PROPERTY ECONOMICS

WEST FRANKLIN AND

DRURY FUTURE BUSINESS

LAND ASSESSMENT

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SCHEDULE

Code	Date	Information / Comments	Project Leader
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1. INTRODUCTION

Property Economics has been engaged by Auckland Council to undertake a high-level assessment of longer term business land requirements (retail and commercial service, industrial and commercial) for the West Franklin and Drury markets over the next 30-years factoring in the current zone provisions, National Policy Statement on Urban Development Capacity (NPS UDC) directives, and implications from the injection of large growth cells across both areas. Long-term in the context of this report relates to the NPS UDC directive of 30 years (to 2048). This report is designed to provide council with a robust evidential base for the utilisation and future structure planning for the assessed Future Urban Zones.

This research in this report will utilise Auckland Council population and household projections with consideration of the future population of proposed Special Housing Areas in order to identify future retail commercial needs of the assessed areas in terms of demand generated by the market (current and future), and how best to cater for future retail and commercial service land requirements.

The analysis on retail and commercial service business future land requirements are separate from industrial and commercial office requirements as the methodologies required to determine the future land requirements of retail and supporting commercial service activities, and other business activities are different. Increased retail GFA and land demand is based on the level of annualised retail expenditure the market can generate and sustain, while office and industrial activities has a more widespread catchment and is more appropriately based on employment sector growth forecasts.

1.1.   CORE OBJECTIVES

The primary objectives of this report are to:

- Delineate the geo-spatial extent for the likely core economic market (or core retail trade catchment) for West Franklin and Drury markets.

- Determine the current market size of the West Franklin and Drury markets in terms of population and households and forecast market growth (incorporating the Future Urban Zones), based on the provided projections from Auckland Council and Statistics NZ.

- Calculate the level of annualised retail expenditure generated by the delineated core economic catchments areas the key retail sectors, and project this out to 2048.

- Determine the amount of retail and commercial service floorspace that can be sustained by the identified market catchments in the relevant retail sectors, both currently and over the assessed forecast horizon.

- Determine the quantum and location of the existing industrial and commercial employment base in the identified markets geo-spatially.

- Breakdown and analyse the existing industrial and commercial employment and business composition by sector in the assessed areas.

- Assess industrial and commercial employment trends by sector on a temporal basis over the 2000-2016 period.

- Forecast industrial and commercial employment growth for the planning period to 2048.

- 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 business land is required long-term to service the identified study areas of Drury and West Franklin factoring in current zoned land provision and appropriate NPS UDC buffers.

1.2. INFORMATION & DATA SOURCES

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

- Population and Household Projections: Auckland – Auckland Council

- Census of Population and Dwellings 2013 - Statistics NZ (extrapolated to 2017 by Property Economics)

- Business Frame Temporal Employment Data – Statistics NZ

- Auckland Council GIS Datasets – Auckland Council

- Future Urban Zone Data – Auckland Council

- Vacant Business Zone Land Data – Auckland Council

- Building Consent Data – Statistics NZ

- National GDP Data – Statistics NZ

- Subnational GDP Estimates – MBIE

- Household Economic Survey - Statistics NZ

- Retail Trade Survey - Statistics NZ

- Employment Projection Modelling – Property Economics

- Google Maps

- Pukekohe Area Plan October 2014, Auckland Council

2. EXECUTIVE SUMMARY

Over the forecast 30-year period to 2048 both the West Franklin and Drury catchments are expected to experience a significant acceleration in population and household growth compared to their past growth profiles. This is due to urbanisation of the area's Future Urban Zoned land within the Auckland Unitary Plan, and the urgency around zoning additional land for urban growth given current housing shortages.

By mid-century the West Franklin catchment is projected to have population base similar to Hamilton City's present-day population, while the Drury catchment is projected to have a population base similar to the current population of Dunedin City.

This dramatic population growth rate is a key driver behind the resulting employment base. Two factors result from this level of resident population growth, the increase in labour force and an increase in employment retention through the development of a critical mass and ability / requirement for the local area to cater for local services and employment.

Based on estimated residential capacity and proposed future business land developments, the total retail and commercial service centre land requirement across the two identified catchments is estimated be in the order of 85-90ha inclusive of a 15% long term buffer factoring in obligations under the NPS UDC.

The West Franklin study area has a total retail and commercial service land requirement around half that of Drury in the order of 30ha, with an estimated 32ha vacant. The majority of this vacant land is located within Paerata North and Kingseat. While geographically these business zones are well located to meet local area growth in Property Economics' opinion they are in excess of localised requirements.

A more appropriate and efficient centre business zone distribution in West Franklin would better align business land provision with residential growth distribution and would include two new centres - one in north-western Pukekohe and one in south-eastern Pukekohe of around 2-2.5ha each for retail and commercial service activities. The balance of the catchment appears to have the centre business land provision ready to meet future market requirements.

Within the Drury catchment around 55 – 60ha is estimated to be required at capacity, with the majority (approximately 60%) most appropriately located within the centralised (to the catchment) Drury Town Centre. Current centre vacant business zone land in the catchment is estimated at 20ha, primarily around the Karaka / Hingaia node. This leaves a balance of around 35ha of additional centre business zoned land required for retail and commercial service in the catchment.

In Property Economics' opinion, the retail / commercial service land requirements would be most appropriately provided for with three new local centres each located within each of the council designated growth areas of Drury West Stage 1 (including Bremner Road SHA), Drury West Stage 2 and Opaheke. These smaller supporting centres to the dominant Drury Town Centre would require 4-6ha each, with the potential for supporting a supermarket, focusing on convenience retailing and commercial services servicing their localised residential markets.

The development of the complementary convenience-oriented centres (to the major Drury and Pukekohe centres) will depend on the rate and scale of residential growth within each localised area the centre would primarily service. As such market forces and property cycle dynamics are likely to determine the timing of each centre's development.

The bulk of the LFR and Speciality retail component of the land requirement across both markets (11 – 12ha LFR and 11 – 13ha Speciality retailing) would be most efficiently provided in and around the Drury Town Centre location, which is central to the wider Drury catchment and growth areas. Property Economics consider there is potential for a new large scale integrated retail mall / centre to be developed at the Drury interchange in the form of a new large-scale metropolitan centre. The retail and commercial service requirement for any future Drury Town Centre (factoring in the existing 20ha capacity) is estimated to be in the order of 24ha. The scale of such a development would encompass a similar land footprint as Sylvia Park including its bulk retailing component.

In terms of non-retail land, by 2048, Drury is estimated to have a deficit of 136ha of industrial and 72ha of commercially zoned land. In comparison the wider West Franklin catchment is estimated to have a surplus of industrial land of 182 hectares and a deficit of commercially zoned land in the order of 26 hectares. Given that these two markets do not operate in isolation, the aggregate supply / demand of industrial land equates to a net 46ha surplus at 2048 (including the areas of Waiuku, Glenbrook and Tuakau). Commercially zoned land however is identified to have a significant shortfall of nearly 100ha across the two markets at the same year.

No land provision has been made for community facilities (i.e. libraries, community halls, urban parks, children's playgrounds, etc.) in the estimated land requirements. As such any provision for such activities would be additional to the identified land requirements in this report. However, in Property Economics experience these land uses do not comprise a material proportion of ground level land uses in business zones of more local oriented centres (around 5%), rather they often are situated in other zones.

3. ECONOMIC STUDY AREAS

Figure 1 illustrates the higher-level economic study area utilised in this report. For the purpose of analysis, Property Economics has adopted the former Manukau City, Papakura District and Franklin District territorial authorities as assessment areas for the industrial and commercial office analysis.

These areas have been selected differently to the retail catchment indicated later which assesses the West Franklin and Drury markets, acknowledging the differences in the extent of economic catchments of retail and commercial / industrial markets, with retail catchments generally more localised.

Figure 1 represents the core economic markets on which the subsequent industrial and commercial analysis in this assessment is based.

FIGURE 1: CORE ECONOMIC MARKETS (FORMER TERRITORIAL AUTHORITIES)
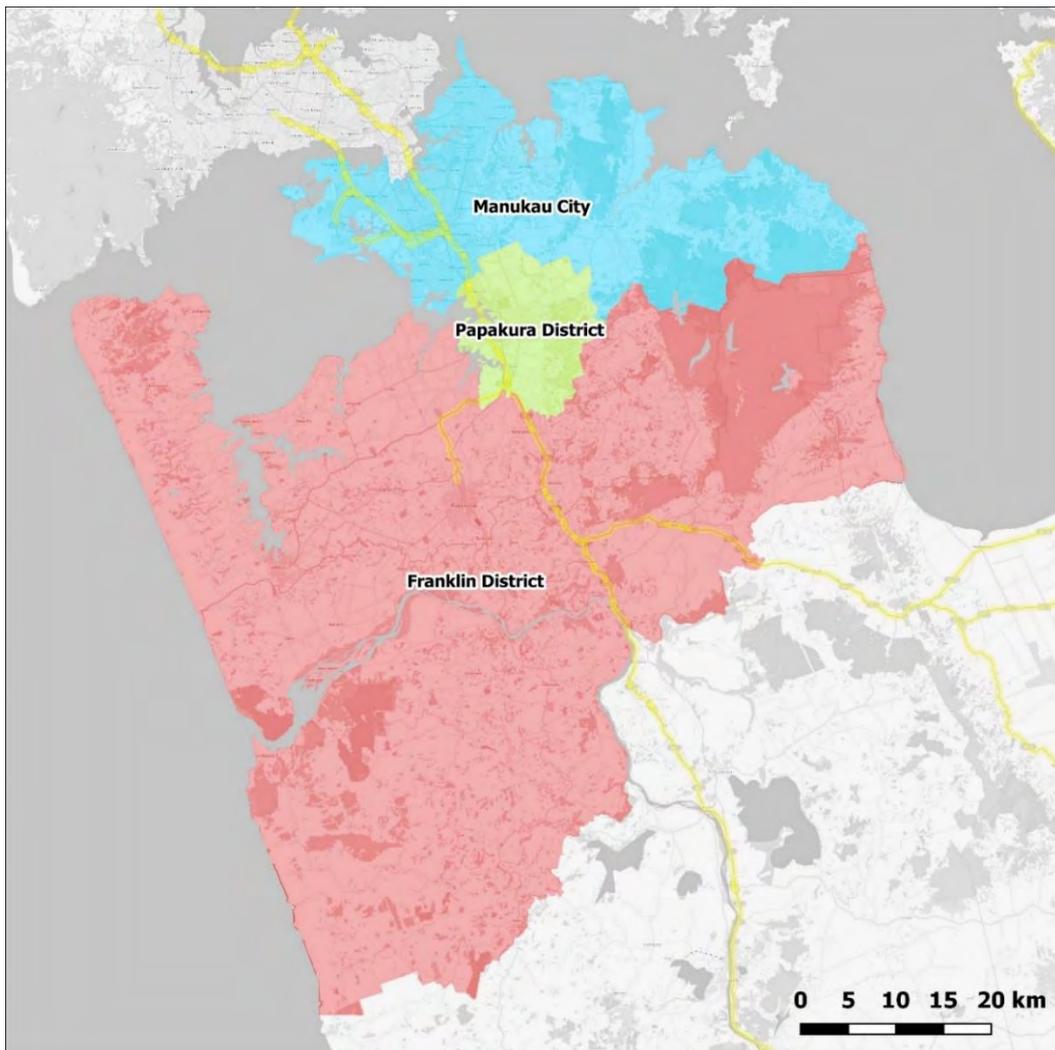
Source: Property Economics, Statistics NZ

Figure 2 displays the population growth projections within the former Manukau City, Papakura and Franklin Districts (wider industrial and commercial market study area).

The population projections utilised in this assessment have been partially based on the Auckland regional growth projections supplied by Auckland Council to Property Economics ensuring consistency with other Council documents and longer-term forecasting. As the defined catchment does not completely lie within the Auckland Regional area, Statistics NZ medium series projections have been used for the balance of the area.

FIGURE 2: INDUSTRIAL AND COMMERCIAL STUDY AREA POPULATION FORECASTS
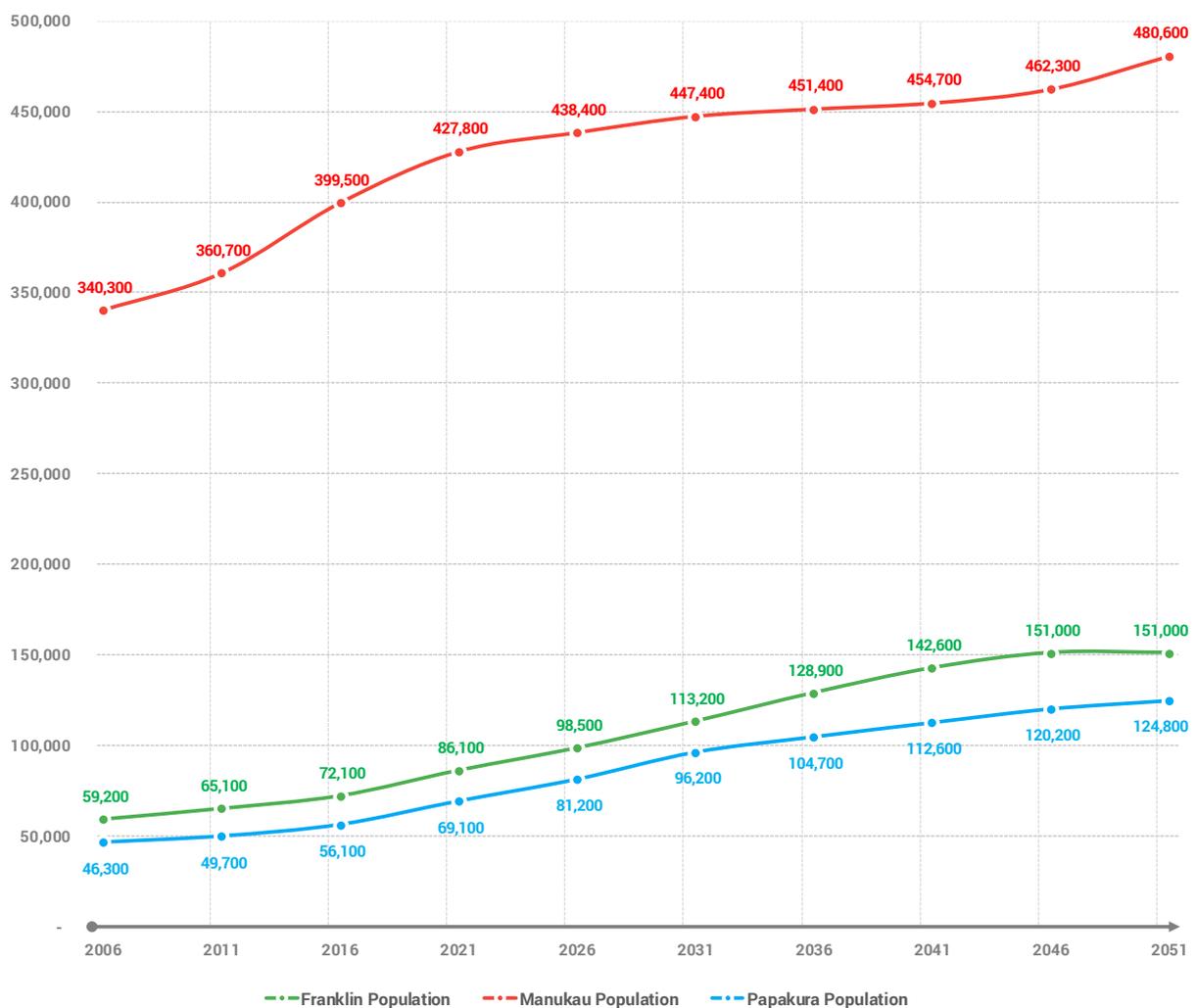
Source: Property Economics, Auckland Council, Statistics NZ

The three areas that comprise the study area of the '*southern catchment*' currently comprise over 520,000 of the Region's resident population, and are expected to grow to over 750,000 residents by 2051.

For the purposes of determining the demand for commercial and industrial business activity and land requirements at the localised level, both Drury and West Franklin are represented by the 'retail catchments'. These catchments are not intended to represent the entire market for these areas but the core markets driving their localised commercial and industrial land demand. The catchments are identified in the map below (Figure 3). .

FIGURE 3: DRURY AND WEST FRANKLIN BUSINESS DEMAND CATCHMENTS

Source: Property Economics

FIGURE 4: DRURY AND WEST FRANKLIN CATCHMENT POPULATION FORECASTS
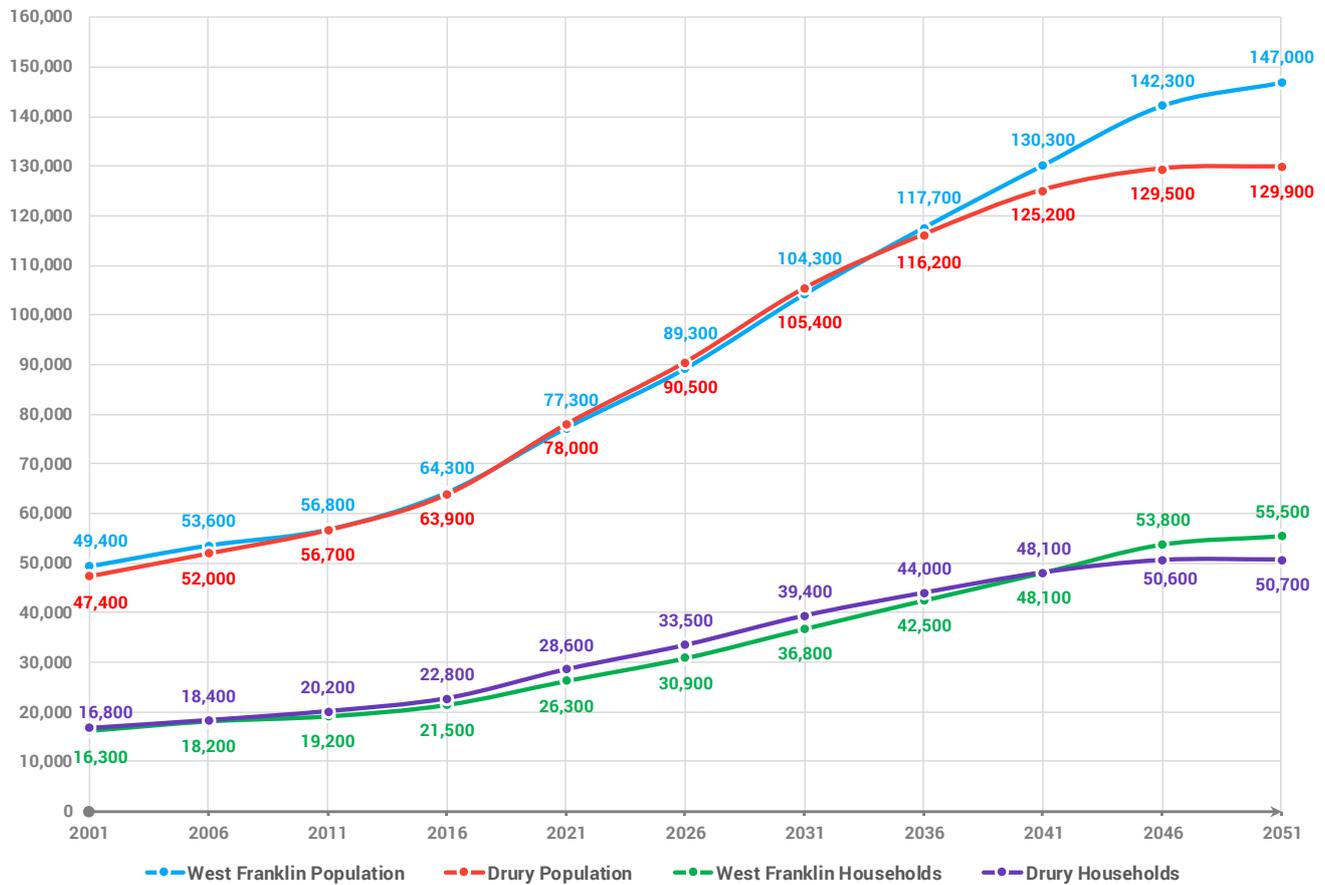
Source: Property Economics, Auckland Council, Statistics NZ

Figure 4 illustrates the population growth rates for the identified localised business catchments of West Franklin and Drury, the focus areas for this structure planning exercise. These rates are amongst the highest in the country with growth in excess of 100% to 2051. In terms of the wider catchment the two localised areas made up 70% of total population growth while only constituting 25% of the total population base in 2017.

Over the forecast period both the West Franklin and Drury catchments are expected to experience a significant acceleration in population and household growth compared to their past growth profiles. This is due to urbanisation of the area's Future Urban Zoned land within the Auckland Unitary Plan, and the urgency around zoning additional land for urban growth given current housing shortages.

In 2016 West Franklin catchment was estimated to have around 64,300 residents and 21,500 households. Projected household growth for the catchment equates to around 143% by 2051, with the establishment of an additional 34,000 households over the 2016 – 2051 period giving rise to a household base of an estimated 55,000. For context, the population base of the 2051 West Franklin catchment is estimated to be equivalent to Hamilton City's present-day population.

Growth within the Drury catchment is estimated to be slightly lower with 27,900 new households forecast over the same period. By 2051, the Drury catchment is projected to have a population base similar to the current population of Dunedin City.

This dramatic population growth rate is a key driver behind the resulting employment base. Two factors result from this level of resident population growth, the increase in labour force and an increase in employment retention through the development of a critical mass and ability / requirement for the local area to cater for local services and employment.

It is Property Economics' understanding that a higher dwelling capacity scenario for the Drury catchment has also been determined applying higher residential densities. This increases the numbers of dwellings the catchment can yield at capacity in the catchment. This scenario increases household levels by around 6.5% (above the aforementioned scenario) which in nominal terms equates an additional 3,300 households and around 8,500 people. Whilst this has not been shown in Figure 4, these two scenarios have been assessed and included in the analysis following this section as Scenario 2 for the Drury catchment.

4. INDUSTRIAL AND COMMERCIAL SECTOR ANALYSIS

4.1. EXISTING BUSINESS ZONE LAND SUPPLY

The geospatial extent and distribution of relevant business zoned land supply is shown in the Manukau [Figure 5], Papakura [Figure 6] and Franklin (Figure 7) areas.

FIGURE 5: GEOSPATIAL DISTRIBUTION OF BUSINESS ZONED LAND (MANUKAU)
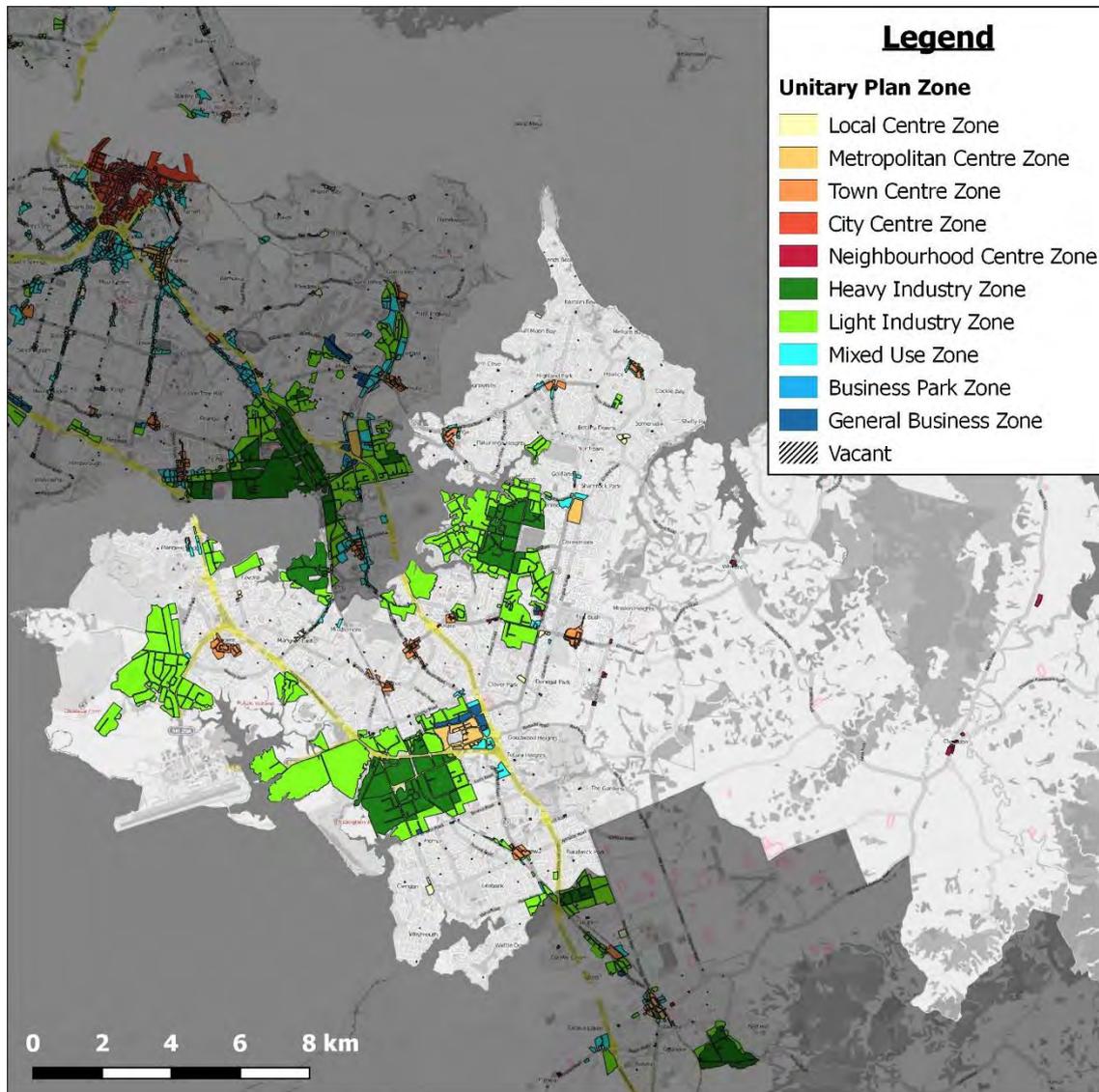
Source: Property Economics, Auckland Council

FIGURE 6: GEOSPATIAL DISTRIBUTION OF BUSINESS ZONED LAND (PAPAKURA)
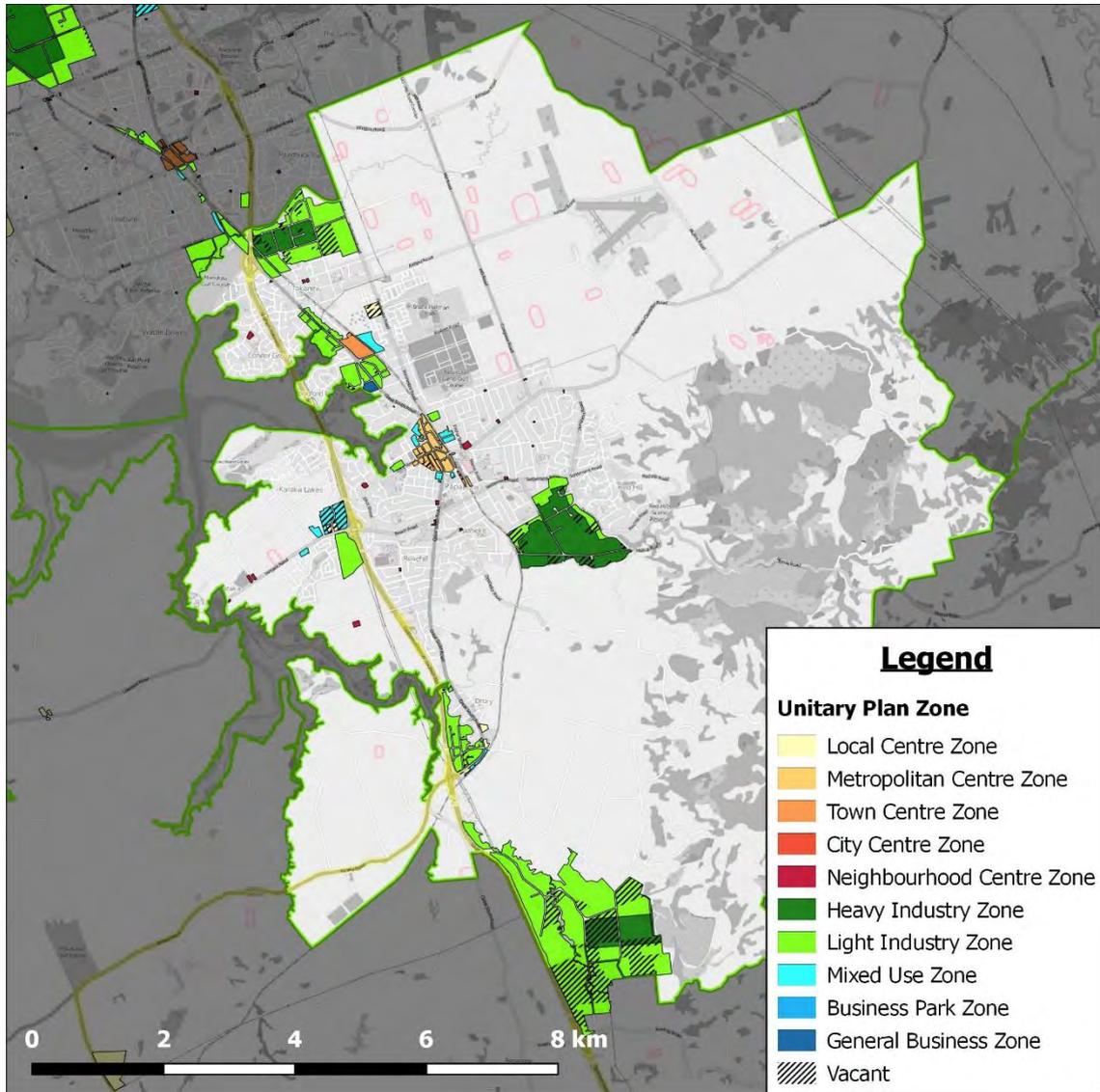
Source: Property Economics, Auckland Council

FIGURE 7:   GEOSPATIAL DISTRIBUTION OF BUSINESS ZONED LAND (FRANKLIN)
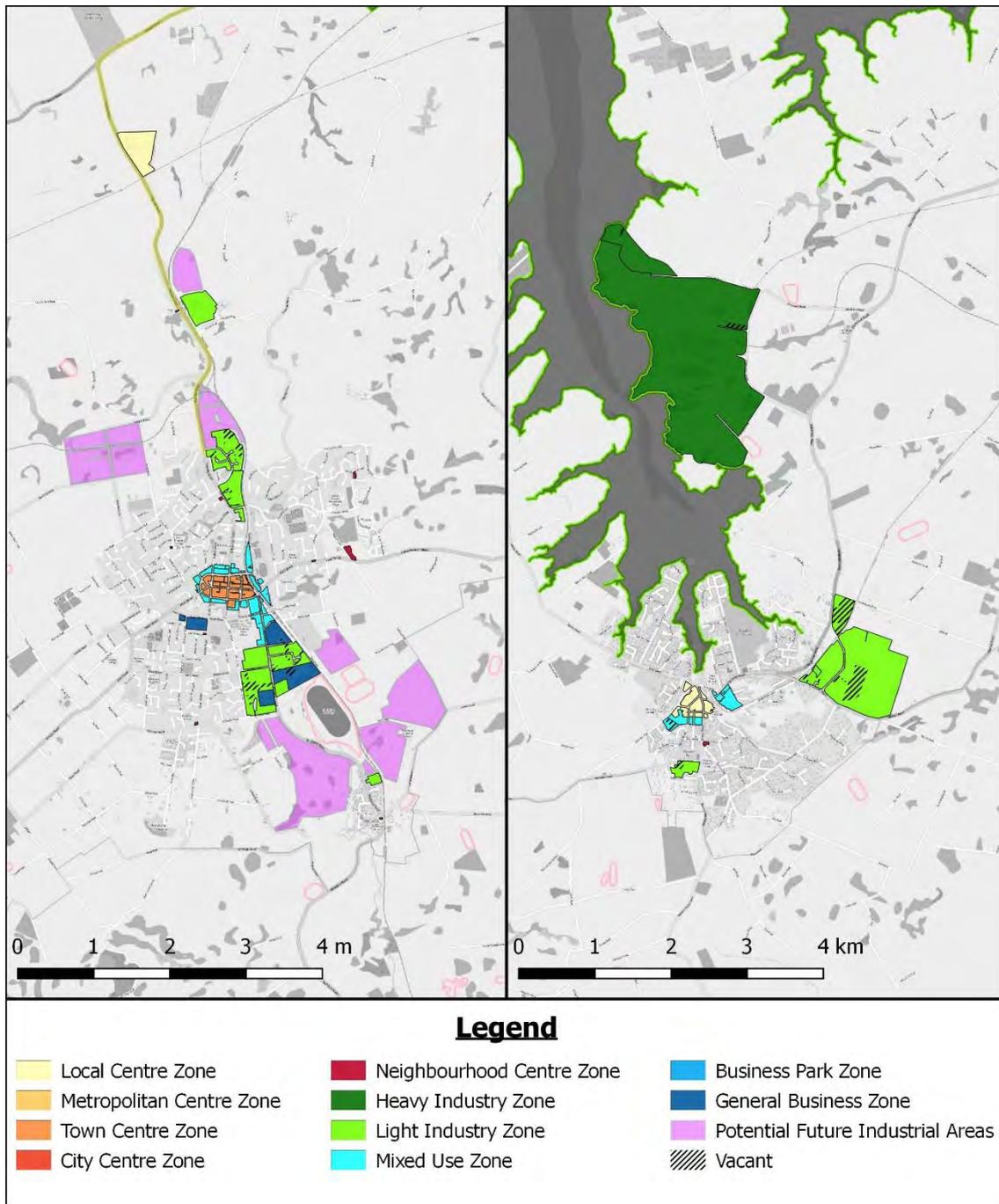
Source: Property Economics, Auckland Council, Pukekohe Area Plan October 2014

Potential Future Industrial Areas are based on the areas delineated within the Pukekohe Area Plan October 2014 totalling 269ha. These have been included in the analysis as future rezoning distinct from existing business zones.

Table 1 aggregates the current provision of industrial and commercial zoned land within the Southern Catchment and compares existing capacity against occupied, vacant and partially (inefficiently used) sites (Table 2). For the purpose of this assessment, Airport Business zone has been excluded due to a lack of vacancy data (albeit acknowledging there is material zoned vacant land capacity available within this zone), Partially Vacant sites are classified as such if the building footprint of a site is less than 20% of the site's total land area, and Occupied refers to the balance of sites that are efficiently utilised (i.e. GFA to land area ratio over 20% coverage).

TABLE 1: SOUTHERN CATCHMENT BUSINESS LAND PROVISION (HA)

	Franklin District (AUP Component)	Papakura District	Manukau City	Total
Heavy Industry	361.2	176.8	723.0	1,261.1
Light Industry	304.2	417.3	1,894.8	2,616.3
General Business	27.8	2.5	39.0	69.2
Mixed Use	34.9	29.6	94.3	158.8
Metropolitan Centre	-	23.8	86.1	109.9
Town Centre	14.8	9.4	120.5	144.6
Local Centre	40.1	8.2	33.6	81.9
Neighbourhood Centre	14.7	6.3	38.6	59.6
Total	797.6	673.9	3,029.9	4,501.4
Total + Additional Rezonings	*1,066.6*	*673.9*	*3,029.9*	*4,770.4*

Source: Property Economics, Auckland Council

TABLE 2: SOUTHERN CATCHMENT VACANT BUSINESS LAND PROVISION (HA)

	Franklin District (AUP Component)	Papakura District	Manukau City	Total
Heavy Industry	193.7	40.6	47.0	281.3
Light Industry	194.5	78.7	172.0	445.2
General Business	1.6	-	-	1.6
Mixed Use	2.5	12.5	11.0	26.0
Metropolitan Centre	-	1.6	4.0	5.6
Town Centre	0.2	0.3	31.0	31.5
Local Centre	27.4	5.5	33.6	66.5
Neighbourhood Centre	0.6	0.1	9.0	9.7
Total	420.5	139.3	307.6	867.4
Total + Additional Rezonings	*689.5*	*139.3*	*307.6*	*1,136.4*

Source: Property Economics, Auckland Council

At present the Southern Catchment has a total of 624 hectares of commercial zoned land and 4,146 hectares of industrial zoned land including the potential Pukekohe industrial areas, of which 22% and 24% respectively is considered fully vacant. The analysis also indicates there appears to be a significant level of inefficiently utilised business land across both land use property types (particularly industrial).

4.2.   INDUSTRIAL AND COMMERCIAL OVERVIEW

This section of the report assesses the identified catchments commercial and industrial markets, and evaluates the trends, size, distribution and composition of the different industrial and commercial ANZSIC sectors that comprise the identified catchment's industrial and commercial economy.

This analysis will be used to forecast future employment demand and business land requirements over the period to 2048 to guide Auckland Council's long-term business land structure planning processes.

4.3.   EMPLOYMENT COMPOSITION AND TRENDS

Analysing the temporal employment trends within the identified catchments across relevant 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.

Property Economics utilise the most up-to-date version of Statistics New Zealand's Business Frame Data, Employment Counts [EC's] with businesses assigned an industry sector according to their ANZSIC 2006 classification[1]. For the purposes of this report classifications have been grouped into Industrial, Commercial, 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.

Tables 3 and 4 display temporal employment trends for the Southern Catchment market over the 2000-2016 period.

The industrial market in the Southern Catchment has seen approximately 30% employment growth over the past 16 years with sectors such as Warehousing and Logistics leading the growth rates in this market. While Manukau has achieved the greatest nominal increase, Papakura has seen growth of nearly 60% over the same period. This is highlighting the move south for land extensive industrial activities that seek to access both the Auckland and remaining North Island markets.

Commercial activity within the wider catchment has seen growth of over 60% over the same period with Administrative and Public Service jobs moving further south as both the areas generate greater levels of amenity and the requirement for greater levels of servicing relocate these higher value support services.

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[1] Australia New Zealand Standard Industrial Classifications 2006

TABLE 3: SOUTHERN CATCHMENT NET INDUSTRIAL EMPLOYMENT TRENDS (2000 – 2016)

Industrial Employment	Manukau City	Papakura District	Franklin District
2000	46,791	5,786	5,722
2001	46,841	5,864	5,980
2002	47,319	6,266	6,109
2003	49,406	6,879	6,049
2004	51,217	7,112	6,000
2005	54,309	7,981	6,341
2006	55,648	7,152	6,320
2007	56,692	7,132	6,467
2008	57,778	7,261	6,708
2009	56,751	6,803	6,111
2010	55,241	6,525	5,768
2011	55,061	6,645	5,657
2012	57,439	6,821	5,836
2013	57,170	6,888	5,907
2014	59,386	7,248	6,330
2015	62,016	7,626	6,458
2016	64,919	8,046	6,839

Source: Property Economics, Statistics NZ

TABLE 4: SOUTHERN CATCHMENT NET COMMERCIAL EMPLOYMENT TRENDS (2000 – 2016)

Commercial Employment	Manukau City	Papakura District	Franklin District
2000	17,197	1,740	2,253
2001	17,802	1,778	2,401
2002	18,593	1,856	2,453
2003	19,580	1,945	2,793
2004	22,519	2,094	2,771
2005	23,044	2,153	2,900
2006	24,639	2,344	3,081
2007	25,704	2,343	3,324
2008	26,343	2,442	3,427
2009	24,733	2,391	3,452
2010	24,982	2,439	3,453
2011	26,397	2,472	3,260
2012	27,188	2,483	3,431
2013	27,307	2,399	3,500
2014	29,363	2,611	3,706
2015	30,873	2,608	3,897
2016	33,176	2,716	3,750

Source: Property Economics, Statistics NZ

4.4.   LOCALISED BUSINESS ENVIRONMENTS

The local level business environments within the Drury and West Franklin catchments have seen a substantial variation in employment growth over the past 15 years. While both have grown in line with the wider Southern Catchment (Manukau, Papakura, Franklin), Drury has seen substantial industrial growth (45% compared to West Franklin's 13%), while West Franklin has seen rapid expansion in commercial and retail businesses (60% compared to Drury's 40%),

Tables 5 and 6 show the temporal changes in business activity (based on Statistics NZ 'ECs' Business Frame employment count data) across the Drury and West Franklin catchments. Both have increased at a consistent level albeit with significantly different compositions.

TABLE 5: DRURY CATCHMENT EMPLOYMENT TRENDS (2000 – 2016)

Drury	2000	2006	2008	2014	2015	2016
A Agriculture, Forestry and Fishing	914	917	913	806	890	891
B Mining	45	196	229	95	110	115
C Manufacturing	3,271	3,604	3,526	3,546	3,791	4,064
D Electricity, Gas, Water and Waste Services	40	64	53	46	33	62
E Construction	1,338	2,128	2,284	2,024	2,275	2,422
F Wholesale Trade	657	932	960	1,137	1,075	1,117
G Retail Trade	1,779	2,027	2,048	2,237	2,252	2,332
H Accommodation and Food Services	732	975	986	848	900	991
I Transport, Postal and Warehousing	677	837	815	972	948	1,000
J Information Media and Telecommunications	63	25	30	30	23	33
K Financial and Insurance Services	163	305	221	235	282	208
L Rental, Hiring and Real Estate Services	220	261	283	269	256	298
M Professional, Scientific and Technical Services	505	758	809	895	902	933
N Administrative and Support Services	196	299	397	359	317	372
O Public Administration and Safety	453	615	710	810	740	770
P Education and Training	1,267	1,404	1,583	1,707	1,760	1,797
Q Health Care and Social Assistance	728	944	908	1,212	1,102	1,186
R Arts and Recreation Services	206	200	218	179	193	242
S Other Services	459	624	644	594	620	639
Total All Industries	13,713	17,115	17,617	18,001	18,469	19,472

Source: Property Economics, Statistics NZ

TABLE 6: WEST FRANKLIN CATCHMENT EMPLOYMENT TRENDS (2000 – 2016)

West Franklin	2000	2006	2008	2014	2015	2016
A Agriculture, Forestry and Fishing	3,015	2,367	2,267	2,389	2,181	2,547
B Mining	96	85	83	99	94	84
C Manufacturing	2,963	3,071	3,250	2,912	2,760	2,887
D Electricity, Gas, Water and Waste Services	93	177	197	226	258	254
E Construction	909	1,240	1,519	1,465	1,633	1,776
F Wholesale Trade	768	835	783	769	793	747
G Retail Trade	1,476	1,969	2,201	2,092	2,003	2,034
H Accommodation and Food Services	650	914	1,044	1,172	1,210	1,318
I Transport, Postal and Warehousing	486	413	411	359	407	420
J Information Media and Telecommunications	102	188	160	106	89	84
K Financial and Insurance Services	152	200	209	307	291	167
L Rental, Hiring and Real Estate Services	151	181	200	261	277	239
M Professional, Scientific and Technical Services	446	614	659	804	793	822
N Administrative and Support Services	708	957	1,122	1,051	1,190	1,191
O Public Administration and Safety	290	301	359	301	276	282
P Education and Training	1,166	1,214	1,398	1,628	1,806	1,846
Q Health Care and Social Assistance	710	941	1,107	1,429	1,853	1,626
R Arts and Recreation Services	201	443	455	418	420	374
S Other Services	492	622	618	542	569	568
Total All Industries	14,874	16,732	18,042	18,330	18,903	19,266

Source: Property Economics, Statistics NZ

Table 7 places these growth trends in the context of the 'Southern Catchment' trends. In relation to these changes Drury has seen proportionately more industrial growth within the Manufacturing and Construction sectors while West Franklin has seen greater levels of population driven service sectors (primarily commercial).

TABLE 7: SOUTHERN CATCHMENT EMPLOYMENT TRENDS (2000 – 2016)

Southern Catchment	2000	2006	2008	2014	2015	2016
A Agriculture, Forestry and Fishing	4,632	3,882	3,888	3,783	3,692	4,273
B Mining	231	362	360	290	310	289
C Manufacturing	28,958	31,209	31,386	30,510	31,763	32,783
D Electricity, Gas, Water and Waste Services	644	992	1,012	1,017	1,229	1,340
E Construction	6,083	9,284	9,861	9,942	11,227	12,432
F Wholesale Trade	9,949	11,996	12,710	14,149	14,083	14,705
G Retail Trade	13,424	17,362	17,664	16,963	17,752	18,546
H Accommodation and Food Services	6,323	8,528	8,922	8,598	9,576	10,334
I Transport, Postal and Warehousing	12,629	15,909	17,061	17,651	18,258	19,026
J Information Media and Telecommunications	1,538	1,433	1,272	1,308	1,150	1,143
K Financial and Insurance Services	1,354	2,333	2,175	2,258	2,628	2,618
L Rental, Hiring and Real Estate Services	1,756	2,284	2,357	2,574	2,654	2,840
M Professional, Scientific and Technical Services	5,632	8,569	9,135	9,856	10,064	10,508
N Administrative and Support Services	4,491	7,209	8,082	8,843	9,539	10,537
O Public Administration and Safety	3,708	4,732	5,547	7,166	6,959	7,565
P Education and Training	10,284	12,784	14,669	16,333	17,082	17,657
Q Health Care and Social Assistance	9,172	11,516	12,677	16,377	17,628	18,620
R Arts and Recreation Services	1,350	2,016	2,168	1,999	2,004	1,980
S Other Services	3,550	4,840	5,221	5,132	5,452	5,647
Total All Industries	125,708	157,240	166,167	174,749	183,050	192,843

Source: Property Economics, Statistics NZ

4.5. BUSINESS EMPLOYMENT GROWTH

Table 8 outlines the projected employment growth, to 2048, by sector for the Southern Catchment. This growth is primarily driven by both population growth estimates and a 'top down' assessment of the expected national and Auckland production growth within each sector. Additional factors include local economic development strategies and significant and realisable infrastructure changes.

The sector projected employment for the following areas is based on a variety of factors including:

- National and Regional GDP and employment projections

- Population projections – these are key both to labour force projections and population based employment.

- Labour Force projections (skilled / unskilled)

- Relative business land supply and prices

- Trended growth from the past 17 years

- Economic development directions

- Locational criteria by sector

- National / Regional and local supply of inputted goods and location of market

- Business sector analysis

- Increasing working age

This results in expected growth of some 90,000 EC's across all ANZSIC sectors to 2048. The composition of this growth is relatively evenly spread with Regional growth following trended paths as well as the proportional growth experienced in southern Auckland over the past 15 to 20 years. This growth is expected to continue further south with increasing levels of competition from Hamilton and Tauranga.

TABLE 8: SOUTHERN CATCHMENT EMPLOYMENT TRENDS (2000 – 2048)

Southern Catchment	2000	2006	2008	2014	2015	2016	2028	2048
A Agriculture, Forestry and Fishing	4,632	3,882	3,888	3,783	3,692	4,273	3,934	4,576
B Mining	231	362	360	290	310	289	302	361
C Manufacturing	28,958	31,209	31,386	30,510	31,763	32,783	32,754	38,788
D Electricity, Gas, Water and Waste Services	644	992	1,012	1,017	1,229	1,340	1,815	2,321
E Construction	6,083	9,284	9,861	9,942	11,227	12,432	16,668	21,255
F Wholesale Trade	9,949	11,996	12,710	14,149	14,083	14,705	16,598	20,229
G Retail Trade	13,424	17,362	17,664	16,963	17,752	18,546	20,263	24,501
H Accommodation and Food Services	6,323	8,528	8,922	8,598	9,576	10,334	12,270	15,145
I Transport, Postal and Warehousing	12,629	15,909	17,061	17,651	18,258	19,026	21,679	26,483
J Information Media and Telecommunications	1,538	1,433	1,272	1,308	1,150	1,143	975	1,117
K Financial and Insurance Services	1,354	2,333	2,175	2,258	2,628	2,618	3,402	4,301
L Rental, Hiring and Real Estate Services	1,756	2,284	2,357	2,574	2,654	2,840	3,354	4,134
M Professional, Scientific and Technical Services	5,632	8,569	9,135	9,856	10,064	10,508	13,388	16,834
N Administrative and Support Services	4,491	7,209	8,082	8,843	9,539	10,537	15,322	20,001
O Public Administration and Safety	3,708	4,732	5,547	7,166	6,959	7,565	10,133	12,917
P Education and Training	10,284	12,784	14,669	16,333	17,082	17,657	21,511	26,729
Q Health Care and Social Assistance	9,172	11,516	12,677	16,377	17,628	18,620	24,870	31,679
R Arts and Recreation Services	1,350	2,016	2,168	1,999	2,004	1,980	2,227	2,711
S Other Services	3,550	4,840	5,221	5,132	5,452	5,647	6,613	8,133
Total All Industries	125,708	157,240	166,167	174,749	183,050	192,843	228,077	282,216

Source: Property Economics, Statistics NZ

Based on this overall projection, and the relative competitiveness of both Drury and West Franklin, two growth scenarios are explored in the following assessments. The first is based on the current level of industrial and commercial (office) activity experienced in both catchments historically. Based on this scenario the historic trends associated with business activity accommodated within each catchment, as a proportion of the total southern area, is assessed. While this does not consider the population growth rates in each individual area, it does consider the movement of employment into these catchments over the last 15 years and what, proportionately, that would look like in the future.

Tables 9 and 10 outline the proportional change in employment for both these catchments. This shows a similar total employment rate by 2048 of approximately 27,000 EC's. The proportional growth in industrial and commercial (office) employment remains at the same differential between Drury and West Franklin, with the Drury catchment experiencing approximately 40% more growth than West Franklin.

TABLE 9: DRURY EMPLOYMENT TRENDS (2000 – 2048)

Drury	2000	2006	2008	2013	2014	2015	2016	2028	2048
A Agriculture, Forestry and Fishing	914	917	913	875	806	890	891	820	954
B Mining	45	196	229	100	95	110	115	120	144
C Manufacturing	3,271	3,604	3,526	3,392	3,546	3,791	4,064	4,060	4,808
D Electricity, Gas, Water and Waste Services	40	64	53	66	46	33	62	84	107
E Construction	1,338	2,128	2,284	1,954	2,024	2,275	2,422	3,247	4,141
F Wholesale Trade	657	932	960	1,041	1,137	1,075	1,117	1,261	1,537
G Retail Trade	1,779	2,027	2,048	2,070	2,237	2,252	2,332	2,548	3,081
H Accommodation and Food Services	732	975	986	861	848	900	991	1,177	1,452
I Transport, Postal and Warehousing	677	837	815	856	972	948	1,000	1,139	1,392
J Information Media and Telecommunications	63	25	30	18	30	23	33	28	32
K Financial and Insurance Services	163	305	221	216	235	282	208	270	342
L Rental, Hiring and Real Estate Services	220	261	283	213	269	256	298	352	434
M Professional, Scientific and Technical Services	505	758	809	811	895	902	933	1,189	1,495
N Administrative and Support Services	196	299	397	300	359	317	372	541	706
O Public Administration and Safety	453	615	710	810	810	740	770	1,031	1,315
P Education and Training	1,267	1,404	1,583	1,663	1,707	1,760	1,797	2,189	2,720
Q Health Care and Social Assistance	728	944	908	1,117	1,212	1,102	1,186	1,584	2,018
R Arts and Recreation Services	206	200	218	189	179	193	242	272	331
S Other Services	459	624	644	583	594	620	639	748	920
Total All Industries	13,713	17,115	17,617	17,135	18,001	18,469	19,472	22,662	27,929

Source: Property Economics, Statistics NZ

TABLE 10: WEST FRANKLIN EMPLOYMENT TRENDS (2000 – 2048)

Paerata/Pukekohe	2000	2006	2008	2013	2014	2015	2016	2028	2048
A Agriculture, Forestry and Fishing	3,015	2,367	2,267	2,217	2,389	2,181	2,547	2,345	2,728
B Mining	96	85	83	86	99	94	84	88	105
C Manufacturing	2,963	3,071	3,250	2,769	2,912	2,760	2,887	2,884	3,416
D Electricity, Gas, Water and Waste Services	93	177	197	193	226	258	254	344	440
E Construction	909	1,240	1,519	1,324	1,465	1,633	1,776	2,381	3,036
F Wholesale Trade	768	835	783	729	769	793	747	843	1,028
G Retail Trade	1,476	1,969	2,201	2,091	2,092	2,003	2,034	2,222	2,687
H Accommodation and Food Services	650	914	1,044	988	1,172	1,210	1,318	1,565	1,932
I Transport, Postal and Warehousing	486	413	411	356	359	407	420	479	585
J Information Media and Telecommunications	102	188	160	92	106	89	84	72	82
K Financial and Insurance Services	152	200	209	294	307	291	167	217	274
L Rental, Hiring and Real Estate Services	151	181	200	221	261	277	239	282	348
M Professional, Scientific and Technical Services	446	614	659	763	804	793	822	1,047	1,317
N Administrative and Support Services	708	957	1,122	1,033	1,051	1,190	1,191	1,732	2,261
O Public Administration and Safety	290	301	359	287	301	276	282	378	482
P Education and Training	1,166	1,214	1,398	1,651	1,628	1,806	1,846	2,249	2,794
Q Health Care and Social Assistance	710	941	1,107	1,369	1,429	1,853	1,626	2,172	2,766
R Arts and Recreation Services	201	443	455	438	418	420	374	421	512
S Other Services	492	622	618	504	542	569	568	665	818
Total All Industries	14,874	16,732	18,042	17,405	18,330	18,903	19,266	22,385	27,610

Source: Property Economics, Statistics NZ

4.6. INDUSTRIAL AND COMMERCIAL OFFICE GROWTH

Table 11 translates the employment growth, by ANZSIC category, to land requirement by both industrial and commercial (office) sectors. The ratios utilised are based on 2nd level ANZSIC categories assessed against both the floorspace and land requirement for each sector. Additionally, the above requirements are dynamic with both floorspace and land requirements changing, by sector, over time. There are several practical reasons for this change with examples in the warehousing sector showing changes both in capital use (i.e. greater requirement for

space without additional employees), as well as changing floorspace to land ratios, with greater utilisation of vertical space.

Estimates of the quantity of future business land demand based on the employment projections on a sector by sector basis have been compiled based on projected employment and sustainable land efficiencies. As a result, the projections presented, represent the industrial land demand of efficiently utilised land, or in other words efficiently developed business land.

The calculation of these requirements include:

- The ratio of net land to employee ratio by industrial sector (these estimates are based on specific sectors and have been compiled based on empirical data such as regional rating databases).

- A locational assessment of efficient land utilisation (i.e. whether the local price is such that industrial land will be efficiently used).

- Price

- Historical trends by sector towards increased land or labour efficiencies

- Changes in technology (capital)

These projections do not factor in changes in industrial land prices resulting from changes in price in surrounding areas. These factors can influence where businesses decide to locate, however given the unpredictability of land values, for the purpose of this report it has been assumed that relative prices between the Southern Catchment markets and surrounding areas remain constant over the forecast period.

TABLE 11: TRENDED CATCHMENT EMPLOYMENT AND LAND REQUIREMENTS (2016 – 2048)

	Trended		
		Drury	West Franklin
2028	Commercial EC's	756	988
	Industrial EC's	1,458	1,007
	Commercial Land Requirement (Ha)	5	6
	Industrial Land Requirement (Ha)	47	32
2048	Commercial EC's	1,747	2,283
	Industrial EC's	3,608	2,493
	Commercial Land Requirement (Ha)	10	14
	Industrial Land Requirement (Ha)	101	70

Source: Property Economics, Statistics NZ

Overall the figures outlined in Table 11 indicate a need for between 10 to 14 additional hectares of commercial (office) land in the two catchments, and between 100 (Drury) and 70 (West Franklin) hectares of additional industrial land under the Trended growth scenario out to 2048.

The second growth scenario explored is based on the proportional changes in population occurring in each of the catchments. As indicated, both the Drury and West Franklin catchments are expected to see substantial levels of residential growth over the next 30 years. This translates to a significant increase in both labour force and employment growth within each of these catchments.

Tables 12 and 13 outline these growth projections, with Drury showing employment growth of over 25,000 EC's in total business activity. The rapid increase in population drives the localised demand for household and commercial services within the area and results in a significant increase in commercial employment within the next 12 years with over 4,000 additional employees. Accommodating this level of employment (in specifically commercial office) is fundamental for the Drury catchment to attract and sustain this level of growth over the short to medium term.

TABLE 12: DRURY PROPORTIONAL CHANGE EMPLOYMENT TRENDED SCENARIO (2016-2048)

Drury	2000	2006	2008	2014	2015	2016	2028	2048
A Agriculture, Forestry and Fishing	914	917	913	806	890	891	776	988
B Mining	45	196	229	95	110	115	119	138
C Manufacturing	3,271	3,604	3,526	3,546	3,791	4,064	4,054	5,986
D Electricity, Gas, Water and Waste Services	40	64	53	46	33	62	224	376
E Construction	1,338	2,128	2,284	2,024	2,275	2,422	3,862	5,245
F Wholesale Trade	657	932	960	1,137	1,075	1,117	1,761	2,885
G Retail Trade	1,779	2,027	2,048	2,237	2,252	2,332	2,916	4,238
H Accommodation and Food Services	732	975	986	848	900	991	1,649	2,531
I Transport, Postal and Warehousing	677	837	815	972	948	1,000	1,902	3,386
J Information Media and Telecommunications	63	25	30	30	23	33	-24	25
K Financial and Insurance Services	163	305	221	235	282	208	475	746
L Rental, Hiring and Real Estate Services	220	261	283	269	256	298	473	712
M Professional, Scientific and Technical Services	505	758	809	895	902	933	1,912	2,957
N Administrative and Support Services	196	299	397	359	317	372	1,999	3,400
O Public Administration and Safety	453	615	710	810	740	770	1,643	2,483
P Education and Training	1,267	1,404	1,583	1,707	1,760	1,797	3,107	4,700
Q Health Care and Social Assistance	728	944	908	1,212	1,102	1,186	3,311	5,365
R Arts and Recreation Services	206	200	218	179	193	242	326	476
S Other Services	459	624	644	594	620	639	967	1,435
Total All Industries	13,713	17,115	17,617	18,001	18,469	19,472	31,452	48,071

Source: Property Economics, Statistics NZ

TABLE 13: WEST FRANKLIN PROPORTIONAL CHANGE EMPLOYMENT TRENDED SCENARIO (2016-2048)

Paerata/Pukekohe	2000	2006	2008	2014	2015	2016	2028	2048
A Agriculture, Forestry and Fishing	3,015	2,367	2,267	2,389	2,181	2,547	2,435	2,665
B Mining	96	85	83	99	94	84	88	112
C Manufacturing	2,963	3,071	3,250	2,912	2,760	2,887	2,877	5,229
D Electricity, Gas, Water and Waste Services	93	177	197	226	258	254	411	637
E Construction	909	1,240	1,519	1,465	1,633	1,776	3,174	5,217
F Wholesale Trade	768	835	783	769	793	747	1,372	2,901
G Retail Trade	1,476	1,969	2,201	2,092	2,003	2,034	2,601	4,356
H Accommodation and Food Services	650	914	1,044	1,172	1,210	1,318	1,957	3,194
I Transport, Postal and Warehousing	486	413	411	359	407	420	1,295	3,328
J Information Media and Telecommunications	102	188	160	106	89	84	29	74
K Financial and Insurance Services	152	200	209	307	291	167	426	823
L Rental, Hiring and Real Estate Services	151	181	200	261	277	239	409	744
M Professional, Scientific and Technical Services	446	614	659	804	793	822	1,772	3,289
N Administrative and Support Services	708	957	1,122	1,051	1,190	1,191	2,770	4,882
O Public Administration and Safety	290	301	359	301	276	282	1,129	2,369
P Education and Training	1,166	1,214	1,398	1,628	1,806	1,846	3,118	5,384
Q Health Care and Social Assistance	710	941	1,107	1,429	1,853	1,626	3,688	6,719
R Arts and Recreation Services	201	443	455	418	420	374	455	659
S Other Services	492	622	618	542	569	568	887	1,538
Total All Industries	14,874	16,732	18,042	18,330	18,903	19,266	30,893	54,122

Source: Property Economics, Statistics NZ

Similarly, the West Franklin catchment will experience substantial population and employment based commercial business growth with over 4,000 commercial office employees sustainable within the localised economy. As with Drury, the drivers here are population based and the achievement of a critical mass that supports greater levels of medium to large commercial businesses. The timeframes for growth within the West Franklin are somewhat differentiated from Drury as this catchment is likely to see slower growth in the short to medium term but more rapid growth beyond the 10-year threshold.

Industrial growth in both areas is likely to outstrip both population and total employment growth rates. With both catchments experiencing the majority of their growth in the latter half of the assessed period, both Drury and West Franklin are expected to accommodate approximately 10,000 more industrial employees.

The basis for industrial growth in these two catchments are similar with access to a significant labour market, proximity to affordable housing and accessibility to the lower North Island.

There are a number of potential risks to the growth projections outlined here. Firstly, the reliance of a suitable labour market. As Auckland house prices stall the nominal values remain difficult to attain for the majority of new households. This along with the relativity of house prices in competing regions may impact upon the segment of the population necessary to drive the industrial business growth. Similarly, the affordability of industrial land is both a function of land supply and the relative prices and supply within competing markets (primarily within the 'golden triangle' of Auckland, Hamilton and Tauranga).

For the growth projections outlined in the second 'Proportional Change' scenario to be realised it is fundamental that, at least, these two factors are adequately addressed to maintain the competitive nature of Drury and West Franklin in relation to industrial business activity.

4.7.   BUSINESS LAND REQUIREMENTS

Table 14 translates these growth projections into land requirement based on 2nd level ANZSIC category ratios. This results in a commercial land demand, 'at grade', of approximately 95 hectares in each catchment. In terms of industrial land demand Drury would require approximately 284 hectares of serviced land (approximately 325 hectares under the long term NPS requirements), while West Franklin would require 346 hectares (398ha under NPS).

TABLE 14: SOUTHERN CATCHMENT EMPLOYMENT AND LAND TRENDS (2000 – 2016)

	Population Trended		
		Drury	West Franklin
2028	Commercial EC's	4,143	4,022
	Industrial EC's	3,014	2,925
	Commercial Land Requirement (Ha)	26	25
	Industrial Land Requirement (Ha)	96	94
2048	Commercial EC's	8,366	10,196
	Industrial EC's	9,005	10,975
	Commercial Land Requirement (Ha)	50	61
	Industrial Land Requirement (Ha)	284	346

Source: Property Economics

Table 15 outlines the business land, by zone, within the two catchments of focus - West Franklin and Drury, with a total of 1,740 hectares located within these areas, 912 hectares of which is deemed occupied, leaving just under 830 hectares of vacant business land within the two catchments. Table 15 references land in the wider West Franklin catchment as denoted in Figure 3 earlier in this report. Table 15 also identifies the existing and potential business zoned land within the Pukekohe urban area. It is important to note that this figure may differ from that currently indicated through the Council database.

As a matter of procedure Property Economics has undertaken an assessment of larger business zoned sites within these catchments and has adjusted the vacancies based on an 'on the ground' assessment both of whether the sites are indeed vacant and also whether they are currently occupied by activities that are not the purpose of the zone. These latter activities may be historic and may be significantly underutilising current land zonings. For example, a farm house on a large site currently zoned for business.

Additionally, in the case of West Franklin potential industrial rezoning have also been considered totalling nearly 270 hectares as identified in the 2014 Pukekohe Area Plan.

TABLE 15: DRURY AND WEST FRANKLIN BUSINESS ZONED LAND (HA)

Unitary Plan Zone	Drury			West Franklin			Total		
	Occupied	Vacant	Total	Occupied	Vacant	Total	Occupied	Vacant	Total
Heavy Industry	136.3	40.9	177.1	167.5	193.7	361.2	303.7	234.6	538.3
Light Industry	358.9	152.5	511.5	89.4	120.7	210.1	448.3	273.2	721.5
General Business	2.5	-	2.5	26.2	1.6	27.8	28.7	1.6	30.3
Mixed Use	17.1	12.5	29.6	32.4	2.5	34.9	49.5	15.0	64.5
Metropolitan Centre	22.2	1.6	23.8	-	-	-	22.2	1.6	23.8
Town Centre	9.0	0.3	9.4	14.6	0.2	14.8	23.6	0.5	24.1
Local Centre	2.7	5.5	8.2	12.7	27.4	40.1	15.4	32.9	48.3
Neighbourhood Centre	6.4	0.1	6.5	13.9	0.6	14.5	20.3	0.7	21.0
Total	555.1	213.4	768.5	356.6	346.7	703.3	911.7	560.1	1,471.8
Total (Plus additional rezonings)	555.1	213.4	768.5	356.6	615.7	972.3	911.7	829.1	1,740.8

Source: Property Economics, Auckland Council

Overall, Table 15 highlights the level of zoned vacancy within each of the catchments. It shows a total vacancy of 776 hectares of industrial land inclusive of additional rezoning and 52 hectares of vacant land zoned for commercial activities.

Further to this, Table 16 identifies the differential between land demand and supply for the two areas, when looking at the areas denoted as Figure 3.

The industrial land demand within this table include the 15% NPS UDC buffer as do the commercial activities (retail, office and commercial service). Commercial office has been assessed at an average of 2.15 storeys which reduces the overall net land requirement for these activities. Further to this, it is assumed that a proportion (up to 40%) of commercial office will locate in buildings that have either commercial service or retail on the ground floor.

TABLE 16: TOTAL BUSINESS ZONE LAND REQUIREMENTS TO 2048 (HA ROUNDED)

	Drury	West Franklin
Land Demand (Ha)		
Industrial	329	398
Commercial Office (Average 2.15 storeys)	51	50
Commercial Services/Retail	61	30
Total		
Vacant Land Supply (Ha)		
Industrial	193	580
Commercial	20	34
Total	213	614
Land Differential (Ha)		
Industrial	-136	182
Commercial	-72	-26
Total	-208	156
Land Differential (Ha)		
Industrial	46	
Commercial	-98	

Source: Property Economics, Auckland Council

Overall, it is expected that Drury has the potential to have a deficit of industrial land by 2048 in the order of 136 hectares and a deficit of commercially zoned land of approximately 72 hectares over the same period.

The wider West Franklin catchment as illustrated in Figure 3 (which includes Waiuku, Glenbrook and Tuakau, etc.) is expected to have a surplus of industrial land to 2048 of 182 hectares and a deficit of commercially zoned land in the order of 26 hectares.

2014 Pukekohe Area Plan

The 2014 Pukekohe Area Plan is designed to provide a development framework for the Pukekohe area for the next 30 years based on projected growth for the settlement over this period.

At a broad level the objectives of the Pukekohe Area Plan are to set the direction for development and growth outcomes that meet the community's aspirations and vision, and identify specific areas for future urban zone land for residential, business and industrial land uses to guide structure planning processes and Unitary Plan policy development. In essence the area plan focuses on delivering a framework for appropriately managing growth within Pukekohe for the first half of this century.

When contemplating the industrial and commercial land differential determined above in the context of the existing industrial zoned land provision in the Pukekohe urban area only, as defined in the 2014 Pukekohe Area Plan, there would be a deficit of industrial land by 2048 of 286 hectares, and when considering commercial zoned land a deficit in the order of 30 hectares

(were the existing industrial and commercially provision located elsewhere in the West Franklin catchment, (e.g. Waiuku, Glenbrook, Tuakau etc) excluded from consideration.

This is the result of, at a broad level, the Pukekohe Urban Area generating the majority of demand for industrial activity in the wider West Franklin catchment, but exhibiting minimal capacity at present,

This indicates the 2014 Pukekohe Area Plan outcome which identified approximately 270ha for new industrial zoned land remains valid and is an important part of the long-term provision for both Pukekohe itself, West Franklin, and potential spill over from the Drury catchment over the assessed period.

Treating Drury and West Franklin markets as a combined market, given they do not operate in isolation, there would be overall surplus of industrial land of 46 hectares by 2048 (when including industrially zoned land in Waiuku, Glenbrook, Tuakau).

However, there remains a significant shortfall of nearly 100 hectares of commercial land for the two areas combined.

5.   RETAIL EXPENDITURE AND GFA FORECASTS

To assess forward retail demand and land requirements, Property Economics has applied the same two growth scenarios identified earlier in the report and uses a sustainable footprint approach to forecast the level of retail sector expenditure that is generated by the identified markets[2]. These results provide a benchmark for the level of sales productivity ($/sqm) that allows retail stores to trade profitably and provide a good quality retail environment as well as forecasting the level of retail expenditure that represents what commercial centres within the identified catchments, and the retail stores within that, could potentially achieve under the accelerated and moderate growth population scenarios.

For the purpose of this report net retail trading floor space has been translated to gross floor area (GFA), as net retail trading floor space excludes floor area in a retail store used for storage, warehousing, staff facilities, office or toilets etc. These activities typically occupy around 25-30% of a store's GFA. For the purpose of this analysis a 30% ratio has been applied.

Retail expenditure forecasts have been based on the population and household level at which the Future Urban Residential land and SHA developments reach capacity within the identified catchment areas. As a general guide, this is expected to occur by 2048 with additional household growth occurring outside of the proposed residential development areas but within the identified catchments.

These forecasts have been generated using the Property Economics Retail Expenditure Model with a more detailed breakdown of the model and its inputs can be seen in Appendix 2.

The retail expenditure figures in this report exclude the retail activities, as categorised under the ANZSIC3 classification system, of:

- 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, Hammer Hardware, Bunnings, PlaceMakers, ITM, Kings Plant Barn, Palmers Garden Centres, etc.)

The above activities are not considered to represent core retail expenditure, nor fundamental retail centre activities in terms of visibility, location, viability or functionality. 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

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[2] *Retail sector expenditure is calculated on an annualised basis in NZ dollars using the 2006 ANZSIC categorisation system.*

[3] *Australia New Zealand Standard Industrial Classification*

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, site sizes, etc.

Also excluded are trade based activities such as kitchen showrooms, plumbing stores, electrical stores, paint stores, etc. for similar reasons.

This is not to imply that these activity types are not situated in centres, as in many instances some of these land uses remain operating in centres as an historical overhang. However, moving forward it is increasingly difficult from a retail economic perspective to see these store types establishing stores in centres (new or redeveloped), albeit they likely have equal planning opportunity to do so.

A full outline of the ANZSIC classifications and their respective definitions utilised in the Property Economics Retail Expenditure Model has been attached in Appendix 3.

The following flow chart provides a graphical representation of the Property Economics Retail Expenditure Model to assist Auckland Council in better understanding the methodology and key inputs utilised.
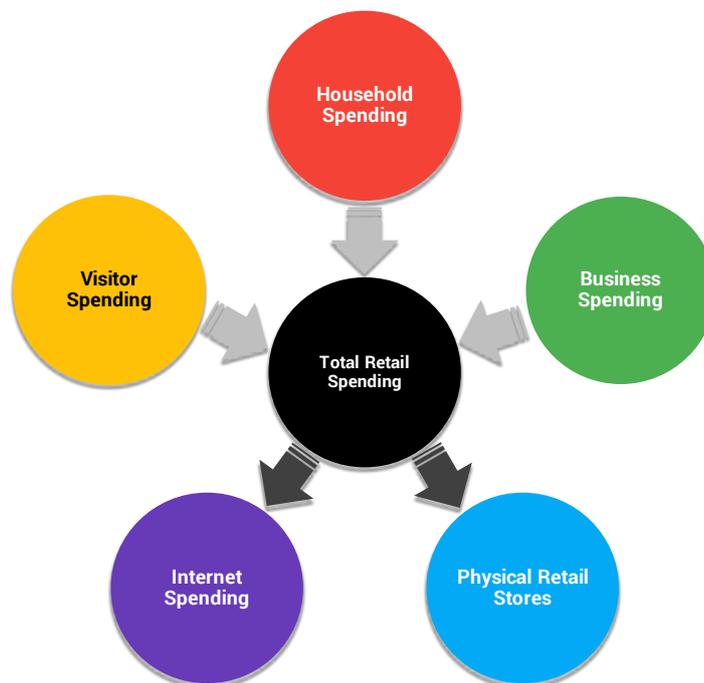
Growth in real retail spend has also been incorporated at a rate of 1% per annum over the forecast period. The 1%[4] rate is an estimate based on the level of debt retail spending, interest rates and changes in disposable income levels, and is the average inflation adjusted increase in spend per household over the assessed period.

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[4] Explained further in appendix 2

It is important to note that the retail expenditure generated in the identified market does not necessarily equate to the sales of any retail stores within the market. 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 centre will attract customers from beyond its core market, whereas a low-quality centre will have higher levels of retail expenditure leakage out of its core market. Therefore, the retail expenditure generated in an area represents the sales centres or retail stores within that area could potentially achieve.

Furthermore, retail stores in general can be split into Specialty and Large Format Retailing (LFR). Specialty retailing generally consists of smaller, boutique more specialised stores typically operating within, and offers products from a specific retail sector. LFR activity is typically identified as stores with a larger store footprint, generally over 500sqm GFA. In smaller provincial areas, the LFR threshold is often slightly lower at 450sqm GFA due to the smaller store footprint requirements of retailers in smaller markets.

LFR stores, while large in floorspace terms comparatively, typically represent only a small proportion of physical stores nominally. These LFR store types, with the exception of supermarkets, generally trade at lower productivities on a per sqm basis relative to smaller Specialty stores, but are able to remain profitable by selling more in terms of volume, having superior 'purchasing power' (i.e. LFR stores can typically purchase goods at lower wholesale costs on a per unit basis due to the larger volumes bought, particularly for national retail chains), and typically lower per square metre rental rates.

Conversely, due to the size and breadth of offer, supermarkets (and the fact they sell many frequently required consumer food and beverage essentials) typically have a higher trading productivity of between $10,000 to $20,000 per square metre depending on brand, market size and level of competition. This means supermarkets generate significantly more shopper 'traffic' than department stores enabling supermarkets to generate more significant flow-on economic benefits to centres where well integrated. Although supermarkets have a large format store footprint, they are also largely homogenous, convenience retail stores that are provided at more localised level compared to other LFR store types.

Additionally, Convenience retailing can be generally defined as stores used for quick stop (or opportunistic) shopping and engenders high frequency usage, primarily due to their close proximity and easy accessibility to the customer. These stores are not exclusive to any one retail category with examples of such stores including dairies, liquor stores, cafes, and takeaway outlets. Convenience retail spend is estimated to represent around 20% of all retail expenditure (based on a general retail expenditure composition). This ratio has been adopted for the purpose of this analysis. A list of convenience type activities, both retail and commercial service, has been attached in Appendix 4.

5.1. RETAIL EXPENDITURE AND GFA (DEMAND)

Tables 17 and 18 breakdown the total market for each catchment (West Franklin and Drury) by retail type under the population growth scenarios set out earlier for Drury.

For the purpose of this report total retail expenditure has been separated by store type (Convenience, Specialty, Supermarkets and LFR) in order to understand the composition of the assessed retail markets (currently, and by 2048), and the future requirements for each of these at a finer grain level. Convenience retailing has been defined highlighting the demand for smaller shops required for localised centre demand within the identified markets. It is expected that the majority of retail spending that occurs within the study areas will be for Supermarket and Convenience spending with a smaller proportion of Specialty and LFR provision, which tend to agglomerate in larger, higher level centres such as town centres and metropolitan centres.

WEST FRANKLIN CATCHMENT

TABLE 17: 'AT CAPACITY' (2048) RETAIL EXPENDITURE AND GFA FORECASTS – WEST FRANKLIN

West Franklin	2017		Scenario 1		Difference	
	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)
Convenience	$109	16,800	$259	39,900	$150	23,100
Specialty	$190	33,300	$452	79,100	$262	45,800
Supermarket	$181	20,700	$430	49,200	$249	28,500
LFR	$108	36,500	$257	86,900	$149	50,400
Total	$588	107,300	$1,399	255,100	$811	147,800

Source: Property Economics

Currently the West Franklin market generates a total estimated $588m per annum in retail expenditure, translating to sustainable retail GFA in the order of 107,000sqm. Retail growth within this market is expected to increase nearly 2.5-fold with the build out of the proposed residential development areas increasing annualised retail expenditure generated to around $1.4b ($2017) which can sustain around 255,000sqm GFA.

Specialty retailing, the dominant retail types in dollars, by 2048 is estimated to generate nearly a third of the West Franklin catchment's total annual retail expenditure ($450m). Supermarket retailing is the second largest contributor, generating over $430m per annum and the balance (37%) is generated by Convenience retailing ($259) and LFR stores ($257m).

Retail sector growth over the next 30-years in the West Franklin catchment is estimated to equate to around $810m ($2017) and around 148,000sqm of sustainable GFA. Not all this could or should be provided within the catchment as a noteworthy proportion of this demand will be spent at higher level centres outside the catchment, i.e. Sylvia Park, CBD, Manukau City, etc. Albeit acknowledging as critical mass in the West Franklin (and Drury) market increases over time, internalisation of the market is likely to increase, and the catchments become more self-sufficient.

However, the data clearly shows significant growth in the catchment will generate significant increase in retail servicing and business land required which can be more efficiently met at a localised level within the catchment.

DRURY CATCHMENT

TABLE 18: 'AT CAPACITY' (2048) RETAIL EXPENDITURE AND GFA FORECASTS – DRURY

Drury	2017		Scenario 1		Net Growth	
Retail Type	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)
Convenience	$102	15,727	$301	46,369	$199	30,641
Specialty	$178	31,128	$524	91,777	$346	60,649
Supermarket	$166	18,959	$489	55,917	$323	36,957
LFR	$98	33,104	$289	97,651	$191	64,547
Total	$544	98,919	$1,603	291,713	$1,060	192,794

Drury	2017		Scenario 2		Net Growth	
Retail Type	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)	Retail Expenditure ($m)	Sustainable GFA (sqm)
Convenience	$102	15,727	$320	49,383	$218	33,655
Specialty	$178	31,128	$558	97,742	$381	66,614
Supermarket	$166	18,959	$521	59,551	$355	40,592
LFR	$98	33,104	$308	103,998	$210	70,894
Total	$544	98,919	$1,707	310,674	$1,164	211,755

Source: Property Economics

The Drury market is estimated to generate a slightly lower level of retail expenditure (than West Franklin) of around $544m per annum at present. With a higher forecast residential capacity relative to West Franklin, retail expenditure generation at capacity is expected to be higher at $1.6b – $1.7b. ($2017) annually by 2048. This represents growth of around $1.1b annually generated by 2048 above the current base year. Sustainable GFA by 2048 is also estimated to be slightly higher at around 291,000sqm – 310,000sqm GFA, an increase from current sustainable levels of 99,000sqm GFA. This equates to sustainable net growth of around 200,000sqm GFA in the Drury catchment by 2048.

To put these growth estimates into context, the Sylvia Park Shopping Centre has a building footprint of just over 100,000sqm. Acknowledging that both these markets lose a significant level of generated retailing spend to higher order commercial centres such as Sylvia Park which provides a wider range of retail and commercial facilities (and brands) that is not found within the current markets of the identified catchments. This means not all growth needs to be provided locally. However, it does put into context the scale of demand and future requirement for a large centre in the market.

Additionally, there is also likely to be a loss in spending that comes from residents within these markets whom work outside of these catchments spending some of their retail dollars in locations convenient to them due to their place of employment.

It should be noted that while household growth has a significant impact on the total level of retail expenditure generated in an area, it is also expected that there is a multiplier effect that occurs resulting from an increase in employment (increasing spending originating from businesses and workers within the area) and visitor spending due to the growth of the retail provision attracting more visitors into area (in addition to the increase in residents attracting more visitors to the area).

Sylvia Park is a good example of this, where the new provision did not only keep spend more localised, but increase local business spend in the area, and attracted spend from people who reside outside the catchment into the area.

6.   RETAIL LAND REQUIREMENTS

It is important to recognise that most centres are more than simply retail centres. They typically contain a number of localised commercial and professional services such as medical practitioners, estate agencies, accountants, lawyers, childcare facilities, etc. Commercial and professional service activities generally account for around half of the activity in centres such as town and localised centres. More specialised retail malls often have higher proportion of retail activities. As such for the purposes of this analysis the commercial service provision ratio of 1:1 to retail GFA has been applied for the commercial services provision.

This (combined) GFA is then translated into total land requirements to account for car parking, access ways, amenity areas, landscaping etc. and is therefore a gross land requirement. For this calculation, a GFA to land ratio of 40% has been adopted based on experience analysing similar town and convenience centres across the country over the last 20-years. This recognises the non-retail functions of centres and the corresponding land requirements for non-retail activities and ensures the provision of these activities are accommodated in any future structure planning exercises.

Furthermore, as mentioned in earlier sections, it is unlikely that any market would be able to completely capture all retail expenditure that is generated within it market. This is especially pertinent for more urban fringe markets given their relative location and accessibility to higher order centres within wider Auckland such as Sylvia Park, Manukau, CBD, etc. For this reason, a range of realistic retention rates determined achievable (50%) by the subject markets has been applied. This assumption has been based on a high-level overview of the current market environment, experience in analysing retail retention rates and spending flows of markets throughout New Zealand, the location of the markets relative to centre distribution, the types of retailing and commercial services that are currently provided and the proposed future residential and employment base of the West Franklin and Drury markets.

Table 19, displays the estimated retail and commercial services land requirements for West Franklin and Drury catchments by sector and is the requirement if all retail and commercial activity were to operate '*at grade*' or on a single level basis. It is also important to note that this represent the additional land requirement based on growth in the respective catchments, and therefore excludes the existing retail and commercial service provision i.e. existing supply must be added to this in order to calculate total business land requirements.

TABLE 19: WEST FRANKLIN AND DRURY CENTRE LAND REQUIREMENTS (HA)

Scenario 1	Convenience	Specialty	Supermarket	LFR	Commercial Service	NPS Buffer (15%)	Total
Drury Town Centre	2.4	4.7	2.9	5.0	14.9	4.5	34.2
Drury West Stage 1	0.4	0.8	0.5	0.9	2.6	0.8	6.0
Drury West Stage 2	0.4	0.9	0.5	0.9	2.7	0.8	6.2
Opaheke Drury (incl Bellfield SHA)	0.6	1.2	0.8	1.3	3.9	1.2	9.0
Drury Catchment Total	3.8	7.6	4.6	8.1	24.1	7.2	55.4
Pukekohe - North West	0.5	0.1	0.3		1.0	0.3	2.2
Pukekohe - South East	0.5	0.1	0.3		1.0	0.3	2.2
Balance of Catchment (Incl Pukekohe Town Centre)	1.8	3.4	2.1	3.7	10.9	3.3	25.1
Pukekohe / Paerata Total	2.8	3.7	2.8	3.7	12.8	3.8	29.5
Total	6.6	11.3	7.4	11.7	36.9	11.1	84.9

Scenario 2	Convenience	Specialty	Supermarket	LFR	Commercial Service	NPS Buffer (15%)	Total
Drury Town Centre	2.3	4.6	2.8	4.9	14.6	4.4	33.6
Drury West Stage 1	0.5	1.1	0.6	1.1	3.3	1.0	7.6
Drury West Stage 2	0.6	1.1	0.7	1.2	3.6	1.1	8.2
Opaheke Drury (incl Bellfield SHA)	0.8	1.6	1.0	1.7	5.0	1.5	11.4
Drury Catchment Total	4.2	8.3	5.1	8.9	26.5	7.9	60.8
Pukekohe - North West	0.5	0.1	0.3		1.0	0.3	2.2
Pukekohe - South East	0.5	0.1	0.3		1.0	0.3	2.2
Balance of Catchment (Incl Pukekohe Town Centre)	1.8	3.4	2.1	3.7	10.9	3.3	25.1
Pukekohe / Paerata Total	2.8	3.7	2.8	3.7	12.8	3.8	29.5
Total	7.0	12.0	7.8	12.5	39.3	11.8	90.3

Source: Property Economics

Based on estimated residential capacity and proposed future business land developments, the total retail and commercial service centre land requirement across the identified catchments is estimated be in the order of 85-90ha inclusive of a 15% long term buffer factoring in obligations under the NPS UDC. It should be noted that with intensification of commercial service activity (i.e. commercial services locating above retail provision) the total land requirement identified above (which is an all at grate requirement) maybe lower depending on the density of newly developed commercial centres.

DRURY

Within the Drury catchment around 55 – 60ha is estimated to be required at capacity, with the majority (approximately 60%) most appropriately located within the centralised (to the catchment) Drury Town Centre. Current centre vacant business zone land in the catchment is estimated at 20ha, primarily around the Karaka / Hingaia node. This leaves a balance of around 35ha of additional centre business zoned land required for retail and commercial service in the catchment.

FIGURE 8: POTENTIAL RETAIL CENTRE LOCATIONS
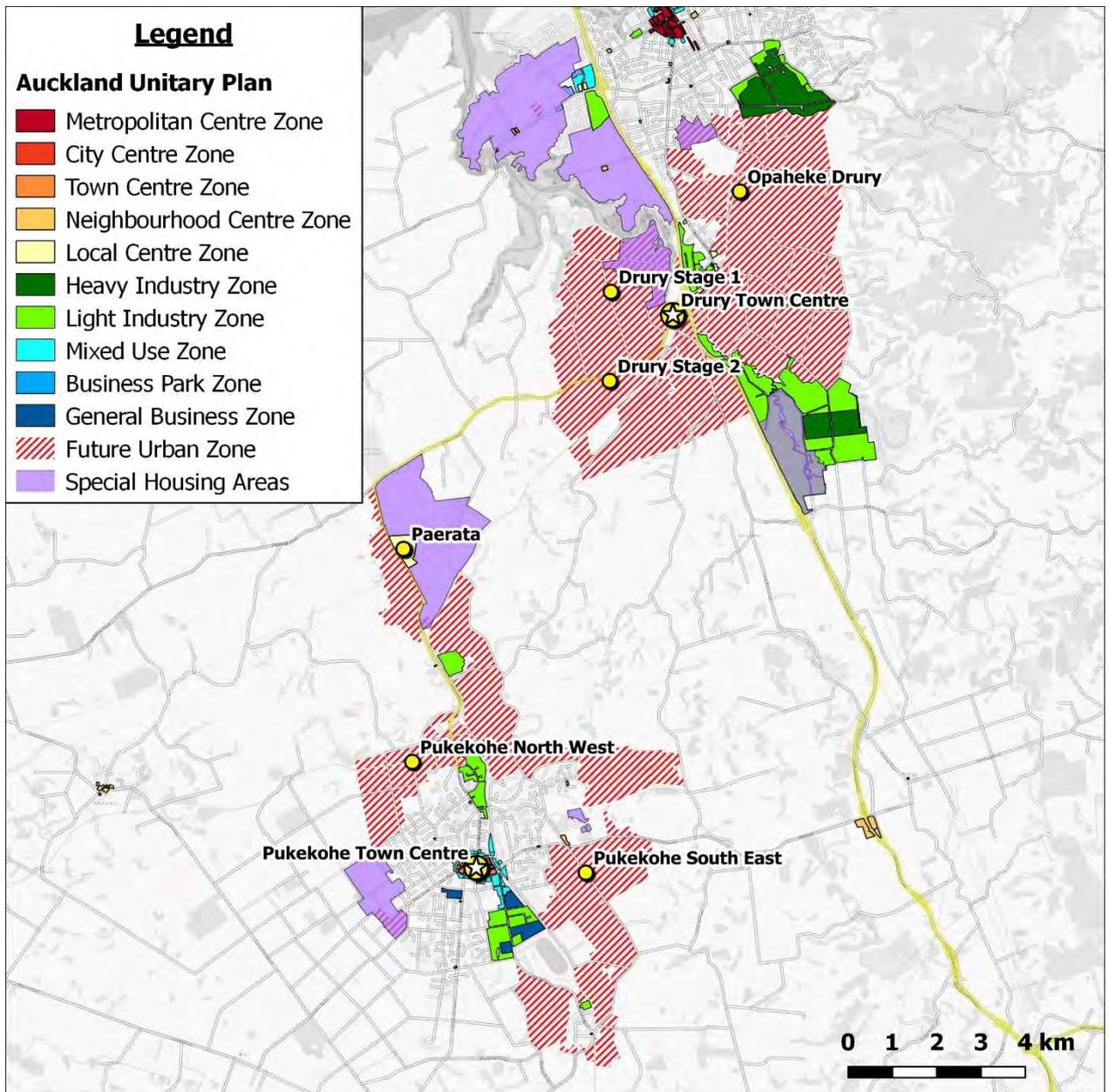
Source: Property Economics, Auckland Council

In Property Economics' opinion, the retail / commercial service land requirements would be most appropriately provided for with three new local centres each located within each of the council designated growth areas of Drury West Stage 1 (including Bremner Road SHA), Drury West Stage 2 and Opaheke. These smaller supporting centres to the dominant Drury Town Centre require 4-6ha each (factoring in the existing 20ha vacant provision), convenience retailing and commercial services servicing their local residential markets.

Each of the identified Drury centres could support a supermarket by 2048 given the projected localised population base and dwelling yield in each growth cell.

The bulk of the LFR and Speciality retail component of the land requirement is most efficiently provided in and around the Drury Town Centre location, which is central to the wider Drury catchment and growth areas. The smaller local convenience centres proposal should generally be convenience in nature given the close proximity of the Drury Town Centre. This close proximity would enable a stronger core retail destination to be developed that is central to the wider Drury market, and with its motorway interchange location, enable a more efficient and higher performing (economically) centre to be established.

Property Economics consider there is potential for a new large scale integrated retail mall / centre to be developed at the Drury interchange in the form of a new large-scale metropolitan centre. This would be akin to Manukau City Centre in the 1970s, and Albany, Botany and Sylvia Park more recently. Such a development would be sustainable moving forward given the research and analysis in this report, and it is considered judicious for Council to take a proactive approach to ensure any new centre in Drury is integrated and most importantly is scaled to efficiently meet the future communities' requirements and aspirations. The retail and commercial service requirement for any future Drury Town Centre (factoring in the existing 20ha capacity) is estimated to be in the order of 24ha.

The scale of such a development would cover a similar land footprint as the Sylvia Park retail destination including the Apex large format centre across the road.

FIGURE 9: SYLVIA PARK LAND AREA FOOTPRINT

Source: Property Economics, LINZ, Google Maps

By way of another example for context, the Albany retail destination located on the northern fringe of the city's current urban extent has around 32ha of land developed at its core.

FIGURE 10: ALBANY WESTFIELD AND MEGA CENTRE LAND AREA
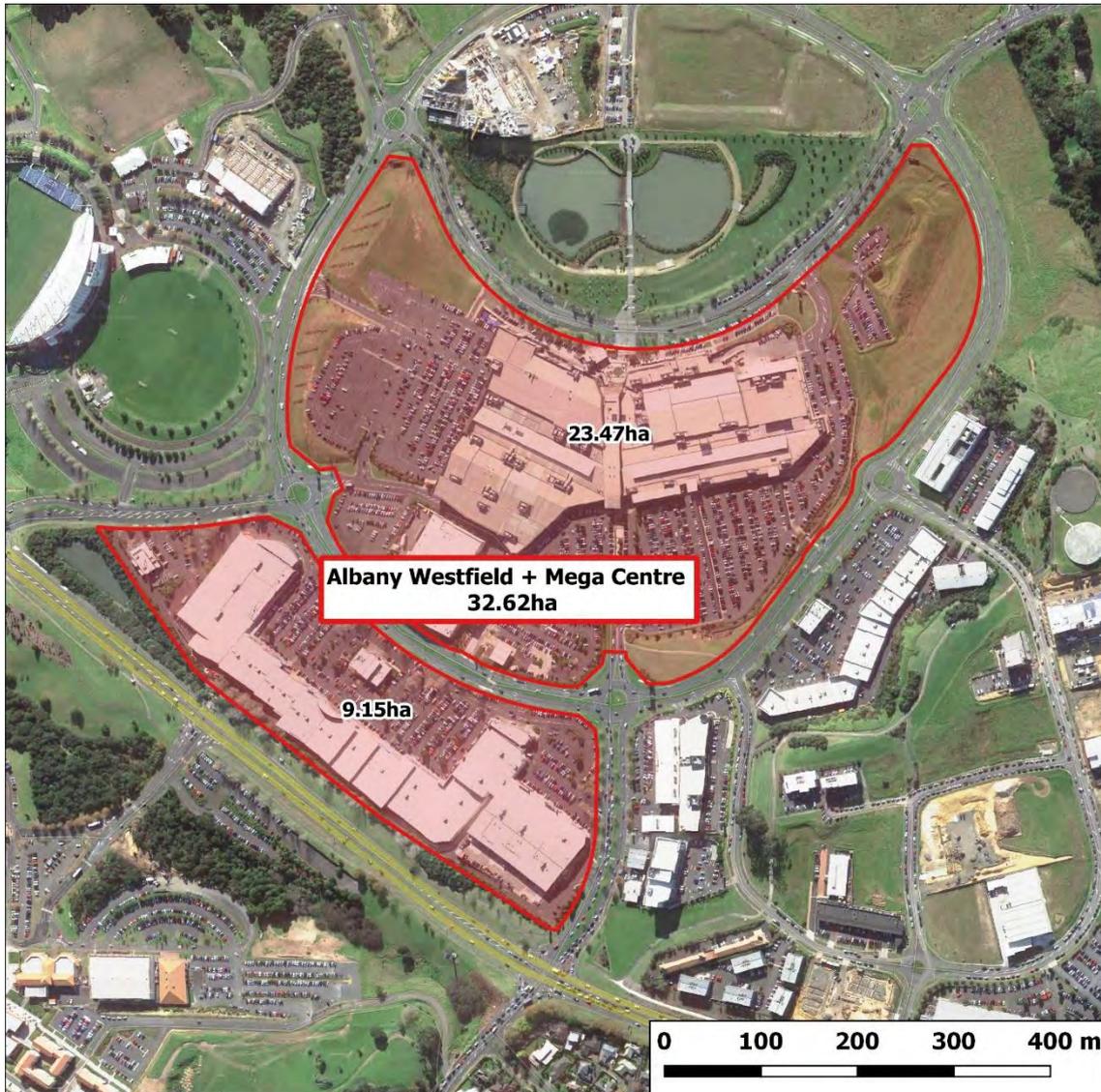
Source: Property Economics, LINZ, Google Maps

WEST FRANKLIN

Regarding the West Franklin study area, total retail and commercial service land requirement is estimated to be in the order of 30ha. Current vacancy in this catchment is estimated at 32ha at face value indicating the current vacant provision is not balanced with the geospatial distribution of future demand. The vacant provision is dominated by Paerata North and Kingseat, which quantitatively appear to have too much centre business zone attributed to them or that not all their business land provision is likely to be utilised by retail activities. It is

Property Economics' opinion that current provision is appropriate from a location perspective but not in a quantitative sense.

A more appropriate and efficient centre business zone distribution in West Franklin would better align business land provision with residential growth distribution and would include two new centres in north-western Pukekohe and south-eastern Pukekohe of around 2-2.5ha each for retail and commercial service activities. The balance of the catchment appears to have the centre business land provision ready to meet future market requirements.

For context the commercial footprint of the Mairangi Bay shopping centre on the North Shore is shown in Figure 11 as a similar centre to those proposed and covers a land area of around 2.3ha.

FIGURE 11: MAIRANGI BAY CENTRE LAND AREA
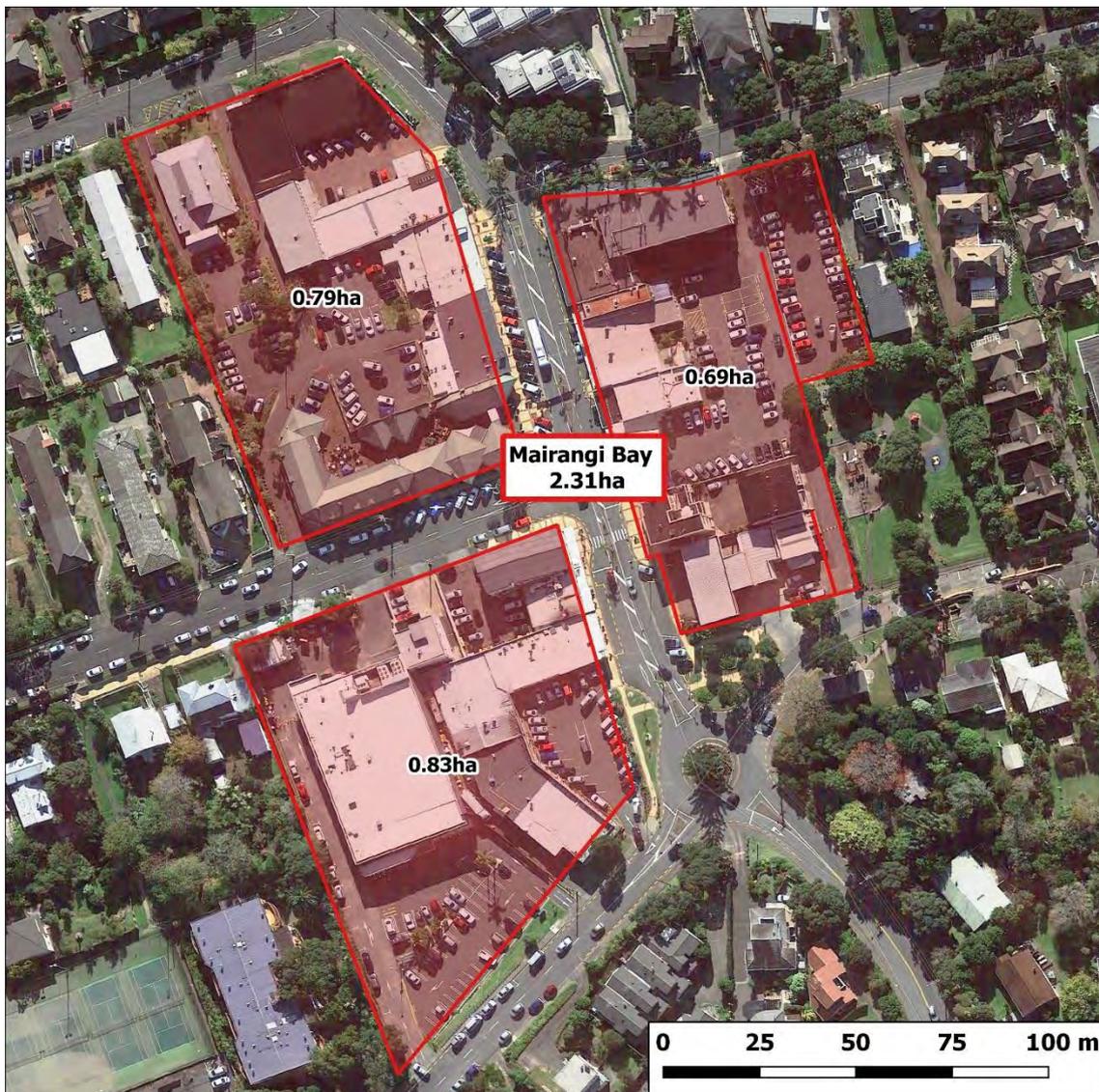
Source: Property Economics, LINZ, Google Maps

At a broad level, the identified 'smaller' commercial centres supporting Drury and West Franklin's (Pukekohe Town Centre) primary commercial centres are appropriate to encompass in due course a supermarket (where the localised catchments can sustain such) and convenience retail activities accommodating around half the identified land area, and the balance commercial service and office activities (primarily servicing their respective localised markets). No, or very limited if any, LFR activity is anticipated in these centres (particularly during their initial years of development) as these store types have broader trade catchments beyond local markets and therefore are more efficiently provided in the Drury Town Centre or Pukekohe LFR provision.

No land provision has been made for community facilities (i.e. libraries, community halls, urban parks, children's playgrounds, etc.) in the estimated land requirements. As such any provision for such activities would be additional to the identified land requirements in this report. However, in Property Economics experience these land uses do not comprise a material proportion of ground level land uses in business zones of more local oriented centres (around 5%), rather they often are situated in other zones.

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 can 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, whereby 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 to the zoning of industrial, commercial, retail and special land zonings by the local authorities.

Industrial activities in general refer to land extensive activities, it includes 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 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 units 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 units 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: PROPERTY ECONOMICS RETAIL MODEL

This overview outlines the methodology that has been used to estimate retail spend generated at Meshblock (MB) level for the identified catchments out to 2048.

MB 2013 Boundaries

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

Permanent Private Household (PPH) Forecasts 2006-2048

These are based on Auckland Projections as provided to Property Economics in conjunction with the Statistics NZ Medium Series Population Growth Projections with adjustments to account for residential building consent activity occurring between 2006 and 2017, with this extrapolated to the year of concern. This accounts for recent building activity, particularly important for the 5-10 year forecasts, and effectively updates Statistics NZ projections to reflect recent trends.

International Tourist Spend

The total international tourism retail spend has been derived from the Ministry of Business and Innovation and Employment (MBIE) estimates regionally. This has been distributed sub-regionally on a 'spend per employee' basis. Domestic and business based tourism spend is incorporated in the employee 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 2% per annum for the 2017-2048 period.

2013-2048 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 networking 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, and 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 remain 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 2.5% in 2017 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 floors pace since it is inflationary and only serves to drive up prices.

Wealth/Equity/Debt: This in the early-mid 2000s 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 massive 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 recent years this reversed when the worldwide GFC recession took hold. 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). Recently emerging is a rebound in the property market and an increase in general business confidence as the economy recovers 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 2017

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 2017-2048

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 may be 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 3: ANZSIC CLASSIFICATIONS UTILISED IN PROPERTY ECONOMICS RETAIL EXPENDITURE MODEL

<u>DIVISION G – RETAIL TRADE</u>

The Retail Trade Division includes units mainly engaged in the purchase and onselling of goods, without significant transformation, to the general public. Units are classified to the Retail Trade Division in the first instance if they buy goods and then onsell them (including on a commission basis) 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. The display and advertising of goods may be physical or electronic.

Physical display and advertising includes shops, printed catalogues, billboards and print advertisements. Electronic display and advertising includes catalogues, internet websites, television and radio advertisements and infomercials. While non-store retailers, by definition, do not possess the physical characteristics of traditional retail units with a physical shop-front location, these units share the requisite function of the purchasing and onselling of goods to the general public, and are therefore included in this division.

A unit which sells to both businesses and the general public will be classified to the Retail Trade Division if it operates from shop-front premises, arranges and displays stock to attract a high proportion of walk-in customers and utilises mass media advertising to attract customers.

The buying of goods for resale to the general public is a characteristic of Retail Trade units that distinguishes them from units in the Agriculture, Forestry and Fishing; Manufacturing; and Construction industries. For example, farms that sell their products, at or from, the point of production are not classified in Retail Trade, but rather in Agriculture as the production of agricultural output are these units' primary activity. Units in all these industries provide their output to the market for sale. Similarly, units that both manufacture and sell their products to the general public are not classified in Retail Trade, but rather in Manufacturing.

Wholesale units also engage in the buying of goods for resale, but typically operate from a warehouse or office and neither the design nor the location of these premises is intended to solicit a high volume of walk-in traffic. In general, wholesale units have large storage facilities and small display area, while the reverse is true for retail units. Units in Retail often undertake non-retail secondary activities, such as watch and jewellery stores, that undertake repairs of these goods as well as retailing new items. However, units whose primary activity is the provision of repair and maintenance services are excluded from this division, and are classified to the Other Services Division.

411 SUPERMARKET AND GROCERY STORES

4110 Supermarket and Grocery Stores

This class consists of units mainly engaged in retailing groceries or non-specialised food lines (including convenience stores), whether or not the selling is organised on a self-service basis.

Primary activities

- Convenience store operation
- Grocery retailing
- Grocery supermarket operation

Exclusions/References

Units mainly engaged in retailing specialised food lines are included in the appropriate classes of Group 412 Specialised Food Retailing.

412 SPECIALISED FOOD RETAILING

4121 Fresh Meat, Fish and Poultry Retailing

This class consists of units mainly engaged in retailing fresh meat, fish or poultry.

Primary Activities

- Butcher's shop operation (retail)
- Fish, fresh, retailing
- Meat, fresh, retailing
- Poultry, fresh, retailing
- Seafood, fresh, retailing

4122 Fruit and Vegetable Retailing

This class consists of units mainly engaged in retailing fresh fruit or vegetables.

Primary activities

- Fruit, fresh, retailing
- Greengrocery operation (retail)
- Vegetable, fresh, retailing

4123 Liquor Retailing

This class consists of units mainly engaged in retailing beer, wine or spirits for consumption off the premises only.

Primary activities

- Alcoholic beverage retailing (for consumption off the premises only)

Exclusions/References

Units mainly engaged in selling alcoholic beverages for consumption on the premises, such as hotels, bars and similar units (except hospitality clubs), are included in Class 4520 Pubs, Taverns and Bars.

4129 Other Specialised Food Retailing

This class consists of units mainly engaged in retailing specialised food lines, such as confectionery or smallgoods or bread and cakes (not manufactured on the same premises).

Primary activities

- Biscuit retailing (not manufactured on the same premises)
- Bread retailing (not manufactured on the same premises)
- Bread vendor (not manufactured on the same premises)
- Cake retailing (not manufactured on the same premises)
- Confectionery retailing
- Non-alcoholic drinks retailing
- Pastry retailing (not manufactured on the same premises)
- Smallgoods retailing
- Specialised food retailing n.e.c.

Exclusions/References

Units mainly engaged in

- retailing a wide range of food lines are included in Class 4110 Supermarket and Grocery Stores;
- providing food services for immediate consumption for taking away or consumption in limited seating areas are included in Class 4512 Takeaway Food Services;
- manufacturing bakery products and selling those products from the same premises are included in Class 1174 Bakery Product Manufacturing (Non-factory based); and
- • retailing food through vending machines or other non-store means (except mobile vans) are included in Class 4310 Non-Store Retailing.

421 FURNITURE, FLOOR COVERINGS, HOUSEWARE AND TEXTILE GOODS RETAILING

4211 Furniture Retailing

This class consists of units mainly engaged in retailing furniture, blinds or awnings.

Primary activities

- Antique reproduction furniture retailing
- Awning retailing

- Blind retailing

- Furniture retailing

- Mattress retailing

Exclusions/References

Units mainly engaged in

- the installation of household blinds or awnings are included in Class 3239 Other Building Installation Services;

- manufacturing blinds or awnings are included in the appropriate classes of Division C Manufacturing, according to the materials used in the manufacturing process;

- retailing second-hand or antique furniture are included in Class 4273 Antique and Used Goods Retailing; and

- retailing curtains are included in Class 4214 Manchester and Other Textile Goods Retailing.

4212 Floor Coverings Retailing

This class consists of units mainly engaged in retailing floor coverings (except ceramic floor tiles).

Primary activities

- Carpet retailing

- Floor coverings retailing (except ceramic floor tiles)

- Floor rug retailing

- Floor tile retailing (lino, vinyl, cork, carpet or rubber)

- Parquetry retailing

Exclusions/References

Units mainly engaged in

- laying floor coverings are included in the appropriate classes of Division E Construction; and

- retailing ceramic floor tiles are included in Class 4231 Hardware and Building Supplies Retailing.

4213 Houseware Retailing

This class consists of units mainly engaged in retailing kitchenware, china, glassware, silverware or other houseware goods.

Primary activities

- Brushware retailing

- Chinaware retailing

- Cooking utensil retailing (except electric)

- Crockery retailing

- Cutlery retailing

- Enamelware retailing

- Glassware retailing

- Kitchenware retailing

- Picnicware retailing

- Plastic container retailing

- Silverware retailing

Exclusions/References

Units mainly engaged in retailing electric cooking utensils are included in Class 4221 Electrical, Electronic and Gas Appliance Retailing.

4214 Manchester and Other Textile Goods Retailing

This class consists of units mainly engaged in retailing fabrics, curtains or household textiles.

Primary activities

- Blanket retailing

- Curtain retailing

- Dressmaking requisites retailing

- Fabric, textile, retailing

- Household textile retailing

- Linen retailing

- Piece-goods retailing

- Soft furnishing retailing

- Yarn retailing

Exclusions/References

Units mainly engaged in

- installing awnings, blinds, shutters or curtains are included in Class 3239 Other Building Installation Services; and

- manufacturing curtains or cushions are included in Class 1333 Cut and Sewn Textile Product Manufacturing.

422 ELECTRICAL AND ELECTRONIC GOODS RETAILING

4221 Electrical, Electronic and Gas Appliance Retailing

This class consists of units mainly engaged in retailing electrical, electronic or gas appliances (except computers and computer peripherals).

Primary activities

- Air conditioner retailing

- Appliance, electric, retailing

- Barbecue retailing

- Camera retailing

- Compact disc player retailing

- Cooking utensil, electric, retailing

- Digital versatile disc (DVD) player retailing

- Electronic beeper retailing

- Fan, electric, retailing

- Floor polisher, electric, retailing

- Gas appliance retailing

- Heating equipment, electric or gas, retailing

- Mobile phone retailing

- Modem retailing

- Pager retailing

- Pocket calculator, electronic, retailing

- Projector retailing

- Radio receiving set retailing (except car radios)

- Refrigerator, retailing

- Shaver, electric, retailing

- Sound reproducing equipment retailing

- Stereo retailing

- Stove, retailing

- Television antennae retailing

- Television set retailing

- Two-way radio equipment retailing

- Vacuum cleaner retailing

- Video cassette recorder (VCR) retailing

- Washing machine retailing

Exclusions/References

Units mainly engaged in

- retailing computer or computer peripheral equipment are included in Class 4222 Computer and Computer Peripheral Retailing;

- retailing CDs, DVDs or other entertainment media are included in Class 4242 Entertainment Media Retailing;

- retailing car radios are included in Class 3921 Motor Vehicle Parts Retailing;

- installing heating, refrigeration or air conditioning equipment are included in Class 3233 Air Conditioning and Heating Services;

- hiring household appliances are included in Class 6639 Other Goods and Equipment Rental and Hiring n.e.c.; and

- repairing and maintaining electrical, electronic and gas domestic appliances are included in Class 9421 Domestic Appliance Repair and Maintenance.

4222 Computer and Computer Peripheral Retailing

This class consists of units mainly engaged in retailing computers or computer peripheral equipment.

Primary activities

- Compact disc burner retailing
- Computer equipment retailing
- Computer game console retailing
- Computer hardware retailing
- Computer software retailing (except computer games)
- Printer retailing
- Visual display unit (VDU) retailing

Exclusions/References

Units mainly engaged in retailing computer games are included in Class 4242 Entertainment Media Retailing.

4229 Other Electrical and Electronic Goods Retailing

This class consists of units mainly engaged in retailing electrical and electronic goods not elsewhere classified.

Primary activities

- Dry cell battery retailing
- Electric light fittings retailing
- Electrical goods retailing n.e.c.
- Electronic goods retailing n.e.c.

423 HARDWARE, BUILDING AND GARDEN SUPPLIES RETAILING

4231 Hardware and Building Supplies Retailing

This class consists of units mainly engaged in retailing hardware or building supplies.

Primary activities

- Carpenters' tool retailing
- Cement retailing
- Ceramic floor tile retailing
- Garden tool retailing
- Hardware retailing
- Lacquer retailing
- Lawn mower retailing

- Lock retailing

- Mineral turpentine retailing

- Nail retailing

- Paint retailing

- Plumbers' fittings retailing

- Plumbers' tools retailing

- Timber retailing

- Tool retailing

- Wallpaper retailing

- Woodworking tool retailing

Exclusions/References

Units mainly engaged in

- wholesaling builders' hardware or supplies (except plumbing supplies) are included in Class 3339 Other Hardware Goods Wholesaling; and

- wholesaling timber are included in Class 3331 Timber Wholesaling.

4232 Garden Supplies Retailing

This class consists of units mainly engaged in retailing garden supplies or nursery goods.

Primary activities

- Bulb, flower, retailing

- Fertiliser retailing

- Garden ornament retailing

- Garden supplies retailing n.e.c.

- Nursery stock retailing

- Pesticide retailing

- Plant, garden, retailing

- Pot plant retailing

- Seedlings retailing

- Seed, garden, retailing

- Shrub or tree retailing

- Tuber, flower, retailing

Exclusions/References

Units mainly engaged in retailing cut flowers are included in Class 4274 Flower Retailing.

424 RECREATIONAL GOODS RETAILING

4241 Sport and Camping Equipment Retailing

This class consists of units mainly engaged in retailing sporting goods, camping equipment or bicycles.

Primary activities

- Ammunition retailing

- Bicycle retailing

- Camping equipment retailing

- Canoe retailing

- Equestrian equipment retailing

- Fishing tackle retailing

- Fitness equipment retailing

- Golfing equipment retailing

- Gun or rifle retailing

- Gymnasium equipment retailing

- Sailboard retailing

- Snow ski retailing

- Sporting equipment retailing (except clothing or footwear)

- Wetsuit retailing

Exclusions/References

Units mainly engaged in

- retailing sports apparel (clothing and footwear) are included in Classes 4251 Clothing Retailing and 4252 Footwear Retailing; and

- retailing new or used boats are included in Class 4245 Marine Equipment Retailing.

4242 Entertainment Media Retailing

This class consists of units mainly engaged in retailing audio tapes, compact discs, computer games, digital versatile discs or video cassettes.

Primary activities

- Audio cassette retailing

- Compact disc retailing

- Computer game retailing

- Digital versatile disc (DVD) retailing

- Video cassette retailing

Exclusions/References

Units mainly engaged in

- retailing second-hand records, tapes, CDs, DVDs or videos are included in Class 4273 Antique and Used Goods Retailing;

- retailing CD players, DVD players, VCRs or other appliances are included in Class 4221 Electrical, Electronic and Gas Appliance Retailing; and

- retailing computers and computer peripherals are included in Class 4222 Computer and Computer Peripheral Retailing.

4243 Toy and Game Retailing

This class consists of units mainly engaged in retailing toys or games (except computer games).

Primary activities

- Doll retailing
- Game retailing
- Toy retailing

Exclusions/References

Units mainly engaged in retailing computer games are included in Class 4242 Entertainment Media Retailing.

4244 Newspaper and Book Retailing

This class consists of units mainly engaged in retailing books, periodicals and newspapers.

Primary activities

- Book retailing
- Magazine retailing
- Newspaper retailing
- Periodical retailing
- Religious book retailing

Exclusions/References

Units mainly engaged in

- retailing stationery and writing goods are included in Class 4272 Stationery Goods Retailing; and
- retailing second-hand books are included in Class 4273 Antique and Used Goods Retailing.

425 CLOTHING, FOOTWEAR AND PERSONAL ACCESSORY RETAILING

4251 Clothing Retailing

This class consists of units mainly engaged in retailing clothing or clothing accessories.

Primary activities

- Clothing accessory retailing
- Clothing retailing
- Foundation garment retailing
- Fur clothing retailing
- Glove retailing
- Hosiery retailing
- Leather clothing retailing

- Millinery retailing

- Sports clothing retailing

- Work clothing retailing

Exclusions/References

Units mainly engaged in

- retailing second-hand clothing are included in Class 4273 Antique and Used Goods Retailing; and

- retailing personal accessories (except clothing and footwear) are included in Class 4259 Other Personal Accessory Retailing.

4252 Footwear Retailing

This class consists of units mainly engaged in retailing boots, shoes or other footwear.

Primary activities

- Boot retailing

- Footwear retailing

- Shoe retailing

- Sports footwear retailing

4253 Watch and Jewellery Retailing

This class consists of units mainly engaged in retailing new watches and jewellery (except clocks and silverware).

Primary activities

- Jewellery retailing

- Watch retailing

Exclusions/References

- Units mainly engaged in

- retailing second-hand jewellery are included in Class 4273 Antique and Used Goods Retailing;

- retailing clocks are included in Class 4279 Other Store-Based Retailing n.e.c.; and

- retailing silverware are included in Class 4213 Houseware Retailing.

4259 Other Personal Accessory Retailing

This class consists of units mainly engaged in retailing other personal accessories, including new handbags, sunglasses, leather goods, luggage and other personal accessories not elsewhere classified.

Primary activities

- Briefcase retailing

- Handbag retailing

- Leather goods retailing (except clothing and footwear)

- Luggage retailing

- Personal accessory retailing n.e.c.

- Sunglass retailing

- Umbrella retailing

- Wig retailing

Exclusions/References

Units mainly engaged in

- retailing leather clothing are included in Class 4251 Clothing Retailing; and

- retailing leather footwear are included in Class 4252 Footwear Retailing.

426 DEPARTMENT STORES

4260 Department Stores

This class consists of units engaged in retailing a wide variety of goods, other than food or groceries, but the variety is such that no predominant activity can be determined. These units have predominant retail sales in at least four of the following six product groups:

- Clothing

- Furniture

- Kitchenware, china, glassware and other housewares

- Textile goods

- Electrical, electronic and gas appliances

- Perfumes, cosmetics and toiletries

The products primary to these headings, as well as other products, are normally sold by or displayed in separate departments or sections supervised by managers (with specialised product knowledge) within the store, and, generally, merchandising, advertising, customer service, accounting and budgetary control functions are undertaken on a departmentalised basis.

Primary activities

- Department store operation

Exclusions/References

Units mainly engaged in

- retailing food and groceries on a departmentalised basis are included in Class 4110 Supermarket and Grocery Stores;

- retailing clothing; furniture; kitchenware, china, glassware and other housewares; textile goods; electrical, electronic and gas appliances; or perfumes, cosmetics and toiletries on a specialised basis are included in the appropriate classes of Subdivision 42 Other Store-Based Retailing; and

- retailing a wide variety of products that are not sold, displayed, managed or administered on a departmentalised basis (i.e. gift shops or souvenir shops) are included in Class 4279 Other Store-Based Retailing n.e.c.

427 PHARMACEUTICAL AND OTHER STORE-BASED RETAILING

4271 Pharmaceutical, Cosmetic and Toiletry Goods Retailing

This class consists of units mainly engaged in retailing prescription drugs or patent medicines, cosmetics or toiletries.

Primary activities

- Cosmetic retailing
- Drug retailing
- Patent medicine retailing
- Perfume retailing
- Pharmacy, retail, operation
- Prescription, medicine, dispensing
- Toiletry retailing

4272 Stationery Goods Retailing

This class consists of units mainly engaged in retailing stationery goods and writing materials.

Primary activities

- Artists' supplies retailing
- Ink retailing
- Note book retailing
- Pen or pencil retailing
- Stationery retailing
- Writing material retailing

Exclusions/References

Units mainly engaged in retailing books or magazines are included in Class 4244 Newspaper and Book Retailing.

4273 Antique and Used Goods Retailing

This class consists of units mainly engaged in retailing antiques or second-hand goods (except motor vehicles or motor cycles and parts).

Primary activities

- Antique retailing
- Coin dealing (retailing)
- Disposals retailing
- Pawnbroking
- Second-hand book retailing
- Second-hand cloth retailing
- Second-hand electrical, electronic or computer equipment retailing
- Second-hand furniture retailing
- Second-hand goods retailing n.e.c.
- Second-hand jewellery retailing

- Second-hand record, tape, CD, DVD or videos retailing

- Second-hand sports card retailing

- Stamp, collectible, dealing (retailing)

Exclusions/References

Units mainly engaged in

- retailing second-hand motor vehicles are included in Class 3911 Car Retailing;

- retailing second-hand motor cycles are included in Class 3912 Motor Cycle Retailing;

- retailing second-hand motor vehicle or motor cycle parts are included in Class 3921 Motor Vehicle Parts Retailing; and

- providing auctioning services are included in Class 3800 Commission-Based Wholesaling.

4274 Flower Retailing

This class consists of units mainly engaged in retailing cut flowers or display foliage.

Primary Activities

- Cut flower retailing

- Display foliage retailing

- Dried flower retailing

- Florist, retail, operation

4279 Other Store-Based Retailing n.e.c.

This class consists of units mainly engaged in retailing goods not elsewhere classified from store-based premises.

Primary activities

- Art gallery operation (retail)

- Binocular retailing

- Bottled liquefied petroleum gas (LPG) retailing

- Briquette retailing

- Clock retailing

- Coal retailing

- Coke retailing

- Computer consumables (toners, inks) retailing

- Craft goods retailing

- Duty free store operation

- Firewood retailing

- Firework retailing

- Greeting card retailing

- Ice retailing

- Map retailing

- Musical instrument retailing

- Pet and pet accessory retailing

- Photographic chemical retailing

- Photographic film or paper retailing

- Pram retailing

- Religious goods (except books) retailing

- Specialty stores n.e.c.

- Store-based retailing n.e.c.

- Swimming pool retailing

- Tobacco product retailing

- Variety store operation

Exclusions/References

Units mainly engaged in

- retailing second-hand sports cards are included in Class 4273 Antique and Used Goods Retailing;

- retailing religious books are included in Class 4244 Newspaper and Book Retailing;

- retailing goods without the use of a shopfront or physical store presence are included in Class 4310 Non-Store Retailing; and

- retailing goods on a commission basis are included in Class 4320 Retail Commission-Based Buying and/or Selling.

451 CAFES, RESTAURANTS AND TAKEAWAY FOOD SERVICES

4511 Cafes and Restaurants

This class consists of units 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.

Primary activities

- Cafe operation

- Restaurant operation

Exclusions/References

Units mainly engaged in

- providing food ready to be taken away for immediate consumption are included in Class 4512 Takeaway Food Services;

- providing catering services (including airline food catering services) at specified locations or events are included in Class 4513 Catering Services;

- selling alcoholic beverages both for consumption on and off the premises are included in Class 4520 Pubs, Taverns and Bars; and

- operating theatre restaurants mainly engaged in providing live theatrical productions with food and beverages are included in Class 9001 Performing Arts Operation.

4512 Takeaway Food Services

This class consists of units mainly engaged in providing food services ready to be taken away for immediate consumption. Customers order or select items and pay before eating. Items are usually provided in takeaway containers or packaging. Food is either consumed on the premises in limited seating facilities, taken away by the customer or delivered. This class also includes units mainly engaged in supplying food services in food halls and food courts.

Primary activities

- Juice bar operation

- Mobile food van operation

- Takeaway food operation

Exclusions/References

Units mainly engaged in

- providing food services for consumption on the premises only are included in Class 4511 Cafes and Restaurants;

- providing catering services (including airline food catering services) at specified locations or events are included in Class 4513 Catering Services;

- retailing baked goods manufactured on the same premises are included in Class 1174 Bakery Product Manufacturing (Non-factory based);

- retailing baked goods manufactured at other premises are included in Class 4129 Other Specialised Food Retailing; and

- retailing beer, wine or spirits for consumption off the premises only are included in Class 4123 Liquor Retailing.

- Cafes and Restaurants;

- providing food ready to be taken away for immediate consumption are included in Class 4512 Takeaway Food Services; and

- manufacturing food products (including snack foods and prepared meals) are included in Class 1199 Other Food Product Manufacturing n.e.c.

452 PUBS, TAVERNS AND BARS

4520 Pubs, Taverns and Bars

This class consists of hotels, bars or similar units (except hospitality clubs) mainly engaged in serving alcoholic beverages for consumption on the premises, or in selling alcoholic beverages both for consumption on and off the premises. These units may also provide food services and/or present live entertainment.

Primary activities

- Bar operation

- Hotel bar operation

- Night club operation

- Pub operation

- Tavern operation

- Wine bar operation

Exclusions/References

Units mainly engaged in

- retailing alcoholic beverages for consumption off the premises only are included in Class 4123 Liquor Retailing; and

- operating hospitality clubs are included in Class 4530 Clubs (Hospitality).

APPENDIX 4: CONVENIENCE STORE TYPES

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

EXAMPLES OF CONVENIENCE RETAIL STORE TYPES

- 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

TECHNICAL NOTE

To:	Christopher Turbott	**Of:**	Auckland Council
From:	Peter Nunns	**Date:**	16 November 2018
Project:	Southern Structure Plan Business Land Review (NZ 2400)		
Subject:	Locational prerequisites for commercially successful business land		

1 Locational prerequisites for commercially successful business land

In this note, we address the following two tasks outlined in the brief:

- Task 3: Review good practice locational prerequisites for commercially successful industrial areas, including but not limited to draft criteria developed by Auckland Council.
- Task 5: Review current estimates on the number and relative scale of centres required, and key centre location principles for success, relevant to each structure plan area taking into account their specific contexts.

To do so, we have reviewed existing success criteria used by Auckland Council, compared them against methodologies used in other locations around New Zealand, and identified a suggested approach.

2 Industrial land success criteria

To begin, we consider industrial land success criteria (Task 3).

2.1 2011 Harrison Grierson report on industrial land

Based on discussion with you, we understand that Auckland Council's starting place for this analysis is the Group 1 Business Land Assessment undertaken by Harrison Grierson in 2011.[1] This report focused on industrial land, ie intended for manufacturing, construction, wholesale trade, transport and storage, and did not cover centres. It assessed a range of greenfield industrial land development opportunities, including Drury and Paerata. The findings of this report, in conjunction with other information, influenced the first version of the Auckland Plan in 2012.

Harrison Grierson outlined 12 criteria, which are summarised in the following table. The most important criterion is access to major road / transport routes, followed by proximity to ports, a lack of geographic constraints, and availability of infrastructure. These account for almost two-thirds of the overall scoring.

Table 1: Harrison Grierson success criteria for industrial land

Criteria	Maximum score	Percentage weighting
Access to major road / transport routes	30	21%
Proximity to ports (sea port, inland port, airport)	20	14%

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[1] Harrison Grierson. 2011. *Auckland Council Group 1 Business Land Assessment*. A report for Auckland Council.

Appropriate land features: Flat land; not on a floodplain; 100ha minimum contiguous site	20	14%
Service infrastructure in place or proposed	20	14%
The site: Has potential for colocation and/or clustering with associated business activities; Is contiguous with existing zoned industrial land	15	10%
Access to rail	10	7%
Proximity to labour	10	7%
Ability to buffer adverse effects from residential and sensitive activities	5	3%
Low level of traffic in the vicinity	N/A	N/A
Exposure / profile / visibility	5	3%
Existing or proposed public transport	5	3%
Access to complementary / supporting business services	5	3%
Total	145	

Harrison Grierson applied these criteria at a relatively high level – ie they were used to score broad locations rather than looking at variations in desirability within catchments. The following table summarises their results.

Table 2: Harrison Grierson scoring of industrial land locations

Table 15: Scoring Summary													
Economic criteria	Warkworth	Silverdale	Huapai South	Kumeu	Brigham Creek Nth	Whenuapai	Puhinui / Wiri	Takanini	Hingaia	Drury	Paerata	Glenbrook	Out Of
1. Access to major road / transport routes	30	30	30	30	30	30	30	29	30	29	30	11	30
2. Proximity to ports (sea port, inland port, airport)	0	3.5	1	3	4	6.5	11	6	4	4	1	1	20
3. Appropriate Land Features	12	14.5	12	14	16	16.5	16.5	13	12	16.5	14	17.5	20
4. Service infrastructure in place or proposed	4	3	7	5	1	6	4	12	14	3	3	3	20
5. The site has potential for clustering or contiguous with other existing Group 1 business	0	0	4	6	1	0	0	6	0	1	3	0	15
6. Access to rail	6	3	10	10	8	6	9	10	8	10	10	10	10
7. Proximity to labour	0	3	3	6	6	6	10	10	10	3	3	0	10
8. Ability to buffer adverse effects from residential and sensitive activities	4	5	4	5	5	4	3	4	5	4	4	5	5
10. Exposure / profile / visibility	3	3	3	2	1	3	3	3	3	3	3	1	5
11. Existing or proposed public transport	0	1	1	1	0	4.5	0	0	0	2	2.5	0	5
12. Access to complementary / supporting business services	5	4	1	2	3	4	5	4	4	4	4	3	5
TOTAL	64	70	76	84	75	86.5	91.5	97	90	79.5	77.5	51.5	145
%	44%	48%	52%	58%	52%	60%	63%	67%	62%	55%	53%	36%	100%

2.2 Comparison against other success criteria

A number of councils, including Auckland Council, have recently undertaken comprehensive assessments of business land demand and capacity to meet the requirements of the National Policy Statement on Urban Development Capacity. These assessments have often, but not always, outlined success criteria for business land. The Ministry for the Environment's review of these assessments notes that:

- Auckland's assessment employed a statistical model to identify individual vacant business-zoned parcels that are more likely to develop, but did not identify specific factors driving the results
- The Christchurch, Hamilton, and Queenstown urban areas developed multi-criteria analyses of business land feasibility that are conceptually similar to the Harrison Grierson approach described above.[2]

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[2] Greater Christchurch Partnership. 2018. *Greater Christchurch Housing and Business Development Capacity Assessment.*

We draw on these assessments plus a similar exercise we recently undertook for Whangārei District that employed a multi-criteria analysis to identify business land feasibility, to provide a benchmark for the Harrison Grierson approach.[3] The following table compares these approaches. We make the following observations:

- The Hamilton and Queenstown success criteria closely match the Harrison Grierson criteria. With the exception of the reverse sensitivity criterion, the weightings are very similar. (We suspect that this reflects the fact that the Hamilton and Queenstown criteria were influenced by the HG report.)
- The Christchurch success criteria place greater weight on land remediation, natural hazards, and other constraints such as planning or the presence of archaeological sites. These criteria account for almost 60% of the total weight in the assessment. This may reflect context-specific factors, in particular risks around shaky land in the wake of the Canterbury earthquakes.
- The Whangārei success criteria are more parsimonious, including only six criteria and generally excluding criteria that were assigned weightings of less than 10% in the HG report.

Table 3: Comparison of industrial land success criteria and weightings

Criteria	HG report	Hamilton	Christchurch	Queenstown	Whangārei
Access to major road / transport routes	21%	17%	21%	14%	30%
Proximity to ports (sea port, inland port, airport)	14%			7%	
Appropriate land features: Flat land; not on a floodplain; large contiguous site	14%	9%		14%	15%
Service infrastructure in place or proposed	14%	13%	10%	11%	
The site: Has potential for colocation and/or clustering with associated business activities; Is contiguous with existing zoned industrial land	10%	13%		14%	
Access to rail	7%				
Proximity to labour	7%	9%		7%	10%
Ability to buffer adverse effects from residential and sensitive activities	3%	17%		11%	10%
Low level of traffic in the vicinity	N/A	4%		3%	
Exposure / profile / visibility	3%	9%		3%	
Existing or proposed public transport	3%	4%		7%	
Access to complementary / supporting business services	3%	4%		3%	
Availability of large (>1ha) sites to purchase				4%	15%
Share of sites over 1 ha in size					20%
Land assembly (large contiguous sites)			16%		

Future Proof. 2018. *Hamilton, Waikato and Waipa Housing and Business Development Capacity Assessment*.
SmartGrowth. 2017. *Tauranga City and Western Bay of Plenty Housing and Business Capacity Assessment*.
[3] MRCagney. 2018. *Whangārei housing and business development capacity assessment*. A report for Whangārei District Council prepared in conjunction with Tanya Perrott Consulting, Urbanista Ltd, and Colliers International.

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Land remediation requirements or natural hazards			26%		
Planning constraints			16%		
Other development constraints (eg archaeology, heritage)			16%		

There are more similarities than differences between these success criteria. All assessments reflect the primary importance of good access to transport networks, the availability of flat, non-flood-prone sites, and the availability of large / contiguous sites. They also place some weight on secondary factors such as proximity to labour (and sometimes public transport access) and ability to manage reverse sensitivities.

However, the criterion around potential for colocation and clustering is not included in either the Christchurch or Whangārei rankings, in spite of the fact that it has a reasonable amount of weight in the other three rankings.

Lastly, we note that the Whangārei criteria included a qualitative indicator of whether or not large sites were likely to be available to the market, ie whether or not current owners would be interested in selling them to industrial businesses. In our view, this is an important (but difficult to measure objectively) criterion for whether or not an area is likely to be successful in attracting industrial businesses.

2.3   Suggested approach

Based on this review, we suggest that Harrison Grierson's success criteria are generally appropriate and fit for purpose. They have much in common with criteria developed in different contexts, with input from a variety of stakeholders.

However, HG's approach was intended to assist in prioritising between alternative broad greenfield locations, rather than prioritising sites at a more detailed structure planning level. Some of the criteria are unlikely to vary significantly *within* the Drury or Pukekohe-Paerata structure plan areas. For example, conditional on having access to the motorway and rail network, all sites are similarly accessible to ports. Similarly, as long as road (and possibly public transport) access is available, labour market access may be similar.

In addition, we recommend excluding the criterion around availability of service infrastructure (wastewater and water supply), as identifying where infrastructure should be supplied seems more like an *output* of the structure planning process.

We therefore suggest focusing on a sub-set of industrial land success criteria when undertaking structure planning exercises. These are summarised in the following table, with indicative weightings and explanatory notes.

Table 4: Suggested success criteria for industrial land location within structure plan areas

Criteria	Indicative weighting	Notes
Access to major road / transport routes	35%	Focus on access at a detailed level, eg travel times to key interchanges or road environment en route to interchanges.
Appropriate land features: Relatively flat land; not on a floodplain; large contiguous site	40%	Low slope and good ground stability means low site engineering and construction costs for large floorplates. Sites do not have to be completely flat to achieve this. Can be assessed in detail using GIS data or site surveys.
Ability to buffer adverse effects from residential and sensitive activities	15%	Consider close proximity to residential activities; visual separation; nuisance buffers, etc.
Exposure / profile / visibility	5%	Minor consideration for industrial areas. This could be assessed by looking at line of sight visibility from main roads.
Existing or proposed public transport	5%	Consider including to support access to labour force. May be difficult to assess without a local bus network concept design.

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3 Centre success criteria

We now consider success criteria for centres at a broad level. This addresses part, but not all, of Task 5.

The Harrison Grierson report referenced above did not address centre land, and as a result we draw principally upon success criteria developed in the four business land assessments conducted in Hamilton, Christchurch, Queenstown, and Whangārei and referenced above. We note that, although a similar housing and business assessment was prepared for Auckland in 2017, it did not adopt a similar approach for scoring new or existing centres.[4]

3.1 Comparison of success criteria

The following table compares success criteria for retail centres in these four contexts. We make the following observations:

- In general, the most important criterion is market catchment / proximity to customers. In these assessments, market access was calculated based on the amount of residents (and, for Queenstown, visitor accommodation) within a five- to ten-kilometre distance. The aim of this was to capture local catchments, acknowledging that actual catchments may differ in size and shape.
- Exposure and visibility to customers was a second key criterion in most assessments: this was measured based on distance or visibility to main roads. The Queenstown assessment included an additional criterion for flat sites on main roads.
- Access to major transport routes and proximity to labour were secondary criteria in three of the four assessments. Parking availability was assigned a reasonably high weighting in the Hamilton and Queenstown assessments, but this is less likely to be an issue for 'greenfield' centres where it is possible to choose how much parking to supply.
- In general, site features such as the availability of large or contiguous sites are seen as less important than for industrial activities. This may reflect the fact that development in existing retail centres is comparatively attractive. Existing centres generally have smaller lot sizes. The exception is in Christchurch, where land remediation and natural hazards was seen as a significant challenge.

These success criteria are specific to retail activities, rather than commercial offices. The Hamilton assessment also included separate criteria for commercial offices, which are broadly similar, and hence we focus mainly on retail success criteria.

We would expect two main differences between success criteria for offices and retail activities:

- First, commercial offices place a lower premium on visibility and exposure to customers. They are typically happier being off main roads or away from the street.
- Second, commercial office development places greater importance on the potential for colocation and/or clustering with associated business activities. This can be seen clearly in the data we present below on new consents for office buildings, which are concentrated in a small number of local boards.

These differences can be captured by assigning different weightings to these criteria for commercial offices as opposed to retail.

Table 5: Comparison of retail centre success criteria and weightings

Criteria	Hamilton	Christchurch	Queenstown	Whangārei
Access to major road / transport routes	11%	12%		20%
Appropriate land features: Flat land; not on a floodplain; large contiguous site				10%
Service infrastructure in place or proposed		8%		

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[4] The Auckland report is available online at http://www.knowledgeauckland.org.nz/publication/?mid=1781.

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Potential for colocation and/or clustering with associated business activities	17%		13%	
Proximity to labour	11%		8%	10%
Ability to buffer adverse effects from residential and sensitive activities				5%
Low level of traffic in the vicinity	6%		4%	
Exposure / profile / visibility	6%	12%	12%	25%
Existing or proposed public transport	6%		4%	
Access to complementary / supporting business services	6%		4%	
Availability of large (>1ha) sites to purchase				5%
Share of sites over 1 ha in size				5%
Market catchment / proximity to customers	22%	15%	25%	20%
Land assembly (large contiguous sites)		12%		
Land remediation requirements or natural hazards		19%		
Planning constraints		15%		
Other development constraints (eg archaeology, heritage)		8%		
Flat site with road frontage			17%	
Parking availability	17%		12%	

3.2 Suggested approach

The above success criteria were developed to assist in prioritising between alternative centres or broad greenfield locations, rather than prioritising sites at a more detailed structure planning level.

Some of the criteria are unlikely to vary significantly *within* the Drury or Pukekohe-Paerata structure plan areas. For example, all sites are likely to have a similar overall level of access to customers or to a labour force, but they may differ significantly in terms of exposure or visibility to customers.

We therefore suggest focusing on a sub-set of centre success criteria when undertaking structure planning exercises. These are summarised in the following table, with indicative weightings and explanatory notes. These criteria apply reasonably evenly across different types of centres: for instance, exposure and visibility matters for centres of all sizes. However, smaller centres will tend to be located on lower-order roads, whereas larger centres may prefer to be on or near major transport corridors.

Table 6: Suggested success criteria for centre location within structure plan areas

Criteria	Indicative weighting	Notes
Exposure / profile / visibility	30%	Significant consideration for retail centres. This could be assessed by looking at line of sight visibility from main roads. This is a less important consideration for commercial offices.

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		This crosses over with the "Access to major road / transport routes" criterion. We have suggested assigning a slightly higher weighting to this criterion reflecting the discussion of these issues in the centre land analyses that we reviewed.
Appropriate land features: Relatively flat land; not on a floodplain; large contiguous site	20%	Less important than for industrial land, but large and relatively unconstrained sites are required to establish a new major centre. This can be assessed in detail using GIS data or site surveys. Should also include consideration of whether the sites are likely to be available to the market.
Potential for business clustering, which can lead to benefits such as knowledge spillovers [5] and higher productivity[6]	20%	This is likely to be more significant for commercial offices than for retail activities. A variety of studies have demonstrated office-based industries tend to experience larger benefits of firm clustering and access to labour markets.
Access to major road / transport routes	20%	Focus on access at a detailed level, eg travel times to key interchanges or road environment en route to interchanges. This crosses over with the "Exposure / profile / visibility" criterion. We have suggested assigning a slightly lower weighting to this criterion reflecting the discussion of these issues in the centre land analyses that we reviewed.
Existing or proposed public transport	10%	At the structure planning level this is likely to focus on rapid transit stations and frequent bus networks, rather than lower-frequency local buses. Rapid transit provision can shape development in a greenfield context, but in our experience this is also conditional upon other factors, including the appetite of landowners to take advantage of rapid transit from the start and the ability of land use planning to help shape and direct development.
Parking availability	N/A	Important consideration for retail activities, but in a greenfield context new centres are assumed to have the ability to supply parking to meet their needs

4   What is actually being consented

We now briefly consider the recent spatial distribution of consents for new business activities. To do so, we use three sources of data:

- An Auckland Council dataset containing around 32,000 resource consents lodged between September 2016 and early October 2018, coded according to type of consent and local board area.
- Statistics New Zealand data on the quantity of new building floorspace consented between January 2013 and December 2017.
- Estimates of the quantity of vacant business-zoned land in each local board area from the recent (2017) Auckland Housing and Business Assessment.

Consents data provides a view on where there is *demand* for new business activities, while vacant land estimates indicate where opportunities have been supplied for new business activities. For instance, if there is a location with a lot of vacant land

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[5] https://www.sciencedirect.com/science/article/abs/pii/S0883902607000444
[6] https://pure.au.dk/ws/files/32304323/03-26_esmvs.pdf

and few consents, it suggests that there is currently low demand for businesses to locate there. Conversely, if there is a location with relatively little vacant land and a large number of consents, it indicates strong demand.

4.1   Resource consent patterns

Between September 2016 and early October 2018, 931 resource consents were lodged for business activities, 914 of which could be coded to mainland local boards.[7]

The dataset includes brief descriptions of the activities being consented. Unfortunately, the descriptions were seldom sufficient to allow accurate classification to specific types of business activities. For instance, there are around 100 that include one of the following words in the application description: "warehouse", "factory", "processing", "industrial", "industry", or "self-storage". However, not all of these consents were industrial in nature - some were industrial sites that were being redeveloped for other uses.

In addition, the number of consents is likely to be too small to be able to draw meaningful conclusions about business consent trends at a fine spatial scale. There are around 400 Census area units in Auckland. If consents were spread around the city, this suggests that there will be an average of less than 2.5 consents per Census area unit – not enough to draw strong conclusions about which areas are attractive and which are not.

Hence we focus on consenting trends at a local board level. This is unfortunate as it means that we cannot use this to validate success criteria that play out at a finer spatial scale.

The following table summarises data on vacant business-zoned land and the number of business consents in each mainland local board. The final column shows the ratio of the share of consents relative to the share of vacant land in each local board. A ratio above 1 indicates that the local board had a high number of consents relative to vacant land, and vice versa.

Most local boards in the south have a higher share of vacant business land relative to their share of consents. For instance, Franklin has 8.9% of vacant business land and 6.0% of business consents, while Papakura has 7.5% of vacant business land but only 3.3% of consents.

Central Auckland local boards have the highest ratios of consents to vacant land area, which highlights the importance of centrality for new business activity. However, Franklin local board has a larger number of business consents than the nearby Papakura and Manurewa local boards, which suggests that activity in more peripheral locations may be attracted to greenfield sites.

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[7] Defined as the following consent types: "Change to existing business", "Business Activity - Alterations", "Business Activity - New", "Industrial or Trade Activity".

Table 7: Vacant business land and resource consents for business activities, by local board

Local board	Vacant business land (ha)	Number of business consents 2016-2018	Share of vacant land	Share of consents	Ratio
Albert-Eden	7.66	46	0.7%	5.0%	6.8
Devonport-Takapuna	5.77	37	0.6%	4.0%	7.3
Franklin	92.37	55	8.9%	6.0%	0.7
Henderson-Massey	83.71	40	8.1%	4.4%	0.5
Hibiscus and Bays	88.70	63	8.6%	6.9%	0.8
Howick	73.26	36	7.1%	3.9%	0.6
Kaipatiki	8.55	40	0.8%	4.4%	5.3
Manurewa	62.05	33	6.0%	3.6%	0.6
Mangere-Otahuhu	53.40	39	5.2%	4.3%	0.8
Maungakiekie-Tamaki	53.55	57	5.2%	6.2%	1.2
Orakei	14.16	23	1.4%	2.5%	1.8
Otara-Papatoetoe	101.85	27	9.8%	3.0%	0.3
Papakura	77.41	30	7.5%	3.3%	0.4
Puketapapa	7.08	14	0.7%	1.5%	2.2
Rodney	124.69	120	12.0%	13.1%	1.1
Upper Harbour	100.38	68	9.7%	7.4%	0.8
Waitakere Ranges	5.14	16	0.5%	1.8%	3.5
Waitemata	50.05	146	4.8%	16.0%	3.3
Whau	25.34	24	2.4%	2.6%	1.1
Total (ex Gulf Islands)	1035.12	914			

4.2   Building consent patterns

We use SNZ data on building consent lodgements to calculate the total amount of new business floorspace consented in each Auckland ward over the 2013-2017 period. While this data is not available at a finer geographic level, it allows us to break out new retail, office, and industrial floorspace.

The following table summarises this data. There are distinct trends for different types of business activities:

- New retail floorspace (shops, restaurants, and bars) is highly concentrated in peripheral areas where major new shopping centres are being developed. The Albany and Waitakere wards account for almost half of total consented retail floorspace.
- New office floorspace is overwhelmingly concentrated in the city centre. Almost half is located in the Waitemata ward. The Manukau ward, which includes Manukau central as well as the airport business park, also saw a significant amount of development.
- New industrial floorspace is principally located in south Auckland. Over 60% is located in the Howick, Manurewa-Papakura, and Manukau wards, and most of the remainder is located in Maungakiekie-Tamaki and Albany wards.

In short, south Auckland is especially attractive for new industrial development, but less so for office uses. New retail floorspace tends to be concentrated in areas where new major shopping centres are being developed.

Franklin ward has attracted a relatively small share of new business floorspace – only 2.0% of new retail space, 1.2% of new office space, and 2.3% of new retail space. The nearby Manurewa-Papakura ward has attracted a larger share of new retail floorspace (9.3% of the citywide total) and new industrial floorspace (13.9%), but has not attracted much office development.

By extension, new developments in the southern structure plan area are likely to be comparatively attractive for new industrial activities and retail activities, if an appropriately-sited centre is developed. Developing a major new commercial office centre may be more challenging, although the examples of Albany ward and Manukau ward indicate that business park-style development can be viable.

Table 8: Share of vacant business land and building consents for new business floorspace, by ward

Ward	Share of vacant business land	Share of new retail floorspace, 2013-2017	Share of new office floorspace, 2013-2017	Share of new industrial floorspace, 2013-2017
Albert-Eden-Roskill Ward	1.4%	3.8%	1.0%	1.0%
North Shore Ward	1.4%	4.3%	3.7%	1.1%
Franklin Ward	8.9%	2.0%	1.2%	2.3%
Waitakere Ward	8.6%	22.8%	5.9%	3.0%
Albany Ward	18.3%	23.5%	8.7%	10.1%
Howick Ward	7.1%	5.3%	5.5%	13.9%
Manurewa-Papakura Ward	13.5%	9.3%	1.4%	13.9%
Manukau Ward	15.0%	3.5%	14.4%	34.1%
Maungakiekie-Tamaki Ward	5.2%	2.2%	8.0%	12.5%
Orakei Ward	1.4%	1.4%	0.0%	0.3%
Rodney Ward	12.0%	4.1%	1.5%	3.1%
Waitemata and Gulf Ward	4.8%	8.7%	47.5%	2.2%
Whau Ward	2.4%	9.1%	1.3%	2.4%

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TECHNICAL NOTE

To:	Christopher Turbott	**Of:**	Auckland Council
From:	Peter Nunns	**Date:**	16 November 2018
Copies:	Craig Cairncross, Joy LaNauze (Auckland Council), Coby Joseph (MRC)		
Project:	Southern Structure Plan Business Land Review (NZ 2400)		
Subject:	Land per employee ratios for greenfield business areas		

1 Land per employee ratios for greenfield business areas

In this technical note, we review the land per employee ratios used to plan for future greenfield business land. This addresses the following tasks in our proposal:

- Task 2: Review estimates of average employment densities that can be expected in these industrial areas. We are currently using a figure of 30 employees per ha.
- Task 6: Review estimates of average employment densities that can be expected in these centres. We are currently using a figure of 80 employees per ha.

Our proposed approach is as follows:

- Draw upon the results of our review of industrial land demand forecasts, where applicable (this is to be completed following discussion with Property Economics)
- Re-analyse the Auckland Council data used to estimate employees per hectare for industrial land, which is based on zoning data and 2013 Census employment data coded to meshblocks
- Analyse changes 'on the margin' based on recent consents data (either data published by SNZ or provided by Auckland Council) and employment growth trends (based on SNZ Business Demography data) for Auckland as a whole and sub-regional areas – this can provide a more realistic perspective on recent development outcomes. We have recently used this approach to develop land per employee ratios in recent work in Wellington and Whangarei.

2 Re-analysis of Auckland Council zoning and employment data

The 30/80 employees per hectare figures were derived from an analysis of existing zoning patterns and employment numbers at the Census meshblock level, undertaken by the Research and Evaluation Unit. We have re-analysed this data to address two key issues:

- First, employment in residential zones or rural zones, which may inflate the ratio if not excluded
- Second, variations in land per employee ratios between different parts of the city

2.1 Summary of approach

The key steps in our re-analysis are as follows:

- First, for each meshblock, we summarised total employment across all ANZSIC industries, and calculated the total amount of zoned land in several broad categories: Centres and mixed use (city centre, metro centre, town centre, local centre, neighbourhood centre, mixed use); Industrial (heavy industry, light industry); Other business (airport, business park, healthcare facility, minor port, school, tertiary education); Residential (THAB, mixed housing urban, mixed housing suburban, single house, large lot, rural and coastal settlement); Rural (countryside living, future urban zone, Hauraki Gulf islands, mixed rural, rural coastal, rural conservation, rural production); and other areas (eg open spaces; generally excluded from analysis).
- Second, we identified meshblocks where all zoned land fell into one category, eg meshblocks that were 100% residential or 100% industrial.
- Third, based on the subset of meshblocks that were 100% rural or 100% residential, we calculated the average employees per hectare in these zones, summarised by local board. We used these ratios to apportion employment between business land and other zoned land in meshblocks with a mix of zoning.
    - Employment density in residential zones varied from a high of 7.6 workers per hectare in Waitemata to a low of 1.0 in Rodney. Employment density in rural zones was below 0.5 workers per hectare in all local boards.
- Fourth, based on the subset of meshblocks that were 100% centre or 100% industrial, we calculated the average employees per hectare in these zones, summarised by local board.
- Fifth, for meshblocks that were split between multiple types of zoning, we:
    - Estimated the number of employees located in residential or rural zones based on the local board average employees per hectare in these zones
    - Subtracted that off to obtain estimated employees in business zones
    - Apportioned those employees between business zones based on their share of the remaining land area – eg if a meshblock had 100 employees, 3 hectares of centre land, and 1 hectare of industrial land, then we would assign 75 employees to the centre land and 25 to the industrial land.
- Finally, we summarised land per employee ratios for each type of business zone by local board area.

2.2   Key results

The following tables summarise results for industrial zones. The second column presents results for all industrial zoned areas, while the third column reports results only for meshblocks that are 100% in industrial zoning. Land per employee ratios vary significantly between local boards. This analysis suggests that:

- The average ratio for Auckland as a whole is between 32 and 35 workers per hectare of industrial land
- Manukau and Papakura local boards have a slightly lower average ratio of around 24-25 workers per hectare
- The ratio of workers per hectare is significantly lower in Franklin, due to the existence of a large amount of vacant land around Glenbrook.

The worker per hectare ratio is significantly higher for industrial zoned land on the Auckland isthmus and parts of the North Shore. We believe that this reflects the impact of higher land prices in encouraging transition to higher-productivity industrial activities and non-industrial activities, such as offices or retail.

A ratio of 30 workers per hectare of industrial land is reasonable for Auckland as a whole. A more conservative view would be to use a ratio of around 25 workers per hectare. That would be more in line with the density of existing industrial zoned areas in Manukau and Papakura. However, it may not be appropriate for long-term planning if some industrial zones in this area are expected to transition to higher-density uses in the long run.

Table 1: Average land per employee ratios for industrial zoned land

Local board area	All MBs	100% business land MBs
Albert-Eden Local Board Area	80.2	82.7
Devonport-Takapuna Local Board Area	68.4	95.6
Franklin Local Board Area	**6.1**	**#N/A**
Henderson-Massey Local Board Area	28.2	32.0
Hibiscus and Bays Local Board Area	23.5	34.7
Howick Local Board Area	43.4	44.0
Kaipatiki Local Board Area	60.1	51.2
Mangere-Otahuhu Local Board Area	**24.1**	**25.8**
Manurewa Local Board Area	**20.3**	**23.7**
Maungakiekie-Tamaki Local Board Area	55.7	53.0
Orakei Local Board Area	39.1	43.2
Otara-Papatoetoe Local Board Area	**16.7**	**8.8**
Papakura Local Board Area	**20.7**	**28.3**
Puketapapa Local Board Area	44.9	57.9
Rodney Local Board Area	15.9	#N/A
Upper Harbour Local Board Area	51.1	85.2
Waitakere Ranges Local Board Area	25.9	#N/A
Waitemata Local Board Area	270.0	#N/A
Whau Local Board Area	48.2	48.7
Total	**32.2**	**35.1**
Manukau and Papakura (1)	24.6	24.3
Manukau, Papakura, and Franklin (2)	21.8	24.3

Notes: (1) Consists of the Mangere-Otahuhu, Manurewa, Otara-Papatoetoe, and Papakura local boards; (2) consists of the above plus Franklin local board.

The following table summarises results for centres and mixed use zones. The second column presents results for all centre/MU zoned areas, while the third column reports results only for meshblocks that are 100% in centre/MU zoning.

Land per employee ratios vary significantly between local boards. They can also vary significantly between meshblocks that are 100% business zoned and meshblocks that are split between business and non-business uses. We think that a midpoint between the two figures may be most appropriate.

This analysis suggests that:

- The average ratio for Auckland as a whole is between 123 and 226 workers per hectare of centre land
- The Manukau and Papakura areas have a significantly lower average ratio of between 63 and 97 workers per hectare
- The ratio of workers per hectare is lower in Franklin than in Manukau or Papakura.

The worker per hectare ratio is significantly higher for centre zoned land in the inner parts of the Auckland isthmus and the lower North Shore. This reflects the impact of higher land prices in encouraging more intensive use of land, including higher-density office uses.

If we take the average of the two figures for Manukau and Papakura (63 workers/ha and 97 workers/ha), it implies a ratio of 80 workers per hectare, which is equal to the figure used for broad greenfield planning.

However, there is likely to be more uncertainty about this figure than the figure for industrial zoned land. Depending upon the mix of activities that locate in centre zones, there could be a considerably higher ratio (more commercial offices, especially mid-rise offices), or a considerably lower ratio (more retail, especially large-format retail).

80 employees per hectare is equal to around 125m^2 of land per worker. If we subtract 35% for roads and reserves, it leaves around 80m^2 of developable land per worker. This is more than would be required for commercial offices, even low-density 2-storey offices, but may be less than required for some retail activities.

Table 2: Average land per employee ratios for centre and mixed use zoned land

Local board area	All MBs	100% business land MBs
Albert-Eden Local Board Area	112.6	169.7
Devonport-Takapuna Local Board Area	208.4	291.6
Franklin Local Board Area	**44.9**	**88.0**
Henderson-Massey Local Board Area	59.0	127.5
Hibiscus and Bays Local Board Area	47.5	117.5
Howick Local Board Area	65.9	64.8
Kaipatiki Local Board Area	111.3	92.3
Mangere-Otahuhu Local Board Area	**47.9**	**84.5**
Manurewa Local Board Area	**53.2**	**52.9**
Maungakiekie-Tamaki Local Board Area	91.0	106.2
Orakei Local Board Area	94.0	367.6
Otara-Papatoetoe Local Board Area	**85.1**	**154.5**
Papakura Local Board Area	**50.7**	**100.0**
Puketapapa Local Board Area	53.5	106.9
Rodney Local Board Area	30.2	115.0
Upper Harbour Local Board Area	45.0	22.3
Waitakere Ranges Local Board Area	61.6	74.3
Waitemata Local Board Area	301.9	355.3
Whau Local Board Area	64.5	88.8
Total	**123.2**	**225.9**
Manukau and Papakura (1)	62.7	97.4
Manukau, Papakura, and Franklin (2)	58.8	96.5

Notes: (1) Consists of the Mangere-Otahuhu, Manurewa, Otara-Papatoetoe, and Papakura local boards; (2) consists of the above plus Franklin local board.

3 Analysis of incremental changes in land requirements

To supplement the above figures, we also estimated land per employee ratios based on recent data on changes in employment and new building consents. This provides a view on current development trends, which may diverge from past development trends that have shaped the average land use outcomes observed in the meshblock-level employment and zoning data.

In some cases, there can be significant differences between past and current outcomes that have to be taken into account. To illustrate, consider industrial land requirements in Whangārei. At present, Whangārei's industrial land estate is dominated by a few major heavy industry facilities (the refinery and cement works) that have very few workers per hectare. However, new refineries are unlikely to establish in Whangārei, and hence future industrial activities are likely to require less land per worker. Failing to account for more recent trends would therefore result in a significant over-estimate of land requirements.

In Auckland, we expect incremental land per employee ratios based on recent development trends to be higher than the average ratio for the retail industry, and possibly also the industrial sector. This reflects trends towards large format retail and large-floorplate industrial buildings. However, the opposite may be true for office-based employment, as there has been a trend towards open-plan offices and less space per employee.

3.1 Summary of approach

The key steps in this analysis are as follows:

- First, we downloaded Business Demographics data on employment by 3-digit ANZSIC industry and building consents for various types of new buildings from Statistics New Zealand's data portals. We downloaded data by Auckland ward (or territorial authority for the pre-2011 period) for the period from January 2000 to December 2017.
- Second, we matched ANZSIC industries with different types of buildings included in the building consent data. To do so, we used a concordance matrix previously developed for an analysis of Whangārei District business land requirement. There are likely to be some 'overs' and 'unders' in this concordance matrix, but as we are aggregating to a few high-level categories these are likely to balance out.
- Third, we calculated the added building floorspace in each category and divided it by the total change in employment associated with that building type to obtain an estimated ratio of floorspace per added worker. We calculated these ratios for the full 2000-2017 period and the more recent 2011-2017 period.
- Finally, to convert floorspace per worker to gross land requirements per worker we applied assumptions about (a) the average floor area to land ratios in the relevant sector, including parking spaces, and (b) the average ratio of roads and reserves to developable area.

3.2 Key results

The following table summarises our estimates of average ratios of floorspace per added employee across five broad business sectors / building types. We present results for the entire Auckland region (from 2000 onwards), the former Franklin District / current Franklin Ward (2000 onwards), and the Manurewa-Papakura Ward (from 2011 onwards; earlier data is not available due to boundary changes).

We focus on three broad sectors:

- Retail and personal services: For Auckland as a whole, an average of $33m^2$ of floorspace was consented per added worker over the entire 2000-2017 period. Manurewa-Papakura ward has had a similar ratio of $28m^2$ per added worker over the 2011-2017 period. However, Franklin ward has a significantly higher ratio of around $69m^2$ per added worker.
- Office-based activities: In recent years, both Manurewa-Papakura and Franklin wards have averaged around 14m2 of new office space per added worker. This is actually slightly lower than the Auckland-wide average.
- Industrial activities: For Auckland as a whole, an average of $151m^2$ of floorspace was consented per added worker over the entire 2000-2017 period. However, this ratio appears to drop significantly in the 2011-2017 period. This is due to the fact that industrial employment dropped significantly after the GFC and only returned to its 2008 peak in 2015. As a result, growing industrial businesses were able to expand in existing vacant floorspace.

Table 3: Average new business floorspace per added employee (m^2 GFA per employee), 2000-2017

Building category	Industry	2000-2017		2011-2017			
		Auckland Region	Franklin Ward / District	Auckland Region	Franklin Ward	Manurewa-Papakura Ward	Manurewa-Papakura + Franklin
Health care, education, social facilities	Health, education, and community services	48	51	55	57	239	120
Shops, restaurants, bars	Retail and personal services	33	77	21	69	28	35
Hotels / short-term accommodation	Accommodation	609	247	325	67	N/A	N/A
Office and admin buildings	Office based activities	25	14	17	14	14	14
Factories, industrial, and storage buildings	Industry	151	89	55	30	61	52
Total excluding agricultural buildings	**All urban industries**	**56**	**60**	**36**	**38**	**61**	**54**

Based on this discussion, we suggest that the following ratios may be reasonable:

- Retail: 35m^2 GFA per worker. This is based on the average for the Manurewa-Papakura and Franklin wards over the 2011-2017 period, which is consistent with the average for the entire Auckland region over the 2000-2017 period. However, data from Franklin alone implies a significantly higher ratio.
- Offices: 25m^2 GFA per worker. Based on Auckland region average for 2000-2017 – noting that this is considerably higher than the Manurewa-Papakura-Franklin average for 2011-2017.
- Industrial activities: 150m2 GFA per worker. Based on the Auckland region average for 2000-2017, which is likely to best capture long-run trends in this sector.

We now incorporate assumptions about floor area to land area ratios (FARs) and road and reserve requirements to obtain the estimated gross business land required per worker. We assume that the average retail or industrial building is ground-floor only and occupies around 40% of the site, while the average office building is two storeys and occupies around 40% of the site. These ratios are typical of low-density suburban environments in New Zealand. However, we note that the FAR for offices may be too low in some circumstances - if midrise office buildings are developed, then considerably less land will be required.

Table 4: Estimated land per employee ratios for retail, office, and industrial activities

Activity type	GFA per worker	Average FAR	Roads/reserves as share of gross land area	Estimated gross land per worker	Estimated workers per gross ha
Retail	35m^2	0.4	35%	135m^2	75
Offices	25m^2	0.8	35%	48m^2	210
Industrial	150m^2	0.4	35%	580m^2	17

These ratios are within the range of workers per hectare estimated using meshblock-level data, but are not exactly identical.

The estimated ratio of 75 retail workers per gross hectare is close to the 80 workers per hectare figure used to guide planning greenfield centres. However, the estimated density of office-based workers is considerably higher – around 210 workers per hectare. This is consistent with the observation that Auckland local boards with a greater share of office-based employment, in particular Waitemata local board, have a higher average density of workers in centres.

If new centres are primarily retail-based, then a figure of around 80 workers per hectare is likely to be appropriate. However, if they have a greater mix of office-based activities, then they may have a higher density of workers.

The estimated ratio of 17 industrial workers per gross hectare is lower than the 30 workers per hectare used to guide planning for greenfield industrial areas. However, this does not necessarily mean that the 30 workers per hectare figure is wrong, as industrial zones often contain supporting / complementary retail activities ranging from lunch bars to factory outlets, which raise the average employment density.

The following table shows what overall land per employee ratios would be for centre zones under different assumptions around the mix of retail, office, and industrial activities in those zones.

Table 5: Overall workers per hectare with different mixes of activity

Centre zones			Industrial zones		
Employment shares		Overall workers per gross ha	Employment shares		Overall workers per gross ha
Retail	Offices		Industrial	Retail	
90%	10%	80	95%	5%	18
75%	25%	90	90%	10%	19
50%	50%	110	75%	25%	21
40%	60%	125	60%	40%	25

4 Summary of findings

To conclude, we comment on some potential implications of this analysis. We highlight that these conclusions are indicative and may change following discussions around the Property Economics report, which made a different set of assumptions that we are still seeking to understand.

We highlight three tentative conclusions at this stage:

- First, the average ratios of 30 workers per hectare for industrial land and 80 workers per hectare for centre land are within the range observed in the data.
- Second, for industrial zones there is some support for using a slightly more conservative figure of around 25 workers per hectare. However, this may under-estimate densities in the long run.
- Third, for centre zones, ultimate outcomes for employment density will depend upon the mix of retail activities and commercial offices. Centres that are more office-focused will tend to have higher densities of workers, while centres that are focused on low-density retail activities may have lower densities.

TECHNICAL NOTE

To:	Christopher Turbott	**Of:**	Auckland Council
From:	Peter Nunns	**Date:**	21 November 2018
Copies:	Craig Cairncross, Joy LaNauze, Coby Joseph		
Project:	Southern Structure Plan business land review (NZ2400)		
Subject:	Review of Property Economics *West Franklin and Drury Future Business Land Assessment* report		

1   Overview

This technical note addresses tasks (1) and (4) in our proposal. These tasks are as follows:

- Task 1: Review existing industrial land area estimated to be required over 30 years with sub sectors of heavy industry and light industry. The former is anything that is unusually, noisy, dusty or smelly to the extent that buffering with light industry between the industrial activity and residential land uses is an appropriate response. Concrete products facilities are an example of what planners would consider a heavy industry activity requiring buffering. Light industry is any other industrial activity which is not heavy industry, and would not usually locate inside a centre. These estimates are to include any ancillary office activities usually located in industrial areas.
- Task 4: Review estimates for total centre land area required over 30 years. This is to include all business, and government services categories of activity that are required for centres, with the exception of land for parks, road and other infrastructure. Estimates are to be provided for the subsectors of retail, commercial services and entertainment. Government services may be subsumed into commercial services. This needs to take into account economic effects on existing centres, Papakura in particular.

To do so, we review the following assumptions in the Property Economics report:

- Future sectoral composition of employment growth in the area, which underpin land demand projections;
- Land per employee ratios, which are a key determinant of the quantity of land required to serve a given volume of economic activity
- Vacant land assumptions, and the methodology used by AC and Property Economics to 'ground truth' GIS analysis of vacant land availability
- Catchment sizes and the substitutability of different locations for industrial growth, eg Waiuku vs Pukekohe.
- Catchment sizes and substitutability between different locations for retail growth, considering observed retail catchments based on electronic card data published in previous Auckland Council research reports. We also address the question of whether this analysis is likely to omit any effects on Papakura centre.

We also compare Property Economics' projections for growth in business land demand against recent building consent data for Auckland wards in order to test whether they entail a significant divergence from these trends. If so, then this implies that there may be uncertainty about how much of this development is likely to happen in the short to medium term, even if there is projected long-term demand.

In the concluding section, we summarise key findings and recommendations of this review.

2   Summary of Property Economics report

2.1   Study areas

The following map shows the catchment areas used in the Property Economics report. These catchments align with the former Franklin and Papakura Districts, and include existing urban areas in Papakura / Takanini and Pukekohe, plus satellite towns such as Waiuku, Tuakau, and Bombay.

Figure 1: Drury and West Franklin catchments used in Property Economics reports

Property Economics' study area therefore extends significantly beyond the Drury and Paerata-Pukekohe growth areas per se. The two catchments used in the Property Economics study are (roughly) divided by State Highway 1, and extend across geographic barriers such as the Waikato River and the Hunua Range.

The Paerata-Pukekohe structure plan area lies in the centre of the West Franklin Catchment, while the Drury structure plan area sits at the western edge of the Drury catchment. In other words, some demand for business land in the new Drury structure plan is likely to originate from spending or employees in the West Franklin catchment. The converse is also likely to be true, albeit to a lesser extent.

2.2   Methodology

The Property Economics report uses the following methodology to estimate requirements for new business land in the study area:

- Step 1: Project future population and household growth in the catchments defined above, based on SNZ / Auckland Council projections. This forms the basis for projecting future employment growth and retail spending growth.
- Step 2: Identify quantity of existing (or identified) vacant business zoned land. This estimate is presented in Tables 2 and 15 in the report. This indicates a total of 213.4 ha vacant business land in the Drury catchment and 615.7 ha in the West Franklin catchment.
- Step 3: Develop two scenarios for projected employment growth in the study area, broken down into three broad categories: (1) industrial, (2) commercial / office, (3) other, and (4) retail / commercial services. The first scenario is based on recent business activity growth trends within each catchment as a proportion of the total southern area. The second is based on projected population changes in these catchments from Step 1, and corresponding changes

to labour force and employment growth. The second scenario predicts much more rapid employment growth due to projected acceleration in population growth.

- Step 4: Translate projected growth in employment in these sectors to land requirements based on land per employee ratios for individual industries. Apply NPS-UDC margin of 15% over projected demand to obtain planning requirement.
- Step 5: Project growth in retail and commercial services spending based on projected growth in household, business, and visitor spending, minus growth in online shopping. This projection is split out by sub-sector (convenience, speciality, supermarket, large format retail / LFR). It appears to exclude accommodation, vehicle and marine sales / services, DIY stores, and trade stores. These projections are principally based on population growth in the area.
- Step 6: Convert growth in retail spending into floorspace requirements based on assumptions about (a) 'leakage' in spending to other areas, (b) the 'sustainable' average spending per square metre of gross floor area, and (c) assumptions about floor area to land area ratios in the retail sector.
- Step 7: Subtract estimated vacant land (Step 2) from estimated growth in business land requirements (Steps 4 and 6) to estimate potential surplus / deficit at a catchment level.

2.3   Key results

Table 16 in the Property Economics report presents their key conclusions. This table, which is reproduced below as, shows expected growth in land required across the industrial, office, and retail sectors in each of the two catchments. It then compares these with estimated vacant land available to estimate the remaining 'surplus' or 'deficit' across each catchment.

This table reports results for Scenario 2, which is the higher-demand scenario.

The key conclusions are as follows:
- Industrial activities will account for the majority of future growth in land requirements in both catchments
- West Franklin has enough existing vacant industrial-zoned land to accommodate this growth. This includes nearly 270 hectares of industrial rezoning identified in the 2014 Pukekohe Area Plan.
- Existing vacant centre-zoned land is not sufficient to accommodate all projected office and retail growth.

We note that Property Economics has assumed that around 40% of commercial office land demand will be met in the form of multi-storey buildings on top of ground floor retail. For instance, Property Economics estimates 51 ha of land required for offices and 61 ha for retail in Drury, which sums to 112 ha, and 20 ha of existing vacant centre land. This should result in a net deficit of 92 ha, rather than 72 ha as stated in the table. This difference is explained by the fact that around 20 hectares of office space will instead be developed vertically.

We also note a minor inconsistency between Tables 14 and 16 in the Property Economics report. Specifically, Table 14 reports demand for 50 hectares of commercial office land in Drury and 61 hectares in West Franklin, whereas Table 16 reports 51 hectares and 50 hectares, respectively. Property Economics has confirmed that the figures in Table 14 are the correct ones. After accounting for the share of offices estimated to be provided in multi-storey buildings, this results in a net increase of 6 hectares of centre land.

Table 1: Property Economics projections of total business land requirements to 2048 (from Table 16 in report)

	Drury	West Franklin
Land Demand (Ha)		
Industrial	329	398
Commercial Office (Average 2.15 storeys)	51	50
Commercial Services/Retail	61	30
Total		
Vacant Land Supply (Ha)		
Industrial	193	580
Commercial	20	34
Total	**213**	**614**
Land Differential (Ha)		
Industrial	-136	182
Commercial	-72	-26
Total	**-208**	**156**
Land Differential (Ha)		
Industrial	46	
Commercial	-98	

Source: Property Economics, Auckland Council

Below, we review their estimates in further detail.

3 Future employment growth and retail spending growth

Here, we review the Property Economics approach to projecting future economic activity in the study area, which they then translate into floorspace and land requirements.

3.1 Population growth assumptions

Property Economics' projections start with population projections "partially based on the Auckland regional growth projections supplied by Auckland Council to Property Economics." As the defined catchment doesn't match up with Auckland regional area exactly, they also use Statistics NZ medium series projections to capture growth in parts of the former Franklin District that have been reassigned to Waikato District.

They estimate the following population and hence household growth (see Figure 4 in report). Overall, this implies that the population of the Drury area will double over the next three decades, while the population of the West Franklin area will increase almost 2.5 times. This drives increases in retail spending and local employment.

Table 2: Property Economics household and population projections (from Figure 4 in report)

Year	Drury population	Drury households	West Franklin population	West Franklin households
2016	63,900	22,800	64,300	22,800
2051	129,900	50,700	147,000	55,500

3.2 Employment growth assumptions

Property Economics describes their methodology for projecting employment growth as follows. It is "primarily driven by both population growth estimates and a 'top down' assessment of the expected national and Auckland population growth within each sector. Additional factors include local economic development strategies and significant and realisable infrastructure changes." Other factors that they have taken into consideration include:

- National and regional GDP and employment projections
- Populations projections – "these are key to both labour force projections and population-based employment."
- Labour force projections skilled/unskilled
- Relative business land supply and prices

- Trended growth for the past 17 years
- Economic development directions
- Locational criteria by sector
- National/regional and local supply of inputted goods and location of market
- Business sector analysis

In short, this assessment is somewhat 'black box' in nature, and it is difficult to identify how much influence any of the above factors has had on employment growth projections. As a result, rather than investigating the validity of the underlying model assumptions, our review focuses on the plausibility of the outcomes.

Property Economics presents two scenarios for employment growth, the second of which implies higher growth:

- Scenario 1 is "based on the current level of industrial and commercial (office) activity experienced in both catchments historically. Based on this scenario the historic trends associated with business activity accommodated within each catchment. as a proportion of the total southern area is assessed. While this does not consider the population growth rates in each individual area. it does consider the movement of employment into these catchments over the last 75 years and what, proportionately, that would look like in the future."
- Scenario 2 is "based on the proportional changes in population occurring in each of the catchments. As indicated, both the Drury and West Franklin catchments are expected to see substantial levels of residential growth over the next 30 years. This translates to a significant increase in both labour force and employment growth within each of these catchments."

The following tables summarise and compare these projections based on outputs reported in Tables 9, 10, 12, and 13 in the Property Economics report. They differ substantially both in terms of total growth projected and growth projected for individual industries. Roughly speaking, Scenario 2 entails a growth rate that is around three times as rapid in the medium term (to 2028) and around twice as rapid in the long term (to 2048).

Differences are larger for some sectors than others. For example, annual growth is projected to be nearly 9% and 10% higher under Scenario 2 than Scenario 1 for transport, postal and warehousing and public administration and safety sectors in West Franklin. In general, Scenario 2 envisages much faster growth in office-based industries, such as professional, scientific, and technical services, and also in health care and social assistance. This has a consequential impact on projections for commercial office land requirements, as we discuss below.

MRCagney

Table 3: Comparison of Property Economics Scenarios 1 and 2 for employment growth

Drury	# of emp.	Scenario 1	Scenario 2	Scenario 1 Annual emp. growth vs. previous period (%)			Scenario 2 Annual emp. growth vs. previous period (%)		Difference between scenarios in annual emp. growth	
Category	2000	2048	2048	2016	2028	2048	2028	2048	2016 - 2028	2028 - 2048
A Agriculture, Forestry and Fishing	914	954	988	-0.2%	-0.7%	0.8%	-1.1%	1.2%	-0.5%	0.5%
C Manufacturing	3,271	4808	5986	1.4%	0.0%	0.8%	0.0%	2.0%	0.0%	1.1%
E Construction	1,338	4141	5245	3.8%	2.5%	1.2%	4.0%	1.5%	1.5%	0.3%
F Wholesale Trade	657	1537	2885	3.4%	1.0%	1.0%	3.9%	2.5%	2.9%	1.5%
G Retail Trade	1,779	3081	4238	1.7%	0.7%	1.0%	1.9%	1.9%	1.1%	0.9%
H Accommodation and Food Services	732	1452	2531	1.9%	1.4%	1.1%	4.3%	2.2%	2.9%	1.1%
I Transport, Postal and Warehousing	677	1392	3386	2.5%	1.1%	1.0%	5.5%	2.9%	4.4%	1.9%
M Professional, Scientific and	505	1495	2957	3.9%	2.0%	1.2%	6.2%	2.2%	4.1%	1.1%
O Public Administration and Safety	453	1315	2483	3.4%	2.5%	1.2%	6.5%	2.1%	4.1%	0.9%
P Education and Training	1,267	2720	4700	2.2%	1.7%	1.1%	4.7%	2.1%	3.0%	1.0%
Q Health Care and Social Assistance	728	2018	5365	3.1%	2.4%	1.2%	8.9%	2.4%	6.5%	1.2%
S Other Services	459	920	1435	2.1%	1.3%	1.0%	3.5%	2.0%	2.2%	1.0%
Total All Industries	13,713	27929	48071	2.2%	1.3%	1.1%	4.1%	2.1%	2.8%	1.1%

West Franklin	Base	Scenario 1	Scenario 2	Scenario 1 Annual emp. growth vs. previous period (%)			Scenario 2 Annual emp. growth vs. previous period (%)		Difference between scenarios in annual emp. growth	
Category	2000	2048	2048	2016	2028	2048	2028	2048	2016 - 2028	2028 - 2048
A Agriculture, Forestry and Fishing	914	2728	2665	-1.0%	-0.7%	0.8%	-0.4%	0.5%	0.3%	-0.3%
C Manufacturing	3,271	3416	5229	-0.2%	0.0%	0.9%	0.0%	3.0%	0.0%	2.2%
E Construction	1,338	3036	5217	4.3%	2.5%	1.2%	5.0%	2.5%	2.5%	1.3%
F Wholesale Trade	657	1028	2901	-0.2%	1.0%	1.0%	5.2%	3.8%	4.2%	2.8%
G Retail Trade	1,779	2687	4356	2.0%	0.7%	1.0%	2.1%	2.6%	1.3%	1.7%
H Accommodation and Food Services	732	1932	3194	4.5%	1.4%	1.1%	3.3%	2.5%	1.9%	1.4%
I Transport, Postal and Warehousing	677	585	3328	-0.9%	1.1%	1.0%	9.8%	4.8%	8.7%	3.8%
M Professional, Scientific and Technical Services	505	1317	3289	3.9%	2.0%	1.2%	6.6%	3.1%	4.6%	2.0%
O Public Administration and Safety	453	482	2369	-0.2%	2.5%	1.2%	12.3%	3.8%	9.8%	2.6%
P Education and Training	1,267	2794	5384	2.9%	1.7%	1.1%	4.5%	2.8%	2.8%	1.7%
Q Health Care and Social Assistance	728	2766	6719	5.3%	2.4%	1.2%	7.1%	3.0%	4.6%	1.8%
S Other Services	459	818	1538	0.9%	1.3%	1.0%	3.8%	2.8%	2.5%	1.7%
Total All Industries	13,713	27610	54122	1.6%	1.3%	1.1%	4.0%	2.8%	2.8%	1.8%

The following table compares Property Economics' projections for the number of jobs in each area with their projections for catchment population. In the current year (2016), they estimate that there are around 0.3 jobs per local resident. (Not all residents are of working age, so we would not expect a ratio of one.) In Scenario 1, this ratio would decline to around 0.2 by 2048, indicating that population growth would happen faster than employment growth. In Scenario 2, this ratio would rise over time, to around 0.37-0.38 by 2048.

In other words, Scenario 1 implies a future in which a greater share of residents commute to jobs elsewhere in Auckland, whereas Scenario 2 implies that a smaller share will commute out. In the long run, Scenario 2 is more likely, but short- to medium-term outcomes are more likely to resemble Scenario 1 due to the fact that housing development is likely to occur faster than local employment growth. This has been clearly shown by the experience in the Northwestern Growth Area, where employment growth at Westgate has taken off more slowly than subdivision and housing development in Hobsonville, Westgate, and Kumeu.

Table 4: Projected ratio of catchment employment to catchment population implied by Property Economics projections

Scenario	Year	Drury	West Franklin
Base year	2016	0.30	0.30
Scenario 1	2028	0.23	0.23
	2048	0.22	0.19
Scenario 2	2028	0.33	0.32
	2048	0.37	0.38

3.3   Retail spending growth

Property Economics also develops estimates of retail spending growth based on projected household growth in these study areas and assumptions about changes in income and hence retail spending over time, plus adjustments for business spending and visitor spending. This results in an estimate of total retail spending generated in these catchments. However, some of this will 'leak' out to other areas for various reasons.

Their estimates are broken down into four broad categories of retail activity. As noted, they exclude trade retail, motor vehicle and marine retail, and DIY shops.

This assessment is again somewhat of a 'black box' and hence we again focus on reviewing the plausibility of the outcomes.

The following table summarises retail spending estimates for the two catchment areas in 2016/17 and 2048, and uses these to estimate per-household spending in both dates. (Note that this figure includes estimated business spending and visitor spending, and hence per-household figures are on the high side.) This data is drawn from Tables 17 and 18 in the Property Economics report, plus the household projections summarised above. Only one scenario has been provided for West Franklin.

Estimated per-household expenditure is expected to rise in real terms in Drury, at an average annual rate of around 1%. This is roughly in line with income growth trends. Growth is slightly higher in Scenario 2. However, per-household expenditure is projected to *fall* in real terms in West Franklin.

Having discussed this with Property Economics, we understand that this reflects the fact that total retail spending also includes spending by businesses and by visitors. The decline in retail spending per household in the West Franklin catchment reflects the expectation that business spending will grow more slowly than household spending in this catchment. In addition, Property Economics suggests that it reflects the expectation that households in the West Franklin catchment will tend to work in lower-income occupations.

Table 5: Summary of Property Economics retail spending estimates and projections

Expenditure per household			Spending 2017	Spending per household 2016/2017	Spending 2048	Spending per household 2048	Change in expend. per household per year 2017-2048
Drury	Scenario 1	convenience	$102m	$4,474	$301m	$5,949	0.92%
		speciality	$178m	$7,807	$524m	$10,356	0.92%
		supermarket	$166m	$7,281	$489m	$9,664	0.92%
		LFR	$98m	$4,298	$289m	$5,711	0.92%
		total retail	$544m	$23,860	$1603m	$31,680	0.92%
	Scenario 2	convenience	$102m	$4,474	$320m	$6,324	1.12%
		speciality	$178m	$7,807	$558m	$11,028	1.12%
		supermarket	$166m	$7,281	$521m	$10,296	1.12%
		LFR	$98m	$4,298	$308m	$6,087	1.13%
		total retail	$544m	$23,860	$1707m	$33,735	1.12%
West Franklin	Scenario 1	convenience	$109m	$5,070	$259m	$4,770	-0.20%
		speciality	$190m	$8,837	$452m	$8,324	-0.19%
		supermarket	$181m	$8,419	$430m	$7,919	-0.20%
		LFR	$108m	$5,023	$257m	$4,733	-0.19%
		total retail	$588m	$27,349	$1398m	$25,746	-0.19%

The above figures reflect the estimated quantity of spending *generated* within these catchments. This does not equal the total quantity of spending that will *land* in the catchments for four reasons:

- Some spending will 'leak' out to other areas – they estimate this at 50%
- Some spending will be done online – due to growth in online sales, they add non-linear decrease to retail spending starting at 2.5% growing to 15% by 2048. Further discussions indicate that this is a rough average
- Some spending from outside the catchment will also come in – they do not state an expectation for this
- Local business spending will add to household spending - they state that business spend accounts for 26% of all retail sales in NZ.

While Property Economics does not report the precise impact that each of these factors has on outcomes, some inferences can be drawn from Tables 17, 18, and 19, which provide estimates for GFA and land demand. The following table compares these figures. Overall, this suggests that the net effect of the above four factors is that around one-quarter of added household spending in the Drury catchment will either 'leak' to other areas or go online, while almost half of added household spending in West Franklin will do so.

Table 6: Implied net leakage rates for retail spending

Catchment	Drury	Drury	West Franklin
Scenario	Scenario 1	Scenario 2	Scenario 1
Growth in sustainable GFA to 2048 (Tables 17 and 18)	192,796	211,756	147,800
Estimated land area (based on 0.3 FAR)	64.3	70.6	49.3
Final estimate of land requirements (Table 19)	48.2	53.0	25.8
Ratio of final estimate to total land area supported by catchment spending	75.0%	75.1%	52.4%

4 Converting activity into business land requirements

To convert economic activity, in terms of added employment or retail spending, to added business land requirements, Property Economics applies average ratios of activity to land or GFA. Here, we review their key assumptions.

They undertake separate calculations for office and industrial land, which is projected based on employment growth, and retail land, which is projected based on spending growth.

In addition, these calculations incorporate a 15% margin over and above estimated requirements to address NPS-UDC requirements.

4.1 Office and industrial land per worker assumptions

The Property Economics states that the following factors were considered when converting employment growth to land requirements:

- Ratio of net land to employee by industrial sector
- Locational assessment of efficient land utilisation (ie whether local price is such that industrial land will be efficiently used
- Price
- Historical trends by sector towards increased land or labour efficiencies
- Changes in technology (capital)

They do not explicitly state their assumptions about land per employee or GFA per employee, but it is possible to reverse-engineer them from Tables 11, 14, and 16. The following table summarises their projections for employment growth and land requirements for industrial and office activities under Scenarios 1 and 2. Following a note on page 42, we assume that they convert non-retail floorspace to land using a floor area to land area ratio (FAR) of 0.4.

In the final two columns, it translates these into implied ratios for GFA per employee and employees per hectare. The resulting estimates are as follows:

- For industrial activities, they estimate around 110-130 m2 of GFA per added worker, and a gross density of around 30-35 workers per hectare.

- For office activities, they estimate around 25 m2 of GFA per added worker, and a gross density of around 150-175 workers per hectare.

These figures are within the range reported in our earlier technical note reviewing land per employee ratios. They appear to be predicting a slightly higher density for industrial activities, and a slightly lower density for office-based activities than our central estimates.

Table 7: Property Economics GFA per employee and employment density assumptions

				Growth in land demanded ha	Floorspace to land ratio	Growth in GFA	Growth in employees	GFA per employee	Employees per ha
From Table 11 pg 29	Scenario 1 2016 - 2028	Drury	Industry	47	0.4	188,000	1,458	129	31
			Office	5	0.4	20,000	756	26	151
		West Franklin	Industry	32	0.4	128,000	1,007	127	31
			Office	6	0.4	24,000	988	24	165
	Scenario 1 2028 - 2048	Drury	Industry	101	0.4	404,000	3,608	112	36
			Office	10	0.4	40,000	1,747	23	175
		West Franklin	Industry	70	0.4	280,000	2,493	112	36
			Office	14	0.4	56,000	2,283	25	163
From Table 14 pg 32	Scenario 2 2016 - 2028	Drury	Industry	96	0.4	384,000	3,014	127	31
			Office	26	0.4	104,000	4,143	25	159
		West Franklin	Industry	94	0.4	376,000	2,925	129	31
			Office	25	0.4	100,000	4,022	25	161
	Scenario 2 2048	Drury	Industry	284	0.4	1,136,000	9,005	126	32
			Office	50	0.4	200,000	8,336	24	167
		West Franklin	Industry	346	0.4	1,384,000	10,975	126	32
			Office	61	0.4	244,000	10,196	24	167

4.2   Retail spending per GFA assumptions

Property Economics converts added retail spending to 'sustainable GFA' using assumptions about the average productivity of retail activities in Auckland, broken down by sector. From there, they convert GFA to land requirement using an assumed FAR of 0.3, and the assumption that all retail activity happens on the ground floor.

While they do not state the ratios they use in analysis, it is again possible to reverse-engineer them from Tables 17 and 18 and validate them against other data.

The following table shows these calculations. On average, they estimate that in 2017 the sustainable level of spending is around $6000 per m2 GFA. The sustainable ratio is higher in supermarkets and convenience retail, indicating that a given level of spending translates into less space in these sectors, and lowest in large format retail (LFR).

They assume that these ratios hold constant over the projection period, which may be a somewhat conservative assumption. Similar ratios are used for both West Franklin and Drury, and across both scenarios.

These ratios and relativities between sectors are broadly consistent with data published in a 2013 Auckland Council research report, *Auckland Retail Economic Evidence Base*. The data published in Tables 2 and 6 in that report indicate that in 2012/2013 Auckland's retail sector, excluding trade retail, had an average of around $5000 in spending per m2 GFA. The ratio of spending to floorspace was highest in food retailing (which includes supermarkets), and lowest in the 'core' retail sector, which includes the bulk of large-format retail that is not trade or supermarkets.

While the specific figures may differ, the result is qualitatively similar to Property Economics' ratios. Any numerical difference is likely to be explained by differences in price levels / spending rates between 2012/13 and 2016/17 and differences in the way that individual retail sectors are defined in the two reports. Hence we see no particular need to challenge these ratios.

Table 8: Property Economics GFA per dollar of retail spending assumptions

West Franklin						
		2017			Scenario 1 2048	
	Retail expenditure	sustainable GFA	Expenditure per GFA	Retail expenditure	sustainable GFA	Expenditure per GF
Convenience	$109m	16,800	$6,488	$259m	39,900	$6,491
Specialty	$190m	33,300	$5,706	$452m	79,100	$5,714
Supermarket	$181m	20,700	$8,744	$430m	49,200	$8,740
LFR	$108m	36,500	$2,959	$257m	86,900	$2,957
Total	$588m	107,300	$5,974	$1398m	255,100	$5,976

Drury						
		2017			Scenario 1 2048	
	Retail expenditure	sustainable GFA	Expenditure per GFA	Retail expenditure	sustainable GFA	Expenditure per GF
Convenience	$102m	15,727	$6,486	$301m	46,369	$6,491
Specialty	$178m	31,128	$5,718	$524m	91,777	$5,709
Supermarket	$166m	18,959	$8,756	$489m	55,917	$8,745
LFR	$98m	33,104	$2,960	$289m	97,651	$2,960
Total	$544m	98,918	$5,980	$1603m	291,714	$5,976

		2017			Scenario 2 2048	
	Retail expenditure	sustainable GFA	Expenditure per GFA	Retail expenditure	sustainable GFA	Expenditure per GF
Convenience	$102m	15,727	$6,486	$320m	49,383	$6,480
Specialty	$178m	31,128	$5,718	$558m	97,742	$5,709
Supermarket	$166m	18,959	$8,756	$521m	59,551	$8,749
LFR	$98m	33,104	$2,960	$308m	103,998	$2,962
Total	$544m	98,918	$5,980	$1707m	310,674	$5,975

We also compare land requirement projections within the catchments against Property Economics' two scenarios for employment growth in the retail sector. This comparison is summarised in the following table.

Under Scenario 1, the implied GFA per employee ratios are within the range of outcomes observed using recent data on building consents and employment growth, which is summarised in our separate technical note on land per employee ratios.

However, Scenario 2 appears to result in a considerably lower ratio of floorspace per employee. This reflects the fact that although projected employment growth changes significantly between these two scenarios, projected land requirements do *not* change significantly.

We have discussed this with Property Economics, who highlight that there is no direct relationship between the model used to predict retail spending growth (which is based on household growth plus growth in business and visitor demand) and the model used to predict growth in employment (which is based on a wider range of factors, as noted above). They also emphasise that the retail spending estimates include an allowance for leakage from the catchment. On the whole, they see the retail spending model as a more credible basis for predicting growth in retail land requirements.

We note these points and hence don't see any inconsistency between these figures as overly problematic. However, we *do* note that their analysis of retail spending growth provides stronger support for Scenario 1 for employment growth, at least for the retail and commercial services sectors that primarily serve local household demand.

Table 9: Comparison of Property Economics retail demand estimates and employment growth estimates

			Growth in land demanded ha	Land to floorspace ratio	Growth in GFA	Growth in employees	Implied GFA per employee
Scenario 1	Drury	Retail	24.1	0.3	72,300	1,141	63
2016/17 - 2048	West Franklin	Retail	13	0.3	39,000	1,175	33
Scenario 2	Drury	Retail	26.5	0.3	79,500	3,215	25
2016/17 - 2048	West Franklin	Retail	13	0.3	39,000	3,917	10

5   Vacant land assumptions

Property Economics compares growth in land requirements, by sector, with estimated land available in different business zones to identify any remaining deficit. Their estimates of vacant business land by zone are summarised in the following table.

Across both catchments, and considering all types of business land, Property Economics estimates that almost half of zoned business land is vacant. The majority of vacant land is in the West Franklin catchment, and the majority of this is zoned for light or heavy industry.

Section 4.7 indicates that vacant land estimates were derived by starting with an Auckland Council dataset and then adjusting this to reflect an 'on the ground' assessment of whether larger sites in these zones are indeed vacant and available for business uses. However, it does not explain this adjustment further. Based on discussions with Property Economics, we understand that around a dozen large sites were ground-truthed.

In our experience, vacant land datasets are full of errors. Some vacant properties are erroneously categorised as developed, and vice versa. Addressing this typically requires site-by-site inspection, as GIS data and ratings data is not always good enough to identify what is happening on sites.

However, in this case we would expect errors in the vacant land data to be less of an issue than in an established urban context. A large share of the vacant land identified by Property Economics lies in recently-zoned greenfield areas, eg the Drury industrial zone and in large industrial areas in Glenbrook, which are known to be largely vacant. A casual inspection of the table below suggests that over 80% of the vacant business land that has been identified in the study area lies in greenfield industrial zones.

Table 10: Property Economics estimates of business zoned land in Drury and West Franklin (from Table 15 in report)

Unitary Plan Zone	Drury			West Franklin			Total		
	Occupied	Vacant	Total	Occupied	Vacant	Total	Occupied	Vacant	Total
Heavy Industry	136.3	40.9	177.1	167.5	193.7	361.2	303.7	234.6	538.3
Light Industry	358.9	152.5	511.5	89.4	120.7	210.1	448.3	273.2	721.5
General Business	2.5	-	2.5	26.2	1.6	27.8	28.7	1.6	30.3
Mixed Use	17.1	12.5	29.6	32.4	2.5	34.9	49.5	15.0	64.5
Metropolitan Centre	22.2	1.6	23.8	-	-	-	22.2	1.6	23.8
Town Centre	9.0	0.3	9.4	14.6	0.2	14.8	23.6	0.5	24.1
Local Centre	2.7	5.5	8.2	12.7	27.4	40.1	15.4	32.9	48.3
Neighbourhood Centre	6.4	0.1	6.5	13.9	0.6	14.5	20.3	0.7	21.0
Total	**555.1**	**213.4**	**768.5**	**356.6**	**346.7**	**703.3**	**911.7**	**560.1**	**1,471.8**
Total (Plus additional rezonings)	*555.1*	*213.4*	*768.5*	*356.6*	*615.7*	*972.3*	*911.7*	*829.1*	*1,740.8*

However, the totals reported by Property Economics include 269 hectares of business land outlined in the 2014 Pukekohe Area Plan, which is listed as 'additional rezonings' in the above table. It also includes vacant industrial zoned land in Waiuku and Glenbrook for which there has been little demand – we discuss this location below in Section 6.1.

Following discussions with Auckland Council, we have amended the figures for vacant business land in West Franklin to:

- Exclude the business land outlined in the 2014 Pukekohe Area Plan, as this is intended to be addressed in the Southern Structure Plan rezoning

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- Discount vacant industrial land in Glenbrook and Waiuku to reflect limited evidence of feasibility or development intentions. These sites are summarised in Table 11.

Table 11: Industrial zoned areas in Glenbrook and Waiuku

Precinct name	Total area (ha)	Notes
Glenbrook Steel Mill	363.8 ha	Site is occupied by the steel mill but includes some vacant land. Estimate that around 1/3 of site is vacant, implying around 120 ha of vacant heavy industry land.
Waiuku sub-precinct A	10.9 ha	All land is vacant, excluding some farm buildings
Waiuku sub-precinct B	81.7 ha	
Waiuku sub-precinct C	10.2 ha	

The following table therefore summarises updated estimates of current vacant industrial land (heavy + light industry zoning) and centre land (centre zoning + mixed use + general business) in the Drury and West Franklin catchments. We have excluded the 2014 Pukekohe Area Plan rezonings and split out vacant industrial land at Glenbrook and Waiuku, which accounts for over 40% of the existing vacant industrial land in the overall study area.

We note that these modifications have resulted in a significant reduction in the quantity of vacant business land, and hence, a corresponding increase in the amount of *new* land that must be zoned to meet long-term requirements.

Table 12: Updated estimates of vacant business land in the study area

Zoning	Drury	West Franklin	Total
Industrial zones	193.4	91.6	285.0
Glenbrook and Waiuku industrial zones		222.8	222.8
Centre zones	20	32.3	52.3

6 Catchments and substitutability

Finally, we consider the issue of substitutability between alternative locations for industrial activities and potential 'leakage' of retail spending between areas.

This is an important issue for several reasons. First, the two catchments defined in the Property Economics are quite large, and different locations in them may not be equally well suited for new business activities. Second, what happens in the Drury structure plan area may affect the fortunes of other centres in the existing urban area, in particular Papakura centre. Each of these issues may dictate a planning response.

6.1 Alternative locations for industrial activities

A key finding from the analysis (as shown in Table 16 in the Property Economics report) is that there is more than enough zoned, vacant industrial land in West Franklin to address demand for both catchments. However, a significant share of this is out in Waiuku / Glenbrook, which is generally less accessible to transport networks.

The Drury catchment appears to include the existing zoned Drury industrial estate, which is currently vacant but experiencing development.

Industrial activities are often more 'footloose' than retail uses, as they are less reliant on nearby customers. However, they are not infinitely footloose. Our earlier technical note on success criteria for industrial land suggested the following 'short list' of criteria for comparing alternative industrial land location options within structure plan areas. These focused on access to major

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road / transport routes (indicative 35% weighting); appropriate land features (flat, not floodplain, large sites; 40% weighting); ability to buffer reverse sensitivities (15%); and several minor criteria. The areas around Waiuku / Glenbrook have advantages in terms of availability of flat land and ability to buffer adverse effects. However, they are less accessible to SH1 and the main rail corridor than areas around Drury.

That trade-off is highlighted in the 2011 Harrison Grierson assessment of alternative greenfield industrial sites. The following table summarises their analysis for Glenbrook. While this site scored well for appropriate land features exposure to reverse sensitivities, and access to rail, it only scored 11 out of 30 for access to major roads. On the whole, it only scored 51.5 out of a possible total of 145, whereas Drury and Paerata scored 79.5 and 77.5, respectively.

Table 13: Harrison Grierson scoring of Glenbrook greenfield industrial land

Table 14: Glenbrook Scoring		
Economic criteria	**Score**	**Out Of**
1. Access to major road / transport routes	11	30
2. Proximity to ports (sea port, inland port, airport)	1	20
3. Appropriate Land Features: ▪ Flat land ▪ Not on a floodplain ▪ 100ha minimum contiguous site	17.5	20
4. Service infrastructure in place or proposed	3	20
5. The site: ▪ Has potential for co-location and/or clustering with associated business activities ▪ Is contiguous with existing business land zoned for Group 1 sectors	0	15
6. Access to rail	10	10
7. Proximity to labour	0	10
8. Ability to buffer adverse effects from residential and sensitive activities	5	5
9. Low level of traffic in the vicinity	N/A	N/A
10. Exposure / profile / visibility	1	5
11. Existing or proposed public transport	0	5
12. Access to complementary / supporting business services	3	5
TOTAL	**51.5**	**145**

In short, success criteria for industrial land suggest that the Waiuku / Glenbrook area is less likely to be desirable for industrial uses than the Drury area. This is backed up by analysis of resource consents and building consents in the area, which imply that new industrial developments tend to be predominantly occurring in the state highway corridor(s) in south Auckland, extending as far south as Papakura local board.

In short, there may be a case to 'discount' some of the industrial land capacity in the Waiuku / Glenbrook area to reflect its expected lower level of feasibility. A lower discount (and potentially no discount) should be applied in the long term, reflecting the expectation that industrial development will continue creeping south from the existing urban area.

6.2   Retail spending catchment definitions

We now consider the definition of retail spending catchments for the Drury area, and how they relate to the existing Papakura centre. A new centre in Drury could in principle 'cannibalise' some spending that is currently occurring in Papakura, and hence undermine its vitality as a retail destination.

A key assumption in the Property Economics report, which we note in the above discussion of the study area, is to include the former Papakura District in the Drury catchment. This means that:

- The analysis of household retail spending growth includes growth occurring in the area immediately around the Papakura centre – this means that the analysis of spending growth could in principle include spending diverted from Papakura centre.
- Conversely, the analysis of vacant land in this catchment also accounts for development sites in Papakura centre, and hence accounts for vacant capacity in this centre (but not potential for increases in floorspace productivity or improvements to retail offering in existing buildings).

On balance, there is probably some potential for cannibalisation in the analysis. This is not fully mitigated by the application of assumptions around leakage to other areas, as the leakage rates do not presumably account for diversion of spending *within* the Drury catchment.

As context for discussions of catchments, I draw upon data published in the 2013 *Auckland Retail Economic Evidence Base*. The figure on the left shows, outlined in different colours, the catchments from which the majority (50%) of electronic card retail spending in each of Auckland's existing metropolitan centres are drawn from. The figure on the right shows the catchments from which 80% of retail spending is drawn.

These maps are somewhat difficult to interpret. However, they show two key things:
- First, Papakura centre's existing catchment is predominantly drawn from areas to the south of Papakura. People living to the north of Papakura appear to be more likely to go further north to Manukau or Sylvia Park.
- Second, the 80% catchments for Manukau centre and Sylvia Park extend into the former Papakura district, highlighting that there is likely to be a relatively high amount of 'leakage' from Papakura's catchment at present.

Table 14: Retail spending catchments based on electronic card spending data (2011)

Figure 40. 50 per cent spend catchment areas of metropolitan centres, 2011   **Figure 39. 80 per cent spend catchment areas of metropolitan centres, 2011**
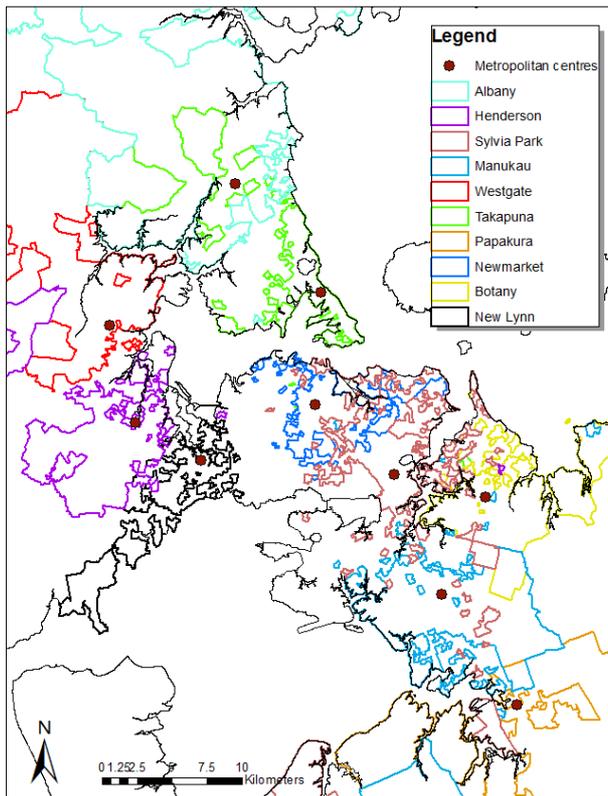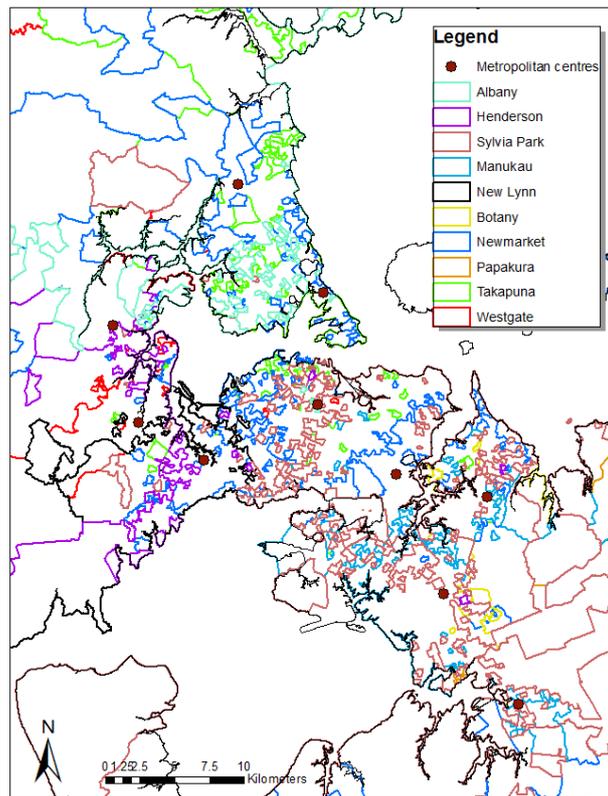
6.3   Potential effects on Papakura centre

The data above highlights that a major new centre or shopping mall developed to the south of Papakura is likely to further squeeze what is already a limited catchment, and potentially limit it to serving a more local function than it does at present.

In the long run, this may not necessarily be a problem. Subject to assumptions about leakage, Property Economics' analysis suggests that household growth in the southern structure plan area is likely to be sufficient to support a new centre *and* maintain existing retail floorspace. However, in the short run, a major new development may divert spending from Papakura. A relevant question is therefore: How much, how fast, and what will the consequences be?

We outline several possible economic impacts that are worth taking into account when thinking about effects on Papakura centre.

The first is positive, or at minimum neutral. Increasing the number of centres that are available to people in a given area will increase the choices they have when shopping. If it results in multiple competing retailers in the same sectors (eg having access to both a Bunnings and a Mitre 10) then it may also result in lower prices.

The second is potentially negative. If a new centre is located in a place that is less accessible or that requires more driving on congested roads, then it may reduce the efficiency of the transport network. This can be ameliorated through choice of location for the centre and through design, including integration with public transport facilities and design of a street network to support access by non-car modes.

The third is also potentially negative. Public agencies may have invested in social facilities in existing centres, such as libraries, parks, courts, service centres, etc. If these centres decline, it may be necessary to move or duplicate these facilities elsewhere to ensure that they continue to serve populations of interest. This may impose additional costs on the public sector.

Lastly, we note that, in a growing city, decline will tend to be followed by transformation and revitalisation in the medium to long term. There may be opportunities for public sector agencies like Panuku to coordinate this revitalisation process, eg by master-planning, strategic land acquisition, or redevelopment of publicly-owned land. Given the current interest in major 'brownfield' regeneration projects such as the Tamaki Regeneration Project, we note that *future* brownfield regeneration efforts will require a supply of developed-but-declining areas.

7   Comparison of projections against recent trends

In our accompanying technical notes on land per employee ratios and business land success criteria, we reviewed recent (2013-2017 calendar year) data on the geographical distribution of new building consents for retail, office, and industrial buildings. Our key finding in the business land success criteria note is as follows:

> *There are distinct trends for different types of business activities:*
>
> - *New retail floorspace (shops, restaurants, and bars) is highly concentrated in peripheral areas where major new shopping centres are being developed. The Albany and Waitakere wards account for almost half of total consented retail floorspace.*
> - *New office floorspace is overwhelmingly concentrated in the city centre. Almost half is located in the Waitemata ward. The Manukau ward, which includes Manukau central as well as the airport business park, also saw a significant amount of development.*
> - *New industrial floorspace is principally located in south Auckland. Over 60% is located in the Howick, Manurewa-Papakura, and Manukau wards, and most of the remainder is located in Maungakiekie-Tamaki and Albany wards.*
>
> *In short, south Auckland is especially attractive for new industrial development, but less so for office uses. New retail floorspace tends to be concentrated in areas where new major shopping centres are being developed.*

We now use this data to benchmark Property Economics' projections for these three sector against recent observed trends. This highlights whether or not Property Economics' projections are likely to provide a guide to short- to medium-term outcomes. While we acknowledge that zoning decisions are intended to respond to long-term business land requirements, we see short- to medium-term trends as important for two reasons.

First, many landowners will be seeking a financial return sooner rather than later. If short- to medium-term demands do not support a given piece of zoned land being developed for its intended purpose, they may seek rezoning or resource consent to build something that is more profitable instead. This means that long-term outcomes may not be realised *unless* landowners perceive there to be value from 'holding out' for an outcome that does not deliver immediate financial returns.

Second, recent outcomes indicate what is important for specific sectors. In Auckland, major retail development tends to occur on the edge of the city as new greenfield centres are developed to serve new residential suburbs. New industrial activity is concentrated in south Auckland, especially in areas that are accessible to main transport corridors. Observed trends therefore support projections of future growth in retail and industrial land demand in the Southern Structure Plan area.

However, new offices are *extremely* centralised, reflecting the premium placed on agglomeration and clustering in many office-based industries. There are relatively few examples of major office centres successfully developing in outlying areas. In south Auckland, planned centres such as Manukau central have not achieved their full potential. The Southern Structure Plan area is 15-20 kilometres south of Manukau and hence even further removed from dense agglomerations of jobs in the city centre.

This suggests that something significant – beyond simple population growth in the structure plan area – would have to change in order for there to be demand for a significant amount of commercial offices in this area.

7.1   Summary of recent building consent trends

The following table summarises the total quantity of business floorspace consented by Auckland ward over the five-year period from 2013 to 2017. We focus on the Manurewa-Papakura and Franklin wards, as they provide a broad sense of recent trends in these areas.

Over this five-year period, new consents totalled approximately:

- 53,000 m2 of added retail floorspace
- 14,000 m2 of added office floorspace
- 217,000 m2 of added industrial floorspace

Table 15: Gross floor area consented for retail, office, and industrial activities, 2013-2017

Ward	Shops, restaurants, and bars	Office, administration, and public transport buildings	Factories, industrial, and storage buildings
Albert-Eden-Roskill Ward	18,024	5,367	13,538
North Shore Ward	20,588	19,570	14,286
Franklin Ward	9,369	6,529	30,390
Waitakere Ward	107,706	31,506	40,091
Albany Ward	111,071	46,602	134,824
Howick Ward	25,301	29,217	186,325
Manurewa-Papakura Ward	43,810	7,590	186,610
Manukau Ward	16,438	76,889	456,956
Maungakiekie-Tamaki Ward	10,569	42,537	167,832
Orakei Ward	6,545	58	4,215
Rodney Ward	19,480	7,843	41,233
Waitemata and Gulf Ward	41,158	253,818	29,929
Whau Ward	43,256	6,997	32,784
Total	**473,315**	**534,523**	**1,339,013**
Manurewa-Papakura + Franklin Wards	**53,179**	**14,119**	**217,000**

7.2 Comparison of recent trends with Property Economics projections

We now compare these recent trends against Property Economics' projections for the 2018-2048 period.

This is not quite an 'apples with apples' comparison, as the Manurewa-Papakura and Franklin wards are larger than the study area used in the Property Economics report. Moreover, we would expect some degree of 'discontinuity' with recent trends as residential development progresses in the Southern Structure Plan area and as vacant industrial land elsewhere is built out.

Notwithistanding those caveats, the figures in the fourth and sixth column of the table show the ratio of projected growth in the Property Economics study area (divided by six to estimate growth over a five-year window) to recent observed growth in the Manurewa-Papakura and Franklin wards. Numbers below one indicate that Property Economics is projecting a *slowdown* in growth, while numbers above one indicate that they project faster growth.

With regards to industrial land demand projections, Scenario 1 appears to be too low (indicated by a ratio below one). Scenario 2 appears high at first glance, but we note that more demand is likely to shift south as industrial land in the Manukau Ward is built out. (The ratio of Scenario 2 growth to recent trends in the Manukau + Manurewa-Papakura + Franklin Wards is 0.81.)

In other words, recent trends appear to support Property Economics' industrial land demand forecast, although medium-term outcomes may lag behind Scenario 2.

With regards to office demand projections, achieving either Scenario 1 or Scenario 2 would require a substantial acceleration in growth relative to recent trends. This suggests that, although Scenario 2 should be considered as a potential long-run outcome, short- to medium-term outcomes are highly unlikely to follow this trend. We therefore suggest:

- Using Scenario 1 as a guide to medium-term outcomes, acknowledging that this will entail an acceleration relative to recent trends
- Retaining Scenario 2 as a long-term projection but acknowledging that there may be greater uncertainty about whether and how this will be achieved.

With regards to retail demand projections, Property Economics appears to estimate a slightly *lower* rate of growth than has been observed in recent years in the broader Manurewa-Papakura + Franklin Wards. We do not see this as an issue for two reasons. First, as noted above, Property Economics has accounted for some net leakage out of the catchment. Second, the area that we have used for comparison is broader than Property Economics' study area as it includes Manurewa.

We see recent trends as validation of the broad rates of retail growth that Property Economics has projected.

Table 16: Comparison of recent development trends with projected future growth

Sector	New floorspace consented 2013-2017	Scenario 1		Scenario 2	
		New floorspace 2018-2048	Ratio relative to recent trend	New floorspace 2018-2048	Ratio relative to recent trend
Industrial	217,000	1,000,000	0.77	3,280,000	2.52
Office	14,119	140,000	1.65	648,000	7.65
Retail	53,179	222,600	0.70	237,000	0.74

8   Conclusions

The key findings of our review are as follows.

First, we have validated Property Economics' assumptions used to estimate future retail spending growth and to convert added spending or employment growth into land requirements against other data. We are satisfied that they are reasonable.

Second, we note that the report presents two scenarios for future employment growth. The second scenario implies considerably higher growth in office-based employment in the study area. We acknowledge this as a potential scenario in the long term, due to the mass of local employees in the area, but see the first scenario as more likely to occur in the short to medium term, as it is more consistent with observed economic and development trends.

Even if Scenario 2 for office-based employment growth is theoretically viable in the long run, there are likely to be a number of uncertainties about whether and how it can be achieved. Office-based employment exhibits strong clustering and agglomeration effects. It prefers to be located in relatively central or well-connected locations that are accessible to a broad pool of skilled workers and physically close to many other office-based jobs. In Auckland, the city centre is the main example of a location that is highly attractive for office-based employment – and the Southern Structure Plan area is very far from its gravitational pull.

There are several things that might change this. If residential development in the area attracts a sufficient critical mass of skilled workers, then it may attract some office-based firms to locate closer to them. This has been a factor in the growth of office-based employment in the upper North Shore, eg in Albany, Rosedale, and Constellation Drive, but it has been less evident in south Auckland. This may be bolstered by faster rapid transit links to other major office centres in Auckland, as this may mitigate some of the disadvantages of distance. A third relevant factor is landowner intentions: If a landowner in the area were to adopt and implement a strategic long-term vision for a new office centre, then it may allow a critical mass to develop.

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However, landowner intentions can cut in both directions: If landowners instead focus on development options that are profitable in the short term, then it may not be possible to develop an office centre with sufficient scale to be attractive.

Third, in light of that we suggest using a blended projection that uses Scenario 1 for commercial office demand growth for the medium-term (to 2028) and Scenario 2 for the long-term (to 2048). Scenario 2 projections should be used for industrial land and retail land.

This blended projection is summarised in the following table. We have also included amended estimates of the amount of vacant industrial and centre land, based on Table 12 above. These estimates exclude the 2014 Pukekohe Area Plan land (which Property Economics counted) and discount industrial land in Waiuku and Glenbrook.

The blended scenario picks up what seems to be a key 'on the ground' reality in greenfield areas around Auckland, which is that demand for residential development leads while demand for local employment opportunities lags behind.

When using this scenario, it is important to consider the risk that Scenario 2 for office land requirements may not be viable in the long-term for the reasons stated above. Similarly, Scenario 2 for industrial land requirements may not be realised in the medium-term, which may in turn lead some landowners to seek resource consent or plan changes for alternative land uses that offer more immediate returns. We have reflected this by including 'lower bound' estimates that reflect Scenario 1 in the medium term for industrial land and in the long term for office land.

Table 17: Blended projection for medium term and long term business land growth

Projected land demand	2018-2028 growth			2018-2048 growth		
	Drury	**West Franklin**	**Total**	**Drury**	**West Franklin**	**Total**
Industrial land	110	108	218	329	398	727
Lower bound	*54*	*36*	*90*			
Office land (1)	5	6	11	50	61	111
Lower bound				*10*	*14*	*24*
Retail	30	12	42	61	30	91
Total centre land (office + retail)	33	15	48	91	67	158
Lower bound				*67*	*38*	*105*
Vacant land						
Industrial land (ex Glenbrook / Waiuku)	193	92	285	193	92	285
Centre land	20	32	52	20	32	52
Surplus / deficit						
Industrial land	83	-16	67	-136	-306	-442
Based on lower bound demand	*139*	*56*	*195*			
Centre land	-13	17	4	-71	-34	-105
Based on lower bound demand				*-47*	*-6*	*-53*

Notes: (1) 40% of office land demand is assumed to be served 'vertically', ie above ground-floor retail.

The amended figures in Table 17 imply that:

- Existing centre land is likely to be roughly sufficient to accommodate growth to 2028, although there are likely to be some spatial shortfalls on the eastern side of the study area (ie closer to Drury) that create pressure for a new centre.
- However, it is not likely to be sufficient in the longer term. This is true regardless of whether office-based employment growth follows Property Economics' Scenario 2 (the base projection) or Scenario 1 (the lower bound estimate).
- Existing vacant industrial land, including zoned land in Drury, is likely to be sufficient to accommodate growth to 2028, most likely with remaining capacity to serve growth beyond this period.
- However, in the longer term, there is likely to be a shortfall of up to 442 hectares of industrial land. Glenbrook and Waiuku currently have around 223 hectares of vacant industrial land, meaning that if these areas become market-attractive it may close up to half of the remaining gap. However, additional zoned land is likely to be required in the longer term even if this occurs.

Fourth, we have reviewed catchment assumptions and agree that they are broadly reasonable. In the long run, industrial activities are likely to be footloose between the two halves of Property Economics' study areas, while retail activities are likely to be more localised. We note potential distributional impacts on Papakura centre, and highlight that the catchment for that centre is likely to be further squeezed.

Technical Note

Subject: Success factors for rapid transit network stations	
Project: Southern Structure Plan Business Land Review	
Our file: NZ 2400	**Prepared by:** Coby Joseph
Status: Final	**Date:** 16 November 2018

1. Introduction

This Technical Note describes factors that influence the viability of rapid transit network (RTN) station locations. While RTN stations can generate substantial patronage under a range of conditions, certain catchment attributes consistently affect a station's viability. These include the following:

- Residential density
- Walkability and the effective walk catchment
- The presence of nearby commercial activities
- The presence of demand generators and destinations
- Park and ride facilities
- Connections to other public transport services
- Quality of the station and its environment

This note provides an overview of these factors.

2. Density required to support RTN stations

Research indicates that higher residential density can support higher transit ridership. Multiple studies have found that doubling residential density increases transit boardings in a station area by 15% to 59%.[1] As a result, locating stations in areas that can support reasonable levels of residential density is important.

Guidance on minimum density for rapid transit stations vary widely across different transit agencies. A study of 832 heavy rail stations in the U.S. found that heavy rail systems need around 110 people per gross hectare around stations to reach the 25th percentile of most cost-effective rail investments, which is a benchmark for what can be considered a more successful station rather than a standard.[2] A lower nearby density may be needed for a light rail or bus

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[1] https://www.psrc.org/sites/default/files/tsdluguidancepaper.pdf

[2] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.261.4156&rep=rep1&type=pdf

rapid transit system to be deemed cost effective due to their lower development and operational costs.

Setting a 'one size fits all' density standard is difficult because many features beyond density can affect ridership. Feeder bus, cycling, and park and ride access can play a significant role in bringing riders to stations located in low-density areas. For example, Constellation Station on Auckland's Northern Busway has low surrounding population density but performs well due to feeder bus connections. Furthermore, density will vary within the catchment, and the street network will affect how accessible a station is to nearby residents - so an overall catchment density metric will not represent a full picture.

The presence of affordable housing near a transit station can also support station patronage, as low-income households are less likely to own a car and hence may particularly benefit from frequent transit access. One study found that low-income households living within 0.25 mile (0.4 km) of high frequency transit drove 50% fewer miles than low-income households living outside transit-served areas, and 50% fewer miles than high-income households living in transit station areas.[3]

Different agencies worldwide use a wide range of minimum standards and there is not a universally agreed upon number. As a rough rule of thumb, it may be useful to expect that a station with nearby density below 100-110 total residents plus employees per gross hectare will need to draw many patrons from outside its walking catchment by feeder buses, cycling, or park and ride in order to achieve moderate patronage or higher.

Roughly 15 of Auckland's RTN train station areas had 110 residents per gross hectare in their 1 km flying catchment in 2013 (led by Britomart, Kingsland, Mt. Eden, Papatoetoe, and Morningside), while five RTN train stations had fewer than 30 people per gross hectare (Penrose, Manukau, Swanson, Westfield, and Waitakere).

The following chart shows the population within the 1 km walking catchment of rapid transit stations in Auckland compared with patronage. This chart highlights that residential density near an RTN station is not the only factor that contributes to station patronage.

For instance, Mt Eden, Mt Albert, Kingsland, and Morningside appear to be 'underperforming' relative to their catchment density, as a significant portion of the train journey between these locations and Britomart is indirect and may be better served by bus. When these stations are removed from the chart, there is a positive relationship between catchment density and RTN station boardings.

Figure 1: RTN Station Boardings and Catchment Population

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[3] https://www.psrc.org/sites/default/files/tsdluguidancepaper.pdf

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RTN Station Boardings and Catchment Population
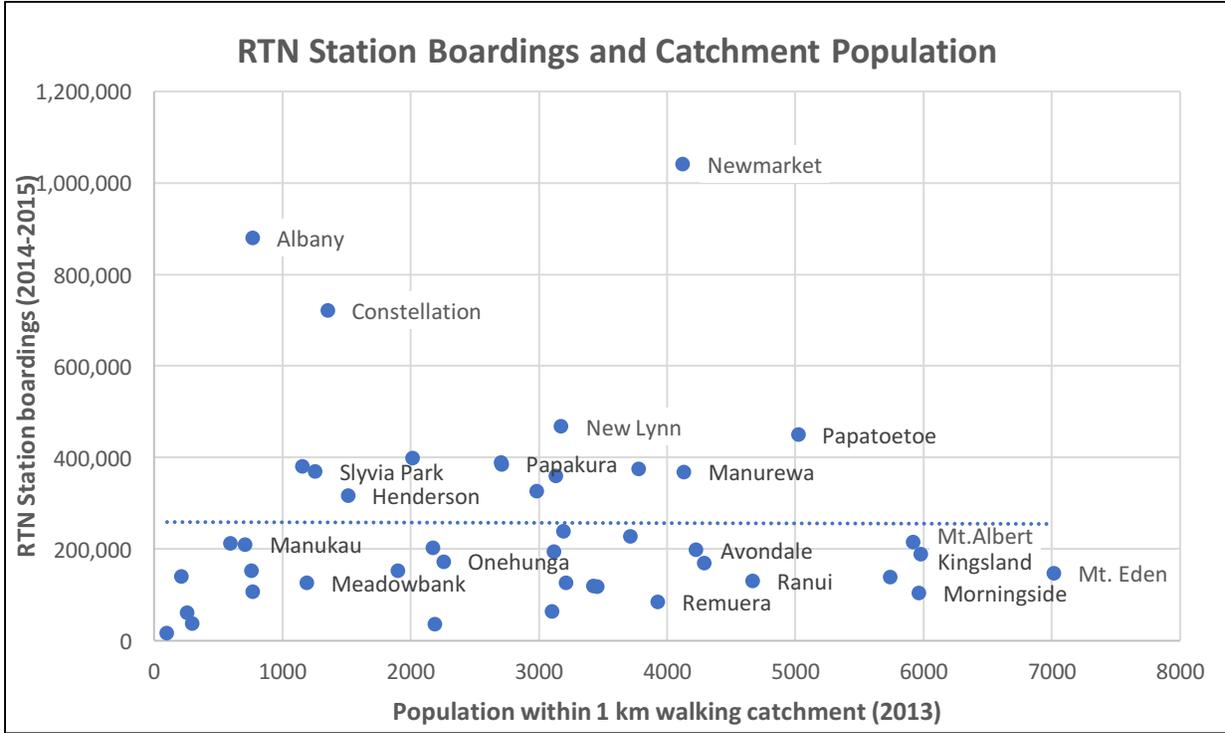
Note: For chart clarity, Britomart (pop: 14,922, boardings: 3.89 m) has been excluded from the table.
Population data: 2013 New Zealand Census from Statistics New Zealand
Boardings data: 2014 – 2015 Auckland Transport data

Different RTN stations have different types of users, and some can achieve high patronage without high nearby residential density. In a more suburban environment, for example, a higher percentage of riders may use park and ride facilities or feeder public transport services and come from a larger catchment than for a city-centre station.

The following data from 2013 highlights the variation in access modes at selected RTN stations in Auckland.[4]

Table 1: Access modes to selected Auckland transit stations

RTN Station	Walk	Car	Bus	Cycle
Ellerslie	73 %	23 %	3 %	1 %
Newmarket	69 %	20 %	10 %	2 %
Papakura	45 %	52 %	2 %	1 %
Manurewa	41 %	47 %	12 %	1 %

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[4] http://www.knowledgeauckland.org.nz/assets/publications/TR2013-014-Walkable-catchments-analysis-at-Auckland-train-and-Northern-Busway-stations-2013-.pdf

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3. Walkability around RTN stations

Catchment walkability is also critical to station patronage, even in a suburban context. Residential density around the station matters little if people cannot reach the station via a direct and comfortable walk. A 2013 Auckland Council analysis of 12 rail stations found that walking was the most common mode of arrival at nine. It accounted for more than 55% of boardings at stations in more suburban contexts such as Glen Eden (57%) and Ōtāhuhu (56%).

The distance most people will walk to a station is commonly estimated at 400 m for local service and 1000 m for rapid-transit.[5] A 2013 national NZTA analysis found the median walk length for a walk-to-bus trip to be 200 m (with the mean being 370 m). This analysis found a median walk length of 1.04 km for walk-to-rail trips. This was found to be slightly higher in Auckland, at 1.19 km. Some 75% of walk-to-rail users in Auckland walked 1.52 km or fewer to reach the rail station.[6] The following table from the previously mentioned 2013 Auckland Council analysis highlights that the distance patrons will walk to a station can vary meaningfully from station to station.[7]

Table 2: Distribution of walking distance to access Auckland rail stations

Train station	Walking distance for 50% (median) of respondents	Walking distance for 85% of respondents
Papatoetoe	1200m	2180m
New Lynn	1125m	2116m
Glen Innes	943m	1526m
Mt Albert	862m	1617m

[5] https://humantransit.org/2011/04/basics-walking-distance-to-transit.html

[6] https://www.nzta.govt.nz/assets/resources/research/reports/537/docs/537.pdf

[7] http://www.knowledgeauckland.org.nz/assets/publications/TR2013-014-Walkable-catchments-analysis-at-Auckland-train-and-Northern-Busway-stations-2013-.pdf

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3.1 Measuring walkability

Street network design greatly effects the time required to walk to a station. Figure 1 shows the one kilometre "flying catchment" (represented by the grey circle) compared to the streetscape within 1 km of rail stations in Papakura and Waitakere (represented by the blue/green highlighting). Patrons near Papakura can walk 1 km or less from most of the land area covered by the 1 km flying catchment, unlike patrons near Waitakere. This variation highlights the importance of measuring actual distance a person is required to walk to reach a transit station instead of the "air distance."

As a note, we suggest that a one kilometre catchment is typically appropriate for rapid transit stations, given data that suggests that the median distance walked to access the rail network in 2013 was 1.2 kilometres, and that 25% walked more than 1.5 km.

Figure 2: Comparison of 1 km walking radius to Papakura and Waitakere stations[8]

3.2 Pedestrian environment

The pedestrian environment has a significant impact on pedestrians' willingness to walk a given distance to access a transit station. Features such as sidewalk availability, intersection design, and vehicle volumes around stations impact rates of walking to transit.9 Steep street grade, the presence of major intersections that delay pedestrians, and lack of perceived safety (both from crime and from wide and busy streets) can all discourage walking to transit stations.

In general, the more oriented a station environment is for easy access for cars, the less pedestrian-friendly the environment and the fewer walk-up passengers the station will attract. Some of the most important determinants of pedestrian environment include:

- Adjacent vehicle volumes and speed
- Street network connectivity/permeability (avoiding long blocks)
- Presence and quality of footpaths

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[8] https://catchies.mrcagney.works/

[9] https://smartech.gatech.edu/bitstream/handle/1853/42789/Ozbil_Ayse_N_201012_phd.pdf.pdf

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- Station infrastructure (ie shelter, lighting)
- Level of nearby activities and attractions
- Severs to pedestrian spaces (ie a motorway or industry zone, or on a lesser, dead blocks with buildings that don't face the street can be a major detriment to pedestrian spaces).

The draft AT Roads and Streets Framework includes a comprehensive description of factors impacting pedestrian environment. Some other factors include:

- Intersections that are not overly wide
- Avoiding buildings set back from the street in pedestrian areas
- Having infrastructure that allows for frequent crossings
- Including wayfinding infrastructure
- Avoiding having car parking dominate urban spaces
- Providing street greenery
- Creating shared spaces between pedestrians, bikes, and vehicles

3.3 Bike and ride

Biking extends the catchment area of a rapid transit station as compared to walking. A person can typically bike five times as quickly as they can walk, extending the estimated coverage area to approximately 4 km for a rapid transit station – about the distance a person can bike in 10 minutes. Supportive bike infrastructure can further extend this range, while an unsupportive environment can curtail it.[10]

3.4 Assessing park and ride catchment

The distance park and ride users may travel to a station can vary significantly, though most studies find that roughly 50% of park and ride users start their journey within 3 – 5 km of the station.[11] The remaining park and ride users may come from an area four or more times as large as this inner service area.[12] Drivers will be more willing to travel greater distances if the drive to the station requires less time.

About 16% of Auckland's daily peak commuters using rapid transit, ferry, and trunk bus routes to access the city centre use park and ride facilities.[13] Most park and ride users travel to the CBD for work multiple times per week, a reflection of the fact that an important determinant of commuter rail ridership is employment densities at the trip's end.[14]

It is important to consider the direction that users would need to travel to access a station. Drivers tend to be more inclined to use park and ride facilities if the station is placed between

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[10] http://www.trb.org/Main/Blurbs/169437.aspx

[11] http://www.trb.org/Main/Blurbs/169437.aspx

[12] http://www.trb.org/Main/Blurbs/169437.aspx

[13] From Auckland Park and Ride Programme Business Case

[14] http://www.trb.org/Main/Blurbs/169437.aspx

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their origin and final destination, even when traveling to an out-of-the-way station may be more time efficient.

There is little published literature on this phenomenon, but our previous work on park and ride demand suggests that it is a consistent driver of demand patterns. We investigated this in a 2017 report for the Queensland Department of Transport and Main Roads that analysed and modelled the drivers of park and ride demand in South East Queensland. The following figure shows the shape of park and ride catchments estimated from vehicle license plate data. We have indicated the Brisbane CBD, which is the destination for most (but not all) rail demand as a red dot. Park and ride catchments tend to lie in further away from the CBD.

Figure 3: Park and ride catchments in South East Queensland

Top eight park 'n' ride catchments in SEQ by registered vehicle count (cut off = > 2)
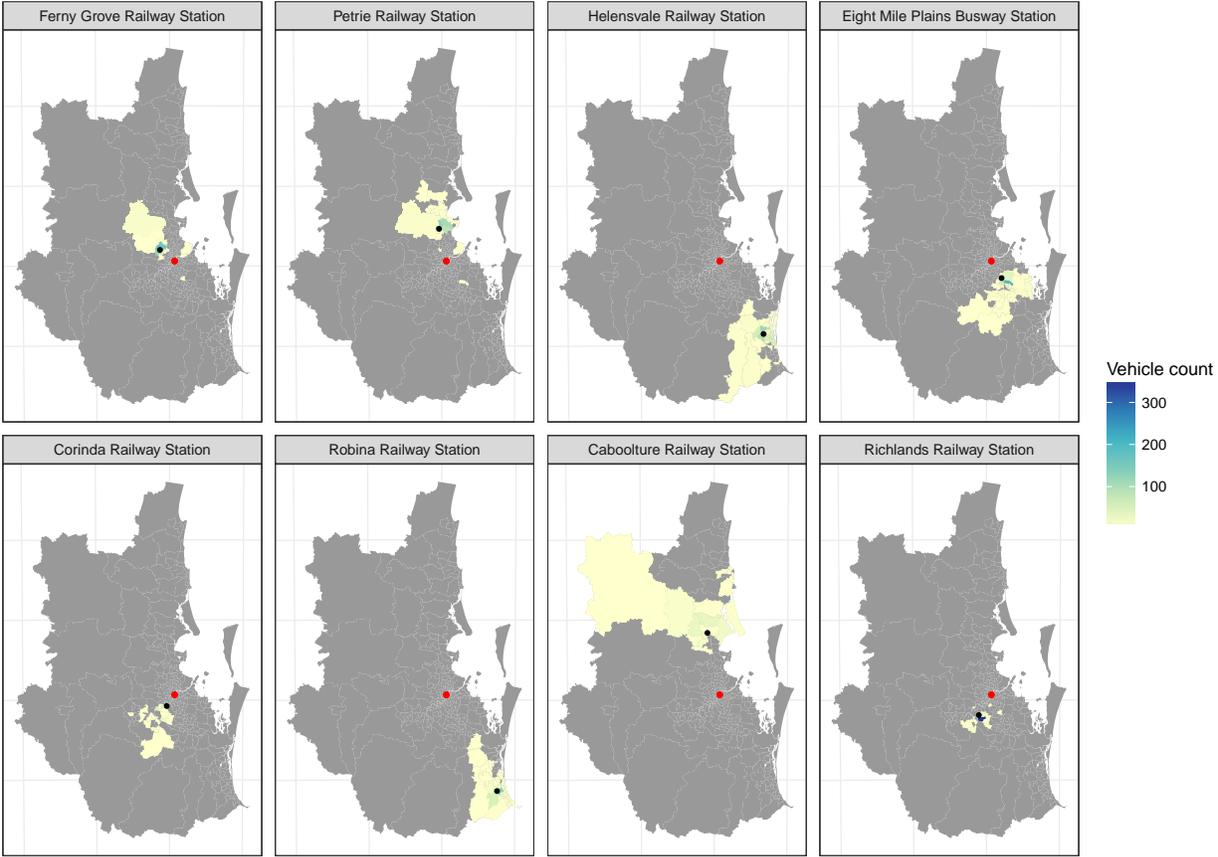
Similarly, the following graphic shows the results of a series of parking surveys for 22 locations with park and ride facilities in June 2017.[15] The survey recorded number plates, which have been geocoded based on the registered address of the vehicle (represented by the coloured dots). The graphic shows the relative size of park and ride catchments in Auckland's southern region, including the especially large catchment for Papakura station.

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[15] From Auckland Park and Ride Programme Business Case

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We would expect a new station in Druty to follow a similar pattern. As a Drury RTN station would likely be more accessible by SH1, we would expect the broad southern park and ride catchment to shift to this station, conditional on the availability of vacant parking spaces.

Figure 4: Park and ride catchments based on number plate data
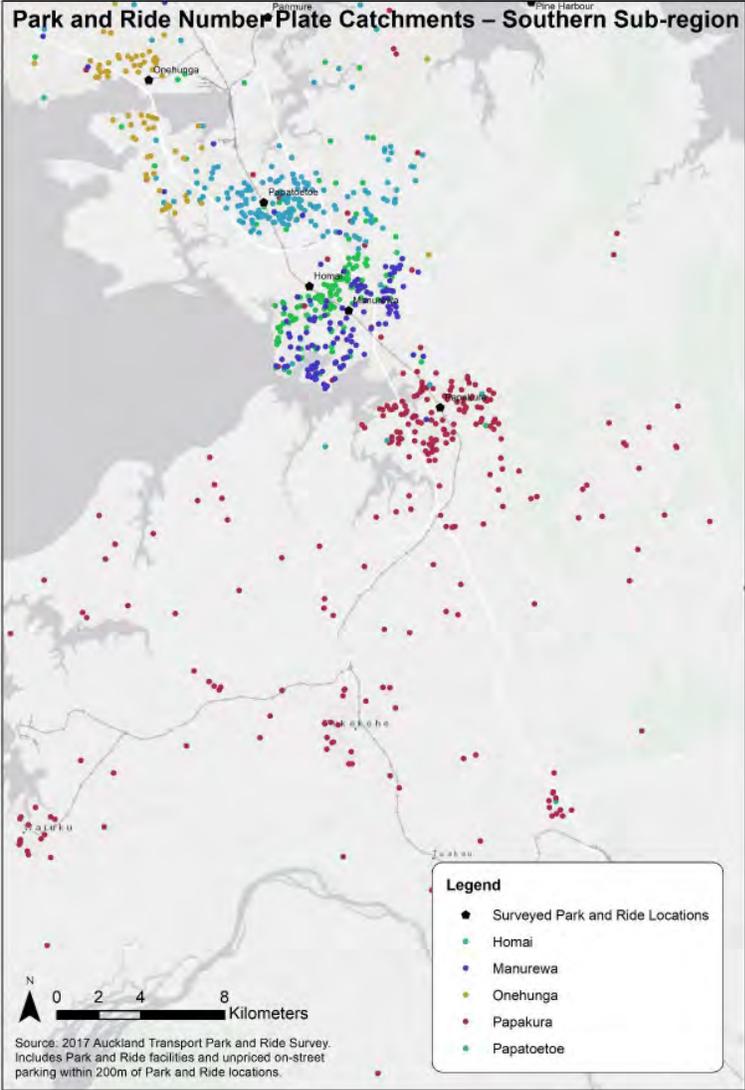
It is important to consider the cost of using space near stations – which could be used to increase residential or commercial density – for park and ride facilities. Artificially low costs to use park and ride facilities can also discourage use of more efficient bus feeder services.

3.5 Patronage from feeder routes

Feeder buses also increase the catchment area of an RTN station and provide an alternative to driving to a station for further away users. Constellation station, for example, had the fourth

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highest boardings of RTN stations in 2014-2015,[16] but the 28th (of 46) highest population within its 1 km flying catchment. This reflects the high number of patrons assessing the station via feeder buses.[17]

4. Effect of commercial services near RTN station

Commercial activities near RTN stations can encourage station patronage. A rail user can "chain" their trips by visiting retail on the way to or from an RTN station. A 1989 study of 57 suburban activity centres across the U.S. found that a 10% increase in retail and commercial floor space was associated with a 3% increase in transit mode share.[18] This effect can be more profound in some cases; a study from Chicago, U.S. found that a 10% increase in the 0.5 mile (0.8 km) commuter rail station-area dedicated to retail trade was associated with 30% more riders.[19]

4.1 Making station areas attractive

Mixed-use environments featuring residential, employment, retail, public services, and recreation near a transit station can make an area more attractive, encourage walkability, and support station patronage. A 1997 study from the San Francisco Bay Area found the likelihood of walking to a station was higher where retail uses dominated the area nearby stations.[20]

Further, destinations such as hospitals, universities, schools, and recreation facilities can draw residents to a city or town-centre near an RTN station and support patronage.

5. Summary and recommendations

This note highlights that a range of factors influence the viability of an RTN station location. While approximate standards provide an indication for sufficient residential density and walkability, no hard-and-fast rules exist.

The data suggests that there are two alternative ways that a station can achieve reasonably high patronage in a suburban context.

One alternative is to focus on maximising ridership from walk-up access, potentially supported by cycling and feeder bus access. Achieving this would entail:

- Reasonably dense residential development within the immediate station catchment (~1km as the crow flies)
  - o This means prioritising sites without significant constraints to development, eg water bodies or flood hazards

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[16] https://onedrive.live.com/view.aspx?resid=6C6F1925E284040B!11377&ithint=file%2cxlsx&app=Excel&authkey=!ANnq5-HfFdDubBM

[17] https://catchies.mrcagney.works/

[18] http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_16-1.pdf

[19] https://smartech.gatech.edu/bitstream/handle/1853/42789/Ozbil_Ayse_N_201012_phd.pdf.pdf

[20] https://smartech.gatech.edu/bitstream/handle/1853/42789/Ozbil_Ayse_N_201012_phd.pdf.pdf

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- Complementary retail / commercial development within the catchment, eg a local shopping centre

    o This means collocating the station with other 'attractors' for retail activity

- A connected local street network that offers a reasonable level of amenity and safety (eg no unsignalised crossings of main roads), with relatively low vehicle speeds and few traffic lanes.

A second alternative would be to focus on maximising ridership from a wider catchment via park and ride and/or feeder bus modes, supported by local density where feasible. Achieving this would entail:

- Choosing a location that is accessible to main roads, which can both (a) make the station more visible for park and ride users and (b) make it easier to run direct feeder buses to the station

- Choosing a location that is 'en route' for most trips, which in this case means to the north of most residential development in the area

- Designing park and ride facilities that do not impede feeder bus or walking access, and which potentially have room to expand as areas develop and generate more travel.

Most rapid transit stations support a range of access modes. However, there are trade-offs between alternative access modes. For instance, park and ride facilities can use up a substantial area of land adjacent to a station that could otherwise be used for housing, which may actually generate *more* rapid transit trips by providing a new source of potential patrons and contributing to a pedestrian-friendly mixed-use environment that attracts other patrons from throughout the catchment.

Furthermore, a share of park and ride users otherwise would have accessed the station via feeder bus or walking or cycling. Depending upon the context, this 'cannibalisation' rate can be quite high – in Melbourne, for instance, over half of park and ride users switched from other access modes.

However, on the flip side, it can take a long time to develop land around stations to a high density, meaning that park and ride stations may deliver faster increases in patronage. Planners should be strategic about understanding possible station users nearby to balance these trade-offs.

Finally, a station's viability should be measured against the cost of adding and operating the station, including impacts on other public transport users. For example, adding new station(s) between Pukekohe and Papakura will result in delays for people boarding in Pukekohe, due to the need for trains to stop and board passengers. This is best addressed by avoiding adding too many stations and ensuring reasonable spacing – a bare minimum of one kilometre, and preferably more – between stations to minimise the relative impact of accelerating and decelerating.

This trade-off is best examined based on the specific context, taking into account actual and predicted demands and service patterns.

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Finally, we note that current transport demands from the southern structure plan area are very 'tidal' along the Southern Motorway. This contributes to rising congestion on this route. In principle, faster growth in employment in this area can help alleviate this issue by reducing the distance that people have to commute to reach jobs and services. This issue goes beyond the scope of this technical note.

We note that mitigating this issue requires commercial drivers for local employment growth to be present. While population growth will naturally support some local retail employment growth in the south, the rate and timing of commercial office employment is likely to be more uncertain. We touch on this issue in a separate technical note reviewing future business land projections.

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TECHNICAL NOTE

To:	Christopher Turbott	**Of:**	Auckland Council
From:	Peter Nunns / Coby Joseph	**Date:**	23 November 2018
Copies:	Craig Cairncross, Joy LaNauze		
Project:	Southern Structure Plan business land review (NZ2400)		
Subject:	Summary of implications for business land locations (final draft)		

1   Overview

This technical note addresses Tasks 7 and 8 in our proposal. As originally scoped, these tasks related to assessment of alternative options for centre development in the Drury area of the Southern Structure Plan area:

- Task 7: In the specific context of Drury the response to task 5 is to include: consideration of at least the following two alternatives: a) one primary centre on one side of SH1 with supporting local centres b) two equal sized centres on either side of SH1. Draft location maps and the documentary background of these two alternatives will be provided for evaluation.
- Task 8: With reference to alternative proposals for new centres, review of potential demand for a commercial office based centre at Drury:
    - over what time
    - what scale and what would the main locational requirements for success be
    - what would typical employment density be
    - would this support an RTN station?

Following discussions with you, we understand that Task 7 has been resolved to a significant degree, outside of this process, and hence we have closed out this task. Prior to this, we provided an in-progress draft of our assessment of Task 7.

This note therefore concentrates on Task 7. It providing a summary of:

- What our previous analysis, including our review of the Property Economics report, implies about industrial land requirements at Pukekohe-Paerata
- What our analysis implies about centre land requirements at Drury, taking into account both retail and commercial office growth.

We address the first three bullet points under Task 8 – ie the timing, scale, and ultimate employment density in each of the above areas. For Drury, we also briefly comment on whether this scale of growth would support an RTN station.

2   Industrial land at Pukekohe-Paerata

This summary of industrial land requirements in the Pukekohe-Paerata area draws upon Property Economics' analysis of future industrial employment growth and land requirements in their West Franklin study area, which is broader than Pukekohe per se.

The following table summarises the key findings from that analysis. This is copied directly from Table 17 in our previous technical note peer reviewing the Property Economics report. This table reports a medium-term growth projection and a long-term growth projection.

We also provide a lower-bound estimate for medium-term industrial land demand, reflecting the lower scenario in the Property Economics report, and for long-term office land demand. These lower-bound scenarios address the possibility that the timing or ultimate pace of growth is slower than expected, eg due to the fact that business land elsewhere in the region is still in the process of being taken up.

On the face of it, these projections imply that there will be a deficit of up to 306 hectares of industrial land in the West Franklin catchment by 2048. If this deficit is predominantly accommodated in Pukekohe-Paerata, it would require around three times as much land as envisaged by the 2014 Pukekohe Area Plan.

However, these calculations exclude an estimated 223 hectares of vacant industrial zoned land in Glenbrook / Waiuku, which is available to the market but which has not been taken up to date. If this vacant land is taken into account, then the deficit drops to 83 hectares of industrial land, plus another 6 to 34 hectares of centre land. We discuss this further below.

Table 1: Blended projection for medium term and long term business land growth in West Franklin catchment

Projected land demand	2018-2028	2018-2048
Industrial land	108	398
Lower bound	*36*	
Office land (1)	6	61
Lower bound		*14*
Retail	12	30
Total centre land (office + retail)	15	67
Lower bound		*38*
Vacant land		
Industrial land (ex Glenbrook / Waiuku)	92	92
Centre land	32	32
Surplus / deficit		
Industrial land	-16	-306
Based on lower bound demand	*56*	
Centre land	17	-34
Based on lower bound demand		*-6*

Notes: (1) 40% of office land demand is assumed to be served 'vertically', ie above ground-floor retail.

2.1   Basis for industrial land projections

We now summarise the basis for these industrial land demand projections. We focus on the central scenario, noting that in the medium term there is a reasonable likelihood that growth will be slower (shown in the 'lower bound' scenario for 2028).

The following table summarises Property Economics' projections for growth in the West Franklin catchment. This shows the key steps in the calculations of industrial land requirements:

- Overall growth in catchment population – the catchment population is expected to more than double;
- The approximate ratio of jobs to population in the area, which is expected to rise gradually as the area develops;

- The expected total employment and industrial employment in the area – Property Economics predicts that industrial employment will continue to make up around one-third of total employment in the area, noting that much of this will be in warehousing and transport activities rather than traditional heavy manufacturing;
- The estimated ratio of employees per gross hectare, which is consistent with our review of land per employee ratios in an earlier technical note;
- Overall added land requirements, which are summarised in bold; and
- The net surplus or deficit relative to existing vacant industrial-zoned land in the area.

Table 2: Calculations and estimates underpinning estimated industrial land requirements in West Franklin

Year	2016	2028	2048
Catchment population	64,300	95,300	144,180
Growth relative to base year		31,000	79,880
Ratio of jobs to population in catchment	0.30	0.32	0.38
Total employment	19,266	30,893	54,122
Industrial employment	6,169	9,094	17,144
Added industrial employment relative to base year		2,924	10,975
Employees per gross hectare		31	32
Added land requirements (incl NPS-UDC margin of 15%)		**108**	**398**
Existing industrial zoned land			
Total light + heavy industry zones	571.3	571.3	571.3
Vacant industrial zoned land	314.4	314.4	314.4
... excluding Glenbrook and Waiuku	91.6	91.6	91.6
Surplus / deficit			
Relative to total vacant land		206	-83
... excluding Glenbrook and Waiuku		-16	-306

We also note that the West Franklin catchment is larger than Pukekohe-Paerata alone, and also includes areas around Waiuku, areas closer to Drury, and some areas that were shifted into Waikato District when Auckland Council amalgamated. However, a review of Auckland Council's most recent (I11) land use projections used for transport modelling and growth planning suggests that the area immediately around Pukekohe is expected to absorb the majority of expected population growth in the area (around 60% of the total, or an added 48,000 people).

2.2 Location of industrial land demand in West Franklin

As discussed in our technical notes, industrial activities are 'footloose' relative to retail and commercial services. They are less tied to the presence of local demand or a local labour force, and more attracted by broad levels of transport access to allow for inter-regional freight and port access. Hence it is necessary to consider not just local population growth but a broader set of success criteria. We address this in our technical note on business land success criteria.

A 2011 analysis by Harrison Grierson, which we reviewed in that technical note, found that Drury and Paerata are comparably attractive locations for industrial land, while Glenbrook / Waiuku is considerably less attractive. We see no reason to disagree with this conclusion. It implies a case to 'discount' vacant land in Glenbrook / Waiuku in the short to medium term.

However, discounting this land in the long term results in a very large increase in expected industrial land requirements in Pukekohe-Paerata. While we have not analysed options for meeting this demand in detail, we note that zoning this much land would probably undermine other objectives for the Southern Structure Plan, such as providing for residential population growth.

As a result, we suggest that there may be a case to:

- Zone a smaller amount of industrial land – say 80-100 hectares – in Pukekohe-Paerata under the assumption that Glenbrook / Waiuku will become more viable in the long term
- Monitor takeup of this industrial land over the next decade to understand whether growth is tracking along the central scenario or closer to the lower bound scenario
- Monitor takeup of industrial land in Glenbrook / Waiuku to understand whether it is becoming more viable
- If Pukekohe-Paerata is on a trajectory to being built out before the end of the period while Glenbrook / Waiuku is seeing no growth, then Glenbrook should be conclusively discounted (and probably rezoned for alternative use), and consideration given to new industrial zones outside the Future Urban Zone and closer to Pukekohe and Drury.

3   A new centre in Drury

This summary of land requirements for a new centre in the Drury area draws upon Property Economics' analysis of future office employment growth, retail spending growth, and land requirements in their Drury study area.

The following table summarises the key findings from that analysis. This is copied directly from Table 17 in our previous technical note peer reviewing the Property Economics report. This table reports a medium-term growth projection and a long-term growth projection. We also include industrial land demand in this table, noting that Property Economics' analysis suggests that around 136 hectares may be required in the Drury area in the long term.

We also provide a lower-bound estimate for long-term office land demand, reflecting the lower scenario in the Property Economics report. This scenario reflects the possibility that long-term growth in office employment in the area does not materialise, due to the higher attractiveness of office growth in more central areas that enjoy stronger agglomeration economies.

These projections imply that there will be a deficit of at least 13 hectares of centre land in Drury by 2028, and a deficit of between 47 and 71 hectares by 2048.

Not all of this demand will be met in a single major centre in Drury. Property Economics estimates that up to 40% of this activity will be scattered around in local centres and business zones to serve more localised demands. If the balance (60%) were met in a new major centre that combined retail and office activities, then it would ultimately be larger in scale than Sylvia Park (24.4 ha) or Albany centre (32.6 ha).

Table 3: Blended projection for medium term and long term business land growth in Drury catchment

Projected land demand	2018-2028	2018-2048
Industrial land	110	329
Lower bound	*54*	
Office land (1)	5	50
Lower bound		*10*
Retail	30	61
Total centre land (office + retail)	33	91
Lower bound		*67*
Vacant land		
Industrial land	193	193
Centre land	20	20
Surplus / deficit		
Industrial land	83	-136
Based on lower bound demand	*139*	
Centre land	-13	-71
Based on lower bound demand		*-47*

Notes: (1) 40% of office land demand is assumed to be served 'vertically', ie above ground-floor retail.

3.1 Timing of growth

With regards to timing, the key thing to note is that retail growth is expected to occur sooner than office employment growth. Based on the blended projections above, we suggest that:

- Around half of long-term growth in retail land demand in the catchment will occur in the next decade, aligning with (or closely following) residential growth
- However, growth in office land demand will be slower – the majority of growth in this sector is likely to occur after 2028.

Retail activities tend to be more land intensive than office-based activities, and hence a lag in growth of office-based employment has less of an impact on overall centre land requirements.

In our previous technical note reviewing the Property Economics projections, we noted several factors that could accelerate or defer growth in office-based employment in the area:

If residential development in the area attracts a sufficient critical mass of skilled workers, then it may attract some office-based firms to locate closer to them. This has been a factor in the growth of office-based employment in the upper North Shore, eg in Albany, Rosedale, and Constellation Drive, but it has been less evident in south Auckland. This may be bolstered by faster rapid transit links to other major office centres in Auckland, as this may mitigate some of the disadvantages of distance. A third relevant factor is landowner intentions: If a landowner in the area were to adopt and implement a strategic long-term vision for a new office centre, then it may allow a critical mass to develop.

However, landowner intentions can cut in both directions: If landowners instead focus on development options that are profitable in the short term, then it may not be possible to develop an office centre with sufficient scale to be attractive.

We suggest monitoring these factors closely as development proceeds.

3.2   Scale and employment density

In our earlier technical note on land per employee ratios, we suggested some benchmark values for land per employee ratios for retail, office-based, and industrial activities.

The following table summarises the resulting estimates of land per employee ratios for retail and office activities. We note that these figures are broadly consistent with the values used in the Property Economics analysis, but not exactly identical. Hence this should be taken as an indicative benchmark for densities that may not exactly meet up with the Property Economics estimates.

Table 4: Estimated land per employee ratios for retail and office activities

Activity type	GFA per worker	Average FAR	Roads/reserves as share of gross land area	Estimated gross land per worker	Estimated workers per gross ha
Retail	35m^2	0.4	35%	135m^2	75
Offices	25m^2	0.8	35%	48m^2	210

The key point we draw from these figures is that a centre with a higher mix of office-based activities will tend to have a higher density than a primarily retail-based centre. What this implies is that the density of the centre is likely to rise over time as office-based activities develop with a lag.

The following table summarises some indicative benchmarks for employment density in a new Drury centre. These are based on the assumption that there will be a mix of office and retail activities, and that the Drury centre will accommodate around 60% of the total growth for both of these sectors.

Property Economics' employment projections imply that the centre will accommodate around 4500 to 5000 jobs by 2028, and an eventual total of up to 10,000 to 11,000 if office employment growth accelerates in later decades.

Based on the indicative density figures in Table 4, the projected mix of activities implies a density of around 105 workers per gross hectare in the medium term, potentially rising to around 126 in the long term.

In saying this, we note that our review of Property Economics' assumptions implied that they may be using a lower figure for employment density in the retail sector. I have therefore also sensitivity tested a figure that is more consistent with Property Economics' assumptions. This produces an estimate of around 73 workers per gross hectare in 2028, rising to 93 in the long term.

Table 5: Indicative employment densities for a new Drury centre

Year	2028	2048
Share of activities in Drury centre	60%	60%
Retail employment	2,591	3,834
Office employment	2,226	6,752
Lower bound estimate		*2,809*
Employment density (employees per gross hectare)		

Central scenario	105	126
Lower bound estimate		*102*

3.3   Locational criteria for success

This is addressed in our earlier technical note on business land success criteria. As this note does not compare alternative centre locations we avoid reiterating this material for brevity.

3.4   Support for an RTN station

In our earlier technical note on RTN station success criteria we identified a set of factors, beyond just local density, that can contribute to a successful RTN station. These factors include:

- Residential density
- Walkability and the effective walk catchment
- The presence of nearby commercial activities
- The presence of demand generators and destinations
- Park and ride facilities
- Connections to other public transport services
- Quality of the station and its environment

As discussed in that note, RTN stations can succeed in attracting passengers in a variety of ways. Density in the immediate catchment is one of those ways, but it is not the only way. We noted that:

> *As a rough rule of thumb, it may be useful to expect that a station with nearby density below 100-110 total residents plus employees per gross hectare will need to draw many patrons from outside its walking catchment by feeder buses, cycling, or park and ride in order to achieve moderate patronage or higher.*

Based on the land per employee benchmarks and mix of activities identified above, the proposed Drury centre is likely to sit at the cusp of this density level in the medium to long term. There is a risk that it develops to a lower density if priority is given to low-density retail activities around the station, and an opportunity to develop to higher densities if priority is given to office-based employment or higher-density retail activities, and if medium- to high-density residential developments become commercially viable.

However, in saying this we emphasise that it is also essential to consider how the centre and the station will integrate into the surrounding area and how the local street network will support efficient and legible bus routes and convenient and safe walking and cycling access. We lay out some key principles for developing a street network that supports multi-modal access in our previous technical note.

This is important for two reasons. First, it is likely to enhance RTN patronage and ensure the station's long-term viability to serve a growing area. Second, and equally important, if the station is co-located with a major employment centre, then it maximises opportunities for local residents and employees to access that centre by non-car modes, and in doing so reduces pressure on congested elements of the transport network.

Christopher Turbott

Hi Christopher

In answer to your questions:

Do the land requirements include a provision for roads, ecological areas, and other set-asides?

I've gone back to the Property Economics report, which is not amazingly specific. Here's the key paragraph from page 42:

This (combined) GFA is then translated into total land requirements to account for car parking, access ways, amenity areas, landscaping etc. and is therefore a gross land requirement. For this calculation, a GFA to land ratio of 40% has been adopted based on experience analysing similar town and convenience centres across the country over the last 20-years. This recognises the non-retail functions of centres and the corresponding land requirements for non-retail activities and ensures the provision of these activities are accommodated in any future structure planning exercises.

On the face of it, I think this may exclude areas for roads and reserves, which typically account for somewhere on the order of 25-35% of sites.

Note that the figures presented in our note on land per employee ratios *did* include allowance for roads and reserves. Table 4 in that note shows how we factored these in.

Given that the Drury and WestFramklin Catchments have a diving line of SH1 and industrial land will be footloose between the two catchments – is there an argument that some of the West Franklin 'deficit' for industrial land be allocated to the Drury Structure Plan area which includes part of the West Franklin Catchment?

I think that's a viable planning response given:

1. Comments about the footloose nature of those activities
2. Drury's greater proximity to the southern motorway
3. Harrison Grierson's conclusion that Drury and Paerata-Pukekohe scored similarly on industrial land success criteria.

Cheers
Peter

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From: Peter Nunns
Sent: Friday, November 23, 2018 3:44:19 PM
To: Christopher Turbott; Joy LaNauze; Craig Cairncross
Cc: Coby Joseph
Subject: Summary of land requirements by location

Hi Christopher

As discussed on Wednesday, attached is a short technical note that addresses outstanding questions from you and Joy.

I've kept this in final draft form for the moment in case you have further questions / comments.

Cheers
Peter

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Principal Economist
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