,030	9,960	45%
H Accommodation and Food Services	13,960	14,820	16,730	19,870	21,450	23,370	9,410	67%
I Transport, Postal and Warehousing	9,920	10,070	9,960	9,950	10,770	11,770	1,850	19%
J Information Media and Telecommunications	3,080	3,250	3,360	3,610	4,010	4,430	1350	44%
K Financial and Insurance Services	4,770	4,930	4,960	5,110	5,670	6,320	1,550	32%
L Rental, Hiring and Real Estate Services	3,460	3,600	3,660	3,830	4,230	4,670	1,210	35%
M Professional, Scientific and Technical Services	18,930	19,450	19,390	19,610	20,950	22,480	3550	19%
N Administrative and Support Services	12,750	13,090	13,040	13,170	14,070	15,090	2,340	18%
O Public Administration and Safety	8,760	9,610	10,460	12,150	13,420	14,610	5,850	67%
P Education and Training	15,690	16,460	17,020	18,330	20,390	22,690	7,000	45%
Q Health Care and Social Assistance	25,930	28,700	31,150	36,240	41,650	47,020	21,090	81%
R Arts and Recreation Services	3,880	4,190	4,440	4,980	5,630	6,310	2,430	63%
S Other Services	7,280	7,530	7,600	7,890	8,680	9,590	2,310	32%
Total Industries	209,750	216,200	217,950	225,340	246,430	269,970	**60,220**	**29%**

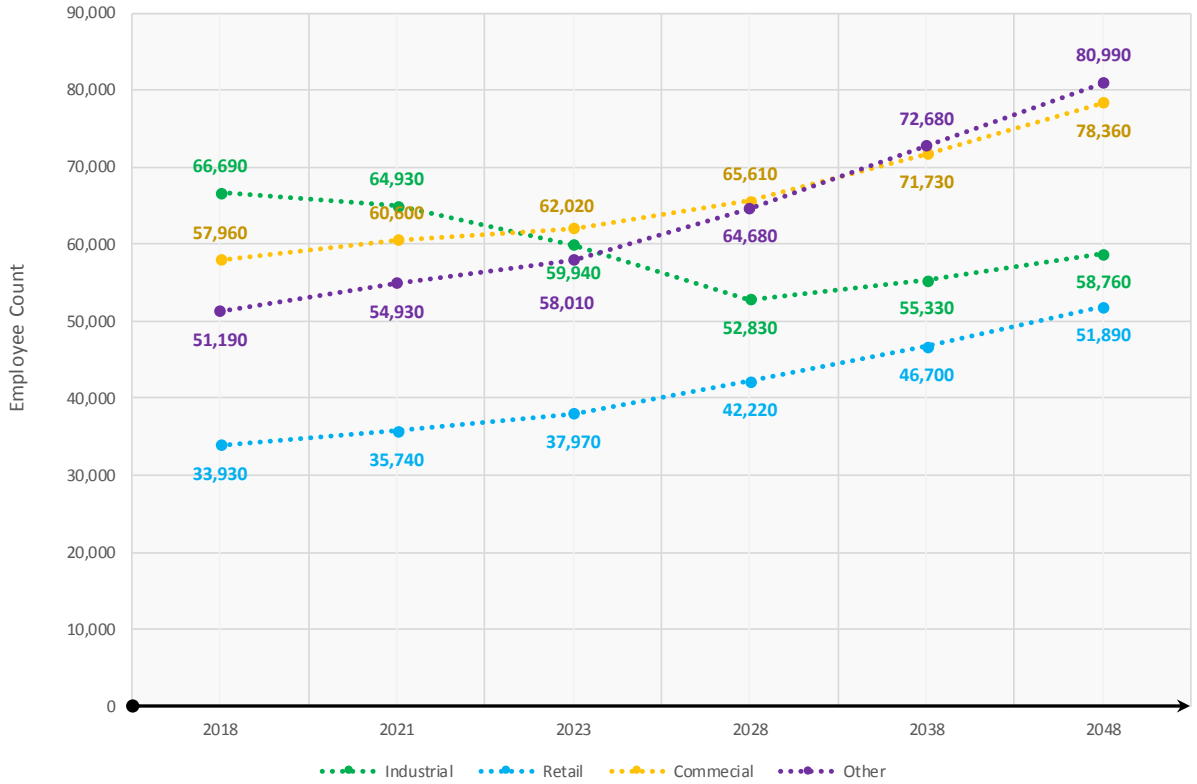
Source: MEL, Property Economics

However, even though the 'working aged' population's share of the total population is decreasing over the 2018-2048 period, the employment forecasts provided to Property Economics indicate that the employment to population ratio for the Christchurch UDS area is expected to decrease from 54% in 2018 to 53% in 2023/2028, and increase to 57% in 2048.

A potential reason for this is that population and employment do not perfectly correlate with one-another and there will ultimately be people moving to areas close to, but outside of, Christchurch and working within the Christchurch UDS area and vice versa.

The relatively stable employment to population ratio of between 54% - 57%, coupled with the decreasing working aged population's share of the total population suggests that Christchurch is forecast to draw in greater employment from other nearby districts such as Waimakariri and Selwyn.

FIGURE 6: CHRISTCHURCH UDS AREA EMPLOYMENT PROJECTIONS BY GROUPED SECTOR



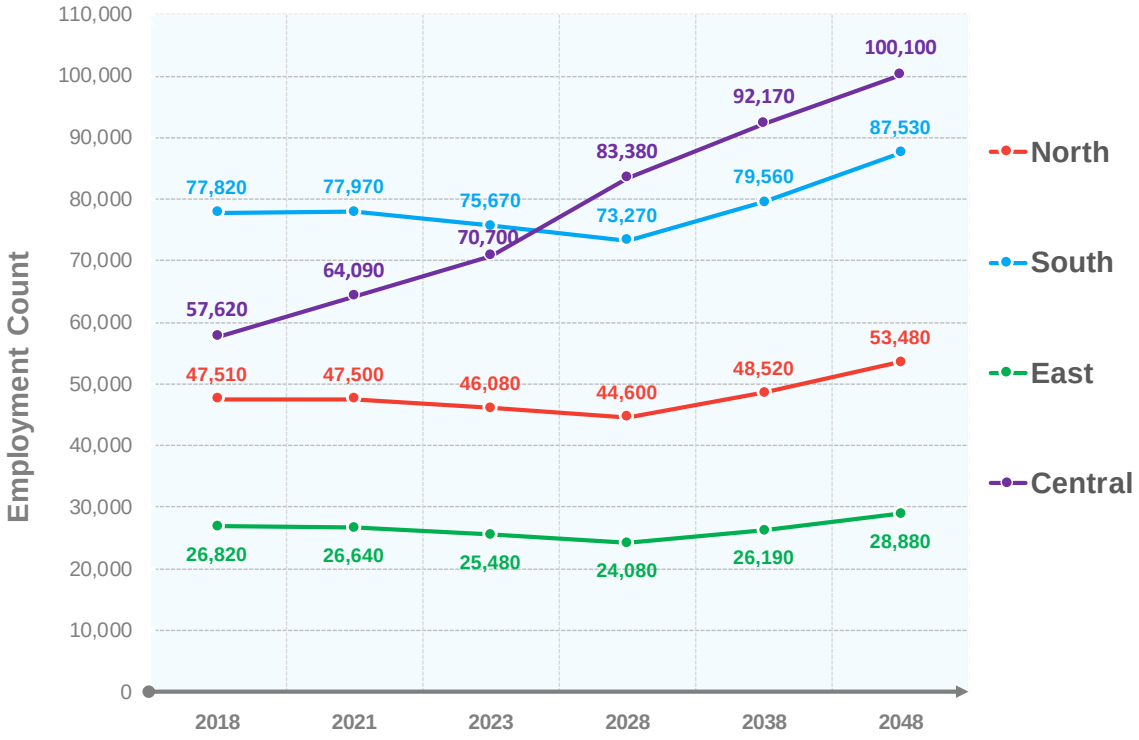
Source: MEL, Property Economics

In terms of the four delineated quadrants making up the Christchurch UDS area, the North, East and South areas are forecast to grow at much more moderate rates between 2018 and 2048 compared to the previous 16-year period. On the other hand, while the Central area's employment base had decreased by 15% over the 2000-2016 period, employment is forecast to increase by 74% over the 2018-2048 period.

All of this suggests that, as the redevelopment and rebuild of Christchurch is completed, much of the growth that had been pushed into the North and South areas will start to come back into the Central quadrant. Interpreting the forecast figures, the Central quadrant can be expected to become a hub for retail, commercial and other sector employment within the next 30 years.

Figure 7 illustrates the projected employment trends for each quadrant out to 2048.

FIGURE 7: CHRISTCHURCH UDS AREA EMPLOYMENT PROJECTIONS BY QUADRANT



Source: MEL, Property Economics

Table 4 quantifies the changing employment to population ratios (or employment retention rates) for the Greater Christchurch Partnership territorial authorities based on the UDS area employment and population projections. The trend analysis shows while Christchurch is forecast to experience increasing employment retention by 2048 (55% to 58%), both Waimakariri and Selwyn Districts are projected to experience declining retention rates with Waimakariri falling by 6% from 28% to 22%, and Selwyn falling from 25% to 19%.

This indicates the EFM projects the Christchurch UDS area will be drawing significantly higher levels of employment proportionally from Waimakariri and Selwyn by 2048 than currently, and that employment retention rates within these two neighbouring territorial authorities will deteriorate over time.

TABLE 4: UDS AREA EMPLOYMENT TO POPULATION RATIO FORECASTS

	2018	2023	2028	2033	2038	2043	2048
Population - Selwyn UDS	49,500	59,900	67,900	75,700	83,600	91,300	98,400
Population - Waimakiriri UDS	48,800	54,800	59,900	64,800	69,400	73,700	77,800
Population - Christchurch UDS	383,800	405,200	420,000	433,600	445,100	455,000	463,700
Employment - Selwyn UDS	12,330	14,310	14,530	15,500	16,430	17,380	18,330
Employment - Waimakiriri UDS	13,500	15,350	14,450	15,130	15,750	16,370	16,990
Employment - Christchurch UDS	209,760	217,940	225,340	236,640	246,430	257,020	269,970
EC to Pop' Ratio - Selwyn UDS	25%	24%	21%	20%	20%	19%	19%
EC to Pop' Ratio - Waimakiriri UDS	28%	28%	24%	23%	23%	22%	22%
EC to Pop' Ratio - Christchurch UDS	55%	54%	54%	55%	55%	56%	58%

Source: MEL, Property Economics

6. BUSINESS LAND ESTIMATES

This section translates the employment forecasts (by category based on 2nd level ANZSIC categories) into land requirements based on dynamic employment to land ratios in line with the NPS UDC guidelines.

6.1. DEMAND ASSUMPTIONS

The following assumptions have been identified, regarding the MEL Employment Count (EC) projections, to arrive at the total commercial office, commercial service, industrial and retail land demand requirements to 2048 for the Christchurch UDS catchment by quadrant.

- Estimation of average business size and distribution through trended analysis, through the historic trends in the number of employees by sector and business based on Statistic NZ data 2000 to 2016.
- A degree (sensitivity tested) of flexibility exists in the business markets between the sectors decreasing in employment and those increasing in employment within the broader categories
- Structural changes underlying the employment projections will not fundamentally change the dynamic nature and trends associated with future employment to land ratios

The process undertaken by Property Economics, in assessing the potential spatial requirements for business activity, relies inherently on these EC projections.

The key component in translating these figures are the employment to floorspace/land ratios. Property Economics have developed these ratios based on national trends, both in terms of the current average ratio by employment sector and the dynamic trends that have occurred in terms of changes to these ratios through time. These ratios have been assessed against the Christchurch activities specifically to arrive at an average floorspace and land requirement by sector.

In 2015, CCC undertook an empirical assessment of average floorspace by employee by (then City Plan) business zones throughout Christchurch. While this assessment is useful in cross-checking the Property Economics land and floorspace figures, there are several issues that limit its effectiveness.

- There are no floorspace to land ratios available for these figures.
- The Property Economics ratios, based on current and past EC geospatial distribution, encapsulate the proportion of total homebased and 'out of zone' trends within the overall ratios, isolating the total amount of zoned land required to meet the projected level of activity.
- The ratios in the 2015 report do not include changes in floorspace ratios over time. Several of the industries have, and are expected to, seen significant shifts in floorspace to employee ratios. Several industrial sectors have seen growth in capital formation leading to more floorspace per employee, while commercial sectors have typically tending towards greater floorspace efficiencies.
- While the ratios provided in the 2015 report are based on zones the employment forecasts provided by MEL are based on ANZSIC categories. Typically, these are better indicators of floorspace and land requirements (at a 2nd level threshold) than the whole industry by zone (although the location and provisions in zones do often influence this by dictating permitted activities).

Industrial Activity

Demand for industrial land originates from a number of changes in the Christchurch economy. These include:

- Changes in economic composition
- Growth in industrial sectors
- Decline in industrial sectors
- Changes in land requirements by product and employee
- Changes in industry practice
- Price of industrial land (Quantity demanded)
- Competing uses.

In terms of the last issues this report assumes that the historical trends seen in competing uses are likely to tend towards pre-earthquake levels (allowing for the temporary transition of commercial office activities from industrial locations back into commercial centres).

A key aspect of the influence of declining and growing industrial sectors is their ability of the latter to utilise either underutilised or vacant premises. This is when an industrial sector declines in activity the ability for growing sectors to utilise potentially vacant premises. This flexibility

'factor' plays a significant role in the level of additional industrial land required.

Over time it is expected that this flexibility becomes 'perfect' with either new industrial activity utilising the space or viable commercial/other activities occupying and redeveloping the space (e.g. reuse of brownfield land). However, this flexibility only tends to perfect over the long term (new business having to potentially demolish or redevelop old premises. With a large supply of industrially zoned vacant greenfield or brownfield options, this is less likely to occur in the short run).

Due to the significance of this issue two scenarios illustrating different flexibility rates have been calculated for the overall industrial land demand.

A further consideration in the industrial land requirements is the NPS UDC PC1 requirements allowing for a 'buffer' between demand and supply so that the market has choice and can operate efficiently. PC2 of the NPS identifies that there may be reasons to increase this buffer, including monitoring the rate of take-up of development capacity. Property Economics do not believe that the business market in Christchurch represents has any unique features that would warrant consideration of a buffer greater than the 20% short to medium term and 15% long term outlined in the NPS.

Additionally, consideration of a position that does not require the complete flexibility of declining sector space considers a low opportunity for redevelopment and repurposing.

Historical uptake rates are illustrated through building consents for both industrial and commercial office floorspace. While this is somewhat difficult to isolate due to the impact of the earthquakes and the movement of activities from the Central City and surrounds to the South West, it still is an important consideration in understanding the development quantum and rate through the City.

Tables 5 and 6 outline the industrial and commercial building consent trends to 2016 for the City (UDS) and the quadrants. This shows the large increase in the central quadrant in recent years due to the rebuild, as well as a significant shift to the south for industrial activity. This is a trend which has been evident over the whole 2000-2016 period, but which has recently accelerated with the rezoning of a large amount of industrial land in this area.

TABLE 5: COMMERCIAL OFFICE BUILDING CONSENTS 2000 – 2016 (SQM)

Year	Central	East	North	South	Total
2000	10,430	952	4,280	1,238	16,900
2001	0	281	1,255	3,490	5,026
2002	1,294	1,583	3,987	1,592	8,456
2003	0	1,914	1,103	5,645	8,662
2004	7,588	167	4,169	6,653	18,577
2005	4,223	5,441	7,157	9,427	26,248
2006	17,443	1,743	14,115	9,540	42,841
2007	27,306	3,015	6,942	10,832	48,095
2008	12,995	0	1,184	9,910	24,089
2009	38,490	604	4,545	2,555	46,194
2010	16,900	1,492	1,504	4,523	24,419
2011	1,177	1,699	11,173	12,842	26,891
2012	58,039	1,744	9,418	29,114	98,315
2013	65,509	3,112	17,056	7,920	93,597
2014	170,827	3,110	12,197	16,820	202,954
2015	101,533	1,567	8,209	16,903	128,212
2016	11,467	4,648	6,688	5,729	28,532

Source: Statistics NZ, Property Economics

TABLE 6: INDUSTRIAL BUILDING CONSENTS 2000 – 2016 (SQM)

Year	Central	East	North	South	Total
2000	16,569	6,992	9,739	64,775	98,075
2001	6,211	27,136	8,785	58,802	100,934
2002	9,416	36,764	25,218	54,041	125,439
2003	8,282	27,454	14,585	85,086	135,407
2004	9,855	38,560	14,488	76,996	139,899
2005	4,078	21,878	9,745	74,874	110,575
2006	4,734	20,527	31,063	66,173	122,497
2007	14,251	27,620	28,448	53,857	124,176
2008	5,206	23,277	16,365	37,722	82,570
2009	7,377	10,023	5,091	21,119	43,610
2010	3,808	9,378	4,294	8,554	26,034
2011	5,008	7,289	8,209	24,797	45,303
2012	18,462	11,458	14,444	75,073	119,437
2013	28,191	19,302	20,109	73,126	140,728
2014	12,046	14,455	17,111	108,424	152,036
2015	56,273	14,681	32,111	113,048	216,113
2016	69,972	25,741	2,980	85,670	184,363

Source: Statistics NZ, Property Economics

For the purposes of this report, Tables 7 and 8 outline the two ends of the spectrum (in terms of flexibility) for industrial land requirements. Table 7 shows the total land requirement necessary to accommodate all new growth as additional without transition into underutilised or space left vacant from decreasing industrial sectors. When combining the 10 EFM areas from the MEL's EFM projections industrial employment experiences a fall across all time periods. This decline is primarily influenced by the decrease in construction expected to occur from the current position onwards. With a drop of nearly 10,000 employees the construction sector will have a significant impact upon the industrial environment in the Christchurch UDS area over the next 30 years.

It is important to note, while considering the flexibility of this space, that much of the land area and to a degree floorspace utilised for this transitory activity is likely to be flexible.

TABLE 7: TOTAL INDUSTRIAL LAND REQUIREMENTS SCENARIO 1 (2018 - 2048

Quadrant	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements			NPS REQUIREMENT		
	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	72,416	143,388	465,009	21	41	133	28	55	179	34	66	206
South	28,325	24,330	-1,242	-6,321	-3,995	128,754	251,219	802,705	37	72	229	50	97	310	60	116	356
East	11,834	9,110	-782	-3,566	-2,724	51,480	94,238	297,575	15	27	85	20	36	115	24	44	132
Central	11,227	10,812	-7	-1,442	-416	22,951	60,802	186,055	7	17	53	9	23	72	11	28	83
Total	**68,058**	**58,147**	**-2,951**	**-15,468**	**-9,911**	**275,601**	**549,646**	**1,751,344**	**78.74**	**157.04**	**500.38**	**106.3**	**212.0**	**675.5**	**127.6**	**254.4**	**776.8**

By 2048 the MEL employment projections expect industrial activity to be approximately 10,000 employees less than the current levels. However, three factors have the potential to influence land demand beyond these changes. As alluded to above there are expected to be compositional changes within the industrial sector that will change the land requirements, both in terms of quantum and in terms of locational attributes. Additionally, land requirements per employee have, and are expected to, change over time, with commensurate changes in flexibility.

The preceding table (Table 7) illustrates a scenario where only growth sectors are included in the requirements for land resulting in a total demand for 500 hectares by 2048. Consideration over this long-term period of both infrastructure (gross land requirement) and an NPS buffer results in an upper threshold of 776 hectares by 2048.

A large proportion of this growth, under this scenario, is likely to be accommodated within the southern quadrant with over 355 hectares here, followed by the Northern quadrant at 206 hectares.

Table 8 considers the scenario that all decreases in employment are met (at an appropriate ratio) by growth. This scenario essentially examines the net growth in land requirements given 100% flexibility. This position not only assumes that premises that are vacated are filled with growing sectors but also that businesses that reduce their staffing also seek out smaller premises.

The resulting demand for industrial land to 2048 is 285 hectares with a significant drop by 2028 of 300 hectares based on the over 20% (15,000 EC) reduction in industrial employment over this period. Interestingly, this scenario results in a significant reduction in the southern quadrant with the central area increasing proportionally.

With an understanding of a historical change in industrial employment composition and additional building consents, it is clear that, neither of the two extreme scenarios will eventuate.

Table 9 illustrates the more likely position where the flexibility afforded each industry increases over time as the market is more likely to move towards equilibrium. As such we have assessed the NPS medium and short-term periods as having 40% flexibility associated with them while the longer term 30-year period is assessed against 60% flexibility.

The resulting industrial land requirements for the Christchurch UDS component is 88 hectares in the short term, extending to over 480 hectares by 2048 (including both an infrastructure requirement and the relevant NPS buffers).

TABLE 8: TOTAL INDUSTRIAL LAND REQUIREMENTS SCENARIO 2 (2018 – 2048)

Quadrant	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements (Ha)			NPS REQUIREMENT		
	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	8,685	-188,890	158,771	2	-54	45	3	-73	61	4	-87	70
South	28,325	24,330	-1,242	-6,321	-3,995	39,927	-273,198	354,725	11	-78	101	15	-105	137	18	-126	157
East	11,834	9,110	-782	-3,566	-2,724	-7,418	-186,597	3,203	-2	-53	1	-3	-72	1	-3	-86	1
Central	11,227	10,812	-7	-1,442	-416	22,917	-3,673	127,009	7	-1	36	9	-1	49	11	-2	56
Total	**68,058**	**58,147**	**-2,951**	**-15,468**	**-9,911**	**64,111**	**-652,358**	**643,708**	**18.32**	**-186.39**	**183.92**	**24.7**	**-251.6**	**248.3**	**29.7**	**-301.9**	**285.5**

TABLE 9: TOTAL INDUSTRIAL LAND REQUIREMENTS RECOMMENDED (2018 - 2048

Quadrant	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements			NPS REQUIREMENT		
	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	-1,442	-416	18,354	35,012	150,627	7	10	43	9	14	58	11	16	67
Total	**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**

Commercial Office Activity

The Christchurch commercial office sector has undergone significant change over the past decade. Prior to the earthquake the City had seen a substantial amount of commercial office activity exiting the Central City and main centres and finding its way into other zones. Lower land prices in suburban locations, low quality existing premises and low centre amenity were some of the key drivers leading this exodus.

Subsequently the earthquakes sent even more activity to the suburbs in the form of temporary and semi-permanent tenancies.

Once again, the distribution of commercial office activity is predicated on both the amenity within commercial zones (along with profile) and the appropriate supply and pricing of commercial land and premises.

Unlike industrial space however 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 within industrial activities.

A key variance between floorspace requirement and land requirement is the number of storeys associated with a given area. For the purposes of this report pre-earthquake estimates on building footprint to building floor area[7] has been used, on average, across each quadrant (see Table 11). Additionally, this activity can locate above ground floor retail or commercial services (and in some zones is a District Plan requirement), as such a component of commercial office land demand has been accounted for with regard to the demand for other 'commercial' activities (see Section 7 on retail and commercial services).

Table 10 illustrates the total demand for commercial office floorspace and associated land area at a gross, or 'at grade' level. This shows growth in the commercial office sectors of nearly 21,000 ECs over the long term 30-year period. This translates to a total land requirement of 220 hectares of 'at grade' land including infrastructure and the NPS 15% buffer.

Table 11 illustrates this quantum of floorspace demand at the current average height of commercial office buildings within each of the quadrants showing 116 hectares required by 2048.

The average height utilised in the central quadrant was originally estimated for the purposes of this report. Following this CCC undertook a survey of building heights throughout the central quadrant with the results set out

[7] *Sourced from a combination of the rating and valuation databases*

below[8]. The resulting average was a height of 2.14 storeys across the quadrant in line with the estimated 2.06 utilised in Table 11 below. Table 12 provides what is estimated to be a realistic future scenario with an average building height across the quadrant of 3.3 storeys.

[8] *Table set out in appendix 9 of this report*

TABLE 10: TOTAL COMMERCIAL LAND REQUIREMENTS AT GRADE (2018 – 2048)

Quadrant	Employment		Employment Growth			Floorspace Requirements			Land Requirements (Ha)			Infrastructure Requirements (Ha)			NPS REQUIREMENT		
	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	2.48	0.82	16.74	3.2	1.0	21.3	3.9	1.3	24.5
South	20,390	24,343	569	35	3,953	17,145	3,826	107,643	4.29	0.96	26.91	5.6	1.2	34.2	6.7	1.5	39.3
East	4,485	5,500	140	60	1,015	4,438	2,458	30,471	1.11	0.61	7.62	1.4	0.8	9.7	1.7	0.9	11.1
Central	20,312	33,867	3,403	7,814	13,556	104,725	239,303	399,698	26.18	59.83	99.92	34.0	76.6	126.9	40.8	91.9	145.9
Total	**56,325**	**77,062**	**4,413**	**7,953**	**20,737**	**136,209**	**248,862**	**604,784**	**34.05**	**62.22**	**151.20**	**44.3**	**79.6**	**192.0**	**53.1**	**95.6**	**220.8**

TABLE 11: TOTAL COMMERCIAL LAND REQUIREMENTS AVERAGE STOREYS (2018 – 2048)

		Land Requirements (Ha)			Infrastructure Requirements (Ha)			NPS REQUIREMENT		
	Average Height	*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	1.65	1.50	0.50	10.15	1.95	0.64	12.89	2.34	0.76	14.82
South	1.73	2.48	0.55	15.56	3.22	0.71	19.76	3.87	0.85	22.72
East	1.38	0.80	0.45	5.52	1.05	0.57	7.01	1.25	0.68	8.06
Central	2.06	12.71	29.04	48.51	16.52	37.17	61.60	19.83	44.61	70.84
Total		17.49	30.54	79.73	22.74	39.09	101.26	27.29	46.90	116.45

A further consideration, with regard to commercial office space, is the fact that often development of this space will occur above either ground floor retail or commercial services. In assessing, therefore, the total demand for commercial space it is important not to double count this demand as the commercial office component has the potential to add vertical floorspace to the existing footprint rather than adding additional commercial land demand.

The final table below (Table 12) assesses the total expected commercial land demand based on both a higher average building height and the potential for 40% of all commercial office floorspace to be accommodated within buildings with a retail or commercial service activity on the ground floor.

This final iteration results in a commercial office land demand of 18 hectares over the short term, 26 hectares over the medium term, and a total of 82 hectares over the long term for the Christchurch UDS area.

TABLE 12: TOTAL COMMERCIAL LAND REQUIREMENTS ESTIMATED STOREYS AND OTHER GROUND FLOOR USES (2018 – 2048)

		Land Requirements (Ha)			Infrastructure Requirements (Ha)			NPS REQUIREMENT		
	Average Height	*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	2	1.49	0.49	10.05	1.93	0.63	12.76	2.32	0.75	14.67
South	2.1	2.34	0.52	14.68	3.04	0.67	18.64	3.65	0.80	21.44
East	1.8	0.83	0.46	5.71	1.08	0.59	7.26	1.30	0.71	8.34
Central	3.3	6.83	15.61	26.07	8.88	19.98	33.11	10.65	23.97	38.07
Total		**11.49**	**17.08**	**56.50**	**14.93**	**21.86**	**71.76**	**17.92**	**26.24**	**82.53**

Out of Zone Activity

As identified above both the level of out of centre business activity and the level of commercial activity within industrial zones has been significant over the past 16 years.

Tables 13 and 14 show the in zone versus out of zone employment proportions for industrial and commercial activity. In terms of industrial activity Table 13 illustrates the fact that currently 27% of all industrial employment operates out of zone. While at a City (UDS) level this does not pose too many issues, when focussing on quadrants it is clear that a higher proportion of industrial activity in the southern quadrant is out of zone, while centrally a greater level of industrial activity has been displaced in favour of commercial businesses. This latter issue is likely to be the addresses of larger industrial firms in the CBD while higher value industrial services are locating on commercial land. This factor is contained within the employment to land ratios where possible.

This also shows a slight shift of industrial activity into industrial zones over time with a slight dislocation following the earthquake. Overall it is anticipated that 1 in 4 industrial employees will locate in businesses that are not on industrially zoned land of some description.

Table 14 shows the distribution of commercial and retail activity both in and out of zone. Prior to the earthquake the trend exhibited was an increasing proportion of out of zone commercial activity within the City. This was substantially hastened through the relocation of many commercial businesses following their inability to remain in their commercially zoned locations after the 2011 earthquake. This essentially shifted nearly 10,000 commercial employees within the following year into various zones including residential and industrial. While this issue has meant, overall, a 1 in 3 ratio for in versus out of zone for commercial activity, it has also seen a substantial level of commercial activity within the industrial zones.

Table 14 shows this trend also growing pre-earthquake with a significant, and expected, leap in 2012 due to relocations. It is expected that with the movement of temporary businesses back into permanent locations that this will return to approximately 1 in 10 commercial employees. This will be assisted by a new District Plan policy framework which limits out of zone industrial and commercial activity.

TABLE 13: INDUSTRIAL EMPLOYMENT ZONE LOCATION

Industrial Employment				
Year	In-Zone	Out-of-Zone	Total	% Out-of-Zone
2000	38,700	17,850	56,509	32%
2001	39,550	16,050	55,575	29%
2002	39,550	17,000	56,566	30%
2003	41,150	16,400	57,583	28%
2004	43,550	16,650	60,234	28%
2005	45,850	16,600	62,438	27%
2006	46,250	16,350	62,600	26%
2007	48,300	13,950	62,255	22%
2008	49,500	14,100	63,608	22%
2009	47,650	12,750	60,363	21%
2010	44,400	11,700	56,088	21%
2011	44,700	11,600	56,310	21%
2012	46,900	12,400	59,313	21%
2013	48,400	14,150	62,552	23%
2014	50,150	16,300	66,445	25%
2015	50,400	18,250	68,638	27%
2016	49,750	18,300	68,015	27%

TABLE 14: COMMERCIAL EMPLOYMENT ZONE LOCATION

Retail / Commercial Employment						
Year	In-Zone	Industrial Zoning	Out-of-Zone	Total	Change	% in Industrial Zone
2000	44,400	5,413	19,450	63,852	30%	8%
2001	49,050	5,678	20,250	69,276	29%	8%
2002	46,350	5,948	21,000	67,378	31%	9%
2003	48,750	6,460	22,550	71,278	32%	9%
2004	51,900	7,257	23,650	75,589	31%	10%
2005	55,850	7,850	24,350	80,235	30%	10%
2006	55,800	8,482	25,350	81,122	31%	10%
2007	57,050	8,459	25,350	82,435	31%	10%
2008	58,850	9,055	26,050	84,873	31%	11%
2009	56,050	8,524	25,200	81,249	31%	10%
2010	54,900	7,796	24,450	79,365	31%	10%
2011	53,300	9,679	26,750	80,033	33%	12%
2012	43,100	14,945	33,600	76,716	44%	19%
2013	44,900	14,396	33,600	78,536	43%	18%
2014	47,800	14,849	34,850	82,658	42%	18%
2015	49,200	15,445	36,650	85,812	43%	18%
2016	51,000	15,765	38,000	89,009	43%	18%

7. RETAIL AND COMMERCIAL SERVICE ACTIVITY

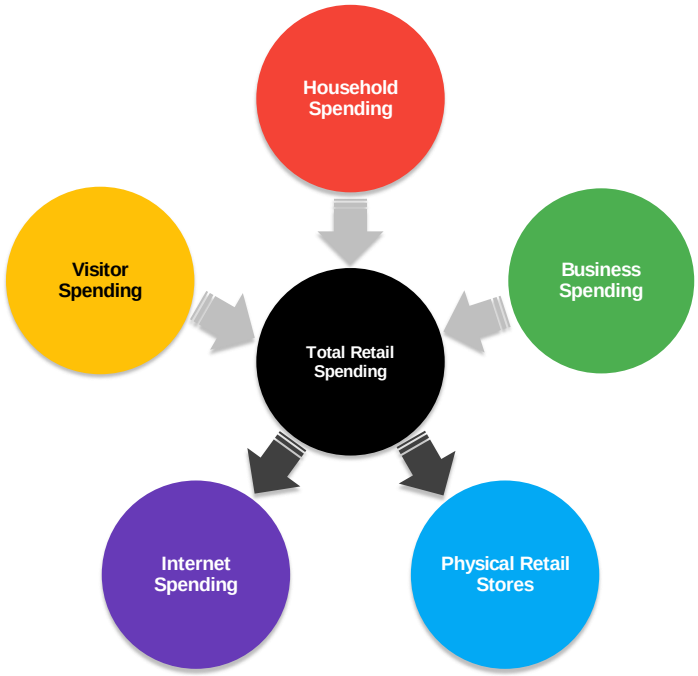
7.1. RETAIL EXPENDITURE AND SUSTAINABLE GFA

This section sets out the projected retail expenditure generated and sustainable Gross Floor Area (GFA) forecasts on an annualised basis for the Christchurch UDS area. The forecasts have been based on the aforementioned population and household growth projections and have been prepared using Property Economics' Retail Expenditure Model.

RETAIL EXPENDITURE MODEL

A more detailed breakdown of the model and its inputs is set out in Appendix 5.

The following flow chart provides a graphical representation of the Property Economics Retail Expenditure Model to assist CCC in better understanding the methodology, key inputs utilised and assist in interpreting outputs.



GROWTH IN REAL RETAIL EXPENDITURE

For the purposes of projecting retail expenditure, growth in real retail spend has been incorporated into the model at an average rate of 1% per annum over the forecast period. This 1% rate is based on the level of debt retail spending, interest rates and changes in disposable income levels, and is the

average inflation adjusted increase in spend per household over the assessed period.

LAYERED RETAIL CATCHMENTS

It is important to note that the 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 market.

For that reason, it is appropriate for modern retail markets to be assessed on the basis of "layered catchments". This is 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 (predominantly large scale regional or main metropolitan shopping destinations). Meanwhile, convenience spend tends to remain more localised, triggering a layering of centre catchments across the city. In other words, a consumer could be in the primary catchment of numerous centres, not just one.

Therefore, the retail expenditure generated in an area represents the sales centres or retail stores within that area could potentially achieve and is the key influence on what the market can potentially sustain. This should not be interpreted as a negative, but simply represents normal commercial market mechanisms (competition) and is a consideration that needs to be appropriately accounted for in any retail analysis.

EXCLUDED ACTIVITIES

The retail expenditure figures below are in 2017 NZ dollars and exclude the following retail activities, as categorised under the ANZSIC categorisation system:

- Accommodation (hotels, motels, backpackers, etc.)
- Vehicle and marine sales & services (petrol stations, car yards, boat shops, caravan sales, and stores such as Repco, Super Cheap Autos, tyre stores, panel beating, auto electrical and mechanical repairs, etc.)
- Hardware, home improvement, building and garden supplies retailing (e.g. Mitre 10, Bunnings, PlaceMakers, ITM, etc.)

The above activities classified as retail by ANZSIC have been excluded because they are not considered to be core retail expenditure, nor fundamental retail

centre activities in terms of visibility, location, viability or functionality. Modern retail centres do not rely on these types of stores to be viable or retain their role and function in the market as such stores have the potential to generate only consequential trade competition effects rather than flow-on retail distribution effects. Therefore, the retail centre network's economic wellbeing and social amenity cannot be unduly compromised.

The latter two bullet points contain activity types that generally have great difficulty establishing new stores in centres for land economic and site constraint reasons, i.e. the commercial reality is that for most of these activity types it would be unviable to establish new stores in centres given their modern store footprint requirements and untenable to remain located within them for an extended period of time (beyond an initial lease term) in successful centres due to property economic considerations such as rent, operating expenses, land value and site sizes.

Trade orientated (but partly retail) activities such as kitchen showrooms, plumbing stores, electrical stores and paint stores are also excluded from the model for similar reasons. This is not to imply that these activity types are not situated in centres, as in many instances some of these stores types remain operating in centres as a historical overhang. However, in the future, it is increasingly difficult from a retail economic perspective to see these store types establishing in centres (new or redeveloped), albeit they may have equal planning opportunity to do so. As such, demand for these store types is additional to the retail demand assessed in this analysis.

SUSTAINABLE GFA

This analysis uses 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. 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.

It is necessary to separate the Gross Floor Area into:

- Net retail floorspace (Sustainable Floorspace); and
- Back office floorspace that does not generate any retail spend (Back Office Floorspace).

A store's net retail floor area only includes the area which displays the goods and services sold and represents the area to which the general public has access. By contrast, the Gross Floor Area typically represents the total area leased by a retailer. Back Office Floorspace in a retail store is the area used for storage, warehousing, staff facilities, admin functions or toilets and other 'back office' uses.

These activities typically occupy around 25-30% of a store's GFA. It is important to separate out such back office floorspace from sustainable floorspace because back office floorspace does not generate any retail spend. For the purposes of this analysis a 30% ratio has been applied.

ANNUALISED RETAIL EXPENDITURE AND SUSTAINABLE GFA

Table 15 forecasts the total level of retail expenditure generated by the Christchurch UDS area market on an annualised basis from the years 2018 to 2048, as well as the levels of sustainable retail GFA that can be supported by the generated spend within the catchment on an annualised basis under Statistics NZ medium growth population projections.

An additional net 14% inflow figure has been added to the total Christchurch City retail market. This has been derived from MarketView shopping transaction pattern data and trends provided by CCC. This data provided a factual picture of patterns of shopping across the Christchurch UDS area and the level of retail spending inflow into the Christchurch UDS area.

The total market opportunity is, therefore, comprised of core catchment generated retail expenditure plus net retail inflow.

For the purposes of this analysis, the current level of net retail inflow into the Christchurch UDS area is projected to be maintained at a net positive 14% of generated spend over the forecast period.

Table 15 provides a breakdown of the additional retail spend, as well as the additional retail and commercial services likely land requirement for the next 30 years compared to the current 2018 base year. A breakdown of the figures displayed in Table 15 for the four delineated areas can be found in Appendix 6.

The Christchurch UDS area is estimated to currently generate just under $5b annually in retail expenditure. By 2048, retail expenditure generated by the Christchurch UDS area market plus the net inflow is forecast to increase by $260m in 3 years, $460m in 5 years, $900m in 10 years and $2.9b in 30 years 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 GFA, increasing by around 525,000sqm to nearly 1.43m sqm by 2048.

TABLE 15: CHRISTCHURCH UDS AREA NET ADDITIONAL RETAIL DEMAND GROWTH

CHRISTCHURCH UDS AREA	3 Years	5 Years	10 Years	30 Years
NET RETAIL DEMAND ($m)	$260	$460	$900	$2,890
RETAIL GFA (sqm)	49,650	84,300	164,650	524,400
Non-Retail Commercial Services (sqm)	24,825	42,150	82,325	262,200
Total Retail / Commercial Service Requirement (sqm)	74,475	126,450	246,975	786,600
Likely Land Requirement (ha)	13.2	22.5	43.9	139.8
Likely Land Requirement (ha) + NPS buffer	15.9	27.0	52.7	160.8

Source: Property Economics

This section also assesses the influence of the spending patterns on the total future market opportunity / potential within the Christchurch UDS area. It is important to 'factor in' the non-retail commercial functions of centres in any assessment of future potential as most centres are more than simply retail centres. They typically contain a variety of localised commercial services as outlined in Appendix 7. These activities generally comprise around 50% of successful centre but at a wider city level account for approximately a third of floorspace. For this reason, a 2:1 ratio for retail floorspace to commercial service has been adopted in this analysis.

This gives the Christchurch UDS area a total retail and commercial service sustainable floorspace level of around 1.35m sqm, increasing to 2.14m sqm by 2048.

When translating this GFA requirement into land area, the 'at-grade' land requirements assumes that 95% of the additional retail land requirement will be developed 'at-grade' and the balance (5%) will be 1st level space. The likely land requirement takes this assumption further and assumes that 50% of commercial services land requirement can be accommodated within ground level tenancies, while the other half of commercial service growth will be accommodated within 1st level space. Additional to this is the NPS buffer of 20% up to 10-years and 15% for the 30-year land requirement.

Overall, the Christchurch UDS area net additional land requirement for retail and commercial service activities, including the NPS UDC margins as per the PC1 buffer directive is estimated at around 161ha by 2048.

While table 15 assesses the total retail floorspace based on where that retail spend is generated (i.e. the location of the households and businesses (as well as the resulting EFM distribution), however the retail spend itself is likely to have a different distribution based on retail provision. Table 16

below provides a proportional distribution of retail spend and land area requirement based on the retail EC growth proportions within the EFM model, as well as the likely (once the central city is redeveloped) distribution of retail floorspace. This distribution changes the total amount of required land area given the differing development coverage between quadrants (i.e. the central quadrant has a greater floorspace to land ratio).

TABLE 16: ESTIMATED RETAIL / COMMERCIAL SERVICE LAND REQUIREMENT BY QUADRANT

	3-Year Growth	*10-Year Growth*	*30-Year Growth*
North	7%	2%	13%
South	12%	4%	20%
East	5%	2%	8%
Central	75%	92%	59%
North (Ha)	1	1	16
South (Ha)	2	2	26
East (Ha)	1	1	10
Central (Ha)	10	39	74

7.2. EXISTING RETAIL SUPPLY

In July 2017, Property Economics undertook a retail audit of the retail centres within the Christchurch UDS area in order to assess the current level of retail provision that exists within the city. The results are displayed in Table 17 in terms of nominal stores and GFA of all retail centres within the City by sector.

It is worth noting that the following surveys represent a 'snapshot' in time and retail stores are constantly opening, closing and relocating due to a variety of individual store and owner circumstances. In this regard the retail market is fluid and undergoing constant change.

Within the Christchurch UDS area there is currently around 754,000sqm of retail activity located within centre based environments, with the Central City comprising over 160,000sqm or 20% of this floorspace. Combining the Central City assessment areas as a single centre, Table 17 shows the retail floorspaces of 42 centres identified within the Christchurch UDS retail network. These include all of the district, neighbourhood and large format centres defined as such in the District Plan.

A supplementary break down of the retail audit by centre has been provided to CCC electronically in the form of an interactive spreadsheet. It is important to note that in the supplementary data, Supermarkets have been defined as Food

Retailing stores over 1,000sqm GFA. Asian Supermarkets have also been excluded from this sector given that full department supermarkets such as New World, Pak'n Save, Countdown etc, typically have a broader product scope and heavier focus on households and personal items compared to specialty Asian Grocers.

Similar to the retail expenditure analysis undertaken in earlier in this section, Hardware, home improvement, building and gardening supply stores have also been excluded from the retail audit as they are not considered to be core retail activity, nor fundamental to retail centre activities.

Langdon Road is also absent from the audit as it currently has no retail activity at this stage of its development, albeit the area does contain a Mitre 10 Mega which is not included as part of the retail audit.

TABLE 17: CHRISTCHURCH UDS AREA CENTRE RETAIL AUDIT

CENTRE	GFA (sqm)	% of Chch GFA (sqm)
Addington	9,380	1.2%
Aranui	2,850	0.4%
Avonhead	4,940	0.7%
Beckenham	3,740	0.5%
Belfast/Northwood	31,560	4.2%
Bishopdale	12,120	1.6%
Bush Inn/Church Corner	31,450	4.2%
Central City - Core North	5,240	0.7%
Central City - Core South	36,670	4.9%
Central City - South	65,650	8.7%
Central City - South Frame	34,720	4.6%
Central City - Victoria	14,760	2.0%
Central City - West End	2,010	0.3%
Cranford	7,270	1.0%
Eastgate/Linwood	35,590	4.7%
Edgeware	4,840	0.6%
Fendalton	3,460	0.5%
Ferrymead	18,860	2.5%
Halswell	6,610	0.9%
Hornby	43,850	5.8%
Hornby East / Chappie Place	15,170	2.0%
Ilam / Clyde	3,080	0.4%
Lyttelton	2,940	0.4%
Merivale	12,100	1.6%
Moorhouse Avenue	29,670	3.9%
New Brighton	17,720	2.4%
Papanui/Northlands	57,030	7.6%
Parklands	8,440	1.1%
Redcliffs	2,780	0.4%
Riccarton	74,400	9.9%
Richmond	8,890	1.2%
Shirley Homebase	5,040	0.7%
Shirley/Palms	30,430	4.0%
Spreydon/Barrington	14,910	2.0%
St Martins	5,240	0.7%
Stanmore/Worcester	2,540	0.3%
Sumner	4,170	0.6%
Sydenham (Colombo Street between Boroughham Street and Moorhouse Avenue)	15,290	2.0%
Sydenham South (Colombo Street between Brougham Street and Southhampton Street)	7,470	1.0%
The Airport	6,370	0.8%
The Tannery	5,420	0.7%
Tower Junction	29,130	3.9%
Wairakei/Greers Road	3,650	0.5%
West Spreydon / Hillmorton (Lincoln Road)	1,590	0.2%
Wigram	6,710	0.9%
Woolston	8,150	1.1%
TOTAL	**753,900**	**100%**

Source: Property Economics

In order to provide a more complete picture of the Christchurch UDS area's retail environment, retail activity residing outside of the identified centres in Table 17 has been estimated based on the retail employment distribution within Christchurch. Acknowledging that retailing outside of centres typically has a lower employee to floorspace ratio due to lower site densities, a 24sqm per employee has been adopted to approximate the scale of out-of-centre retailing activity with in Christchurch.

Table 18 shows the estimated level of Retail GFA within the Christchurch UDS area based on the Christchurch centre audit and the employment to floorspace assumption for out-of-centre retail activity.

TABLE 18: CHRISTCHURCH UDS AREA TOTAL RETAIL GFA

	Estimated Retail ECs	Estimated Retail GFA
Out-of-Centre	13,966	335,190
In Centre	18,990	753,900
Total	**32,956**	**1,089,090**

Source: Property Economics

Adding actual in-centre supply to estimated out-of-centre supply provides an estimated total retail GFA provision for the Christchurch UDS area of 1,089,000sqm GFA. This indicates that a nearly a third of all retail supply is currently located in out-of-centre locations, alongside 42% of all retail employment within the Christchurch UDS area.

8. EXISTING ZONED LAND CAPACITY

This section of the report assesses the current quantum of zoned business land across the Christchurch UDS area as according to the District Plan and Vacant Land Register as maintained by Council. Additionally, the sites of 711 Johns Road and the site located between Hawthornden and Russley Roads, have been included as potential long-term supply, by request of Council. It is Property Economics understanding that these sites are identified as Greenfield Priority Areas for Business in the Canterbury Regional Policy Statement and may be considered for rezoning to industrial purposes in the foreseeable future.

TABLE 19: CHRISTCHURCH UDS AREA BUSINESS LAND SUPPLY BY QUADRANT

CHRISTCHURCH CITY				
Commercial	**Occupied**	**Vacant (whole)**	**Vacant (part)**	**Total**
Commercial Banks Peninsula	5	3	1	6
Commercial Central City Business	36	10	3	50
Commercial Core	141	43	15	199
Commercial Local	43	8	1	53
Commercial Office	31	1	4	35
Commercial Retail Park	49	6	6	61
Commercial Total	**305**	**70**	**29**	**404**
Industrial	**Occupied**	**Vacant (whole)**	**Vacant (part)**	**Total**
711 Johns Road (future potential)	-	15	-	15
Commercial Mixed Use	106	4	2	112
Hawthornden and Russley Road (future potential)	-	35	-	35
Industrial General	565	146	139	849
Industrial Heavy	755	214	155	1,124
Industrial Park	22	32	74	128
Industrial Total	**1,448**	**446**	**370**	**2,264**
Mixed Use	**Occupied**	**Vacant (whole)**	**Vacant (part)**	**Total**
Commercial Central City (South Frame) Mixed Use	14	1	0	15
Commercial Central City Mixed Use	69	23	4	96
Mixed Use Total	**82**	**24**	**4**	**111**
Specific Purpose	**Occupied**	**Vacant (whole)**	**Vacant (part)**	**Total**
Specific Purpose Area	**98**	**14**	**181**	**294**
Total Christchurch	**1,934**	**555**	**584**	**3,072**

Source: Property Economics, CCC

At the time of writing this report the Christchurch UDS area has around 3,070ha of business zoned land, with substantial vacancy levels in the order of 38% or nearly 1,150ha (whole and part vacancies).

The high level of vacancy is not isolated to a single centre or location but is present across all business zones, the nominal majority of available vacant land is unsurprisingly located on industrial zoned land which typically accommodates land intensive activities. Table 19 indicates that over a third of industrial zoned land (excluding the airport) within Christchurch is currently vacant, or 815ha nominally.

Across Christchurch City's commercial zones, current vacancy levels are relatively high, in the order of 25% (including both whole and part vacant sites). Including Mixed Use zoned land, the city currently has around 136ha of vacant commercially zoned land. A considerable proportion of this is in the Central City, but there is vacant commercially zoned land in all areas across the City.

The Specific Purpose Area defined in Table 19 refers exclusively to the Development Precinct of the District Plan's Specific Purpose Airport Zone. This area excludes the terminal buildings, runways and other land utilised directly by the Christchurch International Airport in the Aviation Precinct. As a recently released light industrial based zoning, this zone is only a third occupied, with around 200ha still vacant.

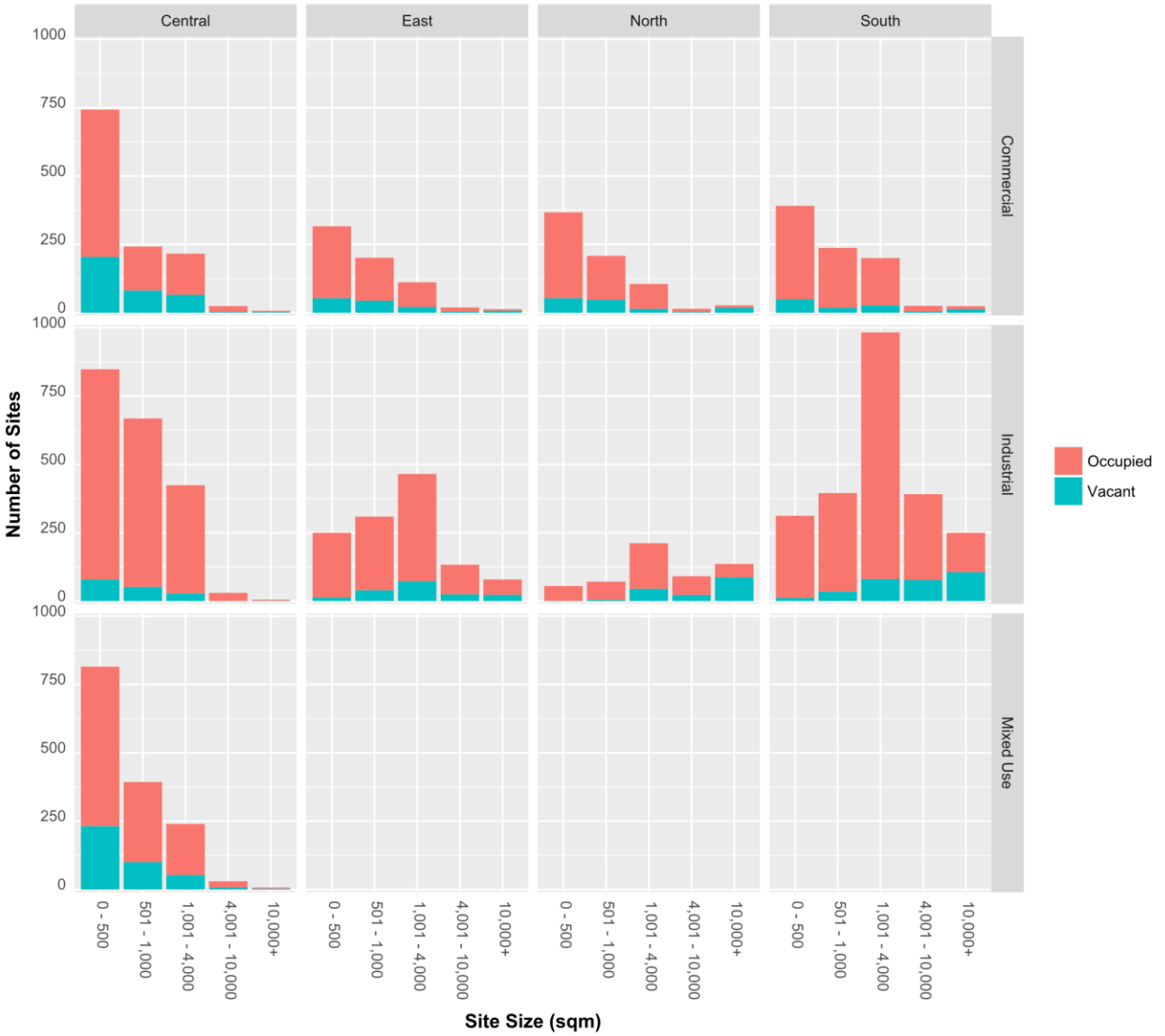
In terms of industrial activity over two thirds of all industrial zoned land within the city is located within the North and South defined area (2,030ha). Including the Specific Purpose Airport Zone as part of industrial land in Christchurch, there is currently a 43% land vacancy rate, with 40% (as a percentage of total industrial land) located within the North and South area. While industrial activities are generally more land extensive compared to other sectors, proportionally this indicates that Christchurch has a substantial level of vacant zoned industrial land at present which is more than sufficient to meet long term (30-year+) industrial demand (by a healthy margin).

9. BUSINESS ZONED LAND SITE SIZE COMPOSITION

Based on the vacant land registrar and primary parcel database provided to Property Economics by CCC, Figure 8 provides high level overview of the counts of sites located on Business Zoned land, delineated by Quadrant, industry sector and size group.

It is important to note as sites are being grouped by size in Figure 8, a small quantum of large sites may cover a large land area than many small sites. Furthermore, given the lack of detailed site vacancy information regarding Special Purpose Zones, they have been excluded from Figures 8, 9 and 10. An overview of site distribution represented by land area is presented later in the report.

FIGURE 8: BUSINESS ZONED SITE COUNTS BY SIZE GROUP, QUADRANT AND SECTOR



The majority of small sites within Christchurch are located within the Central Quadrant within or in close proximity to Christchurch CBD. This is true for not only commercial sites but also industrial sites facilitating more intensive land use by less land extensive light industrial activities.

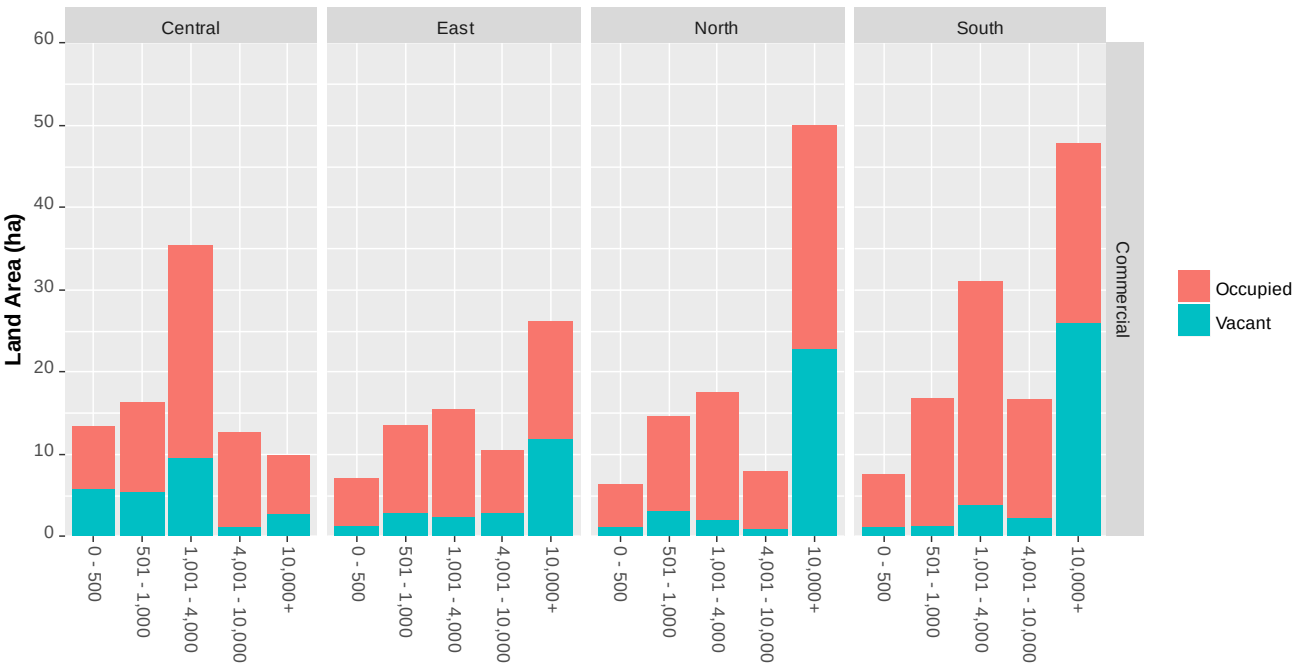
Commercially zoned sites are most prolific within the Central Quadrant with over 1,200 sites, of which around 30% are currently vacant. It is also interesting to note that over 60% of commercial sites within the Central Quadrant have a land footprint of 500sqm or less. This is not unusual in CBDs where site sizes are generally smaller relative to the balance of the city and as a result of subdivision during the course of the CBDs evolution.

In terms of industrial provision there are currently over 6,100 industrial zoned sites located within Christchurch City, with 13% of these sites are currently vacant. The Quadrant with the largest concentration of industrial zoned land is the South area, with over 2,300 industrial sites, closely followed by the Central Quadrant with just under 2,000 sites.

The proportional composition of industrial sites within the Central and South Christchurch areas are significant, with provision within the Central area generally skewed towards smaller sites. Within the South quadrant there is substantial number of industrial sites ranging from 1,001 – 4,000sqm, a reflection of the larger and heavier industrial activity within the South quadrant.

Figure 9 illustrates the composition of commercially zoned land by site size across each of the identified quadrant areas. Compared to Figure 8, Figure 9 accounts for land area (in hectares) instead of only number of sites, providing a more alternate perspective of where commercial land is zoned and where vacant development opportunities are available.

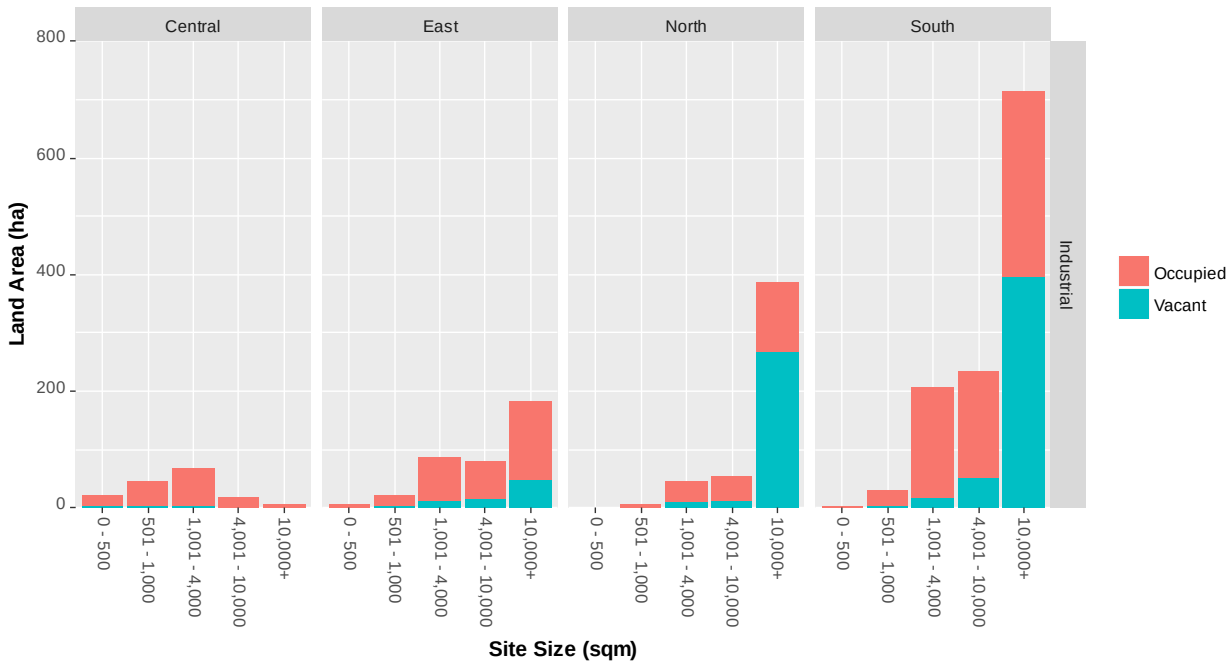
FIGURE 9: COMMERCIALY ZONED LAND AREA BY SIZE GROUP, QUADRANT AND SECTOR



The most notable feature of Figure 9 is the substantial quantum of both vacant and occupied commercially zoned land outside of the central area. This is due to the presence of large greenfield / brownfield sites that have been zoned commercial but have yet to be subdivided or developed. Large commercial (10,000+ sqm) sites equate to over a third of all commercial zoned land in Christchurch, and nearly 30% of vacant commercial land within the city.

Figure 10 illustrates the composition of industrial land within Christchurch by quadrant and site size. This highlights the spatial differences between commercial and industrial land provision within the city as well as providing an overview of where vacant industrial land is currently located.

FIGURE 10: INDUSTRIAL ZONED LAND AREA BY SIZE GROUP, QUADRANT AND SECTOR



Source: Property Economics, CCC

Being a more land intensive activity, industrial land provision across each of the quadrants (excluding Central) are skewed to larger land sizes indicating that much of the industrial provision for Christchurch is located on larger sites over 1,000sqm. Like commercial provision within the City, nearly 60% of all industrial land is currently tied to large undeveloped sites over 10,000sqm, with 55% or 713ha of this presently vacant. Once developed, these larger land parcels are likely to bring smaller sized sites to the market.

9.1. DEMAND VS CAPACITY DIFFERENTIAL

Table 20 below summarises the estimated zoned land demand for commercial and industrial activities over a 30-year period in Christchurch City (UDS).

This overall table indicates a sufficient industrial land supply to meet expected demand over the next 30 years. In fact, the vacant and (defined) partly vacant industrial land is twice that required to meet this demand over this period.

With regard to commercial land, based on the average storey build highlighted in the commercial demand section of this report, the Christchurch City component of the UDS has adequate commercial land for the medium term but will fall short of its 30-year requirement (potentially within 20 years) by approximately 117 hectares in total.

Appendix 8 outlines this differential at a quadrant level and shows a proportional shortfall in commercial land for all quadrants over the long term. Interestingly it also shows a shortfall in industrial land in the Central quadrant in the short term, with only 10 hectares of vacant industrially zoned land in this area. It is expected, however, that this local shortfall is likely to change the composition of industrial businesses in this quadrant beyond that seen in the 2nd level ANZSIC codes with higher land intensive industrial businesses with greater levels of productivity replacing lower value and intensive businesses.

This shift is likely to see a proportion of the land demand be redirected towards the south and western areas of Christchurch. Based on this shift it is expected that while the total city (UDS) demand will be meet more than comfortably, in relation to industrial activity, it will require a further shift of activity from the Central quadrant to the southern.

TABLE 20: BUSINESS LAND SUPPLY AND DEMAND COMPARISON (2018 – 2048)

	3-Year growth	10-Year growth	30-Year growth
Commercial Office	18	26	83
Commercial Services	3	11	34
Retail	13	42	127
Total Commercial Demand	34	79	244
Total Commercial Supply	127	127	127
Differential	***93***	***48***	***-117***
Total Industrial Demand	88	32	482
Total Industrial Supply	1,011	1,011	1,011
Differential	***923***	***979***	***529***

Source: Property Economics

The demand supply comparison in Table 20 highlights the wide differential between long term industrial land demand and industrial land supply, with an estimated 529ha supply buffer by 2048 given current zoning patterns. In essence, current vacant industrial land supply (whole and part) is double the estimated Christchurch UDS area requirement for industrial activities over the next 30 years.

Land demand and supply for commercial activities paints a different picture. Table 20 indicates there is enough commercial land supply in the Christchurch UDS area over the short and medium term NPS periods, however longer term there is an estimated shortfall of 117ha. This reflects the shift in the economy's employment composition to a projected higher proportion of commercial employees (which as identified earlier in the report has been occurring since 2000).

An important question for CCC to understand is how this shortfall is distributed by quadrant to give a steer on where additional commercial land resource needs to be supplied longer term.

Table 21 breaks down Table 20 future industrial and commercial requirements by quadrant to assist in better understanding future demand and supply distribution across the Christchurch UDS area.

Importantly the distribution of retail land demand has been based on significant levels of retail demand generated in other quadrants being accommodated within the Central Quadrant. In effect this is a redistribution of approximately 50ha of retail land demand originating within the 3 quadrants that is likely to be met within the Central quadrant.

TABLE 21: LAND DEMAND SUPPLY REQUIREMENTS BY QUADRANT

North

	3-Year Growth	10-Year Growth	30-Year Growth
Commercial Office	2	1	15
Commercial Services	1	1	8
Retail	1	1	16
Total Commercial Demand	4	3	39
Total Commercial Supply	30	30	30
Differential	***26***	***27***	***-9***
Total Industrial Demand	22	5	125
Total Industrial Supply	473	473	473
Differential	***451***	***468***	***348***

South

	3-Year Growth	10-Year Growth	30-Year Growth
Commercial Office	4	1	21
Commercial Services	1	2	14
Retail	2	2	26
Total Commercial Demand	7	5	61
Total Commercial Supply	34	34	34
Differential	***27***	***29***	***-27***
Total Industrial Demand	43	20	234
Total Industrial Supply	458	458	458
Differential	***415***	***438***	***224***

East

	3-Year Growth	10-Year Growth	30-Year Growth
Commercial Office	1	1	8
Commercial Services	1	1	5
Retail	1	1	10
Total Commercial Demand	3	3	23
Total Commercial Supply	16	16	16
Differential	***13***	***13***	***-7***
Total Industrial Demand	13	-9	56
Total Industrial Supply	69	69	69
Differential	***56***	***78***	***13***

Central

	3-Year Growth	10-Year Growth	30-Year Growth
Commercial Office	11	24	38
Commercial Services	1	1	6
Retail	10	39	74
Total Commercial Demand	22	64	118
Total Commercial Supply	46	46	46
Differential	***24***	***-18***	***-72***
Total Industrial Demand	11	16	67
Total Industrial Supply	10	10	10
Differential	***-1***	***-6***	***-57***

Source: Property Economics

All quadrants have an estimated long term commercial land shortfall, with a large proportion of the shortfall optimally placed in the residential growth cell areas of each quadrant. This is not an immediate issue for the North, South and East quadrants given their respective demand profiles, but a requirement CCC will need to consider in their long term strategic planning processes for these areas. The northern quadrant reflects only all industrial zonings, when considering the vacant airport land that is expected to be available (at 145ha net, see table 24) the differential for industrial land falls to 298ha.

The quadrant of focus (and change) is the Central quadrant. Based on the redistribution ofretail spend throughout the City, this area is forecast to have a commercial shortfall within a 10-year period, growing to 72ha commercial land shortfall by 2048. Interestingly, the industrial land provision indicates an additional industrial requirement is required immediately (1ha), growing to an additional 57ha requirement by 2048.

From a commercial practicality perspective. Given the commercial land requirement, it is unclear why the EFM would distribute more industrial employment into the Central quadrant (at the same time as projecting significant commercial employment growth for the same area would increase demand for land, and therefore price), as the industrial activities are unlikely to compete with the higher paying (on average) commercial land uses that will be demanding additional land.

At present there is 144ha of occupied industrial zoned land in the Central quadrant. As a natural evolution of a city, historic or traditional industrial area in and around the central city are replaced with higher paying / more productive commercial activities. The employment data outlined earlier in the report shows this is occurring already in Christchurch and will continue to do so. This represents a 'normal' and competitive market at work. Given that market dynamic, the 144ha occupied industrial land provision in the Central quadrant indicates that CCC do not need to find new land for commercial zoning, but that will occur naturally with the displacement of industrial activities over time (likely to the South quadrant where significant vacant industrial land supply exists, which will keep land prices lower comparatively and commercial activities establish on what is currently industrial zoned land.

With much of the 144ha Central quadrant encompassing old industrial stock, many of the buildings in this zone are likely to come to the end of their useful economic life and will have to be replaced. It is at this point the opportunity for change of use from industrial to commercial will be likely. The value of land in the Central quadrant will make industrial sites less competitive to be redeveloped for industrial uses, meaning a natural transfer of use is likely to occur.

The data indicates the opportunity for providing additional commercial zoned land within the Central quadrant already exists, and that utilising a portion of the current industrial zone will be more than sufficient to satisfy future long-term requirements without consuming residential land.

9.2. OTHER SUPPLY CONSIDERATIONS

Following the high level assessment of supply outlined above additional research has been undertaken to evaluate the factors within the market that have the potential to impact upon the supply of both vacant land and floorspace into the market under the current environment. These factors can either add, remove or delay the supply of business space into the market over the short, medium or long terms. For the purposes of comparison all floorspace figures have been translated into land areas utilising the average coverages and average storeys by quadrant.

Additional Capacity

Several additional factors contribute capacity for business activity within Christchurch City beyond the vacant zoned land identified in the preceding sections.

Firstly, due to the unique situation resulting from the earthquakes, Christchurch has a significant level of vacant commercial floorspace, beyond that considered effective for an efficient market[9]. This represents capacity for both relocating activity and growth outlined in the section above. While this floorspace may already exist in the market (due in part to the provision of insurance financing) it offers real (and given it is developed) feasible capacity within the market. While there is not a full assessment available of vacant commercial floorspace, as opposed to retail, due to the practical difficulties, the table in Appendix 10 outlines a substantial sample. For the purposes of this report (and the lack of comparability between centres, due in part to damage and redevelopment from the earthquakes) this proportional vacancy level has not been extrapolated out for the entire market but simply represents a conservative position of the total City's commercial vacancy levels. The 2 areas represented in the table are 'Central City' and 'Suburban' (made up of Addington, Riccarton, Burnside, Airport and Lincoln Rd). Of the commercial floorspace measured in the Central City 72,500sqm (20%) was vacant, while the suburban vacancies were 17% or 40,500, totalling 113,00sqm of vacant space. Considering an 8% vacancy rate as 'efficient' leaves a total of 66,000sqm that could accommodate commercial business activities in these areas alone. When considering land to floorspace ratios

[9] For the purposes of this report it is assumed 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)

(coverage) and average storeys within these areas would equate to nearly 9ha of additional commercial land demand.

The second factor that has the potential to 'add' commercial capacity is the current consented and 'under way' developments that would add net capacity on currently 'occupied land. These are also outlined in Appendix 10 within the second table.

These additions are predominately commercial retail and are to be accommodated within existing retail centres. They total approximately 45,000sqm of floorspace and in total (again considering the 'storey' expectation) would account for 6.2ha of land capacity.

In total these two additions would equate to a further 15ha of land supply that currently exists within the market.

Reduced Capacity

While there are several factors that have contributed to increased business capacity within Christchurch City there are factors that similarly have the potential to detract from the supply figures outlined in Table 19 of this report. Essentially two issues have been included within this assessment including temporarily relocated businesses and business land that is not currently suitable for business development.

In terms of temporary business there were a number of business activities that, due to the damage resulting from the earthquakes, relocated into areas that were not zoned for their activity. These movements were considered within the RDP and were, in some cases, permitted to occur on a temporary basis. It is expected though that many of these businesses will need to relocate back into business areas thereby increasing the demand for business land/floorspace over a relatively short period. Appendix 11 outlines the level of temporary activities that are not compliant as well as those that have the potential to be. In total these account for approximately 10,000sqm of activity that are likely (given the differing coverages and average storeys) to cover 1.8ha of business land (1,5ha of commercial and .3ha of industrial activity).

Additionally, there have been several estimated changes to the vacant land register reflecting the current level of vacant business land as well as considering unfeasible land and nonserviced land and the relevant timeframes for servicing. Once again these are outlined more fully in Appendix 11.

TABLE 22: ADDITIONAL CAPACITY REDUCTIONS (SOURCE: CCC)

Short Term Supply Reduction			
	Floorspace	Land	Total
Industrial	1,228	406	406.3
Commercial	8,691	23	25.6
Medium Term Supply Reduction			
	Floorspace	Land	Total

Table 22 illustrates the overall reductions in supply capacity and the associated timeframes.

TABLE 23: VACANT LAND ADJUSTMENTS BY QUADRANT

Short Term Supply Reduction		
	Industrial	Commercial
Central Quadrant	2	12
East Quadrant	6	-3
North Quadrant	255	10
South Quadrant	143	4
Total	**406**	**24**
Medium Term Supply Reduction		
	Industrial	Commercial
Central Quadrant	2	12
East Quadrant	6	-3
North Quadrant	153	0
South Quadrant	143	4
Total	**304**	**14**

Table 24 reconfigures table 19 to reflect the changes to land areas that have been assessed above and apportions the land use by quadrant.

After consideration of additions to demand and reductions/additions to supply Table 24 summaries (in relation to Table 19 in the preceding section) the net differential between the long term demand for business land in Christchurch City and the current level of supply.

TABLE 24: UPDATED BUSINESS LAND CAPACITY

CHRISTCHURCH CITY					
Commercial	**Central**	**East**	**North**	**South**	**Total**
Occupied	67	57	88	94	305
Vacant (part)	3	7	8	10	29
Vacant (whole)	15	12	12	20	59
Commercial Total	**85**	**76**	**108**	**124**	**393**

Industrial	**Central**	**East**	**North**	**South**	**Total**
Occupied	144	307	228	769	1,448
Vacant (part)	2	28	149	191	370
Vacant (whole)	7	35	26	124	192
Industrial Total	**152**	**369**	**403**	**1,085**	**2,010**

Mixed Use	**Central**	**East**	**North**	**South**	**Total**
Occupied	82	-	-	-	82
Vacant (part)	4	-	-	-	4
Vacant (whole)	12	-	-	-	12
Mixed Use Total	**99**	**-**	**-**	**-**	**99**

Specific Purpose	**Central**	**East**	**North**	**South**	**Total**
Occupied	-	-	98	-	98
Vacant (part)	-	-	131	-	131
Vacant (whole)	-	-	14	-	14
Specific Purpose Total	**-**	**-**	**243**	**-**	**243**

Christchurch Business Land	**Central**	**East**	**North**	**South**	**Total**
Occupied	293	364	414	863	1,934
Vacant (part)	9	35	288	202	534
Vacant (whole)	34	47	52	144	277
Total	**336**	**445**	**754**	**1,209**	**2,744**

TABLE 25: NET BUSINESS LAND DEMAND AND SUPPLY COMPARISON (2018 – 2048)

	3-Year growth	10-Year growth	30-Year growth
Total Commercial Demand	36	81	246
Total Commercial Supply	104	114	114*
Differential	***69***	***34***	***-132***
Total Industrial Demand	88	32	482
Total Industrial Supply	609	711	711
Differential	***521***	***678***	***229***
**An additional 9.44ha is available over the medium to long term at Belfast*			

10. RECOMMENDATIONS

Overall, the industrial land provision within the Christchurch UDS area is more than sufficient to satisfy estimated long term NPS industrial demand and land requirements. There is over 1,000ha of vacant and partially vacant supply of industrial land (while only 711ha of this is expected to be serviced within the long term horizons) in the Christchurch UDS area, and an estimated long term industrial land demand of 482ha, which equates to only 47% of available capacity, or 68% of the serviceable supply.

Commercial zoned land will require additional capacity. Long term the Christchurch UDS area is estimated to require an additional 132ha above the current zoned provision. Based on EFM employment distribution nearly two thirds of this commercial land shortfall should be located in the Central quadrant.

All quadrants are estimated to require additional commercial zoned land to varying levels by 2048. A significant proportion of this is considered most appropriately focused in high (residential) growth locations across the current and future suburban components of the city (new commercial centres). There is also potential for many existing centres in the network to be developed more intensely if residential growth were to be accommodated at a greater level of density than anticipated. This would enable an efficient distribution of zoned supply to be provided within the Christchurch UDS area and growth areas.

For the Central quadrant the transitioning of some old industrial zoned land (and built forms) to commercial activities seems a pragmatic approach given it is occurring (and will continue to occur) naturally in the market over the next 30 years. This is likely to be fuelled by the high levels of vacant industrial land in the South quadrant and to a lesser extent in the northern quadrant, which elevates the likelihood that the transition will occur over time.

In respect of the two greenfield priority areas in the RPS identified for future industrial purposes, Council should consider the requirement to zone these area in the context of the outcomes of this assessment which highlights more than sufficient industrial capacity to meet the market's requirements out to 2048.

APPENDIX 1: BUSINESS CLASSIFICATIONS

Property Economics utilises the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) as guidance, whereby businesses are assigned an industry according to their predominant economic activity.

A proportion of employees coded within industrial categories work within other more commercial (office) arms of a business in other locations, i.e. employees in the sales branch of electrical companies are coded in the electricity, gas, water and waste services. Despite being in the industrial industry, these employees are technically not industrial employees, and as such are not included in the proportions utilised for classifying industrial activities.

For planning purposes commercial and industrial employees are those working on zoned business land corresponding their respective sector. Often this is not the case, activities such as hospitals, schools, police services and etc. are classified under commercial services focused sectors but are typically not zoned as such. For this reason, Property Economics has divided these classifications into industrial, commercial, retail and other sectors. These sectors correspond broadly to the zoning of industrial, commercial, retail and special land zonings by the local authorities.

Industrial activities in general refer to land extensive activities, including part of the primary sector, largely raw material extraction industries such as mining and farming; the secondary sector, involving refining, construction, and manufacturing; and part of the tertiary sector, which involves distribution of manufactured goods. The employees work for the following sectors are considered an industrial sector employee:

- 10% of Agriculture, Forestry and Fishing
- 10% of Mining
- Transport, Postal and Warehousing
- Manufacturing
- 30% Electricity, Gas, Water and Waste Services
- Construction
- Wholesale Trade

Commercial office activities generally refer to land intensive activities. It includes a large proportion of the tertiary sector of an economy, which deals with services; and the quaternary sector, focusing on technological research, design and development. The employees work for the following sectors are considered a commercial sector employee:

- 15% of Accommodation and Food Services

- Information Media and Telecommunications
- Financial and Insurance Services
- Rental, Hiring and Real Estate Services
- Professional, Scientific and Technical Services
- Administrative and Support Services
- 35% Public Administration and Safety
- 15% Education and Training
- 25% Health Care and Social Assistance
- 25% Arts and Recreation Services

Retail Activities generally refer to enterprises mainly engaged in the purchase and on-selling of goods, without significant transformation, to the general public. Retail units generally operate from premises located and designed to attract a high volume of walk-in customers, have an extensive display of goods, and/or use mass media advertising designed to attract customers.

Cafes, Bars and Restaurants have also been included as part of Retail Activities and includes businesses mainly engaged in providing food and beverage serving services for consumption on the premises. Customers generally order and are served while seated (i.e. waiter/waitress service) and pay after eating. The employees work for the following sectors are considered a commercial sector employee:

- 85% of Accommodation and Food Services
- Retail Trade

Other Activities constitutes the balance of total employment within an area, and is not defined by any particular business sector. It encompasses community activities such as Museum Operations, Universities, Hospitals, Schools, Sports grounds and other activities not typically located on commercial or industrial land.

APPENDIX 2: CHRISTCHURCH UDS AREA TEMPORAL EMPLOYMENT TRENDS (2000-2016) BY QUADRANT AND SECTOR

Central	2000	2002	2004	2006	2008	2010	2012	2014	2016	# Growth (2000 - 2016)	% Growth (2000 - 2016)
Industrial	16,205	16,313	16,053	15,201	13,768	11,628	10,651	10,977	11,153	- 5,052	-31%
Retail	10,097	10,704	11,442	11,382	11,447	10,459	5,608	6,520	7,191	- 2,906	-29%
Commecial	21,934	23,060	25,801	27,806	29,247	26,559	15,834	19,310	20,324	- 1,610	-7%
Other	14,258	15,456	16,608	16,947	18,454	19,535	15,296	16,064	14,670	412	3%
Total	**62,494**	**65,533**	**69,904**	**71,335**	**72,916**	**68,180**	**47,388**	**52,871**	**53,338**	**- 9,156**	**-15%**

East	2000	2002	2004	2006	2008	2010	2012	2014	2016	# Growth (2000 - 2016)	% Growth (2000 - 2016)
Industrial	9,224	9,720	10,597	10,720	10,780	9,315	10,118	11,457	11,854	2,630	29%
Retail	4,022	4,102	4,852	4,825	5,343	5,016	4,345	4,466	4,902	880	22%
Commecial	2,498	2,951	3,691	4,078	4,031	4,007	3,998	4,219	4,476	1,978	79%
Other	4,656	5,545	6,238	6,422	6,260	6,620	5,868	5,735	5,699	1,043	22%
Total	**20,400**	**22,318**	**25,379**	**26,045**	**26,414**	**24,958**	**24,329**	**25,877**	**26,930**	**6,530**	**32%**

North	2000	2002	2004	2006	2008	2010	2012	2014	2016	# Growth (2000 - 2016)	% Growth (2000 - 2016)
Industrial	10,446	10,626	12,196	13,314	14,248	13,128	13,814	16,805	16,869	6,422	61%
Retail	5,476	5,900	6,690	7,142	7,041	6,615	7,398	7,762	8,173	2,697	49%
Commecial	5,240	5,742	6,227	6,885	7,316	7,054	9,864	9,918	11,181	5,941	113%
Other	7,902	8,326	8,959	8,945	9,344	9,593	9,937	10,662	11,561	3,659	46%
Total	**29,065**	**30,593**	**34,072**	**36,285**	**37,949**	**36,390**	**41,013**	**45,147**	**47,784**	**18,719**	**64%**

South	2000	2002	2004	2006	2008	2010	2012	2014	2016	# Growth (2000 - 2016)	% Growth (2000 - 2016)
Industrial	20,721	19,816	21,337	23,190	24,807	22,005	24,839	27,207	28,111	7,389	36%
Retail	7,580	7,571	8,274	9,092	9,481	9,028	10,806	11,427	12,439	4,859	64%
Commecial	7,007	7,499	8,415	10,082	10,895	10,672	18,853	18,890	20,281	13,275	189%
Other	11,017	11,159	11,956	12,259	12,298	13,521	16,022	16,177	16,919	5,902	54%
Total	**46,325**	**46,044**	**49,982**	**54,622**	**57,480**	**55,227**	**70,519**	**73,701**	**77,750**	**31,425**	**68%**

Christchurch City	2000	2002	2004	2006	2008	2010	2012	2014	2016	# Growth (2000 - 2016)	% Growth (2000 - 2016)
Industrial	56,597	56,475	60,183	62,424	63,603	56,076	59,422	66,446	67,986	11,390	20%
Retail	27,175	28,276	31,258	32,440	33,312	31,118	28,156	30,176	32,705	5,530	20%
Commecial	36,678	39,251	44,134	48,850	51,489	48,292	48,549	52,337	56,262	19,584	53%
Other	37,833	40,486	43,761	44,572	46,356	49,269	47,122	48,637	48,849	11,015	29%
Total	**158,284**	**164,488**	**179,337**	**188,287**	**194,759**	**184,755**	**183,249**	**197,596**	**205,802**	**47,518**	**30%**

Source: Property Economics, Statistics NZ

APPENDIX 3: CHRISTCHURCH UDS AREA EMPLOYMENT FORECASTS (2018-2048) BY QUADRANT

Central	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
Industrial	11,224	11,220	10,646	9,906	10,383	10,936	- 288	-3%
Retail	8,083	9,444	11,790	15,716	17,188	18,594	10,510	130%
Commecial	21,673	23,714	25,479	28,994	31,825	34,447	12,774	59%
Other	16,644	19,706	22,789	28,765	32,772	36,122	19,479	117%
Total	**57,624**	**64,085**	**70,704**	**83,382**	**92,167**	**100,099**	**42,475**	**74%**

East	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
Industrial	11,521	11,052	9,938	8,315	8,693	9,229	- 2,292	-20%
Retail	4,970	5,060	5,040	5,107	5,694	6,433	1,463	29%
Commecial	4,541	4,625	4,593	4,626	5,075	5,619	1,078	24%
Other	5,784	5,907	5,908	6,033	6,728	7,598	1,813	31%
Total	**26,816**	**26,644**	**25,480**	**24,081**	**26,191**	**28,878**	**2,062**	**8%**

North	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
Industrial	16,304	15,752	14,464	12,605	13,216	14,088	- 2,216	-14%
Retail	8,291	8,426	8,386	8,482	9,429	10,617	2,326	28%
Commecial	11,260	11,441	11,338	11,367	12,382	13,626	2,366	21%
Other	11,651	11,883	11,895	12,147	13,489	15,150	3,498	30%
Total	**47,506**	**47,502**	**46,084**	**44,602**	**48,516**	**53,481**	**5,975**	**13%**

South	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
Industrial	27,643	26,906	24,891	22,000	23,033	24,504	- 3,140	-11%
Retail	12,586	12,809	12,754	12,914	14,394	16,250	3,664	29%
Commecial	20,482	20,821	20,608	20,624	22,444	24,663	4,181	20%
Other	17,107	17,430	17,416	17,733	19,686	22,117	5,010	29%
Total	**77,818**	**77,965**	**75,669**	**73,271**	**79,558**	**87,534**	**9,716**	**12%**

Chrsitchurch City	2018	2021	2023	2028	2038	2048	# Growth (2018 - 2048)	% Growth (2018 - 2048)
Industrial	66,693	64,930	59,940	52,827	55,326	58,757	- 7,936	-12%
Retail	33,930	35,739	37,969	42,220	46,704	51,894	17,963	53%
Commecial	57,955	60,601	62,018	65,611	71,726	78,356	20,400	35%
Other	51,186	54,925	58,009	64,678	72,675	80,986	29,800	58%
Total	**209,765**	**216,196**	**217,937**	**225,336**	**246,432**	**269,992**	**60,228**	**29%**

APPENDIX 4: CHRISTCHURCH BUSINESS ZONED LAND & VACANCIES

CHRISTCHURCH CITY					
Commercial	**Central**	**East**	**North**	**South**	**Total**
Occupied	67	57	88	94	305
Vacant (part)	3	7	8	10	29
Vacant (whole)	15	9	22	24	70
Commercial Total	**85**	**73**	**118**	**128**	**404**

Industrial	**Central**	**East**	**North**	**South**	**Total**
Occupied	144	307	228	769	1,448
Vacant (part)	2	28	149	191	370
Vacant (whole)	8	41	129	267	446
Industrial Total	**154**	**376**	**506**	**1,228**	**2,264**

Mixed Use	**Central**	**East**	**North**	**South**	**Total**
Occupied	82	-	-	-	82
Vacant (part)	4	-	-	-	4
Vacant (whole)	24	-	-	-	24
Mixed Use Total	**111**	**-**	**-**	**-**	**111**

Specific Purpose	**Central**	**East**	**North**	**South**	**Total**
Occupied	-	-	98	-	98
Vacant (part)	-	-	181	-	181
Vacant (whole)	-	-	14	-	14
Specific Purpose Total	**-**	**-**	**294**	**-**	**294**

Christchurch Business Land	**Central**	**East**	**North**	**South**	**Total**
Occupied	293	364	414	863	1,934
Vacant (part)	9	35	338	202	584
Vacant (whole)	48	51	165	291	555
Total	**350**	**449**	**917**	**1,356**	**3,072**

APPENDIX 5: PROPERTY ECONOMICS RETAIL MODEL

This overview outlines the methodology that has been used to estimate retail spend generated at Census Area Unit (CAU) level for the identified catchment out to 2033.

CAU 2013 Boundaries

All analysis has been based on Census Area Unit 2013 boundaries, the most recent available.

Permanent Private Households (PPH) 2013

These are the total Occupied Households as determined by the Census 2013. PPHs are the primary basis of retail spend generation and account for approximately 71% of all retail sales. PPHs have regard for (exclude) the proportion of dwellings that are vacant at any one time in a locality, which can vary significantly, and in this respect account for the movement of some domestic tourists.

Permanent Private Occupied Household Forecasts 2006-2048

These are based on Rationale Area Unit (CAU) Medium Series Population Growth Projections, with this extrapolated to the year of interest.

International Tourist Spend

The total international tourism retail spend has been derived from the Ministry of Business, Innovation and Employment (MBIE) estimates nationally and cross referenced through Statistics NZ. This has been distributed regionally on a 'spend per employee' basis, using regional spend estimates prepared by the MEDTSG. Domestic and business based tourism spend is incorporated in the employee and PPH estimates. Employees are the preferred basis for distributing regional spend geo-spatially as tourists tend to gravitate toward areas of commercial activity, however they are very mobile.

Total Tourist Spend Forecast

Growth is conservatively forecast in the model at 3% per annum for assessed period.

2016-2048 PPH Average Household Retail Spend

This has been determined by analysing the national relationship between PPH average household income (by income bracket) as determined by the 2013 Census, and the average PPH expenditure of retail goods (by income bracket) as determined by the Household Economic Survey (HES) prepared by Statistics NZ.

While there are variables other than household income that will affect retail spending levels, such as wealth, access to retail, population age, household types and cultural preferences, the effects of these are not able to be assessed given data limitations, and have been excluded from these estimates.

Real Retail Spend Growth (excl. trade based retailing)

Real retail spend growth has been factored in at 1% per annum. This accounts for the increasing wealth of the population and the subsequent increase in retail spend. The following explanation has been provided.

Retail Spend is an important factor in determining the level of retail activity and hence the 'sustainable amount 'of retail floorspace for a given catchment. For the purposes of this outline 'retail' is defined by the following categories:

- Food Retailing
- Footwear
- Clothing and Softgoods
- Furniture and Floor coverings
- Appliance Retailing
- Chemist
- Department Stores
- Recreational Goods
- Cafes, Restaurants and Takeaways
- Personal and Household Services
- Other Stores.

These are the retail categories as currently defined by the ANZSIC codes (Australia New Zealand Standard Industry Classification).

Assessing the level and growth of retail spend is fundamental in planning for retail network and land use within a regional network.

Internet Retail Spend Growth

Internet retailing within New Zealand has seen significant growth over the last few decades. This growth has led to an increasing variety of business structures and retailing methods including; internet auctions, just-in-time retailing, online ordering, virtual stores etc.

As some of internet spend is being made to on-the-ground stores, a proportion of internet expenditure is being represented in the Statistics NZ Retail Trade Survey (RTS) while a large majority remains unrecorded. At the same time this expenditure is being recorded under the Household Economic Survey (HES) as a part of household retail spending, making the two datasets incompatible. For this reason, Property Economics has assumed a flat 5% adjustment percentage on HES retail expenditure, representing internet retailing that was never recorded within the RTS.

Additionally, growth of internet retailing for virtual stores, auctions and overseas stores is leading to a decrease in on-the-ground spend and floor space demand. In order to account for this, a non-linear percentage decrease of 5% in 2016 growing to 15% by 2048 has been applied to retail expenditure encompassing all retail categories in our retail model. These losses represent the retail diversion from on-the-ground stores to internet based retailing that will no longer contribute to retail floor space demand.

Retail Spend Determinants

Retail Spend for a given area is determined by: the population, number of households, size and composition of households, income levels, available retail offer and real retail growth. Changes in any of these factors can have a significant impact on the available amount of retail spend generated by the area. The coefficient that determines the level of 'retail spend' that eventuates from these factors is the MPC (Marginal Propensity to Consume). This is how much people will spend of their income on retail items. The MPC is influenced by the amount of disposable and discretionary income people are able to access.

Retail Spend Economic Variables

Income levels and household MPC are directly influenced by several macroeconomic variables that will alter the amount of spend. Real retail growth does not rely on the base determinants changing but a change in the

financial and economic environment under which these determinants operate. These variables include:

Interest Rates: Changing interest rates has a direct impact upon households' discretionary income as a greater proportion of income is needed to finance debt and typically lowers general domestic business activity. Higher interest rates typically lower real retail growth.

Government Policy (Spending): Both Monetary and Fiscal Policy play a part in domestic retail spending. Fiscal policy, regarding government spending, has played a big part recently with government policy being blamed for inflationary spending. Higher government spending (targeting on consumer goods, direct and indirectly) typically increases the amount of nominal retail spend. Much of this spend does not, however, translate into floor space since it is inflationary and only serves to drive up prices.

Wealth/Equity/Debt: Since the early-mid 2000s changes in these factors have had a dramatic impact on the level of retail spending nationally. The increase in property prices has increased home owners' unrealised equity in their properties. This has led to a significant increase in debt funded spending, with residents borrowing against this equity to fund consumable spending. This debt spending is a growth facet of New Zealand retail. In 1960 households saved 14.6% of their income, while households currently spend 14% more than their household income.

Inflation: As discussed above, this factor may increase the amount spent by consumers but typically does not dramatically influence the level of sustainable retail floor space. This is the reason that productivity levels are not adjusted but similarly inflation is factored out of retail spend assessments.

Exchange Rate: Apart from having a general influence over the national balance of payments accounts, the exchange rate directly influences retail spending. A change in the $NZ influences the price of imports and therefore their quantity and the level of spend.

General consumer confidence: This indicator is important as consumers consider the future and the level of security/finances they will require over the coming year.

Economic/Income growth: Income growth has a similar impact to confidence. Although a large proportion of this growth may not impact upon households' MPC (rather just increasing the income determinant) it does impact upon households' discretionary spending and therefore likely retail spend.

Mandatory Expenses: The cost of goods and services that are necessary has an impact on the level of discretionary income that is available from a household's disposal income. Important factors include housing costs and oil prices. As these increase the level of household discretionary income drops reducing the likely real retail growth rate.

Current and Future Conditions

Retail spend has experienced a significant real increase in the early-mid 2000s. This was due in large part to the increasing housing market. Although retail growth is tempered or crowded out in some part by the increased cost of housing it showed significant gains as home owners, prematurely, access their potential equity gains.

This resulted in strong growth in debt / equity spending as residents borrow against capital gains to fund retail spending on consumption goods. A seemingly strong economy also influenced these recent spending trends, with decreased employment and greater job security producing an environment where households were more willing to accept debt.

Over the last 8 years this has now reversed with the worldwide GFC recession causing a significant adjustment in consumer behaviour. As such, the economic environment has undergone rapid transformation. The national market is currently experiencing low interest rates (although expected to increase over this coming year) and a highly inflated $NZ (increasing importing however disproportionately).

Now emerging is a rebound in the property market and an increase in general business confidence as the economy starts to recover from the post-GFC hangover. These factors will continue to influence retail spending throughout the next 5 or so years. Given the previous years' (pre-2008) substantial growth and high levels of debt repayment likely to be experienced by New Zealand households it is expected that real retail growth rates will continue to be subdued for the short term.

Impacts of Changing Retail Spend

At this point in time a 1% real retail growth rate is being applied by Property Economics over the longer term 20-year period. This rate is highly volatile however and is likely to be in the order of 0.5% to 1% over the next 5 – 10 years rising to 1% - 2% over the more medium term as the economy stabilises and experiences cyclical growth. This would mean that it would be prudent in the shorter term to be conservative with regard to the level of sustainable retail floor space within given centres.

Business Spend

This is the total retail spend generated by businesses. This has been determined by subtracting PPH retail spend and Tourist retail spend from the Total Retail Sales as determined by the Retail Trade Survey (RTS) which is prepared by Statistics NZ. All categories are included with the exception of accommodation and automotive related spend. In total, Business Spend accounts for 26% of all retail sales in NZ. Business spend is distributed based on the location of employees in each Census Area Unit and the national average retail spend per employee.

Business Spend Forecast 2013-2048

Business spend has been forecasted at the same rate of growth estimated to be achieved by PPH retail sales in the absence reliable information on business retail spend trends. It is noted that while working age population is decreasing as a proportion of total population, employees are likely to become more productive over time and therefore offset the relative decrease in the size of the total workforce.

APPENDIX 6: CHRISTCHURCH UDS AREA NET ADDITIONAL RETAIL DEMAND BY QUADRANT

SOUTH	3 Years	5 Years	10 Years	30 Years
NET RETAIL DEMAND ($m)	$110	$180	$360	$1,200
RETAIL GFA (sqm)	20,050	34,050	67,550	218,750
Non-Retail Commercial Services (sqm)	10,025	17,025	33,775	109,375
Total Retail / Commercial Service Requirement (sqm)	30,075	51,075	101,325	328,125
Likely Land Requirement (ha)	5.3	9.1	18.0	58.3
Likely Land Requirement (ha) + NPS buffer	6.4	10.9	21.6	67.1

NORTH	3 Years	5 Years	10 Years	30 Years
NET RETAIL DEMAND ($m)	$60	$110	$220	$720
RETAIL GFA (sqm)	11,900	20,150	40,400	130,300
Non-Retail Commercial Services (sqm)	5,950	10,075	20,200	65,150
Total Retail / Commercial Service Requirement (sqm)	17,850	30,225	60,600	195,450
Likely Land Requirement (ha)	3.2	5.4	10.8	34.7
Likely Land Requirement (ha) + NPS buffer	3.8	6.4	12.9	40.0

EAST	3 Years	5 Years	10 Years	30 Years
NET RETAIL DEMAND ($m)	$40	$80	$150	$450
RETAIL GFA (sqm)	8,100	13,700	26,450	81,600
Non-Retail Commercial Services (sqm)	4,050	6,850	13,225	40,800
Total Retail / Commercial Service Requirement (sqm)	12,150	20,550	39,675	122,400
Likely Land Requirement (ha)	2.2	3.7	7.1	21.8
Likely Land Requirement (ha) + NPS buffer	2.6	4.4	8.5	25.0

CENTRAL	3 Years	5 Years	10 Years	30 Years
NET RETAIL DEMAND ($m)	$50	$90	$170	$520
RETAIL GFA (sqm)	9,600	16,400	30,250	93,750
Non-Retail Commercial Services (sqm)	4,800	8,200	15,125	46,875
Total Retail / Commercial Service Requirement (sqm)	14,400	24,600	45,375	140,625
Likely Land Requirement (ha)	2.6	4.4	8.1	25.0
Likely Land Requirement (ha) + NPS buffer	3.1	5.2	9.7	28.8

APPENDIX 7: COMMERCIAL SERVICE STORE TYPE CLASSIFICATIONS

Note this is not intended to represent an exhaustive list of appropriate store types

EXAMPLES OF CONVENIENCE RETAIL STORE TYPES

- Supermarket / Superette / Dairy / Mini-mart
- Fish shop
- Butcher
- Bakery
- Post Shop / Stationery
- Fruit & Vege Shop
- Delicatessen
- Cake Shop
- Ice Cream Parlour
- Liquor / Wine Shop
- Takeaways (Fish & Chips, Pizza, Chinese, Thai, Turkish, Indian, etc.)
- Cafés & Restaurants
- Video store
- Stationery Shop / Newsagent
- Pub / Bar
- Florist
- Gift Shops
- Pharmacy

EXAMPLES OF CONVENIENCE COMMERCIAL / PROFESSIONAL SERVICES AND OFFICE ACTIVITIES

- Camera / Photography Shop
- Optometrist
- Locksmith
- Hairdresser
- Drycleaners
- Doctors
- Accountants
- Physiotherapists
- Medical practitioners
- Dentists
- Child care facilities
- Gym
- Lawyers

APPENDIX 8: NET LAND DIFFERENTIAL BY QUADRANT

North

	3-Year Growth	*10-Year Growth*	*30-Year Growth*
Commercial Office	2	1	15
Commercial Services	1	1	8
Retail	1	1	16
Total Commercial Demand	4	3	39
Total Commercial Supply	30	30	30
Differential	***26***	***27***	***-9***
Total Industrial Demand	22	5	125
Total Industrial Supply	278	278	278
Differential	***256***	***273***	***153***

South

	3-Year Growth	*10-Year Growth*	*30-Year Growth*
Commercial Office	4	1	21
Commercial Services	1	2	14
Retail	2	2	26
Total Commercial Demand	6	4	61
Total Commercial Supply	34	34	34
Differential	***28***	***30***	***-27***
Total Industrial Demand	43	20	234
Total Industrial Supply	458	458	458
Differential	***415***	***438***	***224***

East

	3-Year Growth	*10-Year Growth*	*30-Year Growth*
Commercial Office	1	1	8
Commercial Services	1	1	5
Retail	1	1	10
Total Commercial Demand	3	2	24
Total Commercial Supply	16	16	16
Differential	***13***	***14***	***-8***
Total Industrial Demand	13	-9	56
Total Industrial Supply	69	69	69
Differential	***56***	***78***	***13***

Central

	3-Year Growth	10-Year Growth	30-Year Growth
Commercial Office	11	24	38
Commercial Services	1	1	6
Retail	10	39	74
Total Commercial Demand	21	64	118
Total Commercial Supply	46	46	46
Differential	***25***	***-18***	***-72***
Total Industrial Demand	11	16	67
Total Industrial Supply	10	10	10
Differential	***-1***	***-6***	***-57***

APPENDIX 9: BUILDING HEIGHTS

Building Height Analysis		
	EFM Area 1	EFM Area 2
CCCB	4.23	-
CCCMU	1.81	-
CSF	2.4	-
IG	-	1.1
CO	-	2.25
CC	-	1.3
CRP	-	1.55
Total by EFM Area	2.7	1.2
Grand Total	2.14	

APPENDIX 10: VACANT FLOORSPACE SAMPLE AND TEMPORARILY RELOCATED BUSINESSES

COLLIERS OFFICE FLOORSPACE VACANCY	
CENTRAL CITY	
Total Central City See note 1	Office: 72,691m^2 (of 356,403 m^2 total stock) =20.4%
SUBURBAN	
Addington/Lincoln Road See note 2	18,070m^2 (of 104,330m^2 total stock) = 17.3%
Riccarton See note 3	10,651m^2 (of 45,863 m^2 total stock) = 23.2%
Burnside/Airport See note 4	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%

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)	659	711	569	942	2,881
Office activity	2,109	1,286	205	2,210	5,810
Industrial activity	1,095				1,095
Healthcare				1,047	1,047
Gym	140				140
Education		682			682
Yard based supplier			130		130
Spiritual activity	1,057				1,057
Cultural activity		368			368
Entertainment activity			133		133

APPENDIX 11: VACANT LAND AREA REVISIONS

Amend Supply to reflect subsequent amendments made to the Vacant Land Register:		
Land to be removed (ha)	**Commercial**	**Industrial**
Central Quadrant	12.1	1.78
East Quadrant	0.29	5.76
North Quadrant	0.49	50.22
South Quadrant	3.58	19.9
Land to be added	**Commercial**	**Industrial**
Central quadrant	0.56	-
Eastern quadrant	2.84	-

Amendments required to remove land that is considered unfeasible to develop:		
Land to be removed	**Commercial**	**Industrial**
Central Quadrant	**0.71**	**-**
East Quadrant	-	0.71
North Quadrant	**0.475**	**-**
South Quadrant	**0.3176**	**0.25**

Amendments required to remove land that is not serviced			
Site to be removed	**Area (ha)**	**Quadrant**	**Timing**
Chaneys Industrial Heavy	47	North	Take out of ST, MT and LT supply
Wairakei Industrial Park (ODP)	40.7	North	Take out of ST, MT and LT supply
South Hornby Industrial Heavy	61.5	South	Take out of ST, MT and LT supply
Springs Road Industrial Heavy	15.92	South	Take out of ST, MT and LT supply
Awatea Industrial Park	10.47	South	Take out of ST, MT and LT supply
Hawthornden GPA (not zoned)	35	South	Take out of ST, MT and LT supply
Johns Road	15	North	Take out of ST, MT and LT supply
Memorial Avenue	22.76	North	Take out of ST supply
North Belfast Industrial General	78.87	North	Take out of ST supply
Belfast/Northwood Commercial Core zone (ODP)	9.44	North	Take out of ST supply