

Employment Forecasts 2036

Final Report

City of Melbourne

August 2016



1991-2016
25 years of
Independent
insight.



This report has been prepared for City of Melbourne. SGS Economics and Planning has taken all due care in the preparation of this report. However, SGS and its associated consultants are not liable to any person or entity for any damage or loss that has occurred, or may occur, in relation to that person or entity taking or not taking action in respect of any representation, statement, opinion or advice referred to herein.

SGS Economics and Planning Pty Ltd
ACN 007 437 729
www.sgsep.com.au
Offices in Canberra, Hobart, Melbourne and Sydney

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
Project overview	i
Key findings	i
1 INTRODUCTION	1
1.1 Project context	1
1.2 Purpose and scope	1
1.3 Report structure	1
2 EMPLOYMENT CONTEXT	3
2.1 The City of Melbourne’s historical evolution	3
2.2 The City of Melbourne’s recent employment history	4
2.3 Key trends changing the employment landscape	7
3 METHOD	12
3.1 Overview	12
3.2 Employment forecasting	13
3.3 Scenario testing	19
4 RESULTS AND FINDINGS	20
4.1 Victoria and Greater Melbourne forecasts	20
4.2 Scenario 1: Base Case	22
4.3 Scenarios 2, 3 and 4	33
5 CONCLUDING REMARKS	38
APPENDIX A: DATA SOURCES AND LIMITATIONS	39
APPENDIX B: CLASSIFICATIONS	42

EXECUTIVE SUMMARY

Project overview

Central Melbourne has experienced significant investment and economic activity over the past few decades. The diversity of employment, cultural, education and health assets has meant that Central Melbourne has attracted a growing number of visitors, residents and businesses.

In order to successfully plan for continued growth, the City of Melbourne needs an appreciation of the future number and type of jobs that will locate within the municipality. This will help ensure that sufficient and appropriate land is available, and adequate services are provided.

Analysis by SGS was undertaken to project the level, type and distribution (by small area) of employment, and its associated floorspace requirements, in the City of Melbourne for the period 2015 to 2036. Four scenarios were developed to help inform planning for particular precincts in the municipality:

- Scenario 1 is the Base Case, assuming employment grows and is distributed in line with observed trends or in existing designated Urban Renewal Areas.
- Scenario 2 analyses a situation where further residential growth in West Melbourne is focused into some precincts while commercial linkages to the Parkville health precinct are developed.
- Scenario 3 envisages the development of an Arts and Culture Precinct in West Melbourne.
- Scenario 4 assesses the impact of the development of a Fishermans Bend Design Engineering and Advanced Manufacturing Precinct, in line with the Victorian Government's Fishermans Bend Vision.

A series of datasets was used to inform the projections, supported by broad and local scale factor analysis. This report, which acts as an accompanying document to an Excel spreadsheet with detailed data tables, presents an overview of the findings of the analysis along with details of the approach. The data tables will be made available on the City of Melbourne's Open Data Platform.

Key findings

Scenario 1 (Base Case)

The following table and map provide a summary of the results of the employment projection analysis across the municipality for Scenario 1 (Base Case) over 2015-36.

In this scenario, the City of Melbourne is forecast to see growth of over 248,000 jobs. Consistent with recent trends, nearly half of this growth is likely to locate in the Central Business District (CBD).

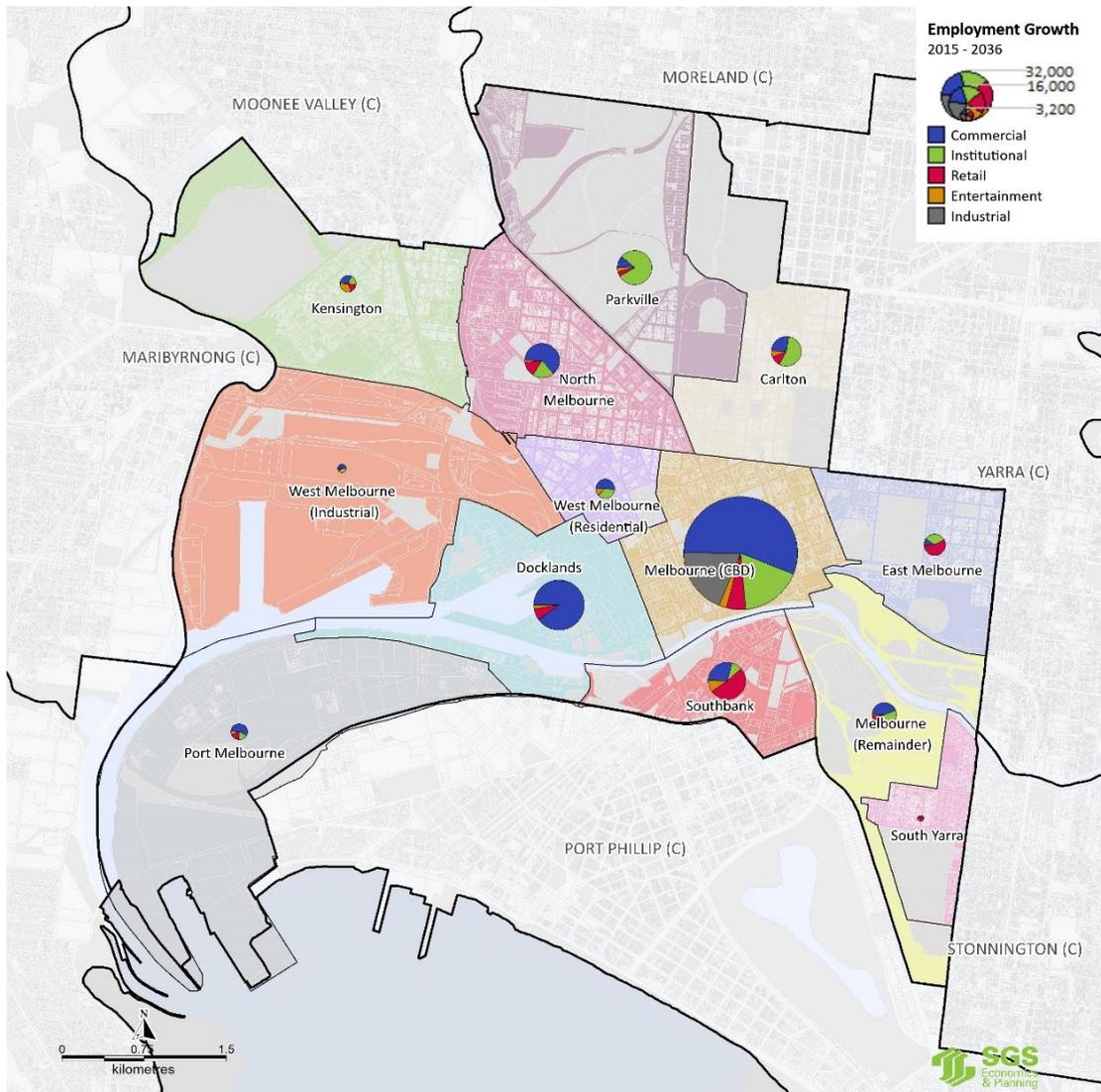
Commercial employment growth is expected to concentrate in the CBD, Docklands, and North Melbourne. Parkville, Carlton, Melbourne (Remainder) and South Yarra will see a large degree of growth in institutional employment, leveraging opportunities surrounding the existing medical and educational precincts.

EMPLOYMENT BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2003-2036, NUMBER OF JOBS)

Broad Industry	2003	2015	2026	2036	2015-36 change in jobs
Commercial	175,199	237,651	299,726	372,651	135,000
Institutional	45,293	63,495	95,793	121,136	57,641
Retail	34,727	53,299	66,409	82,692	29,393
Entertainment	26,623	33,381	38,558	43,299	9,918
Industrial	44,222	59,725	65,746	76,347	16,622
Total	326,064	447,551	566,233	696,126	248,575

Source: 2003-2015 CLUE – City of Melbourne; 2026 onwards SGS Economics and Planning, 2016

FORECAST EMPLOYMENT GROWTH BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2015-2036, NUMBER OF JOBS)



Source: SGS Economics and Planning, 2016

Scenario 2 (West Melbourne Focused Residential Development)

Scenario 2 (focused residential growth in West Melbourne with commercial linkages to the Parkville health precinct) forecasts an increase of 2,400 jobs in the West Melbourne (Residential) area relative to the Base Case.

Scenario 3 (West Melbourne Arts and Culture Precinct)

Scenario 3 (development of an Arts and Culture Precinct in West Melbourne) forecasts an increase of 800 jobs in the West Melbourne (Residential) area relative to the Base Case.

Scenario 4 (Fishermans Bend Design Engineering and Advanced Manufacturing Precinct)

Scenario 4 (development of the Fishermans Bend Design Engineering and Advanced Manufacturing Precinct) forecasts an increase of 5,300 jobs in Port Melbourne, relative to the Base Case. However, it is anticipated that most of the renewal in this precinct would occur beyond the 2015-2036 forecast period.

There were also further changes in the composition of employment within each of these scenarios.

Due to the nature of the anticipated impact of development in these precincts, and to simplify the analysis, the total number of jobs across the municipality does not change across all four scenarios.

1 INTRODUCTION

1.1 Project context

Central Melbourne¹ has experienced significant investment and economic activity over the past few decades. The diversity of employment, cultural, education and health assets has meant that Central Melbourne has attracted a growing number of visitors, residents and businesses.

In order to successfully plan for continued growth, Melbourne needs an appreciation of the future number and type of jobs that will locate in the City of Melbourne. This will help ensure that sufficient and appropriate land is available, and adequate services are provided.

1.2 Purpose and scope

SGS Economics and Planning (SGS) has been engaged by the City of Melbourne to develop employment projections for small areas across the municipality. Specifically the work includes:

1. Development of employment forecasts at the municipal and small area levels, as well as for designated urban renewal areas within the municipality (See Figure 1).
2. Assessment of the floorspace and land development required to accommodate forecast employment.
3. In addition to the Base Case scenario, development and analysis of three scenarios for key renewal areas – two scenarios for West Melbourne (Residential) and one scenario for Fishermans Bend.

This report is intended as an accompanying document to an Excel spreadsheet with detailed data tables. The data tables will be made available on the City of Melbourne's Open Data Platform.

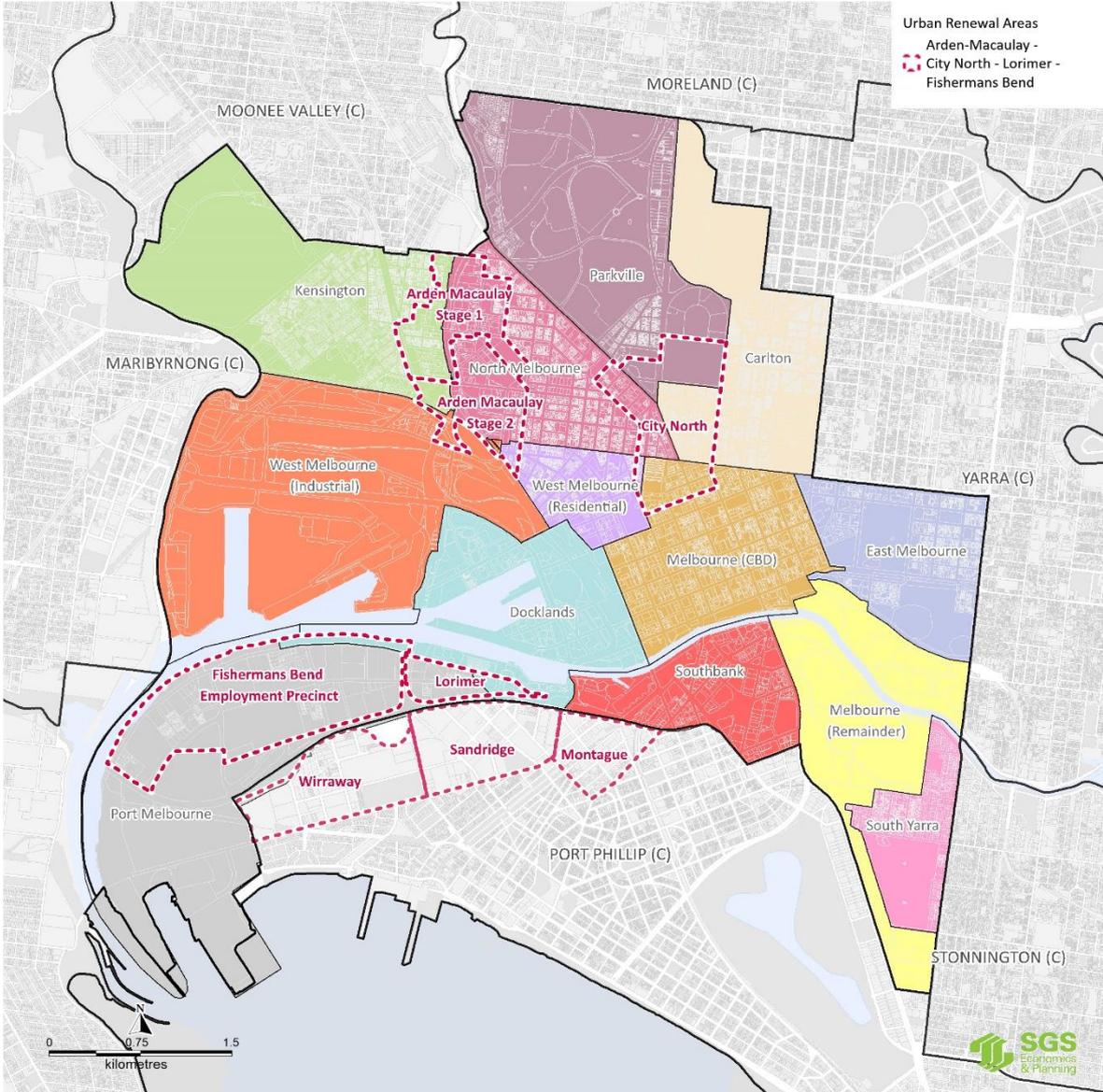
1.3 Report structure

The remainder of this report is structured as follows:

- Chapter 2 briefly outlines the **employment context** in the City of Melbourne.
- Chapter 3 describes the **method** used for this analysis.
- Chapter 4 presents the **findings** of the four scenarios.
- Chapter 5 provides **concluding remarks**.

¹ Central Melbourne refers to the Melbourne CBD, Docklands, Southbank, St Kilda Road

FIGURE 1. CITY OF MELBOURNE SMALL AREAS AND URBAN RENEWAL AREAS



2 EMPLOYMENT CONTEXT

2.1 The City of Melbourne’s historical evolution

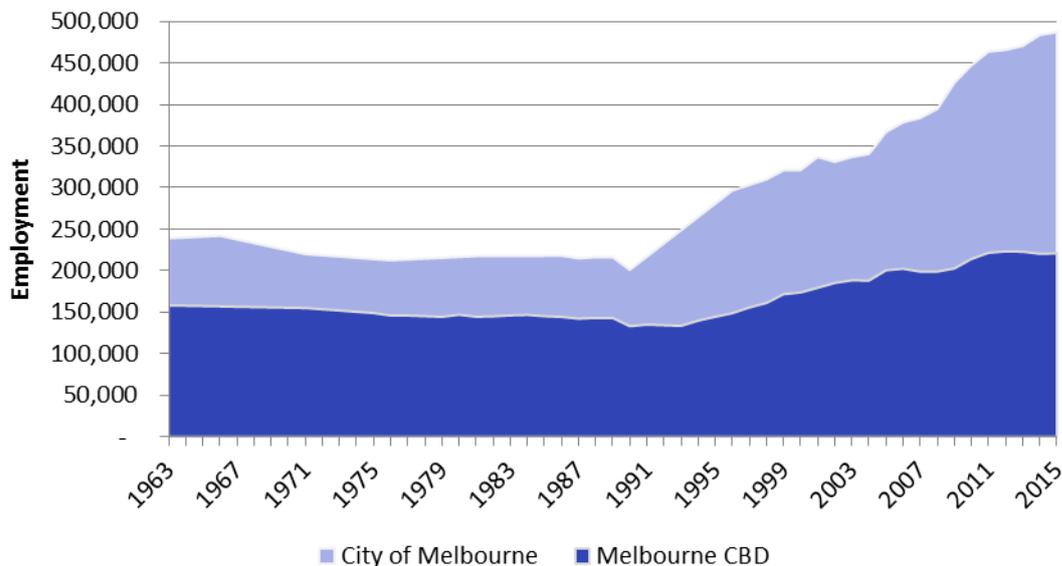
Figure 2 shows estimated employment for the City of Melbourne and the Melbourne CBD over the past 50 years. This historical time series is based on a number of published datasets including:

- Melbourne Inner Area – A Position Statement (1977), Metropolitan Board of Works;
- City of Melbourne Strategy Plan (1985), City of Melbourne;
- Labour Force Survey (2015), Australian Bureau of Statistics (ABS);
- Census Place of Work (various years), ABS; and
- Census of Land Use and Employment (CLUE) (various years), City of Melbourne.

Figure 2 is evidence of the effects of suburbanisation on the City of Melbourne from the 1960s to the late 1980s, as the workforce and industrial employment moved from the City of Melbourne to Greater Melbourne’s south eastern suburbs. This shift corresponded with the removal of trade barriers and was facilitated by the availability of cheap and flat land for industry. The workforce was accommodated in new housing estates established on Greater Melbourne’s edges, facilitated by increasing car ownership for home owners.

In the early 1990s this trend was reversed as the redevelopment of Southbank helped attract new knowledge intensive employment into the City of Melbourne. Some of this employment was attracted from the established CBD Grid, which continued to experience an ongoing decline in employment until around 1994. A broader economic recovery helped propel employment growth forward during the late 1990s.

FIGURE 2. ESTIMATED EMPLOYMENT FOR THE CITY OF MELBOURNE AND CBD GRID (1963-2015, NUMBER OF JOBS)



Source: SGS Economics & Planning

Further developments within the City of Melbourne that occurred around the turn of the century also contributed to revitalisation and employment growth:

- Opening of CityLink, which provided improved access to business opportunities and skilled labour in the south east and north of Melbourne;
- Federation Square, which underlined the City’s commitment to fresh and exciting design;
- Melbourne Exhibition and Convention Centre, which enabled the city to successfully challenge for the mantle as Australia’s premier destination for business tourism;
- An exciting and comprehensive festival and events program; and
- Ongoing residential growth.

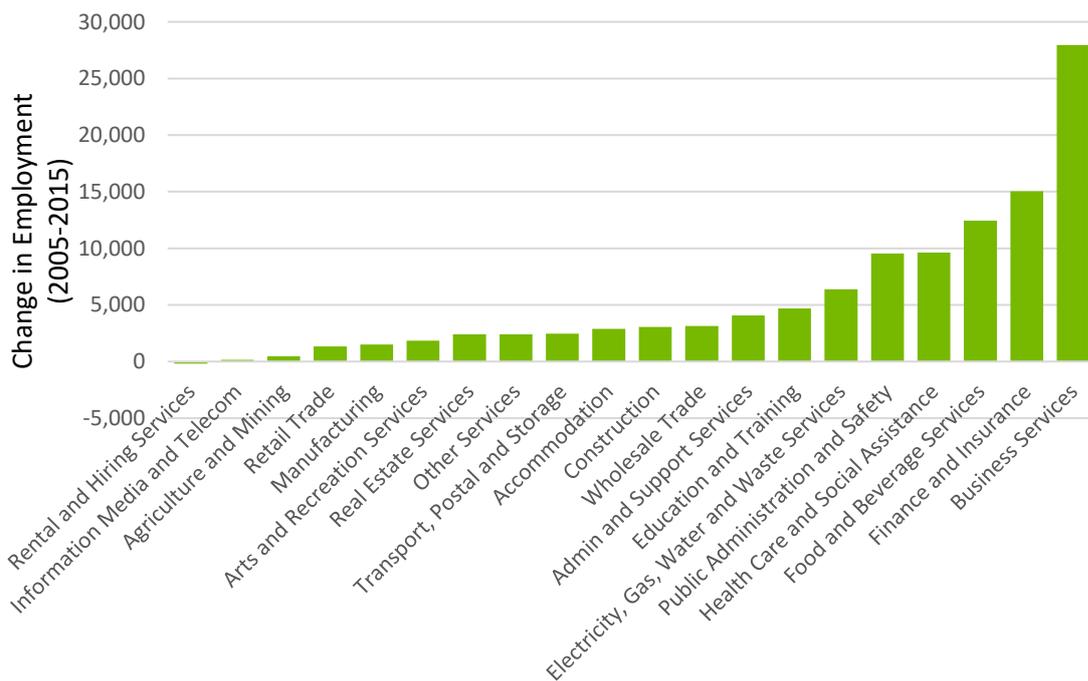
These investments enabled a ‘rebranding’ of Melbourne, transforming the city from a gracious but rather tired bastion of ‘industrial Australia’, underpinned by ‘Fordist’ manufacturers, to a knowledge economy trading on its thinking power and creativity.

2.2 The City of Melbourne’s recent employment history

In recent years, the City of Melbourne has seen strong growth in the knowledge and creative sectors. This is apparent in Figure 3, which presents changes in employment over recent decades, by industry.

The strong growth in the health care and social assistance sector (fourth highest growth sector) is also evident.

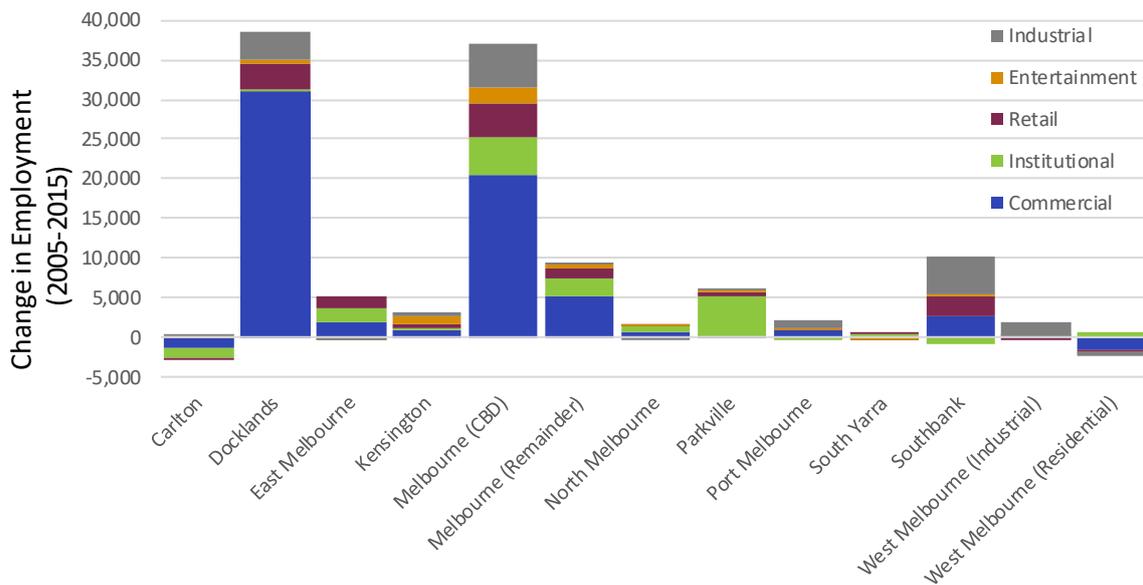
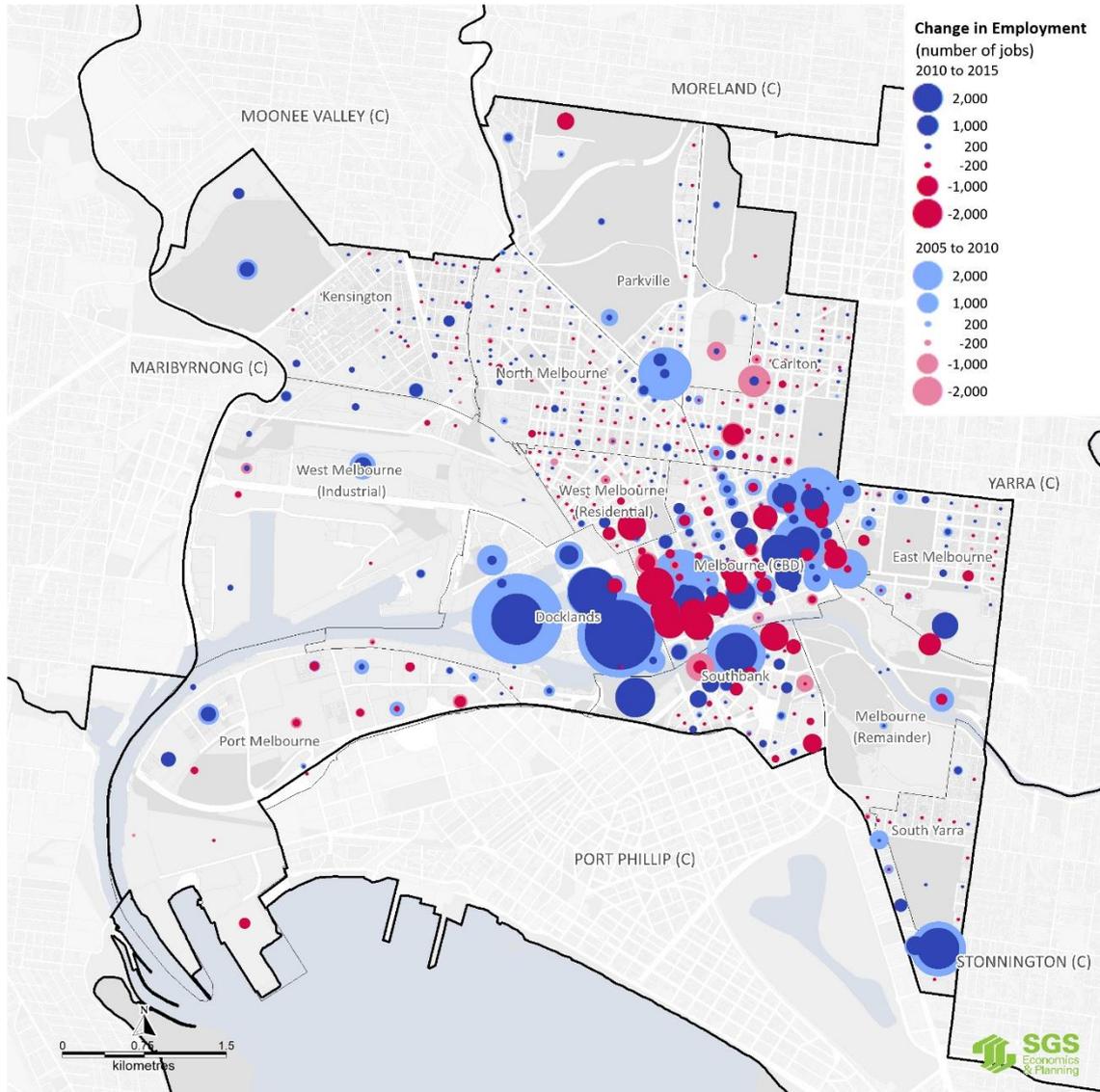
FIGURE 3. EMPLOYMENT GROWTH BY INDUSTRY (2005 TO 2015, NUMBER OF JOBS)



Source: CLUE - City of Melbourne, 2015

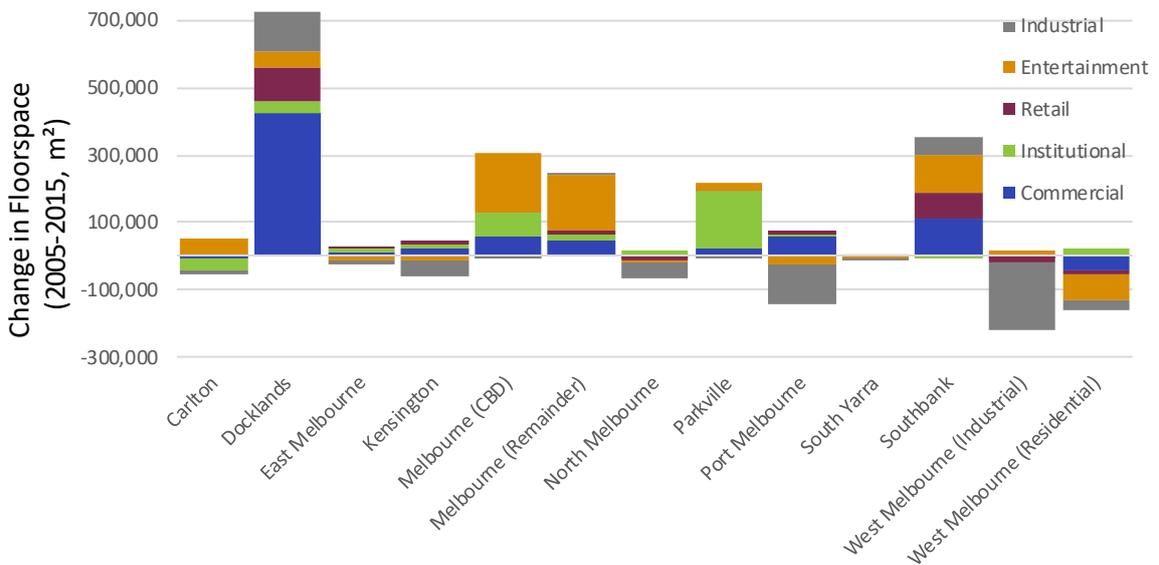
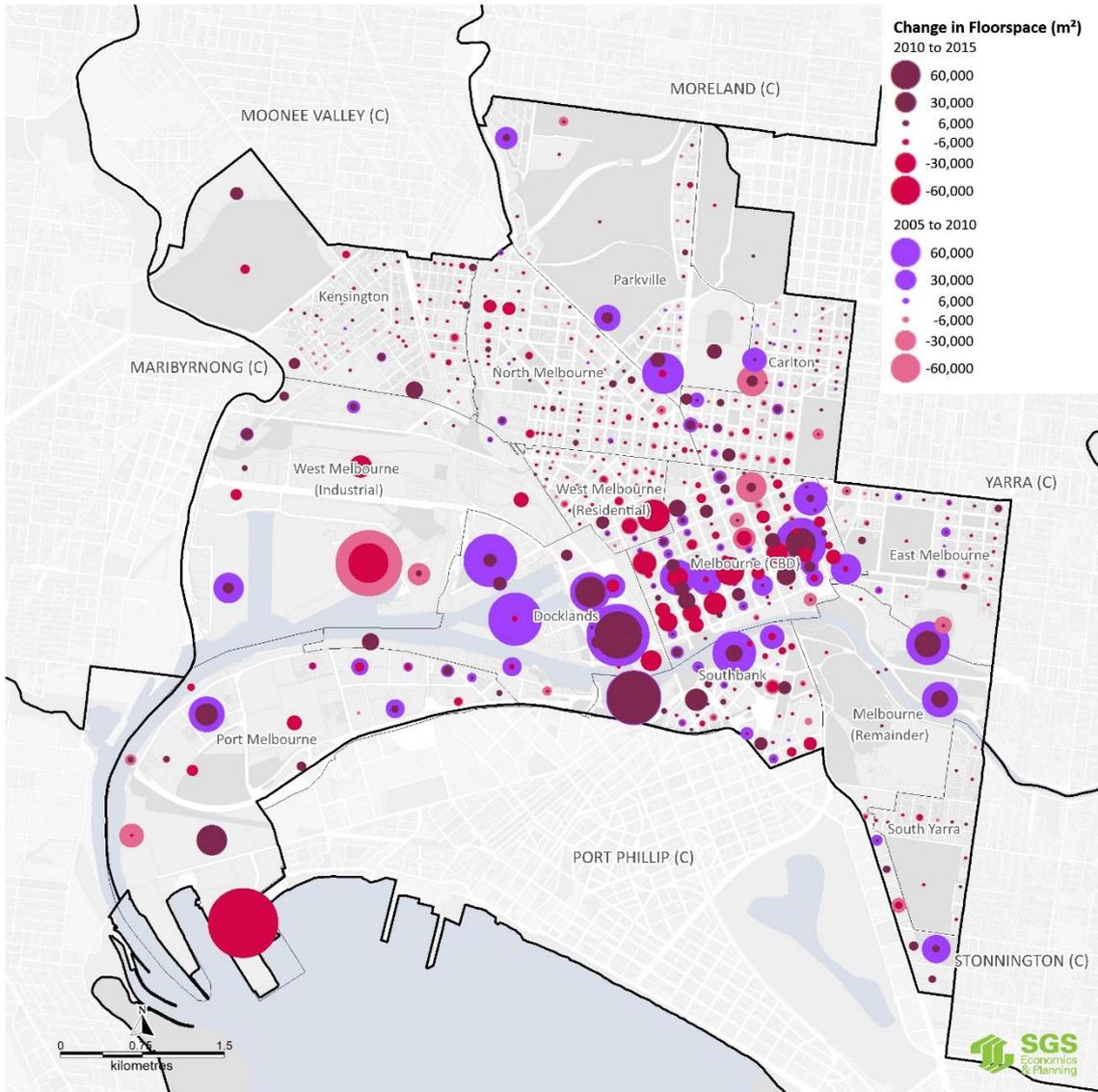
Figure 4 and Figure 5 reveal strong employment growth concentrated in the CBD, Docklands and Southbank areas. There has also been concentrated growth in the Parkville Hospital Precinct and the Alfred Hospital in Melbourne (Remainder).

FIGURE 4. EMPLOYMENT GROWTH (2005-2015, NUMBER OF JOBS)



Source: SGS based on CLUE - City of Melbourne

FIGURE 5. FLOORSPACE GROWTH PER BLOCK (2005-2015, M²)



Source: SGS based on CLUE - City of Melbourne

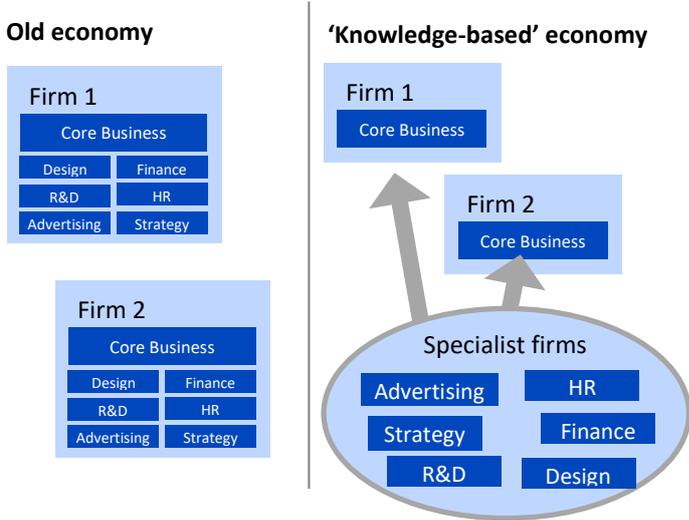
2.3 Key trends changing the employment landscape

The following section highlights key employment trends affecting the employment landscape in the City of Melbourne. These trends are changing the type of employment and challenging the way employment has traditionally been defined. These key trends have been considered in the subsequent employment projections.

Melbourne is at the heart of the ‘knowledge economy’

The long-term competitiveness of the Australian economy is underpinned by its willingness and ability to innovate. Innovation helps to not only reshape product and service offerings for customers, but sometimes may also lead to the creation of new markets. As the global economy continues to evolve rapidly, innovation helps businesses and local economies remain relevant to the broader economic landscape.

FIGURE 6. SHIFT TO KNOWLEDGE ECONOMY



What is the knowledge economy?

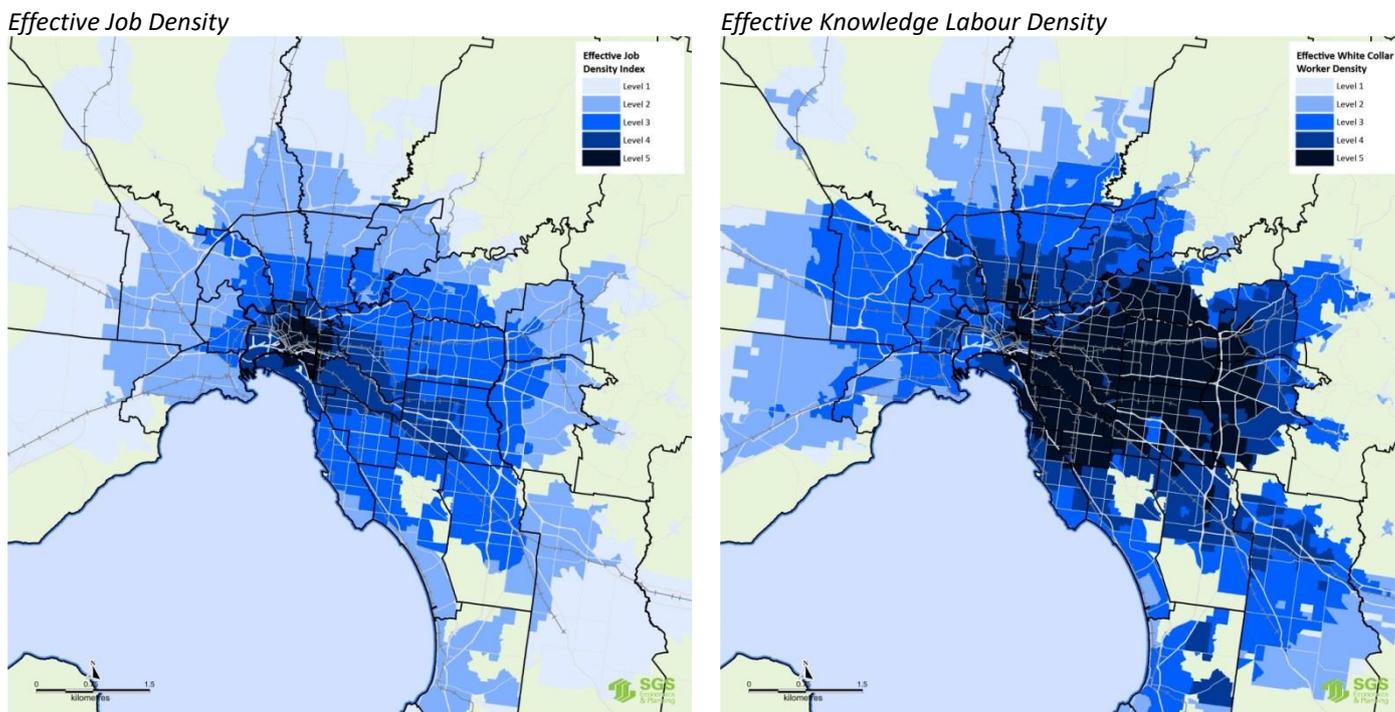
The knowledge economy essentially relates to the unbundling of the value chain (or how the economy turns raw materials and ideas into goods and services) (see Figure 6). In the old traditional economy firms completed much of their business activities in house. Under the knowledge based economy many of these non-core functions have been moved out and are completed by a range of specialist firms.

These specialist firms have become more sophisticated and leverage our skilled and diverse labour force to drive economic growth across all sectors of the economy.

This growth will largely be concentrated in the financial and professional services sectors but all sectors (including retail, health, hospitality, agriculture, mining and construction) will increasingly leverage these analytical and creative services if they are to boost productivity. Massing or ‘agglomeration’ of these professional services improves their capacity for innovation and therefore their ability to boost the competitiveness of their customers. This is why we see them increasingly focused around the central core of all major cities.

As a monocentric city with a largely radial transport network, Melbourne CBD is by far the most desired and beneficial location to foster innovation and support the continued growth of the broader knowledge economy (Figure 7). As population growth increases to the north and west of Greater Melbourne, this will further refocus the City of Melbourne at the centre of economic activity and the skilled labour pool.

FIGURE 7. AGGLOMERATION ECONOMIES AND ACCESS TO JOBS (2011)²



Source: SGS Economics and Planning, 2016

In a future employment landscape, new types of occupations and opportunities are likely to emerge and in some instances replace existing occupations. These new jobs often don't exist today and can't be directly predicted. However, they will need to continue to be highly innovative and knowledge (not labour) intensive. This trend is not new; Strategic Economic Decisions (2015) *Intelligent machines and the future of employment* states '85% of the jobs in 1900 had disappeared by 2000'.

One specific example is drone pilots which didn't exist as a profession five or ten years ago. Recent years have seen drones replace surveyors, transforming data collection into an automated process. While surveyor jobs may be lost, cost efficiencies have created opportunities for new jobs, products and services. New technologies such as GPS Navigation systems have been developed and commercialised are now considered common yet ten years ago this may have been hard to visualise.

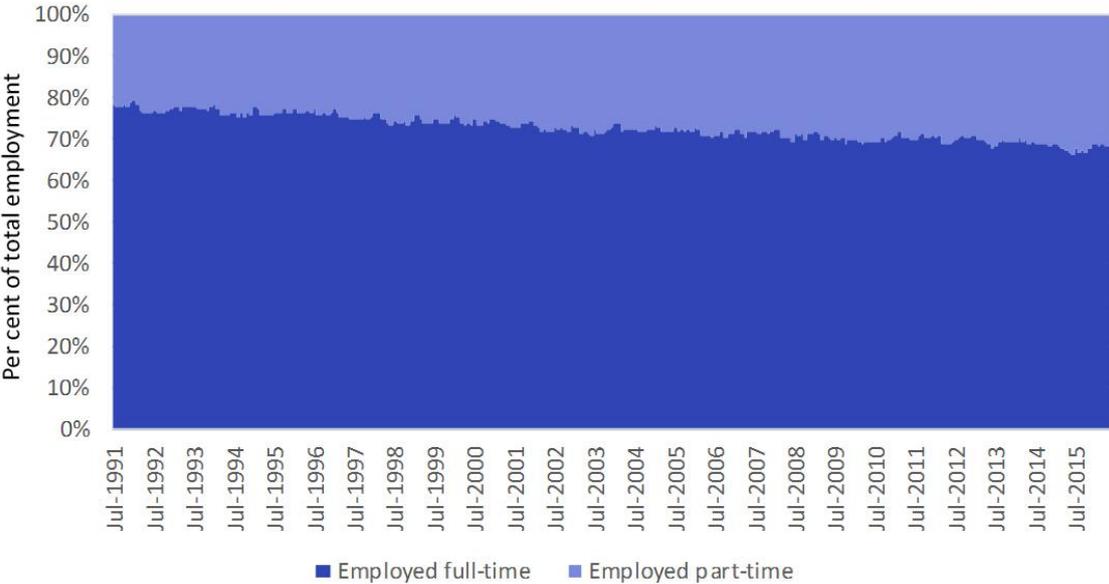
Knowledge based sectors and innovation will be driving Greater Melbourne, and Australia's, future economic growth. The sector thrives off connectivity to other businesses, skilled labour, education and amenity. The CBD and the City of Melbourne provide unparalleled access to these attributes and will increasingly be the sought after location for future knowledge intensive industries.

² Effective Job Density and Effective White Collar Worker Density are relative indexes created by SGS, the left map shows patterns in the location of jobs across the urban landscape, and the right map shows patterns in the residential location of white collar workers. White Collar employment (based on occupation classifications) has been used to illustrate the patterns of knowledge workers generally. However, it should be noted not all white collar workers are 'knowledge workers', such as a retail clerk.

Technology and societal trends are impacting how and when people work

The advent of the digital era and changing societal preferences in past decades have had a widespread impact on how and when people work. Figure 8 presents the full and part time employment split across Greater Melbourne over the past few decades. It shows that traditional full-time 9 to 5, Monday to Friday jobs are declining as a proportion of all jobs. Across all sectors of the economy we are seeing broader working hours (and days), increased shift work and more diverse flexible employment arrangements.

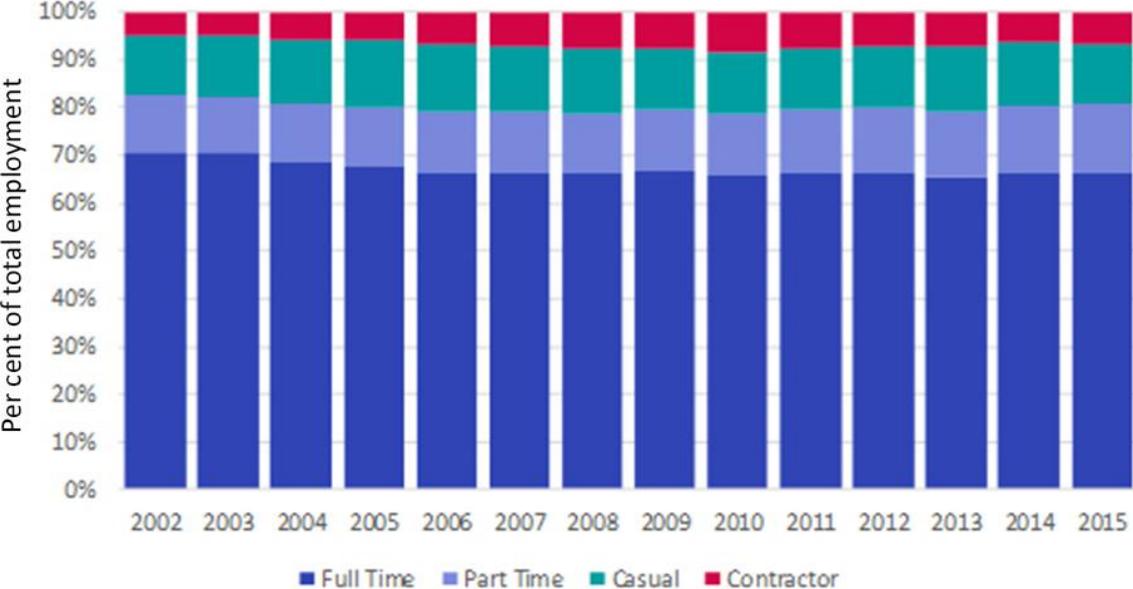
FIGURE 8. PERCENTAGE OF WORKFORCE IN FULL AND PART TIME EMPLOYMENT, GREATER MELBOURNE (1991-2015)



Source: ABS Labour Force Survey

This trend is particularly pronounced in the City of Melbourne, the heart of Greater Melbourne’s knowledge and creative economy. In 2002, 70 per cent of employment was full-time; while the total number of full time jobs has grown, their per cent of total jobs has declined to 65 per cent in just over a decade (see Figure 9).

FIGURE 9. PERCENTAGE OF JOBS BY EMPLOYMENT TYPE, CITY OF MELBOURNE (2002-2015)

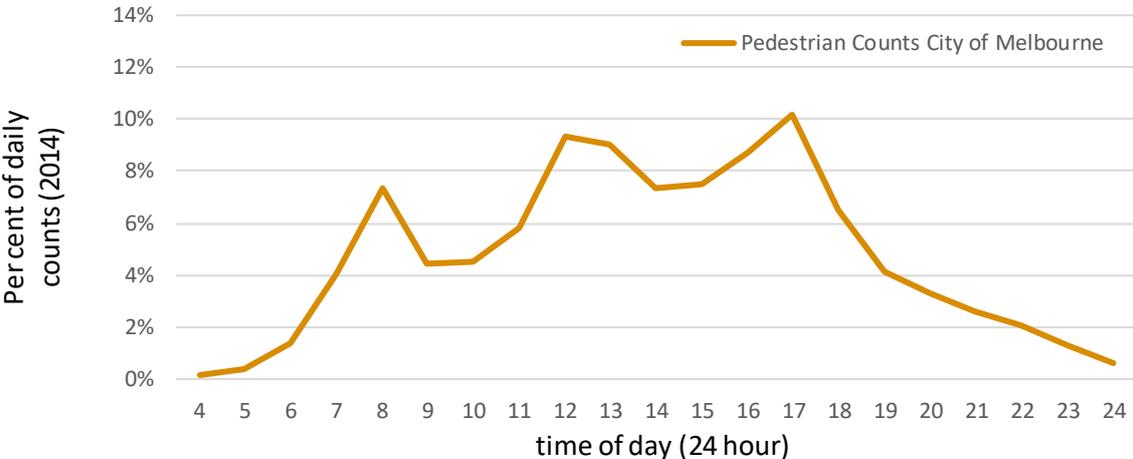


Source: City of Melbourne CLUE (2002-2015)

This is in part due to the City of Melbourne being revitalised and edging towards a '24 hour city' – long gone are the days of a 'commuter workforce' coming to the municipality for a 9 to 5 job and little else. The increased provision of recreation, entertainment and essential services in the municipality see hospitality, health care other shift workers based in the city into the evening and night.

Figure 10 demonstrates the broad level of activity (via pedestrian counts) across the day. The 9 to 5 job still contributes heavily to on-street activity, producing three peaks over the day. The lunch and afternoon peaks are higher and wider than the AM peak, partly as a result of some 9 to 5 workers remaining in the municipality for recreation, entertainment or other purposes and the arrival of hospitality and recreational workers to service those customers. Additionally, health care and other shift based sectors arrive in the municipality into the evening.

FIGURE 10. CITY OF MELBOURNE AVERAGE WEEKDAY HOURLY PEDESTRIAN COUNTS, 2014



Source: SGS Economics and Planning, 2016; City of Melbourne Daily Population Estimates and Forecasts

High-speed internet and the provision of a National Broadband Network (NBN) is also changing the way we connect to others and how, where, when we work. In a digital era, workers are increasingly more mobile, and enjoy the flexibility of working from home or anywhere with a high speed internet connection. However, as high-speed internet provides more data, human interactions are still important to understand and communicate that data as 'knowledge'. Increasingly, studies have showed that faster internet speeds result in a more concentrated economy rather than dispersed.

The City of Melbourne economy has been experiencing a vibrant cycle of growth as the large concentration of residents and jobs in the CBD has generated more opportunities for businesses to serve one another and generate a broader range of services that would otherwise struggle to exist.

A more mobile workforce operating over a much broader period of time enables existing infrastructure and assets to be utilised much more efficiently. This is most pronounced in the health care and social assistance sector which has seen significant growth in jobs without the same level of floorspace growth due to increased shift work and floorspace efficiencies.

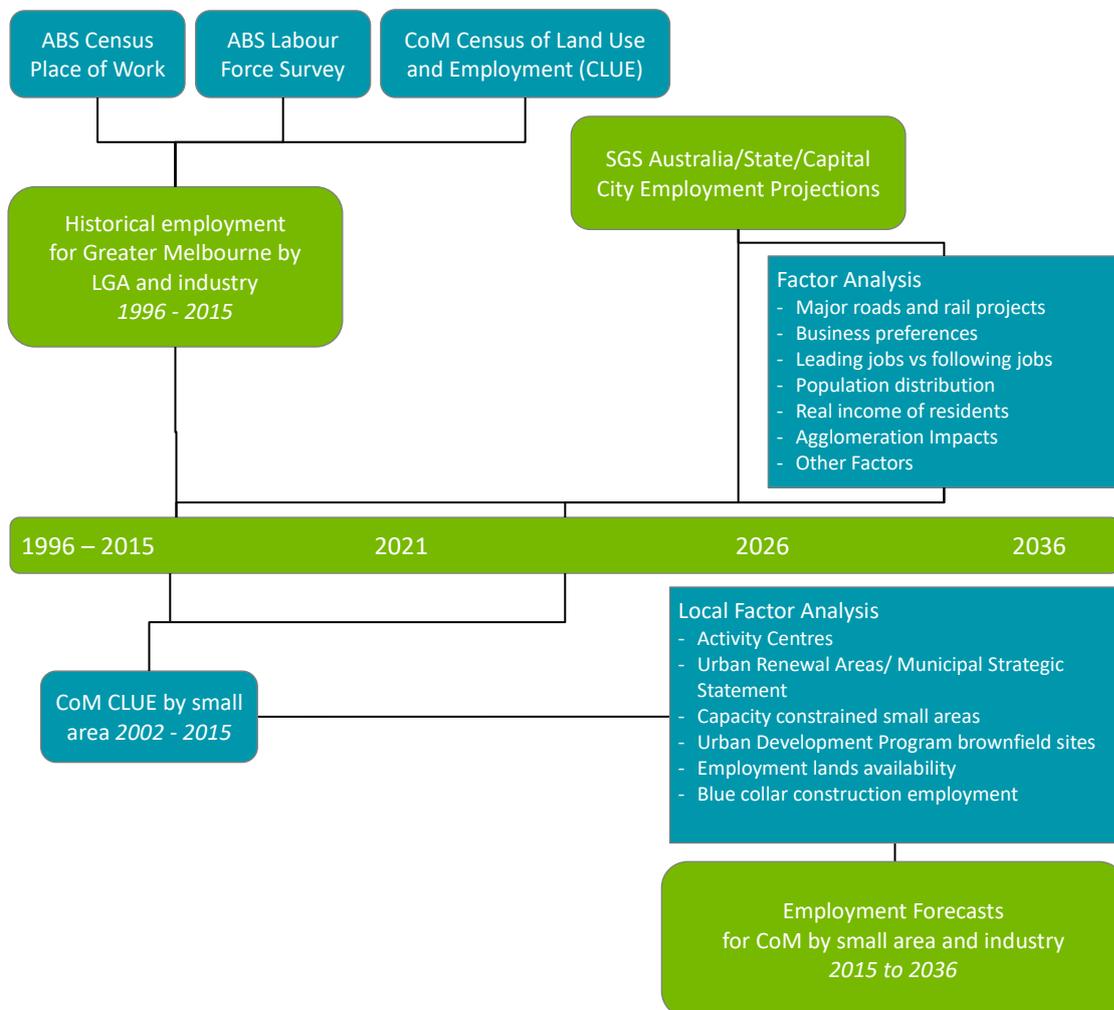
3 METHOD

3.1 Overview

To forecast the future level, and type, of employment and employment floorspace which will locate in the City of Melbourne, a clear understanding of the Australian, Victorian and Greater Melbourne economy is required.

An overview of the method is provided in Figure 11 below. Macro level analysis is first combined with data at the Local Government Area (LGA) level to create forecasts for the whole of the City of Melbourne. These are then brought down to a City of Melbourne (CoM) small area level (see Figure 1) using a factor analysis approach.

FIGURE 11. OVERVIEW OF EMPLOYMENT FORECAST METHODOLOGY



Source: SGS Economics and Planning, 2016

Key data inputs and assumptions regarding this approach are provided in the following sections.

3.2 Employment forecasting

Macro-employment forecasts

SGS has drawn on its own macro-level employment forecasts for the state, metropolitan and subregional scale. This dataset is continually updated with the latest information and validated via a wide range of projects. It also provided an initial estimate for the City of Melbourne which was further refined during the project.

To understand future growth at the macro level, data was obtained from a variety of different sources. Australian, Victorian and Greater Melbourne industry forecasts, which include Gross Value Added (GVA) and employment forecasts, were developed for the short (2021), medium (2026) and long term (2036), with total growth for all industries benchmarked against Gross Domestic Product (GDP) forecasts. This ensures that the forecast industry growth can occur within the finite level of resources at Australia's disposal.

Estimates for the state of Victoria as a whole and Greater Melbourne were derived from the current (2016) state share of GVA and employment for each industry. Forecasts were made for the future share of each industry in Victoria. Employment forecasts for Greater Melbourne were then derived from these employment, GVA and trends in labour productivity growth.

Three broad methods were used to estimate future employment, depending on the characteristics of each industry. The three categories of industries were:

- **Population driven** – construction, retail trade, accommodation and food services, education and training, health care and social assistance, arts and recreation services, other services, electricity, gas, water and waste services
- **Non-population driven** – agriculture, forestry and fishing, mining, manufacturing, wholesale trade, transport, postal and warehousing, rental, hiring and real estate services
- **Knowledge intensive services** – information, media and telecommunications, financial and insurance services, professional, scientific and technical services, administrative and support services, public administration and safety.

Employment growth was capped using future labour force constraints. The labour force forecast was based on the 2015 Victoria in Future (VIF 2015) projections and projections for labour force participation for each five year age group. Labour force projections were made separately for men and women, in order to account for observed differences in their participation by age profiles. The Intergenerational Report³ was used as a guide for workforce participation amongst various age groups into the future. A forecast of unemployment was also made to ensure a coherent picture of the future labour force.

The number of resident workers is also estimated from the total number of workers, to account for people who live outside Greater Melbourne but commute into the region for work.

³ Treasury, Australian Government, 2015

City of Melbourne forecasts

Detailed historical trends from 2002-2015 by industry for the City of Melbourne were sourced from the City of Melbourne CLUE and used as a baseline for the forecasts.

It should be noted there is some variation in the total number and classification of employment between CLUE and the macro level employment forecasts developed by SGS for the State Government. These differences are discussed in more detail in Appendix A.

The forecasts of total employment by industry for the City of Melbourne were then estimated using three broad industry groups as follows.

Population-driven industries were forecast using historical data on employment by industry and population, to estimate and extrapolate the ratio between population and employment in each industry.

Non-population driven industries were forecast using a moving average growth rate, estimated from the historical employment data. Given the nature of these industries, it was assumed they were likely to follow the historical trend in the long term. Adjustments were then made as required.

Growth in **knowledge intensive services** will continue to be focused in the City of Melbourne, as the city provides the clusters of finance and insurance services and professional services with key business advantages. The high density of skilled labour around the inner area of Greater Melbourne and the inner east is expected to continue.

This increase in advanced business services employment, will create competition for currently designated industrial land, which will result in manufacturing, transport and logistic firms moving to other regions in Greater Melbourne.

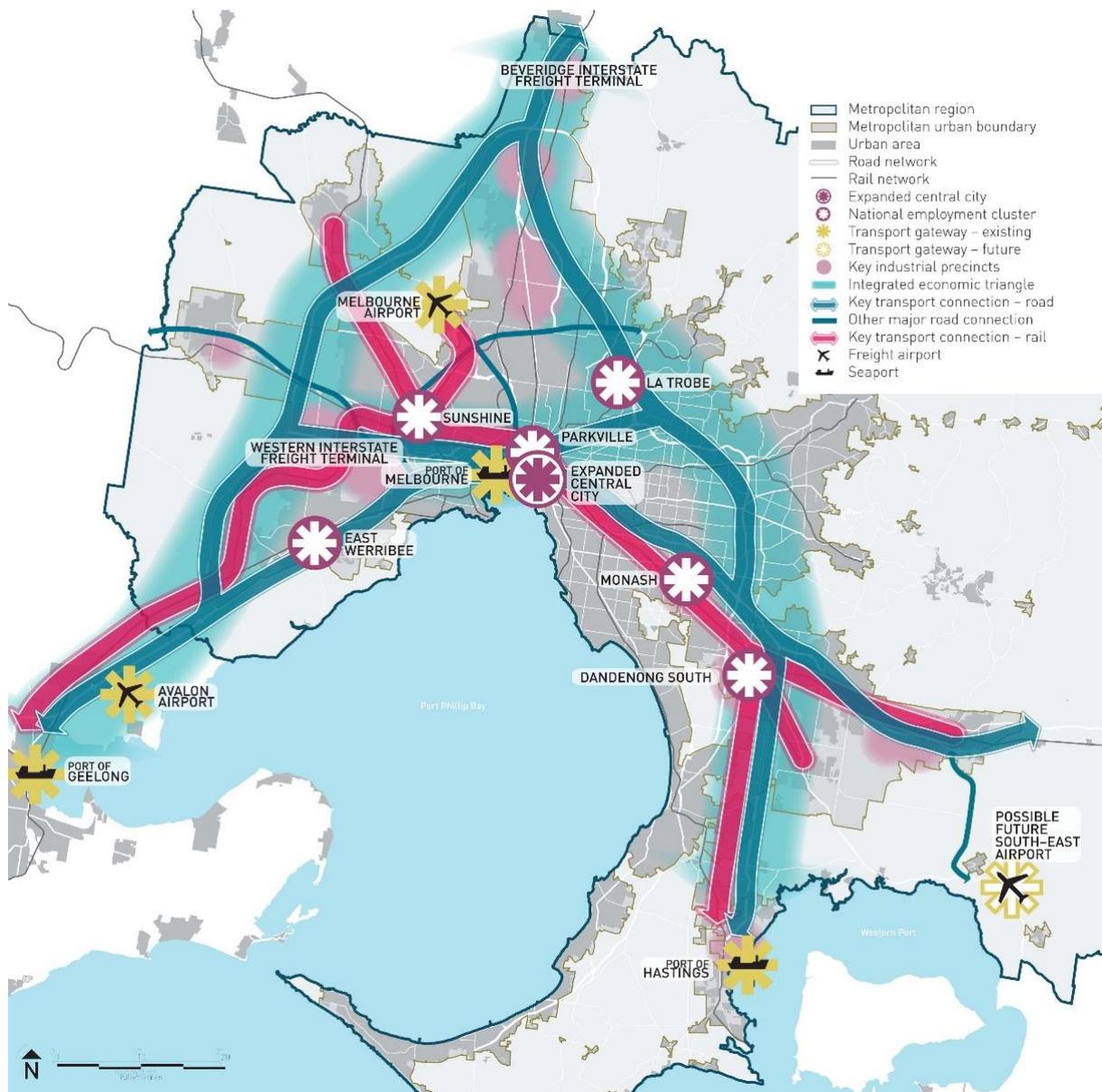
It should be noted that a small number of knowledge intensive services will follow the population growth into the growth areas of Greater Melbourne. However, those areas will capture significant population driven jobs due to significant population growth in the growth areas and middle ring suburbs.

Factor Analysis

To capture these varied spatial trends, a factor analysis approach was undertaken for future years to generate a final share for each of the forecast years by industry and LGA. Land use forecasts have been undertaken using historical relationships observed between the ABS Employment and CLUE data at the Greater Melbourne level and below.

This section provides a brief overview of the strategic factors and assessments considered in examining the 'k' factors. The 'k' factors represent the analysis of relative attractiveness for each area in the future. This analysis, combined with current attractiveness of each location, produces the future employment distribution for Greater Melbourne. The 'k' factors are partially calculated elements and partly influenced by qualitative information about future constraints and opportunities. Figure 12, taken from the Victorian State Government's land use strategy Plan Melbourne, highlights the various locations for different types of employment across Greater Melbourne.

FIGURE 12. PLAN MELBOURNE'S INTEGRATED ECONOMIC TRIANGLE



Source: Plan Melbourne - Department of Transport, Planning and Local Infrastructure, 2014

This conceptual framework provides strategic direction to the allocation of future employment over the long term. Access to markets and skilled labour, as shown in Figure 7 on page 8, are also important factors for consideration when reviewing the employment distribution forecasts at the metropolitan level. Areas with good access to high levels of skilled labour will see stronger employment growth than areas with lesser access to skilled labour.

The productivity benefits resulting from agglomeration economies flow to a business locating in an area of relatively dense economic activity, and stem from a number of factors. These include the ability to achieve economies of scale and scope through specialisation, the numerous supply sources and specialised infrastructure promoting a competitive environment and the access to a deep and diverse source of labour promoting technology/knowledge transfer between firms.

Firms locating in the most economically dense areas (as shown in Figure 7 on page 8) are able to access these benefits, which results in more productive activity, higher profits and wages and higher levels of employment growth.

This factor analysis was undertaken for all industries and all LGAs within Greater Melbourne.

The historical growth trends were extrapolated to 2036, with adjustments made to account for available information about land use constraints and information relating to redevelopment at urban renewal sites.

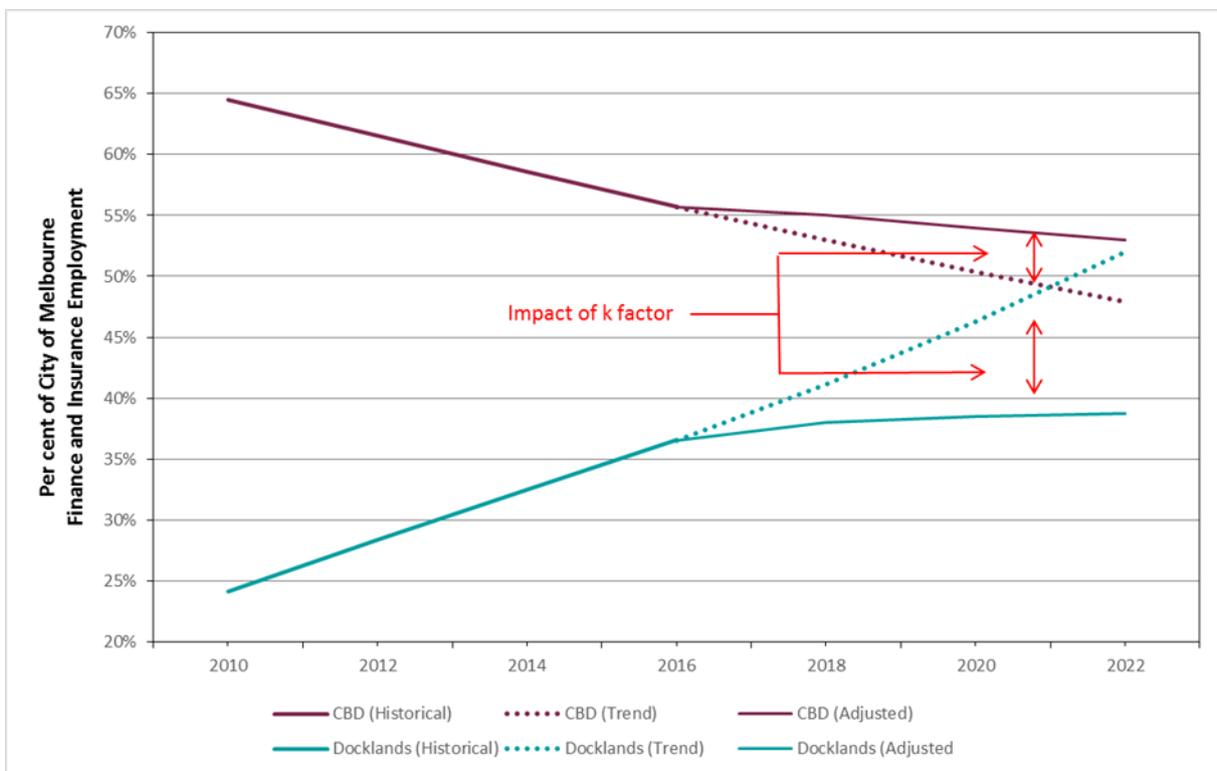
City of Melbourne small area level forecasts

A similar factor analysis approach was then applied to disaggregate total City of Melbourne employment forecasts by industry down to a small area level (see Figure 1 on page 2). This was done with a stronger focus on local supply and planned development information available at the time of this study. It was completed in two stages:

- Broad industries (5), and then
- Detailed industries (based on CLUE industry classifications)⁴

At a more practical level, Figure 13 demonstrates the required impact of the k factor. The figure presents the employment share of finance and insurance services of Melbourne CBD and Docklands. With the rapid development of Docklands and ongoing development along Southbank, there has been a strong increase in the share of employment in these areas. As a result of this growth, Melbourne CBD has lost a share over the same period.

FIGURE 13. FACTOR ANALYSIS EXAMPLE



Source: SGS Economics and Planning, 2016

If these short term trends are extrapolated into the future, by 2021 the two areas are nearing parity in terms of their share of employment. However, the planned development at Docklands would not be able to accommodate such a concentration of employment. As a result, the k factors act to dampen the rise/fall in the share of employment in the two areas, to ensure employment levels and densities are within expected levels.

Given the lack of reliable trend data for the urban renewal sites, these adjustments are based around a number of statistical indicators (change in industry employment shares over time), professional judgements (informed by historical drivers in employment growth) and assessment of planning controls across the city (See Figure 14).

⁴ A concordance table of CLUE industry descriptions and the SGS broad industries can be found in the Appendix B

FIGURE 14. PLAN MELBOURNE'S EXPANDED CENTRAL CITY



Source: Department of Transport, Planning and Local Infrastructure, 2013

Examples of considerations include:

- The City of Melbourne's (and in particular Melbourne CBD and Docklands') dominance in high-end financial services which is likely to continue well into the future;
- The trend of a growing share of employment in food services locating throughout the City of Melbourne;
- Competition from residential development in existing employment hubs (for example, in the St Kilda Road precinct);
- Health and community services employment continuing to locate around existing hospitals; and
- The ongoing decline in industrial employment in areas surrounding the CBD.

Examination of historical trends (in terms of level of employment and growth rates) helps to provide an indication of the 'bounds' of future growth or speed of decline. The take-up of floorspace and industry composition of previous redevelopments (such as Southbank and Docklands) have also provided guidance on the nature of k factors in the context of redevelopment sites.

3.3 Scenario testing

In order to understand the effects of potential development in various strategic areas on projected employment to 2036, four development scenarios were tested in this analysis.

The four scenarios were as follows:

Scenario 1: Base Case - 'business as usual'

The Base Case or 'business as usual' scenario projects the level and type of employment across the municipality to 2036 based on the trends and drivers outlined in previous sections of this chapter.

Scenario 2: West Melbourne Focused Residential Development

Scenario 2 analyses a situation where residential growth in West Melbourne (Residential) is focused into precincts in the south and south-east of the strategic area, with strict floorspace ratio controls and mechanisms for street activation. Strong links with the existing health precincts in the Parkville area are expected, which will in turn create opportunities for growth in health-related employment in West Melbourne (Residential).

Scenario 3: West Melbourne Arts and Culture Precinct

Scenario 3 envisages the leveraging of the redevelopment of Queen Victoria Market to transform the central precinct of West Melbourne (Residential) into a cultural and creative hub, significantly altering the urban form of the area.

Scenario 4: Fishermans Bend Design Engineering and Advanced Manufacturing Precinct:

Scenario 4 preserves land in the Fishermans Bend Employment Precinct to ensure adequate land supply for future industries, in line with the Victorian Government's Fishermans Bend Vision. This 'Design Engineering and Advanced Manufacturing Precinct' would provide innovative and creative industries with the space needed to test prototypes in a well-located area, allowing firms to design, test and produce specialised and high-tech products.

4 RESULTS AND FINDINGS

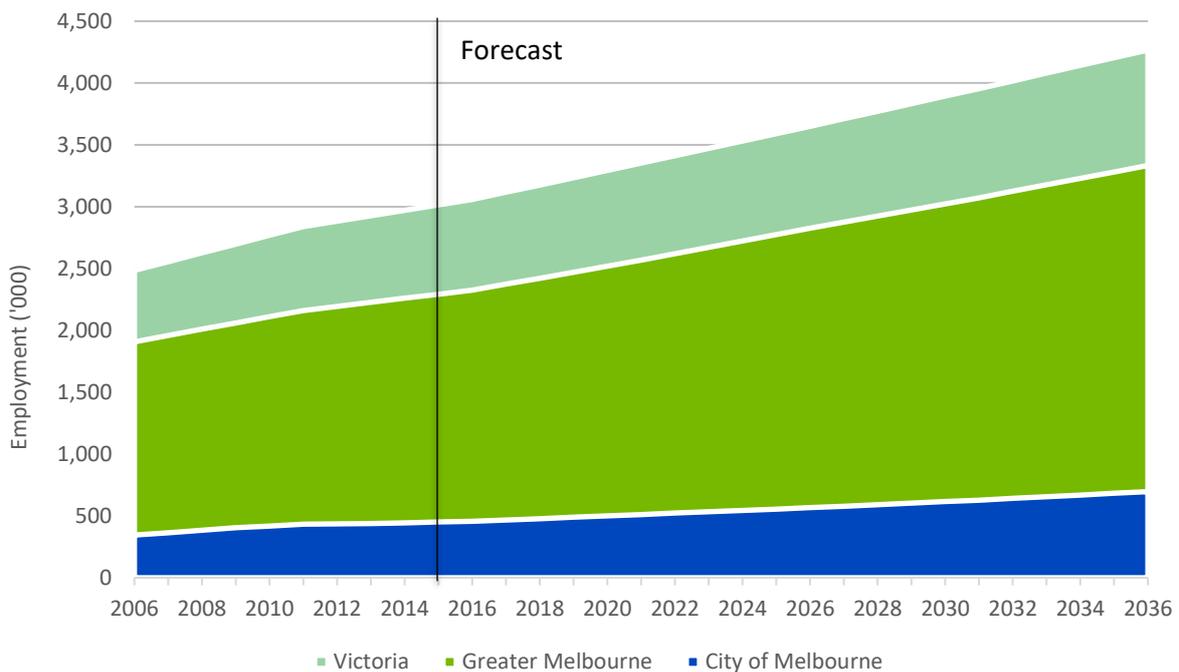
This section presents macro level results, along with Base Case employment and floorspace forecasts in the City of Melbourne, both across the municipality and at a small area level.

These findings are supported by an Excel spreadsheet with detailed data tables, accessible on the City of Melbourne open data platform.

4.1 Victoria and Greater Melbourne forecasts

It is forecast that the next 20 years will see an additional 1.2 million jobs created within Victoria. Of these, one million will be generated within Greater Melbourne. By 2036, there will be 3.3 million jobs within the Greater Melbourne area (see Figure 15).

FIGURE 15. VICTORIA, GREATER MELBOURNE EMPLOYMENT TREND AND FORECAST (2006-2036, NUMBER OF JOBS)



Source: SGS Economics and Planning, 2016

Table 1 shows the trend (Based on ABS data) and forecasts industry share of jobs in Greater Melbourne, which sets the broader context for the City of Melbourne forecasts.

The structure of the Victorian economy is forecast to alter over time, with a move towards professional services and health care. Over the past decade, the provision of professional services in Greater Melbourne has provided the city with a clear competitive advantage, with an increasing share of employment primarily in the professional, scientific and technical services sector. These trends will continue into the future, with professional services increasing total share of employment from 10.9 to 13.5 per cent.

Between 2006 and 2016, there has been an ongoing decline in the share of manufacturing employment in Greater Melbourne (from 13.2 per cent to 9.2 per cent respectively). In the face of ongoing global competition in the manufacture of consumer goods, employment in this industry will continue to contract. By 2036, employment in manufacturing in Greater Melbourne is forecast to represent only 6 per cent of all employment.

With an ageing population, the need for the provision of health services will contribute to a significant increase in the share of employment in the health care and social assistance sector, from 13.4 per cent to 16.8 per cent over the 2016-2036 period. The share of employment in the remaining industries will remain approximately the same from 2016 to 2036.

TABLE 1. INDUSTRY COMPOSITION WITHIN GREATER MELBOURNE (2006-2036, % OF JOBS)

Industry	% of total jobs				Change in % share 2016-36
	2006	2016	2026	2036	
Agriculture and Mining	0.9%	0.8%	0.7%	0.6%	-0.2%
Manufacturing	13.2%	9.2%	6.9%	6.0%	-3.2%
Electricity, Gas, Water and Waste Services	0.8%	1.0%	1.0%	1.0%	0.0%
Construction	8.3%	8.3%	8.3%	8.0%	-0.3%
Wholesale Trade	4.6%	5.0%	5.7%	5.7%	0.8%
Retail Trade	11.4%	10.7%	10.3%	10.4%	-0.3%
Accommodation	0.7%	0.7%	0.7%	0.7%	0.0%
Food Services	5.0%	5.3%	5.2%	5.1%	-0.2%
Transport Postal and Warehousing	5.0%	4.6%	4.3%	4.0%	-0.5%
Information Media and Telecommunications	3.0%	2.4%	2.0%	1.7%	-0.7%
Financial and Insurance Services	4.8%	4.8%	4.7%	4.9%	0.1%
Real Estate Services	0.4%	0.4%	0.4%	0.4%	0.0%
Rental and Hiring Services	1.3%	1.3%	1.2%	1.1%	-0.1%
Professional, Scientific and Technical Services	8.9%	10.9%	12.1%	13.5%	2.6%
Administrative and Support Services	3.6%	2.8%	2.4%	2.2%	-0.6%
Public Administration and Safety	4.7%	4.1%	3.6%	3.1%	-1.0%
Education and Training	7.2%	8.2%	8.8%	9.1%	0.9%
Health Care and Social Assistance	10.2%	13.4%	15.8%	16.8%	3.4%
Arts and Recreation Services	2.0%	2.2%	2.2%	2.1%	-0.1%
Other Services	3.9%	3.9%	3.8%	3.6%	-0.4%
All industries (number of jobs)	1,908,414	2,325,667	2,825,322	3,333,751	

Source: 2006-2016 - ABS historic data; 2026 onwards SGS Economics and Planning small areas land use projections (SALUP)

These changing macro trends have significant implications for the City of Melbourne, particularly the competitive advantages offered by the growth industries. The next section discusses these implications in further detail.

4.2 Scenario 1: Base Case

Municipal-wide trends

As seen in Table 2, over the next 20 years the City of Melbourne will see an increase of almost 250,000 jobs. 54.3 per cent of these will be in the commercial sector, while 23.2 per cent will be in the institutional sector.

TABLE 2. EMPLOYMENT BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (NUMBER OF JOBS)

Broad Industry	2003	2015	2026	2036	2015-36 change in jobs	2015-36 % contribution to growth
Commercial	175,199	237,651	299,726	372,651	135,000	54.3%
Institutional	45,293	63,495	95,793	121,136	57,641	23.2%
Retail	34,727	53,299	66,409	82,692	29,393	11.8%
Entertainment	26,623	33,381	38,558	43,299	9,918	4.0%
Industrial	44,222	59,725	65,746	76,347	16,622	6.7%
Total	326,064	447,551	566,233	696,126	248,575	100.0%

Source: 2003-2015 CLUE – City of Melbourne; 2026 onwards SGS Economics and Planning, 2016

A more detailed industry breakdown is provided in Table 3 below. From this it can be seen that business services (also known as the professional, scientific and technical services), health care and social assistance and education and training will contribute 30.4, 12.4 and 10.7 per cent respectively, representing 53.5 per cent of all employment growth over 2015-2036. By contrast, over the past decade these industries added only 38.5 per cent of all employment growth in the City of Melbourne.

TABLE 3. EMPLOYMENT BY INDUSTRY, SCENARIO 1: BASE CASE (NUMBER OF JOBS)

Industry	2003	2015	2003-2015 % change	2026	2036	2015-2036 % contribution to growth
Admin and Support Services	10,659	14,513	3.2%	16,722	19,926	2.2%
Business Services	49,467	77,966	23.5%	116,684	153,429	30.4%
Finance and Insurance	45,349	62,692	14.3%	67,461	83,757	8.5%
Information Media and Telecommunications	25,531	26,789	1.0%	29,303	32,878	2.4%
Other Services	9,553	12,210	2.2%	14,308	19,381	2.9%
Public Administration and Safety	30,724	38,099	6.1%	47,663	53,800	6.3%
Real Estate Services	2,399	4,755	1.9%	7,087	8,967	1.7%
Rental and Hiring Services	1,517	627	-0.7%	497	514	0.0%
Education and Training	16,778	24,699	6.5%	40,878	51,396	10.7%
Health Care and Social Assistance	28,515	38,796	8.5%	54,916	69,740	12.4%
Retail Trade	17,026	19,833	2.3%	25,668	32,878	5.2%
Food and Beverage Services	17,701	33,466	13.0%	40,741	49,815	6.6%
Arts and Recreation Services	19,312	23,362	3.3%	25,454	28,056	1.9%
Accommodation	7,311	10,019	2.2%	13,104	15,243	2.1%
Agriculture and Mining	4,476	3,896	-0.5%	4,183	4,303	0.2%
Manufacturing	14,541	15,103	0.5%	14,622	14,944	-0.1%
Electricity, Gas, Water and Waste Services	2,895	9,805	5.7%	10,192	10,361	0.2%
Construction	2,465	5,826	2.8%	6,928	8,879	1.2%
Wholesale Trade	7,452	10,787	2.7%	12,817	17,933	2.9%
Transport, Postal and Storage	12,393	14,308	1.6%	17,003	19,926	2.3%
Total	326,064	447,551	100.0%	566,233	696,126	100.0%

Source: 2003-2015 CLUE – City of Melbourne; 2026 onwards SGS Economics and Planning, 2016

It should be noted that caution should be exercised when interpreting the individual industry employment forecasts. The greatest confidence should be placed in the total employment figures, as firms and workers could easily switch between industries while still undertaking the same work. An example of this can be found within the Parkville area. In the ABS Census – Place of Work dataset a large portion of these workers are classified as being employed in the professional, scientific and technical services (equivalent to the business services under the CLUE classification) sector, while under the CLUE they are classified under the category of health care and social assistance.

Small area level trends

Table 4 and Table 5 show past and forecast employment and floorspace by small area.

At a smaller area level the Melbourne CBD is expected to not only continue to accommodate the largest number of jobs, but also see the largest increase in employment with over 130,000 additional jobs over the period 2015-2036.

Docklands and Southbank are also projected to remain key employment areas in 2036. While Docklands will continue to provide floorspace to accommodate commercial use (see Table 5), the completion of the Metro Tunnel will open up greater opportunities to locate employment in North Melbourne (particularly within the Arden Macaulay Urban Renewal Area). Employment to floorspace ratios in the Docklands are expected to align with those of the CBD over time.

The Metro Tunnel is also expected to improve accessibility to South Yarra and Melbourne (Remainder), leading to intensified use of floorspace in the area.

While employment growth in West Melbourne (Industrial) and Port Melbourne is forecast to be relatively modest in comparison to the major employment hubs across the municipality, the relocation of some industrial activities out of these areas will open up land for redevelopment. Therefore it is expected that employment in these areas will continue to grow. While businesses that were once situated in these areas required large floorplates for a relatively small number of employees, smaller businesses are expected to continue consolidating in these areas, providing more jobs per square metre than in previous decades.

TABLE 4. EMPLOYMENT BY CITY OF MELBOURNE SMALL AREA SCENARIO 1: BASE CASE
(2003-2036, NUMBER OF JOBS)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in jobs
Carlton	17,724	16,464	18,154	20,848	24,076	27,604	11,140
Docklands	7,432	53,252	66,309	74,774	80,411	83,930	30,678
East Melbourne	19,051	23,206	25,812	27,035	28,358	29,826	6,620
Kensington	4,765	7,569	8,712	9,753	10,449	10,945	3,376
Melbourne (CBD)	175,916	216,262	248,480	275,421	308,881	348,819	132,557
Melbourne (Remainder)	16,221	25,817	30,403	32,247	33,319	34,510	8,693
North Melbourne	8,820	9,691	11,578	13,431	18,955	24,994	15,303
Parkville	18,995	24,999	29,849	33,900	37,566	41,477	16,478
Port Melbourne	11,580	13,416	13,529	13,983	14,458	15,434	2,018
South Yarra	642	896	1,037	1,162	1,304	1,470	574
Southbank	31,751	41,827	45,255	48,959	53,291	58,280	16,453
West Melbourne (Industrial)	6,055	8,634	5,517	6,850	7,810	8,871	237
West Melbourne (Residential)	7,112	5,518	6,974	7,870	8,843	9,965	4,447
Total	326,064	447,551	511,610	566,233	627,720	696,126	248,575

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

TABLE 5. FLOORSPACE BY CITY OF MELBOURNE SMALL AREA, SCENARIO 1: BASE CASE
(2003-2036, M²)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in floorspace
Carlton	1,939,000	1,943,000	2,002,000	2,065,000	2,161,000	2,249,000	305,000
Docklands	709,000	1,684,000	2,011,000	2,198,000	2,307,000	2,382,000	698,000
East Melbourne	1,392,000	1,374,000	1,417,000	1,434,000	1,450,000	1,474,000	100,000
Kensington	908,000	1,036,000	1,119,000	1,153,000	1,173,000	1,176,000	140,000
Melbourne (CBD)	5,656,000	6,269,000	6,573,000	7,108,000	7,898,000	8,883,000	2,614,000
Melbourne (Remainder)	1,684,000	1,933,000	2,050,000	2,093,000	2,117,000	2,149,000	216,000
North Melbourne	598,000	706,000	749,000	761,000	886,000	1,014,000	308,000
Parkville	2,751,000	2,997,000	3,041,000	3,110,000	3,184,000	3,244,000	247,000
Port Melbourne	1,971,000	2,023,000	2,049,000	2,057,000	2,065,000	2,056,000	32,000
South Yarra	481,000	476,000	481,000	485,000	490,000	494,000	18,000
Southbank	1,266,000	1,659,000	1,758,000	1,826,000	1,943,000	2,081,000	422,000
West Melbourne (Industrial)	3,504,000	3,247,000	2,696,000	3,055,000	3,317,000	3,665,000	417,000
West Melbourne (Residential)	430,000	295,000	346,000	357,000	377,000	400,000	105,000
Total	23,290,000	25,643,000	26,290,000	27,704,000	29,370,000	31,265,000	5,622,000

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

Figure 16 illustrates the forecast level and composition of employment growth to 2036 by small area. While the CBD, Docklands and North Melbourne are expected to see a majority of growth in commercial employment, jobs growth in the Parkville, Carlton and Melbourne (Remainder)/South Yarra areas will largely be in the institutional sector, leveraging opportunities from the existing medical and educational precincts. While growth in Port Melbourne and West Melbourne (Industrial) will largely be of a commercial nature, the number of institutional jobs in those areas is expected to grow as well.

Figure 17 illustrates the forecast level and composition of floorspace growth to 2036 by small area. The CBD, Docklands and Southbank are expected to experience the greatest floorspace growth in that period. North Melbourne, Kensington, and West Melbourne (Industrial) are expected to experience significant employment-related floorspace growth in the next two decades. However, these areas are expected to have relatively low levels of concurrent jobs growth, as businesses forecast to locate in these areas are expected to require larger floorplates.

FIGURE 16. FORECAST EMPLOYMENT GROWTH BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2015-2036, NUMBER OF JOBS)

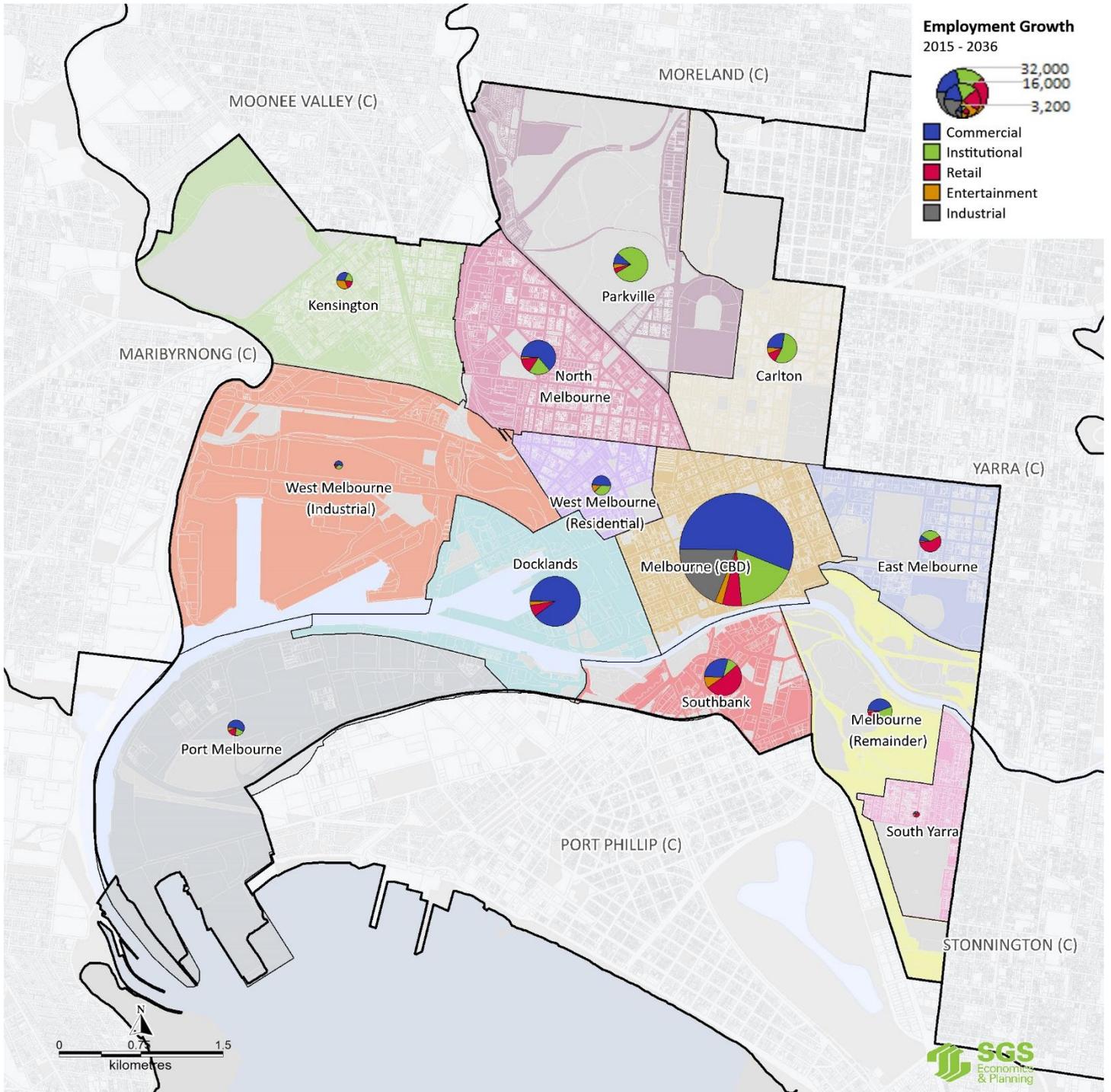
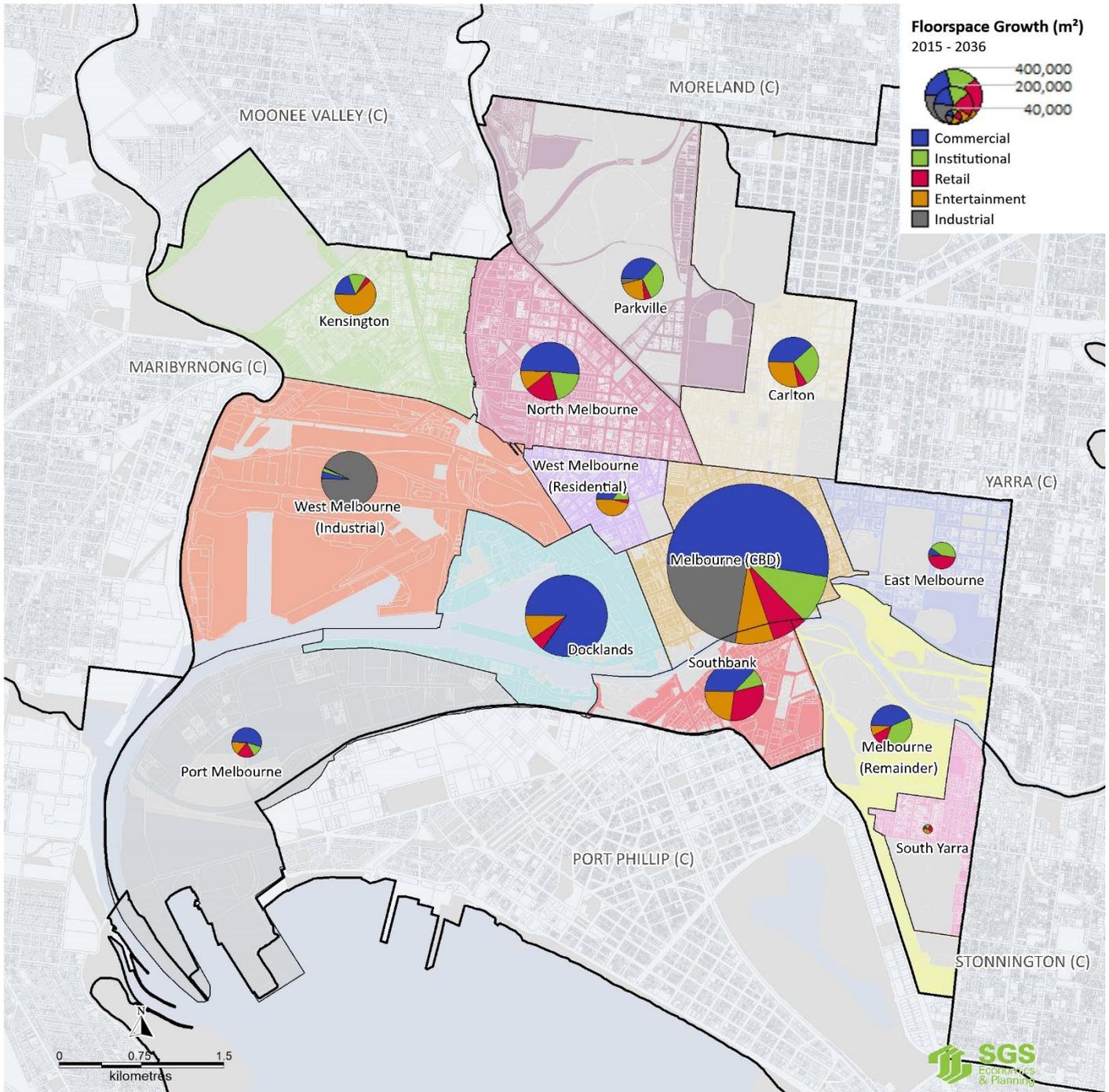


FIGURE 17. FORECAST FLOORSPACE GROWTH BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2015-2036, M²)

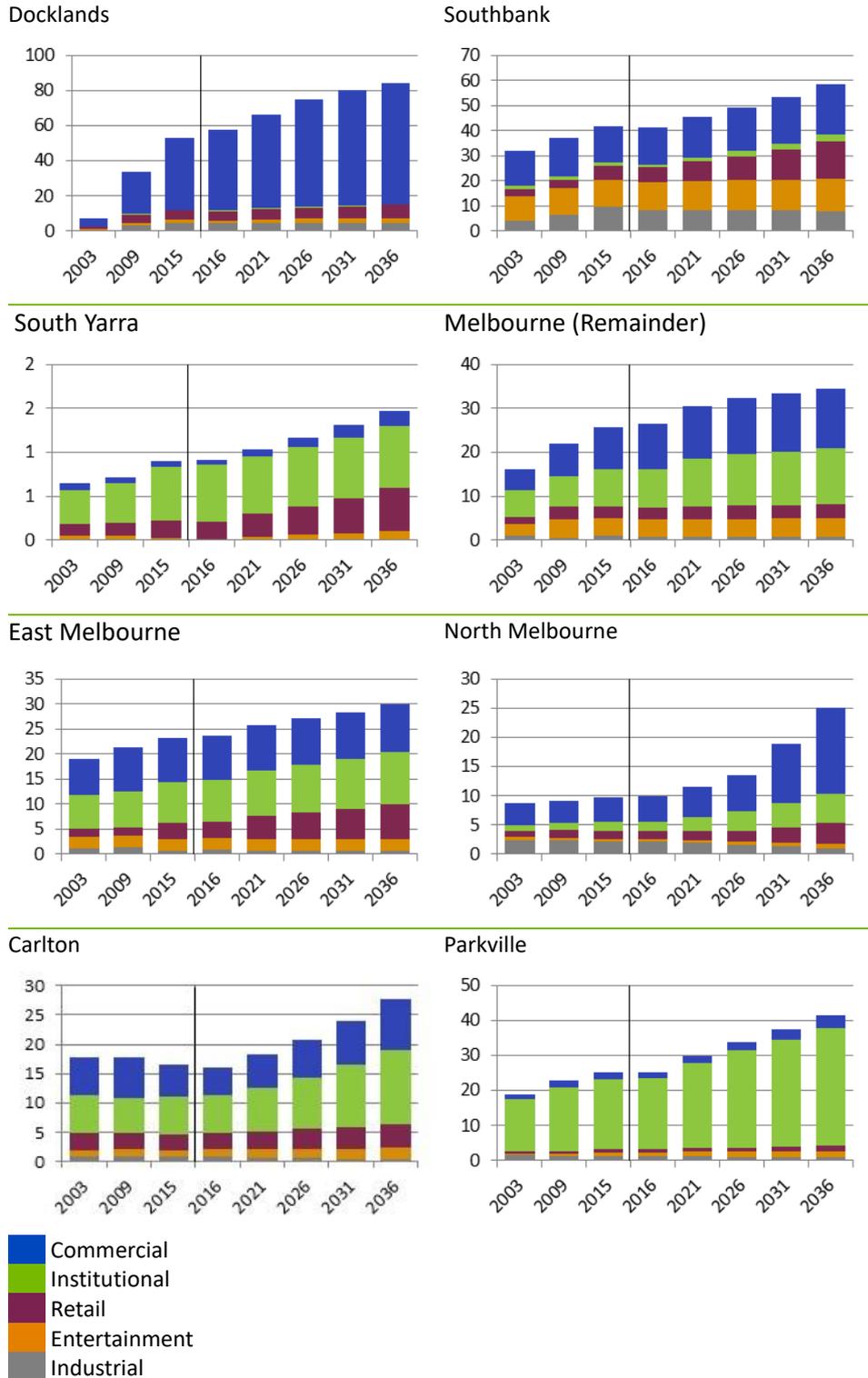


Source: SGS Economics and Planning, 2016

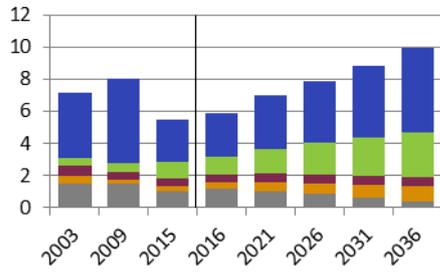
Figure 18 provides a breakdown of industry of employment in each small area over time, from historical trends to forecasted numbers, underlining the employment structure of each of the different small areas

The charts indicate that Docklands will continue to grow, however, as it approaches capacity the growth will plateau. In Parkville and Carlton, health and education institutions will continue to grow and consolidate within the precinct. North Melbourne will transition from residential to mixed use with a substantial growth in commercial jobs. Nevertheless, the CBD will continue to absorb the majority of new jobs due to its accessibility.

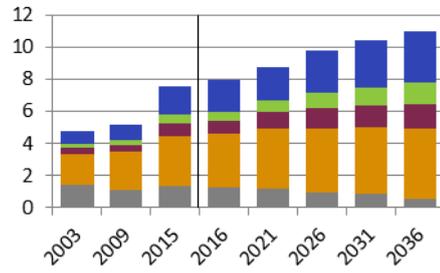
FIGURE 18. EMPLOYMENT BY BROAD INDUSTRY AND SMALL AREA, SCENARIO 1: BASE CASE (2003-2036, THOUSANDS OF JOBS)



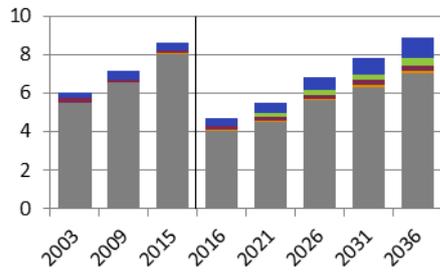
West Melbourne (Residential)



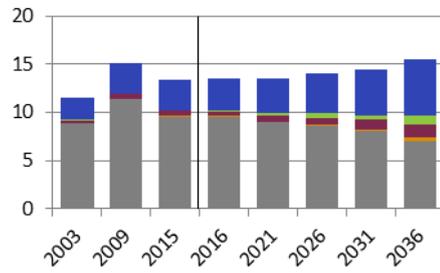
Kensington



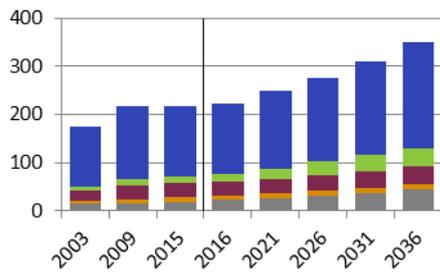
West Melbourne (Industrial)



Port Melbourne



Melbourne (CBD)



Source: 2003 - 2015 CLUE - City of Melbourne; 2016 onwards SGS Economics and Planning, 2016

Urban Renewal Area trends

Table 6 and Table 7 show past and forecast employment and floorspace for the Urban Renewal Areas.

In Scenario 1 (Base Case), City North will see the greatest change of the four areas with an additional near-18,000 new jobs forecast by 2036. The City North redevelopment, in combination with plans for Arden Macaulay, is forecast to see North Melbourne's employment more than double in the next two decades.

TABLE 6. EMPLOYMENT BY URBAN RENEWAL AREA, SCENARIO 1: BASE CASE (2003-2036, NUMBER OF JOBS)

Urban Renewal Areas	2003	2015	2021	2026	2031	2036	2015-36 change in jobs
City North*	22,307	29,019	33,493	38,255	42,519	46,904	17,885
Arden Macaulay - Stage 1	2,829	3,353	4,206	5,275	6,572	7,935	4,582
Arden Macaulay - Stage 2	1,569	1,871	2,034	2,207	5,652	9,568	7,697
Lorimer	1,403	1,799	2,236	2,418	2,570	2,717	918
Fishermans Bend Employment Precinct	9,803	11,752	11,587	11,873	12,162	12,932	1,180

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

Note: The Urban Renewal Areas include parts of multiple small areas.

*For the purpose of this project, the boundary of City North includes the Royal Women's Hospital, the Royal Melbourne Hospital and the Peter MacCallum Cancer Centre.

TABLE 7. FLOORSPACE BY URBAN RENEWAL AREA, SCENARIO 1: BASE CASE (2003-2036, M²)

Urban Renewal Areas	2003	2015	2021	2026	2031	2036	2015-36 change in floorspace
City North*	1,166,000	1,438,000	1,505,000	1,564,000	1,637,000	1,700,000	262,000
Arden Macaulay - Stage 1	131,000	280,000	302,000	320,000	344,000	354,000	74,000
Arden Macaulay - Stage 2	226,000	241,000	221,000	211,000	302,000	392,000	151,000
Lorimer	94,000	107,000	119,000	120,000	119,000	120,000	13,000
Fishermans Bend Employment Precinct	1,267,000	1,388,000	1,338,000	1,328,000	1,310,000	1,264,000	-123,000

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

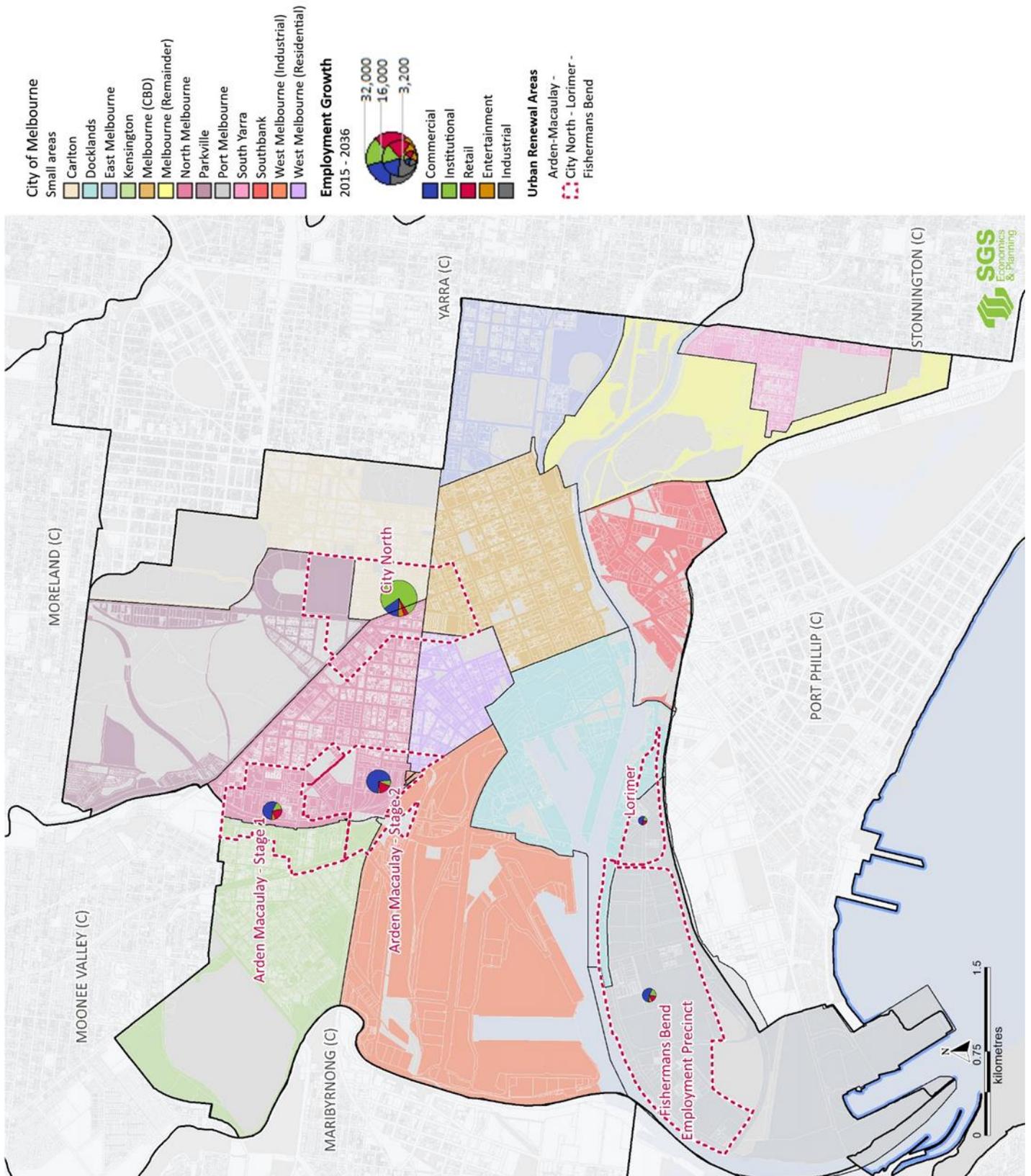
Note: The Urban Renewal Areas include parts of multiple small areas.

*For the purpose of this project, the boundary of City North includes the Royal Women's Hospital, the Royal Melbourne Hospital and the Peter MacCallum Cancer Centre.

Figure 19 illustrates the forecast level and composition of employment growth to 2036 by Urban Renewal Area. Job growth in City North will largely be in the institutional sector, leveraging opportunities surrounding the existing medical and educational precincts in these areas. Employment growth in the Fishermans Bend Urban Renewal Area will largely be of a commercial nature, with the number of industrial jobs in that area declining.

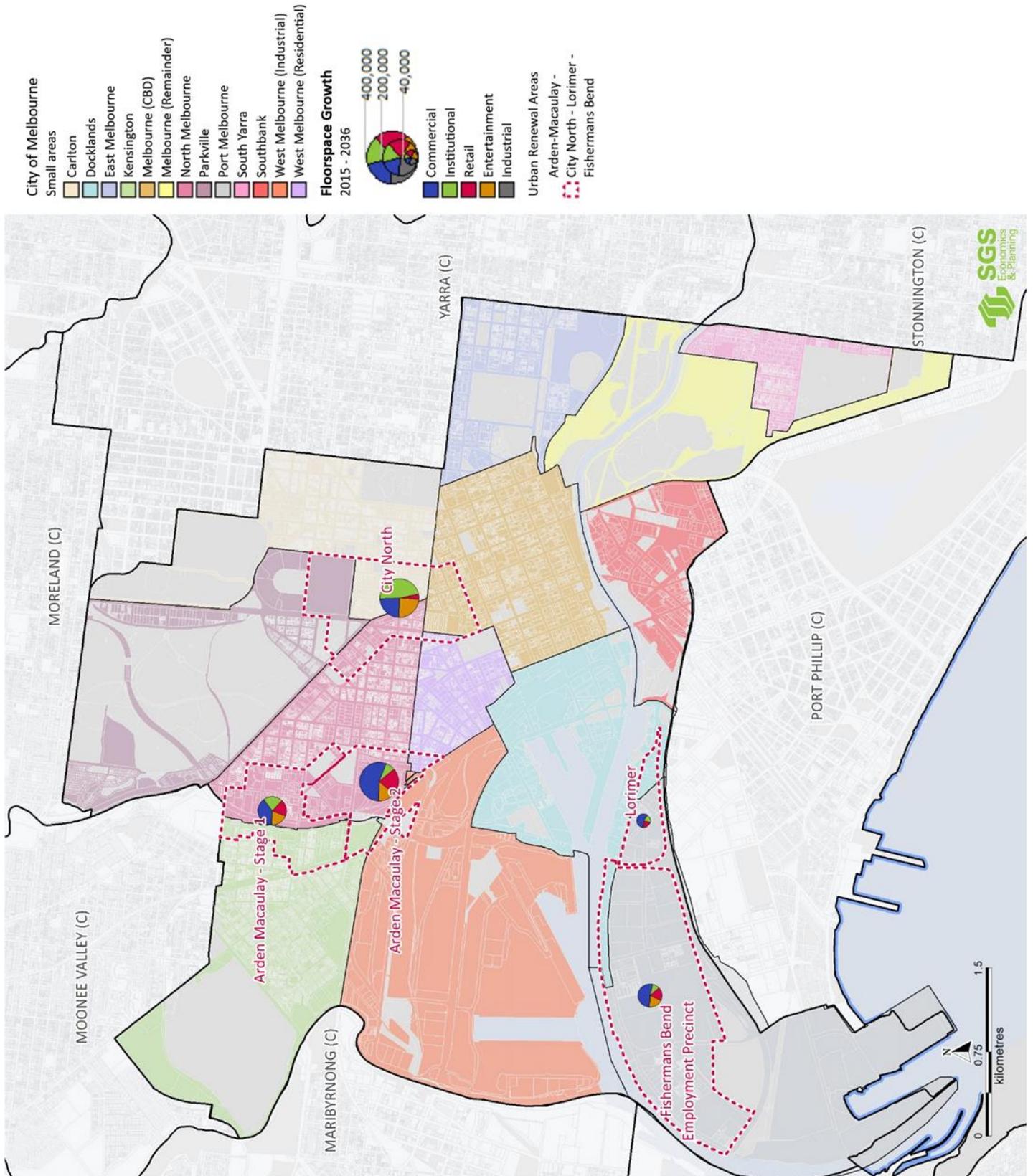
Figure 20 illustrates the forecast level and composition of floorspace growth to 2036 by Urban Renewal Area.

FIGURE 19. FORECAST EMPLOYMENT GROWTH PER URBAN RENEWAL AREA BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2015-2036, NUMBER OF JOBS)



Source: SGS Economics and Planning, 2016

FIGURE 20. FORECAST FLOORSPACE GROWTH PER URBAN RENEWAL AREA BY BROAD INDUSTRY, SCENARIO 1: BASE CASE (2015-2036, M²)

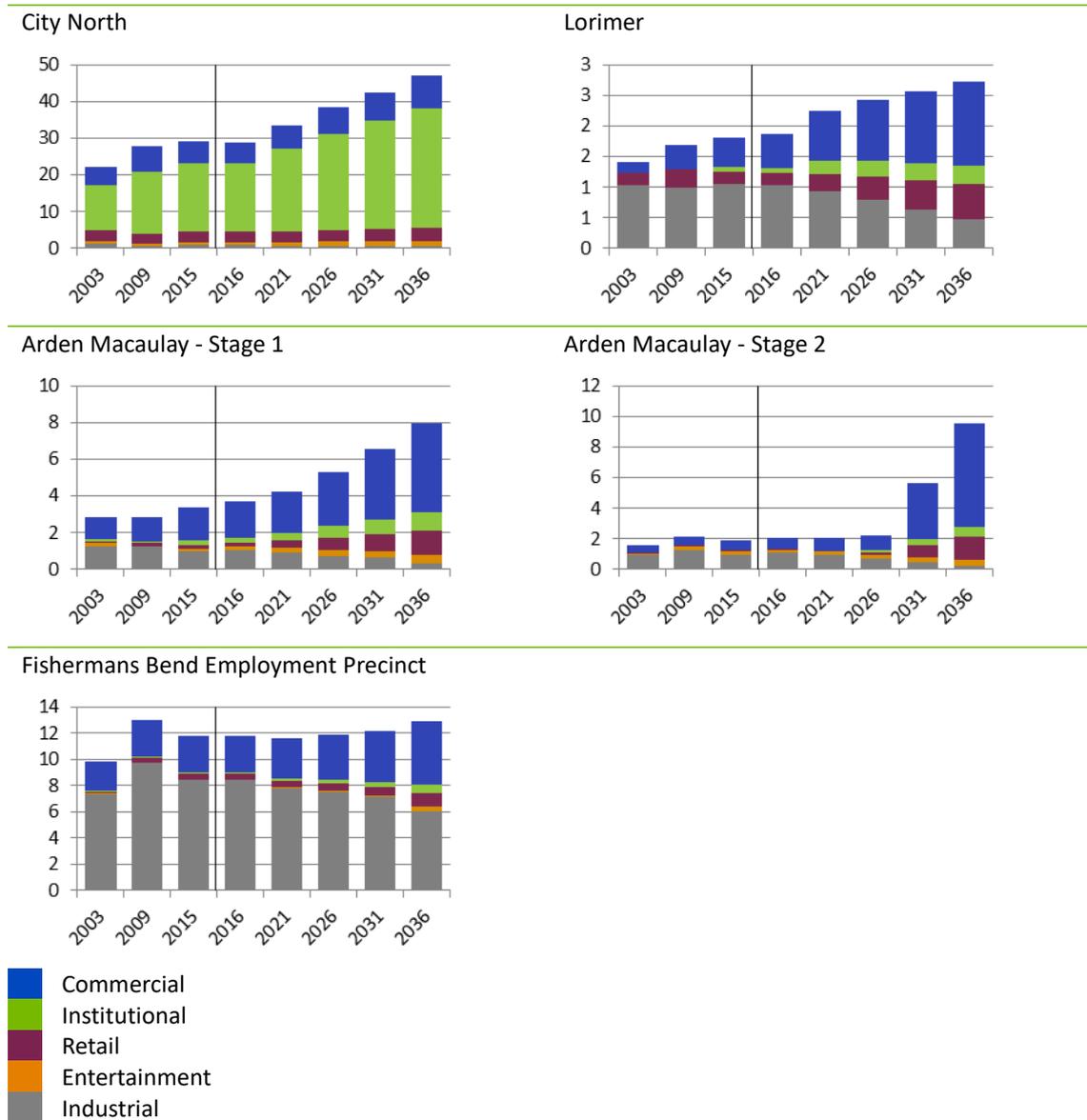


Source: SGS Economics and Planning, 2016

Figure 21 provides a breakdown of industry of employment in each small area over time, from historical trends to forecast numbers, underlining the employment structure of each of the different Urban Renewal Areas.

The charts show that City North will continue to consolidate its institutional role, providing space for health and education jobs. Lorimer, Fishermans Bend and Arden Macaulay will progressively transform from industrial to commercial precincts. The transformation of Arden Macaulay Stage 2 relies on the construction of the Melbourne Metro.

FIGURE 21. EMPLOYMENT BY BROAD INDUSTRY AND URBAN RENEWAL AREAS, SCENARIO 1: BASE CASE (2003-2036, THOUSANDS OF JOBS)



Source: 2003 - 2015 CLUE - City of Melbourne; 2016 onwards SGS Economics and Planning, 2016

4.3 Scenarios 2, 3 and 4

The forecast effects of potential development in West Melbourne (Residential) and the Fishermans Bend Employment Precinct are outlined below. While these alternative development pathways will affect employment outcomes at a local level, they are not expected to have a significant impact on forecast employment in the City of Melbourne as a whole. Therefore, the total number of jobs across the municipality does not change across the four scenarios. To simplify the analysis for Scenarios 2, 3 and 4, the additional employment growth in the strategic areas is subtracted from employment growth in the Melbourne CBD.

Scenario 2: West Melbourne Focused Residential Development

Scenario 2 analyses a situation where residential growth in West Melbourne is focused into precincts in the south and south-east of the strategic area, with strict floorspace ratio controls and mechanisms for street activation. The focused development scenario envisages a retail core in the north-west of the area, and commercial 'support' uses in the centre to support the broader central city economy. In such a scenario, the West Melbourne strategic areas would have strong links with existing health precincts in the Parkville area, which would facilitate growth in the health sector. Health facilities in West Melbourne are planned to be located in the north, with an ancillary commercial role (eg. medical specialists) rather than research.

Scenario 2 forecasts an increase of **2,415 jobs** and **90,000 m² floorspace** in the West Melbourne (Residential) area over the period 2015-2036, relative to Scenario 1 (Base Case).

Table 8 and Table 9 indicate the level of forecasted employment and floorspace growth in this scenario by 2036.

TABLE 8. EMPLOYMENT BY CITY OF MELBOURNE SMALL AREA, SCENARIO 2 (2003-2036, NUMBER OF JOBS)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in jobs	Change in jobs relative to Scenario 1 2015-2036
Carlton	17,724	16,464	18,154	20,848	24,076	27,604	11,140	0
Docklands	7,432	53,252	66,309	74,774	80,411	83,930	30,678	0
East Melbourne	19,051	23,206	25,812	27,035	28,358	29,826	6,620	0
Kensington	4,765	7,569	8,712	9,753	10,449	10,945	3,376	0
Melbourne (CBD)	175,916	216,262	248,077	274,274	307,129	346,405	130,143	-2,415
Melbourne (Remainder)	16,221	25,817	30,403	32,247	33,319	34,510	8,693	0
North Melbourne	8,820	9,691	11,578	13,431	18,955	24,994	15,303	0
Parkville	18,995	24,999	29,849	33,900	37,566	41,477	16,478	0
Port Melbourne	11,580	13,416	13,529	13,983	14,458	15,434	2,018	0
South Yarra	642	896	1,037	1,162	1,304	1,470	574	0
Southbank	31,751	41,827	45,255	48,959	53,291	58,280	16,453	0
West Melbourne (Industrial)	6,055	8,634	5,517	6,850	7,810	8,871	237	0
West Melbourne (Residential)	7,112	5,518	7,377	9,017	10,595	12,380	6,862	2,415
Total	326,064	447,551	511,610	566,233	627,720	696,126	248,575	0

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

TABLE 9. FLOORSPACE BY CITY OF MELBOURNE SMALL AREA, SCENARIO 2 (2003-2036, THOUSANDS OF M²)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in floorspace	Change in floorspace relative to Scenario 1 2015-2036
Carlton	1,939	1,943	2,002	2,065	2,161	2,249	305	0
Docklands	709	1,684	2,011	2,198	2,307	2,382	698	0
East Melbourne	1,392	1,374	1,417	1,434	1,450	1,474	100	0
Kensington	908	1,036	1,119	1,153	1,173	1,176	140	0
Melbourne (CBD)	5,656	6,269	6,563	7,081	7,857	8,826	2,557	-57
Melbourne (Remainder)	1,684	1,933	2,050	2,093	2,117	2,149	216	0
North Melbourne	598	706	749	761	886	1,014	308	0
Parkville	2,751	2,997	3,041	3,110	3,184	3,244	247	0
Port Melbourne	1,971	2,023	2,049	2,057	2,065	2,056	32	0
South Yarra	481	476	481	485	490	494	18	0
Southbank	1,266	1,659	1,758	1,826	1,943	2,081	422	0
West Melbourne (Industrial)	3,504	3,247	2,696	3,055	3,317	3,665	417	0
West Melbourne (Residential)	430	295	361	399	441	490	195	90
Total	23,290	25,643	26,296	27,719	29,393	31,298	5,655	33

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

Scenario 3: West Melbourne Arts and Culture Precinct

Scenario 3 envisages the leveraging of the redevelopment of Queen Victoria Market to transform the central precinct of West Melbourne into a cultural and creative hub, significantly altering the urban form of the area. In this scenario, the Precinct will benefit from its proximity to the CBD, drawing on the latter's tourism assets.

Scenario 3 forecasts an increase of **816 jobs** and **106,000 m² floorspace** in the West Melbourne (Residential) area over the period 2015-2036, relative to Scenario 1 (Base Case).

Table 10 and Table 11 indicate the level of forecasted employment and floorspace growth in this scenario by 2036.

TABLE 10. EMPLOYMENT BY CITY OF MELBOURNE SMALL AREA, SCENARIO 3 (2003-2036, NUMBER OF JOBS)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in jobs	Change in jobs relative to Scenario 1 2015-2036
Carlton	17,724	16,464	18,154	20,848	24,076	27,604	11,140	0
Docklands	7,432	53,252	66,309	74,774	80,411	83,930	30,678	0
East Melbourne	19,051	23,206	25,812	27,035	28,358	29,826	6,620	0
Kensington	4,765	7,569	8,712	9,753	10,449	10,945	3,376	0
Melbourne (CBD)	175,916	216,262	248,573	275,309	308,427	348,003	131,741	-816
Melbourne (Remainder)	16,221	25,817	30,403	32,247	33,319	34,510	8,693	0
North Melbourne	8,820	9,691	11,578	13,431	18,955	24,994	15,303	0
Parkville	18,995	24,999	29,849	33,900	37,566	41,477	16,478	0
Port Melbourne	11,580	13,416	13,529	13,983	14,458	15,434	2,018	0
South Yarra	642	896	1,037	1,162	1,304	1,470	574	0
Southbank	31,751	41,827	45,255	48,959	53,291	58,280	16,453	0
West Melbourne (Industrial)	6,055	8,634	5,517	6,850	7,810	8,871	237	0
West Melbourne (Residential)	7,112	5,518	6,881	7,981	9,297	10,782	5,264	816
Total	326,064	447,551	511,610	566,233	627,720	696,126	248,575	0

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

TABLE 11. FLOORSPACE BY CITY OF MELBOURNE SMALL AREA, SCENARIO 3 (2003-2036, THOUSANDS OF M²)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in floorspace	Change in floorspace relative to Scenario 1 2015-2036
Carlton	1,939	1,943	2,002	2,065	2,161	2,249	305	0
Docklands	709	1,684	2,011	2,198	2,307	2,382	698	0
East Melbourne	1,392	1,374	1,417	1,434	1,450	1,474	100	0
Kensington	908	1,036	1,119	1,153	1,173	1,176	140	0
Melbourne (CBD)	5,656	6,269	6,573	7,099	7,870	8,837	2,569	-45
Melbourne (Remainder)	1,684	1,933	2,050	2,093	2,117	2,149	216	0
North Melbourne	598	706	749	761	886	1,014	308	0
Parkville	2,751	2,997	3,041	3,110	3,184	3,244	247	0
Port Melbourne	1,971	2,023	2,049	2,057	2,065	2,056	32	0
South Yarra	481	476	481	485	490	494	18	0
Southbank	1,266	1,659	1,758	1,826	1,943	2,081	422	0
West Melbourne (Industrial)	3,504	3,247	2,696	3,055	3,317	3,665	417	0
West Melbourne (Residential)	430	295	352	385	447	506	211	106
Total	23,290	25,643	26,297	27,723	29,412	31,325	5,683	61

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

Scenario 4: Fishermans Bend Design Engineering and Advanced Manufacturing Precinct

Scenario 4 envisages the preservation of land in the Fishermans Bend Employment Precinct to ensure adequate land supply for future industries, in line with the Victorian Government's Fishermans Bend Vision. This 'Design Engineering and Advanced Manufacturing Precinct' would provide innovative and creative industries with the space needed to test prototypes in a well-located area, allowing firms to design, test and produce specialised and high-tech products.

Fishermans Bend is expected to accommodate and consolidate a significant degree of industrial activity in the municipality, with its proximity to the Port of Melbourne and the CBD acting as a catalyst to the success of innovative industries. However, it is anticipated that most of the expected renewal in this precinct would occur beyond the 2015-2036 forecast period.

Scenario 4 forecasts an increase of **5,346 jobs** in Port Melbourne and **395,000 m² floorspace** over the period 2015-2036, relative to Scenario 1 (Base Case). Table 12 and Table 13 indicate the level of forecasted employment and floorspace growth in this scenario by 2036.

TABLE 12. EMPLOYMENT BY CITY OF MELBOURNE SMALL AREA, SCENARIO 4 (2003-2036, NUMBER OF JOBS)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in jobs	Change in jobs relative to Scenario 1 2015-2036
Carlton	17,724	16,464	18,154	20,848	24,076	27,604	11,140	0
Docklands	7,432	53,252	66,309	74,774	80,411	83,930	30,678	0
East Melbourne	19,051	23,206	25,812	27,035	28,358	29,826	6,620	0
Kensington	4,765	7,569	8,712	9,753	10,449	10,945	3,376	0
Melbourne (CBD)	175,916	216,262	248,197	274,816	306,721	343,473	127,211	-5,346
Melbourne (Remainder)	16,221	25,817	30,403	32,247	33,319	34,510	8,693	0
North Melbourne	8,820	9,691	11,578	13,431	18,955	24,994	15,303	0
Parkville	18,995	24,999	29,849	33,900	37,566	41,477	16,478	0
Port Melbourne	11,580	13,416	13,812	14,588	16,618	20,780	7,364	5,346
* Fishermans Bend Employment Precinct	9,803	11,752	11,870	12,478	14,322	18,278	6,526	5,346
South Yarra	642	896	1,037	1,162	1,304	1,470	574	0
Southbank	31,751	41,827	45,255	48,959	53,291	58,280	16,453	0
West Melbourne (Industrial)	6,055	8,634	5,517	6,850	7,810	8,871	237	0
West Melbourne (Residential)	7,112	5,518	6,974	7,870	8,843	9,965	4,447	0
Total	326,064	447,551	511,610	566,233	627,720	696,126	248,575	0

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

* Fishermans Bend Employment Precinct is included in the Port Melbourne Area.

TABLE 13. FLOORSPACE BY CITY OF MELBOURNE SMALL AREA, SCENARIO 4 (2003-2036, THOUSANDS OF M²)

City of Melbourne Small Areas	2003	2015	2021	2026	2031	2036	2015-36 change in floorspace	Change in floorspace relative to Scenario 1 2015-2036
Carlton	1,939	1,943	2,002	2,065	2,161	2,249	305	0
Docklands	709	1,684	2,011	2,198	2,307	2,382	698	0
East Melbourne	1,392	1,374	1,417	1,434	1,450	1,474	100	0
Kensington	908	1,036	1,119	1,153	1,173	1,176	140	0
Melbourne (CBD)	5,656	6,269	6,566	7,095	7,846	8,745	2,477	-137
Melbourne (Remainder)	1,684	1,933	2,050	2,093	2,117	2,149	216	0
North Melbourne	598	706	749	761	886	1,014	308	0
Parkville	2,751	2,997	3,041	3,110	3,184	3,244	247	0
Port Melbourne	1,971	2,023	2,072	2,107	2,240	2,450	427	395
* Fishermans Bend Employment Precinct	1,267	1,388	1,361	1,378	1,485	1,659	271	395
South Yarra	481	476	481	485	490	494	18	0
Southbank	1,266	1,659	1,758	1,826	1,943	2,081	422	0
West Melbourne (Industrial)	3,504	3,247	2,696	3,055	3,317	3,665	417	0
West Melbourne (Residential)	430	295	346	357	377	400	105	0
Total	23,290	25,643	26,307	27,741	29,493	31,522	5,879	258

Source: 2003-2015 CLUE – City of Melbourne; 2021 onwards SGS Economics and Planning, 2016

* Fishermans Bend Employment Precinct is included in the Port Melbourne Area.

5 CONCLUDING REMARKS

Melbourne's central city is expected to continue to see significant growth over the next two decades. As a whole, the City of Melbourne is forecast to accommodate an additional quarter of a million jobs by 2036, around half of which will locate in the CBD.

Under Scenario 1 (Base Case), commercial growth is expected to concentrate in the CBD, Docklands, Southbank and Arden Macaulay, while the Parkville, Carlton, City North and Melbourne (Remainder)/South Yarra areas will see a large degree of growth in the institutional sector, leveraging opportunities surrounding the existing medical and educational precincts in these latter areas.

Of Scenarios 2 - 4, the development of a 'Design, Engineering and Advanced Manufacturing Precinct' at Fishermans Bend (Scenario 4) is expected to have the greatest impact, attracting 5,300 jobs to Port Melbourne from other parts of the municipality by 2036. Of the two scenarios relating to West Melbourne (Scenario 2 involving focused residential growth and growth in the health sector, and Scenario 3 involving the development of an Arts and Culture Precinct), Scenario 2 attracts the greatest number of jobs to the West Melbourne area (2,400).

While population and employment forecasting over the long term, particularly at a small area level, is by nature an uncertain task, SGS has incorporated a wide range of datasets, policy and other factors into this analysis. With this uncertainty in mind, the findings of this report and its accompanying Excel spreadsheet can be used to plan for employment and land use provision in the City of Melbourne in the coming years.

APPENDIX A: DATA SOURCES AND LIMITATIONS

Labour Force Survey (LFS)

The ABS Labour Force Survey (LFS) has been designed to provide an estimate of the number of people in and outside of the labour force as defined by international standards and guidelines. The concept of employment used in the LFS is slightly different to the concept used in business surveys conducted by the ABS. In those surveys the estimates are based on the number of jobs involving paid employment. The LFS takes a wider view of economic activity. Employment estimates are provided by industry once a quarter (in the month of February, May, August and November).

The LFS is based on the resident population at a fairly aggregated level (results are usually reported for a collection of Local Government Areas or more aggregated areas such as the state) and as a result cannot provide an estimate on the location of employment for small areas. The LFS provides the most reliable estimate of employment within each industry for a larger area (such as Victoria).

Small Area Land Use Projections (SALUP)

SGS has worked with the Victorian State Government (PTV, DEDJTR, DELWP) to develop Small Area Land Use Projections (SALUP) since 2008. This includes around 6,000 zones across Victoria. A key first step of creating this dataset is disaggregating the LFS to a detailed level. This is completed using ABS Census and other small area spatial datasets such as local planning and floorspace information.

The SALUP are primarily developed as an input into the Victorian Integrated Transport Model (VITM) and cover a wide range of attributes. Results are produced for a **Reference Case scenario**. A Reference Case scenario essentially represents a condition between an aspirational/policy scenario and a pure trend based scenario. The SALUP estimates are developed to **support a strategic view of Victoria** and are calibrated with that state wide view in mind. This means **all** people/workers/students across the state are allocated down to some location or 'general area' to then create traffic flows from one location to another. For some mobile sectors, such as construction, workers are assigned to where that activity is most significant.

Census of Land Use and Employment (CLUE)

The CLUE is continually conducted by the City of Melbourne and aggregated every year. It covers all businesses in the municipality. Due to the rigour undertaken during its collection, the CLUE provides a more reliable estimate of employment in the City of Melbourne than the ABS Census Place of Work data. The CLUE database is continually updated to account for changes in land use and churn (new business starting and old business ceasing operations) within the municipality. However, this ongoing incorporation of new data makes it difficult to assign the CLUE estimates to a particular time point.

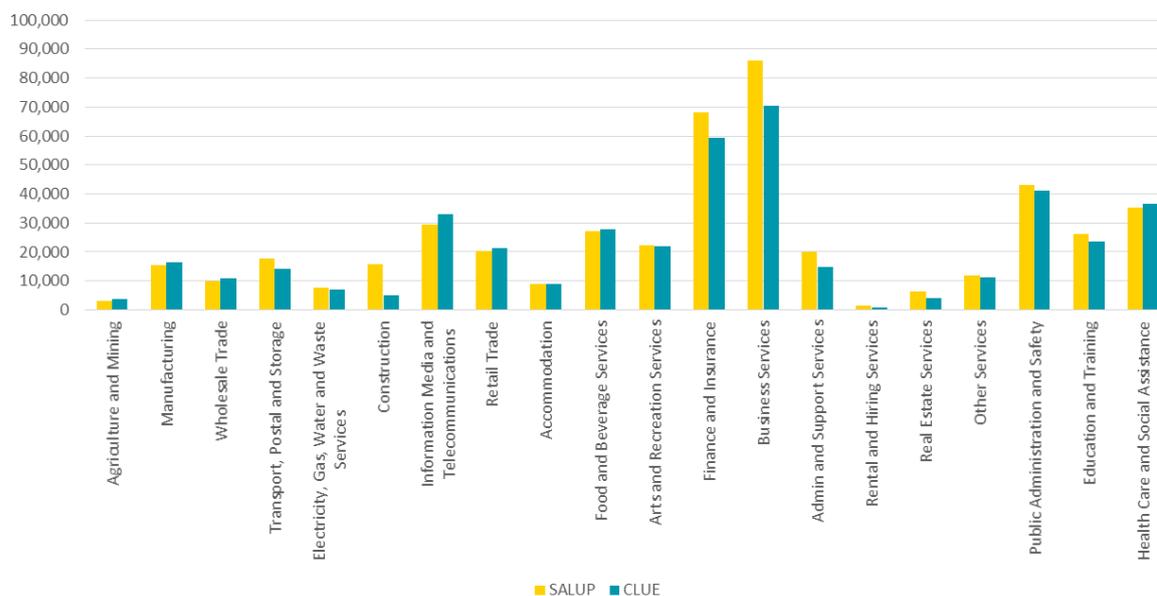
Additional information on the CLUE is available on the City of Melbourne website.

Data and definitional differences between CLUE-based forecasts and SALUP

This section details differences between the CLUE-based employment forecasts and the SGS SALUP.

The comparison below of SALUP and CLUE forecast (Figure 22) illustrates the difference in total estimated jobs at 2016 by industry. The SALUP has a far higher count of jobs in the finance and insurance, business services sectors, and moderately higher counts in the transport, postal and storage and construction sectors. On the other hand, CLUE-based projections record higher forecasts for information, media and telecommunications, retail trade, food and beverage services and health care and social assistance services.

FIGURE 22. COMPARISON OF SALUP AND CLUE EMPLOYMENT PROJECTIONS (2016, NUMBER OF JOBS)



Source: SGS Economics and Planning, 2016

When comparing different population and/or employment projections, it can be commonly found that they do not align, often to a significant degree. While questions of accuracy in a calculation are sometimes raised, it is often the case that difference is not the result of computational discrepancies but is instead caused by a difference in the way that base data is collected, interpreted and measured.

Given the wide range of variables relating to the nature of employment, achieving consistency in the interpretation of different factors can be difficult. For instance, while in most instances 'Place of Work' is an unambiguous characteristic of employment, this can be difficult to define for people in industries such as construction or transport and logistics. While CLUE data is collected from all business locations, workers with no fixed address of employment (e.g. blue collar construction workers) present a challenge to this form of data collection. In the case of the construction industry, the result is a well presented set of information on white collar office workers in the construction industry, but an undercount on blue collar workers operating at various sites. In such cases, ABS LFS and Census data can be used to refine results in order to represent the construction sector as a whole.

Job descriptions involve a wide number of variables that can be interpreted differently by the different tools, for example information like your place of work can be confusing when it comes to a mobile job such as construction or transport and logistics. Casual, seasonal jobs are another instance where different forecasting methods use a different approach to employment. A casual job might be treated differently by different data sources. While the ABS Census will account for a casual job if it occurred that an individual was working in that seasonal job at the time of the census, CLUE will account for all such jobs as they survey business separately through door-knock.

The table below provides a comparison of how three significant job types are dealt with in the two different datasets.

TABLE 14. COMPARISON OF TREATMENT OF JOBS IN CLUE AND SALUP DATASETS

	CLUE-based projections	SALUP
'Desk' jobs Jobs with a fixed location	<p>Desk jobs can be counted to a reasonably accurate degree, given the CLUE is undertaken as a physical audit of each place of employment in the city.</p> <p>On the other hand, the CLUE may undercount home-based jobs due to barriers in accessing residential properties in a physical audit. This may explain the lower employment forecasts in the finance, insurance and business services sectors in the figure above. Another explanation for the lower figures might, however, be that jobs are better classified by trained auditors undertaking the CLUE, which would imply an overcount in the ABS Census figure in certain sectors.</p>	<p>In aggregate the SALUP will capture all of these types of jobs. However, given the voluntary, self-reporting approach of the ABS Census – the primary source to disaggregate the data – there may be some inconsistencies at a local level.</p>
'Mobile' jobs Jobs with no fixed location	<p>Mobile jobs, such as blue collar jobs and support services, are not included in the CLUE as the physical collection of data by an auditor cannot take place.</p>	<p>The SALUP has a relative advantage over the CLUE in terms of mobile jobs as information provided by those without a fixed location of employment is factored in the aggregate data.</p>
Casual and seasonal jobs Jobs that are largely dependent on special events eg. the Australian Open, the AFL or the Melbourne Cup	<p>Peak casual/seasonal workers are largely not captured in the CLUE.</p> <p>While casual job numbers do tend to be higher in the CLUE than in the ABS Census, the former's targeting of businesses rather than individual employees often allows it to more efficiently capture some workers in sectors that are more likely employed in a casual capacity, such as hospitality.</p>	<p>Seasonal jobs are often unlikely to be reported in the ABS Census or properly identified in the LFS as they are likely to last only for a short period. Therefore they are largely not captured in the SALUP.</p>

For the reasons given in the table above, the SALUP tend to present higher numbers than in the CLUE-based projections. However, it can be concluded that the CLUE provides a more accurate estimate of fixed employment, as it is undertaken by trained staff at an individual business level.

APPENDIX B: CLASSIFICATIONS

The table below provides a concordance between the CLUE industry descriptions and the SGS broad industries. Non employment industry classifications were excluded from the study.

TABLE 15. CLUE INDUSTRY AND BROAD INDUSTRY CLASSIFICATIONS

CLUE Industry Classification	Broad Industry
Agriculture and Mining	Industrial
Manufacturing	Industrial
Electricity, Gas, Water and Waste Services	Industrial
Construction	Industrial
Wholesale Trade	Industrial
Retail Trade	Retail
Transport, Postal and Storage	Industrial
Information Media and Telecommunications	Commercial
Finance and Insurance	Commercial
Rental and Hiring Services	Commercial
Real Estate Services	Commercial
Business Services	Commercial
Admin and Support Services	Commercial
Public Administration and Safety	Commercial
Education and Training	Institutional
Health Care and Social Assistance	Institutional
Arts and Recreation Services	Entertainment
Other Services	Commercial
Accommodation	Entertainment
Food and Beverage Services	Retail
Residential	<i>Excluded</i>
Vacant Space	<i>Excluded</i>
Common Area	<i>Excluded</i>
Open Space	<i>Excluded</i>

Contact us

CANBERRA

Level 6, 39 London Circuit
Canberra ACT 2601

+61 2 6263 5940
sgsact@sgsep.com.au

HOBART

PO Box 123
Franklin TAS 7113

+61 421 372 940
sgstas@sgsep.com.au

MELBOURNE

Level 14, 222 Exhibition Street
Melbourne VIC 3000

+61 3 8616 0331
sgsvic@sgsep.com.au

SYDNEY

209/50 Holt Street
Surry Hills NSW 2010

+61 2 8307 0121
sgsnsw@sgsep.com.au

