

# KNOX EMPLOYMENT FORECASTS TO 2036

## TECHNICAL REPORT A

KNOX CITY COUNCIL

DECEMBER 2016



**REMP LAN**



**Employment forecasts to  
2036**

## **Knox City Council: Land for Business**

Project undertaken for Urban Enterprise

V.06 December 2016

# Employment forecasts to 2036: Land for Business Knox City Council

**This project has been conducted by REMPLAN**

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V.06 December 2016

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## **RESOURCES**

All modelling has been undertaken using REMPLAN™ software that has been authored by Principal Research Fellow (ret.), Ian Pinge, at La Trobe University Bendigo.

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## Executive Summary

Knox City Council are undertaking an integrated strategic process to assess future demand for employment land to develop a future directions plan and ultimately policy recommendations for land use change in nominated business and employment land of Knox Local Government Area (LGA).

The following report is a key input into Stage 2: Strategic Review of the Land for Business project.

The report seeks to outline employment forecasts within the Knox (C) Local Government Area (LGA). The report provides industry context and integrates previous reporting, feedback from stakeholder engagement, notable industry trends and spatial analysis relevant to the Land for Business Assessment Areas.

### **Knox's Workforce**

The estimated resident population in Knox as at June 30, 2016 is 157,052 people. Between 2006 and 2016 the local government Areas (estimated resident) population increased by 6,777 people (4.31%) with an average annual compound population growth of 0.49% over this period. Between 2016 and 2031, the population of Knox is projected to increase by 21,184 people. The average annualised projected population growth between 2016 and 2026 of 0.46% is higher than the average annualised growth rates experienced over the previous 10 years (0.38%) and the highest of the LGA's within the Melbourne East RDA.

The total number of people working in Knox (C) in all Industry sectors on Census Night 2011 was 55,807<sup>1</sup>. This represented a -0.82% decrease in local employment between the previous 2006 Census periods. The top three employers in 2011 within Knox included:

- Manufacturing (22.5%)
- Retail Trade (13.3%)
- Wholesale Trade (11.2%)

During the previous Census period both positive and negative change was experienced across the industry sectors in terms of local employment. The most significant positive change included:

- Health Care & Social Assistance (13.4%)
- Professional, Scientific & Technical Services (23.8%)
- Construction (7.9%)

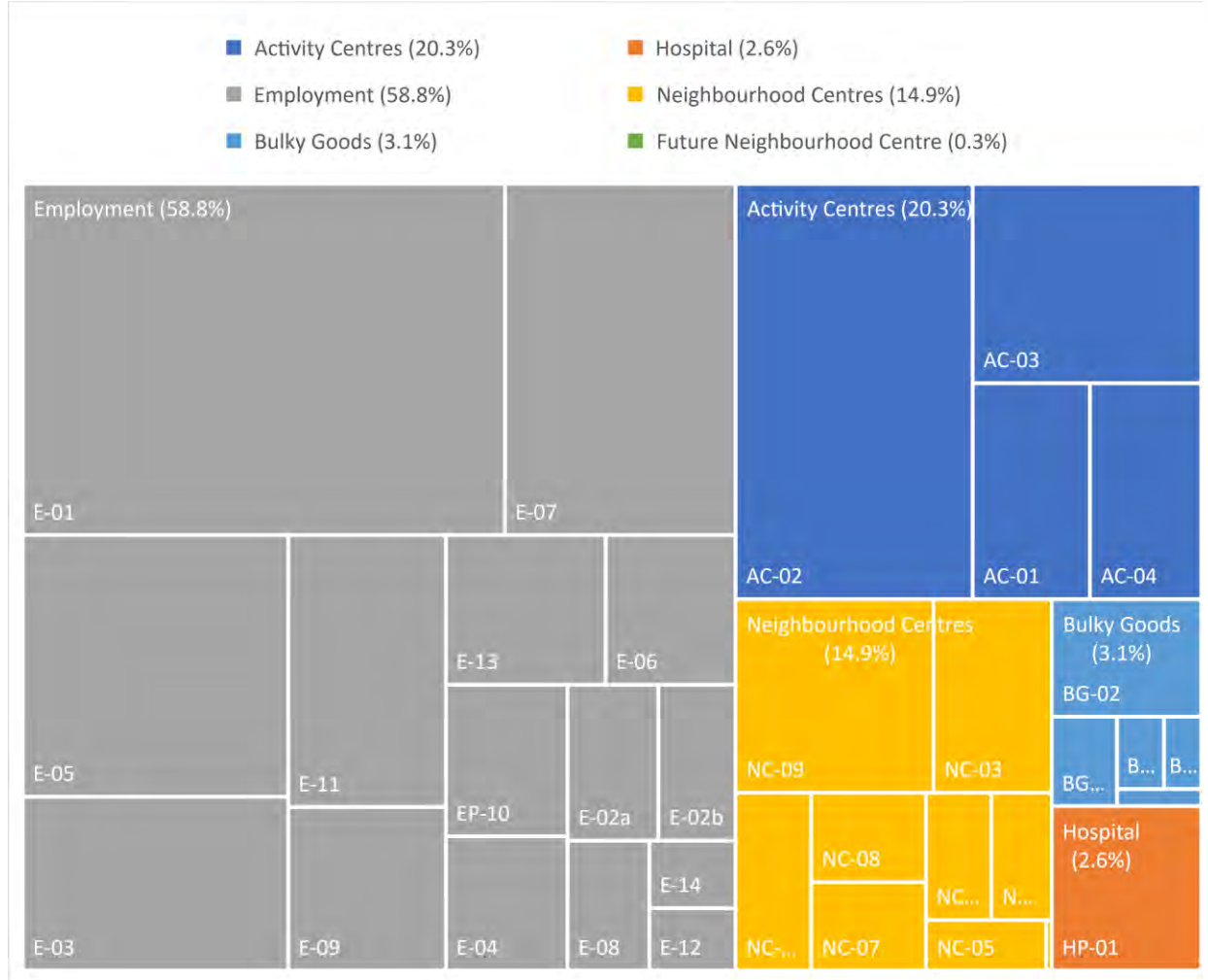
### **Land of Business Assessment Areas**

It is estimated that 47,421 or 84.9% of jobs within Knox are located within the Assessment Areas identified for review in the Land for Business Project. Employment Land (58.8%) represent the greatest share of the employment within the Land for Business Assessment Areas, followed by the Activity Centres (20.3%), Neighbourhood Centres (14.9%), Bulky Good (3.1%) and Hospital Assessment Area (2.6%). The share of employment throughout the Assessment Areas is visually demonstrated in the Figure below.

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<sup>1</sup> Workforce breakdown by Industry (Place of Work), ANZSIC Industry definition.

Figure ES – 1 Distribution of employment in Knox Land for Business Assessment areas



SOURCE: ABS 2011 CENSUS – JTW DATA. COMPILED BY REMPLAN

While the Land for Business Assessment Areas contain the bulk of employment activity within Knox, the relative strengths of industry sectors across business and employment land varies. The following report provides a detailed overview of employment by industry identifying the scale of employment, structure of occupations and relative distribution of employment across each assessment areas.

**Strategic Policy Alignment**

Planning policy for metropolitan Melbourne identifies that the State economy is in transition and continues to evolve, in the case of Knox, this is identifiable in the local economy diversification and broader national and global markets are driving economic, business and employment growth within the municipality.

The Knox economy is a production and processing based economy with a growing component being a services and knowledge based economy. This is evident through changes to the manufacturing sector which despite job losses continues to be a recognised local strength.

Over the next 30 years it is expected that the following industry sectors will account for approximately 50 per cent of metropolitan Melbourne’s employment growth:

- Health Care and Social Assistance;
- Professional, Scientific and Technical Services; and
- Financial and Insurance Services.

While Manufacturing and Wholesale Trade industries are decreasing from an employment perspective, these industries continue to play a vital role for Knox's economic output and provision of local jobs.

The broader trends in growth of knowledge intensive industries such as Health Care, Professional, Scientific and Technical Services, and Financial and Insurance Services is expected to demand appropriate business land.

Existing key employment areas such as the Scoresby-Rowville and Bayswater (Central), Knox Central Activity Centre and Knoxfield Employment support clustering of Health Care, Manufacturing and Professional, Scientific and technical services industries. Considering the existing role of these centres is important for the Land for Business Project.

### **Local workforce drivers**

There are range of key drivers for future employment in Knox. In summary, this includes: technology, transport infrastructure and non-assessment areas based employment.

Manufacturing is the most significant employer in the LGA. However, the sector is transitioning. Capabilities that support lower cost, but higher output businesses are increasingly driving opportunities for smaller entrepreneurial firms. Typically, smaller firms can support greater innovation and increased job creation. While demand for higher order employment is forecast (greater skills in research and development) coupled with advances in technology, it is expected that opportunities for manufacturing within Australia and locations like Knox will continue. Long term expectations for a lower Australian dollar and tapering wages growth will also boost the productivity of the sector.

The transport and logistics sector is likely to experience consolidation and automated vehicle and delivery services are forecast to be both accessible and real alternatives to support driverless movement of people and goods.

Knox is strategically located at the juncture of significant road transport infrastructure, including East Link, Mountain Highway, Burwood Highway and Ferntree Gully Road. There is significant demand for movement of the workforce both to and from the region to support economic activity. The investment in key Major Activity Centres located on the Melbourne train network facilitates the movement of both a workforce and customers, predominantly with a consumption focus. Despite forecast expansion of Knox Central Activity Centre, the limited rail network may have impacts on the role, function and performance of this centre when compared with locations such as Ringwood MAC and Glen Waverley MAC.

While most of the employment is contained within the assessment areas that are subject to this review, some sectors have representation throughout residential areas and other locations. Most notably this includes Education & Training and Construction, and to a lesser extent Health Care & Social Assistance.

Representation of both Professional Scientific & Technical Services and Other Services is also higher in locations outside of the Assessment Areas. This typically represents a proportion of self-employed or home-based business that are operating from residential addresses.

### **Workforce forecast approach**

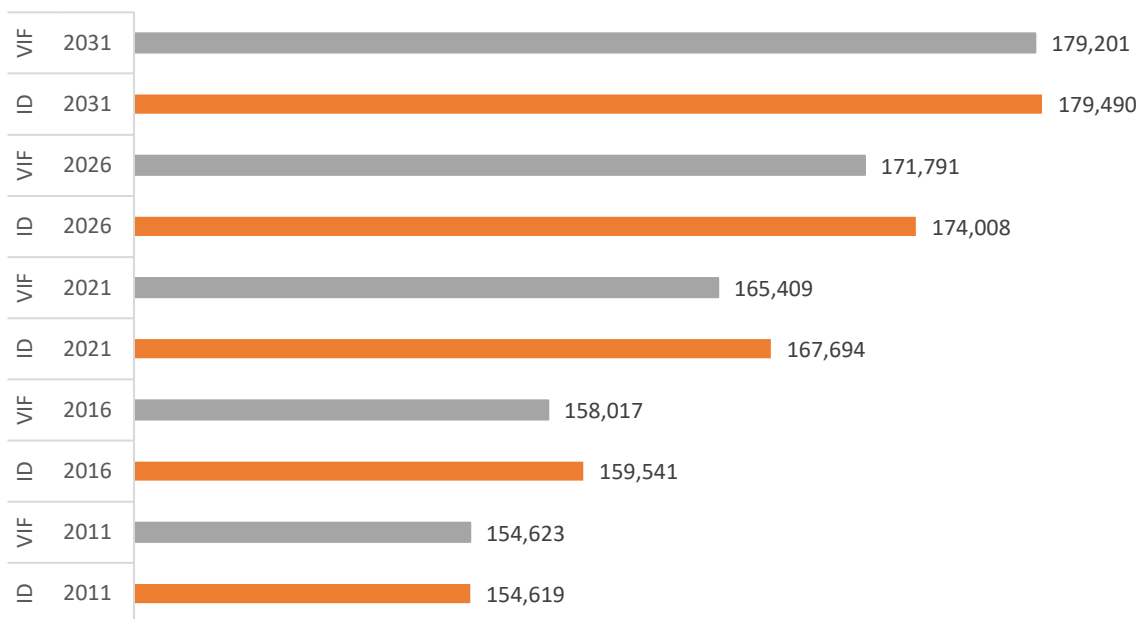
To determine the future workforce scale for 19 Industry sectors, consideration of the following factors was undertaken for each industry sector:

- Residential population projections by age cohort based on VIF and id forecasts
- The propensity of residents by age cohort to work
- The propensity of working residents by age cohort to work industry sectors

- ABS Labour Force Survey based projections of working residents to work in particular industry sectors
- Smoothed employment forecasts for working residents (across VIF, id and Labour Force based forecasts)
- Projections regarding the future propensity of working residents to work locally
- 'Journey to Work' linked areas' population projections and propensities for people living in these areas to work in Knox
- Land supply constraints and limitations of business expansion in relevant sectors requiring available land to increase either the scale or intensity of their operations
- Current and planned future infrastructure initiatives likely to impact the accessibility of jobs in Knox for external residents; as well as the accessibility of externally based jobs for Knox residents
- Innovation and technological advances that are enabling new business models and driving structural change.

Of note, two population forecast data sets were used to determine population workforce estimates. The figure below provides 5 yearly breakdown of the population by age group for the Knox LGA. Population projection estimates do vary between the two sets of forecasts.

Figure ES-2 Summary of Population Totals – Knox



Source: Victoria in Future 2015 (Knox LGA), id Forecast 2014.

Estimates of the population of Knox in 2011 are in the range of 154,619 to 154,623 people. By 2031 the forecast population ranges from 179,201 to 179,490 people, which represents compounding annual growth rates of 0.78 percent (VIF) and 0.78 percent (id). While the headline forecasts and growth rates align, there are notable differences year-to-year in the composition (both age and size) of the forecast population, which has significant implications for the propensity of people to be engaged in the workforce and for also for their industry sectors of employment.

**Summary Forecast findings**

Victoria in the Future and id population forecasts, and the REMPLAN Workforce Module have been applied to build an understanding of future residential populations, broken down by age cohort. Different age cohorts have varying propensities to be engaged in the workforce, and there are also observable



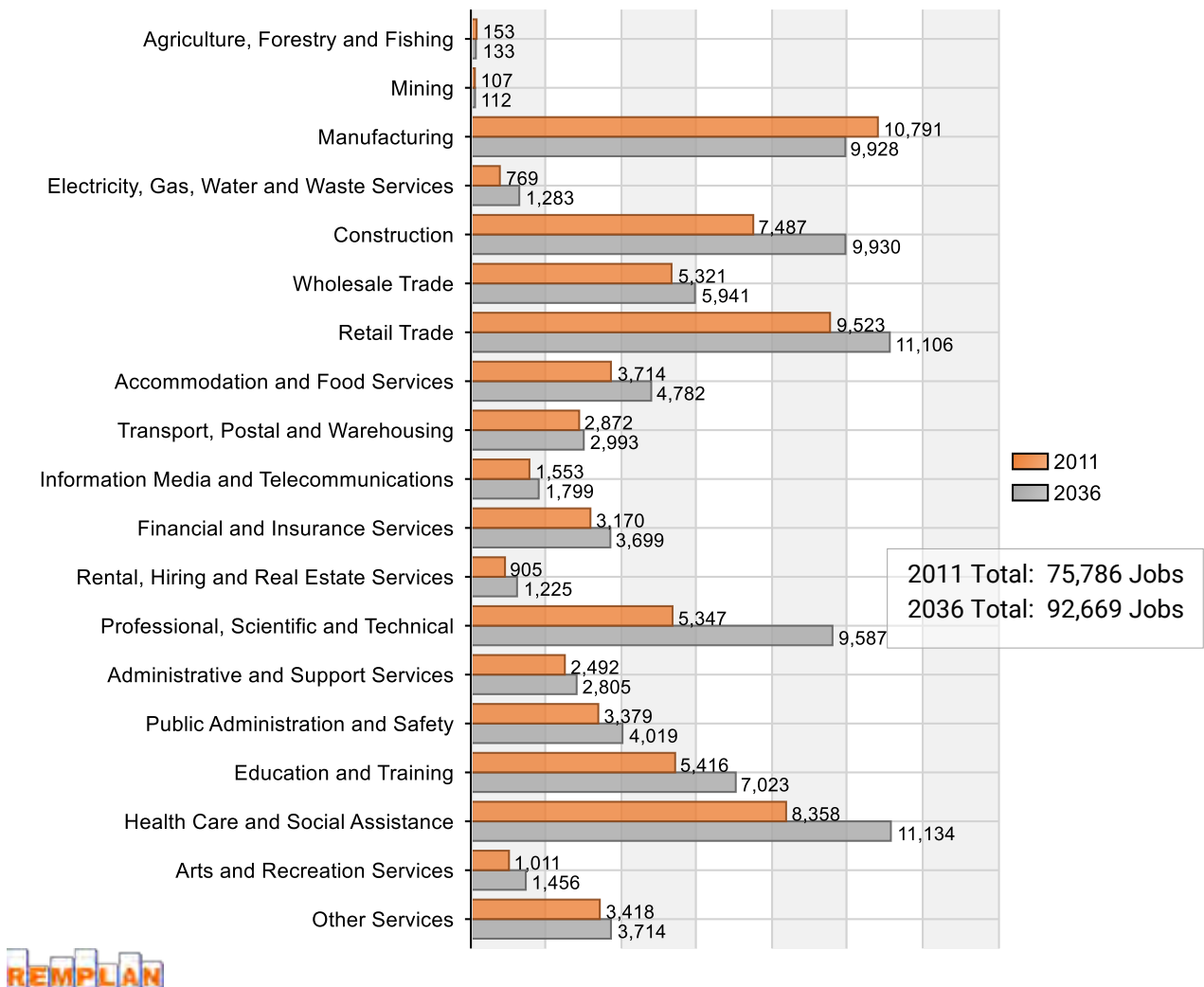
patterns in terms of employment by industry sector for respective age cohorts. For instance, young people are far more likely to be employed in sectors such as retail and food services, whereas older workers are more likely to be employed in sectors such as manufacturing, health, education and professional services.

There are also notable patterns across respective industry sectors in terms of where local residents travel to for work, and where people working in Knox reside. A broad observation is that the higher typical income levels are in a sector, the further people are prepared to travel between home and work.

Population projections by age in Knox and the surrounding Melbourne East Region, propensities to work by age cohort, complex patterns of people living in one area and working in another, structural shifts in employment over time, as well as broader strategic and situational analysis have been applied to generate 2 types of employment forecasts for Knox:

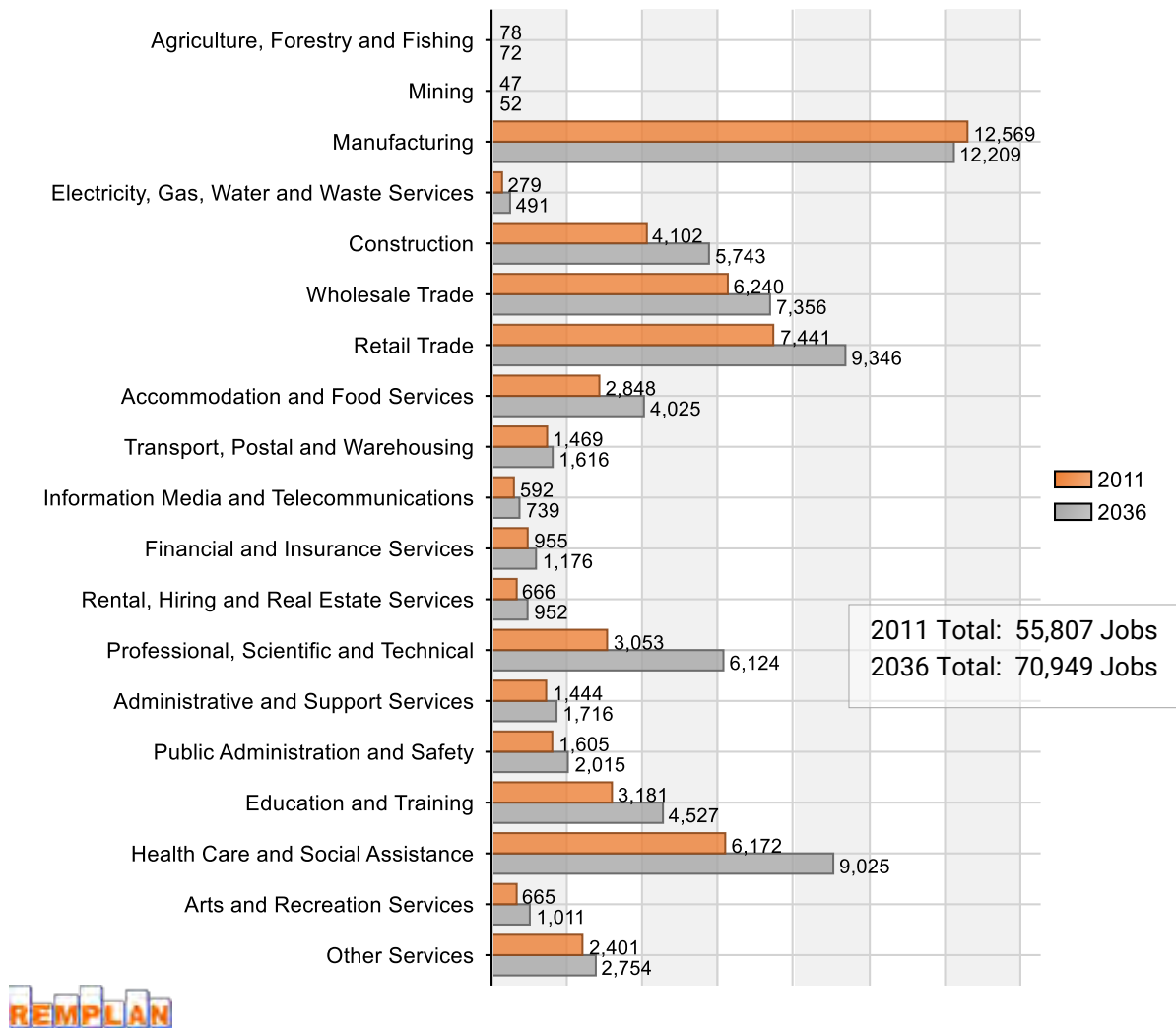
1. Employment Forecasts to 2036 – Working Residents
2. Employment Forecasts to 2036 – Jobs in Knox.

Figure ES-3 Employment Forecasts – Working Residents



Between 2011 and 2036 it is forecast that there will be 16,883 additional working residents in Knox, an increase of 22.3 percent over this timeframe.

Figure ES-4 Employment Forecasts – Jobs in Knox



Between 2011 and 2036 it is forecast that there will be 15,142 additional jobs Knox, an increase of 27.1 percent over this timeframe.

This key project input provides the basis for further assessment of land use implications across the Knox Land for Business Assessment Areas. There is a need to undertake further reconciliation of existing and future land use constraints and opportunities. Changes in the nature of employment and workforce location is an important consideration for some sectors. While most employment in the Knox LGA is located in the Assessment Areas subject to the Land for Business Project it is expected that transition and change in industry sectors will influence the demand for business land at a varying degree throughout Knox.

Integration of spatial analysis and the workforce projections within this report will be critical in determining recommendations for future land for business within Knox.

## Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>IV</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 PURPOSE AND AIM .....	3
1.2 METHODOLOGY OVERVIEW .....	4
1.3 STUDY AREA .....	4
<b>2 KNOX POPULATION AND ECONOMIC PROFILE .....</b>	<b>7</b>
2.1 POPULATION .....	7
<b>3 EMPLOYMENT BY SECTOR – HISTORICAL CONTEXT .....</b>	<b>9</b>
3.1 WORKFORCE .....	9
3.2 WORKING RESIDENTS.....	12
3.3 LOCAL WORKFORCE .....	13
<b>4 INDUSTRY TRENDS .....</b>	<b>14</b>
4.1 AGRICULTURE, FORESTRY AND FISHING .....	14
4.2 MINING .....	15
4.3 MANUFACTURING.....	16
4.4 ELECTRICITY, GAS, WATER AND WASTE SERVICES.....	19
4.5 CONSTRUCTION .....	20
4.6 WHOLESALE TRADE .....	23
4.7 RETAIL TRADE .....	25
4.8 ACCOMMODATION AND FOOD SERVICES .....	27
4.9 TRANSPORT, POSTAL AND WAREHOUSING .....	29
4.10 INFORMATION MEDIA AND TELECOMMUNICATIONS .....	31
4.11 FINANCIAL AND INSURANCE SERVICES.....	32
4.12 RENTAL, HIRING AND REAL ESTATE SERVICES .....	34
4.13 PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES .....	36
4.14 ADMINISTRATIVE AND SUPPORT SERVICES.....	39
4.15 PUBLIC ADMINISTRATION AND SAFETY.....	41
4.16 EDUCATION AND TRAINING.....	43
4.17 HEALTH CARE AND SOCIAL ASSISTANCE .....	45
4.18 ARTS AND RECREATION SERVICES.....	47
4.19 OTHER SERVICES .....	48

<b>5</b>	<b>STRATEGIC ISSUES FOR KNOX .....</b>	<b>51</b>
<b>5.1</b>	<b>POLICY.....</b>	<b>51</b>
<b>5.2</b>	<b>TECHNOLOGY .....</b>	<b>51</b>
<b>5.3</b>	<b>TRANSPORT INFRASTRUCTURE .....</b>	<b>51</b>
<b>5.4</b>	<b>EMPLOYMENT OUTSIDE OF ASSESSMENT AREAS .....</b>	<b>52</b>
<b>6</b>	<b>EMPLOYMENT – TRENDS &amp; PROJECTIONS .....</b>	<b>52</b>
<b>6.1</b>	<b>REGIONALISATION AND ASSUMPTIONS .....</b>	<b>53</b>
<b>6.1</b>	<b>POPULATION PROJECTION SUMMARY .....</b>	<b>54</b>
<b>6.1</b>	<b>EMPLOYMENT TRENDS &amp; PROJECTIONS .....</b>	<b>55</b>
<b>7</b>	<b>SUMMARY &amp; CONCLUSION.....</b>	<b>114</b>
	<b>APPENDIX.....</b>	<b>117</b>

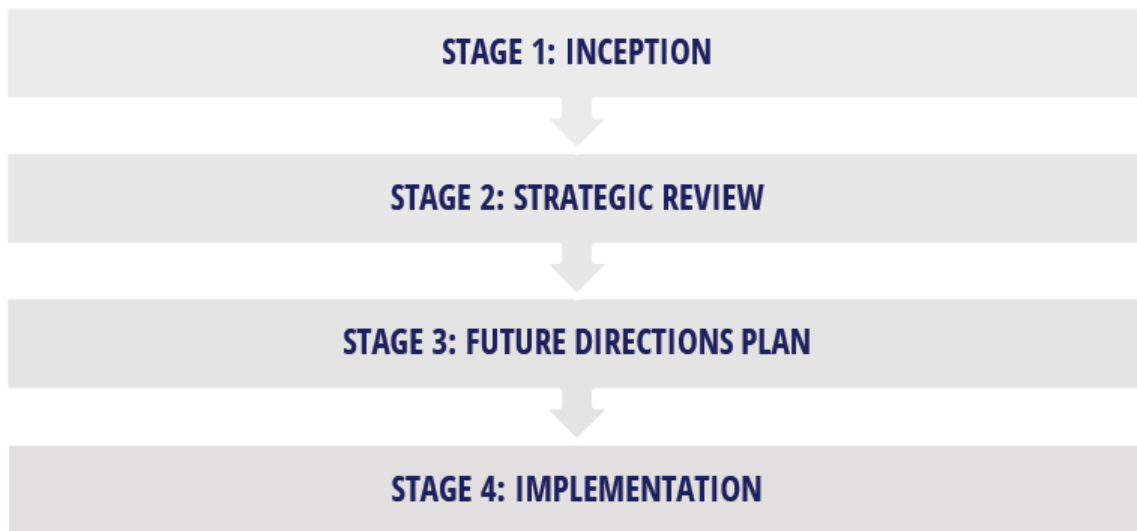
# 1 Introduction

## 1.1 Purpose and aim

Knox City Council (Knox) are undertaking an integrated strategic process to assess future demand for business land by Industry. The analysis will assist development of a future directions plan and ultimately policy recommendations for land use change in nominated business areas of Knox Local Government Area (LGA).

The Land for Business Project (LFB) includes four clear stages (Figure 1-1).

Figure 1-1 Knox Land for Business Project Stages



The following report is a key input into Stage 2: Strategic Review of the LFB project.

The report seeks to outline employment forecasts within the Knox LGA. The report provides industry context and integrates previous reporting, feedback from stakeholder engagement, notable industry trends and spatial analysis for existing business land in Knox.

Fundamentally the report has been prepared to outline likely future jobs within the LGA and nominated assessment areas based on:

- two population growth scenarios within Knox based on the State Government's Victoria in the Future (VIF), and .id forecasts
- broader East and Southern sub-region population growth projections and land use activity within metropolitan Melbourne as consolidation of industrial and business land continues in Melbourne's southeast
- projected propensities for Knox residents to work locally, as also for people residing outside of Knox to work in the area
- projected demographic changes in propensities to study and work by age cohort
- structural changes for industry sector that are being driven by innovation, technology and new business models

## 1.2 Methodology Overview

In preparing the LFB employment projections, REMPLAN have targeted 19 Industry Sectors and have applied the following approach:

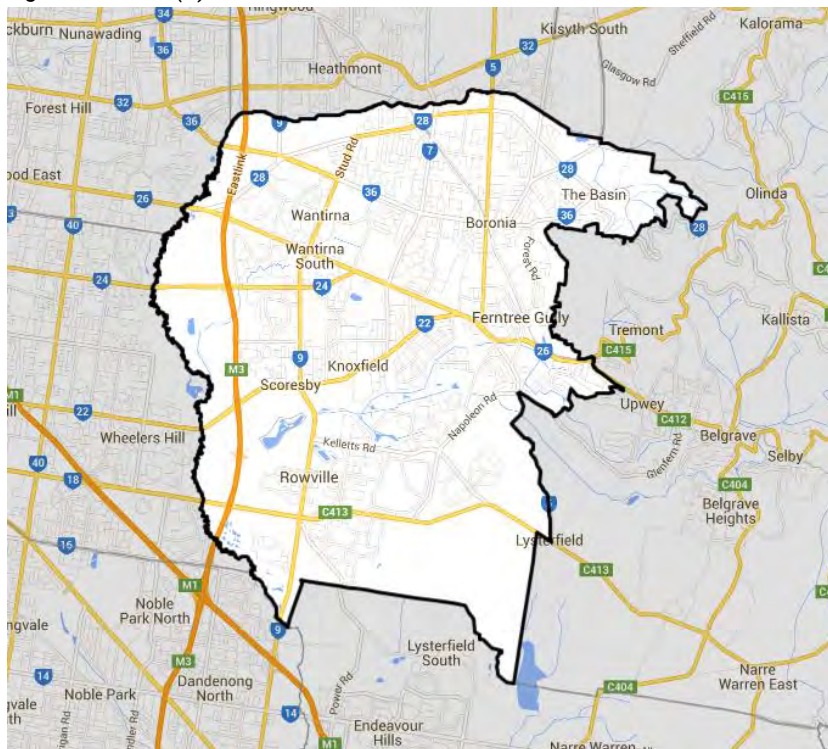
- review population growth forecasts prepared for Council and *Victoria in Future* to understand future drivers of employment demand within the Assessment areas, the Knox, and the wider Melbourne East Region;
- analysis of Place of Work, Journey to Work and Place of Usual Residence data to reconcile demand for employment within Knox;
- review relevant data relating to education levels, occupations, accessibility and social disadvantage via REMPLAN Community software;
- utilise available REMPLAN datasets to establish the historic context of change across local industries with a focus on employment, output, regional exports and value-added measures;
- prepare employment forecasts taking into consideration historic ABS Census data to understand the relative level of employment and propensity to work within Knox LGA;
- establish employment forecasts based on agreed population forecast figures, regionalised small area labour force data (dating back to 1999) and REMPLANs observation of industry trends.

Further methodological insights are outlined throughout the report as relevant to the analysis.

## 1.3 Study Area

The analysis presented in this report has been undertaken within the context of the Knox. This region is represented in Figure 1-2.

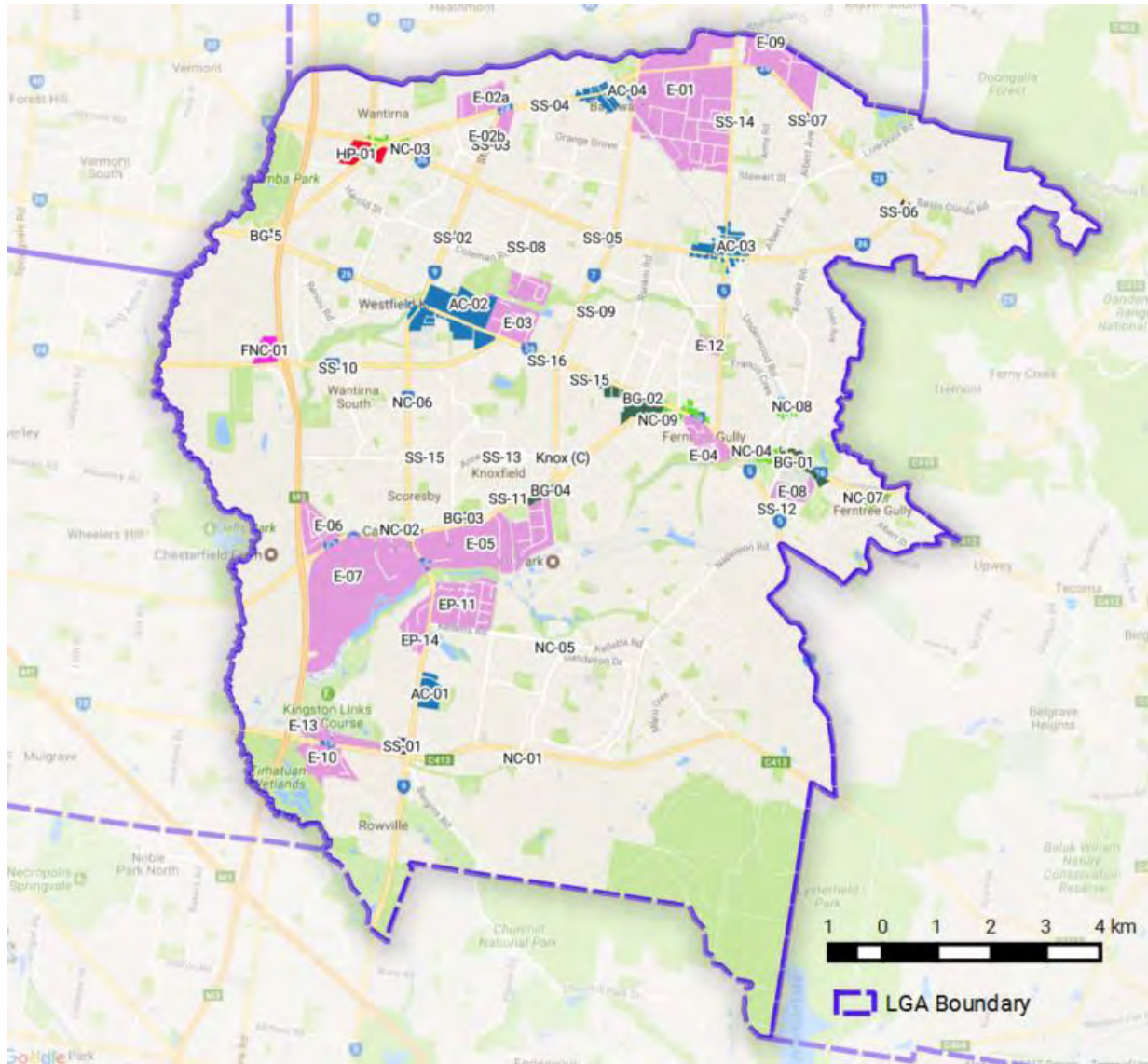
Figure 1-2 Knox (C) Local Government Area



Source: REMPLAN MapBuilder - <http://remplan.co/1Xm7Eny>

Figure 1-3 outlines the Land for Business Assessment Areas Map.

Figure 1-3 Knox (C) Land for Business Assessment Areas Map



Mapped LFB Assessment Areas outlined in Figure 1-3 are detailed in Table 1-1.

Land for Business Employment Projections 2016 - 2036

Table 1-1 List of Employment Assessment Areas

Code	Land for Business Assessment Area	Location/Address	Significant Business Location
AC-01	Rowville Activity Centre	Stud Rd & Fulham Rd, Rowville	
AC-02	Knox Central Activity Centre	Burwood Hwy & Stud Rd, Wantirna South	Knox Central
AC-03	Boronia Activity Centre	Dorset Rd & Boronia Rd	
AC-04	Bayswater Activity Centre	Mountain Hwy, Bayswater station	
E-01	Bayswater (Central)	Mountain Hwy, Power Rd & Dorset Rd	Bayswater Business Precinct
E-02a	Bayswater (West- Mountain Hwy & Stud Rd)	Mountain Hwy & Stud Rd	Bayswater Business Precinct
E-02b	Bayswater (West - Stud Rd)	Mountain Hwy & Stud Rd	Bayswater Business Precinct
E-03	Knox Central Employment	Burwood Hwy & Lewis Rd	Knox Central
E-04	Mountain Gate Industrial Estate	Burwood Hwy & Dorset Rd	Burwood Highway East
E-05	Knoxfield Employment	Ferntree Gully Rd, Stud Rd & Bunjil Way	Scoresby-Rowville-Knoxfield
E-06	Scoresby (north Ferntree Gully Rd/Jellico Dr)	Ferntree Gully Rd, Jellico Dr, Rocco Dr & Eastlink	Scoresby-Rowville-Knoxfield
E-07	Caribbean Park & Scoresby Industrial	Ferntree Gully Rd & Eastlink	Scoresby-Rowville-Knoxfield
E-08	Upper Ferntree Gully	Burwood Hwy & Acacia Rd	Burwood Highway East
E-09	Bayswater (East)	Mountain Hwy & Colchester Rd	Bayswater Business Precinct
E-10	Rowville (south side Wellington Rd)	Wellington Rd, Viewtech Pl, Myer Pl & Eastlink	Scoresby-Rowville-Knoxfield
E-11	Rowville (Kelletts Rd)	Stud Rd & Kelletts Rd	Scoresby-Rowville-Knoxfield
E-12	Edina Rd Industrial Estate	Dorset Rd & Edina Rd	
E-13	Rowville (Corporate Ave, Wellington Rd) (SREP)	Wellington Rd, Corporate Ave & Eastlink	Scoresby-Rowville-Knoxfield
E-14	Enterprise Business Park	Enterprise Dr & Stud Rd	Scoresby-Rowville-Knoxfield
HP-01	Wantirna hospitals	Mountain Hwy & Boronia Rd	Wantirna Health
NC-01	Wellington Village Shopping Centre	Wellington Rd & Gearon Ave	
NC-02	Scoresby Village Shopping Centre	Ferntree Gully Rd & Stud Rd	Scoresby-Rowville-Knoxfield
NC-03	Wantirna Mall	Mountain Hwy & Boronia Rd	Wantirna Health
NC-04	Ferntree Gully (north Burwood Hwy)	Burwood Hwy & Selman Avenue	Burwood Highway East
NC-05	Rowville Lakes	Kelletts Rd & St Lawrence Way	
NC-06	Harcrest Boulevard	Stud Rd & Harcrest Blvd	
NC-07	Upper Ferntree Gully Village	Burwood Hwy & Dawson St	
NC-08	Ferntree Gully Village	Station St & Ferntree Gully Station	
NC-09	Mountain Gate Central	Ferntree Gully Rd & Burwood Hwy	Burwood Highway East
FNC-01	The Orchards	High St & Eastlink	
BG-01	Ferntree Gully (Burwood Hwy central)	Burwood Hwy & Selman Avenue	Burwood Highway East
BG-02	Mountain Gate Triangle	Ferntree Gully Rd & Burwood Hwy	Burwood Highway East
BG-03	Knoxfield Bunnings	Ferntree Gully Rd near Carrington Park	Scoresby-Rowville-Knoxfield
BG-04	Knoxfield (south Ferntree Gully Rd)	Ferntree Gully Rd & Rushdale St	Scoresby-Rowville-Knoxfield
BG-05	EastLink Triangle	EastLink, Mountain Hwy and Burwood Hwy	
SS-01	Stamford	Stud Rd & Wellington Rd (north west side)	
SS-02	Studfield Shopping Centre (Wantirna)	Stud Rd, Coleman Rd & Somerset Rd	
SS-03	Stud Bay (Stud Rd, north of Leonard St)	Stud Rd, Leonards Rd & Phyllis St	
SS-04	Mountain Hwy/Kumala Rd	Mountain Hwy & Kumala Rd	
SS-05	Boronia Rd/Scoresby Rd	Scoresby Rd & Boronia Rd	
SS-06	The Basin	Basin-Olinda Rd, Mountain Hwy & Forest Rd, The Basin	
SS-07	Alchester Village	Mountain Hwy & Albert Ave	
SS-08	Lewis Rd/Coleman Rd	Coleman Rd & Lewis Rd	
SS-09	Fairhills Shops (Manuka Dr/Loretta Ave)	Manuka Rd & Loretta Ave	
SS-10	Knox Gardens	High St & Fonteyn Dr	
SS-11	Knoxfield shops	Kathryn Rd & Knox Pl	
SS-12	Glenfern Rd/Mason St	Glenfern Rd & Mason St	
SS-13	Anne Rd	Anne Rd & Kathryn Rd	
SS-14	Dorset Rd/Landscape Dr	Dorset Rd (between Landscape Dr & Bellevue Ct)	
SS-15	Cavell St/Armin St	Cavell St & Armin St, Scoresby	
SS-16	Bunnett Rd/Burwood Hwy	Bunnett Rd & Burwood Hwy, Knoxfield	

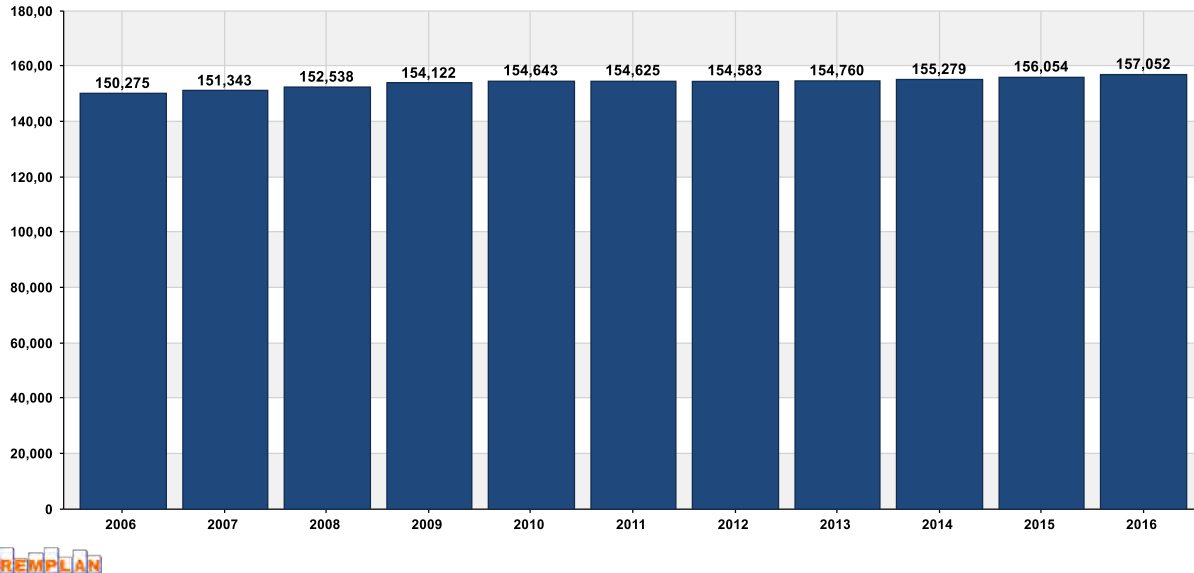


## 2 Knox Population and Economic Profile

### 2.1 Population

The estimated resident population in Knox as at June 30, 2016 is 157,052 people. Between 2006 and 2016 the local government area's (estimated resident) population increased by 6,777 people (4.31%) with an average annual compound population growth of 0.49% over this period.

Figure 2-1 Estimated Resident Population – 2006 2016, Knox (LGA)



Source: ABS, Regional Population Growth, Cat. 3218.0 (2014-15 data was released on 30 March 2016).

#### 2.1.1 Population Change by Statistical Area Level 2 (SA2)

Between 2005 and 2015, the population in Knox's associated SA2s increased by 6,416 people. Most population increase during this time occurred in Boronia – The Basin, which increased by 1,583 people, an annual average increase of 0.6%. Bayswater (1,336) experienced the next highest level of population increase over the 10-year period.

Table 2-1 Population Change in Knox Areas, Statistical Area Level 2

Statistical Area Level 2	Population (ERP June 30)			Population Change (Ann. growth rate)		
	2005	2010	2015p	05-10	10-15	05-15
Bayswater	10,867	11,458	12,203	1.1%	1.3%	1.2%
Boronia - The Basin	24,940	25,730	26,523	0.6%	0.6%	0.6%
Ferntree Gully	27,681	28,946	28,913	0.9%	0.0%	0.4%
Knoxfield - Scoresby	13,066	13,436	14,037	0.6%	0.9%	0.7%
Lysterfield	6,090	6,796	6,891	2.2%	0.3%	1.2%
Rowville - Central	16,017	15,998	15,272	0.0%	-0.9%	-0.5%
Rowville - North	7,575	8,491	8,103	2.3%	-0.9%	0.7%
Rowville - South	10,493	11,265	11,083	1.4%	-0.3%	0.5%
Wantirna	14,383	14,339	14,095	-0.1%	-0.3%	-0.2%
Wantirna South	18,191	18,270	18,599	0.1%	0.4%	0.2%
<b>Knox</b>	<b>149,303</b>	<b>154,729</b>	<b>155,719</b>	<b>0.7%</b>	<b>0.1%</b>	<b>0.4%</b>

\*SA2 boundaries do not align with Knox LGA boundary

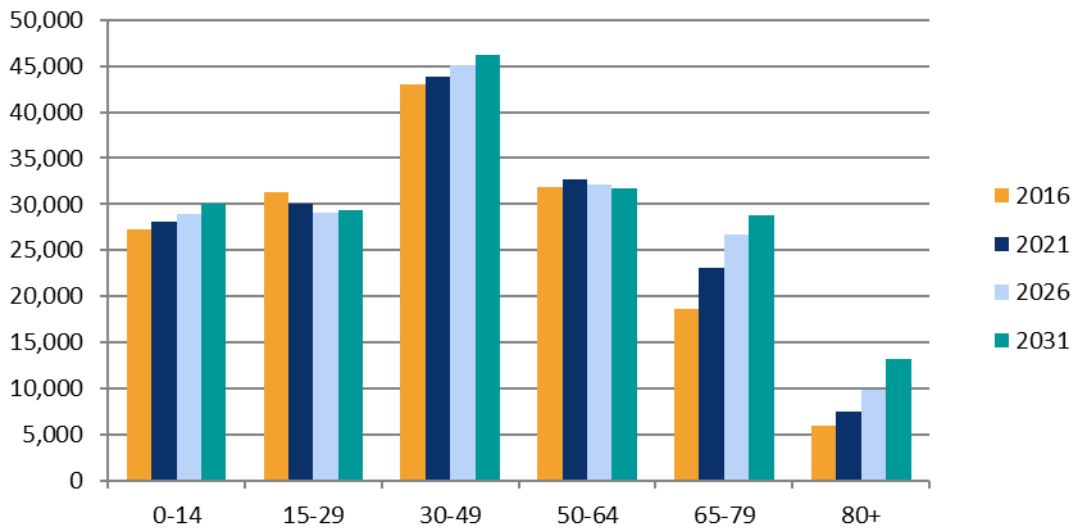
Source: ABS, Estimated Resident Population, 3218.0, Table 2.

### 2.1.2 Population Projections

Victorian State and Local Government Area Population Projections: 'Victoria in Future (2015)' was released in 2015.

Between 2016 and 2031, the population of Knox is projected to increase by 21,184 people. The average annualised projected population growth between 2016 and 2026 of 0.46% is higher than the average annualised growth rates experienced over the previous 10 years (0.38%).

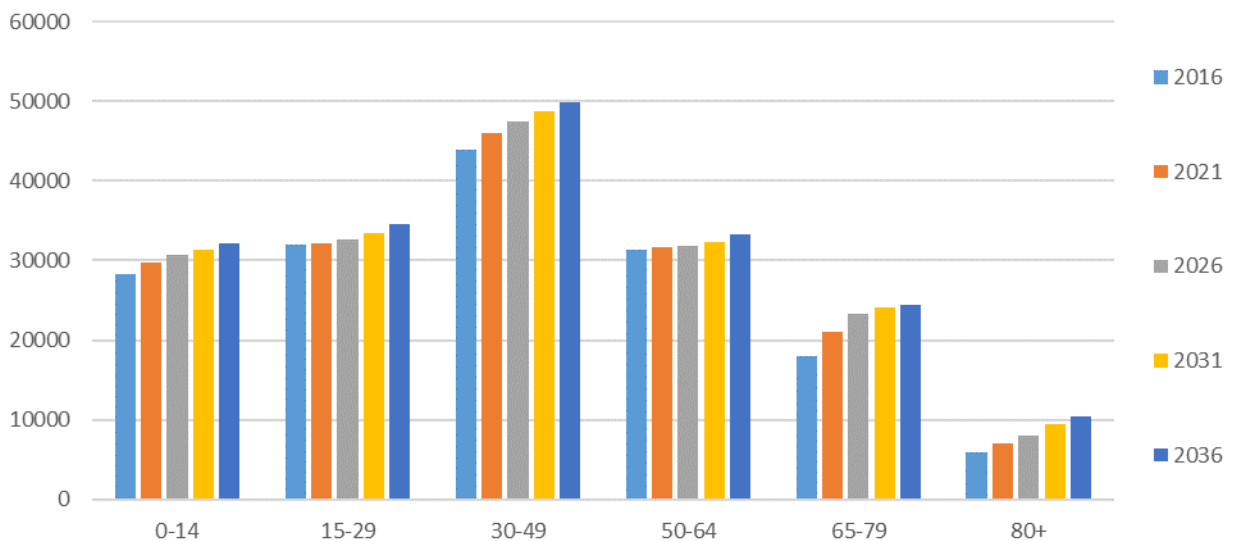
Figure 2-2 Population Projections by Age Cohort – Knox (C)



Source: Victoria in Future (2015 Edition)

Knox commissioned population projections, have estimated the population will grow by 19,949 between 2016 and 2031 in the Knox LGA. This is 1,235 less people than estimated by the Victorian State Government projections in 'Victoria in Future'(2015). Knox population projections show that the bulk of growth in the LGA is expected in the short term between 2016 and 2018. While growth levels will diminish over the following decade through to 2027.

Figure 2-3 Population and household forecasts, 2011 to 2036, Knox



Source: Population and household forecasts, 2011 to 2036, prepared by .id, May 2014.

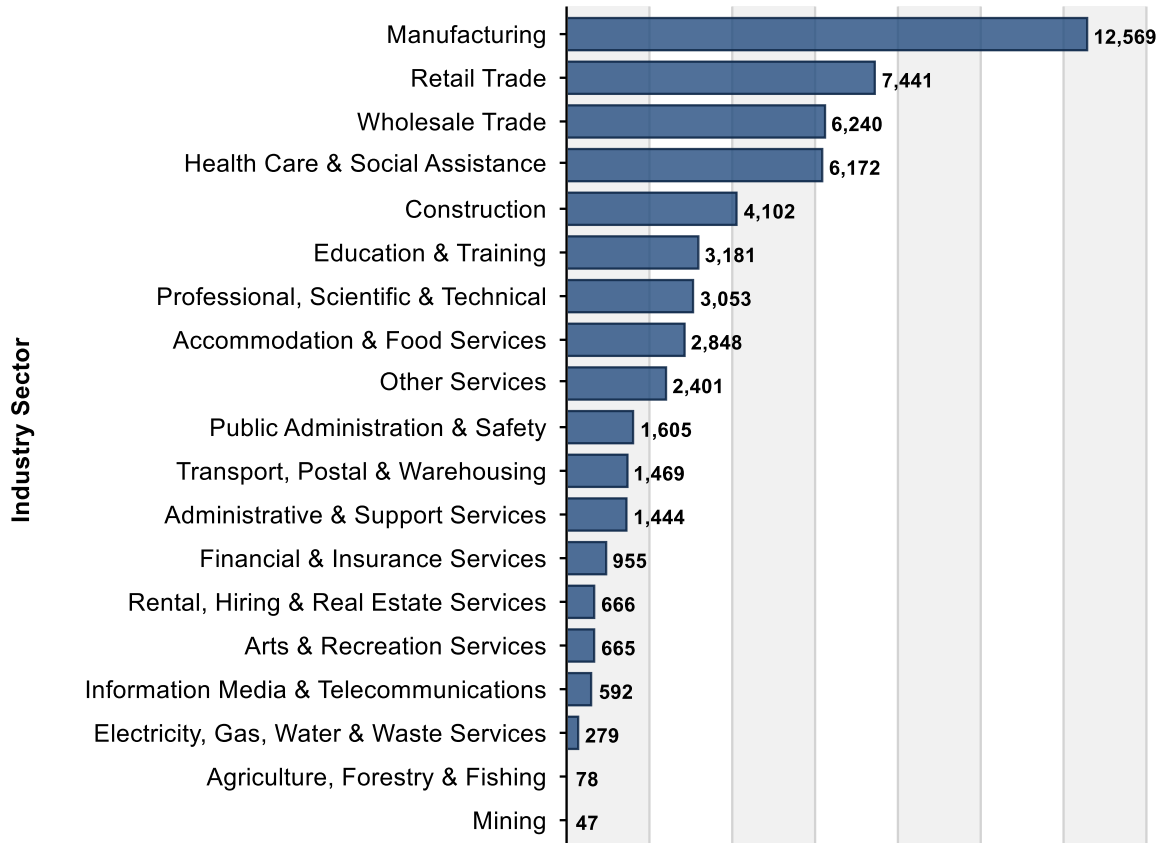
### 3 Employment by Sector – Historical Context

The following section provides contextual background relevant to the workforce and industry sectors in Knox.

#### 3.1 Workforce

The total employment estimate for Knox as at the 2011 Census is 55,807 jobs. The ‘Manufacturing’ industry sector is the largest sector at 12,569 jobs at 22.5% of total region’s jobs; followed by ‘Retail Trade’ (7,441 jobs) and ‘Wholesale Trade’ (6,240 jobs).

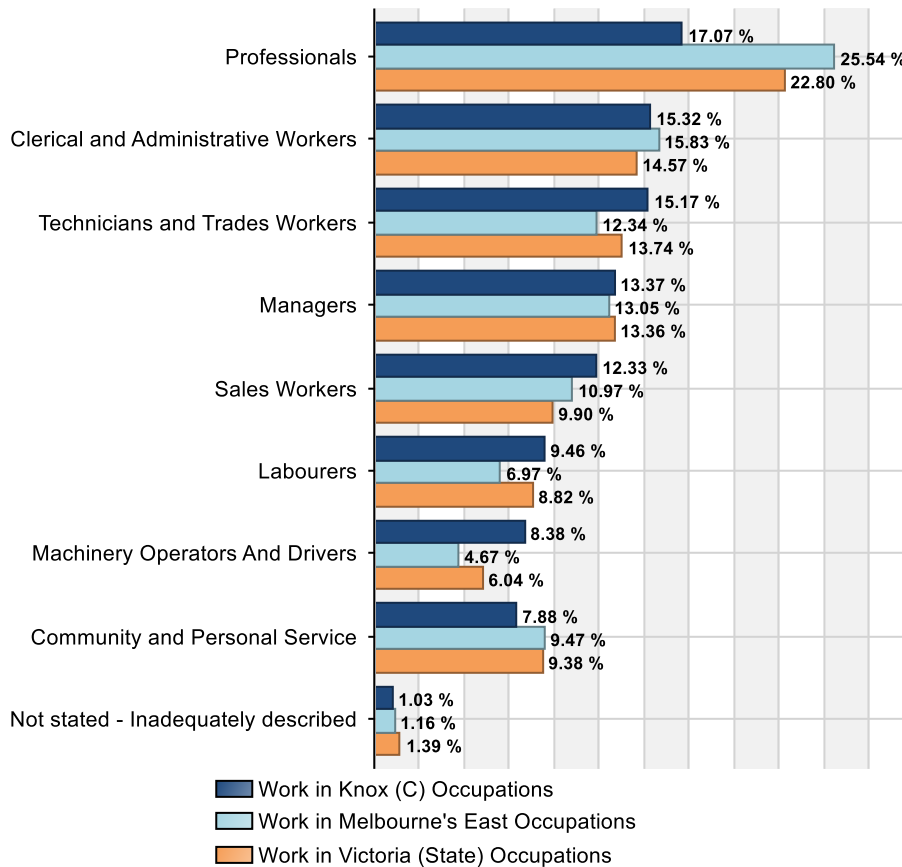
Figure 3-1 Knox workforce – Place of Work (Jobs)



### 3.1.1 Occupation

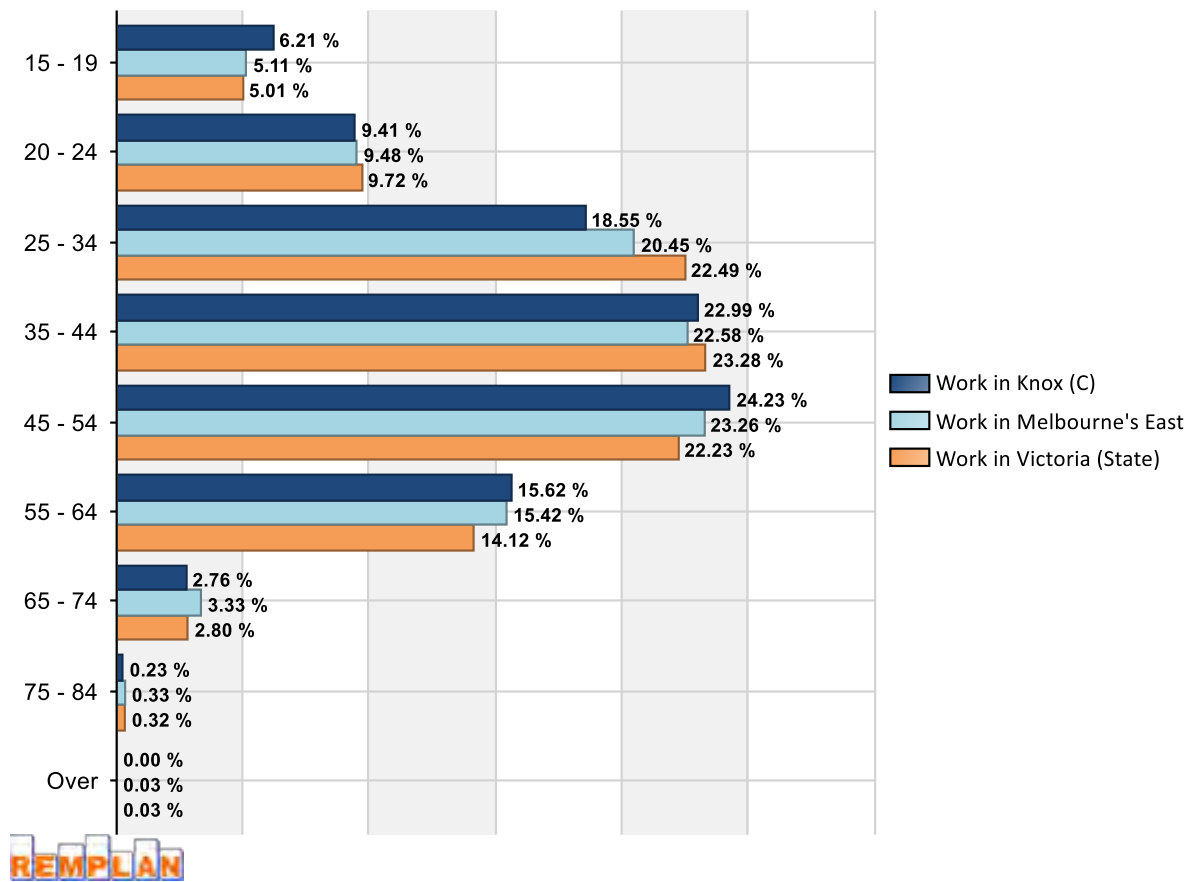
Compared to the RDA Melbourne East and State averages, Knox has a higher proportion of 'Technicians and Trades Workers' and a smaller proportion of 'Professionals' despite 'Professionals' defining the largest occupation type.

Figure 3-2 Knox workforce occupations (%)



The workforce age profile for Knox demonstrates a strong working population between the ages of 35 – 54. Relative to RDA Melbourne East benchmark data, there is a higher level of employment for the 15 – 19 age groups (largely associated with service related employment), while younger adults (20 – 34) are supported with comparable levels of employment but significant structural differences. That is the highest level of employment amongst young adults working in Knox is associated with Manufacturing, Retail Trade, Wholesale Trade and Construction. While the same aged cohort employed across Melbourne’s East demonstrate higher levels of employment in Health Care & Social Assistance, Professional, Scientific & Technical Services and Education and Training.

Figure 3-3 Workforce age profile, Knox (C)



Between 2006 and 2011, there was a decline in the number of working residents in Knox (C). There was an overall decrease from 56,266 to 55,807 workers (- 0.82%). The resident working population experienced a large decrease overall. Workers who both work and live in the region decreased from 22,782 to 21,467 during the period representing a - 5.77% decrease.

While the population of residents who work elsewhere experienced growth. There was positive change in this cohort of workers from 50,904 workers in 2006, to 54,319 in 2011 (6.71%) (Figure 3-1).

Table 3-1 Knox (C) Resident population

Working Residents	2006		2011	
	Count	Percentage	Count	Percentage
Work and Live in Region	22,782	17.31%	21,467	16.31%
Live in Region, Work Elsewhere	50,904	38.68%	54,319	41.28%
Work in Region	56,266	42.76%	55,807	42.41%

### 3.2 Working Residents

Between 2006 and 2011, the number of working residents decreased by (-) 1,405 people, representing a change of -7% (Table 3-2). The industries experiencing the most change between 2006 and 2011 were:

The largest positive change by number of jobs included:

- Health Care & Social assistance (+178 or 7.5%)
- Professional, Scientific & Technical Services (+114 or 8.5%)
- Construction (+107 or 6.1%)

The largest negative change by number of jobs included:

- Manufacturing (-792 or -24.1%)
- Retail Trade (-461 or -12.9%)
- Wholesale Trade (-160 or -9.5%)
- Transport, Postal & Warehousing (-127 or -21.3%)

Table 3-2 Employment by Industry, 2006 and 2011 – Knox (C)

Industry Sector	Employment		Change		Trend
	2006	2011	2006 - 2011	%	
Agriculture, Forestry & Fishing	46	28	-18	-64.3%	///
Mining	11	3	-8	-266.7%	///
Manufacturing	4,080	3,288	-792	-24.1%	///
Electricity, Gas, Water & Waste Services	82	93	11	11.8%	///
Construction	1,651	1,758	107	6.1%	///
Wholesale Trade	1,853	1,693	-160	-9.5%	///
Retail Trade	4,041	3,580	-461	-12.9%	///
Accommodation & Food Services	1,622	1,554	-68	-4.4%	///
Transport, Postal & Warehousing	724	597	-127	-21.3%	///
Information Media & Telecommunications	215	206	-9	-4.4%	///
Financial & Insurance Services	500	420	-80	-19.0%	///
Rental, Hiring & Real Estate Services	369	299	-70	-23.4%	///
Professional, Scientific & Technical Services	1,228	1,342	114	8.5%	///
Administrative & Support Services	665	659	-6	-0.9%	///
Public Administration & Safety	725	684	-41	-6.0%	///
Education & Training	1,371	1,422	51	3.6%	///
Health Care & Social Assistance	2,196	2,374	178	7.5%	///
Arts & Recreation Services	343	314	-29	-9.2%	///
Other Services	1,147	1,153	6	0.5%	///

Source: ABS Census 2006 and 2011, REMPLAN Economy

### 3.3 Local workforce

The total number of people working in Knox (C) in all Industry sectors on Census Night 2011 was 55,807<sup>2</sup>. This represented a -0.82% decrease in local employment between the previous 2006 Census periods. The top three employers in 2011 within Knox included:

- Manufacturing (12,569 or 22.5%)
- Retail Trade (7,441 or 13.4%)
- Wholesale Trade (6,240 or 11.2%)

As outlined in Table 3-3 within the previous Census period both positive and negative change was experienced across the industry sectors in terms of local employment. The most significant positive change included:

- Health Care & Social Assistance (828 additional jobs or 13.4%)
- Professional, Scientific & Technical Services (727 additional jobs or 23.8%)
- Construction (326 additional jobs or 7.9%)

Table 3-3 Workforce breakdown by Industry – Knox (C)

Industry Sector	Employment			Change		Trend
	2006	2011	2006 - 2011	%		
Agriculture, Forestry & Fishing	95	78	-17	-21.8%	/	
Mining	41	47	6	12.8%	\\	
Manufacturing	13,589	12,569	-1020	-8.1%	///	
Electricity, Gas, Water & Waste Services	241	279	38	13.6%	\\	
Construction	3,776	4,102	326	7.9%	\\	
Wholesale Trade	6,843	6,240	-603	-9.7%	///	
Retail Trade	7,970	7,441	-529	-7.1%	///	
Accommodation & Food Services	2,830	2,848	18	0.6%	\\	
Transport, Postal & Warehousing	1,728	1,469	-259	-17.6%	///	
Information Media & Telecommunications	511	592	81	13.7%	\\	
Financial & Insurance Services	1,271	955	-316	-33.1%	///	
Rental, Hiring & Real Estate Services	701	666	-35	-5.3%	///	
Professional, Scientific & Technical Services	2,326	3,053	727	23.8%	\\	
Administrative & Support Services	1,371	1,444	73	5.1%	\\	
Public Administration & Safety	1,569	1,605	36	2.2%	\\	
Education & Training	3,007	3,181	174	5.5%	\\	
Health Care & Social Assistance	5,344	6,172	828	13.4%	\\	
Arts & Recreation Services	637	665	28	4.2%	\\	
Other Services	2,416	2,401	-15	-0.6%	\\	

Source: ABS Census 2006 and 2011, REMPLAN Economy

Job loss was experienced across eight of the nineteen sectors. The sectors most negatively impacted by job losses include:

- Manufacturing (-1020 or 8.1%)
- Wholesale Trade (-603 or -9.7%)
- Retail Trade (-529 or -7.1%)
- Financial & Insurance (-316 or -33.1%)

<sup>2</sup> Workforce breakdown by Industry (Place of Work), ANZSIC Industry definition.

## 4 Industry Trends

### 4.1 Agriculture, Forestry and Fishing

The *Agriculture, Forestry & Fishing* sector contributes 78 jobs (0.1 %) to total employment. The Agriculture, Forestry and Fishing sector includes activity engaged in growing crops, raising animals, growing and harvesting timber, and harvesting fish and other animals from farms or their natural habitats. The Agriculture, Forestry & Fishing sector contributes \$24.647 million (0.12%) of total output.

The top three occupations within the sector include: Machinery Operators and Drivers (24.2 %), Technicians and Trades Workers (23.9 %) and Managers (18.5%)

Figure 4-1 Agriculture, Forestry & Fishing (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Agriculture, Forestry & Fishing* sector within Knox (C) are provided in Table 4-1.

Table 4-1 Economic Performance of Agriculture, Forestry & Fishing – Knox (C) (\$M)

Agriculture, Forestry & Fishing	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 29.129	\$ 26.364	\$ 20.104	\$ 20.633	\$ 21.419	\$ 24.647	
Wages & Salaries	\$ 4.546	\$ 4.806	\$ 2.492	\$ 2.710	\$ 2.814	\$ 2.828	
Regional Exports	\$ 3.204	\$ 3.351	\$ 6.927	\$ 6.500	\$ 6.747	\$ 8.996	
Local expenditure	\$ 12.006	\$ 10.427	\$ 7.620	\$ 7.469	\$ 7.753	\$ 8.884	
Value-Added	\$ 11.069	\$ 10.395	\$ 7.842	\$ 8.750	\$ 9.083	\$ 9.069	

Source: REMPLAN

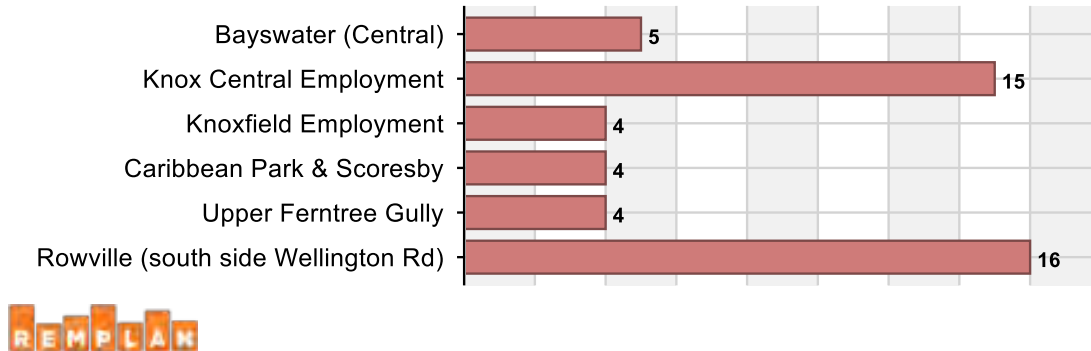
#### 4.1.1 Key Sector Insights

- The *Agriculture, Forestry & Fishing* sector is modest in Knox (C) employing less than 100 people. Employment includes some primary industry activity in locations like The Basin as well as support services that are office based.
- The sector has sustained employment loss (17 jobs in last 5 years) and relies on exporting goods and services outside of the LGA to support revenue creation.
- Demand on the *Agricultural, Forestry & Fishing* sector to increase in both scale and intensity is unlikely to demand the allocation of land within the Knox LGA context. This is particularly given the likely distance and buffering needed to support increased industrialization within the sector. That is larger areas of land are typically required to support increased agricultural output.
- While some support and consulting activity to support the sector may increase over time, it is unlikely the local property economics and importance of residential development and population driven demand for services will drive demand for increased business and employment land for *Agriculture, Forestry & Fishing*.



- It is estimated that 48 jobs in the sector are in Assessment Areas relevant to the LFB project. This represents 61.5% of employment in the sector.
- The spread of employment activity is across the relevant employment land is outlined in Figure 4-2

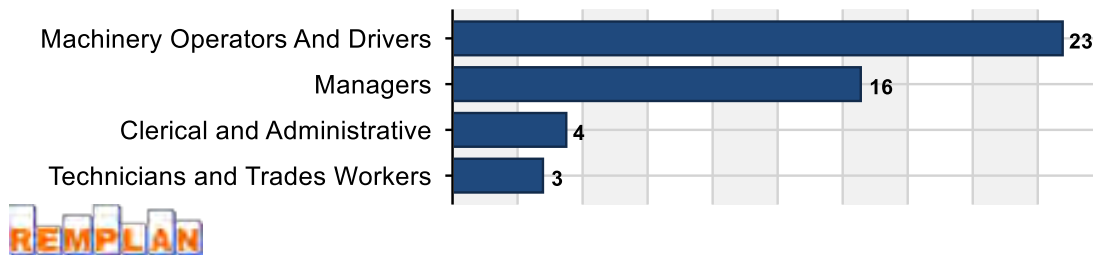
Figure 4-2 Knox LFB Assessment Areas supporting Agriculture, Forestry & Fishing jobs



## 4.2 Mining

The *Mining* sector contributes 47 jobs (0.1 %) to total employment. The top three occupations within the sector include: Machinery Operators and Drivers (49.9 %), Managers (33.4 %) and Clerical and Administrative Workers (9.3 %).

Figure 4-3 Mining (Jobs) – Knox (C)



Source: ABS Census 2011, REMPLAN Economy

Key economic performance measures for the *Mining* sector within Knox (C) are provided in Table 4-2.

Table 4-2 Economic Performance of Mining – Knox (C) (\$M)

Mining	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 22.489	\$ 21.654	\$ 50.939	\$ 47.668	\$ 49.483	\$ 36.944	
Wages & Salaries	\$ 4.763	\$ 4.836	\$ 5.785	\$ 6.076	\$ 6.308	\$ 4.689	
Regional Exports	\$ 5.990	\$ 4.383	\$ 14.339	\$ 13.270	\$ 13.775	\$ 10.657	
Local expenditure	\$ 11.130	\$ 10.195	\$ 9.001	\$ 8.400	\$ 8.720	\$ 6.814	
Value-Added	\$ 6.667	\$ 6.877	\$ 25.135	\$ 23.873	\$ 24.782	\$ 17.978	

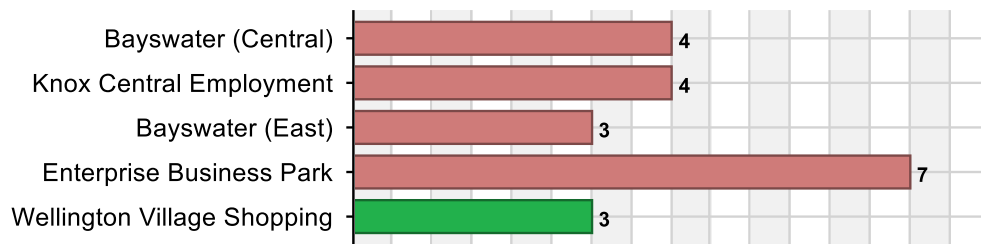
Source: REMPLAN

### 4.2.1 Key Sector Insights

- The *Mining* sector with the Knox LGA contributes \$36.944 million (0.2 %) of total output.
- There is some structural change underway, including decommissioning of a Boral mine within the LGA.
- Most the local employment in the sector is associated with Gravel and Sand Quarrying, Other Construction Material Mining or Non-Metallic Mineral Mining and Quarrying.

- Expenditure through local supply chains have declined over the past five years from \$11.130 million to \$6.814 million.
- The sector supports local construction activities.
- Given the surrounding high value residential land uses it is unlikely the sector will grow significantly and create demand for new mining land
- There is opportunity for land no longer required for mining to provide additional supply for other business/employment land use.
- 22 Mining sector jobs (46.8 %) are in the LFB Assessment Areas. They are outlined below in Figure 4-4.

Figure 4-4 Knox Employment Assessment Areas supporting Mining jobs

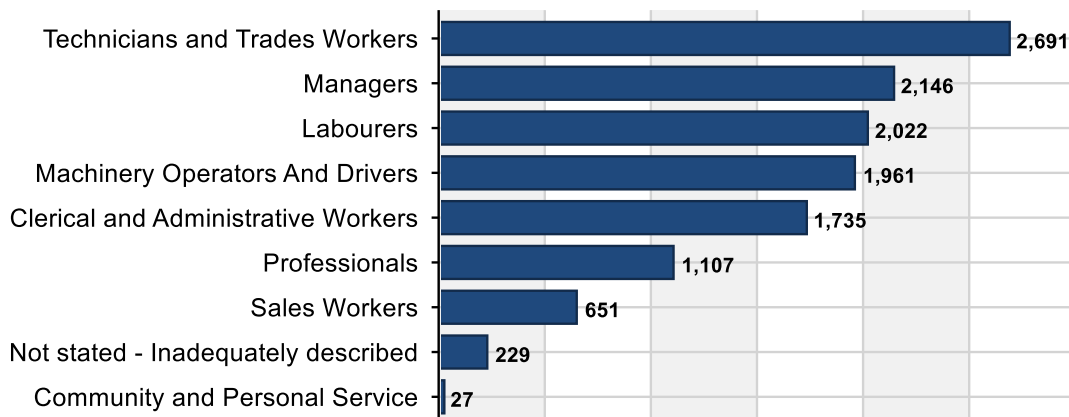


### 4.3 Manufacturing

The *Manufacturing* sector contributes 12,569 jobs (22.5 %) to total employment. It is the largest employer within the Local Government Area. The *Manufacturing* sector within Knox includes several manufacturing sub sectors that are considered 'Key Propulsive Industries' within Knox. This includes: Professional, Scientific, Computer & Electronic Equipment. Manufacturing; Human Pharmaceutical Product Manufacturing & Specialised & Other Machinery & Equipment Manufacturing which combined contribute around 2,871 jobs (5.1 %) of local employment.

The top three occupations within the sector include: Technicians & Trades Workers (21.4%), Managers (17.1%) and Labourers (15.3%) (Figure 4-5).

Figure 4-5 Manufacturing (Jobs) – Knox (C)



Source: ABS Census 2011, REMPLAN Economy

Key economic performance measures for the *Manufacturing* sector within Knox (C) are provided in Table 4-3.

Table 4-3 Economic Performance of Manufacturing – Knox (\$M)

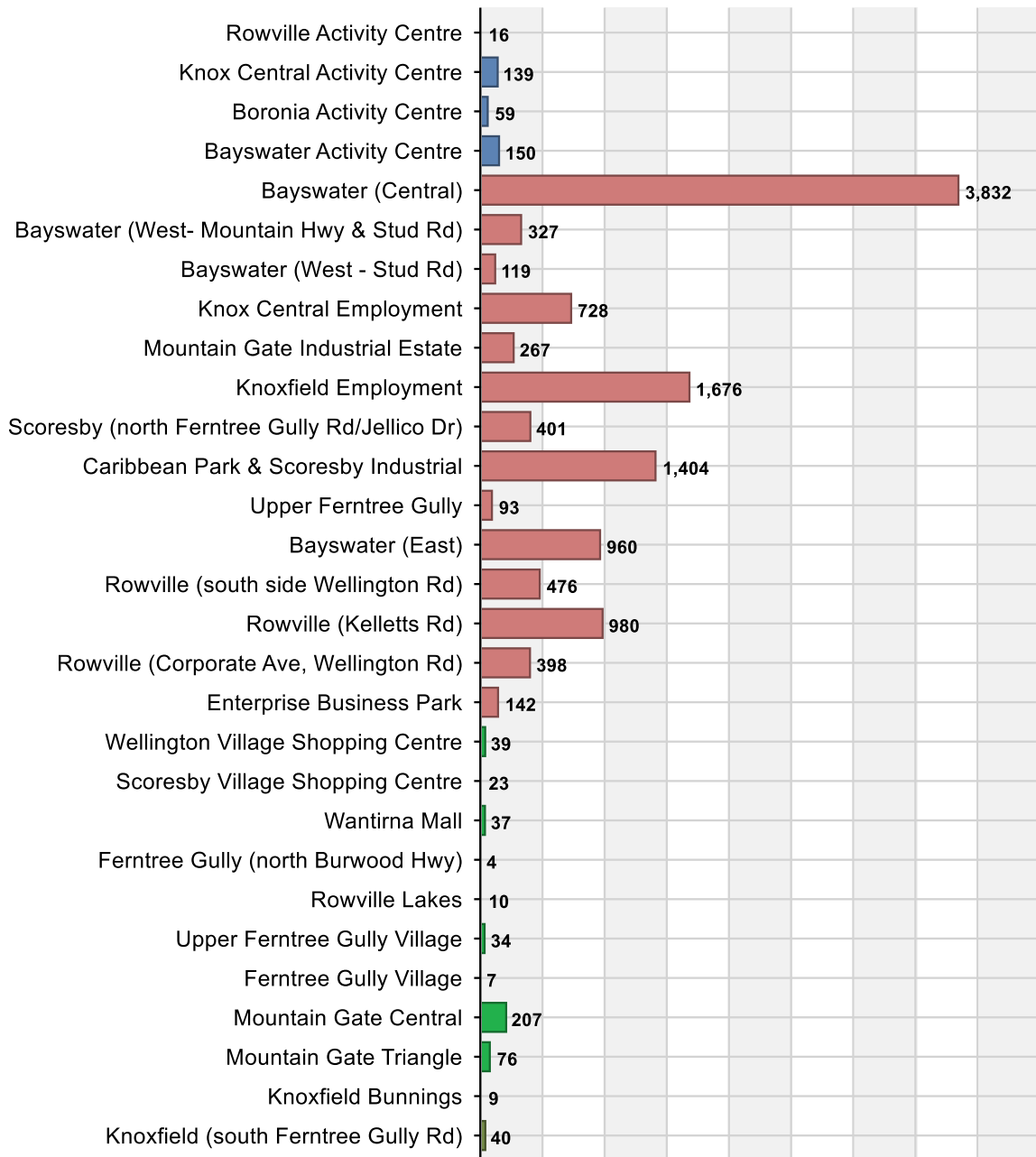
Manufacturing	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 9,543.207	\$ 9,425.344	\$ 9,267.993	\$ 9,180.837	\$ 9,530.396	\$ 9,114.764	
Wages & Salaries	\$ 1,078.490	\$ 1,051.436	\$ 924.006	\$ 926.114	\$ 961.376	\$ 970.326	
Regional Exports	\$ 6,050.975	\$ 5,871.565	\$ 5,881.928	\$ 5,792.477	\$ 6,013.025	\$ 6,024.249	
Local expenditure	\$ 2,409.885	\$ 2,358.913	\$ 2,324.486	\$ 2,400.983	\$ 2,492.400	\$ 1,993.321	
Value-Added	\$ 1,972.128	\$ 1,929.235	\$ 1,663.128	\$ 1,695.075	\$ 1,759.614	\$ 1,587.505	

Source: REMPLAN

#### 4.3.1 Key Sector Insights

- Despite a downward trend across a number of manufacturing industry classifications, a range of *Manufacturing* sectors within Knox are of strategic importance because of their employment base, contribution to regional exports and strong alignment with current Victorian State Industry Policy.
- In 2011, the Manufacturing sector was the largest local employer within Knox LGA and supports 12,569 jobs.
- *Manufacturing* sector in Knox contributes \$9.114 billion (45.2 %) of total output. Total revenue for the sector has been in decline. Despite this, the sector remains the largest sector in terms of total revenue.
- The Manufacturing sector has experienced decline in most key economic indicators (Output, Value-added & Local Expenditure), albeit reductions in scale of a modest level compared with other manufacturing sectors with higher volatility.
- There is a demonstrable ongoing strength in regional exports from the sector, particularly associated with Technical Equipment & Appliance Manufacturing that represents 22.4% of total regional exports.
- Significant transition in the Manufacturing sector is relevant to broader National performance of the sector. Despite this, manufacturing businesses located in Knox are well positioned to drive growth in the sector, strongly aligned to current Victorian Government Industry Policy and macro trends towards knowledge intensive manufacturing driven through technological innovation.
- There has been a reduction of \$384 million in terms of the sectors contribution to Gross Regional Product (Value-added). However, compared with other manufacturing regions this reduction is relatively modest demonstrating Knox's manufacturing sector resilience and alignment with the sectors transition from labour intensive to knowledge intensive output.
- All local manufacturing employment is located within the LFB Assessment Areas. Bayswater (Central) is the most significant LFB employment land for the sector due to the scale of employment. The Bayswater (Central) supports 3,832 manufacturing jobs, or 30.5 %) of total manufacturing employment within Knox at 2011 Census.
- Modelling of total output by industry within the manufacturing sector indicates a positive compounding annual growth rate between 2011-2016 within the Dairy Product Manufacturing (11.05%); Knitted Product Manufacturing (16.77%); Natural Rubber Product Manufacturing (18.37%); Glass & Glass Product Manufacturing (22.40%); Structural Metal Product Manufacturing (2.45%); Professional, Scientific, Computer & Electronic Equipment Manufacturing (5.18%) & Domestic Appliance Manufacturing (28.84%).

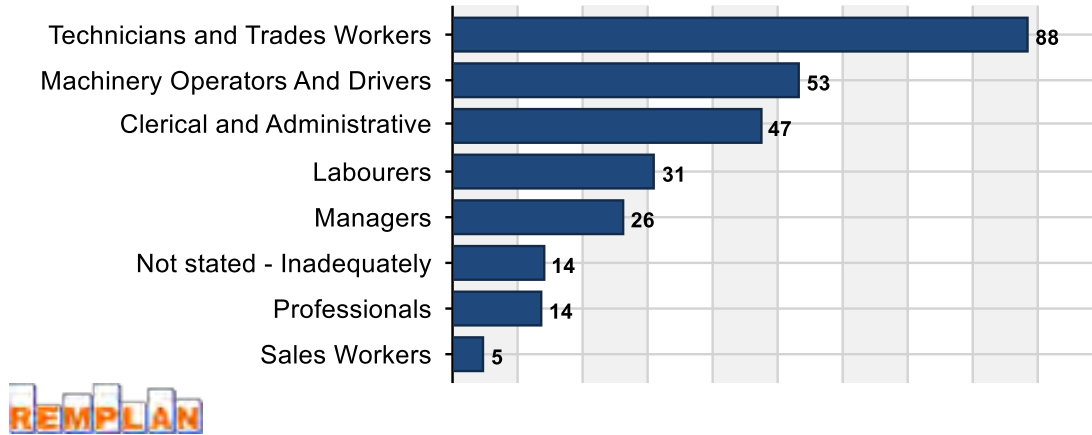
Figure 4-6 Knox LFB Assessment Areas supporting Manufacturing jobs



#### 4.4 Electricity, Gas, Water and Waste Services

The *Electricity, Gas, Water & Waste Services* sector contributes 279 jobs (0.5 %) to total employment. The top three occupations within the sector include: Technicians & Trades Workers (31.7%), Machinery Operators and Drivers (19.1%) and Clerical and Administrative Workers (17.0%).

Figure 4-7 Electricity, Gas, Water & Waste Services (Jobs) – Knox (C)



Source: ABS Census 2011, REMPLAN Economy

Key economic performance measures for the *Electricity, Gas, Water & Waste Services* sector within Knox (C) are provided in Table 4-4.

Table 4-4 Economic Performance of Electricity, Gas, Water & Waste Services – Knox (C) (\$M)

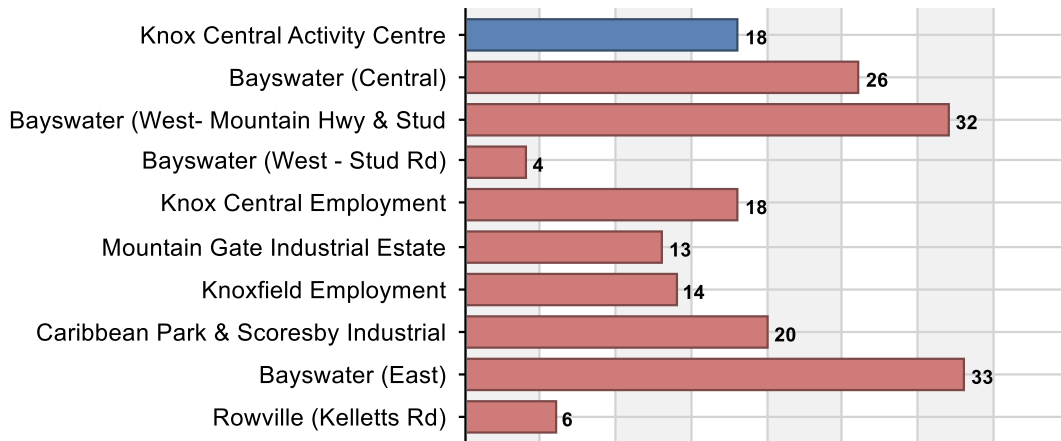
Electricity, Gas, Water & Waste Services	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 126.440	\$ 126.155	\$ 142.879	\$ 166.702	\$ 173.050	\$ 198.916	
Wages & Salaries	\$ 27.374	\$ 26.190	\$ 29.037	\$ 29.912	\$ 31.050	\$ 32.499	
Regional Exports	\$ 6.270	\$ 2.661	\$ 9.338	\$ 8.779	\$ 9.114	\$ 11.484	
Local expenditure	\$ 29.936	\$ 32.162	\$ 44.764	\$ 59.515	\$ 61.781	\$ 73.034	
Value-Added	\$ 67.105	\$ 63.403	\$ 71.945	\$ 74.472	\$ 77.308	\$ 88.268	

Source: REMPLAN

##### 4.4.1 Key Sector Insights

- The *Electricity, Gas, Water & Waste Services* has sustained continued economic growth across all key economic indicators – with total Output estimated \$198.216 million 1.0% of total output.
- It is anticipated the sector will continue to grow to support population and industry demand within the region and Knox LGA.
- While these broader economic activity is likely to demand utilities locally, it is unlikely they will drive significant demand for business/employment land.
- New forms of utilities that are distributed may have a role in demand for business land potentially associated with new buildings (eg. Leasing of roof space for solar).
- It is estimated that 184 jobs (65.95 %) of the *Electricity, Gas, Water & Waste Services* sector employment are located in LFB Assessment Areas.
- The balance of employment in the sector are located outside the LFB Assessment Areas in locations such as AusNet Services Rowville Terminal Station and Area Centre Depot.

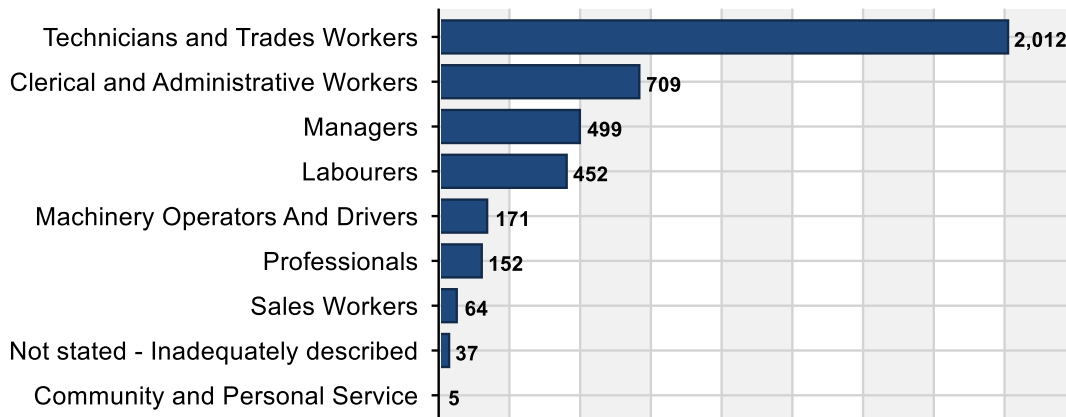
Figure 4-8 Knox LFB Assessment Areas supporting Electricity, Gas, Water & Waste Services jobs



## 4.5 Construction

The *Construction* sector contributes 4,102 jobs (7.4 %) to total employment. The top three occupations in the sector include: Technicians and Trades Workers (49.1 %), Clerical and Administrative Workers (17.3 %) and Managers (12.2 %).

Figure 4-9 Construction (Jobs) – Knox (C)



Source: ABS Census 2011, REMPLAN Economy

Key economic performance measures for the Construction sector within Knox (C) is provided in Table 4-5.

Table 4-5 Economic Performance of Construction Sector – Knox (C) (\$M)

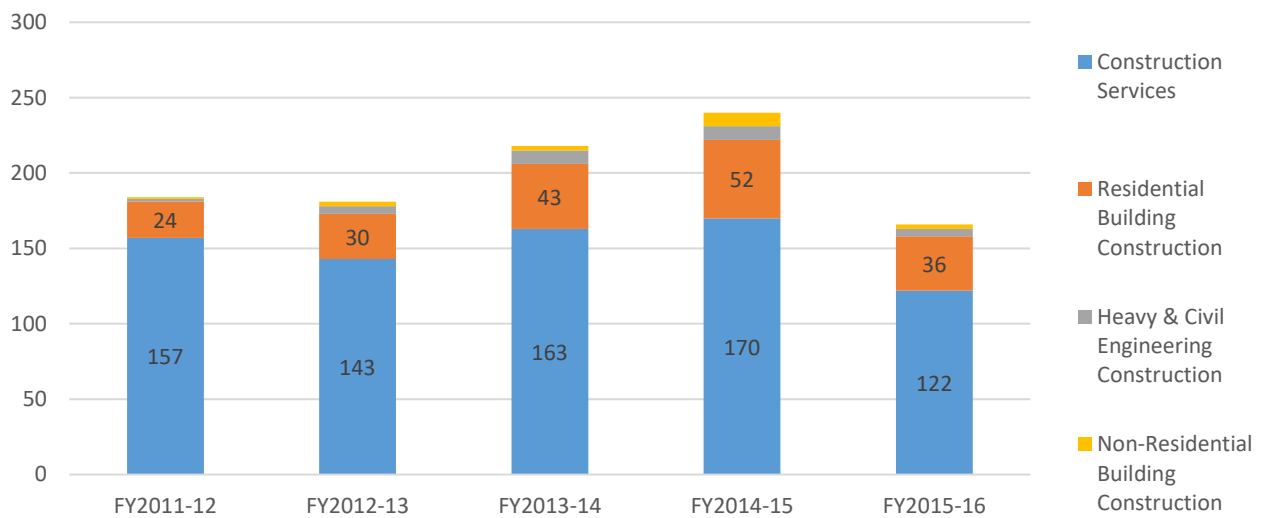
Construction	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 1,385.772	\$ 1,544.470	\$ 1,551.193	\$ 1,574.228	\$ 1,634.166	\$ 1,776.672	
Wages & Salaries	\$ 206.020	\$ 236.601	\$ 254.249	\$ 254.013	\$ 263.685	\$ 285.657	
Regional Exports	\$ 206.020	\$ 236.601	\$ 254.249	\$ 254.013	\$ 263.685	\$ 285.657	
Local expenditure	\$ 699.939	\$ 807.603	\$ 838.200	\$ 849.494	\$ 881.839	\$ 977.066	
Value-Added	\$ 425.473	\$ 460.686	\$ 486.099	\$ 500.985	\$ 520.060	\$ 544.975	

Source: REMPLAN

#### 4.5.1 Key Sector Insights

- The *Construction* Sector has sustained strong growth across all key economic indicators – with total Output estimated at \$1.777 billion representing 8.8% of total output.
- *Construction Services* (building trades) are responsible for \$8.41.679 million (47.4%) of the sectors total output.
- The *Construction* sector is renowned for strong local supply chains that support demand for goods and services within Knox (C) across the key industry sectors of *Construction and Manufacturing* (approximately \$733.343 million combined)
- There are significant business entries (and change) associated with the *Construction* sector. Of note, business listed for GST within the *Construction Services* (construction trades – eg. Carpenters, Electricians, Plumbers & Painters) sustains year on year growth (Figure 4-10).

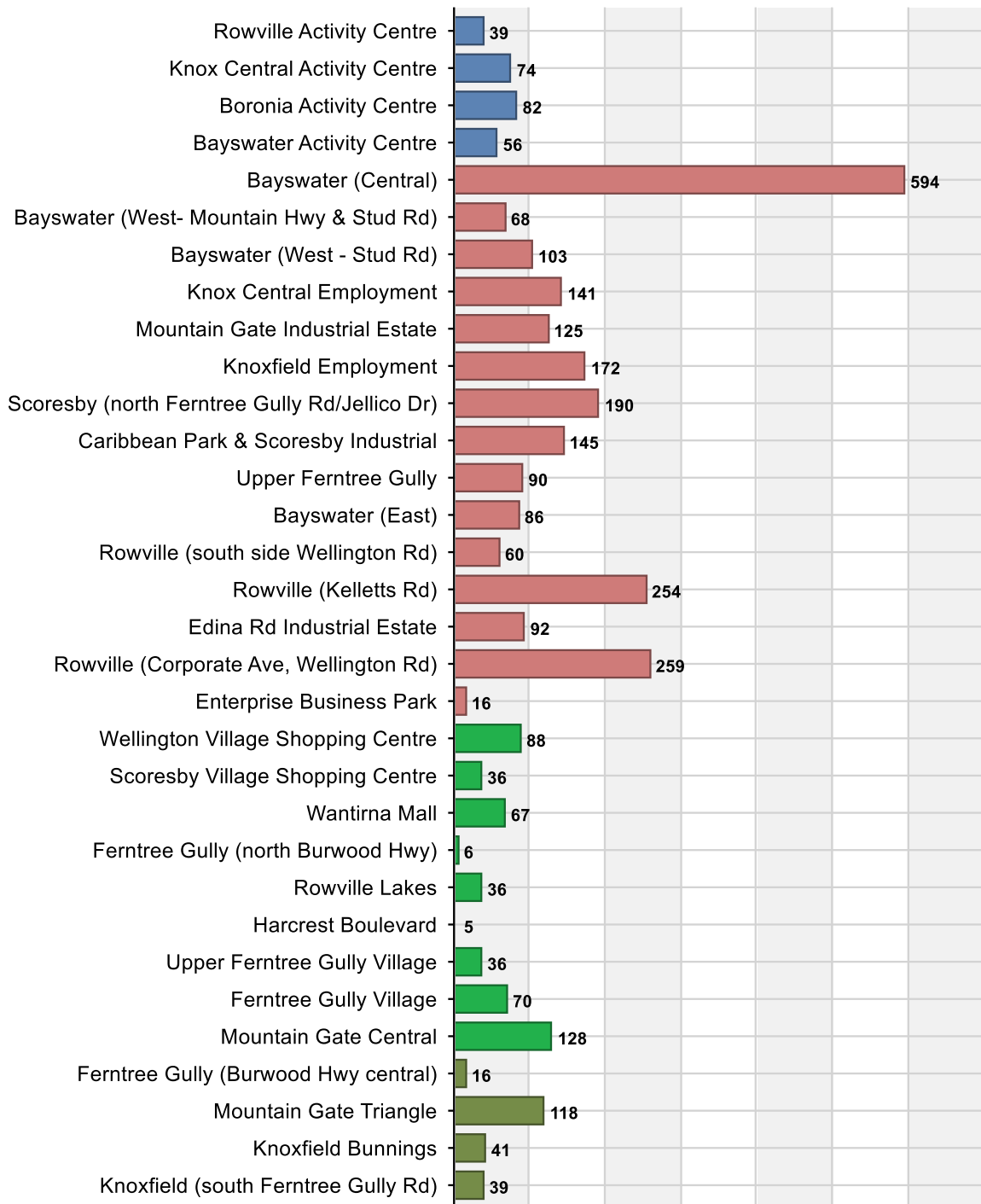
Figure 4-10 Annual Construction Industry Businesses listed for GST – Knox (C)



Source: REMPLAN Business, Australian Business Registration data. – Listed for GST

- Construction related employment is spread widely across the Knox LGA and the LFB Assessment Areas. Jobs are located within all the key Employment lands with the exception of the HP-01 Wantirna Hospitals and the Strip Shops.
- The employment total of 3332 within the dedicated assessment areas only represents 81.23% of total employment within the sector. That is, while the sector supports decentralised activity (on site), there is strong demand for employment land to support Construction sector jobs.
- Bayswater (Central) (Mountain Highway, Power Road) supports the highest number of jobs within the *Construction* Sector (594 or 14.5%).

Figure 4-11 Knox LFB Assessment Areas supporting Construction jobs





## 4.6 Wholesale Trade

The Wholesale Trade sector contributes 6,240 jobs (11.2%) to total employment. The top three occupations in the sector include: Clerical and Administrative Workers (22.3 %), Managers (21.2 %) and Machinery Operators and Drivers (17.4 %).

Figure 4-12 Wholesale Trade (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the Wholesale Trade sector within Knox (C) is provided in Table 4-6.

Table 4-6 Economic Performance of Wholesale Trade – Knox (C) (\$M)

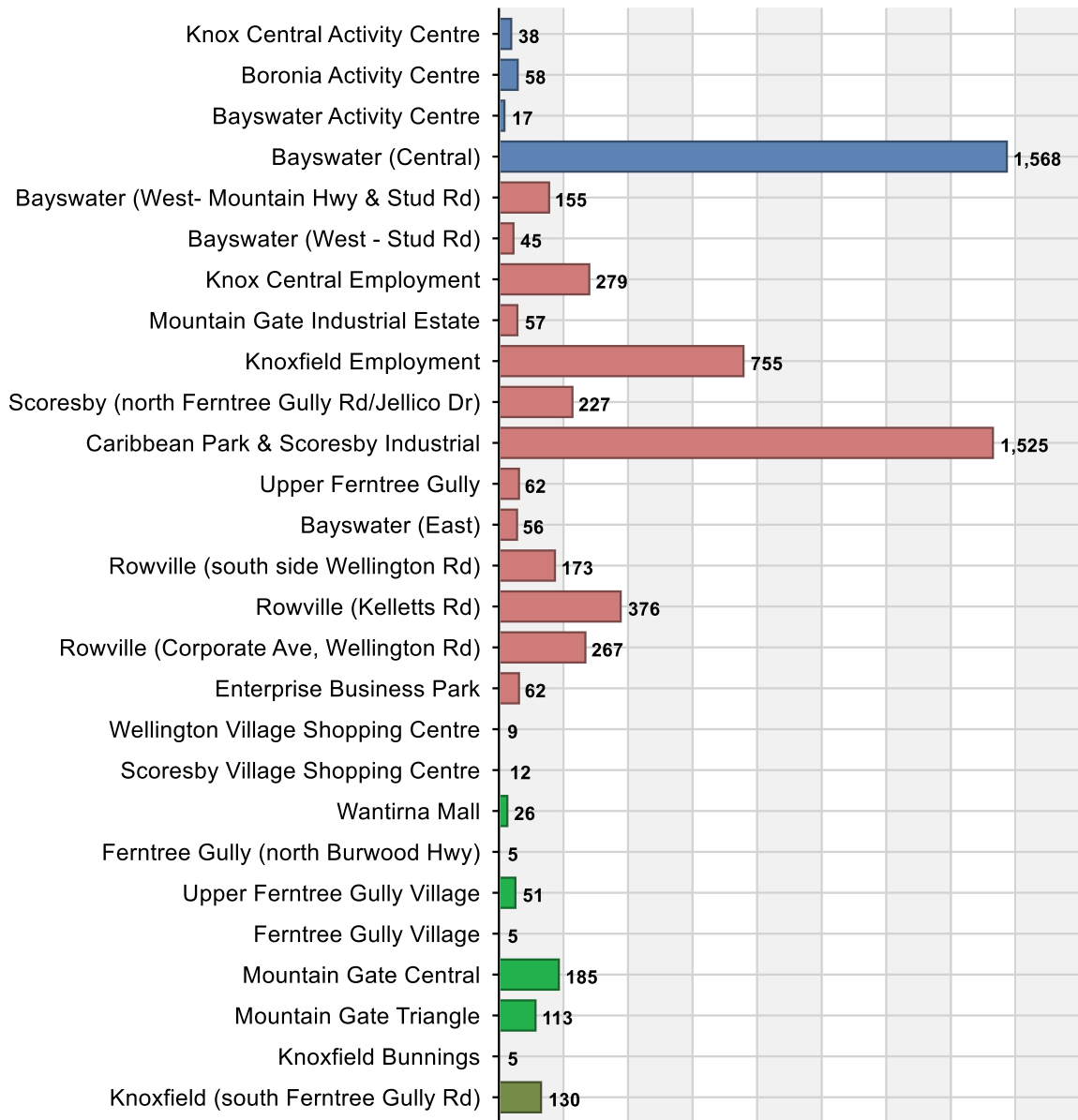
Wholesale Trade	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 2,444.077	\$ 2,678.077	\$ 2,066.377	\$ 1,987.842	\$ 2,063.529	\$ 2,170.887	
Wages & Salaries	\$ 704.064	\$ 780.137	\$ 638.996	\$ 619.109	\$ 642.682	\$ 668.896	
Regional Exports	\$ 1,490.340	\$ 1,694.452	\$ 1,262.650	\$ 1,173.398	\$ 1,218.075	\$ 1,320.764	
Local expenditure	\$ 705.458	\$ 774.868	\$ 608.712	\$ 587.462	\$ 609.830	\$ 643.873	
Value-Added	\$ 1,082.333	\$ 1,220.524	\$ 1,003.683	\$ 1,002.566	\$ 1,040.739	\$ 1,056.335	

Source: REMPLAN

### 4.6.1 Key Sector Insights

- Wholesale Trade sector has experienced decline in economic activity over the last four years but remains an important and resilient industry sector within the Knox local economy.
- Between 2006 and 2011 the sector shed 603 jobs impacting on wages and salaries growth and reflecting a total reduction local expenditure and income generated through regional exports.
- Local sales to the *Manufacturing* sector represent 48.7% of Wholesale trade within Knox (C).
- Broader regional decline in the sector reflects increasing automation and structural adjustment following period of higher value Australian dollar.
- The overall reduction in total output from \$2.444 billion to \$2.171 million over the last four years has also seen reduction in wages and salaries, local expenditure and the sectors contribution to Gross Regional Product (Value-added).
- Both the Bayswater (Central) and Caribbean Business Park are the anchors for Wholesale trade jobs in Knox and represent 49% of local jobs in the sector. While Knoxfield Employment supports another 12% of local jobs (Figure 4-13).

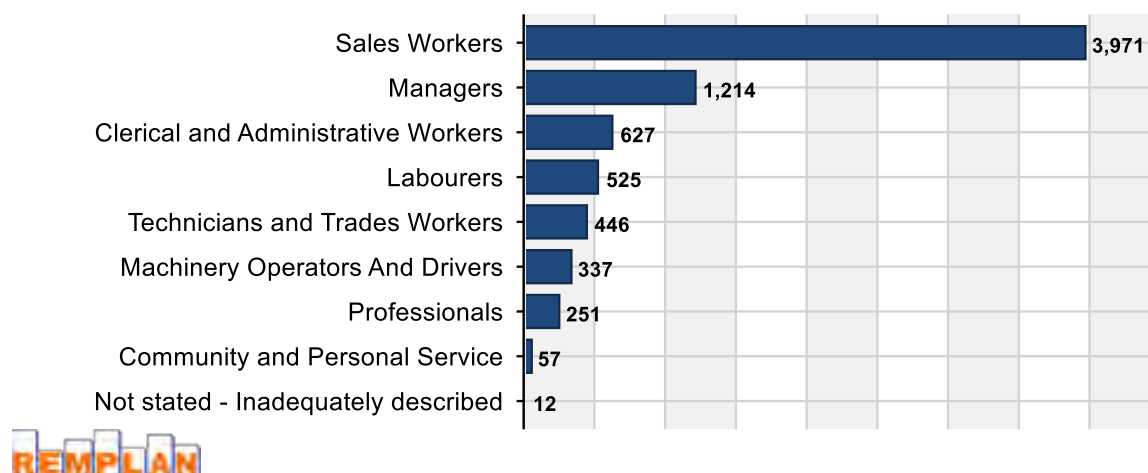
Figure 4-13 Knox LFB Assessment Areas supporting Wholesale Trade jobs



## 4.7 Retail Trade

The *Retail Trade* sector contributes 7,441 jobs (13.3 %) to total employment. The top three occupations in the sector include: Sales Workers (53.4 %), Managers (16.3 %) and Clerical and Administrative Workers (8.4 %).

Figure 4-14 Retail trade (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the Retail Trade sector within Knox is provided in Table 4-7.

Table 4-7 Economic Performance of Retail Trade – Knox (C) (\$M)

Retail Trade	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 769.417	\$ 767.703	\$ 700.220	\$ 747.412	\$ 775.870	\$ 827.963	
Wages & Salaries	\$ 288.863	\$ 302.540	\$ 277.316	\$ 287.587	\$ 298.537	\$ 316.988	
Regional Exports	\$ 67.991	\$ 58.726	\$ 21.750	\$ 25.974	\$ 26.963	\$ 39.214	
Local expenditure	\$ 193.757	\$ 190.821	\$ 176.258	\$ 189.158	\$ 196.360	\$ 213.710	
Value-Added	\$ 428.720	\$ 437.797	\$ 418.899	\$ 437.118	\$ 453.762	\$ 490.538	

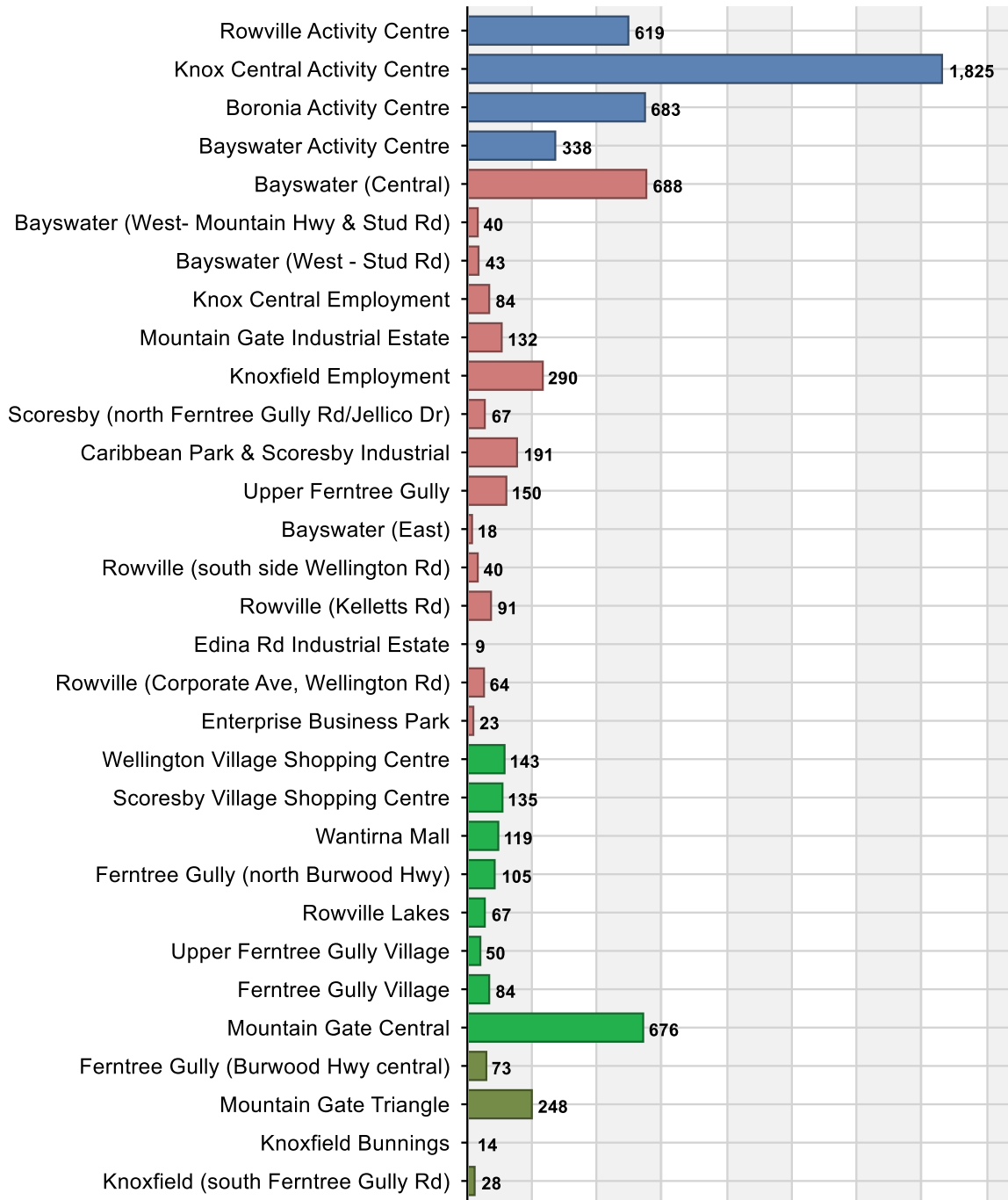
Source: REMPLAN

### 4.7.1 Key Sector Insights

- The *Retail Trade* sector is significant within Knox and supports the second highest level of employment with over 7,441 jobs or 13.3% of total employment in Knox.
- The *Retail Trade* sector contributes \$827.963 million (4.1 %) of total output.
- Over the past five years, the Retail sector has remained resilient experiencing a reduction in overall output between 2011 and 2014 before demonstrating growth in total revenue during the last two years.
- Wages and salaries are estimated to have responded to the total sales revenue represent 7.9% of total wages and salaries in in Knox, or \$316.988 million.
- While retail is a significant contributor to Knox’s visitor economy, the sector continues to service local demand and need of the resident population. Regional exports are estimated to have reduced from 2011 levels of \$67.991 million to \$39.214 million. This reflects expansions of other major retail centres throughout the Melbourne East RDA that primarily service local community and business needs.
- The workforce is generally less skilled and contains a greater proportion of part-time female workers. For example, 24.6% or 2,339 of the workforce work between 1 – 15 hours per week. Of these part-time workers, 31.6% are male and 68.4% are female.

- Knox Central Activity Centre is the key retail district supporting 1,825 jobs (24.5%) with the role of the other Activity Centres, Bayswater (Central) and Mountain Gate Central comprising 40.4% of retail employment across the LGA.

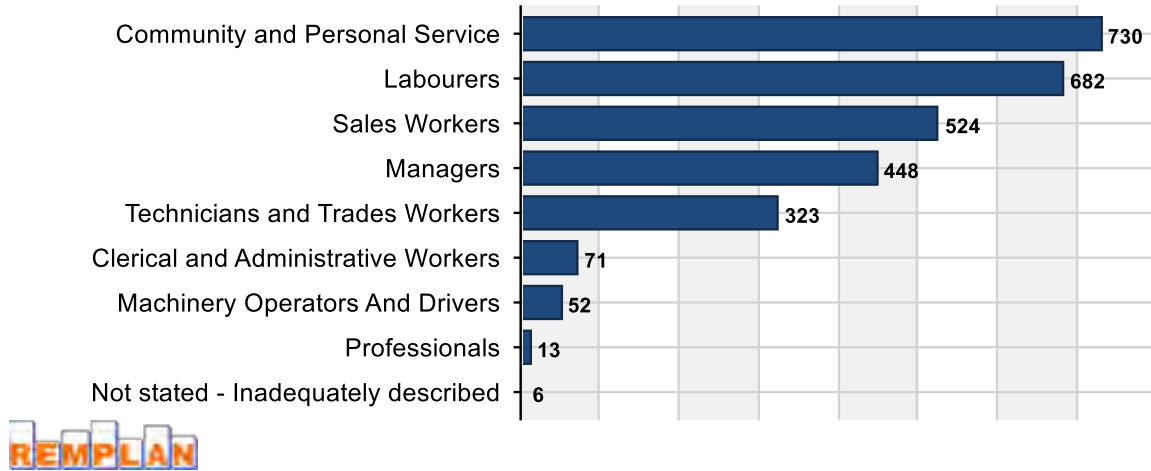
Figure 4-15 Knox Employment Land supporting Retail jobs



## 4.8 Accommodation and Food Services

The *Accommodation & Food Services* sector contributes 2,848 jobs (5.1 %) to total employment. The top three occupations in the sector include: Community & Personal Service Workers (25.6%), Labourers (23.9%) and Sales Workers (18.4%).

Figure 4-16 Accommodation & Food Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Accommodation & Food Services* sector within Knox is provided in Table 4-8.

Table 4-8 Economic Performance of Accommodation & Food Services – Knox (C) (\$M)

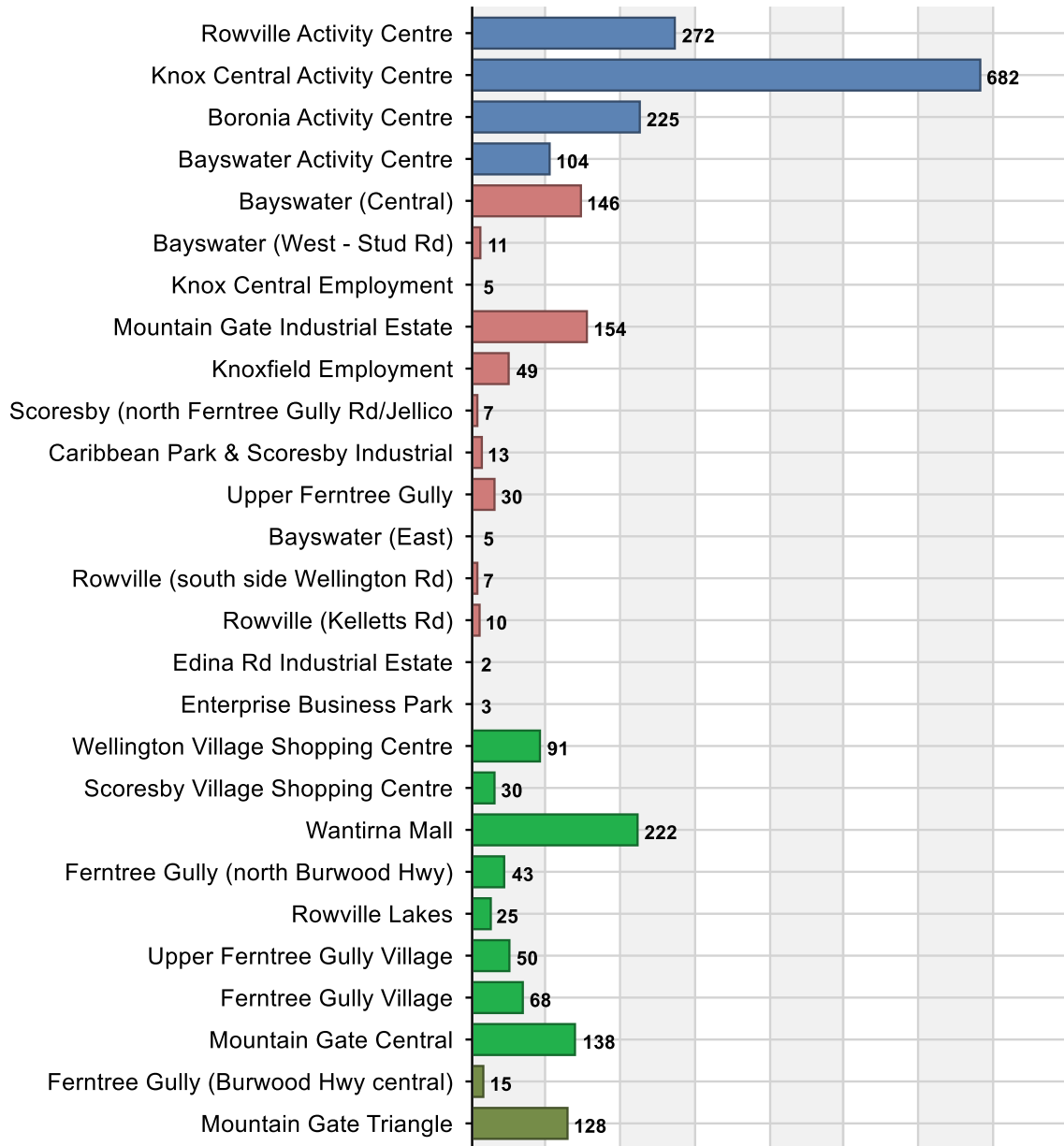
Accommodation & Food Services	2011	2012	2013	2014	2015	2016	Trend
<b>Output</b>	\$ 336.417	\$ 343.813	\$ 314.995	\$ 298.604	\$ 309.973	\$ 314.626	
<b>Wages &amp; Salaries</b>	\$ 83.140	\$ 87.552	\$ 89.565	\$ 86.002	\$ 89.277	\$ 92.131	
<b>Regional Exports</b>	\$ 19.889	\$ 21.772	\$ 21.599	\$ 21.828	\$ 22.659	\$ 23.002	
<b>Local expenditure</b>	\$ 99.415	\$ 106.006	\$ 90.577	\$ 83.197	\$ 86.364	\$ 71.222	
<b>Value-Added</b>	\$ 140.758	\$ 135.527	\$ 136.036	\$ 134.781	\$ 139.913	\$ 149.891	

Source: REMPLAN

### 4.8.1 Key Sector Insights

- The sector supports many workers (8<sup>th</sup> largest in LGA) but employment is concentrated in lower paid part-time employment.
- 34.5% of workers in the sector are paid less than \$199 per week, while 1,100 of the 2,848 jobs are part-time work between 1 – 15 hours per week.
- Total output has declined from 2011 levels of \$336.417 million to an estimated \$314.626 in 2016.
- Knox Central Activity Centre is the focus for employment in the sector and supports 23.9 % of all employment in the sector.
- There is representation of the sector across the Activity Centres, Neighbourhood Centres and Employment land. The combined Neighbourhood Centres comprise 23.9% of total employment in the sector and are expected to sustain modest growth from a lower base. Essentially supporting greater opportunities for accommodation and food options to meet local community requirements.

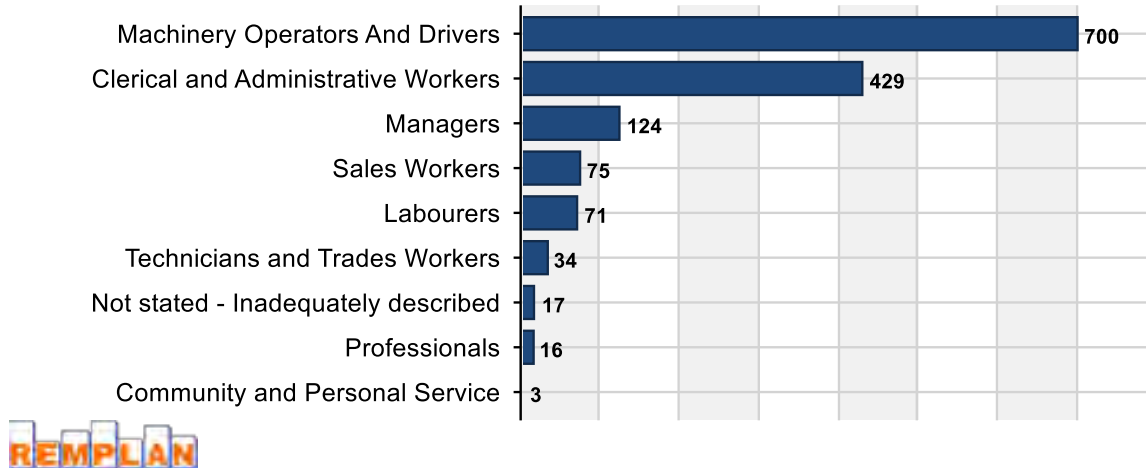
Figure 4-17 Knox LFB Assessment Areas supporting Accommodation & Food Services jobs



## 4.9 Transport, Postal and Warehousing

The *Transport, Postal & Warehousing* sector contributes 1,469 jobs (2.6 %) to total employment (Figure 4-18). The top three occupations in the sector include: Machinery Operators & Drivers (47.6%), Clerical & Administrative Workers (29.2%) and Managers (8.4%).

Figure 4-18 Transport, Postal & Warehousing (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the Transport, Postal & Warehousing sector within Knox is provided in Table 4-9.

Table 4-9 Economic Performance of Transport, Postal & Warehousing – Knox (C) (\$M)

Transport, Postal & Warehousing	2011	2012	2013	2014	2015	2016	Trend
<b>Output</b>	\$ 452.289	\$ 481.209	\$ 354.802	\$ 354.652	\$ 368.156	\$ 379.480	
<b>Wages &amp; Salaries</b>	\$ 100.107	\$ 105.327	\$ 81.116	\$ 85.514	\$ 88.770	\$ 90.606	
<b>Regional Exports</b>	\$ 62.142	\$ 60.408	\$ 56.737	\$ 57.564	\$ 59.756	\$ 61.496	
<b>Local expenditure</b>	\$ 154.177	\$ 175.483	\$ 131.009	\$ 134.662	\$ 139.789	\$ 134.340	
<b>Value-Added</b>	\$ 220.531	\$ 221.775	\$ 160.860	\$ 160.439	\$ 166.548	\$ 173.468	

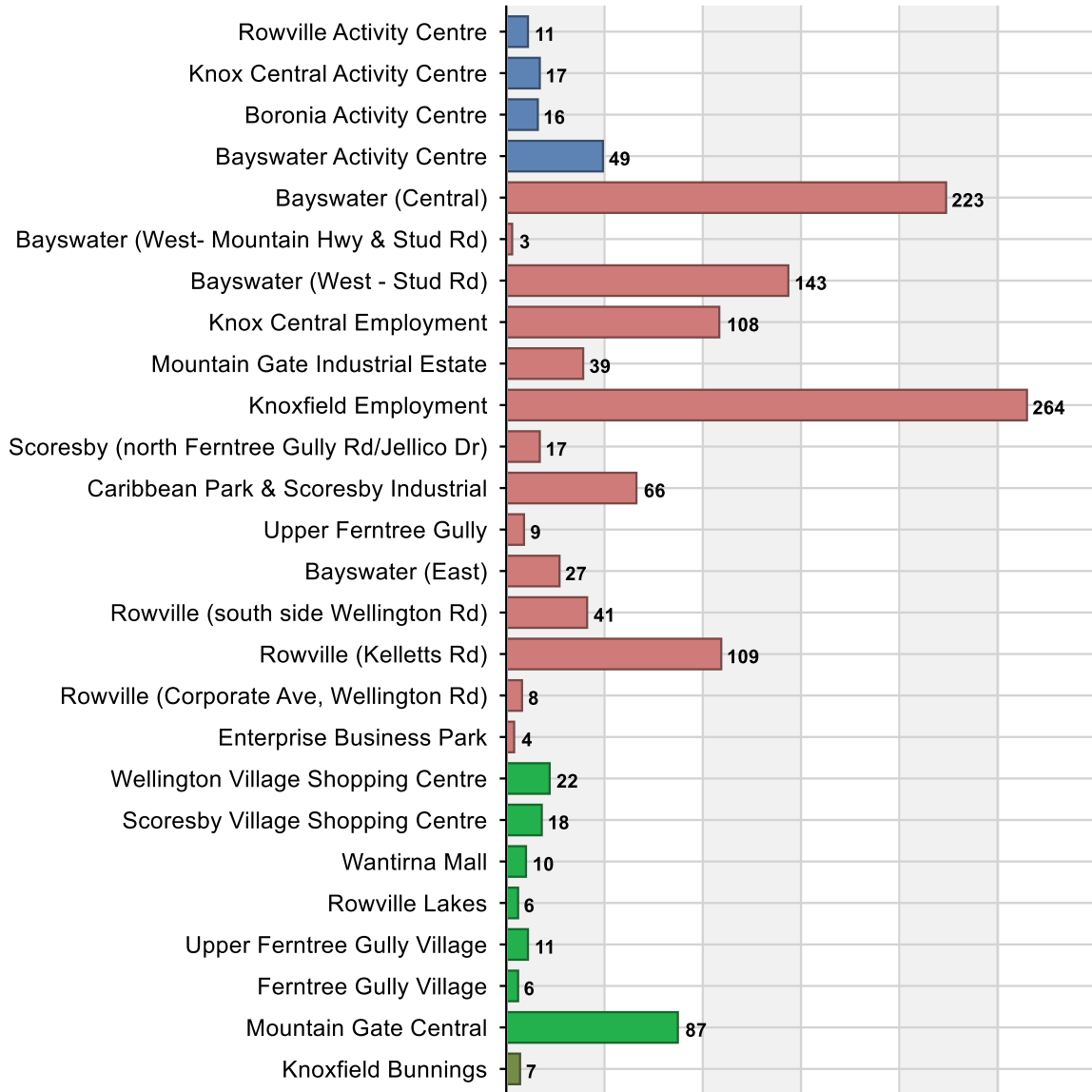
Source: REMPLAN

### 4.9.1 Key Sector Insights

- The *Transport, Postal & Warehousing* sector is experiencing significant advances in technology that is driving demand for higher order employment and less labour intensive roles in drivers and administration.
- The *Transport, Postal and Warehousing* industry sector within Knox has seen reduction in overall economic activity in terms over the last five years.
- Knox LGA is highly dependent on local road assets such as East Link and Burwood Highway, that have strategic importance for economic activity and employment. Road assets provide greater access to Melbourne’s regions that have consolidated in recent years within the *Transport, Postal & Warehousing* industry across Melbourne’s outer East, North and West. Greater access generates greater capacity to service the entire State from these logistics hubs.
- The sector is represented across most of the LFB Assessment Areas. Concentration of activity is within the Employment Land of Knoxfield Employment and Bayswater (Central) which support 487 jobs or 33.1% of total employment locally.
- Longer term expansion of this industry is likely to be associated with East-Link. The extent to which the industry may experience growth within Knox is dependent on the scale of land use to support *Transport, Postal & Warehousing* uses in association with East-Link particularly. The extent of available employment land for these industries will be important. In summary, unless

land is available in Knox close to East-Link it is expected employment within the sector will be located outside of the municipality.

Figure 4-19 Knox LFB Assessment Areas supporting Transport, Postal & Warehousing jobs





## 4.10 Information Media and Telecommunications

The *Information Media & Telecommunications* sector contributes 592 jobs (1.1 %) to total employment (Figure 4-20). The top three occupations in the sector include: Professionals (23.9 %), Technicians and Trades Workers (23.6 %) and Sales Workers (20.3 %)

Figure 4-20 Information Media & Telecommunications (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the Information Media & Telecommunications sector within Knox are provided in Table 4-10.

Table 4-10 Economic Performance of Information Media & Telecommunications – Knox (C) (\$M)

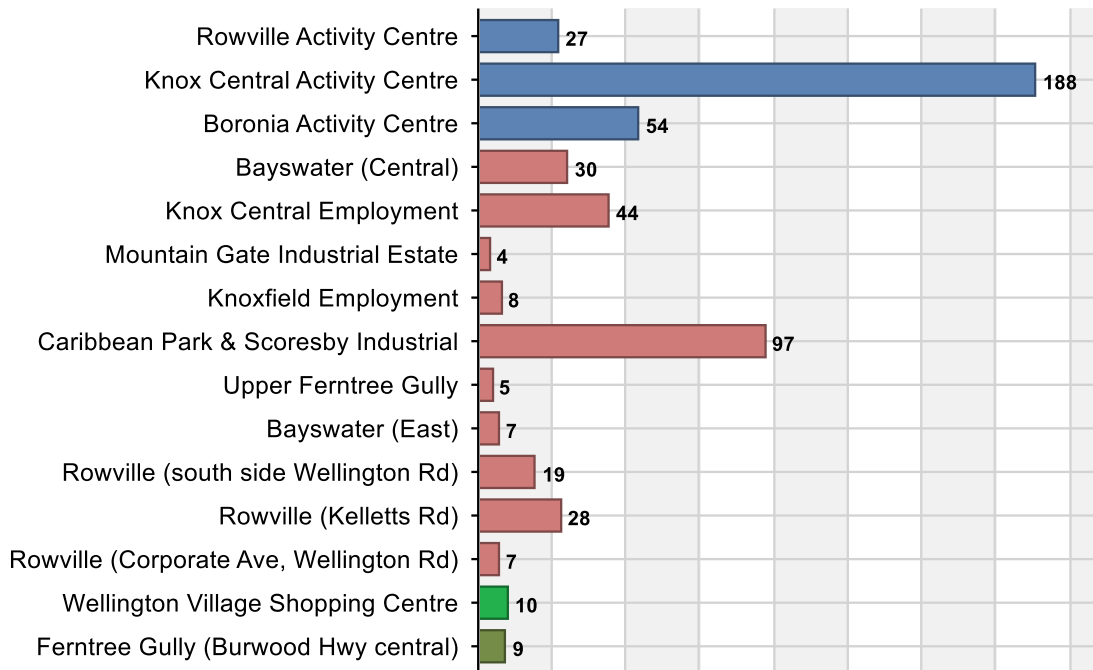
Information Media & Telecommunicatic	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 192.129	\$ 223.963	\$ 253.586	\$ 261.085	\$ 271.026	\$ 275.961	
Wages & Salaries	\$ 30.349	\$ 35.631	\$ 42.133	\$ 42.099	\$ 43.702	\$ 45.047	
Regional Exports	\$ 21.735	\$ 36.193	\$ 30.538	\$ 30.418	\$ 31.577	\$ 32.712	
Local expenditure	\$ 64.199	\$ 72.038	\$ 85.536	\$ 82.150	\$ 85.278	\$ 91.019	
Value-Added	\$ 80.930	\$ 93.643	\$ 114.733	\$ 121.365	\$ 125.985	\$ 115.583	

Source: REMPLAN

### 4.10.1 Key Sector Insights

- The *Information Media & Telecommunications* sector contributes \$275.961 million (1.4 %) of total output.
- The sector has continued to grow across all key economic indicators. Of note, growth in Telecommunications output has been experienced across Telecommunications Network Operations and Services.
- Jobs have been created in Magazine, Periodical, Book, Directory and Mailing List publishing; and in Radio, Television and Internet broadcasting.
- Knox Central Activity Centre and the Caribbean Business Park support the highest level of employment in the sector.

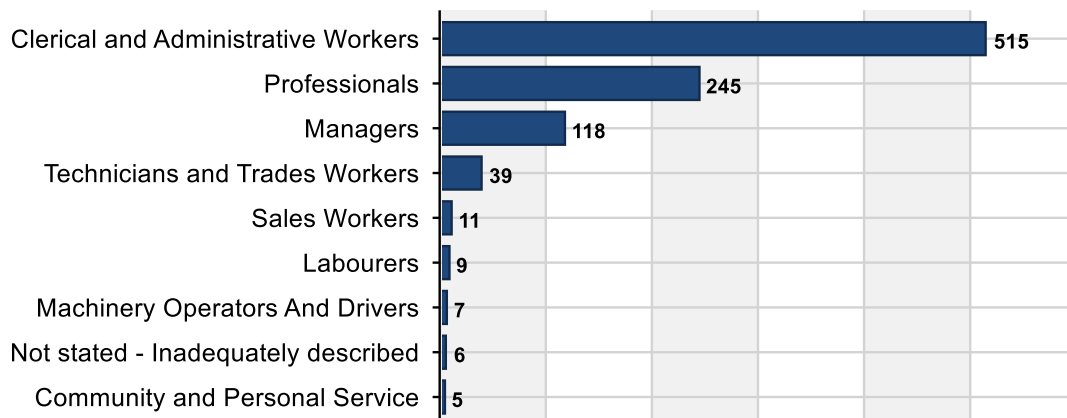
Figure 4-21 Knox LFB Assessment Areasupporting Information Media & Telecommunications jobs



#### 4.11 Financial and Insurance Services

The *Financial & Insurance Services* sector contributes 955 jobs (1.7 %) to total employment (Figure 4-22). The top three occupations within the sector include: Clerical & Administrative Workers (53.9%), Professionals (25.6%) and Managers (12.4%).

Figure 4-22 Financial & Insurance Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Financial & Insurance Services* sector within Knox are provided in Table 4-11.

Table 4-11 Economic Performance of Financial & Insurance Services – Knox (C) (\$M)

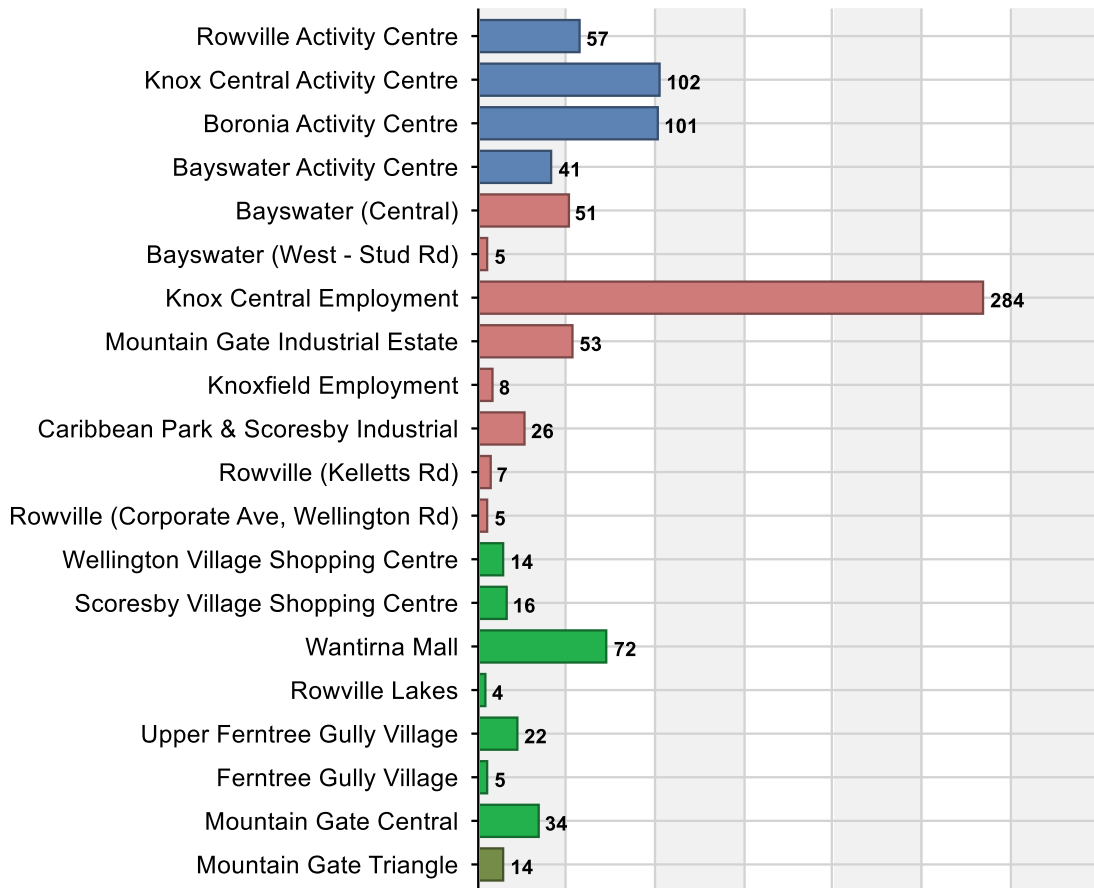
Financial & Insurance Services	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 680.145	\$ 741.550	\$ 523.965	\$ 522.043	\$ 541.920	\$ 555.911	
Wages & Salaries	\$ 200.030	\$ 227.993	\$ 161.278	\$ 165.908	\$ 172.225	\$ 124.342	
Regional Exports	\$ 29.336	\$ 40.017	\$ 44.587	\$ 49.848	\$ 51.746	\$ 65.499	
Local expenditure	\$ 116.892	\$ 121.657	\$ 90.124	\$ 84.522	\$ 87.740	\$ 116.501	
Value-Added	\$ 462.785	\$ 514.542	\$ 378.264	\$ 386.394	\$ 401.106	\$ 381.892	

Source: REMPLAN

#### 4.11.1 Key Sector Insights

- The *Financial & Insurance Services* sector contributes \$555.911 million (2.8 %) of total output.
- Total sales revenue (Output) has declined over the last five years from 680.145 million to an estimated \$555.911 in 2016.
- This decline has impact on the sectors performance and contribution toward wages and salaries and gross regional product (Value-added).
- However local expenditure in 2016 has returned to levels slightly above 2011 demonstrating strong links to other local professional services and collaboration between the finance and banking sectors within the broader *Financial & Insurance Services* sector.
- The sector is expected to grow in response to both a growing and ageing resident population.
- The most significant employment activity is concentrated in the Knox Central Activity Centre in association with a bank and other businesses that represent 29.7% of local employment in the sector.
- A range of Financial & Insurance Services sector employment is in the Activity Centres (27.2%) and across the broader Employment land and Neighbourhood Centres.

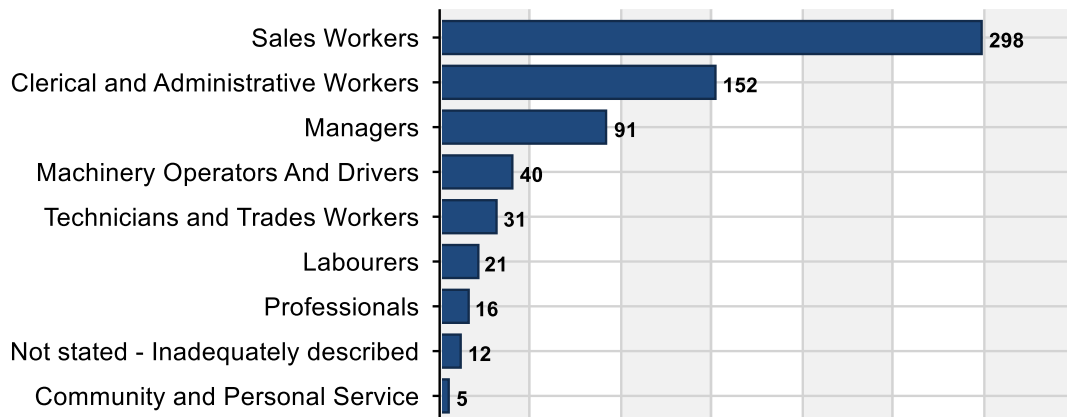
Figure 4-23 Knox LFB Assessment Areas supporting Financial & Insurance Services jobs



### 4.12 Rental, Hiring and Real Estate Services

The *Rental, Hiring & Real Estate Services* sector contributes 666 jobs (1.2 %) to total employment (Figure 4-24). The top three occupations in the sector include: Sales Workers (44.7%), Clerical & Administrative Workers (22.8%) and Managers (13.7%).

Figure 4-24 Rental, Hiring & Real Estate Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Rental, Hiring & Real Estate Services* sector within Knox is provided in Table 4-12.

Table 4-12 Economic Performance of Rental, Hiring & Real Estate Services – Knox (C) (\$M)

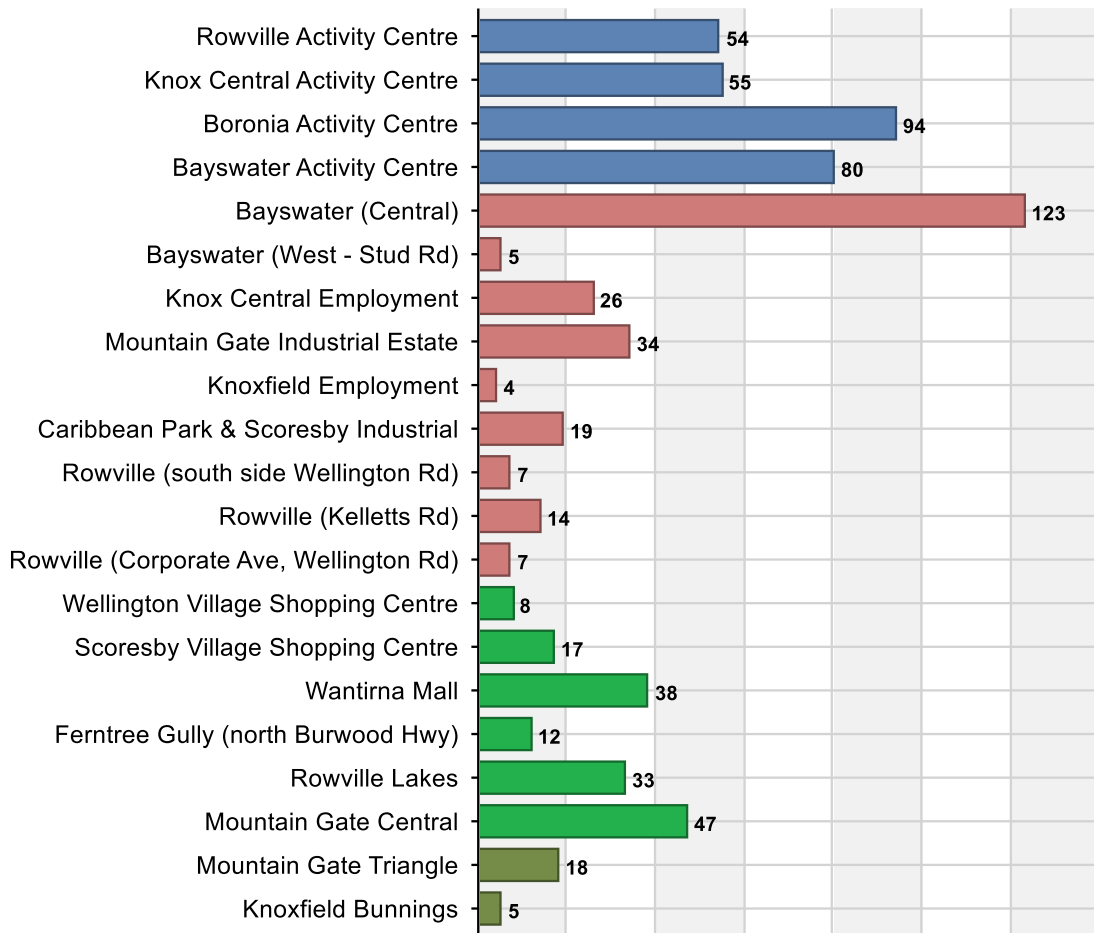
Rental, Hiring & Real Estate Services	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 1,259.463	\$ 1,382.778	\$ 1,267.492	\$ 1,347.415	\$ 1,398.718	\$ 1,592.249	
Wages & Salaries	\$ 57.858	\$ 62.835	\$ 50.952	\$ 53.387	\$ 55.420	\$ 57.694	
Regional Exports	\$ 20.089	\$ 22.898	\$ 23.959	\$ 17.414	\$ 18.077	\$ 37.335	
Local expenditure	\$ 232.277	\$ 262.444	\$ 275.152	\$ 287.014	\$ 297.942	\$ 301.102	
Value-Added	\$ 872.133	\$ 952.135	\$ 844.782	\$ 907.234	\$ 941.777	\$ 1,113.587	

Source: REMPLAN

#### 4.12.1 Key Sector Insights

- The *Rental, Hiring and Real Estate* sector is strongly linked to a growing residential population, the increasing value of property assets in the Knox (C) economy.
- The sector is modest in terms of overall employment. While total employment is low, the industry output (total sales revenue) continues to increase in is currently estimated at \$1.592 billion
- *Rental, Hiring and Real Estate* includes ‘Ownership of Dwellings’ which reflects housing stock in Knox (C) and the significant demand this generates for local goods and services including *Financial & Insurance Services* (\$131.747 million), *Construction* (\$59.248 million) and *Professional, Scientific & Technical Services* (\$22.974 million).
- Employment activity is spread throughout the LFB assessment areas. The four Activity Centres support 40% of the sectors employment, the employment land includes 34% of total jobs, while the Neighbourhood Centres include 22% of the total sectors employment.

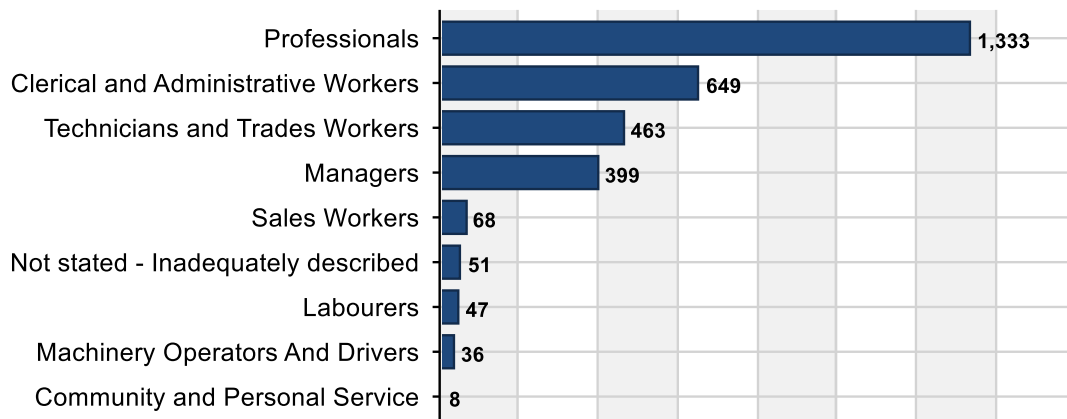
Figure 4-25 Knox LFB Assessment Areas supporting Rental, Hiring and Real Estate jobs



### 4.13 Professional, Scientific and Technical Services






The *Professional, Scientific & Technical Services* sector contributes 3,053 jobs (5.5%) to total employment (Figure 4-26). The top three occupations within the sector include: Professionals (43.7%), Clerical & Administrative Workers (21.3%) and Technicians & Trades Workers (15.2%).

Figure 4-26 Professional, Scientific & Technical Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Professional, Scientific & Technical Services* sector within Knox is provided in Table 4-13.

Table 4-13 Economic Performance of Professional, Scientific & Technical Services – Knox (\$M)

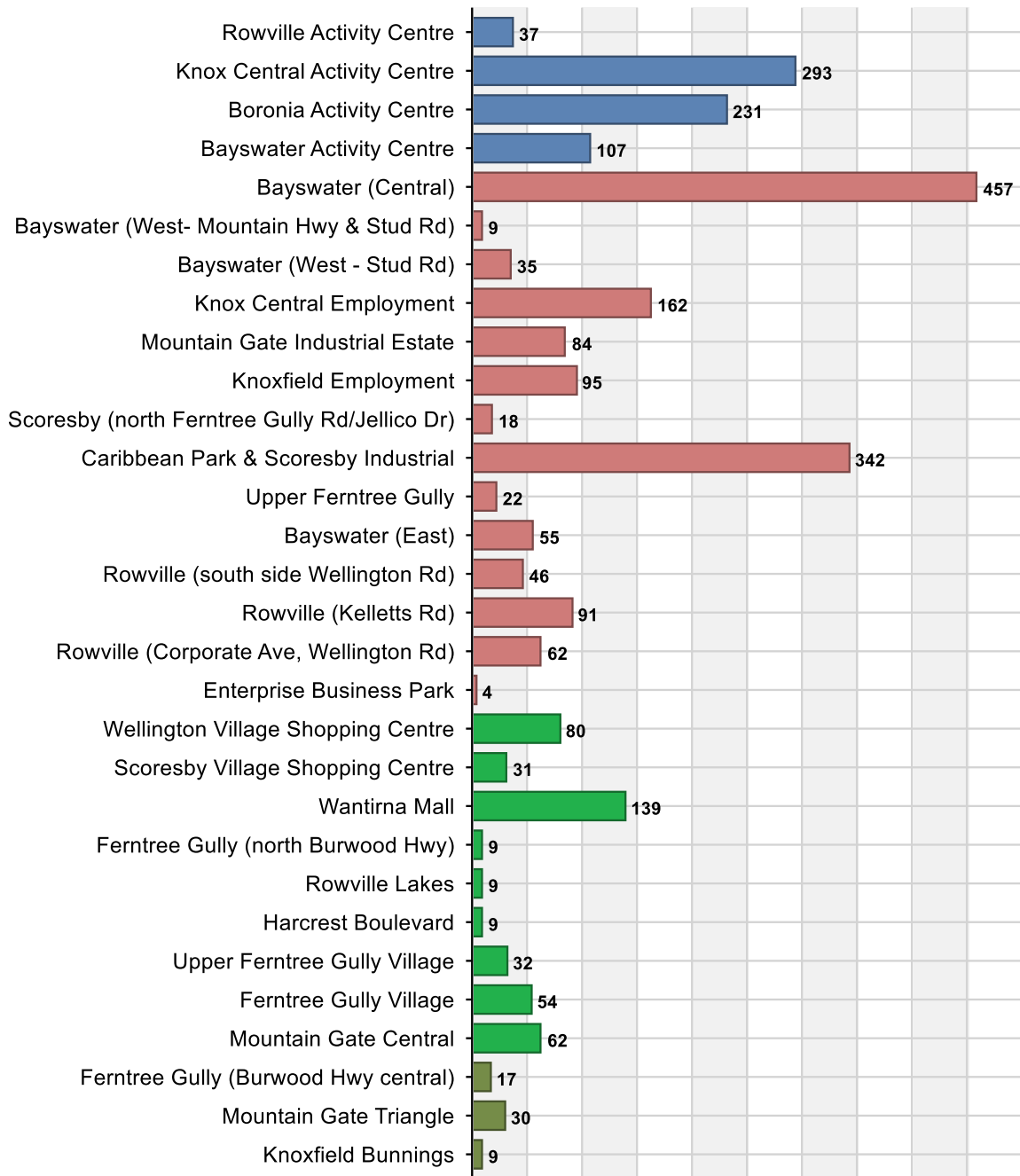
Professional, Scientific & Technica	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 576.803	\$ 600.402	\$ 799.157	\$ 768.154	\$ 797.402	\$ 795.651	
Wages & Salaries	\$ 195.343	\$ 207.839	\$ 241.909	\$ 228.623	\$ 237.328	\$ 265.849	
Regional Exports	\$ 40.798	\$ 32.566	\$ 99.795	\$ 68.232	\$ 70.830	\$ 69.323	
Local expenditure	\$ 172.972	\$ 175.318	\$ 268.110	\$ 242.279	\$ 251.503	\$ 244.580	
Value-Added	\$ 261.060	\$ 280.123	\$ 356.573	\$ 364.913	\$ 378.807	\$ 399.412	

Source: REMPLAN

#### 4.13.1 Key Sector Insights

- The *Professional, Scientific & Technical Services* sector contributes \$795.651 million (3.9 %) of total output. The sector is the 6th largest sector in terms of total revenue. Total output by the sector increased significantly between 2011 and 2013 and has now stabilised at almost \$800 million per annum.
- Growth in wages and salaries has responded to the increased revenue in the sector locally.
- While professional services as a regional export have not increased markedly, local sales represent 75.7% of total sales revenue. This indicates strong local demand for Professional, Scientific & Technical Services within the local economy. That is local firms are delivering for local clients.
- The *Professional, Scientific & Technical Services* sector contributes \$244.580 million (4.5 %) of total local expenditure. Across the Melbourne East Region, the sector contributes 9.2% of total local expenditure. As such there appears to be greater opportunity for increased local expenditure to support aligned business activities through strategies of collaboration, clustering and partnering.
- The sector is experiencing change that is being driven by technological advances and new business models, which present collaboration and partnering opportunity for computer and technical service related businesses with the broader *Professional, Scientific & Technical Services* sector
- The technological advances and new business models driving change in this sector are to varying degrees impacting all of Knox's key industries; strong representation of businesses in Knox across Engineering, Accounting, Management Consultancy and Computer System Design all indicate continued growth in the Professional, Scientific & Technical Services employment.
- Employment in the *Professional, Scientific & Technical Services* sector is spread across most of the LFB Assessment Areas. The strongest representation is within the Activity Centres and Employment Land. Bayswater (Central) supports 457 jobs (14.97 %) while the Caribbean Business Park (11.2%), Knox Central Activity Centre (9.5%) and Boronia Activity Centre (7.5%) account for another 866 jobs in the sector.

Figure 4-27 Knox LFB Assessment Areas supporting Professional, Scientific & Technical Services jobs

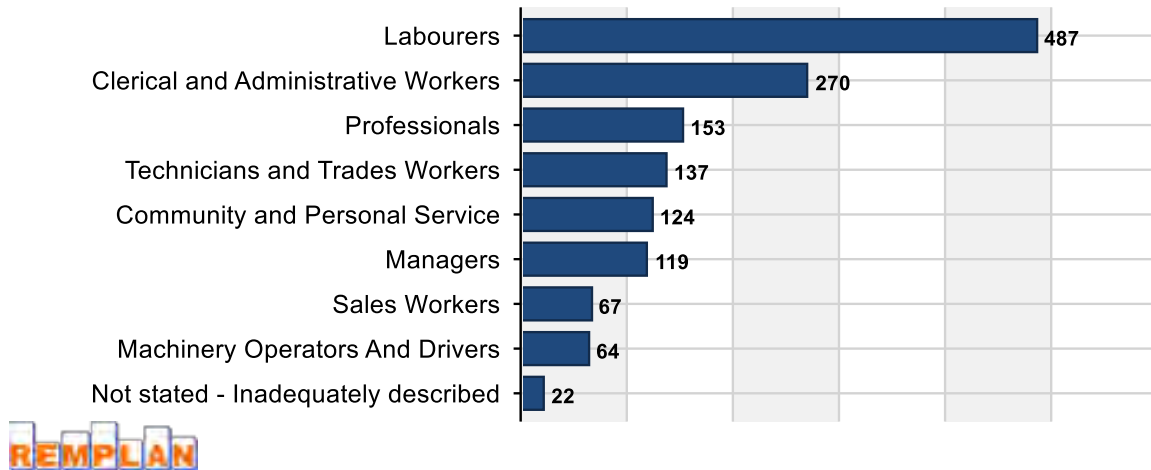




### 4.14 Administrative and Support Services

The *Administrative & Support Services* sector contributes 1,444 jobs (2.6 %) to total employment. The top three occupations within the sector include: Labourers (33.7 %), Clerical and Administrative (18.7%) and Professionals (10.6%).

Figure 4-28 Administrative & Support Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the Professional, Scientific & Technical Services sector within Knox is provided in Table 4-14.

Table 4-14 Economic Performance of Administrative & Support Services – Knox (\$M)

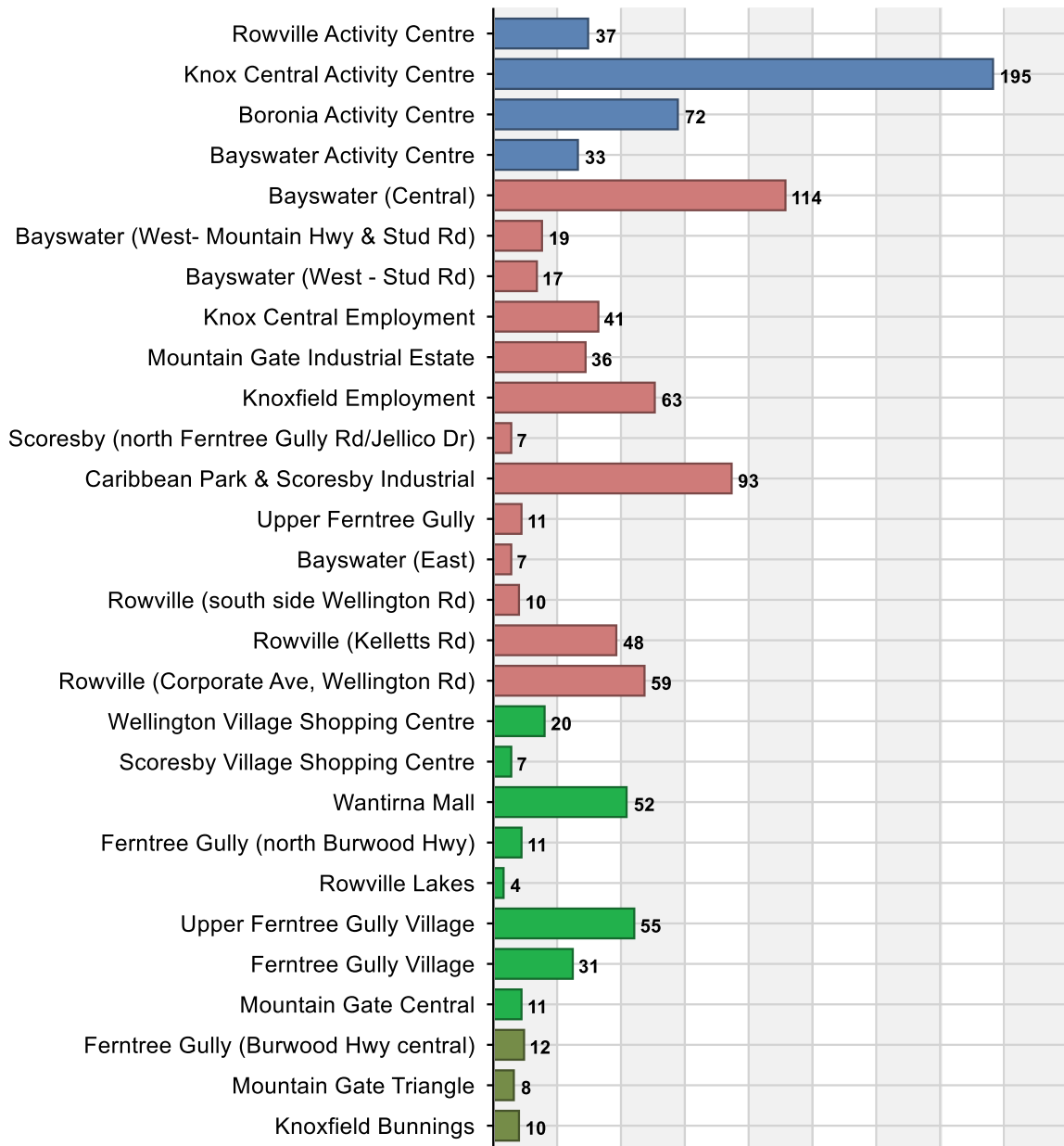
Administrative & Support Services	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 282.777	\$ 322.626	\$ 309.305	\$ 284.364	\$ 295.191	\$ 332.837	
Wages & Salaries	\$ 123.146	\$ 137.351	\$ 125.797	\$ 108.337	\$ 112.462	\$ 142.989	
Regional Exports	\$ 4.661	\$ 8.627	\$ 27.559	\$ 20.880	\$ 21.675	\$ 41.519	
Local expenditure	\$ 80.735	\$ 96.727	\$ 103.510	\$ 93.804	\$ 97.376	\$ 98.107	
Value-Added	\$ 141.227	\$ 156.160	\$ 149.581	\$ 134.506	\$ 139.627	\$ 174.059	

Source: REMPLAN

#### 4.14.1 Key Industry Insights

- The *Administrative & Support Services* sector contributes \$332.837 million (1.7 %) of total output. Total output by the sector increased by \$50.060 million between 2011 and 2016, although growth fluctuated throughout the period.
- Wages and salaries shadowed the sectors revenue performance and is estimated to be \$142.989 million or 3.5% of total wages and salaries.
- While modest, the sector has grown its local expenditure with strongest local supply chains evident across *Rental, Hiring & Real Estate Services* (\$10.816 million) and *Professional, Scientific & Technical Services* (\$24.765 million).
- The sector’s employment is spread across the LGA with a concentration of employment in Knox Central Activity Centre (13.5%), Bayswater (Central) (7.8%) and Caribbean Business Park (6.4%), see Figure 4-29.

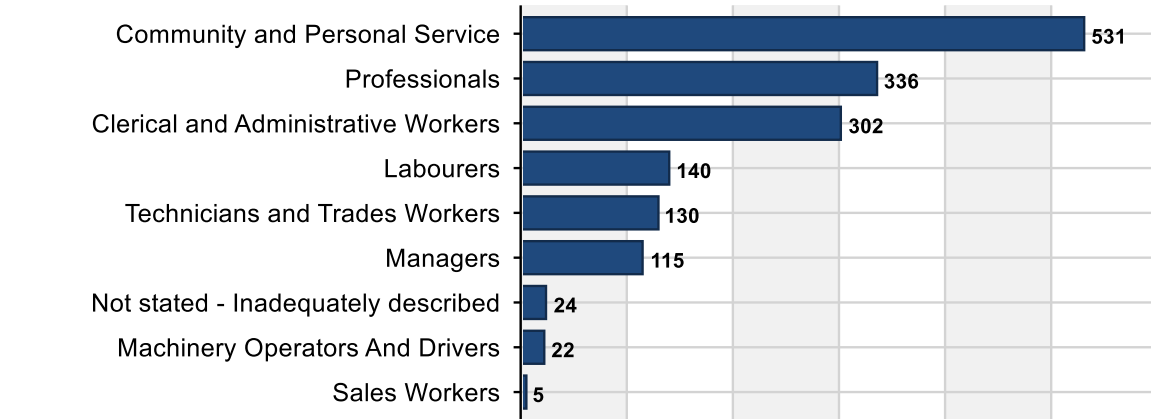
Figure 4-29 Knox LFB Assessment Areas supporting Administrative & Support Services jobs



## 4.15 Public Administration and Safety

The *Public Administration & Safety* sector contributes 1,605 jobs (2.9 %) to total employment (Figure 4-30). The top three occupations in the sector include: Community & Personal Service Workers (33.1%), Professionals (20.9%) and Clerical and Administrative Workers (18.8%).

Figure 4-30 Public Administration & Safety (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Public Administration & Safety* sector within Knox is provided in Table 4-15.

Table 4-15 Economic Performance of Public Administration & Safety – Knox (\$M)

Public Administration & Safety	2011	2012	2013	2014	2015	2016	Trend
<b>Output</b>	\$ 262.198	\$ 280.274	\$ 283.836	\$ 280.470	\$ 291.149	\$ 316.936	
<b>Wages &amp; Salaries</b>	\$ 135.002	\$ 135.528	\$ 131.995	\$ 132.197	\$ 137.231	\$ 149.917	
<b>Regional Exports</b>	\$ 1.171	\$ 1.192	\$ 0.298	\$ 0.266	\$ 0.276	\$ 0.436	
<b>Local expenditure</b>	\$ 62.034	\$ 72.442	\$ 84.882	\$ 83.092	\$ 86.256	\$ 91.338	
<b>Value-Added</b>	\$ 160.861	\$ 163.816	\$ 160.050	\$ 159.533	\$ 165.607	\$ 180.192	

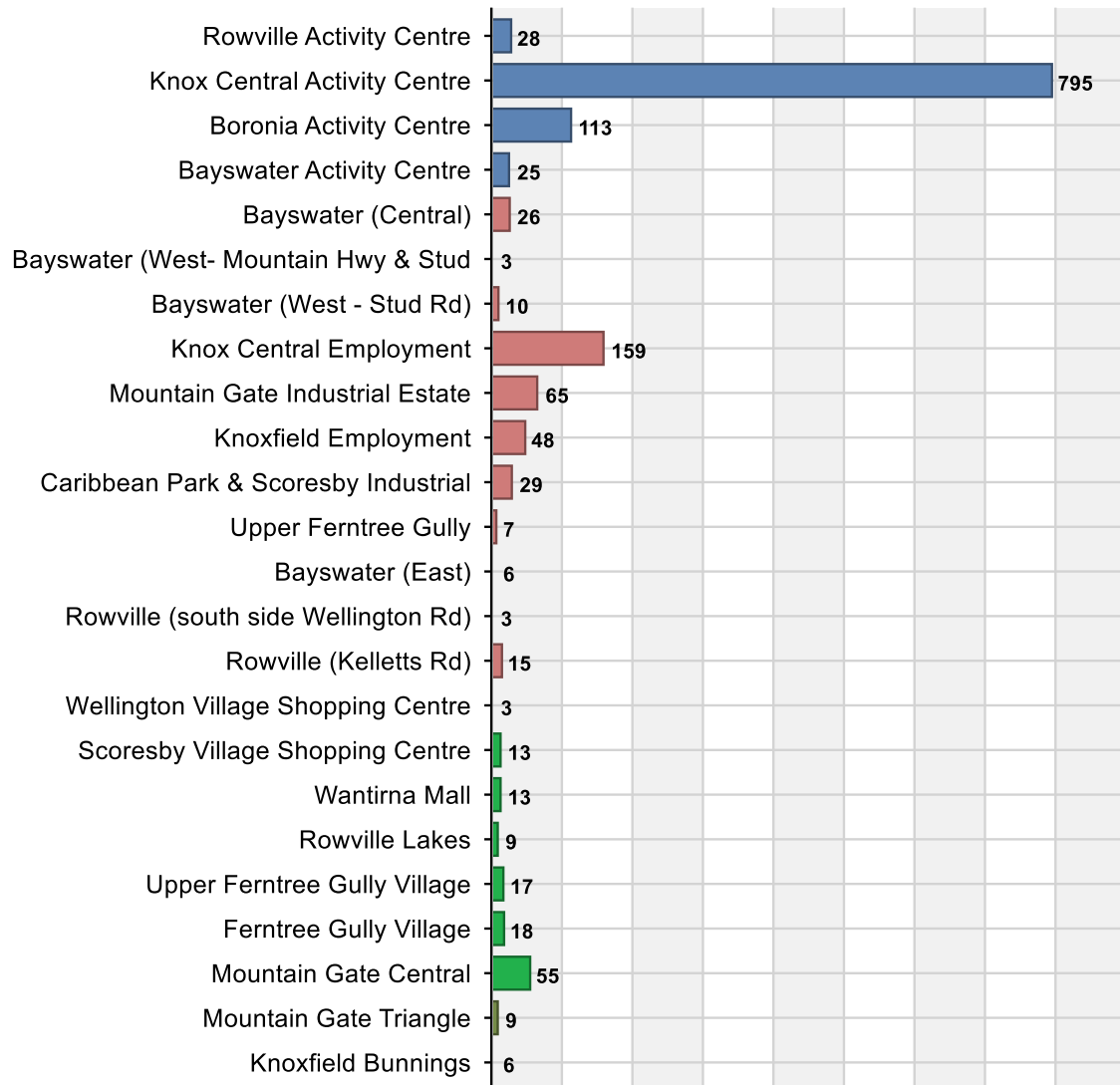
Source: REMPLAN

### 4.15.1 Key Industry Insights

- The *Public Administration & Safety* sector contributes \$316.936 million (1.6 %) of total output and has increased from \$262.198 million in 2011 to \$316.936 million in 2016.
- Wages and salaries growth has matched the estimated increase in total output by the sector. The *Public Administration & Safety* sector contributes \$149.917 million (3.7 %) of total wages and salaries.
- Demand across all levels of Government and key public order functions associated with police and fire services continues to grow with the need for service provision to align with an expanding resident base.
- All key economic measures have grown between 2012 and 2015 reflecting larger government budgets and an expanding workforce to meet the service needs of an expanding region
- The *Public Administration & Safety* sector contributes \$180.192 million (2.4 %) to Gross Regional Product (Value-Added).
- It is expected that ongoing demand for services and infrastructure to support the liveability of a growing and ageing population base in Knox (C) will propel ongoing industry expansion.

- The role of the Knox Central Activity Centre is significant in supporting employment and economic activity for the sector. The Activity Centre supports 49.53% of all employment in the sector (Figure 4-27).

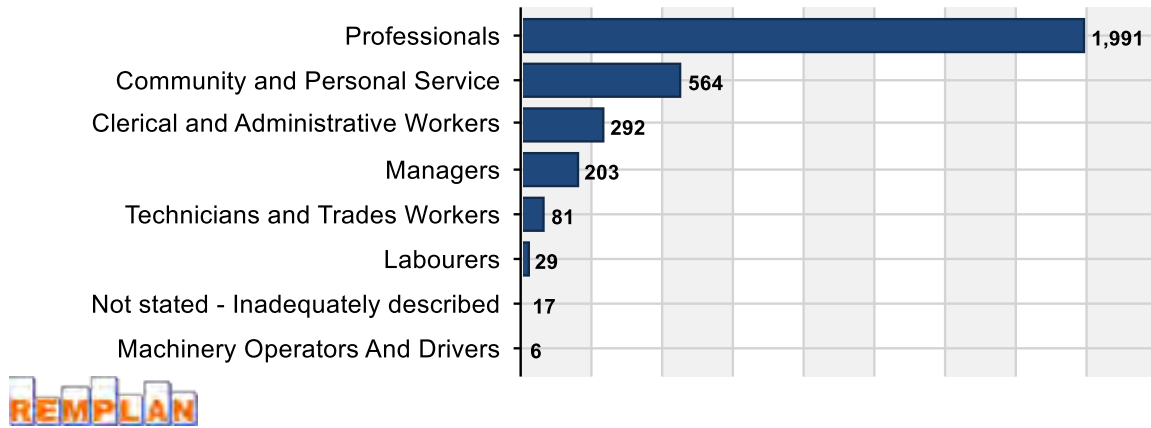
Figure 4-31 Knox LFB Assessment Areas supporting Public Administration & Safety jobs



## 4.16 Education and Training

The *Education & Training* sector contributes 3,181 jobs (5.7 %) to total employment (Figure 4-32). The top three occupations within the sector include: Professionals (63%), Clerical & Administrative Workers (11.5%) and Community and Personal Service Workers (11.2%).

Figure 4-32 Education & Training (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Education & Training* sector are provided in Table 4-16.

Table 4-16 Economic Performance of Education & Training – Knox (\$M)

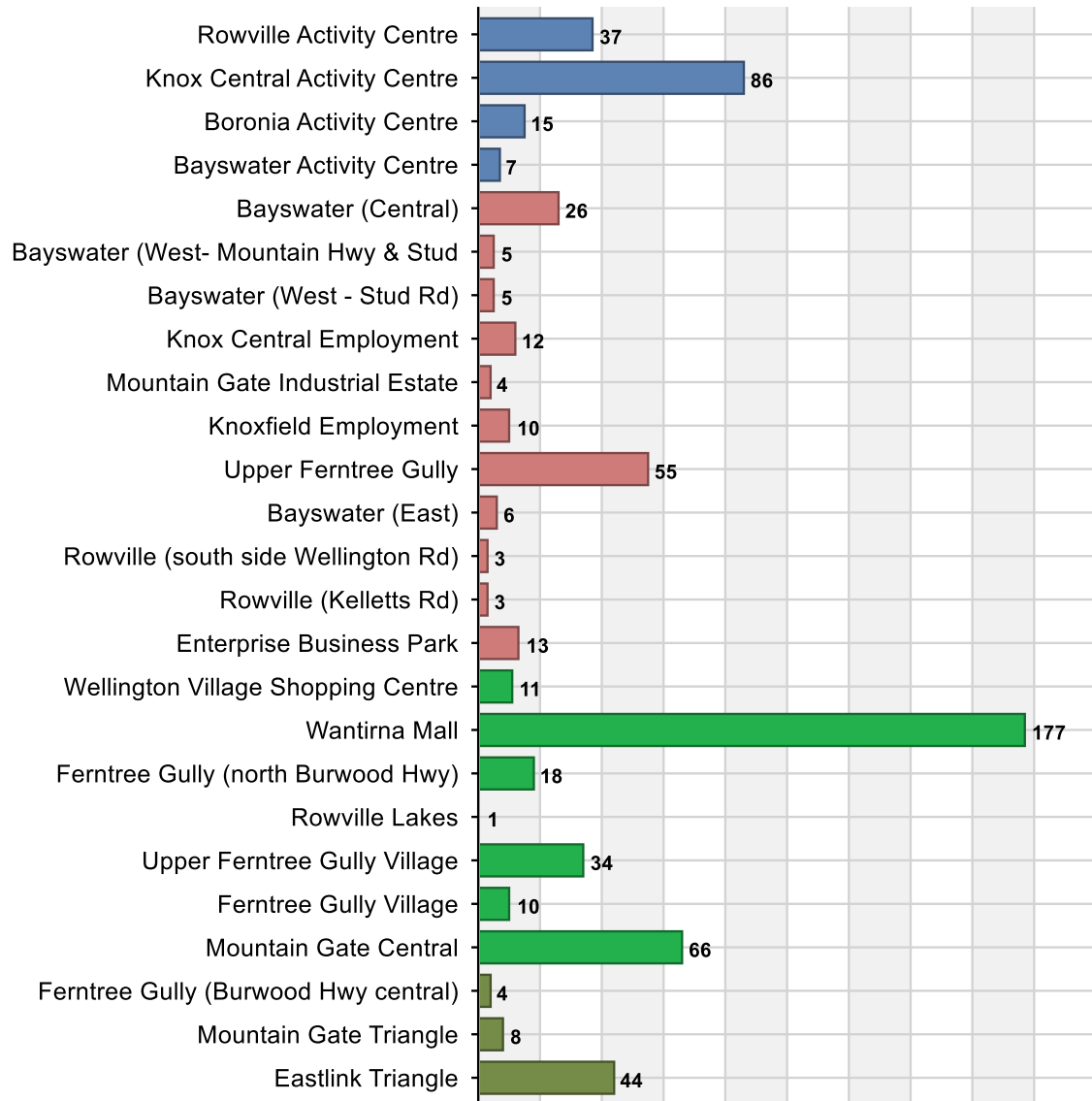
Education & Training	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 327.657	\$ 325.591	\$ 355.827	\$ 320.320	\$ 332.517	\$ 344.591	
Wages & Salaries	\$ 216.356	\$ 208.120	\$ 218.244	\$ 210.129	\$ 218.129	\$ 226.538	
Regional Exports	\$ 25.789	\$ 26.670	\$ 29.220	\$ 11.517	\$ 11.956	\$ 12.923	
Local expenditure	\$ 50.083	\$ 53.720	\$ 62.609	\$ 48.283	\$ 50.121	\$ 57.800	
Value-Added	\$ 244.555	\$ 234.988	\$ 255.742	\$ 244.157	\$ 253.453	\$ 259.254	

Source: REMPLAN

### 4.16.1 Key Sector Insights

- The Education & Training sector contributes \$259.254 million (3.5 %) of total value-added.
- Education & Training sector contributes \$344.591 million (1.7 %) of total output.
- The sector is the 6th largest employer in the LGA, supporting over 3000 jobs.
- Sustained job growth and increase in wages & salaries is strongly aligned to a growing population and demand for access to education through tertiary years.
- As demonstrated by in Table 4-16, the sector has experienced ongoing growth in wages and salaries, its contribution to Gross Regional Product (Value-added).
- While there is representation of the sector in the LFB Assessment Areas, it represents only 19.36% of total employment. Many schools and other educational institutions are located outside of the LFB assessment areas, including Pre-Schools, Primary Schools, Secondary Colleges and Swinburne University.

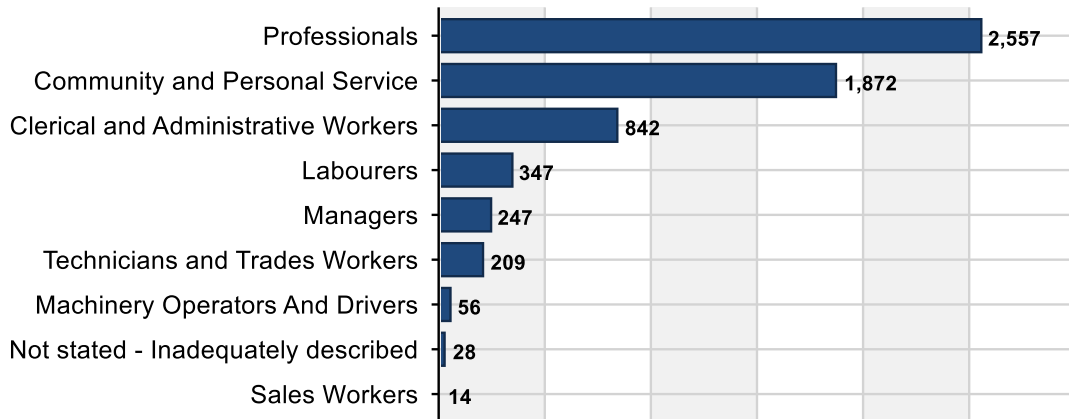
Figure 4-33 Knox LFB Assessment Areas supporting Education & Training jobs



## 4.17 Health Care and Social Assistance

The *Health Care & Social Assistance* sector contributes 6,172 jobs (11.1 %) to total employment (Figure 4-34). The top three occupations within the sector include: Professionals (41.4%), Community and Personal Service Workers (30.3%) and Clerical and Administrative Workers (13.6%).

Figure 4-34 Health Care & Social Assistance (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Health Care & Social Assistance* sector within Knox are provided in Table 4-17.

Table 4-17 Economic performance of Health Care & Social Assistance – Knox (\$M)

Health Care & Social Assistance	2011	2012	2013	2014	2015	2016	Trend
<b>Output</b>	\$ 513.622	\$ 538.112	\$ 676.680	\$ 655.232	\$ 680.180	\$ 652.792	
<b>Wages &amp; Salaries</b>	\$ 331.182	\$ 353.516	\$ 377.603	\$ 370.821	\$ 384.940	\$ 417.565	
<b>Regional Exports</b>	\$ 2.589	\$ 2.865	\$ 34.646	\$ 19.839	\$ 20.594	\$ 4.492	
<b>Local expenditure</b>	\$ 77.459	\$ 79.494	\$ 163.667	\$ 154.429	\$ 160.308	\$ 117.242	
<b>Value-Added</b>	\$ 404.790	\$ 426.770	\$ 456.068	\$ 449.762	\$ 466.887	\$ 500.097	

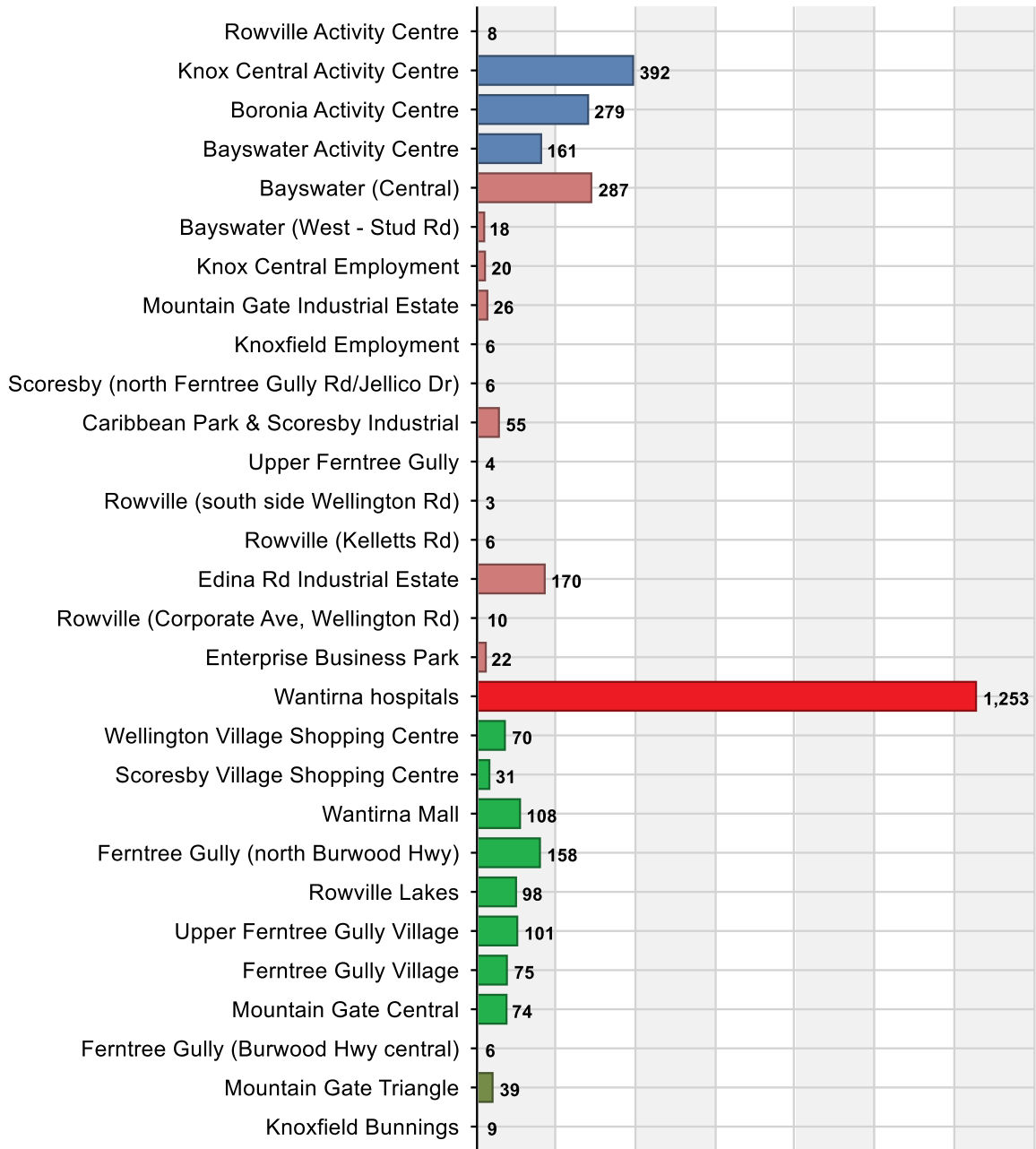
Source: REMPLAN

### 4.17.1 Key Sector Insights

- The *Health Care & Social Assistance* sector contributes \$652.792 million (3.2 %) of total output. Total Output has increased from 2011 levels, but has seen an overall reduction since 2013.
- The sector is significant in terms of employment (11.1%) and as a contributor to Gross Regional Product (6.7%) (Value-added).
- The sector has experienced sustained increase in wages and salaries, contributing \$417.565 million (10.4 %) of total wages and salaries.
- Despite a reduction in overall output, the sector contributes strongly to Gross Regional Product (Value-added), \$500.097 million or 6.7% of Knox’s total contribution.
- *Health Care and Social Assistance* is strongly aligned to demands of a growing and ageing population; it is expected this sector will continue to support significant local employment opportunities.
- Employment and activity is centred around the Wantirna Hospitals Assessment Areas. It is estimated that this cluster of employment represents 1,253 jobs or 20.30% of sectors total employment in Knox (Figure 4-35).
- Beyond Knox Private Hospital this key regional Health location, the role of the Activity Centres and Bayswater (Central) are also significant in supporting a range of employment in the sector.

- Some key locations, such as Angliss Hospital (934 jobs) are in locations outside of the LFB Assessment Areas.

Figure 4-35 Knox LFB Assessment Areas supporting Health Care & Social Assistance jobs

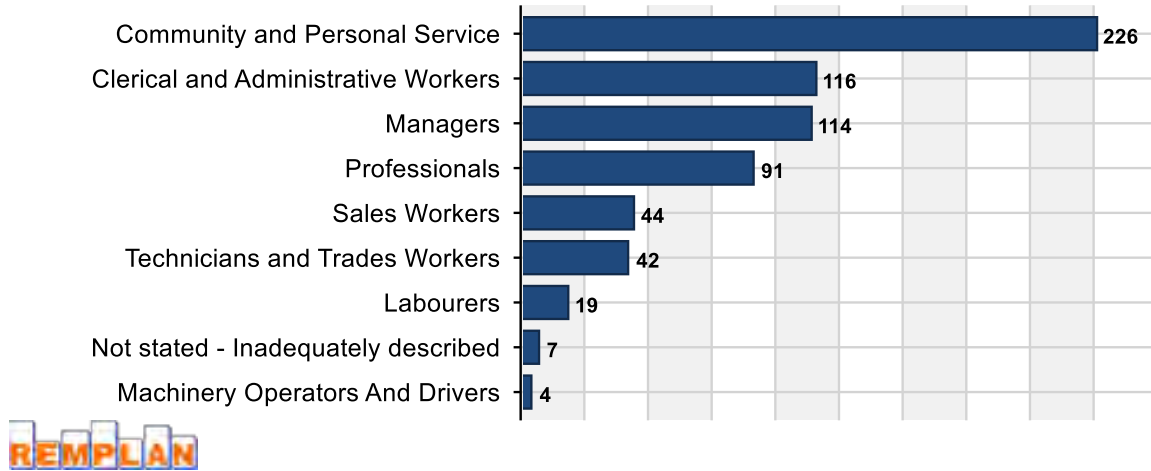




## 4.18 Arts and Recreation Services

The *Arts & Recreation Services* sector contributes 665 jobs (1.2 %) to total employment (Figure 4-36). The top three occupations in the sector include: Community and Personal Service Workers (34.0 %), Clerical and Administrative Workers (17.5 %) and Managers (17.2 %).

Figure 4-36 Arts & Recreation Services (Jobs) – Knox (C), ABS 2011



Key economic performance measures for the *Arts & Recreation Services* sector within Knox is provided in Table 4-18.

Table 4-18 Economic Performance of Arts & Recreation Services – Knox (\$M)

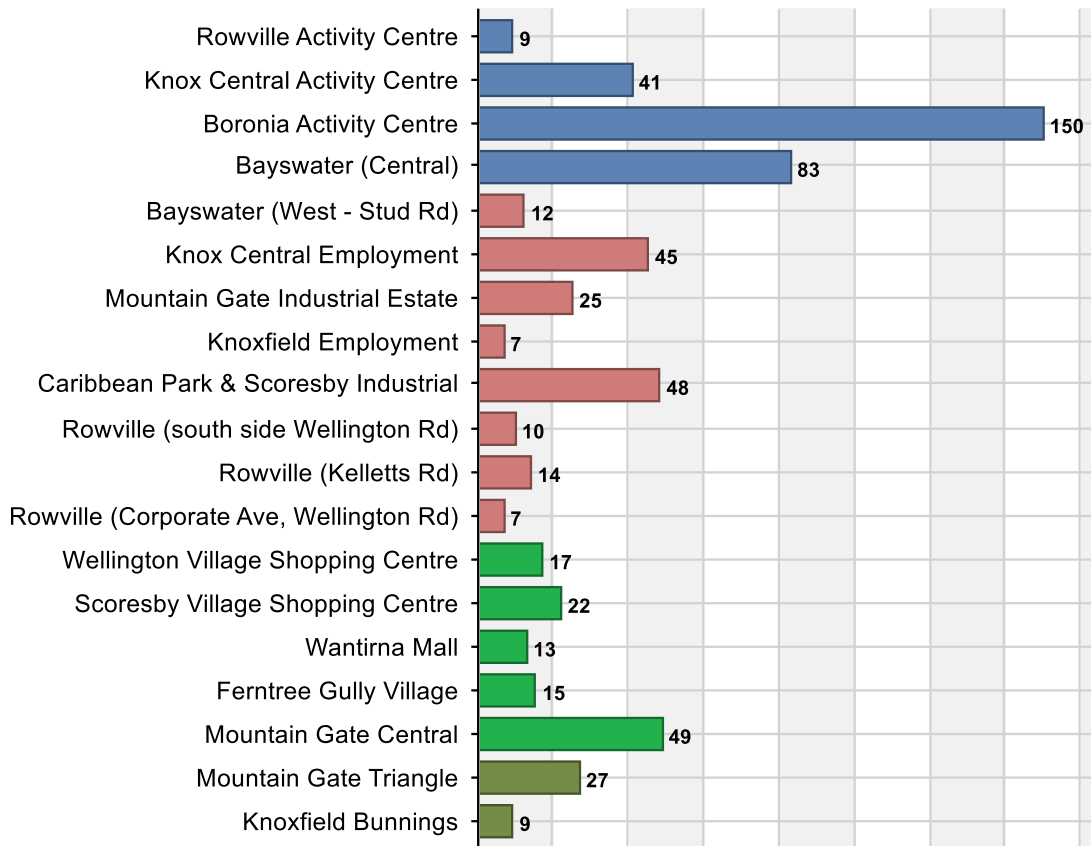
Arts & Recreation Services	2011	2012	2013	2014	2015	2016	Trend
<b>Output</b>	\$ 98.309	\$ 95.545	\$ 110.536	\$ 113.864	\$ 118.200	\$ 114.945	
<b>Wages &amp; Salaries</b>	\$ 23.601	\$ 24.280	\$ 24.593	\$ 25.917	\$ 26.904	\$ 25.096	
<b>Regional Exports</b>	\$ 10.653	\$ 8.679	\$ 9.192	\$ 11.707	\$ 12.153	\$ 8.096	
<b>Local expenditure</b>	\$ 37.204	\$ 36.203	\$ 41.726	\$ 48.502	\$ 50.349	\$ 49.161	
<b>Value-Added</b>	\$ 38.298	\$ 35.400	\$ 46.003	\$ 39.905	\$ 41.424	\$ 41.314	

Source: REMPLAN

### 4.18.1 Key Industry Insights

- The *Arts & Recreation Services* sector continues to show growth in total output (sales revenue) albeit from a relatively low base. The sector contributes \$41.314 million (0.6 %) of total value-added.
- Wages and salaries growth have fallen in recent years. Despite wages and salaries decreases across the sector, the *Arts and Recreation Services* sector contribution to Gross Regional Product has grown and remained steady over the last six years.
- The contribution of the Arts and Recreation sector to Gross Regional Product has grown over the last four years but plateaued to \$72.6 million
- The strength of local supply chains with the sector is evident through local expenditure that has grown over the last four years to over \$49.161 million; these links are estimated to be strongest with local Manufacturing, Professional, Scientific & Technical Services, Administrative & Support, and other Arts & Recreation Services.
- Boronia Activity Centre sustains an estimated 150 jobs or 22.5% of total *Arts & Recreation Services* Sector employment. Most workers in the Boronia Activity Centre are associated with employment in recreation supporting local demand for health, fitness and gyms.

Figure 4-37 Knox LFB Assessment Areas supporting Arts and Recreation jobs

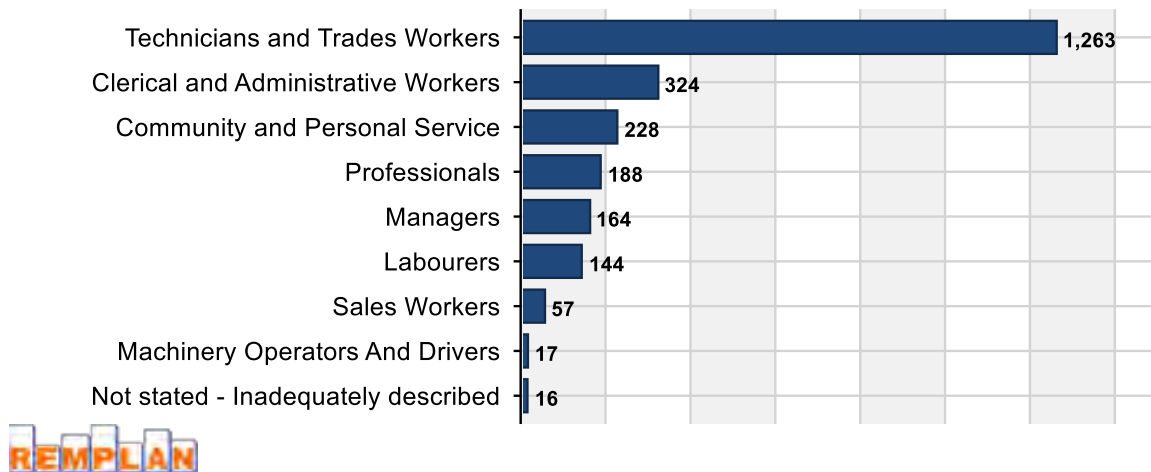


#### 4.19 Other Services

The *Other Services* sector contributes 2,401 jobs (4.3 %) to total employment. *Other Services* includes a broad range of personal services; religious, civic, professional and other interest group services; selected repair and maintenance activities; and private households employing staff.

The top three occupations include: Technicians and Trades Workers (52.6%), Clerical and Administrative Workers (13.5%) and Community and Personal Service Workers (9.5%).

Figure 4-38 Other Sectors (Jobs) – Knox (C), ABS 2011



Key economic performance measures for this sector is provided in Table 4-19.

Table 4-19 Economic performance of 'Other Sectors' – Knox (\$M)

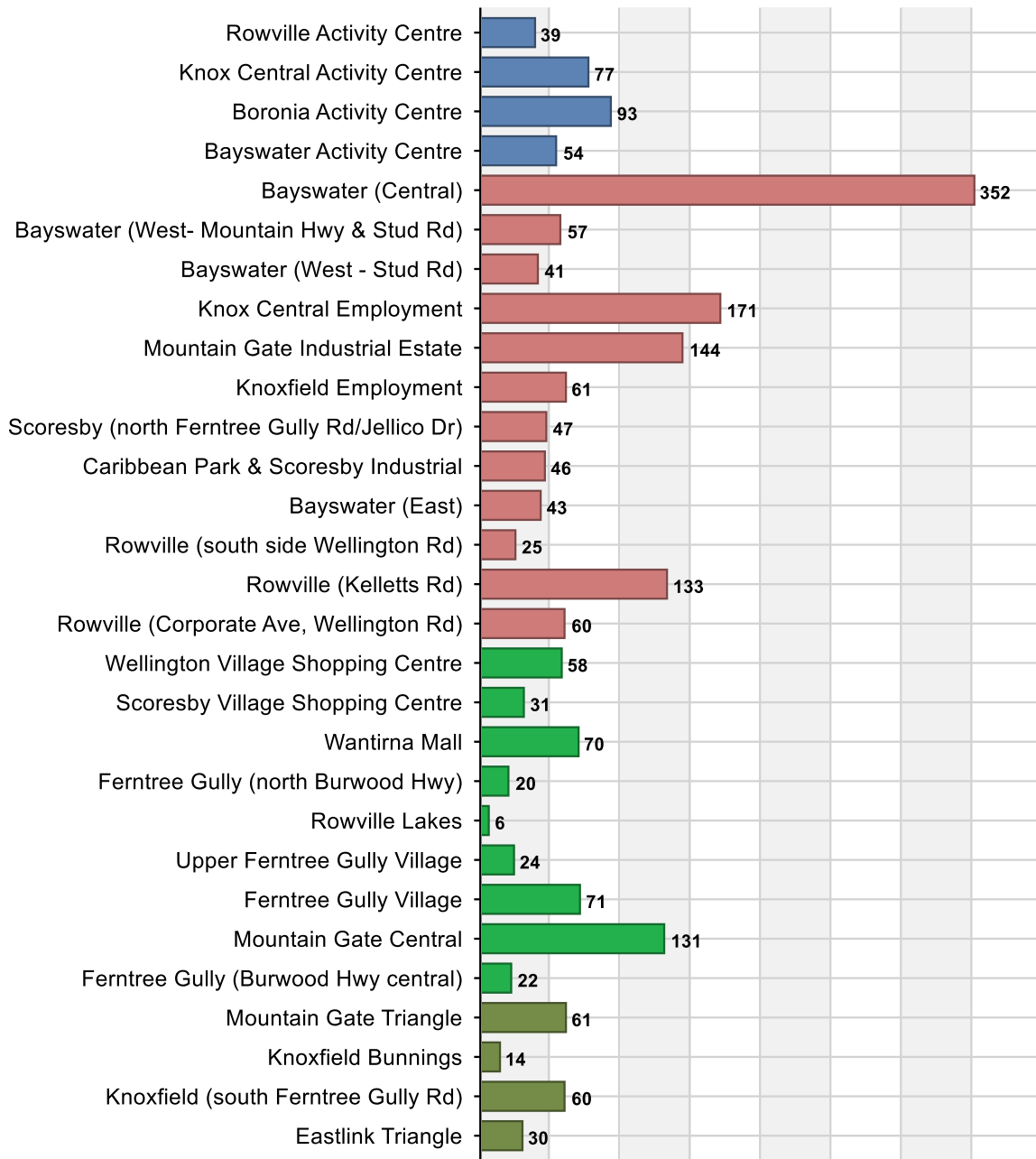
Other Services	2011	2012	2013	2014	2015	2016	Trend
Output	\$ 346.953	\$ 344.912	\$ 304.920	\$ 306.959	\$ 318.647	\$ 322.539	
Wages & Salaries	\$ 101.690	\$ 97.660	\$ 96.424	\$ 99.750	\$ 103.548	\$ 110.734	
Regional Exports	\$ 75.805	\$ 78.963	\$ 70.040	\$ 65.804	\$ 68.310	\$ 70.192	
Local expenditure	\$ 140.341	\$ 153.787	\$ 119.897	\$ 118.998	\$ 123.529	\$ 126.335	
Value-Added	\$ 151.312	\$ 133.574	\$ 146.655	\$ 152.638	\$ 158.450	\$ 162.739	

Source: REMPLAN

4.19.1 **Key Sector Insights**

- The Other Services sector contributes \$322.539 million (1.6 %) of total output. The sectors overall revenue has declined since 2011/12 levels but has steadily increased since 2013.
- Despite an overall reduction in total sales revenue (output), wages and salaries have increased \$110.734 million (2.7 %) within Knox.
- The sector contribution to Gross Regional Product (Value-added), has increased over the last six years and now represents \$162.739 million (2.2 %)
- Services captured within the sector (eg. Automotive Repair and Personal Services) are aligned to demand of the local resident population. The Other Services sector sells \$146.851 million of final goods per annum into the Household Consumption sector, in Knox (C).
- The LFB Assessment Areas represent a significant proportion of total employment in the sector (2012 jobs or 83.8%). There is a broad representation of Other Services jobs across the LFB Assessment Areas with a 14.57% of *Automotive Repair & Other Repair and Maintenance* employment located in the Bayswater (Central) (352 jobs). Other key Assessment Areas include Knox Central Employment, Mountain Gate Industrial Estate, Rowville (Kelletts Rd) and Mountain Gate Central that combined represent 24.1% or 579 jobs.

Figure 4-39 Knox LFB Assessment Areas supporting Other Services jobs



## 5 Strategic Issues for Knox

### 5.1 Policy

Urban Enterprise have completed a literature review and undertaken strategic engagement with key industry stakeholders relevant to business and industrial land in Knox.

The key issues of relevance to the employment projections for Knox include:

- Planning policy for metropolitan Melbourne identifies that the State economy is in transition and continues to evolve. In the case of Knox, this is identifiable in the local economy diversification and broader national and global markets are driving economic, business and employment growth within the municipality.
- The Knox economy is moving from a production and processing based economy to a services/knowledge based economy. This is evident through the manufacturing sector which is recognised as a local strength.
- Over the next 30 years it is expected that the following industry sectors will account for approximately 50 per cent of metropolitan Melbourne's employment growth:
  - Health Care and Social Assistance;
  - Professional, Scientific and Technical Services; and
  - Financial and Insurance Services.
- While Manufacturing and Wholesale Trade industries are decreasing from an employment perspective, these industries continue to play a vital role for Knox's economic output and provision of local jobs.
- The broader trends in growth of knowledge intensive industries such as Health Care, Professional, Scientific and Technical Services, and Financial and Insurance Services is expected to demand appropriate business land.
- Existing key employment locations such as the Scoresby-Rowville and Bayswater (Central), Knox Central Activity Centre (AC02) and Knoxfield Activity Centres (EP03) support clustering of Health Care, Manufacturing and Professional, Scientific and technical services industries. Considering the existing role of these centres is important for the Land for Business Project.

### 5.2 Technology

- Manufacturing capabilities that support lower cost, but higher output businesses are increasingly driving opportunities for smaller entrepreneurial firms. Noted for their ability to rapidly support expansion, the role of smaller firms within Knox to support increased job creation is anticipated across the manufacturing sector as applications of technology continues to intensify while simultaneously costs are reduced. Increased opportunities to replace labour costs through technologies including robotics and 3D printing will promote local renewed opportunities for manufacturing within Australia and locations like Knox. A lower Australian dollar and tapering wages growth will also boost the productivity of the sector.
- Automated vehicle and delivery services (e.g. Drones) are forecast to be both accessible and real alternatives to support driver less movement. Subject to regulation and associated safety, the demand for increased mobility of goods and services is expected to continue and will be supported in growth of the transport and logistics sector.

### 5.3 Transport Infrastructure

- Knox is strategically located at the juncture of significant road transport infrastructure, including East Link, Mountain Highway, Burwood Highway and Ferntree Gully.

- Rail access is limited with some access in the north-eastern area of the LGA via the Belgrave Rail line. This includes passenger railway stations at Bayswater, Boronia and Ferntree Gully. Significant areas of the LGA are not serviced by rail.
- There is significant demand for movement of the workforce both to and from the region to support economic activity. The investment in key Activity Centres located on the Melbourne train network facilitates the movement of both a workforce and customers, predominantly with a consumption focus. Despite forecast expansion of Knox Central Activity Centre, the limited rail network may have impacts on the role, function and performance of this centre when compared with locations such as Ringwood MAC and Glen Waverley MAC.
- The focus on road transport for employment favours both increased levels of contained employment (residents who work locally in Knox) and a workforce derived from locations (LGA's) adjoining Knox.

#### **5.4 Employment outside of Assessment Areas**

- While most of the employment is contained within the LFB Assessment Areas that are subject to this review, some sectors have representation throughout residential and other locations. Most notably this includes Education & Training and to a lesser extent Health Care & Social Assistance.
- Sectors that have limited impact on the Land for Business Strategy in terms of driving demand for business land include the Agricultural, Forestry and Fishing and Mining Sector.
- Representation of both Professional Scientific & Technical Services and Other Services is also higher in locations out of business and employment land. This typically represents a proportion of self-employed or home-based business that are operating from residential addresses.

## **6 Employment – Trends & Projections**

A methodology has been applied to estimate employment trends and projections based on datasets from the Australian Bureau of Statistics and population projections prepared by the Victorian State Government and id consulting.

These include:

- 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, from August 1999 to Feb 2016
- ABS, 2006 and 2011 Census of Population and Housing,
- Victoria in Future 2015
- Knox City Council Population Forecasts, prepared by id Consulting

Population estimates for each year from 2011 to 2031 have been sourced from the following dataset:

- Estimated Resident Population (ERP) for Local Government Areas (LGAs) and Victoria in Future Small Areas (VIFSAs) by five-year age group and sex, for every fifth year from 2011 to 2031
- Knox City Council, Population forecast - Population and age structure, id Consulting

Workforce by age-cohort's data for each industry sector has been sourced from the following:

- ABS, 2006 and 2011 Census of Population and Housing
- REMPLAN Workforce Analysis Module.

## 6.1 Regionalisation and Assumptions

The Labour Force survey data outlined above, which is relevant to Knox LGA, is only available at the broader geographic level known as Melbourne East ASGS<sup>3</sup>. A methodology has been applied to 'regionalise' this data to make it specific to Knox (C). 2011 Place of Usual Residence employment by industry data was sourced for the combined local government areas and SA2 Regions relevant to Melbourne East ASGS. The data was used to create region and industry specific coefficients, which were applied to Labour Force data, providing estimates of the regionalised employment by industry data for Knox (C) LGA.

The quarterly Labour Force Survey data was applied from August 1999 to February 2016. This dataset makes no inference about where a person works, only that they were surveyed in the defined area. Since the Labour Force Survey is a sample-based publication, fluctuations in data can occur and should be approached with caution<sup>4</sup>.

Population estimates by age cohort have been obtained for Knox LGA for the period from 2011 to 2031<sup>5</sup>. A methodology has been applied to create industry specific coefficients for each age group. ABS, 2006 and 2011 Census of Population and Housing, Working Population Profiles were used to determine the proportion of each age group of the population who participate in the workforce.

It is projected that subtle structural changes in the propensities of people to work across respective age cohorts will change over time. Namely, that as the economy moves over time to a greater proportion of 'thinking' jobs, some younger people in the 15 -24-year cohort will delay entering the workforce in preference of longer periods of study. Also, as we track forward to 2036 the proportion of people over 60 years will increase and it is estimated that a greater number of people in older age cohorts will be engaged in the workforce for longer. These assumptions have been applied to the employment forecast model.

Estimates of employment based on Labour Force survey data and estimates of employment based on population forecasts have been combined to generate a 'smoothed' trend line projecting the expected level of employment in each industry over the period 2011 to 2031. This approach reconciles the demand side estimates from the ABS Labour Force Survey data with the supply side data from the two population growth scenarios (i.e. how many people are we likely to have to fill the projected jobs).

In addition to employment forecasts of Knox (C) residents, population and employment forecasts for the wider Melbourne East Region, and Journey to Work patterns encompassing the propensities of Knox residents to work locally and external residents to work in Knox, were applied to generate Place of Work employment forecasts for 19 industry sector. That is, forecasts of the number of jobs in Knox.

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<sup>3</sup> Melbourne East (SA4) represents the combined area of (SA3) Maroondah, Whitehorse – East, Manningham – East, (SLA) Yarra Ranges (S) – Dandenongs, (SA2) Belgrave – Selby, Chirnside Park, Healesville - Yarra Glen, Kilsyth, Lilydale – Coldstream, Monbulk – Silvan, Montrose, Mooroolbark, Mount Evelyn, Wandin – Seville, Yarra Valley.

<sup>4</sup> More on Labour Force methodology can be found here:  
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/exnote/6202.0>

<sup>5</sup> Age & Structure Population Projections prepared by ID Consulting and VIF 2015.

## 6.1 Population Projection Summary

Two population forecast data sets were used to determine population workforce estimates. Figure 6-1 provides a 5-yearly breakdown of the population by age group for the Knox LGA. Population projection estimates do vary between the two sets of forecasts.

Figure 6-1 Population Age Structure 2011 – 2031 (5 year summary)

	ID	VIF	ID	VIF	ID	VIF	ID	VIF	ID	VIF
Age group (years)	2011	2011	2016	2016	2021	2021	2026	2026	2031	2031
0 to 4	9,109	9,108	9,435	8,885	9,914	9,549	10,169	9,902	10,346	9,899
5 to 9	9,199	9,197	9,324	9,235	9,870	9,159	10,211	9,764	10,445	10,152
10 to 14	9,845	9,845	9,526	9,099	9,948	9,437	10,338	9,306	10,622	9,975
15 to 19	11,168	11,167	10,271	9,926	10,361	9,354	10,684	9,701	11,019	9,647
20 to 24	11,304	11,306	11,062	10,795	10,830	10,000	10,923	9,428	11,231	9,996
25 to 29	10,209	10,212	10,729	10,635	11,047	10,745	11,046	9,958	11,247	9,683
30 to 34	9,946	9,946	10,516	10,406	11,199	11,131	11,479	11,163	11,631	10,537
35 to 39	10,741	10,738	10,729	10,350	11,446	11,170	11,910	11,755	12,187	11,951
40 to 44	11,411	11,409	11,295	10,737	11,670	10,705	12,155	11,402	12,527	12,096
45 to 49	11,572	11,572	11,363	11,443	11,620	10,879	11,905	10,793	12,321	11,575
50 to 54	11,482	11,481	11,204	11,303	11,200	11,275	11,447	10,664	11,714	10,664
55 to 59	10,289	10,292	10,710	10,880	10,597	10,988	10,553	10,912	10,797	10,421
60 to 64	8,865	8,868	9,443	9,680	9,885	10,477	9,781	10,580	9,772	10,607
65 to 69	6,327	6,329	8,061	8,273	8,656	9,251	9,017	10,054	8,969	10,250
70 to 74	4,633	4,636	5,779	6,030	7,341	8,003	7,879	8,945	8,216	9,826
75 to 79	3,360	3,361	4,151	4,383	5,135	5,773	6,426	7,646	6,924	8,676
80 to 84	2,602	2,602	2,850	2,934	3,449	3,903	4,173	5,171	5,100	6,962
85 and over	2,555	2,555	3,091	3,024	3,524	3,611	3,911	4,645	4,424	6,285
	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
	154,619	154,623	159,541	158,017	167,694	165,409	174,008	171,791	179,490	179,201
	% Change over 5 years		<b>3.2%</b>	<b>2.2%</b>	<b>5.1%</b>	<b>4.7%</b>	<b>3.8%</b>	<b>3.9%</b>	<b>3.2%</b>	<b>4.3%</b>

Source: Victoria in Future 2015 (Knox LGA), id Forecast 2014.

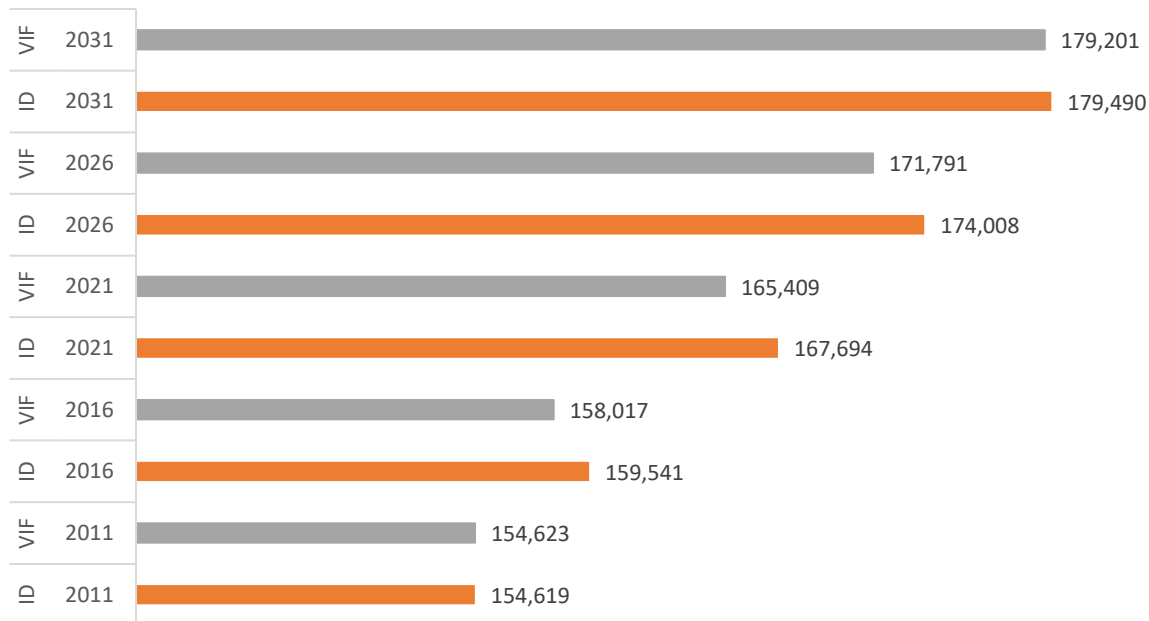


In general terms, id consulting forecast higher growth rates across younger age cohorts throughout the forecast period, while the VIF forecasts are comparable in terms of total population by 2031 but have a higher proportion of residents who are above 60 years old. As an example, by 2031 the VIF forecast 9,201 more residents over the ages of 60 years old than id consulting.

The composition (both age and size) of the forecast population significantly alters the propensity and type of workforce engagement that can be expected within a given region.

Estimates of the population of Knox in 2011 are in the range of 154,619 to 154,623 people. By 2031 the forecast population ranges from 179,201 to 179,490 people, which represents compounding annual growth rates of 0.78 percent (VIF) and 0.78 percent (id).

Figure 6-2 Summary of Population Totals – Knox



Source: Victoria in Future 2015 (Knox LGA), id Forecast 2014.

## 6.1 Employment Trends & Projections

The following analysis considers for each industry sector:

- Residential population projections by age cohort based on VIF and id forecasts
- The propensity of residents by age cohort to work
- The propensity of working residents by age cohort to work in particular industry sectors
- ABS Labour Force Survey based projections of working residents to work in particular industry sectors
- Smoothed employment forecasts for working residents (across VIF, id and Labour Force based forecasts)
- Projections regarding the future propensity of working residents to work locally
- 'Journey to Work' linked areas' population projections and propensities for people living in these areas to work in Knox
- Current and planned future infrastructure initiatives likely to impact the accessibility of jobs in Knox for external residents; as well as the accessibility of externally based jobs for Knox residents

- Innovation and technological advances that are enabling new business models and driving structural change.

This approach for the respective industry sectors has generated a forecast employment range. Considering local and macro factors, regional strategies and plans, major projects and the State Government’s nominated priority sectors, specific employment projections have been generated within the respective sectors’ forecast employment range.

The specific projection with the forecast range is signified by “ ← ” in the graphs below.

### 6.1.1 Agriculture, Forestry & Fishing (working residents)

In 2011 there were 153 Knox residents employed in the ‘Agriculture, Forestry & Fishing’ industry sector. By 2021 employment is estimated to be 129 jobs. By 2036 the number of jobs is projected to be 133, reflecting a stable to low-growth outlook, off a very small base in the context of Knox.

Figure 6-3 Agriculture, Forestry & Fishing: Employment Trend Lines (Working Residents)

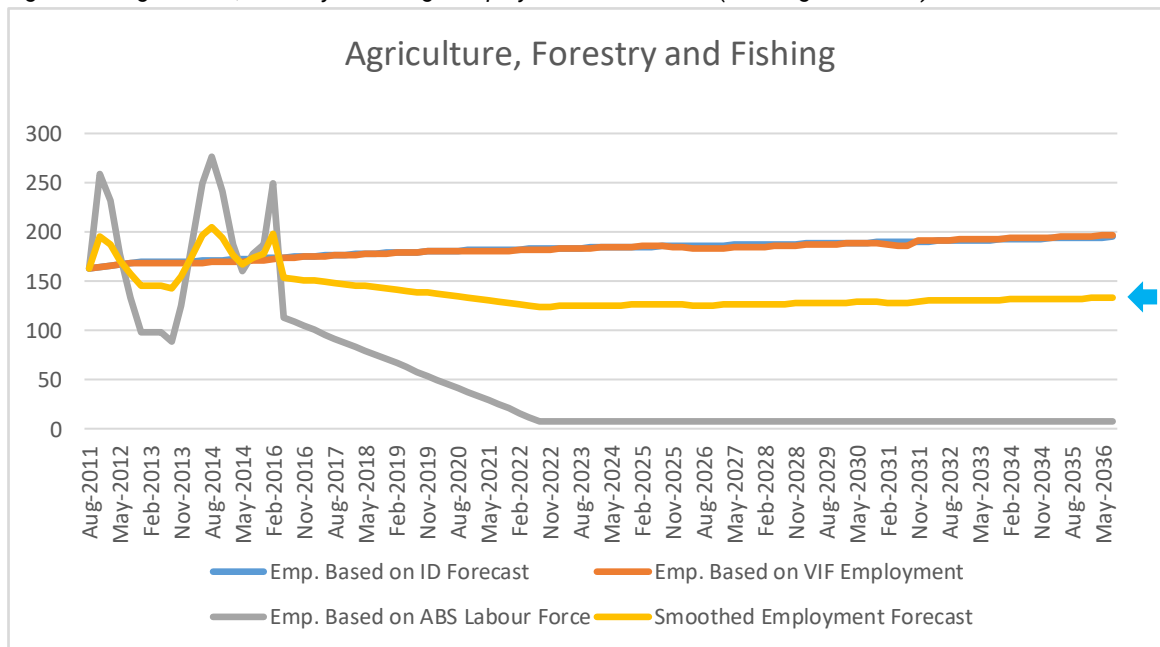


Table 6-1 Agriculture, Forestry & Fishing: Employment Projections (Working Residents, Jobs)

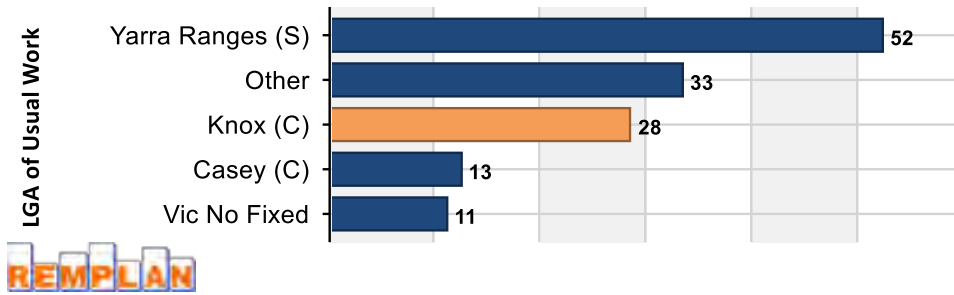
2011	2016	2021	2026	2031	2036
153	153	129	126	128	133

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox<sup>6</sup> in the *Agriculture, Forestry & Fishing* sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

*Agriculture, Forestry & Fishing* sector provides 153 jobs for Knox residents. Of the working resident population, the primary LGA for work in the sector is the Yarra Ranges (34.2 %). Residents who work and live in Knox within the Sector represent 18.6 % of the total local workforce (Figure 6-8).

<sup>6</sup> Place of work employment forecasts.

Figure 6-4 Agriculture, Forestry & Fishing Sector - Resident Working Population, Top 5 LGA 's of Usual work



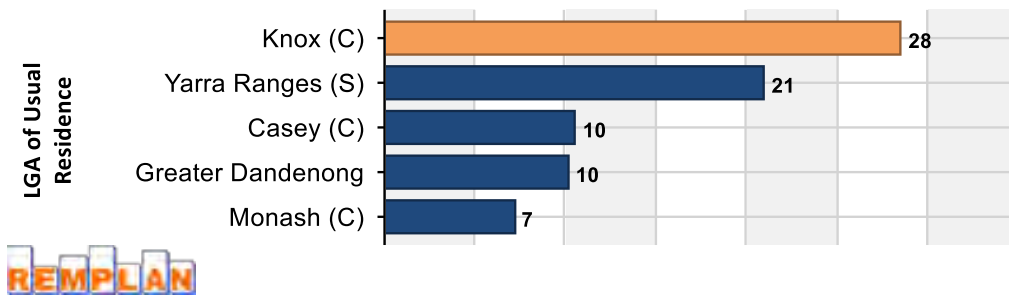
Source: ABS 2011, Compiled by REMPLAN

### 6.1.2 Agriculture, Forestry & Fishing (jobs in Knox)

In 2011 there were 78 'Agriculture, Forestry & Fishing' industry sector jobs in Knox. By 2021 employment is estimated to be 68 jobs. By 2036 the number of jobs is projected to be 72, reflecting a stable to low-growth outlook, off a very small base in the context of Knox.

The figure below illustrates where local workers in the 'Agriculture, Forestry & Fishing' industry sector reside.

Figure 6-5 Agriculture, Forestry & Fishing – Knox Workers, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historically, the sector's workforce declined, including those who reside in Knox (C) and surrounding LGA's and regional locations. There was a net -18% reduction. See the figure below for a breakdown of 'Agriculture, Forestry & Fishing' jobs in Knox across LGAs of usual residence.

Table 6-2 Agriculture, Forestry & Fishing – Jobs in Knox (C), Change 2006 to 2011

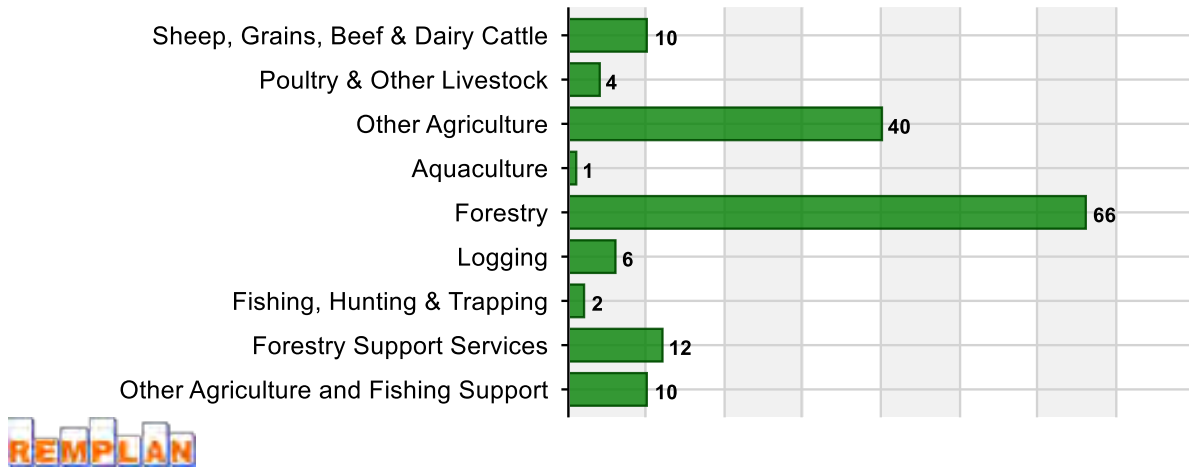
LGA of Usual Residence	2011	2006	Change %
Knox (C)	28	48	-42%
Yarra Ranges (S)	21	22	-5%
Casey (C)	10	0	100%
Monash (C)	10	2	400%
Greater Dandenong (C)	7	2	250%
Maroondah (C)	0	21	-100%
Whitehorse (C)	0	0	100%
Other	2	0	100%
<b>Total</b>	<b>78</b>	<b>95</b>	<b>-18%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Agriculture, Forestry & Fishing' in Knox is supported by an estimated 151 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). These businesses have been reasonably stable within the Knox LGA over the last five years. The key additions to the sector included:

- Other Agriculture and Fishing Support Services (1 business)
- Logging (2 businesses)
- Forestry Support Services (1 business)

Figure 6-6 Agriculture, Forestry & Fishing: Businesses Trading at 9 May, 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector and situational analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-3 provides an overview of the employment projections for local jobs in Knox within the *Agriculture, Forestry & Fishing* sector. The sector is not anticipated to drive significant demand for additional land or floor space within the LFB Assessment Areas.

Table 6-3 Agriculture, Forestry & Fishing: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
78	79	68	66	69	72

By 2036 it is forecast that there will be 72 *Agriculture, Forestry & Fishing* sector jobs based in Knox, which represents a 7.7 percent decrease from 2011 levels.

### 6.1.3 Mining (working residents)

In 2011 there were 107 Knox residents employed in the 'Mining' industry sector. Of these 107 residents, 3 also worked in Knox.

The 2021 employment is estimated to be 108 jobs. By 2036 the number of jobs is projected to be 112, reflecting a reduction in the proportion of mining jobs for local residents. Employment in *Mining* is expected to continue to be predominantly external to the LGA, especially in the context of the planned closure of local extraction activity (Boral).

Figure 6-7 Mining: Employment Trend Lines (Working Residents, Jobs)



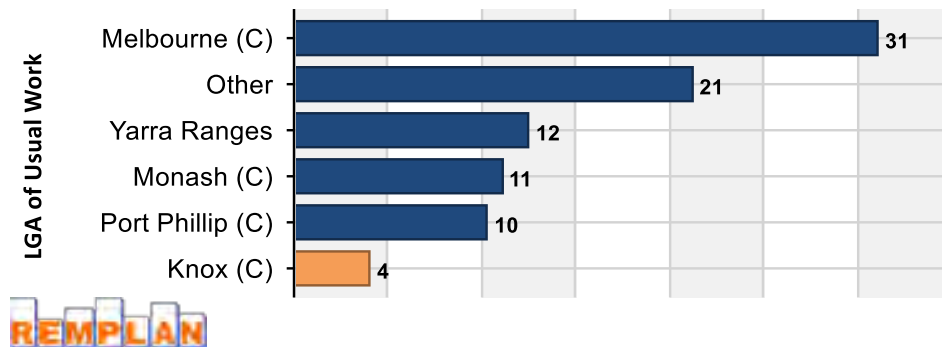
Table 6-4 Mining: Employment Projections (Working Residents, Jobs)

2011	2016	2021	2026	2031	2036
107	106	108	107	108	112

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the *Mining* sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The *Mining* sector provides 107 jobs for Knox residents. Of the working resident population, the primary LGA for work in the sector is Melbourne (28.9 %). Residents who work and live in Knox within the Sector represent only 3.1 % of the total local workforce.

Figure 6-8 Mining Sector - Resident Working Population, Top 5 LGA 's of Usual work



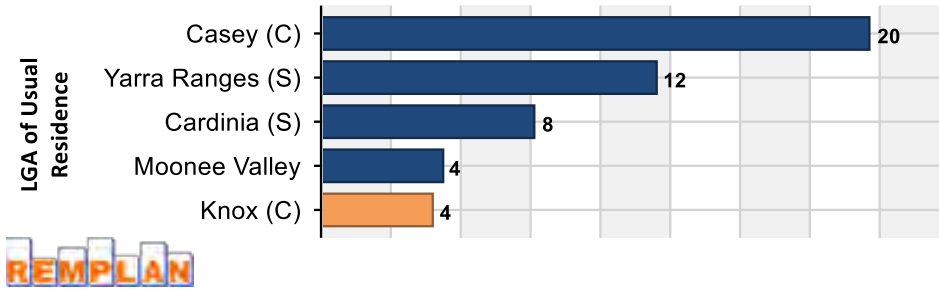
Source: ABS 2011, Compiled by REMPLAN

### 6.1.4 Mining (jobs in Knox)

In 2011 there were 47 'Mining' industry sector jobs in Knox. By 2021 employment is estimated to be 49 jobs. By 2036 the number of jobs is projected to be 52, reflecting a stable to low-growth outlook, off a very small base in the context of Knox.

The figure below illustrates where local workers in the 'Mining' industry sector reside.

Figure 6-9 Mining Sector – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historically, the sector's workforce has shown moderate growth from a very small base. See the figure below for a breakdown of 'Mining' jobs in Knox across LGAs of usual residence.

Table 6-5 Mining – Jobs in Knox (C), Change 2006 to 2011

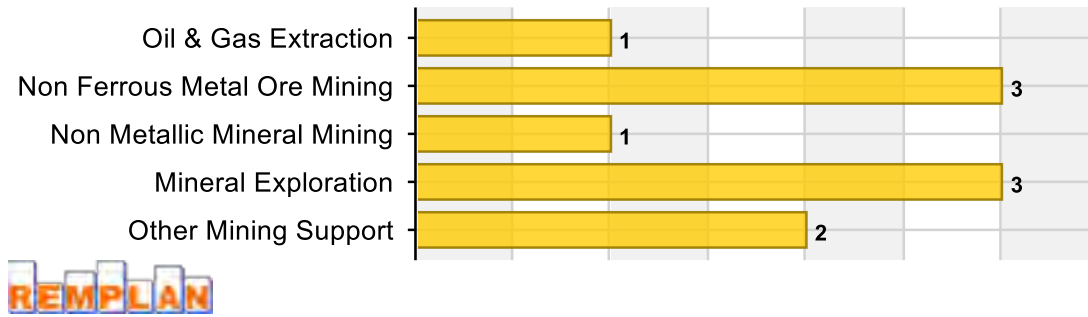
LGA of Usual Residence	2011	2006	Change %
Casey (C)	19	10	90%
Yarra Ranges (S)	12	7	71%
Cardinia (S)	7	0	100%
Moonee Valley (C)	4	0	100%
Knox (C)	4	13	-69%
Other	1	11	-91%
<b>Total</b>	<b>47</b>	<b>41</b>	<b>15%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Mining' in Knox is supported by an estimated 10 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). These businesses have been reasonably stable within the Knox LGA over the last five years. The key additions to the sector since 2011 include:

- Mineral Extraction (2 businesses)
- Other Mining Support Services (2 businesses)

Figure 6-10 Mining: Businesses Trading at 9 May, 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector and situational analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-3 provides an overview of the employment projections for local jobs in Knox within the Mining sector. The sector is not anticipated to drive significant demand for additional land or floor space within the LFB Assessment Areas.

Table 6-6 Mining: Employment Projections -Jobs in Knox (C)

2011	2016	2021	2026	2031	2036
47	47	49	49	50	52

By 2036 it is forecast that there will be 52 Mining sector jobs based in Knox, which represents a 10.6 percent increase from the relatively low base of 2011 levels. The combination of constrained land, reduction of operations and larger operations in the Greater Melbourne region are anticipated to limit the sectors expansion. While ongoing forecast population growth is estimated to drive demand for residential and civil engineering construction activity, which in turn will support local sand and gravel quarrying, which is part of the broader mining sector.

### 6.1.5 Manufacturing (working residents)

In 2011 there were 10,791 Knox residents employed in the 'Manufacturing' industry sector. The 2021 employment is estimated to be 10,737 jobs. By 2036 the number of jobs is projected to be 9,928, reflecting a decline in employment and in the context of population growth, a significant drop in manufacturing's proportionate contribution to supporting employment for residents.

It is important to note that the graph below does not reflect the volatility of structural change that will continue to occur in this sector through to 2036. Many jobs will be lost in sectors such as motor vehicles and parts; however, many jobs will also be generated in other areas of manufacturing. The 'smoothed' trend line below is an estimate of the net position once losses and gains are taken into consideration.

Figure 6-11 Manufacturing: Employment Trend Lines (Working Residents)

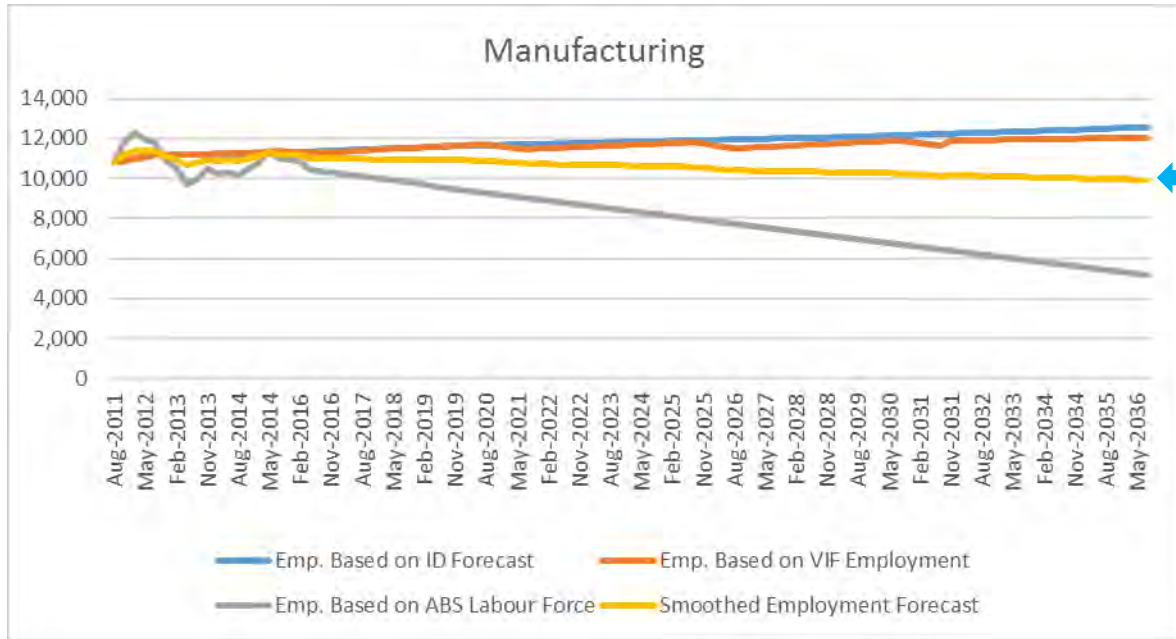


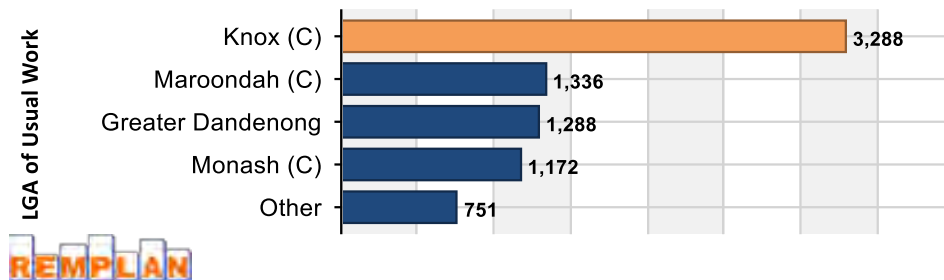
Table 6-7 Manufacturing: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
10,791	10,992	10,737	10,402	10,110	9,928

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the *Manufacturing* sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The place of usual residence forecasts is the base for generating projections of the number of jobs based in Knox in the *Manufacturing* sector. The sector supports significant local working population. Of the 10,791 residents employed in the Manufacturing sector, 3,288 workers (30.5%) live and work in the Knox Region. Surrounding LGA's provide employment opportunities in the sector. Maroondah, Greater Dandenong and Monash represent 35.2% of Manufacturing employment for local Knox residents working in the sector (Figure 6-12).

Figure 6-12 Manufacturing Sector - Resident Working Population, Top 5 LGA 's of Usual work



Source: ABS 2011, Compiled by REMPLAN

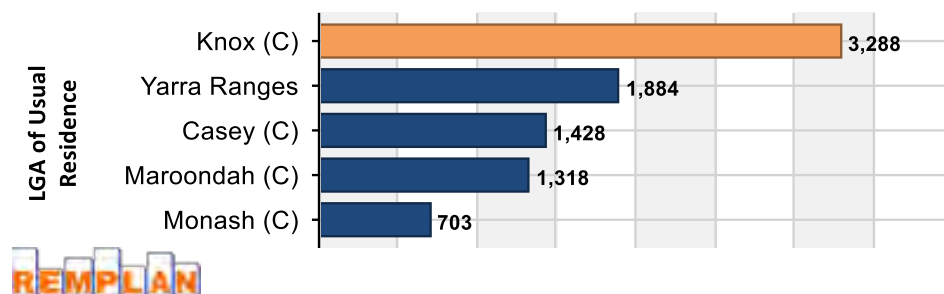


### 6.1.6 Manufacturing (jobs in Knox)

In 2011 there were 12,569 'Manufacturing' industry sector jobs in Knox. By 2021 employment is estimated to be 12,840 jobs. By 2036 the number of jobs is projected to be 12,209, reflecting a moderate contraction outlook.

The figure below illustrates where local workers in the 'Manufacturing' industry sector reside.

Figure 6-13 Manufacturing – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historically, the sector's workforce has experienced a 8 percent contraction between 2006 and 2011. See the figure below for a breakdown of 'Manufacturing' jobs in Knox across LGAs of usual residence.

Table 6-8 Manufacturing – Jobs in Knox (C), Change 2006 to 2011

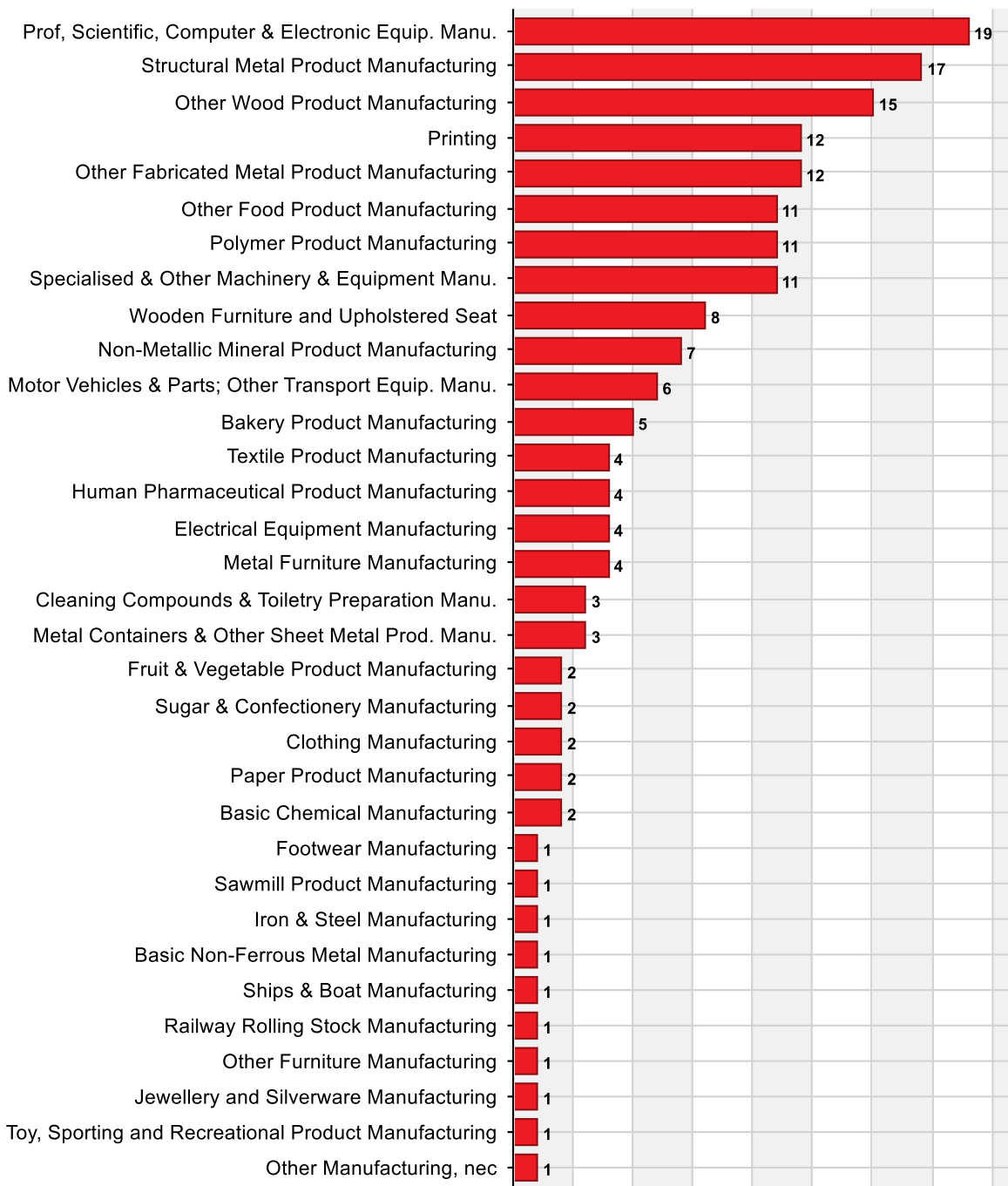
LGA of Usual Residence	2011	2006	Change %
Knox (C)	3,288	4094	-20%
Yarra Ranges (S)	1,884	2041	-8%
Casey (C)	1,428	1,317	8%
Maroondah (C)	1,318	1,330	-1%
Monash (C)	703	694	1%
Greater Dandenong (C)	684	669	2%
Whitehorse (C)	641	702	-9%
Cardinia (S)	409	348	18%
Manningham (C)	308	349	-12%
Other	1,906	2,045	-7%
<b>Total</b>	<b>12,569</b>	<b>13,589</b>	<b>-8%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Manufacturing' is supported by an estimated 833 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). Several key businesses within the sector have long histories in Knox. Despite broader transition within the Manufacturing sector, there remains economic activity and business creation within the sector locally. As outlined in Figure 6-14, 179 new manufacturing businesses were created within the sector during the last five years. The key sectors supporting new manufacturing businesses in Knox include:

- Food Product Manufacturing (20)
- Saw Mill, Wood & Paper Product Manufacturing (18)
- Printing (including the reproduction of recorded media) (13)
- Metal & Metal Product Manufacturing (34)
- Technical Equipment & Appliance Manufacturing (36)

Figure 6-14 Manufacturing: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-9 Manufacturing: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
12,569	13,012	12,840	12,565	12,390	12,209

By 2036 it is forecast that there will be 12,209 Manufacturing sector jobs based in Knox, which represents a 2.9 percent decrease from 2011 levels. In the context of strong population growth, the Manufacturing sector’s proportionate contribution to total employment will experience a greater decrease.

### 6.1.7 Electricity, Gas Water and Waste Services (working residents)

In 2011 there were 769 Knox residents employed in the ‘Electricity, Gas Water and Waste Services’ industry sector. The 2021 employment is estimated to be 1,025 jobs. By 2036 the number of jobs is projected to increase to 1,283, reflecting population growth supporting residential and non-residential construction and demand for utility infrastructure and services.

Figure 6-15 Electricity, Gas Water and Waste Services: Employment Trend Lines (Working Residents)

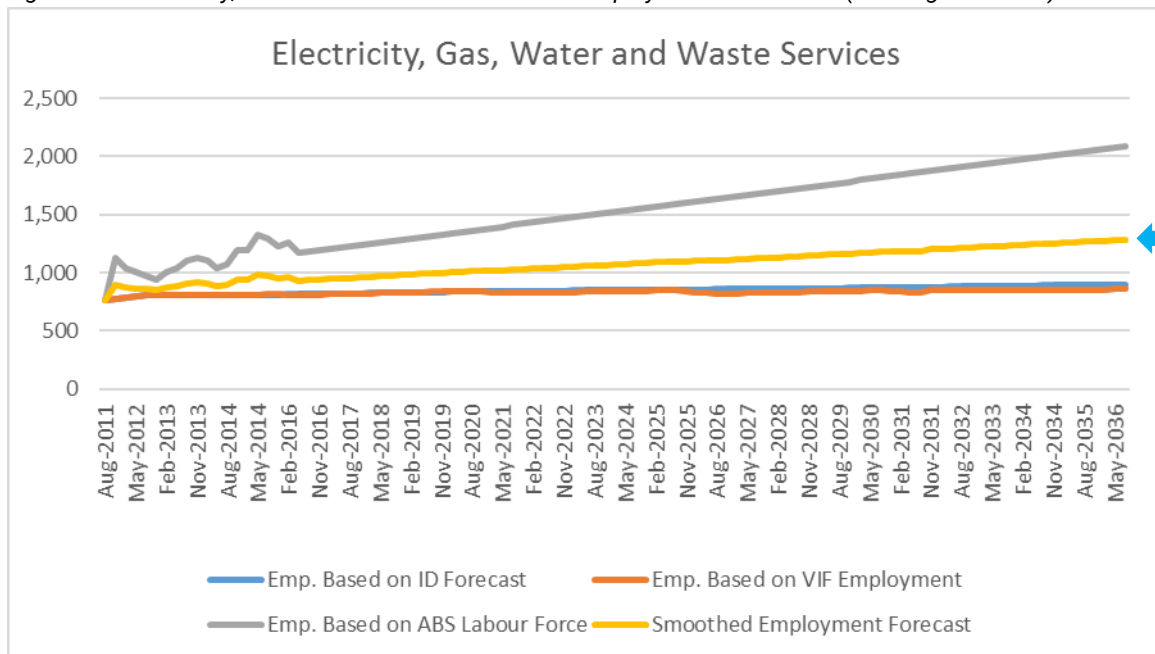


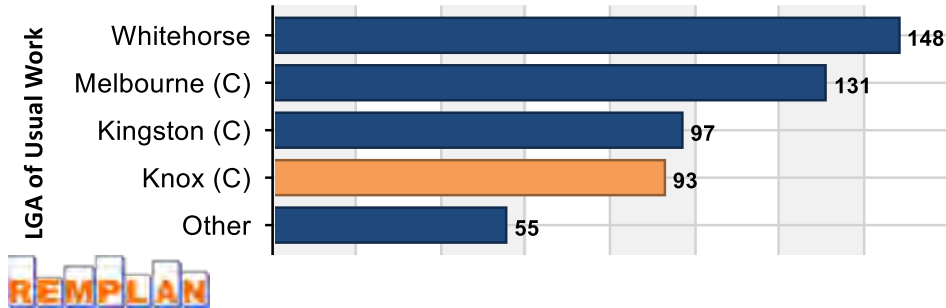
Table 6-10 Electricity, Gas Water and Waste Services: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
769	937	1,025	1,104	1,188	1,283

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the ‘Electricity, Gas Water and Waste Services’ sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The 'Electricity, Gas Water and Waste Services' sector provides 769 jobs for Knox residents. Of the working resident population, the primary LGA for work in the sector is Whitehorse (19.3 %). Residents who work in the sector and live in Knox represent 12.1 % of the total local workforce.

Figure 6-16 Electricity, Gas Water & Waste Services Sector - Resident Working Population, Top 5 LGA 's Usual work



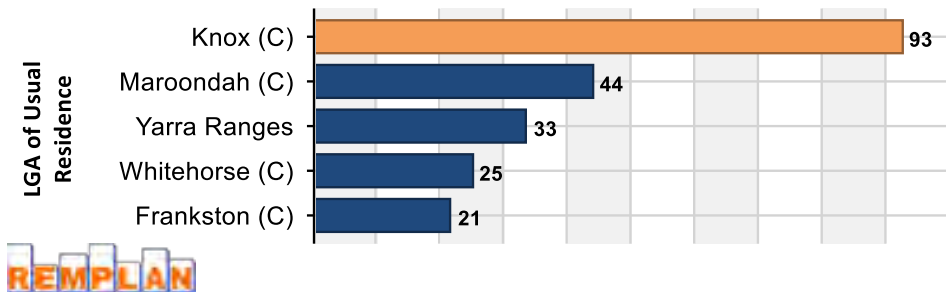
Source: ABS 2011, Compiled by REMPLAN

### 6.1.8 Electricity, Gas Water & Waste Services (jobs in Knox)

In 2011 there were 279 'Electricity, Gas Water and Waste Services' industry sector jobs in Knox. By 2021 employment is estimated to be 382 jobs. By 2036 the number of jobs is projected to be 491, reflecting 76.1 percent growth over this period off a small base.

The figure below illustrates where local workers in the 'Electricity, Gas Water and Waste Services' industry sector reside.

Figure 6-17 Electricity, Gas Water and Waste Services – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historically, the sector has experienced a modest increase in jobs between the 2006 and 2011 Census period, growing 15% or by 37 jobs (Table 6-11). Significant growth in the workforce from residents of Whitehorse was experienced with 19 new jobs supported in Knox.

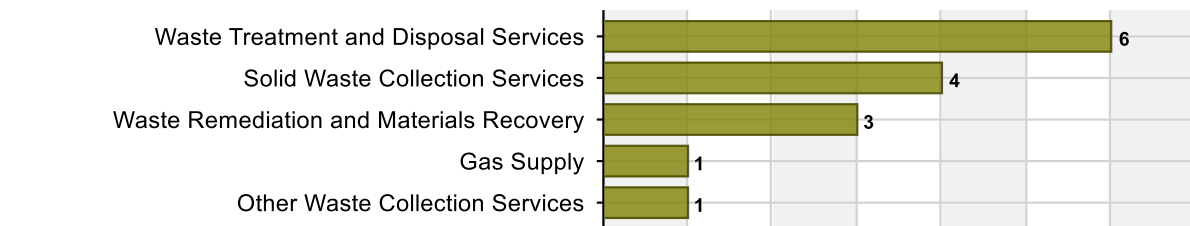
Table 6-11 Electricity, Gas, Water & Waste Services – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	93	81	15%
Maroondah (C)	44	29	52%
Yarra Ranges (S)	33	33	0%
Whitehorse (C)	25	6	317%
Frankston (C)	21	10	110%
Casey (C)	18	19	-5%
Kingston (C)	13	9	44%
Cardinia (S)	11	0	100%
Monash (C)	8	14	-43%
Baw Baw (S)	6	0	100%
Other	6	40	-85%
<b>Total</b>	<b>278</b>	<b>241</b>	<b>15%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Electricity, Gas Water and Waste Services' in Knox is support by an estimated 41 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). This does not include other large significant Utility business and assets such as SP Ausnet and South East Water for example. The concentration of private business activity is associated with Waste Collection, Treatment & Disposal services and contractors. During the last five years, 15 new businesses within the sector have been created in Knox (Figure 6-18).

Figure 6-18 Electricity, Gas, Water & Waste Services: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector and situational analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-19 Electricity, Gas Water and Waste Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
279	345	382	416	456	491

By 2036 it is forecast that there will be 491 'Electricity, Gas, Water & Waste Services' sector jobs based in Knox, which represents a 76.1 percent increase from 2011 levels. Growth in this sector is expected to correlate to and support the region's strong population growth forecasts and associated demand for utilities infrastructure and services.

### 6.1.9 Construction (working residents)

In 2011, there were 7,487 Knox residents employed in the 'Construction' industry sector. 2021 employment is estimated to be 8,769 jobs. By 2036 the number of jobs is projected to increase to 9,930 reflecting population growth supporting residential, non-residential, and heavy and civil engineering construction. All trend lines present a consistent forecast direction for this sector.

Figure 6-20 Construction: Employment Trend Lines (Working Residents)

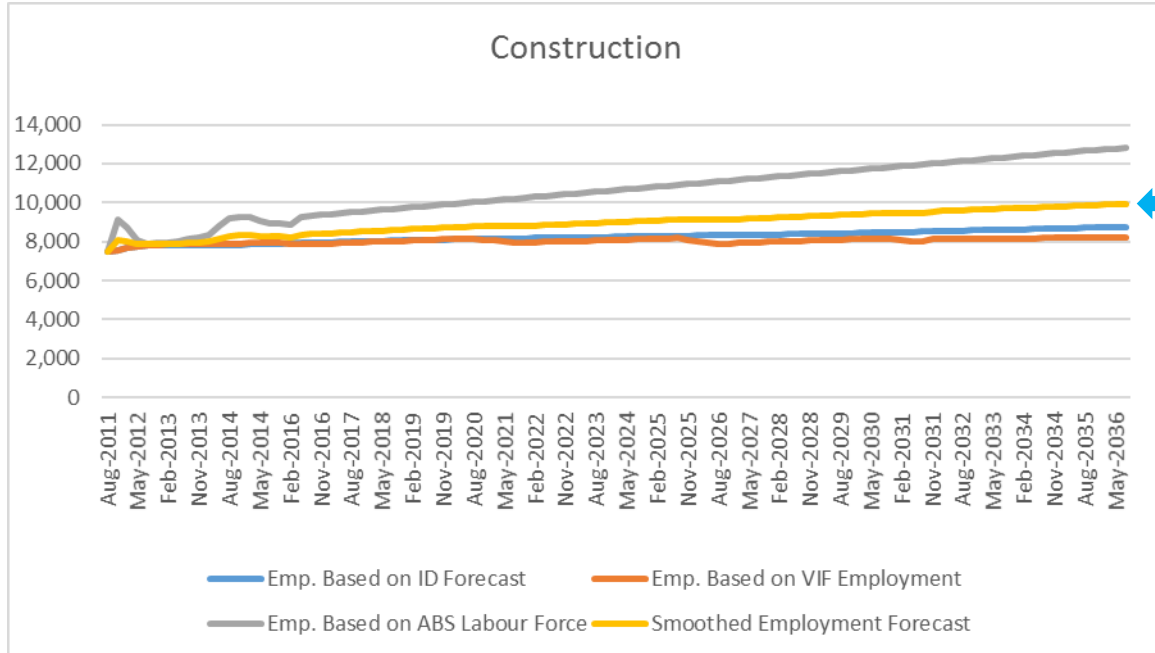


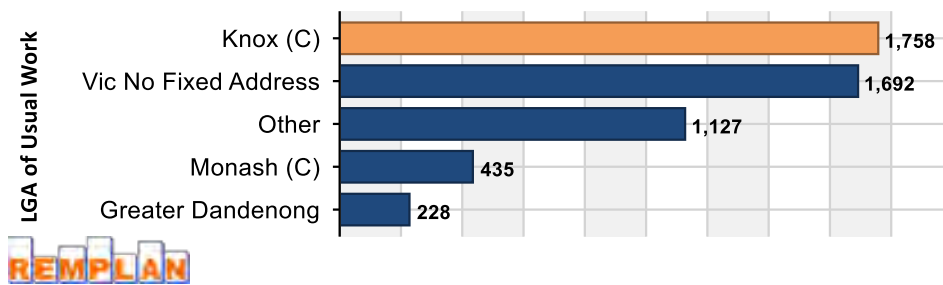
Table 6-12 Construction: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
7,487	8,380	8,769	9,101	9,484	9,930

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the Construction sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The Construction sector provides 7,487 jobs for Knox residents. Of the resident population working in construction, 23.5 % also work locally. The flexible nature of construction, with worker moving from project to project, is reflected by 22.6% or 1,692 of resident workers not indicating a specific place of work. The resident workforce in the Sector who live and work locally is dominated by *Construction Services* employment. This includes the range of construction activity that is commonly referred to as 'Trades' (eg. Plumbers, Electricians, Landscape Gardeners etc.).

Figure 6-21 Construction Sector - Resident Working Population, Top 5 LGA 's of Usual work



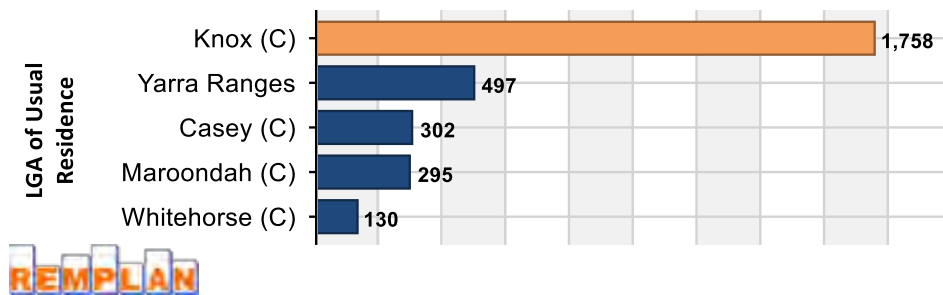
Source: ABS 2011, Compiled by REMPLAN

### 6.1.10 Construction (jobs in Knox)

In 2011 there were 4,102 'Construction' industry sector jobs in Knox. By 2021 employment is estimated to be 4,933 jobs. By 2036 the number of jobs is projected to be 5,743, reflecting a robust growth outlook (40% increase on 2011 levels).

The figure below illustrates where local workers in the 'Construction' industry sector reside.

Figure 6-22 Construction – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Employment in the 'Construction' sector grew overall between the last two Census periods (by 9 percent). There was notable increase amongst people residing in Kingston, Frankston and Casey (Table 6-13).

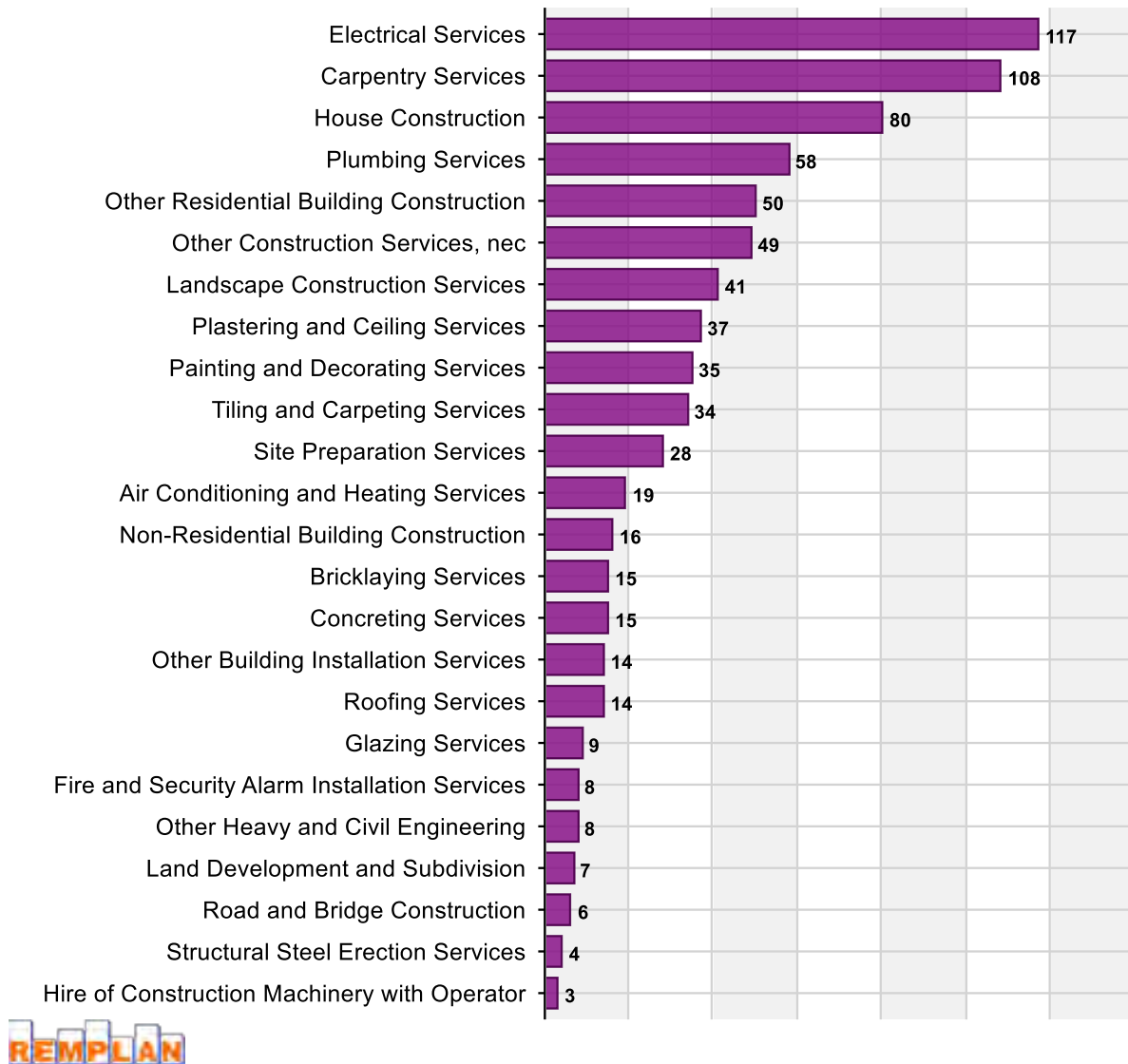
Table 6-13 Construction – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,758	1,656	6%
Yarra Ranges (S)	497	484	3%
Casey (C)	302	250	21%
Maroondah (C)	295	276	7%
Whitehorse (C)	130	114	14%
Cardinia (S)	125	102	23%
Monash (C)	105	115	-9%
Frankston (C)	102	80	28%
Kingston (C)	102	54	89%
Manningham (C)	75	102	-26%
Other	611	543	13%
<b>Total</b>	<b>4,102</b>	<b>3,776</b>	<b>9%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Construction' in Knox is supported by an estimated 2,360 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. The nature of the sector is varied with trading locations spread throughout both business and residential land across the municipality. The sector experiences some levels of flux in terms of business entity activity. However, there has been significant business entry activity within the last five years in Knox. 775 new Construction businesses were created within the sector during the last five years. The key sectors supporting new Construction businesses in Knox are outlined in Figure 6-23.

Figure 6-23 Construction: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-14 Construction: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
4,102	4,667	4,933	5,171	5,475	5,743



By 2036 it is forecast that there will be 5,743 'Construction' sector jobs based in Knox, which represents a 40.0 percent increase from 2011 levels. Growth in this sector is expected to correlate to and support the region's strong population growth forecasts and associated demand for construction services.

### 6.1.11 Wholesale Trade (working residents)

In 2011, there were 5,321 Knox residents employed in the 'Wholesale Trade' industry sector. In 2021 employment is estimated to be 5,682 jobs. By 2036 the number of jobs is projected to be 5,941, reflecting a modest increase in employment, though a moderate decrease in the sectors proportionate contribution to total jobs for working residents.

Figure 6-24 Wholesale Trade: Employment Trend Lines (Working Residents)



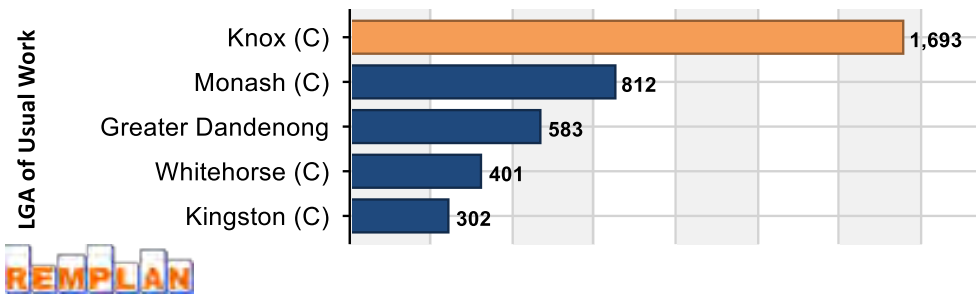
Table 6-15 Wholesale Trade: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
5,321	5,591	5,682	5,678	5,730	5,941

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the *Wholesale Trade* sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The *Wholesale Trade* sector provides 5,321 jobs for Knox residents. Of the residents employed in this sector, 31.8 percent also work in Knox. Other notable destinations of work include Monash and Greater Dandenong.

Figure 6-25 Wholesale Trade Sector - Resident Working Population, Top 5 LGA 's of Usual work

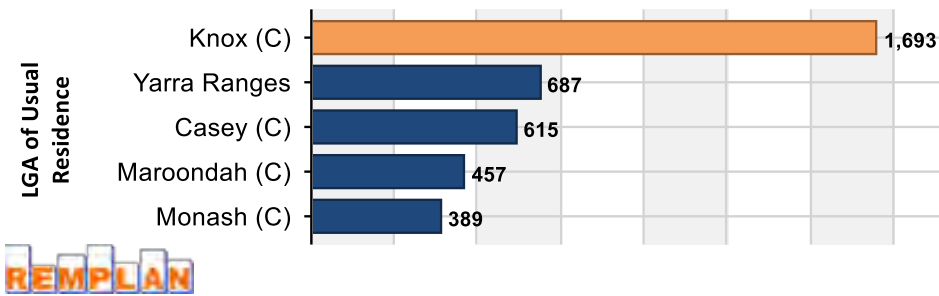


Source: ABS 2011, Compiled by REMPLAN

### 6.1.12 Wholesale Trade (jobs in Knox)

In 2011, there were 6,240 'Wholesale Trade' industry sector jobs in Knox. By 2021 employment is estimated to be 6,841 jobs. By 2036 the number of jobs is projected to be 7,356, reflecting a modest growth outlook, off relatively large base in the context of Knox. The figure below illustrates where local workers in the 'Wholesale Trade' industry sector reside.

Figure 6-26 Wholesale Trade - Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historically, the sector's workforce declined, including those who reside in Knox (C) and surrounding LGA's. There was a net -9% reduction in jobs in this sector between 2006 and 2011. See the figure below for a breakdown of 'Wholesale Trade' jobs in Knox across LGAs of usual residence.

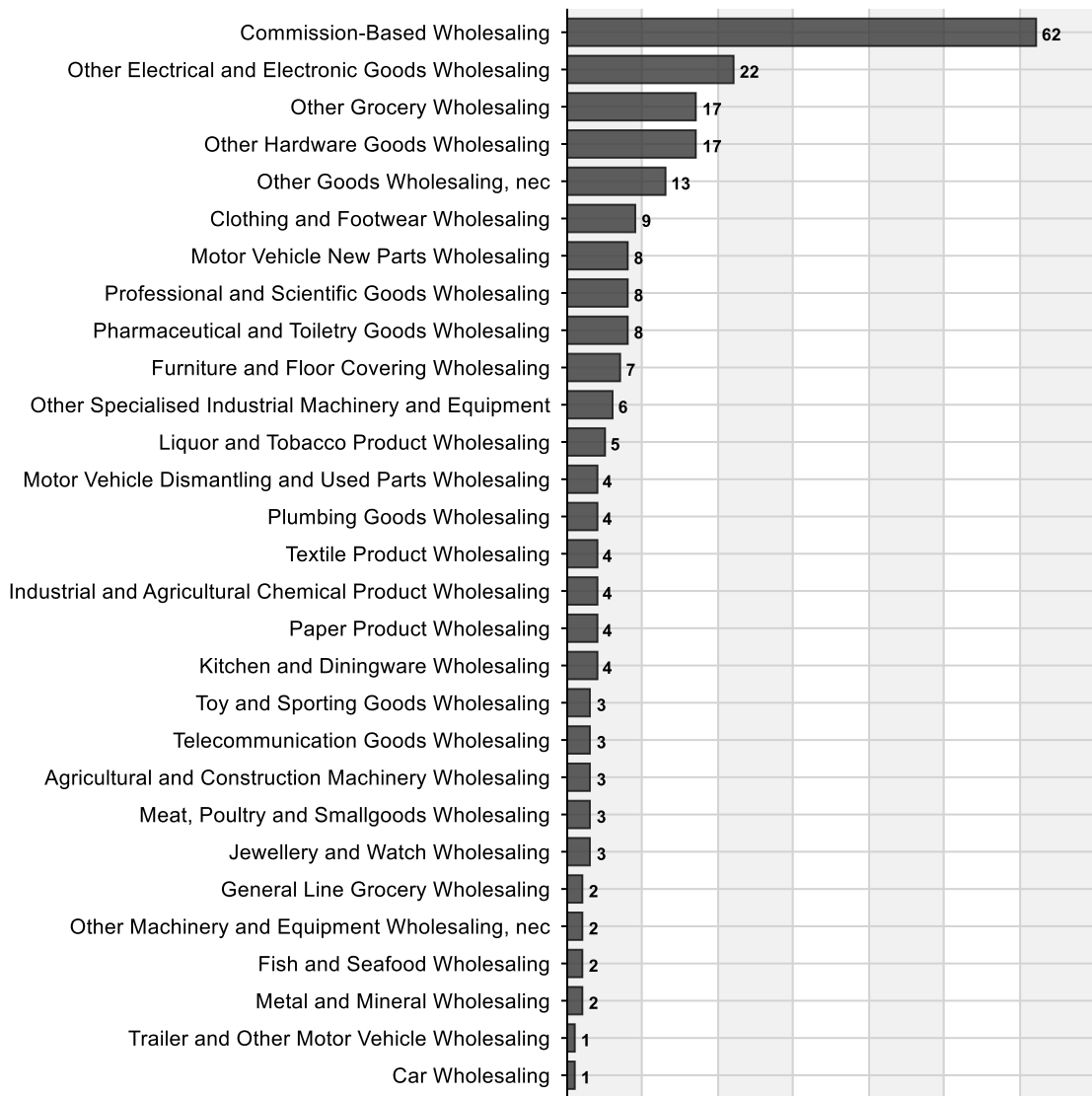
Table 6-16 Wholesale Trade – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,693	1,869	-9%
Yarra Ranges (S)	687	767	-10%
Casey (C)	615	697	-12%
Maroondah (C)	457	539	-15%
Monash (C)	389	451	-14%
Whitehorse (C)	305	384	-21%
Greater Dandenong (C)	194	258	-25%
Manningham (C)	186	190	-2%
Cardinia (S)	186	143	30%
Boroondara (C)	172	173	-1%
Other	1,356	1,372	-1%
<b>Total</b>	<b>6,240</b>	<b>6,843</b>	<b>-9%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Wholesale Trade' in Knox is supported by an estimated 792 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. Despite the employment decline witnessed between the last Census periods, there has been buoyant business creation within the LGA. Often a driver of demand for both business and employment land, 235 new businesses were created during the last five years. The key sectors supporting new Wholesale Trade businesses in Knox are outlined in Figure 6-27.

Figure 6-27 Wholesale Trade: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-17 Wholesale Trade: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
6,240	6,664	6,841	6,906	7,059	7,356

By 2036 it is forecast that there will be 7,356 Wholesale Trade sector jobs based in Knox, which represents a 17.9 percent increase from 2011 levels.

### 6.1.13 Retail Trade (working residents)

In 2011, there were 9,523 Knox residents employed in the 'Retail Trade' industry sector. In 2021 employment is estimated to be 10,469 jobs. By 2036 the number of jobs is projected to be 11,106, reflecting strong population growth.

While the population is forecast to grow, the traditional linear correlation between population and retail jobs is breaking down, reflecting shifts to online shopping and changing consumer preferences.

Figure 6-28 Retail Trade: Employment Trend Lines (Working Residents)

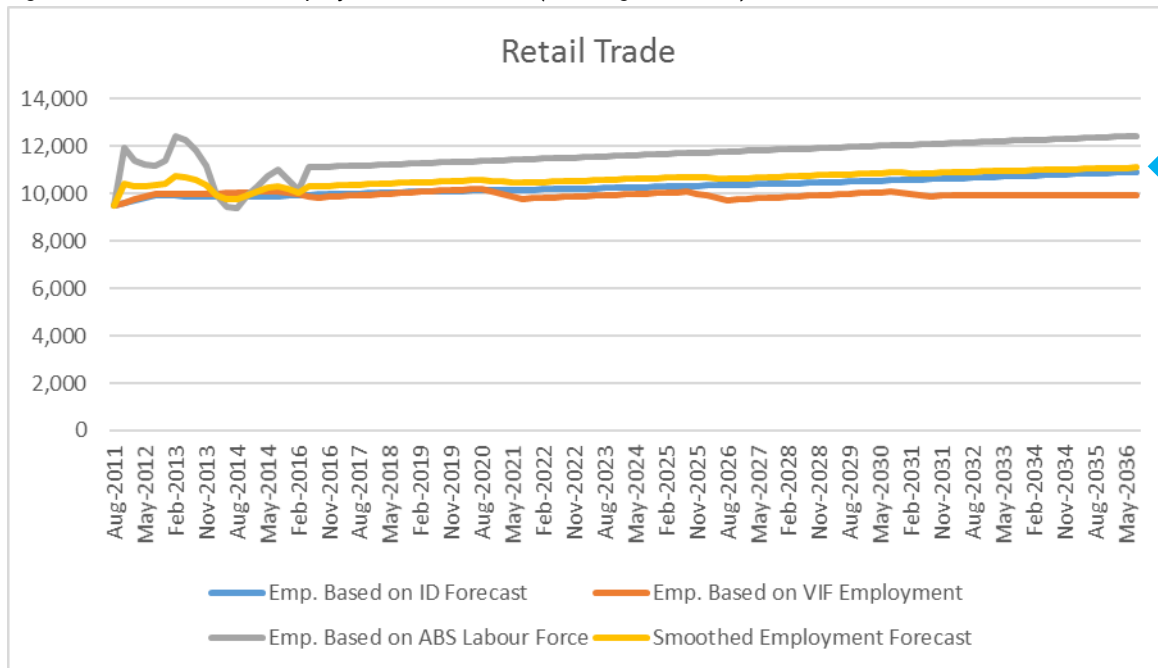


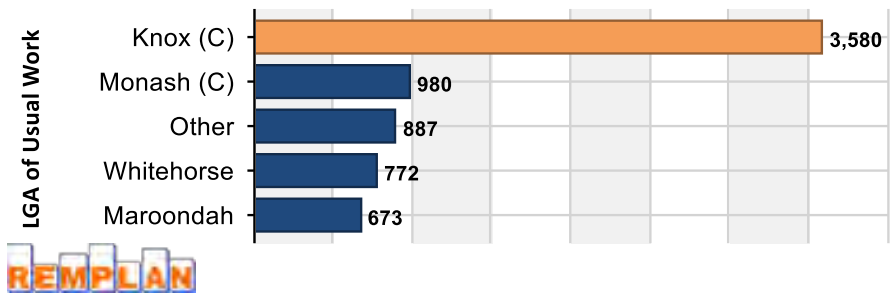
Table 6-18 Retail Trade: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
9,523	10,307	10,469	10,631	10,868	11,106

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the Retail Trade sector. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

There are 9,523 local residents employed in the Retail sector. The greatest proportion of these retail sector jobs are local workers, working locally within Knox (37.6%). Adjoining LGA areas also provide employment opportunities for residents including Monash (10.3 %), Whitehorse (8.1 %) and Maroondah (7.1 %), see Figure 6-29.

Figure 6-29 Retail Trade - Resident Working Population, Top 5 LGA 's of Usual work



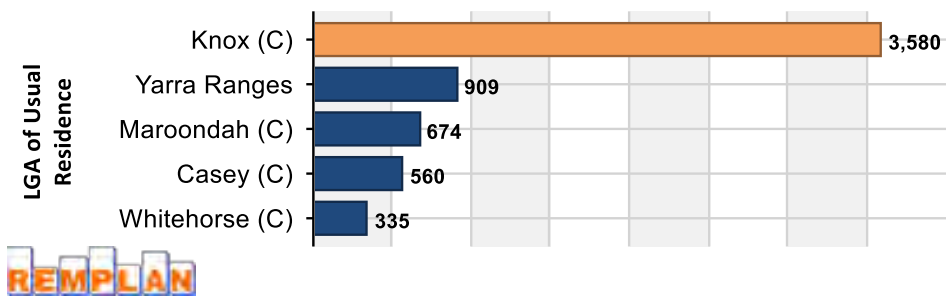
Source: ABS 2011, Compiled by REMPLAN

### 6.1.14 Retail Trade (jobs in Knox)

In 2011, there were 7,441 'Retail Trade' industry sector jobs in Knox. By 2021 employment is estimated to be 8,398 jobs. By 2036 the number of jobs is projected to be 9,346, reflecting a medium to high rate of growth.

The figure below illustrates where local workers in the 'Reside' industry sector reside.

Figure 6-30 Retail Trade – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce contracted between 2006 and 2011 Census years resulting in an overall reduction of (-) 529 jobs. Employment loss in the sector was experienced by Knox residents (-438 jobs) and Yarra Ranges residents (-79 jobs).

Table 6-19 Retail Trade – Jobs in Knox (C), Change 2006 to 2011

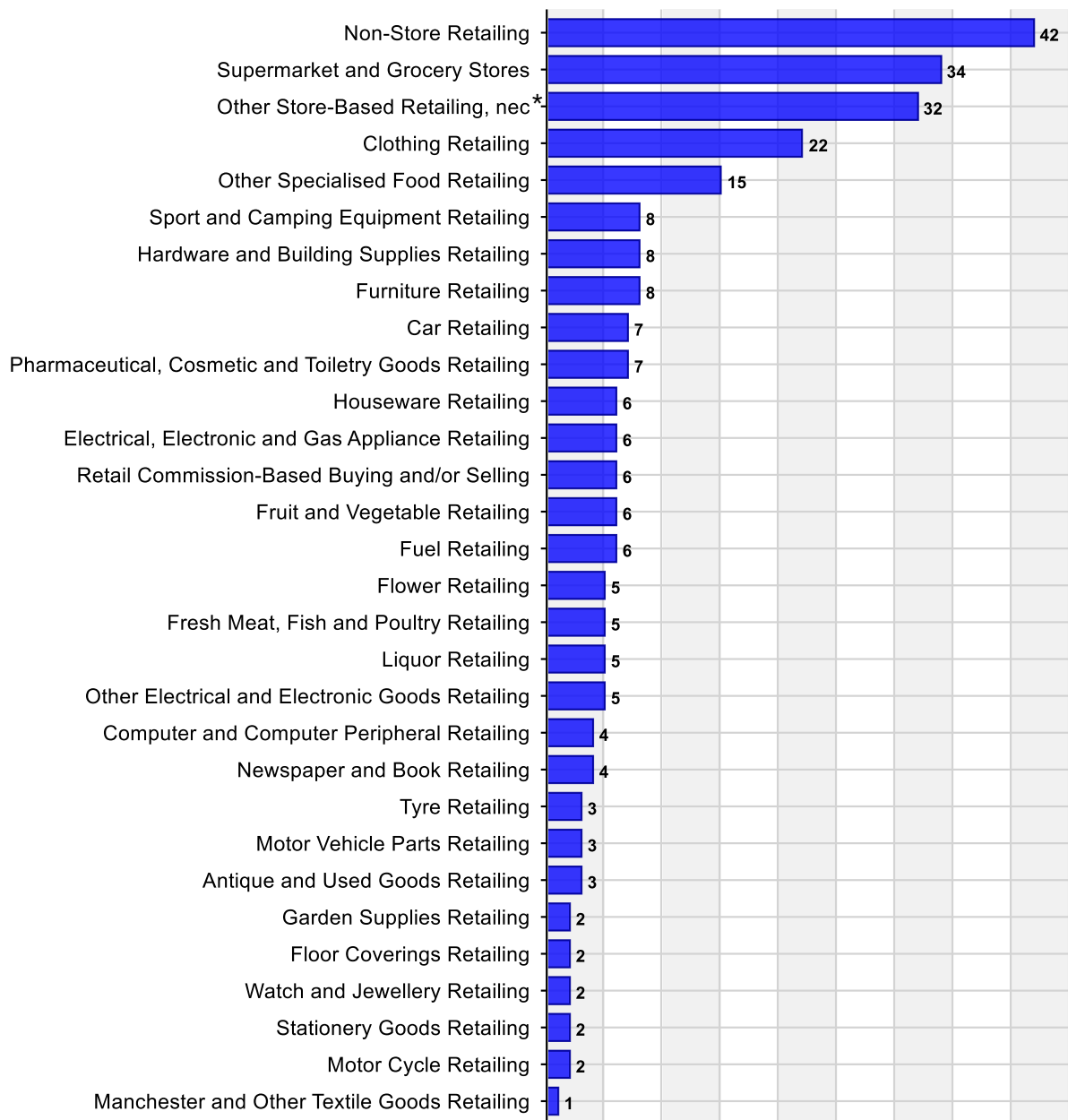
LGA of Usual Residence	2011	2006	Change %
Knox (C)	3,580	4,018	-11%
Yarra Ranges (S)	909	988	-8%
Maroondah (C)	674	625	8%
Casey (C)	560	515	9%
Whitehorse (C)	335	351	-5%
Monash (C)	332	345	-4%
Cardinia (S)	186	149	25%
Greater Dandenong (C)	168	161	4%
Manningham (C)	130	154	-16%
Frankston (C)	100	76	32%
Other	467	588	-21%
<b>Total</b>	<b>7,441</b>	<b>7,970</b>	<b>-7%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Retail Trade' in Knox is supported by an estimated 708 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). It is noted that ABR data does not yet include all branch locations of major national trading businesses which has implications for business counts at an LGA level.

It is observed that 266 of the 708 trading Retail businesses were created during the 2011 – 2016 period. Largely aligned with consumption activity driven by the resident population, new business creation has been aligned with supermarket, clothing, other food, automotive and equipment retailing. Of note, is the 'non-store retailing' businesses of which 42 have been created in the last five years. This cohort of new businesses reflects the broader macro trends in retailing toward online operations (Figure 6-31).

Figure 6-31 Retail Trade: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

\*ANSIC Class 4279 This class consists of businesses engaged in retailing goods not elsewhere classified (nec) from store-based premises. <http://remplan.co/2uKThOY>

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented in Table 6-20.

Table 6-20 Retail Trade: Employment Projections (Jobs in Geelong)

2011	2016	2021	2026	2031	2036
7,441	8,186	8,398	8,615	8,921	9,346

By 2036 it is forecast that there will be 9,346 'Retail Trade' sector jobs based in Knox, which represents a 25.6 percent increase from 2011 levels. Contributing to the forecast employment growth in this sector are population growth projections, as well as the prediction that Knox's role as a regional service centre will expand.

### 6.1.15 Accommodation and Food Services (working residents)

In 2011, there were 3,714 Knox residents employed in the 'Accommodation and Food Services' industry sector. In 2021 employment is estimated to be 4,265 jobs. By 2036 the number of jobs is projected to be 4,782, reflecting population growth and shifts in consumer preferences.

Figure 6-32 Accommodation and Food Services: Employment Trend Lines (Working Residents)

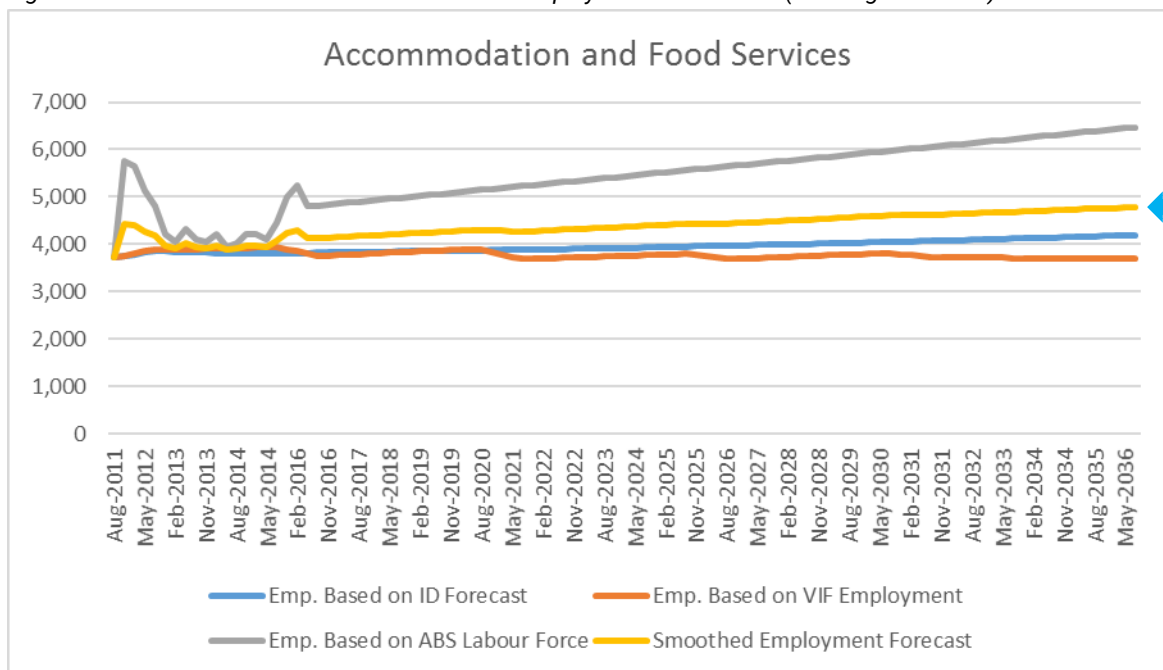


Table 6-21 Accommodation and Food Services: Employment Projections (Working Residents)

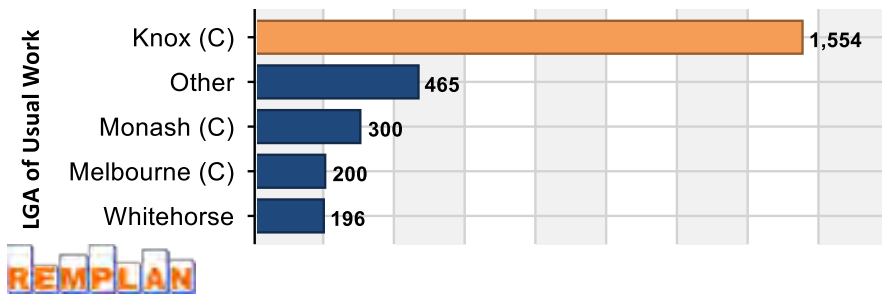
2011	2016	2021	2026	2031	2036
3,714	4,129	4,265	4,432	4,619	4,782

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the *Accommodation and Food Services* sector. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The *Accommodation & Food Services* Sector includes both employment in both Accommodation and Food related sectors (eg. Cafes and Restaurants, Takeaway Food Services, Catering Services, Pubs, Taverns and Bars). 3,714 Knox residents work in the sector with most employed in Food Services (91.5 %). 41.8 % of residents who work in the sector are employed locally in Knox. While the other locations of work including Monash, Melbourne and Whitehorse with strong Activity Centres draw Knox residents for employment in the sector (Figure 6-33).



Figure 6-33 Accommodation & Food Services Sector - Resident Working Population, Top 5 LGA 's of Usual work



Source: ABS 2011, Compiled by REMPLAN

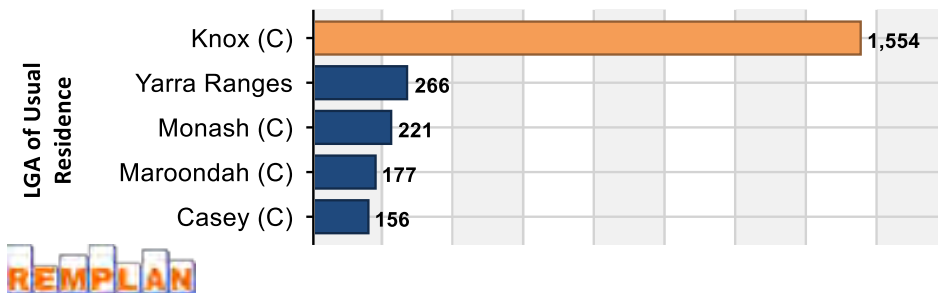
The local resident population are central to the *Accommodation and Food Services* workforce locally. Workers in the sector who also reside locally represent over half the sectors jobs (54.6%). While adjoining LGA's of Yarra Ranges (9.3 %) Monash (7.8 %), Maroondah (6.2 %), Casey (5.5 %) and Whitehorse (5.5 %) provide another 975 workers who support employment in Knox (Figure 6-34).

### 6.1.16 Accommodation and Food Services (jobs in Knox)

In 2011, there were 2,848 'Accommodation and Food Services' industry sector jobs in Knox. By 2021 employment is estimated to be 3,358 jobs. By 2036 the number of jobs is projected to be 4,025, reflecting a strong growth outlook reflecting forecast population growth, the role of major business hubs such as Knox Central Activity Centre, and shifts to consumer preferences to experiences (over goods).

The figure below illustrates where local workers in the 'Accommodation and Food Services' industry sector reside.

Figure 6-34 Accommodation and Food Services – Jobs in Knox by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce experienced a very slight increase between 2006 and 2011 Census years resulting in an additional 18 jobs. Interestingly, employment in local retail by Knox residents experienced a 4% decline over this period.

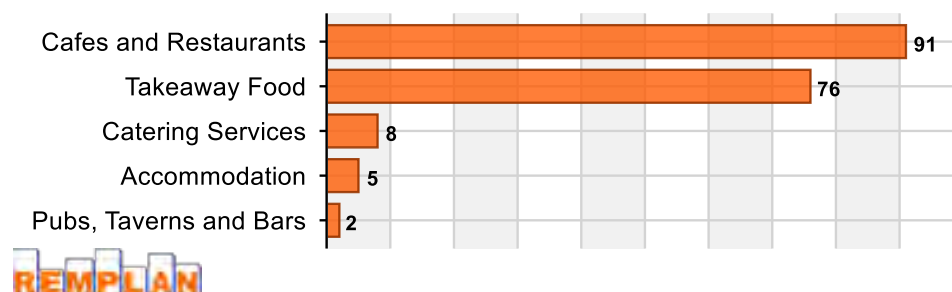
Table 6-22 Accommodation and Food Services – Jobs Knox, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,554	1,625	-4%
Yarra Ranges (S)	266	273	-3%
Monash (C)	221	140	58%
Maroondah (C)	177	216	-18%
Casey (C)	156	123	27%
Whitehorse (C)	156	140	11%
Greater Dandenong (C)	97	70	39%
Manningham (C)	57	72	-21%
Boroondara (C)	25	25	0%
Kingston (C)	24	25	-4%
Other	115	121	-5%
<b>Total</b>	<b>2,848</b>	<b>2,830</b>	<b>1%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Accommodation and Food Services' in Knox is supported by an estimated 336 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). Over half of the businesses currently trading entered Knox in the last five years indicating the churn of trading businesses in the sector. 182 new Accommodation and Food businesses were created during the 2011 – 2016 period. Cafes and Restaurants and Takeaway Food Services were the dominant new business entries, while some additional Catering Services and Pubs, Taverns & Bars also entered the Knox economy.

Figure 6-35 Accommodation & Food Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-36 Accommodation and Food Services: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
2,848	3,218	3,358	3,524	3,724	4,025

By 2036 it is forecast that there will be 4,025 Accommodation and Food Services sector jobs based in Knox, which represents a 41.3 percent increase from 2011 levels. Contributing to the forecast employment growth in this sector are strong population projections, the prediction that Knox's role as a major service centre will expand.

### 6.1.17 Transport, Postal and Warehousing (working residents)

In 2011, there were 2,872 Knox residents employed in the 'Transport, Postal and Warehousing' industry sector. In 2021 employment is estimated to be 2,979 jobs. By 2036 the number of jobs is projected to be 2,993, reflecting a static employment outlook, and in the context of population growth, a drop in 'Transport, Postal and Warehousing's' proportionate contribution to supporting employment for residents.

The ABS Labour Force Survey based trends indicate a more dramatic fall in employment. Over recent years advances in technology and the consolidation of wholesale trade in major logistics hubs has seen falls in employment in the sector. In Knox, this may be moderated by a growing population base, the continued rise of online shopping, and the Areas network of major roads.

Figure 6-37 Transport, Postal and Warehousing: Employment Trend Lines (Working Residents)

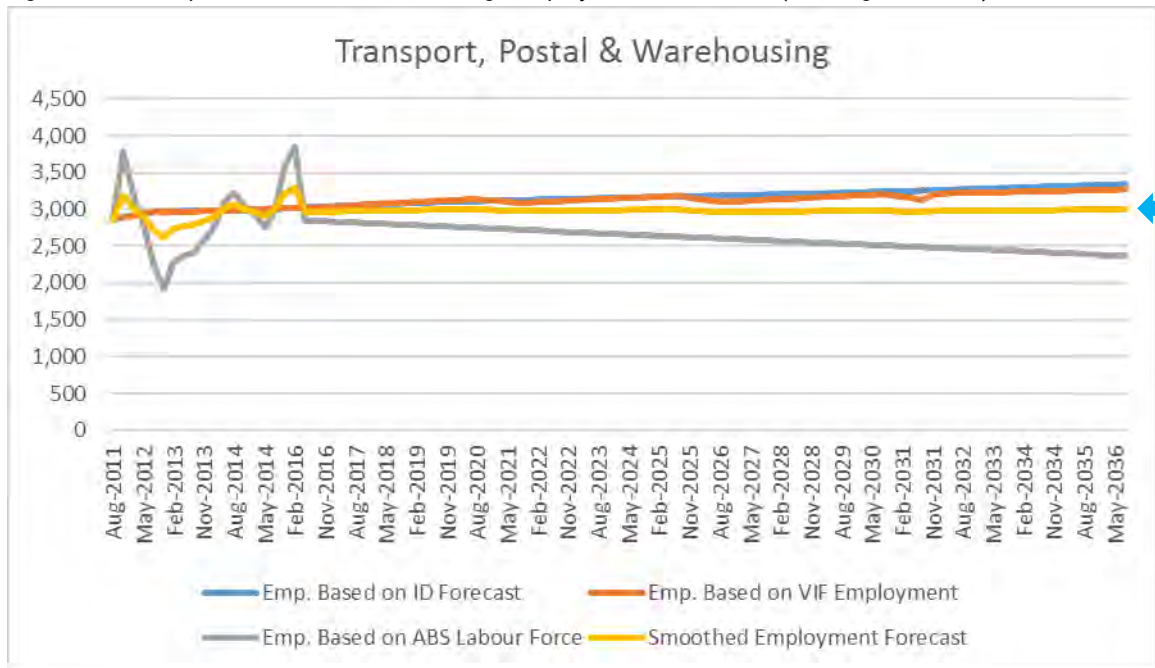


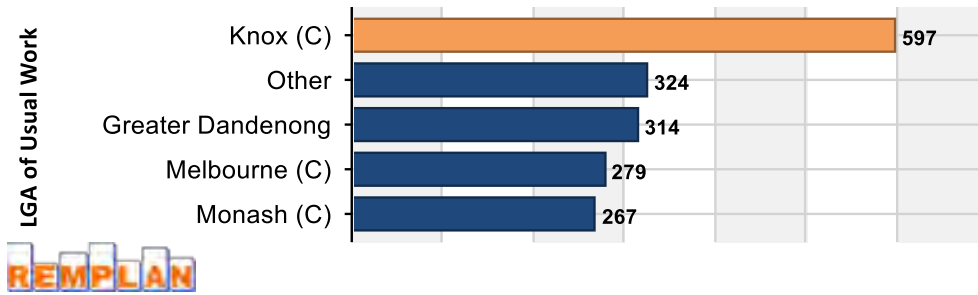
Table 6-23 Transport, Postal and Warehousing: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
2,872	2,966	2,979	2,963	2,957	2,993

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Transport, Postal and Warehousing' sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

Transport, Postal & Warehousing employs 2,872 Knox residents. Local employment within Knox represents the highest proportion of these resident workers. At the time of Census 20.8 % of residents in Knox who worked within the sector locally. Other locations including Greater Dandenong (10.9 %), Melbourne (9.7 %) and Monash (9.3 %) represent 1,184 of residents who work in the Transport, Postal & Warehousing sector (Figure 6-38)

Figure 6-38 Transport, Postal and Warehousing Sector - Resident Working Population, Top 5 LGA 's of Usual work



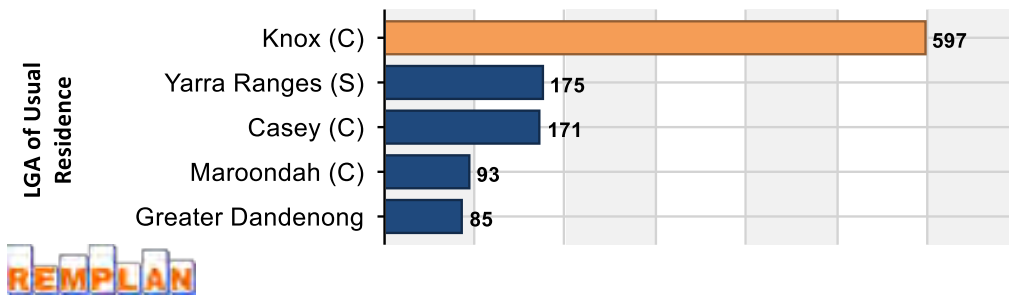
Source: ABS 2011, Compiled by REMPLAN

### 6.1.18 Transport, Postal & Warehousing (jobs in Knox)

In 2011, there were 1,469 'Transport, Postal and Warehousing' industry sector jobs in Knox. By 2021 employment is estimated to be 1,564 jobs. By 2036 the number of jobs is projected to be 1,616, reflecting a stable to low-growth outlook, off a very small base in the context of Knox.

The figure below illustrates where local workers in the 'Transport, Postal and Warehousing' industry sector reside.

Figure 6-39 Transport, Postal and Warehousing – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce contracted between 2006 and 2011 Census years resulting in an overall reduction of (-) 259 jobs. Employment loss in the sector was experienced by Knox residents (-133 jobs) and Maroondah residents (-70 jobs).

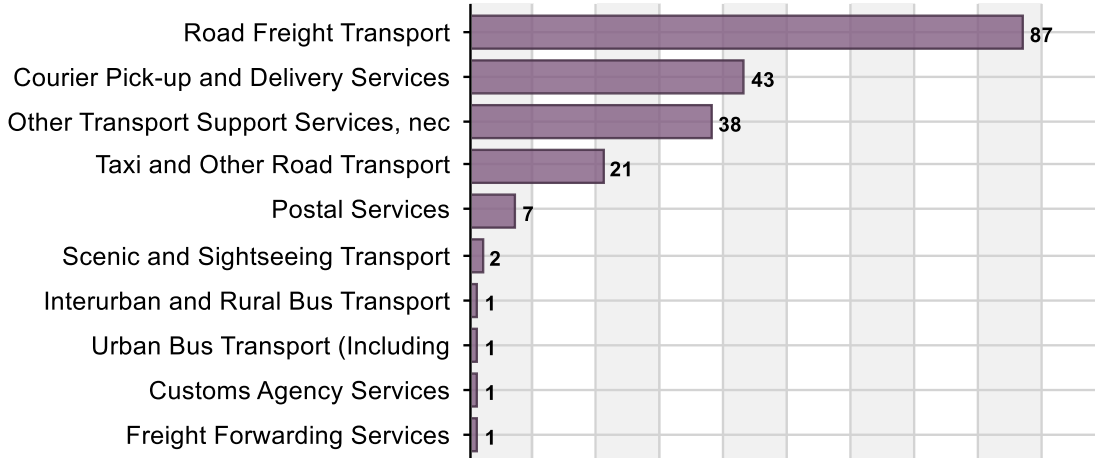
Table 6-24 Transport, Postal & Warehousing – Jobs in Knox by Top 10 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	597	730	-18%
Yarra Ranges (S)	175	222	-21%
Casey (C)	171	180	-5%
Maroondah (C)	93	163	-43%
Greater Dandenong (C)	85	56	52%
Monash (C)	63	78	-19%
Whitehorse (C)	62	69	-10%
Cardinia (S)	50	33	52%
Kingston (C)	35	31	13%
Frankston (C)	28	29	-3%
Other	110	137	-20%
<b>Total</b>	<b>1,469</b>	<b>1,728</b>	<b>-15%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Transport, Postal & Warehousing' in Knox is supported by an estimated 639 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). One third of the businesses currently trading entered Knox in the last five years totalling 202 new businesses. The largest categories of new businesses were Road Freight Transport, Courier Pick-up & Deliver Services and Other Transport Support Services (Figure 6-40).

Figure 6-40 Transport, Postal and Warehousing Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-25 Transport, Postal and Warehousing: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
1,469	1,542	1,564	1,572	1,589	1,616

By 2036 it is forecast that there will be 1,616 *Transport, Postal & Warehousing* sector jobs based in Knox, which represents a 10 percent decrease from 2011 levels. Contributing to the forecast employment decline in this sector is technological and business model changes that are driving efficiency gains, one outcome of which is few jobs relative to output.

### 6.1.19 Information Media and Telecommunications (working residents)

In 2011, there were 1,553 Knox residents employed in the '*Information Media and Telecommunications*' industry sector. In 2021 employment is estimated to be 1,672 jobs. By 2036 the number of jobs is projected increase to be 1,799.

Figure 6-41 Information Media and Telecommunications: Employment Trend Lines (Working Residents)

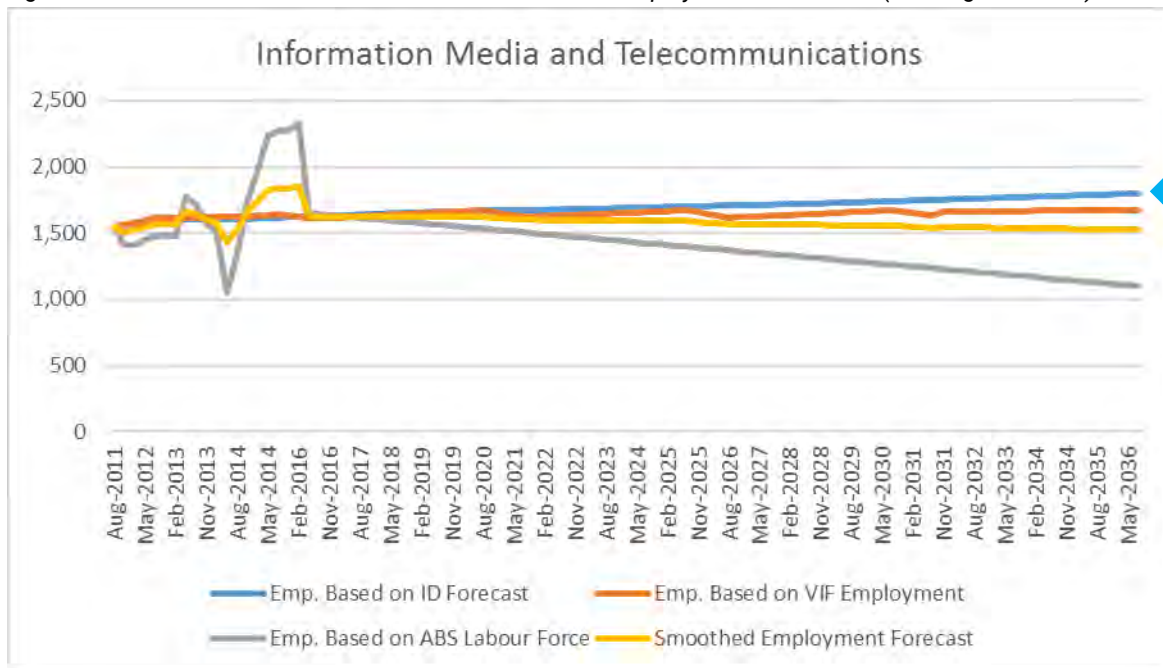


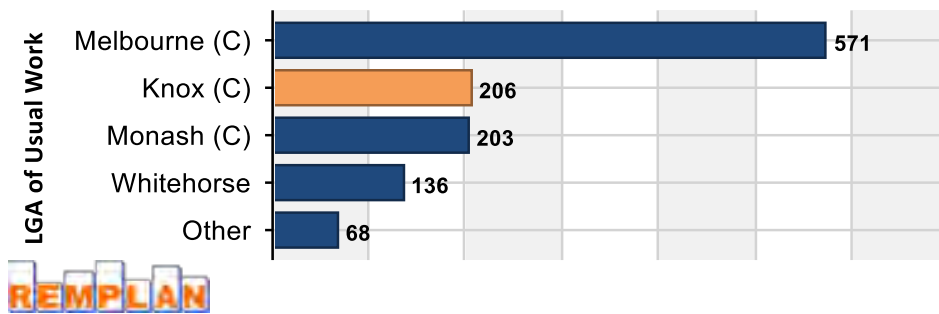
Table 6-26 Information Media and Telecommunications: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
1,553	1,629	1,672	1,707	1,749	1,799

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the Information Media and Telecommunications sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The '*Information Media and Telecommunications*' Sector draws residents into central Melbourne for work. 1,533 local Knox residents were employed in the sector with 36.8% (the highest proportion) leaving Knox to work in central Melbourne predominantly in Telecommunications and Publishing. The combined areas of Knox (13.3 %), Monash (13.1 %), Whitehorse (8.7 %) and Other locations 4.3 %) support 612 jobs in the sector (Figure 6-42).

Figure 6-42 Information Media and Telecommunications Sector: Resident Working Population, Top 5 LGA 's of Usual work



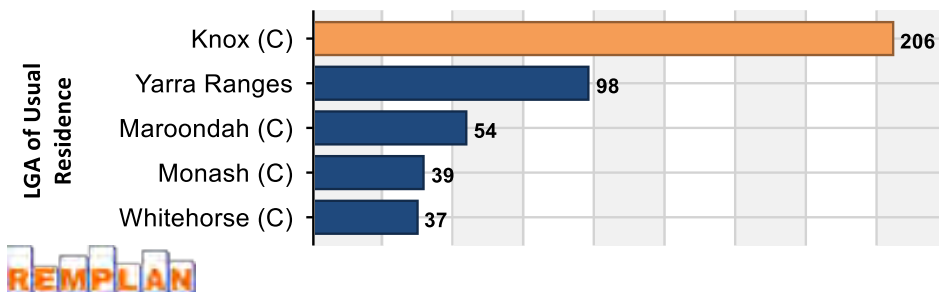
Source: ABS 2011, Compiled by REMPLAN

### 6.1.20 Information Media and Telecommunications (jobs in Knox)

In 2011, there were 592 'Information Media and Telecommunications' industry sector jobs in Knox. By 2021 employment is estimated to be 654 jobs. By 2036 the number of jobs is projected to be 739, reflecting a medium to strong growth outlook.

Of the people employed in the local Information Media & Telecommunications sector 206 (34.8%) also reside in Knox. An additional 38.5% (228) of workers reside in neighbouring adjoining LGA's of Yarra Ranges (16.5%), Maroondah (9.2%), Monash (6.6%) and Whitehorse (6.2%).

Figure 6-43 Information Media and Telecommunications sector – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase of 81 jobs.

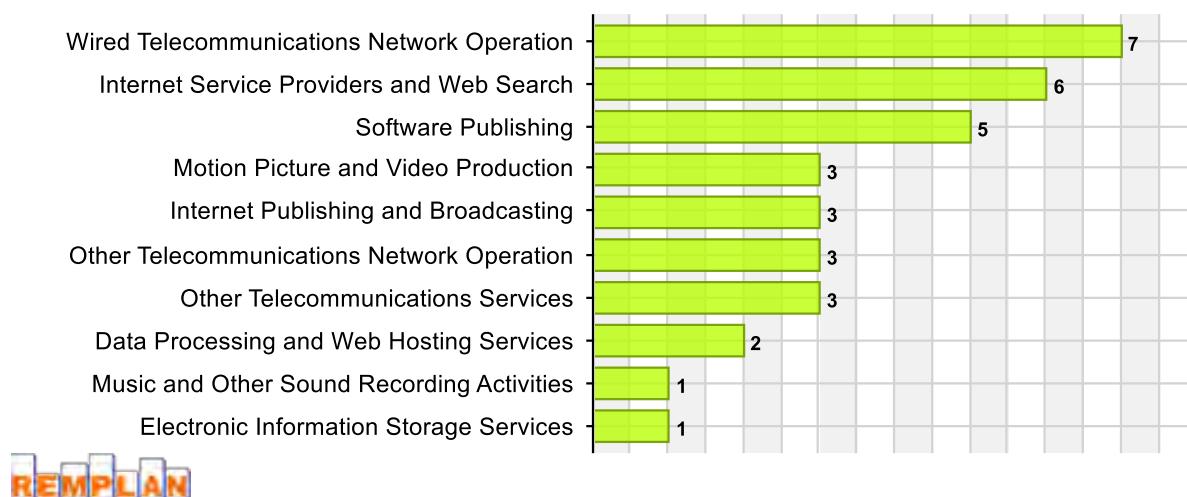
Table 6-27 Information Media and Telecommunications – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	206	210	-2%
Yarra Ranges (S)	98	65	51%
Maroondah (C)	54	43	26%
Monash (C)	39	38	3%
Whitehorse (C)	37	20	85%
Casey (C)	35	23	52%
Glen Eira (C)	23	6	283%
Cardinia (S)	14	5	180%
Yarra (C)	13	3	333%
Mornington Peninsula (S)	9	3	200%
Other	64	95	-33%
<b>Total</b>	<b>592</b>	<b>511</b>	<b>16%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Information Media and Telecommunications' in Knox is supported by an estimated 98 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, there has been 34 new businesses enter the Knox economy within the sector. Telecommunications, Internet Service Providers, Software Publishing and Motion Picture & Video Production have been the strongest business types represented by new local business entries. (Figure 6-44).

Figure 6-44 Information Media and Telecommunications Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.



Table 6-28 Information Media and Telecommunications: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
592	631	654	675	701	739

By 2036 it is forecast that there will be 739 *Information Media and Telecommunications* sector jobs based in Knox, which represents a 24.8 percent increase from 2011 levels. Contributing to the forecast employment increase is the prediction that there will be increasing demand for ‘thinking’ jobs and that this sector will be instrumental in assisting all industries engage with their customers, suppliers, employees and communities.

### 6.1.21 Financial and Insurance Services (working residents)

In 2011, there were 3,170 Knox residents employed in the ‘*Financial and Insurance Services*’ industry sector. In 2021 employment is estimated to be 3,449 jobs. With steady projected growth through to 2036 the number of jobs is forecast to be 3,699.

Figure 6-45 Financial and Insurance Services: Employment Trend Lines (Working Residents)

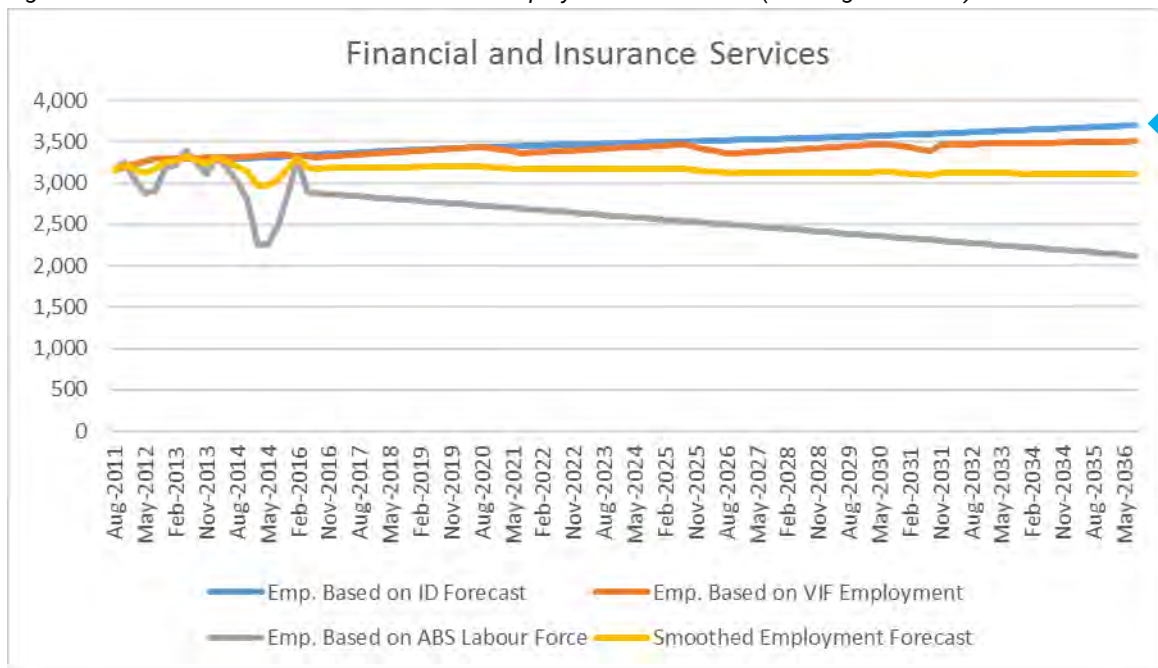


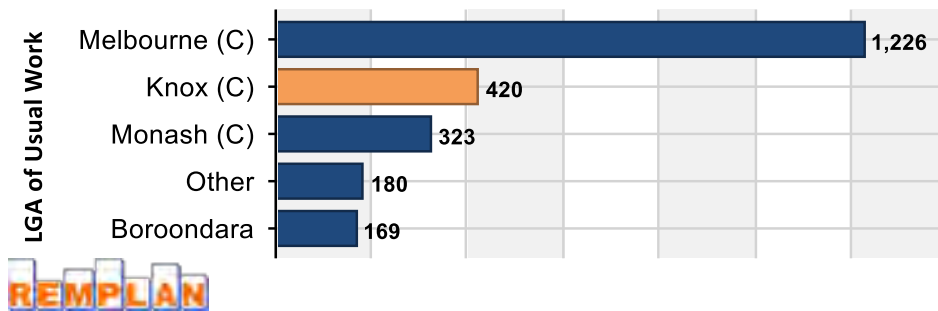
Table 6-29 Financial and Insurance Services: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
3,170	3,349	3,449	3,520	3,599	3,699

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the ‘*Financial and Insurance Services*’ sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

Central Melbourne with its clear strengths in Finance and Insurance provides a significant draw for Knox residents who work in the sector. Of the 3,170 people who live in Knox and work in the Financial and Insurance Services Sector, Melbourne is a destination for work for 38.7 % of all jobs. Work closer to home and within the Knox LGA is also important, but local employment provides only around a third of the jobs. Residents working and living locally comprise in Knox represent 13.3 % of the jobs, while Monash (10.2 %), Other locations (5.7% and Boroondara (5.3 %) provide another 672 jobs (Figure 6-46). Employment locally is focussed in Banking, Asset Broking Services and Auxiliary Insurance Services.

Figure 6-46 Financial and Insurance Services Sector - Resident Working Population, Top 5 LGA 's of Usual work



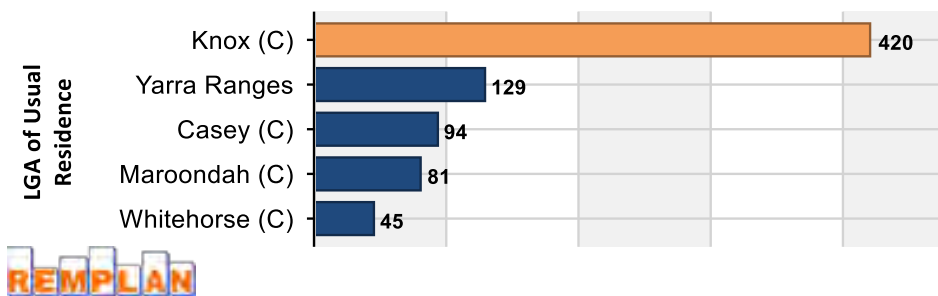
Source: ABS 2011, Compiled by REMPLAN

### 6.1.22 Finance and Insurance Services (jobs in Knox)

In 2011, there were 955 'Financial and Insurance Services' industry sector jobs in Knox. By 2021 employment is estimated to be 1,067 jobs. By 2036 the number of jobs is projected to be 1,176, reflecting a medium growth outlook, off a relatively small base in the context of Knox.

The figure below illustrates where local workers in the 'Financial and Insurance Services' industry sector reside.

Figure 6-47 Financial & Insurance Services sector – Jobs in Knox by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce contracted between 2006 and 2011 Census years resulting in an overall reduction of (-) 316 jobs. Employment loss in the sector was experienced by Knox residents (-90 jobs), Whitehorse (-44 jobs) and Monash (-36 jobs).

Overall employment in Knox within the 'Financial & Insurance Services' sector decreased by (-)25% between the 2006 and 2011 Census years. Decline in job numbers was witnessed across 7 of the top 10 LGA's of usual residence. While Yarra Ranges, Cardinia and Whittlesea residents were able to capitalise on Finance and Insurance Services Sector jobs in the Knox LGA (Table 6-30).

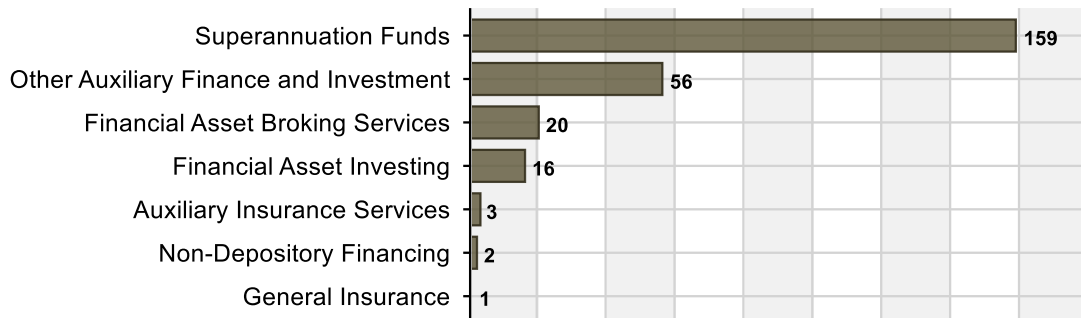
Table 6-30 Financial & Insurance Services – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	420	510	-18%
Yarra Ranges (S)	129	146	-12%
Casey (C)	94	71	32%
Maroondah (C)	81	111	-27%
Whitehorse (C)	45	89	-49%
Manningham (C)	39	43	-9%
Monash (C)	33	69	-52%
Cardinia (S)	22	14	57%
Whittlesea (C)	16	9	78%
Greater Dandenong (C)	16	22	-27%
Other	60	187	-68%
<b>Total</b>	<b>955</b>	<b>1,271</b>	<b>-25%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Financial & Insurance Services' in Knox is supported by an estimated 925 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). During the last five years, 257 new business entries have contributed to employment growth in the sector. Superannuation Funds represent over 60% of the new businesses created, while Auxiliary Finance & Investment Services were also important within the Knox Economy. (Figure 6-48).

Figure 6-48 Financial & Insurance Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-49 Financial and Insurance Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
955	1,025	1,067	1,100	1,139	1,176

By 2036 it is forecast that there will be 1,176 'Financial & Insurance Services' sector jobs based in Knox, which represents a 23.2 percent increase from 2011 levels.

### 6.1.23 Rental, Hiring and Real Estate Services (working residents)

In 2011, there were 905 Knox residents employed in the 'Rental, Hiring and Real Estate Services' industry sector. The 2021 employment is estimated to be 1,101 jobs. By 2036 the number of jobs is projected to increase to 1,225, reflecting strong population growth and investor demand supporting residential and non-residential construction and demand for rental, hiring and real estate services.

Figure 6-50 Rental, Hiring and Real Estate Services: Employment Trend Lines (Working Residents)

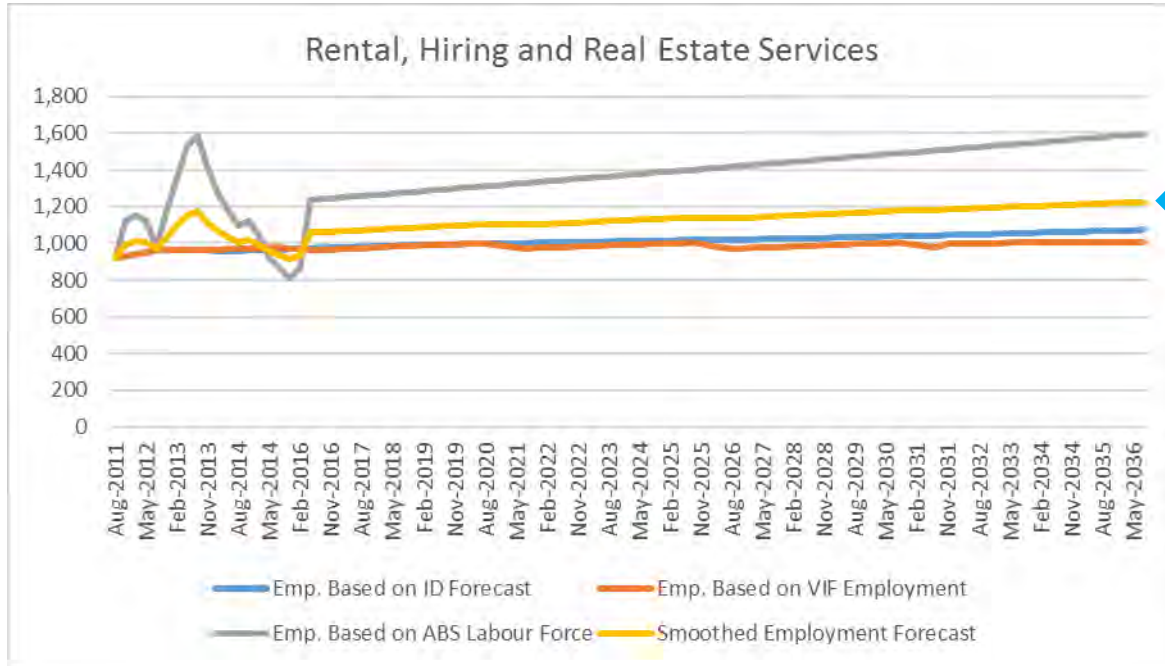


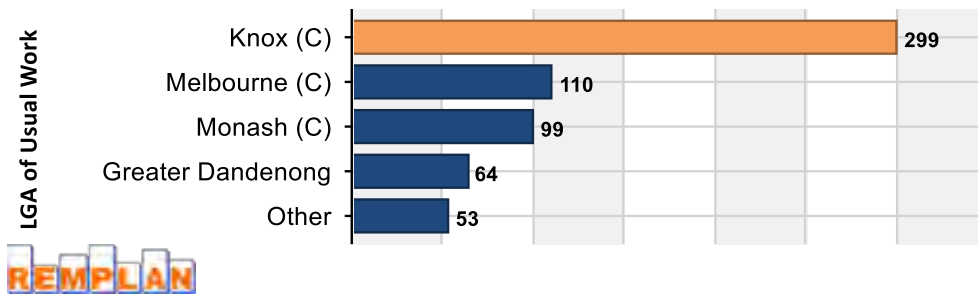
Table 6-31 Rental, Hiring and Real Estate Services: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
905	1,060	1,101	1,136	1,177	1,225

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Rental, Hiring and Real Estate Services' sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

Residents employed in the 'Rental Hiring and Real Estate Services' totalled 905 jobs. Most employment was associated with Property Services within this sector. The largest cohort of Knox residents within the sector also worked locally (33.0 %). While other key locations (LGA's) including Melbourne (12.1 %), Monash (11.0 %) and Greater Dandenong also draw Knox workers to their LGA's to work in the sector (Figure 6-51).

Figure 6-51 Rental, Hiring and Real Estate Sector - Resident Working Population, Top 5 LGA 's of Usual work



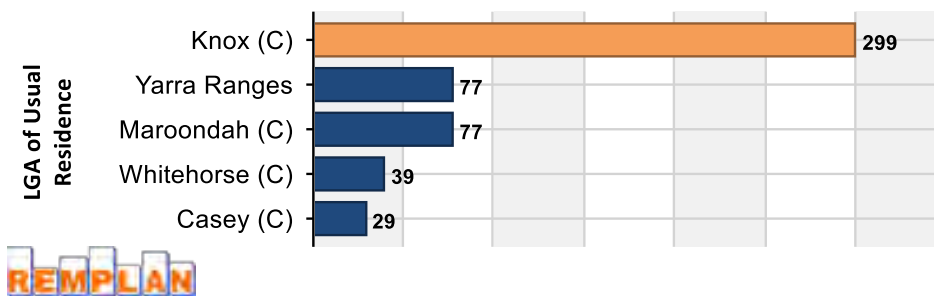
Source: ABS 2011, Compiled by REMPLAN

### 6.1.24 Rental Hiring and Real Estate Services (jobs in Knox)

In 2011 there were 666 'Rental Hiring and Real Estate Services' industry sector jobs in Knox. By 2021 employment is estimated to be 832 jobs. By 2036 the number of jobs is projected to be 952, reflecting a strong growth outlook in line with population and broader business investment projections.

The figure below illustrates where local workers in the 'Rental Hiring and Real Estate Services' industry sector reside.

Figure 6-52 Rental, Hiring and Real Estate Services sector – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

'Rental, Hiring & Real Estate Services' employment in Knox declined by (-)35 jobs between the 2006 and 2011 Census years. The local resident workforce who live and work in Knox declined by (-)73 jobs within the sector. While locations including Casey and Stonnington residents working in the sector locally grew (Table 6-32).

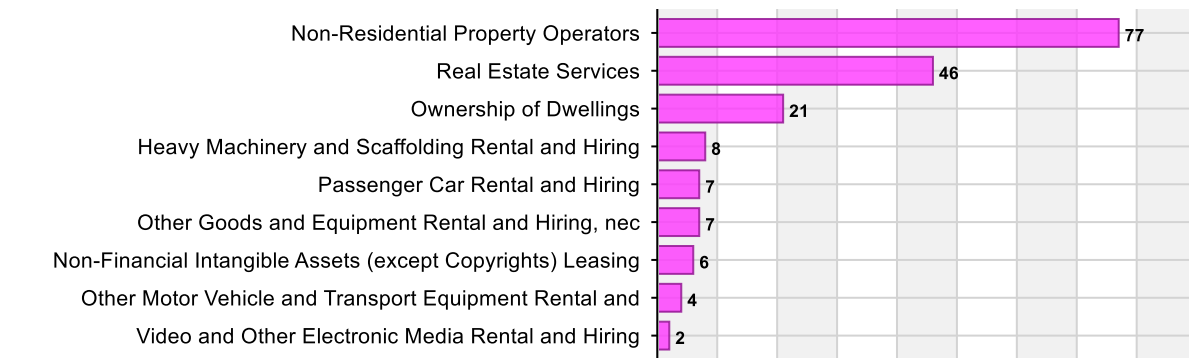
Table 6-32 Rental, Hiring & Real Estate Services – Jobs in Knox by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	299	372	-20%
Yarra Ranges (S)	77	71	8%
Maroondah (C)	77	68	13%
Whitehorse (C)	39	41	-5%
Casey (C)	29	15	93%
Monash (C)	22	30	-27%
Mornington Peninsula (S)	15	12	25%
Manningham (C)	14	12	17%
Kingston (C)	13	10	30%
Stonnington (C)	12	3	300%
Other	69	67	3%
<b>Total</b>	<b>666</b>	<b>701</b>	<b>-5%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Rental, Hiring & Real Estate Services' in Knox is supported by an estimated 683 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). During the last five years, 178 new business entries have contributed to employment growth in the sector. The notable business entries within the sector in Knox include Non-Residential Property Operators, Ownership of Dwellings and Real Estate Services (Figure 6-53).

Figure 6-53 Rental, Hiring & Real Estate Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-54 Rental, Hiring and Real Estate Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
666	792	832	867	910	952

By 2036 it is forecast that there will be 952 *Rental, Hiring & Real Estate Services* sector jobs based in Knox, which represents a 42.9 percent increase from 2011 levels. Growth in this sector is expected to correlate to and support the region’s strong population growth forecasts and associated demand for construction and property related services.

### 6.1.25 Professional Scientific and Technical Services (working residents)

In 2011, there were 5,347 Knox residents employed in the ‘*Professional Scientific and Technical Services*’ industry sector. The 2021 employment is estimated to be 7,362 jobs. By 2036 the number of jobs is projected to increase to 9,587, reflecting strong population growth and the ongoing rising demand for high-skilled ‘thinking’ jobs.

Figure 6-55 Professional Scientific and Technical Services: Employment Trend Lines (Working Residents)

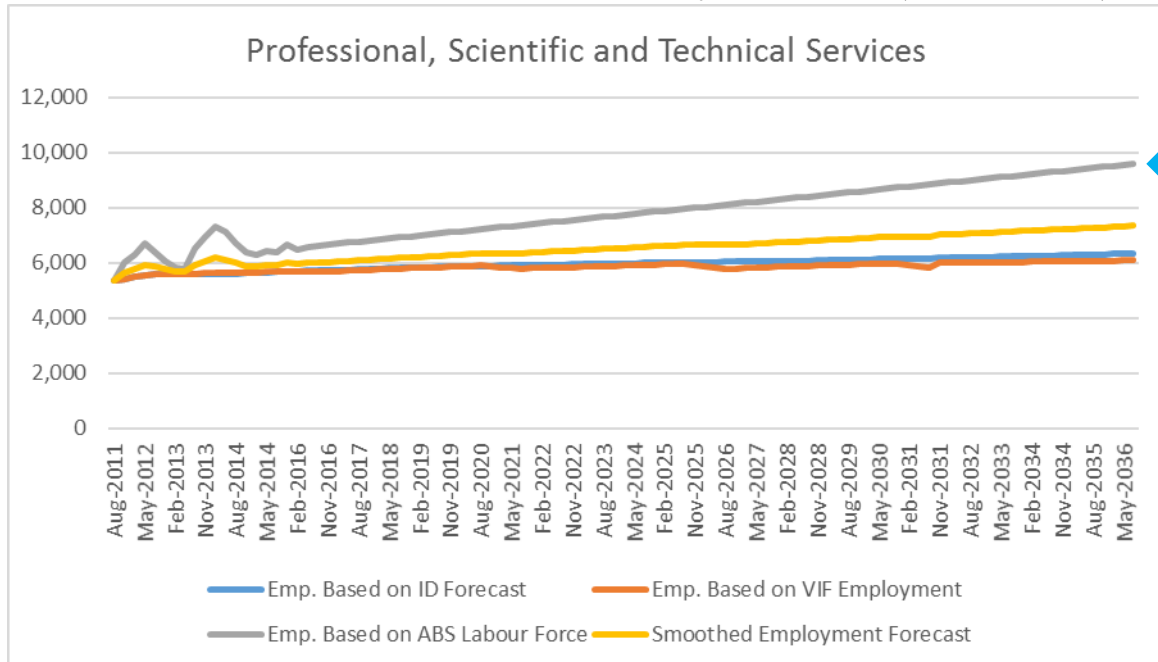


Table 6-33 Professional Scientific and Technical Services: Employment Projections (Working Residents)

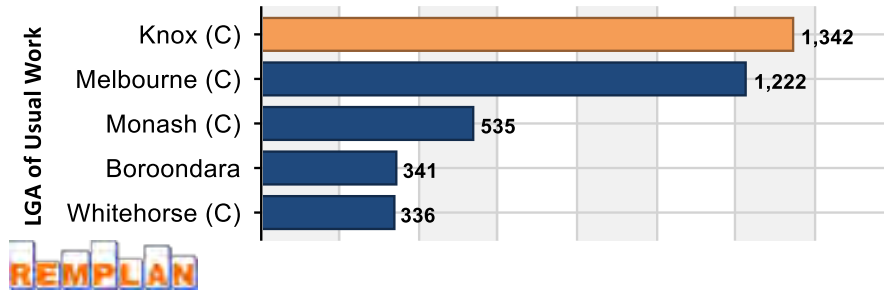
2011	2016	2021	2026	2031	2036
5,347	6,620	7,362	8,104	8,845	9,587

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the *Professional Scientific and Technical Services* sector. The greater the number of local residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The highest proportion of residents who are employed in the *Professional, Scientific & Technical Services* Sector also work in Knox (25.1 %). Other key LGAs that draw Knox residents working in the sector for

employment include Melbourne (22.9 %), Monash (10.0 %), Boroondara (6.4 %) and Whitehorse (6.3 %). These combined four LGA's represent 2,434 jobs within the sector or 2,434 of total employment (Figure 6-56).

Figure 6-56 Top 5 LGA 's of Usual work, Residents in Knox (C) who work in Professional Scientific and Technical Services Sector



Source: ABS 2011, Compiled by REMPLAN

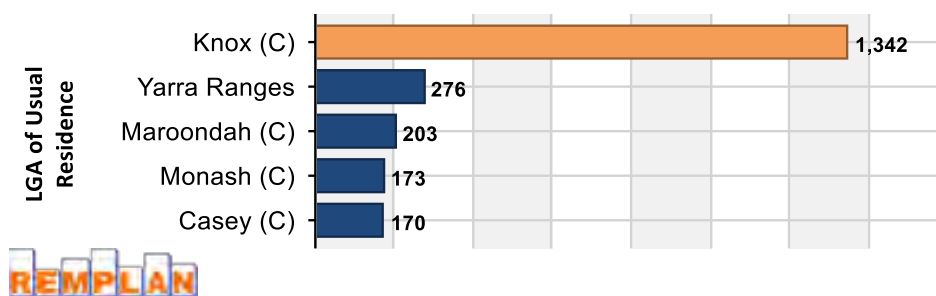
### 6.1.26 'Professional Scientific and Technical Services' (jobs in Knox)

In 2011, there were 3,053 'Professional Scientific and Technical Services' industry sector jobs in Knox. By 2021 employment is estimated to be 4,315 jobs. By 2036 the number of jobs is projected to be 6,124, reflecting a robust growth outlook that factors in a projected rising demand for 'thinking' jobs.

The figure below illustrates where local workers in the 'Professional Scientific and Technical Services' industry sector reside.

Of the people working in the local 'Professional, Scientific & Technical Services' sector, 44% also reside Knox. The adjoining LGA's are home to the bulk of the remaining workers with Yarra Ranges (9.0 %), Maroondah (6.7 %), Monash (5.7 %) and Casey (5.6 %) comprise 822 workers or 26.9%.

Figure 6-57 Professional Scientific and Technical Services sector – Jobs in Knox (C) by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase of 727 jobs (31%).



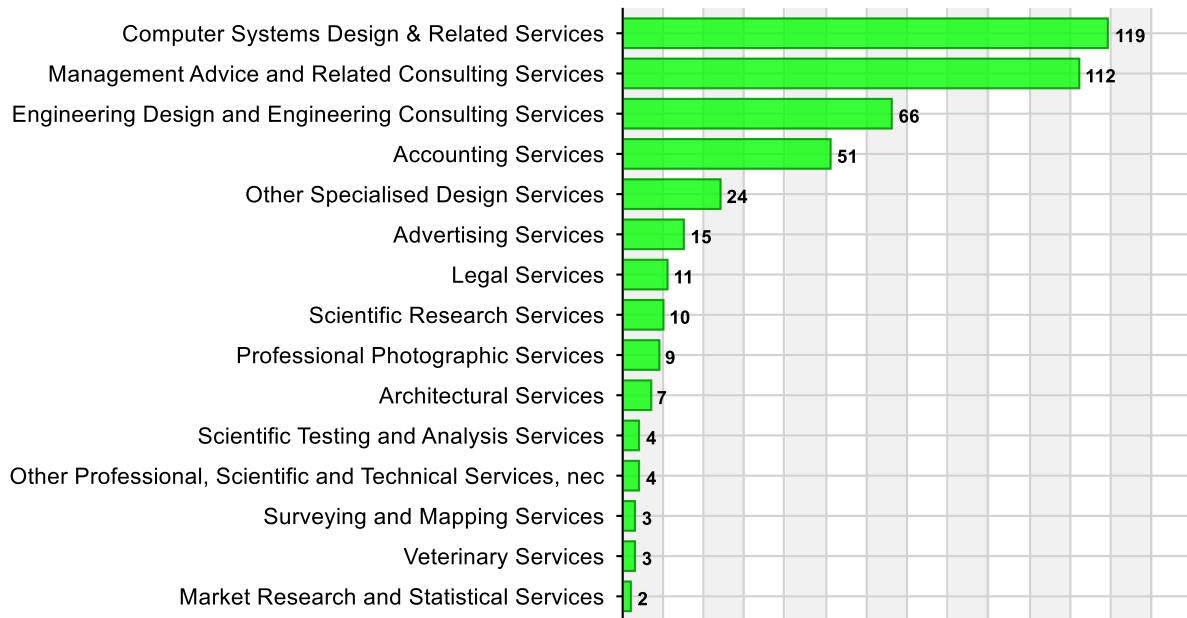
Professional, Scientific & Technical Services – Jobs in Knox (C) by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,342	1230	9%
Yarra Ranges (S)	276	223	24%
Maroondah (C)	203	132	54%
Monash (C)	174	106	64%
Casey (C)	170	94	81%
Whitehorse (C)	137	117	17%
Manningham (C)	75	48	56%
Boroondara (C)	63	49	29%
Greater Dandenong (C)	54	34	59%
Kingston (C)	52	26	100%
Other	507	267	90%
<b>Total</b>	<b>3,053</b>	<b>2,326</b>	<b>31%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in ‘Professional, Scientific & Technical Services’ in Knox is supported by an estimated 1,503 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, 440 new business entries have contributed to employment growth in the sector. The trend for new business creation is particularly evident across Other Specialised Design Services, Accounting Services, Management Advice and Related Consulting Services and Computer Systems Design & Related Services (Figure 6-58).

Figure 6-58 Professional Scientific and Technical Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-34 Professional Scientific and Technical Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
3,053	3,842	4,315	4,799	5,325	6,124

By 2036 it is forecast that there will be 6,124 Professional, Scientific & Technical Services sector jobs based in Knox, which represents a 101 percent increase from 2011 levels. Contributing to the forecast employment increase is the prediction that there will be increasing demand for ‘thinking’ jobs and that this sector will be instrumental in assisting businesses to develop and access the systems and technologies that are driving change across industries.

### 6.1.27 Administrative and Support Services (working residents)

In 2011, there were 2,492 Knox residents employed in the ‘Administrative and Support Services’ industry sector. 2021 employment is estimated to be 2,671 jobs. By 2036 the number of jobs is projected to increase to 2,805, reflecting population growth and the ongoing rising demand for skilled jobs.

Figure 6-59 Administrative and Support Services: Employment Trend Lines (Working Residents)

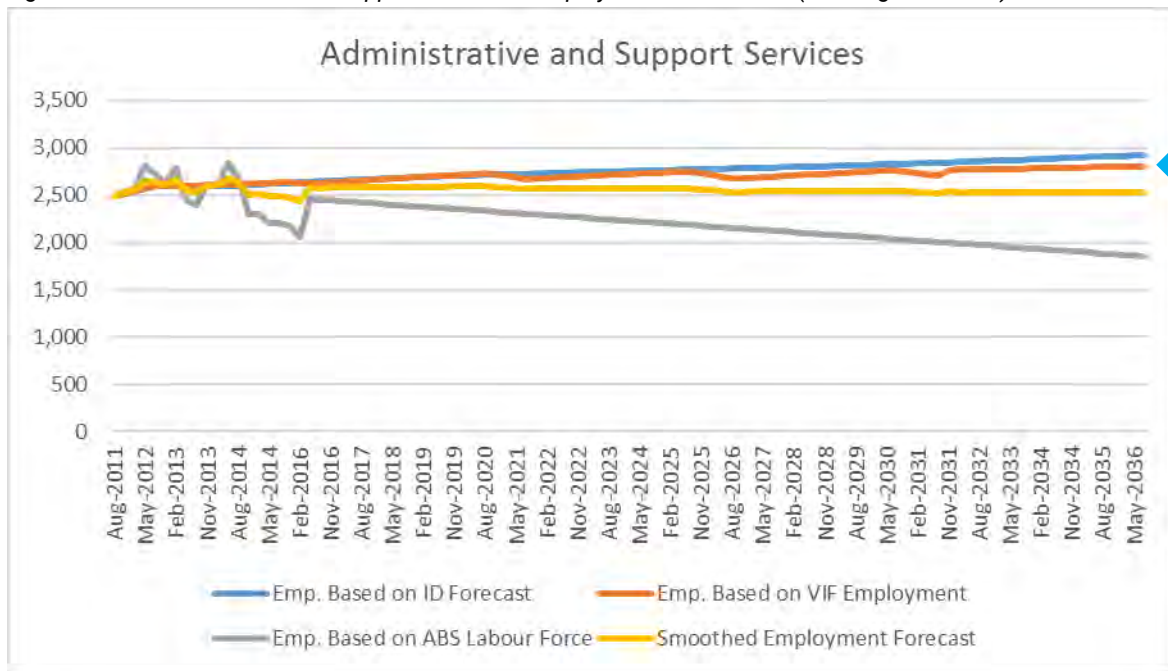


Table 6-35 Administrative and Support Services: Employment Projections (Working Residents)

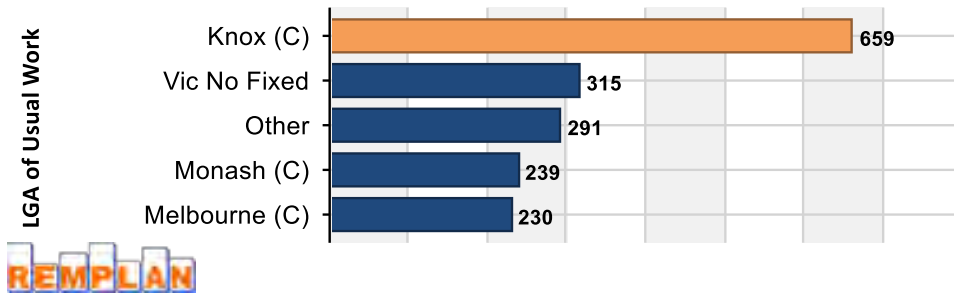
2011	2016	2021	2026	2031	2036
2,492	2,627	2,671	2,672	2,703	2,805

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the ‘Administrative and Support Services’ sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following

analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The *Administrative & Support Services* sector contributes 2,492 jobs (3.3 %) to total employment by Knox residents. Of residents who work in the sector, there are 26.4 % (659) whose place of work is in Knox.

Figure 6-60 Administrative and Support Services Sector - Resident Working Population, Top 5 LGA 's of Usual work



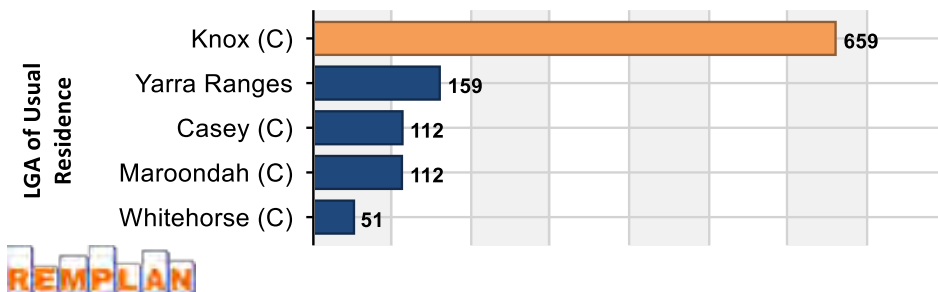
Source: ABS 2011, Compiled by REMPLAN

### 6.1.28 Administrative and Support Services (jobs in Knox)

In 2011, there were 1,444 'Administrative and Support Services' industry sector jobs in Knox. By 2021 employment is estimated to be 1,589 jobs. By 2036 the number of jobs is projected to be 1,716, reflecting a stable to medium growth outlook.

The figure below illustrates where local workers in the 'Administrative and Support Services' industry sector reside.

Figure 6-61 Administrative and Support Services sector – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase 73 jobs (5%).

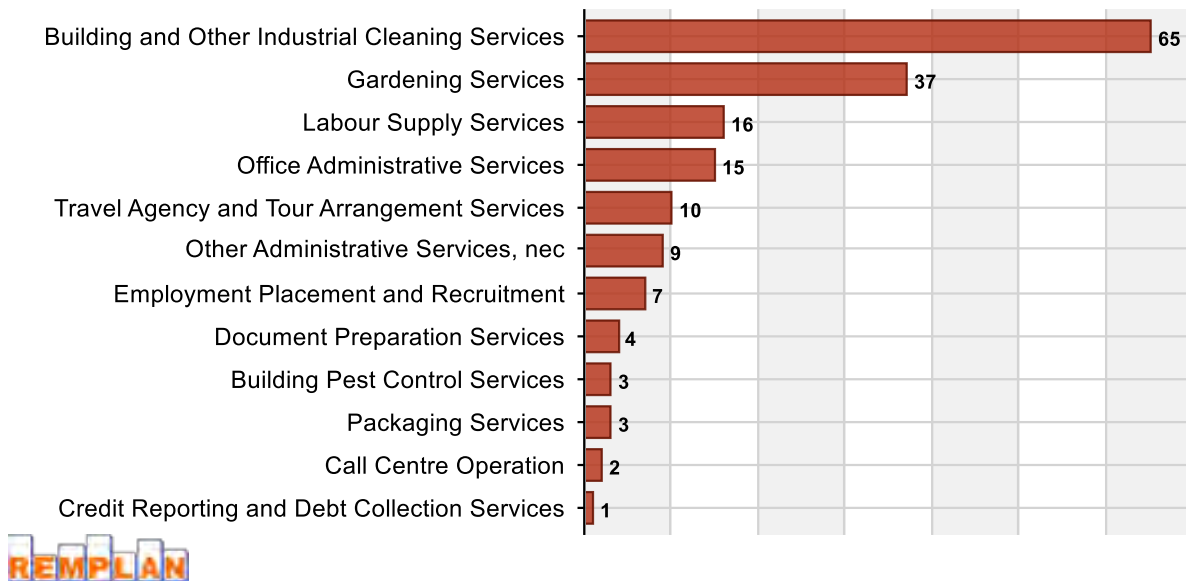
Table 6-36 Administrative and Support Services – Jobs in Knox by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	659	661	0%
Yarra Ranges (S)	159	164	-3%
Casey (C)	112	99	13%
Maroondah (C)	112	114	-2%
Whitehorse (C)	51	45	13%
Greater Dandenong (C)	51	43	19%
Monash (C)	49	44	11%
Frankston (C)	37	20	85%
Cardinia (S)	35	20	75%
Kingston (C)	26	18	44%
Other	153	143	7%
<b>Total</b>	<b>1,444</b>	<b>1,371</b>	<b>5%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in ‘Administrative and Support Services’ in Knox is supported by an estimated 514 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, 172 new business entries have contributed to employment growth in the sector. Building, Garden and labour/personnel services have dominated the new business created in Knox during the last five years. (Figure 6-62).

Figure 6-62 Administrative & Support Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-37 Administrative and Support Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
1,444	1,547	1,589	1,606	1,645	1,716

By 2036 it is forecast that there will be 1,716 *Administrative and Support Services* sector jobs based in Knox, which represents an 18.8 percent increase from 2011 levels.

*Administrative and Support Services* sector includes a range of activities mainly associated with performing routine support activities for the day-to-day operations of other businesses or organisations. This includes businesses providing administrative support services in activities such as office administration; hiring and placing personnel for others; preparing documents; taking orders for clients by telephone; providing credit reporting or collecting services; and arranging travel and travel tours. Other types of support services include building and other cleaning services; pest control services; gardening services; and packaging products for others.

### 6.1.29 Public Administration and Safety (working residents)

In 2011, there were 3,379 Knox residents employed in the ‘*Public Administration and Safety*’ industry sector. 2021 employment is estimated to be 3,703 jobs. By 2036 the number of jobs is projected to increase to 4,019, reflecting strong population growth supporting residential, non-residential, and heavy and civil engineering construction, which in turn drives demand for planning and government service delivery.

Figure 6-63 Public Administration and Safety: Employment Trend Lines (Working Residents)

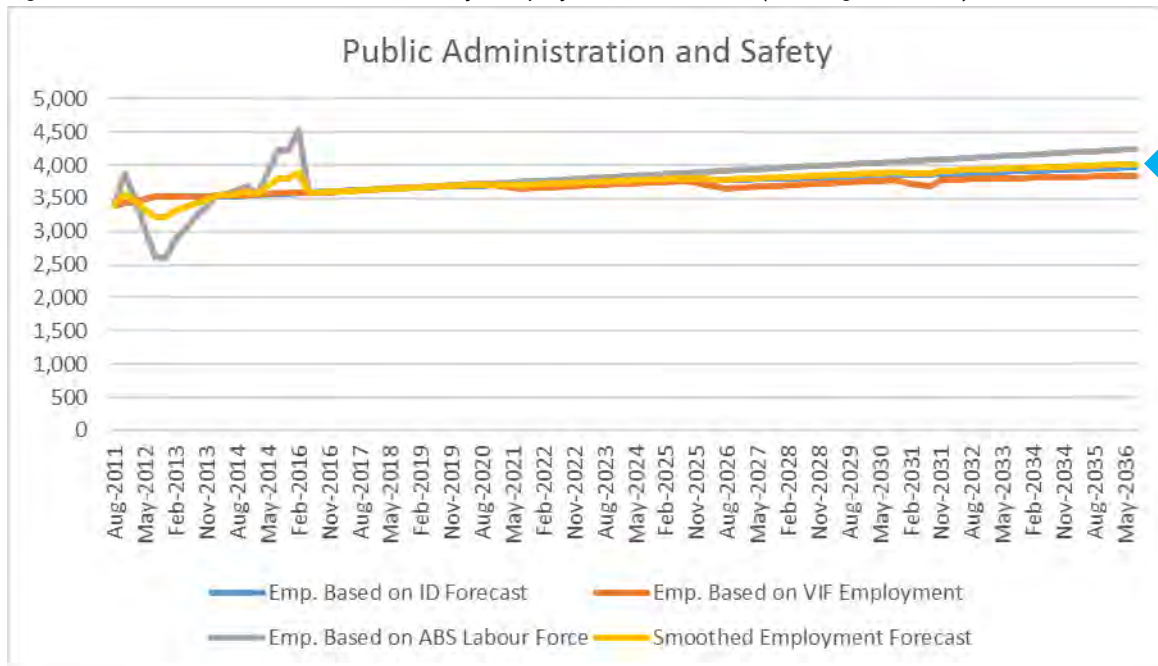


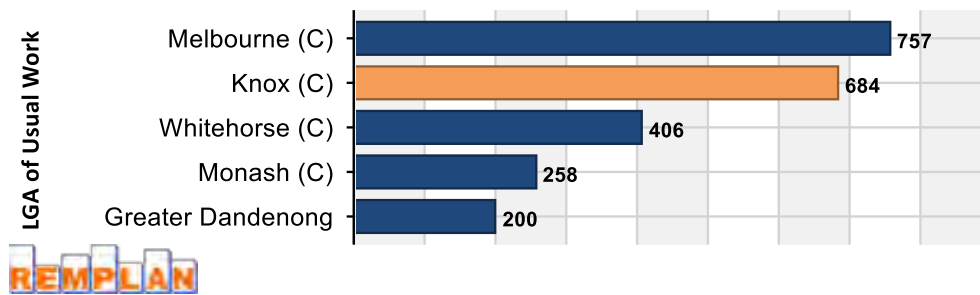
Table 6-38 Public Administration and Safety: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
3,379	3,589	3,703	3,783	3,877	4,019

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Public Administration and Safety' sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The *Public Administration & Safety* sector contributes 3,379 jobs (4.5 %) to total employment for Knox residents. A high proportion of workers are drawn to central Melbourne (22.4%) and are employed in government roles. Knox supports the second highest proportion of employment for residents with 684 or 20.2 % people are both employed in the sector and working locally. Other key locations with large government functions draw Knox residents for work, including Whitehorse (12.0 %), Monash (7.6 %) and Greater Dandenong (5.9 %).

Figure 6-64 Top 5 LGA 's of Usual work, Residents in Knox (C) who work in Public Administration and Safety Sector



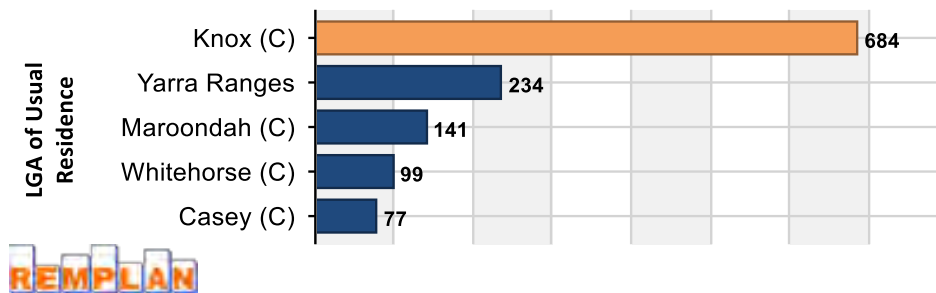
Source: ABS 2011, Compiled by REMPLAN

### 6.1.30 Public Administration and Safety (jobs in Knox)

In 2011, there were 1,605 'Public Administration and Safety' industry sector jobs in Knox. By 2021 employment is estimated to be 1,806 jobs. By 2036 the number of jobs is projected to be 2015, reflecting a steady growth outlook in-line with population trends.

Of the people working in the local 'Public Administration and Safety' sector within Knox, a high proportion (42.6%) both work and live in Knox.

Figure 6-65 Public Administration and Safety sector – Jobs in Knox (C) by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase of 36 jobs (2%).

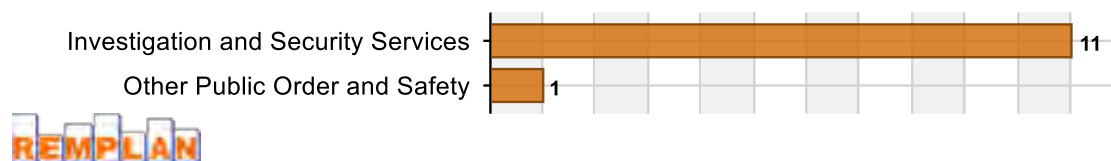
Table 6-39 Public Administration and Safety – Jobs in Knox by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	684	723	-5%
Yarra Ranges (S)	234	201	16%
Maroondah (C)	141	147	-4%
Whitehorse (C)	99	80	24%
Casey (C)	77	72	7%
Monash (C)	60	45	33%
Cardinia (S)	52	34	53%
Boroondara (C)	35	21	67%
Manningham (C)	32	32	0%
Greater Dandenong (C)	31	22	41%
Other	160	192	-17%
<b>Total</b>	<b>1,605</b>	<b>1,569</b>	<b>2%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Public Administration and Safety' in Knox is supported by an estimated 41 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST (Figure 6-6). This does not include centralised State Government or Local Government Business entities. During the last five years, 12 new business entries have contributed to employment growth in the sector. Investigation and Security Services were the key new business created in Knox during the last five years. (Figure 6-66).

Figure 6-66 Public Administration & Safety Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-40 Public Administration and Safety: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
1,605	1,733	1,806	1,863	1,934	2,015

By 2031 it is forecast that there will be 2,015 'Public Administration and Safety' sector jobs based in Knox, which represents a 25.6 percent increase from 2011 levels. As the population and employment base of Knox increases through to 2031, the provision of planning, approvals and other government services will need to expand accordingly; as well the capacity of policing and other public safety services.

### 6.1.31 Education and Training (working residents)

In 2011, there were 5,416 Knox residents employed in the 'Education and Training' industry sector. 2021 employment is estimated to be 6,169 jobs. By 2036 the number of jobs is projected to increase to 7,023, reflecting strong population growth with associated demand by young families for residential construction and other services such as health and education.

Figure 6-67 Education and Training: Employment Trend Lines (Working Residents)

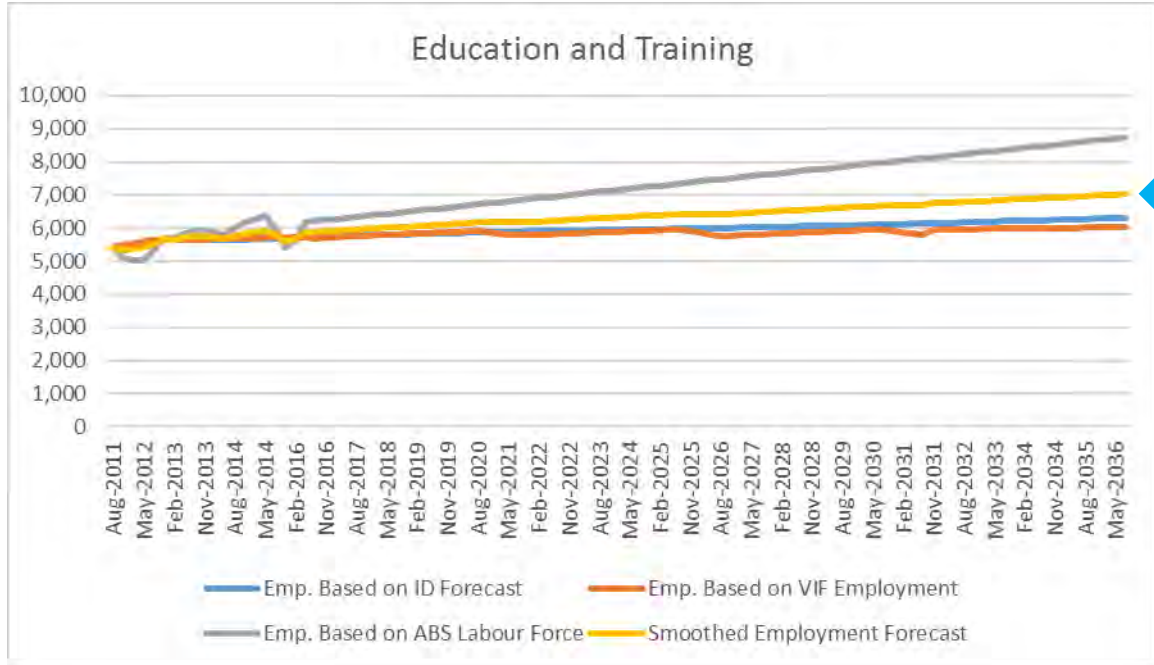


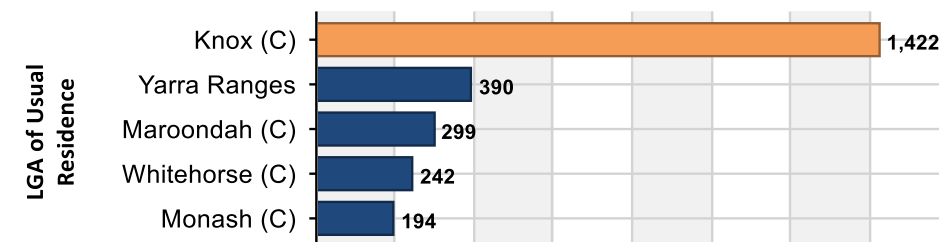
Table 6-41 Education and Training: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
5,416	5,878	6,169	6,411	6,682	7,023

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Education and Training' sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The 'Education & Training' sector provides 5,416 jobs (7.1%) for Knox residents. A large proportion of these workers live and work within Knox (26.3%).

Figure 6-68 Education & Training Sector - Resident Working Population, Top 5 LGA 's of Usual work



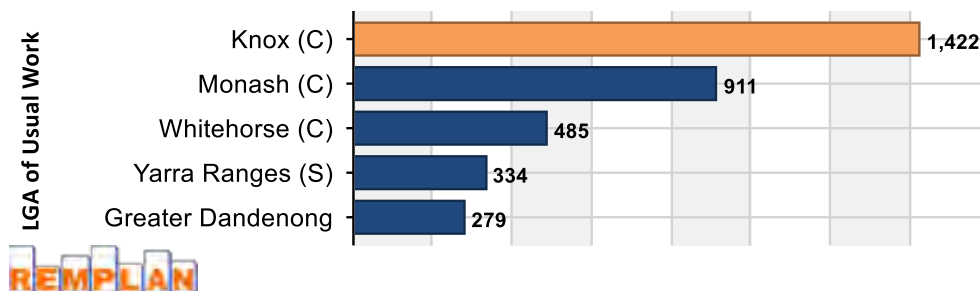
Source: ABS 2011, Compiled by REMPLAN



### 6.1.32 Education & Training (jobs in Knox)

In 2011, there were 3,181 'Education & Training' industry sector jobs in Knox. By 2021 employment is estimated to be 3,720 jobs. By 2036 the number of jobs is projected to be 4,527, reflection a strong growth outlook aligned with population forecasts and projected increasing demand for knowledge intensive, 'thinking' jobs. The figure below illustrates where local workers in the 'Education & Training' industry sector reside.

Figure 6-69 Education and Training sector – Knox Workforce, Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase of 174 jobs (6%).

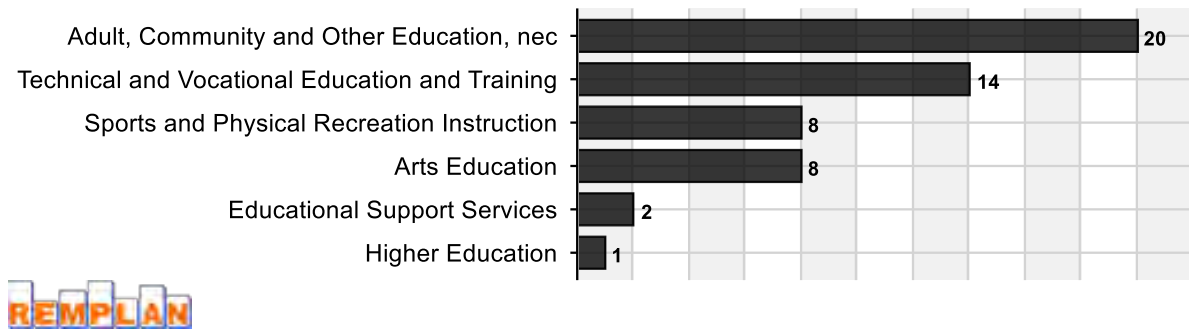
Table 6-42 Education and Training – Jobs in Knox, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,422	1,370	4%
Yarra Ranges (S)	390	364	7%
Maroondah (C)	299	288	4%
Whitehorse (C)	242	247	-2%
Monash (C)	194	220	-12%
Casey (C)	128	99	29%
Manningham (C)	72	71	1%
Cardinia (S)	64	31	106%
Boroondara (C)	62	67	-7%
Glen Eira (C)	39	26	50%
Other	269	224	20%
<b>Total</b>	<b>3,181</b>	<b>3,007</b>	<b>6%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Education & Training' in Knox is support by an estimated 210 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. This includes a range of primary and secondary schools, vocational and tertiary education and other education providers. During the last five years, 53 new business entries have contributed to employment growth in the sector. Technical and Vocational Education and Training and Adult, Community and Other Education were the notable areas of business creation (Figure 6-70).

Figure 6-70 Education & Training Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-43 Education and Training: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
3,181	3,509	3,720	3,905	4,153	4,527

By 2036 it is forecast that there will be 4,527 'Education & Training' sector jobs based in Knox, which represents a 42.3 percent increase from 2011 levels.

Not only will the *Education & Training* expand to cater to the needs of a growing population, it will also experience increasing demand driving by a greater proportion of 'thinking' jobs in the future with higher human capital requirements. The importance of this sector as an enabler of economic growth will increase into the future.

### 6.1.33 Health Care and Social Assistance (working residents)

In 2011, there were 8,358 Knox residents employed in the 'Health Care and Social Assistance' industry sector. 2021 employment is estimated to be 9,648 jobs. By 2036 the number of jobs is projected to increase to 11,134, reflecting strong population growth with associated demand by a growing and aging population for services such as health.

Figure 6-71 Health Care and Social Assistance: Employment Trend Lines (Working Residents)

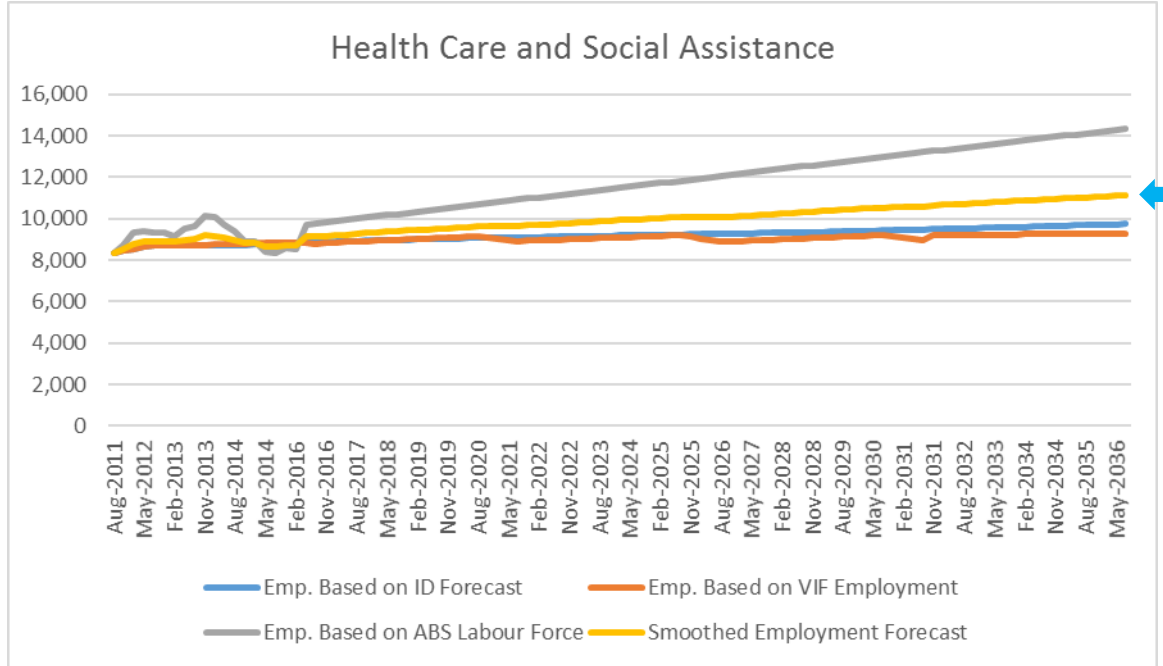


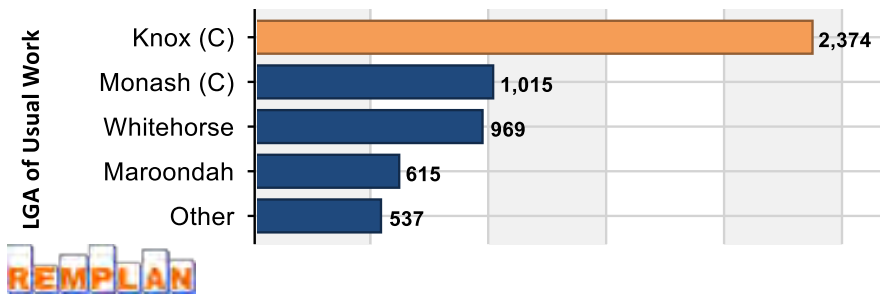
Table 6-44 Health Care and Social Assistance: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
8,358	9,147	9,648	10,077	10,559	11,134

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Health Care and Social Assistance' sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

Employment in 'Health Care & Social Assistance' sector is significant for Knox residents. The sector supports the third largest number of residents in the workforce. The Health Care & Social Assistance sector contributes 8,358 jobs (11.0 %) of total employment. Residents employed in the sector rely heavily on access to Hospitals as key employment destinations. Residents who work locally in Knox represent 28.4 % of the local workforce (2,374). While the key locations of Monash (12.1 %), Whitehorse (11.6 %) and Maroondah (7.4 %) provide opportunities for Knox based residents to work within the sector. These three locations total almost a third of employment in the sector (31.1%) employing 2,599 people.

Figure 6-72 Health Care and Social Assistance Sector - Resident Working Population, Top 5 LGA 's of Usual work



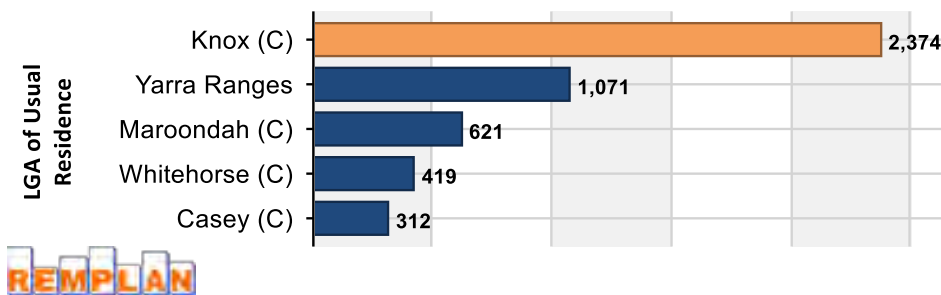
Source: ABS 2011, Compiled by REMPLAN

### 6.1.34 Health Care & Social Assistance (jobs in Knox)

In 2011, there were 6,172 'Health Care & Social Assistance' industry sector jobs in Knox. By 2021 employment is estimated to be 7,314 jobs. By 2036 the number of jobs is projected to be 9,025, reflecting a strong growth outlook that reflects the demands of a growing and aging population.

The figure below illustrates where local workers in the 'Health Care & Social Assistance' industry sector reside.

Figure 6-73 Health Care and Social Assistance sector – Jobs in Knox (C) by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce increased between 2006 and 2011 Census years resulting in an overall increase of 828 jobs (15%).

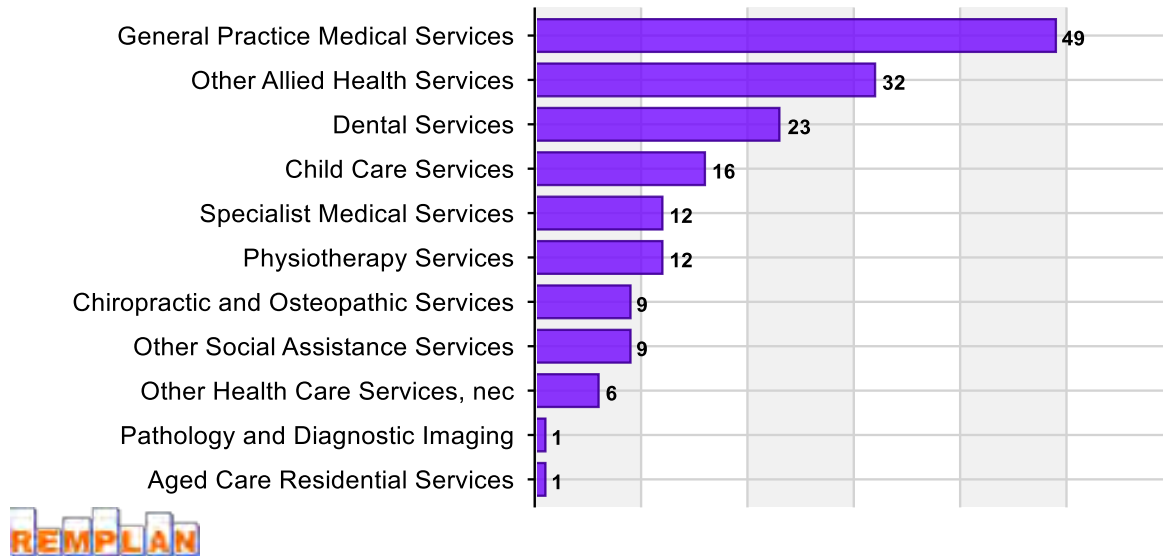
Table 6-45 Health Care & Social Assistance – Jobs in Knox (C), Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	2,374	2,194	8%
Yarra Ranges (S)	1,071	973	10%
Maroondah (C)	621	553	12%
Whitehorse (C)	419	365	15%
Casey (C)	312	201	55%
Monash (C)	306	286	7%
Cardinia (S)	162	121	34%
Manningham (C)	159	117	36%
Boroondara (C)	155	127	22%
Greater Dandenong (C)	107	69	55%
Other	486	338	44%
<b>Total</b>	<b>6,172</b>	<b>5,344</b>	<b>15%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Health Care & Social Assistance' in Knox is supported by an estimated 494 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, 170 new business entries have contributed to employment growth in the sector. Notable sectors supporting new business in Knox include: General Practice Medical Services; Specialist Medical Services, Dental Services, Physiotherapy Services, Other Allied Health Services and Child Care Services (Figure 6-74).

Figure 6-74 Health Care & Social Assistance Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-75 Health Care and Social Assistance: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
6,172	6,865	7,314	7,717	8,254	9,025

By 2036 it is forecast that there will be 9,025 'Health Care & Social Assistance' sector jobs based in Knox, which represents a 46.2 percent increase from 2011 levels. Employment forecasts for the Health Care and Social Assistance sector indicate between 300 and 640 new jobs in Knox will be created in the sector every 4 years; equating to over 2,000 new jobs in the sector over the next 20 years.

While the projected growth over this 20-year period is in line with population and ageing forecasts, there is a possibility that catalytic projects such as the Wantirna Health Assessment Area could alter the rate of growth during the initial 10 years.

### 6.1.35 Arts and Recreation (working residents)

In 2011, there were 1,011 Knox residents employed in the 'Arts and Recreation' industry sector. 2021 employment is estimated to be 1,259 jobs. By 2036 the number of jobs is projected to increase to 1,456, reflecting population growth increasing demand for cultural experiences.

Figure 6-76 Arts and Recreation: Employment Trend Lines (Working Residents)

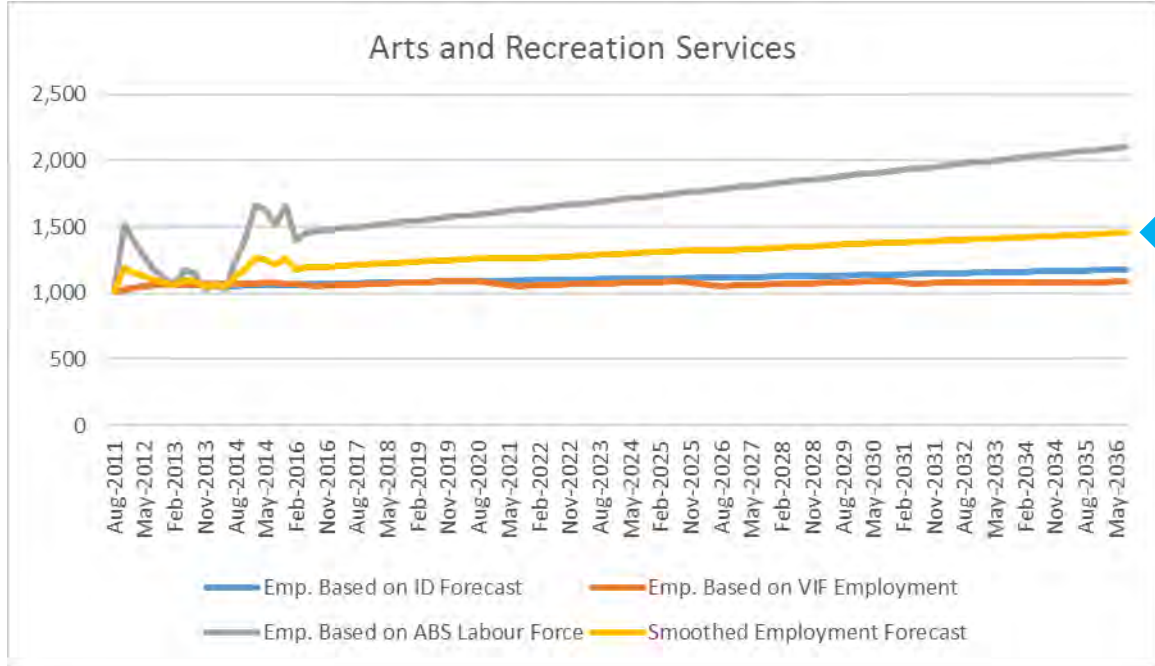


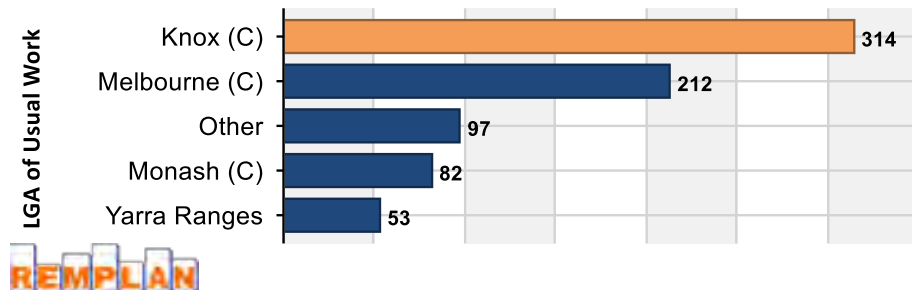
Table 6-46 Arts and Recreation: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
1,011	1,196	1,259	1,320	1,386	1,456

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Arts and Recreation' sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

There are 1,011 local Knox residents working in the 'Arts and Recreation' sectors, and these people are predominantly associated with employment in Sports & Recreation. Residents who work in the sector and are employed in Knox represent (31.0 %) of these workers. Other key locations for workers in the sector include: Melbourne (21.0 %), Other locations (9.6 %), Monash (8.1 %) and Yarra Ranges (5.2 %).

Figure 6-77 Top 5 LGA 's of Usual work, Residents in Knox (C) who work in Arts & Recreation Services Sector



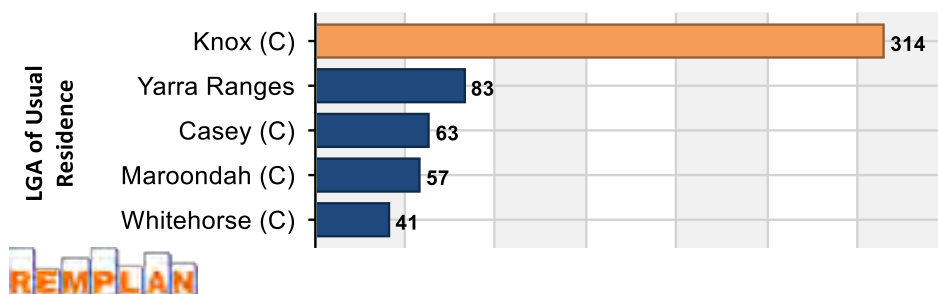
Source: ABS 2011, Compiled by REMPLAN

### 6.1.36 Arts & Recreation (jobs in Knox)

In 2011, there were 665 'Arts and Recreation' industry sector jobs in Knox. By 2021 employment is estimated to be 850 jobs. By 2036 the number of jobs is projected to be 1,011, reflecting a strong growth outlook, off a small base in the context of Knox.

The figure below illustrates where local workers in the 'Arts and Recreation' industry sector reside.

Figure 6-78 Arts and Recreation sector – Jobs in Knox by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce expanded between 2006 and 2011 Census years resulting in an overall increase of 28 jobs (4%).

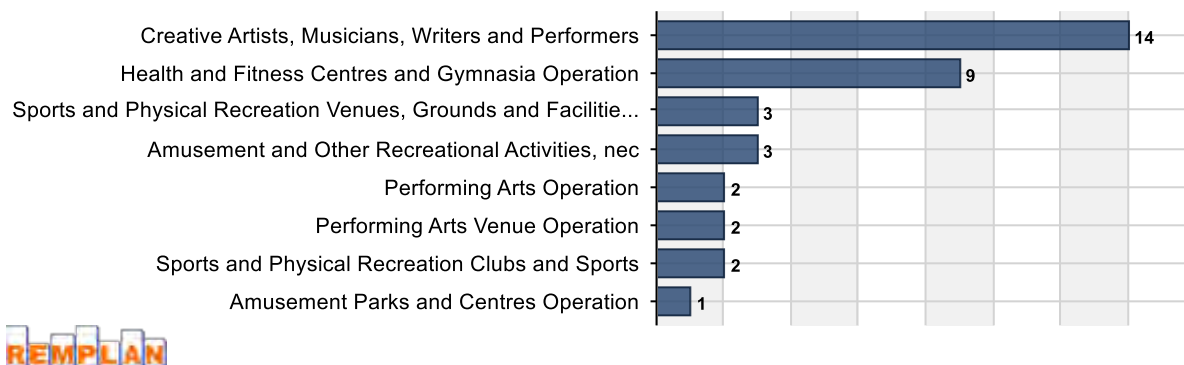
Table 6-47 Arts and Recreation – Jobs in Knox by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	314	344	-9%
Yarra Ranges (S)	83	78	6%
Casey (C)	63	14	350%
Maroondah (C)	57	69	-17%
Whitehorse (C)	41	20	105%
Frankston (C)	31	6	417%
Monash (C)	20	19	5%
Nillumbik (S)	16	0	100%
Greater Dandenong (C)	10	15	-33%
Yarra (C)	8	3	167%
Other	22	69	-68%
<b>Total</b>	<b>665</b>	<b>637</b>	<b>4%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Arts and Recreation' in Knox is supported by an estimated 149 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, 36 new business entries have contributed to employment growth in the sector. The key sectors generating new business opportunities within the sector locally include: Creative Artists, Musicians, Writers and Performers and Health and Fitness Centres and Gymnasias Operation (Figure 6-79).

Figure 6-79 Arts & Recreation Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Figure 6-80 Arts and Recreation: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
665	800	850	900	961	1,011

By 2031 it is forecast that there will be 1,011 Arts and Recreation sector jobs based in Knox, which represents a 52 percent increase from 2011 levels.

### 6.1.37 Other Services (working residents)

In 2011, there were 3,418 Knox residents employed in the 'Other Services' industry sector. 2021 employment is estimated to be 3,636 jobs. By 2036 the number of jobs is projected to increase to 3,714, reflecting strong population growth with associated demand for personal and other services which includes:

- Automotive Repair & Maintenance
- Other Repairs & Maintenance
- Hairdressing and Beauty Services
- Diet and Weight Reduction Centre Operation
- Funeral, Crematorium and Cemetery Services
- Laundry and Dry-Cleaning Services
- Religious Services
- Business and Professional Association Services
- Labour Association Services
- Other Interest Group Services



Figure 6-81 Other Services: Employment Trend Lines (Working Residents)

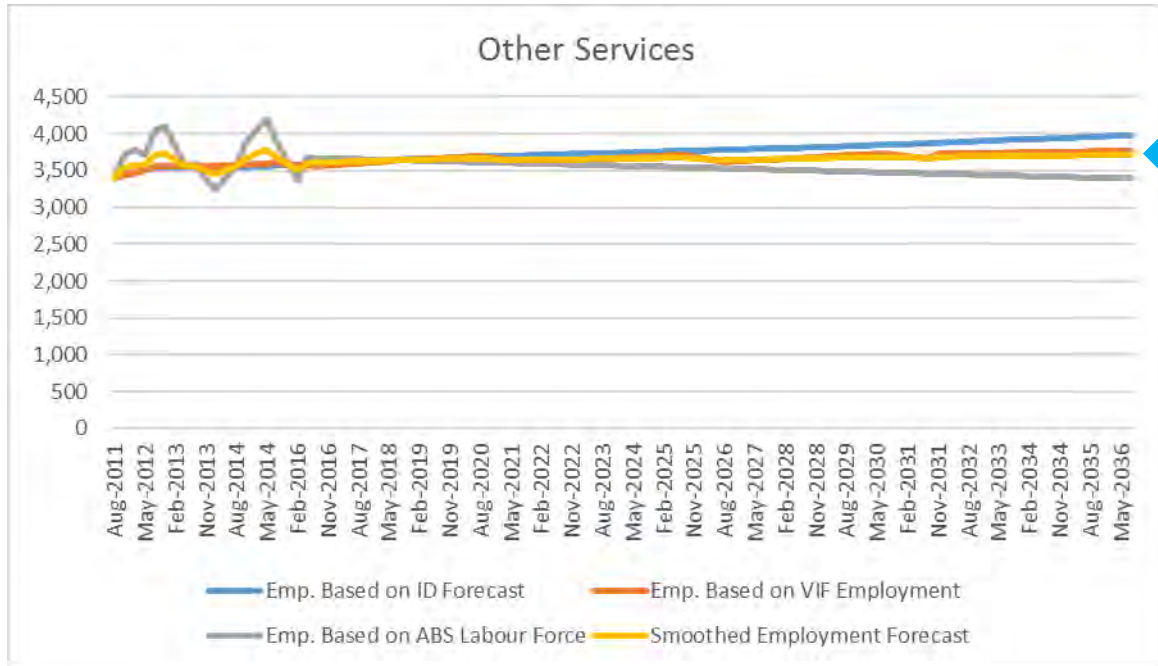


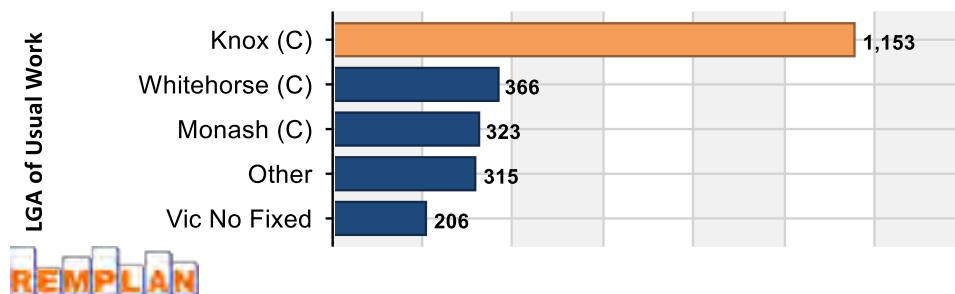
Table 6-48 Other Services: Employment Projections (Working Residents)

2011	2016	2021	2026	2031	2036
3,418	3,609	3,636	3,642	3,666	3,714

The place of usual residence forecasts presented above provides a key input into generating projections of the number of jobs based in Knox in the 'Other Services' sector. The greater the number of residents working in this sector whose job is also based in Knox, the greater the influence of the place of usual residence forecasts on the place of work employment projections. The following analysis from the ABS 2011 Census provides some insights into where local workers in this industry sector reside.

The Other Services sector contributes 3,418 jobs (4.5 %) to total employment for the working resident population in Knox. Of residents working in the sector, 1,153 work in Knox (33.7%). Other key locations including Whitehorse (10.7 %) and Monash (9.5 %) also provide employment for Knox residents who work in the sector.

Figure 6-82 Top 5 LGA 's of Usual work, Residents in Knox (C) who work in Other Services Sector



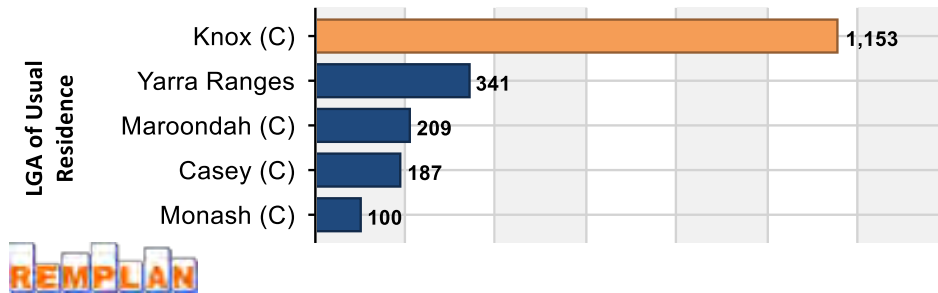
Source: ABS 2011, Compiled by REMPLAN

### 6.1.38 Other Services (jobs in Knox)

In 2011, there were 2,401 'Other Services' industry sector jobs in Knox. By 2021 employment is estimated to be 2,622 jobs. By 2036 the number of jobs is projected to be 2,754, reflecting a stable to low-growth outlook, off a very small base in the context of Knox.

The figure below illustrates where local workers in the 'Other Services' industry sector reside.

Figure 6-83 Other Services sector – Jobs in Knox by Top 5 LGAs of Usual Residence



Source: ABS 2011, Compiled by REMPLAN

Historical data indicates that the sector's workforce contracted slightly between 2006 and 2011 Census years resulting in an overall reduction of (-) 15 jobs (-1%).

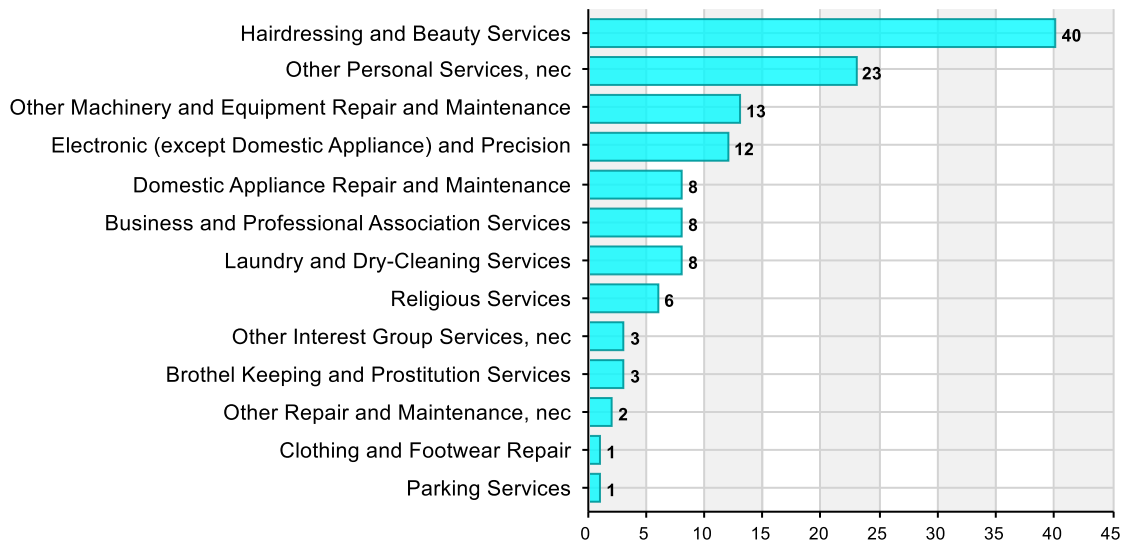
Table 6-49 Other Services – Jobs in Knox by Top 5 LGAs of Usual Residence, Change 2006 to 2011

LGA of Usual Residence	2011	2006	Change %
Knox (C)	1,153	1,131	2%
Yarra Ranges (S)	341	369	-8%
Maroondah (C)	209	197	6%
Casey (C)	187	164	14%
Monash (C)	100	90	11%
Whitehorse (C)	78	99	-21%
Cardinia (S)	58	51	14%
Manningham (C)	50	44	100%
Greater Dandenong (C)	44	57	-23%
Frankston (C)	28	24	17%
Other	153	190	-19%
<b>Total</b>	<b>2,401</b>	<b>2,416</b>	<b>-1%</b>

Source: ABS 2006 & 2011, Compiled by REMPLAN

Employment in 'Other Services' in Knox is supported by an estimated 710 businesses within the Knox LGA which are currently trading with registered ABNs and listed for GST. During the last five years, 187 new business entries have contributed to employment growth in the sector. Notable sectors where new business creation has occurred include: Automotive Body, Paint and Interior Repair, Other Automotive Repair and Maintenance, Hairdressing and Beauty Services (Figure 6-84).

Figure 6-84 Other Services Sector: New Businesses entries between 1<sup>st</sup> July 2011 and 1<sup>st</sup> May 2016



Source: Australian Business Registrations, Registered ABN – Listed for GST excluding all Trusts.

The forecast population based employment projections combined with the employment trends, journey to work and broader sector analysis presented in this report, have informed the place of work employment forecasts presented below.

Table 6-50 Other Services: Employment Projections (Jobs in Knox)

2011	2016	2021	2026	2031	2036
2,401	2,577	2,622	2,653	2,705	2,754

By 2031 it is forecast that there will be 2,754 'Other Services' sector jobs based in Knox, which represents a 14.7 percent increase from 2011 levels. It is predicted that the 'Other Services' sector will grow broadly in line with population forecasts.

## 7 Summary & Conclusion

The Land for Business Employment Projections 2016 - 2036 report seeks to outline employment forecasts within the Knox (C) Local Government Area (LGA). The report provides industry context and integrates previous reporting, feedback from stakeholder engagement, notable industry trends and spatial analysis for the LFB Assessment Areas.

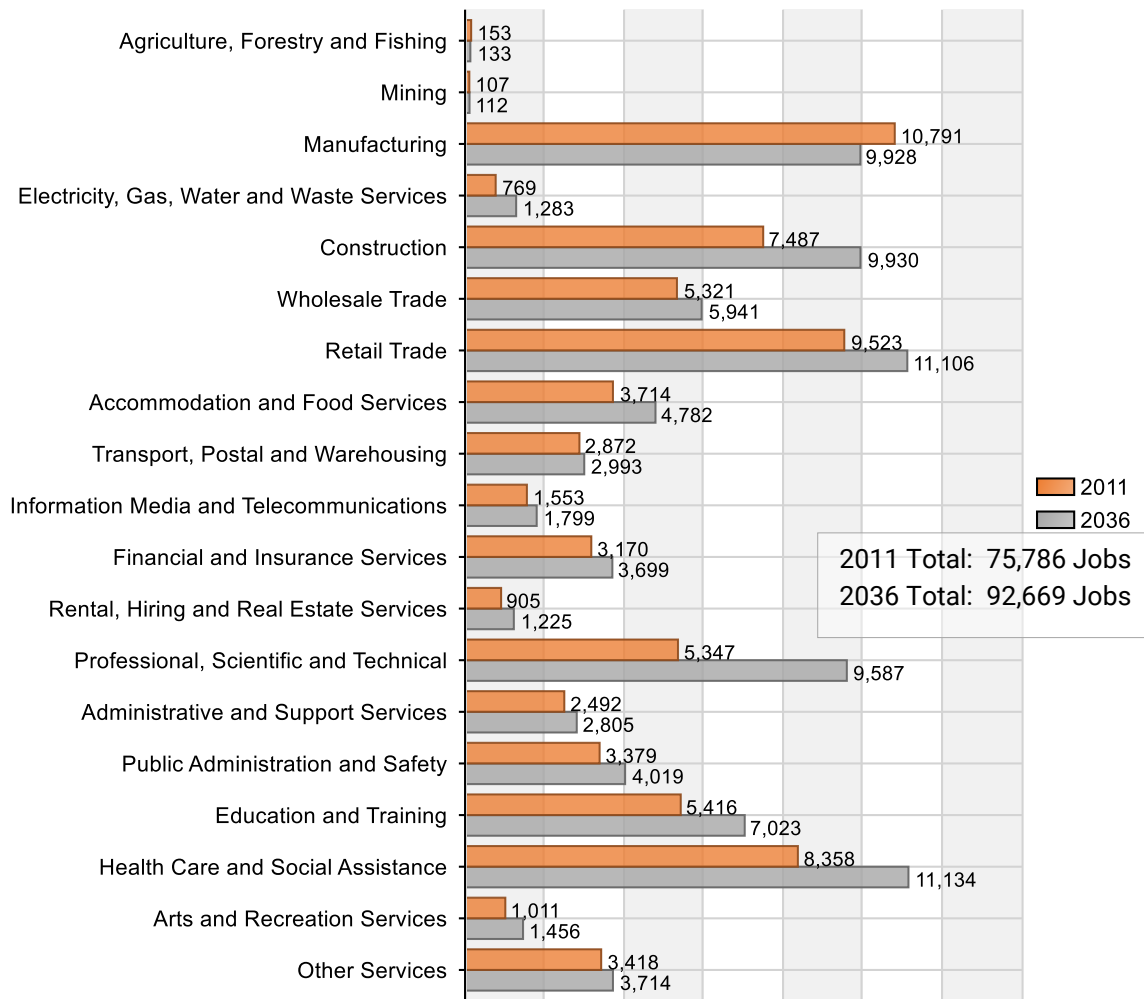
Victoria in the Future and its population forecasts, and the REMPLAN Workforce Module have been applied to build an understanding of future residential populations, broken down by age cohort. Different age cohorts have varying propensities to be engaged in the workforce, and there are also observable patterns in terms of employment by industry sector for respective age cohorts. For instance, young people are far more likely to be employed in sectors such as retail and food services, whereas older workers are more likely to be employed in sectors such as manufacturing, health, education and professional services.

There are also notable patterns across respective industry sectors in terms of where residents travel to for work, and where people working in Knox reside. A broad observation is that the higher typical income levels are in a sector, the further people are prepared to travel between home and work.

Population projections by age in Knox and the surrounding Melbourne East Region, propensities to work by age cohort, complex patterns of people living in one area and working in another, structural shifts in employment over time, as well as broader strategic and situational analysis have been applied to generate 2 types of employment forecasts for Knox:

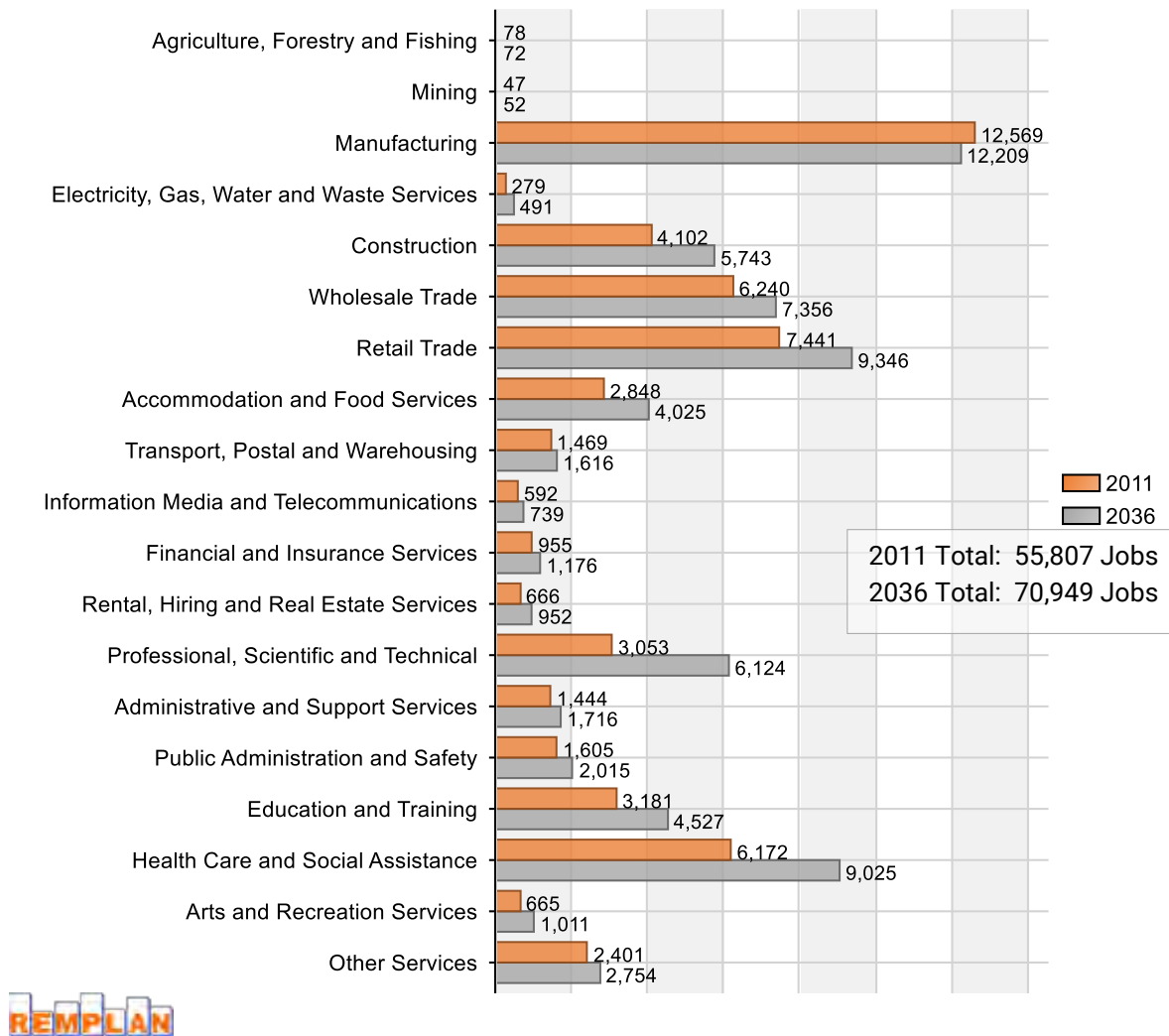
1. Employment Forecasts to 2036 – Working Residents
2. Employment Forecasts to 2036 – Jobs in Knox.

Figure 7-1 Employment Forecasts – Working Residents



Between 2011 and 2036 it is forecast that there will be 16,883 additional working residents in Knox, an increase of 22.3 percent over this timeframe.

Figure 7-2 Employment Forecasts – Jobs in Knox



Between 2011 and 2036 it is forecast that there will be 15,142 additional jobs in Knox, an increase of 27.1 percent over this timeframe.

This key project input provides the basis for further assessment of land use implications across the Knox Land for Business Assessment Areas. There is a need to undertake further reconciliation of existing and future land use constraints and opportunities. Changes employment and workforce location is an important consideration for some sectors. While most employment in the Knox LGA is located in the Assessment Area subject to the Land for Business Project it is expected that transition and change in sectors will influence the demand for business land at a varying degree.

Integration of spatial analysis and the workforce projections within this report will be critical in determining recommendations for future land for business within Knox.

## Appendix

### Industry Sector Forecasts – Summary findings

Industry Sector	Current Jobs (2011)	Assessment Area jobs	% Jobs in Assessment Areas	Workforce Projections				Key Assessment Areas	Impact for Assessment Areas
				2021	2026	2031	2036		
Agriculture, Forestry & Fishing	78	48	61.54%	68	66	69	72	<ul style="list-style-type: none"> <li>E-04 Mountain Gate Industrial Estate</li> <li>E-11 Rowville (Kelletts Rd)</li> </ul>	LOW
Mining	47	22	46.81%	49	49	50	52	<ul style="list-style-type: none"> <li>E-07 Caribbean Business Park (SREP)</li> </ul>	LOW
Manufacturing	12,569	12,569	100.00%	12,840	12,565	12,390	12,209	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-03 Knox Central Employment</li> <li>E-05 Knoxfield Employment (SREP)</li> <li>E-07 Caribbean Business Park (SREP)</li> <li>E-09 Bayswater (Central)</li> <li>E-11 Rowville (Kelletts Rd)</li> </ul>	HIGH
Electricity, Gas, Water & Waste Services	279	184	65.95%	382	416	456	491	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-02a Mountain Hwy – Stud Road</li> </ul>	LOW
Construction	4,102	3,332	81.23%	4,933	5,171	5,475	5,743	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-11 Rowville (Kelletts Rd)</li> </ul>	MEDIUM
Wholesale Trade	6,240	6,240	100.00%	6,841	6,906	7,059	7,356	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-07 Caribbean Business Park (SREP)</li> </ul>	MEDIUM
Retail Trade	7,441	7,137	95.91%	8,398	8,615	8,921	9,346	<ul style="list-style-type: none"> <li>AC-02 Knox Central Activity Centre</li> <li>AC-01 Rowville Activity Centre (Stud Park)</li> <li>E-01 Bayswater (Central)</li> <li>NC-09 Mountain Gate Central</li> </ul>	HIGH
Accommodation & Food Services	2,848	2,533	88.94%	3,358	3,524	3,724	4,025	<ul style="list-style-type: none"> <li>AC-02 Knox Central Activity Centre</li> <li>AC-01 Rowville Activity Centre (Stud Park)</li> <li>AC-03 Boronia Activity Centre</li> </ul>	HIGH

Land for Business Employment Projections 2016 - 2036

Industry Sector	Current Jobs (2011)	Assessment Area jobs	% Jobs in Assessment Areas	Workforce Projections				Key Assessment Areas	Impact for Assessment Areas
				2021	2026	2031	2036		
Transport, Postal & Warehousing	1,469	1,320	89.86%	1,564	1,572	1,589	1,616	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-05 Knoxfield Employment (SREP)</li> <li>E-02b Bayswater (West - Stud Rd)</li> <li>E-03 Knox Central Employment</li> <li>E-11 Rowville (Kelletts Rd)</li> </ul>	HIGH
Information Media & Telecommunications	592	536	90.54%	654	675	701	739	<ul style="list-style-type: none"> <li>AC-02 Knox Central Activity Centre</li> <li>E-07 Caribbean Business Park (SREP)</li> </ul>	MEDIUM
Financial & Insurance Services	955	919	96.23%	1,067	1,100	1,139	1,176	<ul style="list-style-type: none"> <li>E-03 Knox Central Employment</li> <li>AC-02 Knox Central Activity Centre</li> <li>AC-03 Boronia Activity Centre</li> </ul>	MEDIUM
Rental, Hiring & Real Estate Services	666	666	100.00%	832	867	910	952	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>AC-03 Boronia Activity Centre</li> <li>AC-04 Bayswater Activity Centre</li> </ul>	HIGH
Professional, Scientific & Technical Services	3,053	2,634	86.28%	4,315	4,799	5,325	6,124	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-07 Caribbean Business Park (SREP).</li> <li>AC-02 Knox Central Activity Centre</li> </ul>	MEDIUM
Administrative & Support Services	1,444	1,083	75.00%	1,589	1,606	1,645	1,716	<ul style="list-style-type: none"> <li>AC-02 Knox Central Activity Centre</li> <li>E-01 Bayswater (Central)</li> <li>E-07 Caribbean Business Park (SREP)</li> </ul>	MEDIUM
Public Administration & Safety	1,605	1,475	91.90%	1,806	1,863	1,934	2,015	<ul style="list-style-type: none"> <li>AC-02 Knox Central Activity Centre</li> </ul>	MEDIUM



Land for Business Employment Projections 2016 - 2036

Industry Sector	Current Jobs (2011)	Assessment Area jobs	% Jobs in Assessment Areas	Workforce Projections				Key Assessment Areas	Impact for Assessment Areas
				2021	2026	2031	2036		
Education & Training	3,181	616	19.36%	3,720	3,905	4,153	4,527	<ul style="list-style-type: none"> <li>NC-03 Wantirna Mall</li> <li>AC-02 Knox Central Activity Centre</li> <li>NC-09 Mountain Gate Central</li> </ul>	LOW
Health Care & Social Assistance	6,172	3,492	56.58%	7,314	7,717	8,254	9,025	<ul style="list-style-type: none"> <li>NC-03 Wantirna Mall</li> <li>HP-01 Wantirna hospitals</li> </ul>	LOW
Arts & Recreation Services	665	603	90.68%	850	900	961	1,011	<ul style="list-style-type: none"> <li>AC-03 Boronia Activity Centre</li> <li>E-01 Bayswater (Central)</li> </ul>	LOW
Other Services	2,401	2,012	83.80%	2,622	2,653	2,705	2,754	<ul style="list-style-type: none"> <li>E-01 Bayswater (Central)</li> <li>E-03 Knox Central Employment</li> <li>E-04 Mountain Gate Industrial Estate</li> <li>E-11 Rowville (Kelletts Rd)</li> </ul>	HIGH