Central to Eveleigh Urban Transformation and Transport Program

An Economic Analysis

Final report

UrbanGrowthNSW

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Independent insight.

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TABLE OF CONTENTS

1	**EXECUTIVE SUMMARY**	**1**
1.1	Context	1
1.2	Trends	1
1.3	Central to Eveleigh Study Area	2
1.4	Delivery horizons	3
1.5	Economic development actions	4
1.6	Potential floorspace and jobs	6
1.7	Agglomeration benefits	7
2	**INTRODUCTION**	**8**
2.1	Purpose	8
2.2	Structure of report	8
2.3	The Central to Eveleigh Study Area	9
3	**EMPLOYMENT TRENDS IN CENTRAL SYDNEY**	**10**
3.1	Introduction	10
3.2	City of Sydney employment landscape	10
3.3	Industry trends	14
3.4	Overall employment growth	19
3.5	CBD floorspace trends	19
3.6	Floorspace capacity and demand	21
3.7	Competitive centres	22
3.8	Implications for the Study Area	25
4	**CENTRAL TO EVELEIGH STUDY AREA**	**26**
4.1	Introduction	26
4.2	Drivers and influences	27
4.3	Study Area precincts	33
4.4	Economic Assets	35
4.5	Development horizons	36
4.6	Development scenarios	36
5	**ULTIMO-CENTRAL PRECINCT**	**37**
5.1	Precinct overview	37
5.2	Employment and demographic profile	37
5.3	Opportunities and challenges Opportunities	38
5.4	Future demand	39
5.5	Development vision	39
5.6	Economic development actions	40

6	**CHIPPENDALE-SURRY HILLS PRECINCT**	**42**
6.1	Precinct overview	42
6.2	Employment and demographic profile	42
6.3	Opportunities and challenges	43
6.4	Future demand	44
6.5	Development vision	44
6.6	Economic development actions	44
7	**REDFERN-DARLINGTON PRECINCT**	**47**
7.1	Precinct overview	47
7.2	Employment and demographic profile	47
7.3	Opportunities and challenges	48
7.4	Future demand	49
7.5	`Development vision	49
7.6	Economic development actions	50
8	**WATERLOO PRECINCT**	**54**
8.1	Precinct overview	54
8.2	Employment and demographic profile	54
8.3	Opportunities and challenges	55
8.4	Future demand	56
8.5	Development vision	56
8.6	Economic development actions	56
9	**STUDY AREA DEVELOPMENT SCENARIOS**	**58**
9.1	Scenario development	58
9.2	Agglomeration benefits	59
9.3	Scenario One	59
9.4	Scenario Two	60
9.5	Scenario Three	61
9.6	Floorspace and job comparisons	62
9.7	Agglomeration comparisons	63
9.8	Comparison to UrbanGrowth Scenarios	64
10	**SUMMARY**	**66**
10.1	Summary of key issues	66
10.2	Summary of actions and development scenarios	67
APPENDIX 1: CREATIVE INDUSTRY DEFINITION		**68**
APPENDIX 2: PRECINCT DEVELOPMENT TABLE		**69**
APPENDIX 3: AGGLOMERATION MODELLING		**72**
APPENDIX 4: FLOORSPACE TO JOBS RATIO METHODOLOGY		**77**

1 EXECUTIVE SUMMARY

1.1 Context

The economic geography of Metropolitan Sydney is evolving. While the CBD continues to serve the professional and service sector industries such as finance, insurance and law, Sydney's poly-centric structure creates multiple opportunities for industries seeking urban settings.

SGS Economics and Planning has been engaged by UrbanGrowth NSW to prepare a report identifying economic development directions for the Central to Eveleigh Study Area. The aims and objectives of the study are:

- An understanding of key industries and demand for economic growth within the Study Area, with a focus on the Corridor;
- Strategies to support economic growth in the Central to Eveleigh corridor and Study Area for the next 50 years, to support the growth of the City of Sydney.

In response to these aims and objectives, the report assesses the key industries operating in the City of Sydney LGA and what role they may play in the development of the Study Area. It outlines three possible development scenarios for the Study Area based on analysis of broad trends, industry growth and existing capacity, as well as a series of strategies and actions that can help to shape the development of the Study Area over the next fifty years.

The CBD is still the primary employment centre in Sydney, however many organisations are exploring alternative locations for all or part of their business. Increasing rents, proximity to workforce and changing work patterns has altered the employment landscape. One of these changes is the reduction floorspace per person as a means of increasing efficiency. Coupled with the rise of Parramatta as Sydney's second CBD and the continued development of the North Shore's commercial cores the growth of industries seeking premium office floorspace in Sydney is being accommodated throughout the city.

The Central to Eveleigh Study Area extends from the southern tip of Sydney's CBD through to the terraced inner-west suburb of Erskineville. The Study Area has been identified as a centre for future commercial development. This report considers what development opportunities exist within the Study Area that arise due to its location, urban structure and surrounding characteristics. It then presents potential development scenarios that accommodate these opportunities.

1.2 Trends

Several major industry trends have been observed within the Study Area, the City of Sydney and more broadly. These include:

- Continued growth in demand for office-locating professional services sector organisations (24% growth in the Study Area between 2006 and 2012)
- Significant increase for creative industry floorspace (59% growth in the Study Area between 2006 and 2012)
- A commensurate decline in manufacturing throughout the LGA (-9% between 2006 and 2012).

- Expansion of the University of Sydney and UTS in both campus size and student numbers
- Broad trend towards greater partnering between hospitals, univeristies and the private sector in establishment of research facilities
- All identified industries except manufacturing are forecast continued growth in number of jobs.

Due to the poly-centric nature of Greater Sydney, there is competition for floorspace, particularly towards the office market, from other centres throughout the city. These include Parramatta, North Sydney, Chatswood, Macquarie Park, Sydney Olympic Park, St Leonards and Norwest. The Central to Eveleigh Study Area must position itself to build on emerging trends and current assets to distinguish itself from these other centres and the future compeition form Green Square.

1.3 Central to Eveleigh Study Area

The Study Area is a broad cluster of inner-city suburbs surrounding the Central to Eveleigh railway corridor. It has good transport accessibility to its centre and north, decreasing towards its southern and eastern boundaries. It is close to the CBD and major universities and has diverse urban form. These diverse characteristics uniquely position the Study Area in relation to Sydney's other employment centres and will attract a mix of industries seeking non-traditional office floorspace whilst remaining close to the CBD.

The "Plan For Growing Sydney" suggests that the Central to Eveleigh Corridor could accommodate a southward expansion of the CBD. However, the separation of much of the Study Area from the CBD caused by the railway corridor limits CBD-focused expansion opportunities to the northern part of the Study Area. The Study Area's growth should instead draw upon the industries that have already established around it and who are attracted to its CBD-fringe location and varied urban form.

The Study Area is well placed to service a number of industries including professional services, the creative industries and innovation sector, education and urban manufacturing. These industries each have their own land use requirements and the Study Area is well placed to accommodate a mix of these.

Due to its size, the Study Area cannot be defined as a single homogenous precinct. Rather, it is made up of four distinctive economic precincts, each with a distinct urban character, opportunities and development potential. These are identified in Figure 1.

The **Ultimo-Central Precinct** has strong links to the CBD and provides the potential to extend the CBD towards Central Station. This offers the possibility of premium office floorspace development within the station precinct as well as infill opportunities north of Central Station. The precinct would benefit from stronger integration with the CBD as it is heavily separated from precincts to the south.

The **Chippendale-Surry Hills Precinct** is defined by the similarity of its urban form and attraction to a range of creative industries. It is separated east-west by the Central railyards, main west rail line and Cleveland Street forms a boundary to the south. Some major development has taken place in the precinct (namely the Carlton-United Brewery site in Broadway) however the precinct lacks many other major development opportunities due to its fine-grained street pattern and fragmented lots. It has established itself as a major hub for Sydney's creative industries, with demand continuing to grow given the proximity to CBD and good transport accessibility.

The **Redfern-Darlington Precinct**, is growing as a location for creative industries, with organisations attracted to its proximity to the more established Chippendale-Surry Hills Precinct. It is more varied in its character, with residential development scattered throughout. It too is split by the railyards and the main west rail line, although with Redfern Station at its centre, it accommodates a significant amount of footfall due to the station's proximity to the University of Sydney. The precinct also contains the Australian Technology Park (ATP) adjacent to the railyards and a number of rail-related heritage assets.

The precinct is likely to benefit from a proposed future station on the Sydney Metro development, with a station proposed either at the University of Sydney or in Waterloo.

The **Waterloo Precinct** is predominantly residential and is dominated by a number of public housing estates. It is close to the future Green Square town centre site and forms a residential buffer between Green Square, the Alexandria employment lands and the employment areas of the northern precincts.

FIGURE 1. PRECINCT DIAGRAM

1.4 Delivery horizons

Development within the Study Area will be incremental. In order to support the growth of the creative and knowledge industries in the Chippendale-Surry Hills and Redfern-Darlington Precincts, development should be in line with the needs of these broad industries. Unlike CBD-locating professional services, the creative and knowledge sectors tend to be attracted to areas that have lower rents, varied urban character and greater commercial floorspace variety. This requires a larger degree of infill development in the initial stages.

This report considers this variety of development through three 'Horizons', which form the basis for the economic development actions identified in the report: Consolidate, Enhance and Transform. Each of these assumes different types of development being delivered over the long-term transformation process.

1.5 Economic development actions

A number of economic development actions have been identified for each of the four precincts within the Study Area. These actions are aligned to the Three Horizons framework, which identifies their likely delivery timeframe. These actions build on the major industry trends witnessed within the Study Area, City of Sydney and more broadly as well as leveraging each precinct's unique infrastructure assets and characteristics.

Ultimo-Central Precinct

First Horizon: Lock in benefits of recent renewal and investment

1. Upgrade connectivity throughout the precinct
2. Upgrade amenity throughout the precinct
3. Encourage creative uses throughout government assets at Central Station and wider precinct

Second Horizon: Facilitate new office development

4. Audit existing sites suitable for large floor plate office or re-investment.
5. ''Workshop' with key urban professionals and owners of suitable sites to identify barriers to redevelopment.
6. Address barriers to growth to facilitate commercial development opportunities on these sites.
7. Prepare incentive package that addresses barriers to development and intensification.
8. Prepare prospectus to market the precinct and the opportunities.

Third horizon: Provide a new commercial and activity hub at Central Station

9. Provide new development opportunities by providing a platform for mixed-use development over the railyards

Chippendale-Surry Hills Precinct

First Horizon: Consolidate the existing strengths of the precinct

1. Review planning and licensing regulations with a view to 'freeing-up' uses and activities within existing building footprints as appropriate.
2. Investigate ways of ensuring a commercial or business component in mixed use redevelopments and in existing residential areas.
3. Retain the character that defines the Chippendale-Surry Hills precinct.

Second horizon: Add appropriate and complementary cultural facilities

4. Seek expressions of interest for creative uses (design shops, galleries, bars) in public buildings and spaces

Third horizon: Re-connect Chippendale and Surry Hills

5. Review the Regent Street – Cleveland Street junction
6. Establish commercial floorspace on the northern edge of Cleveland Street as part of a mixed use development
7. Improve/enhance Devonshire Street tunnel or provide additional significant east-west concourse as part of the future development of Central linked to interventions of Sydney Metro
8. Redevelop social housing estate on Devonshire Street

Redfern-Darlington Precinct

First Horizon: Expand the opportunities for creative business activity

1. Consider a range of planning and economic levers to strengthen existing and growing clusters
2. Target a creative use for the NSW Railway building on Wilson Street through innovative leasing arrangements.
3. Establish a governance framework across the precinct to support business development, for example a Business Improvement District (BID) or similar mechanism.
4. Engage in discussions with possible creative industries anchor tenants.
5. Prepare prospectus to market the precinct and potential development sites.
6. Explore the provision of additional Key Worker accommodation to the west of Carriageworks as part of a mixed-tenure residential development.

Second Horizon: Develop Redfern Station as the connectivity hub for the precinct

7. Provide a southern bridge connecting the ATP with Darlington, including a new entry to Redfern Station
8. Redevelop Redfern Station with a mixed-use development above the platforms
9. Explore opportunity within the ATP or potential new floorspace around Redfern Station for research facilities in partnership with RPA

Third Horizon: Create a public transport, cycling and pedestrian connected network of activities from Sydney University to Waterloo

10. The north-south rail corridors (through Redfern and Waterloo) should be crossed by a highly defined 'liveable green network' that prioritises pedestrian and cycle connections from Waterloo, through Redfern to Darlington and beyond to the University and Victoria Park
11. Plan for the future restoration of a two way system using Botany Road and Gibbons Street with the objective of returning Botany Road to a functioning main street for the wider precinct including ATP
12. Plan for a further southern connection across the rail land

Waterloo Precinct

First Horizon: Identify opportunities for potential commercial expansion

1. Review zoning and planning controls to allow for more compatible employment uses in residential areas
2. Establish online marketplace to advertise and sub-let vacant ground floor floorspace along Botany Road
3. Identify potential development sites along Botany Road

Second Horizon: Expand opportunities for local business development

4. Focus retail and business development along Botany Road and in any new station precinct.
5. Establish a training programme to assist local employment during construction and upon completion of major development projects in the Study Area.

Third Horizon: Build on delivery of Sydney Metro station/transport improvements at Waterloo

6. Include a new station/transport improvements at Waterloo to facilitate mixed use renewal of the Waterloo housing estate.
7. Focus cluster of retail and employment opportunities around proposed Waterloo station

1.6 Potential floorspace and jobs

The horizons are used to build three scenarios, each of which present a different development story for the Study Area. Scenario One uses the precinct's Horizons One economic development actions as a basis for proposing a quantum of commercial development floorspace. Scenario Two uses Horizons One and Two and so on. Development within each horizon differs. Horizon One assumes a high degree of small scale infill development in order to lay the foundations for establishing the Study Area as a destination for creative industries. Horizons Two and Three each assume an increasing amount of strategic, long-term development taking place, with Horizon Three assuming a high degree of 'step change' development taking place over the coming decades. Figure 2 illustrates the development scenario structure and Table 1 outlines the different quantum of additional floorspace each Scenario could provide.

FIGURE 2. DEVELOPMENT SCENARIO STRUCTURE

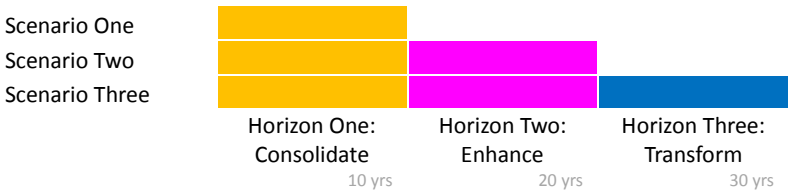

TABLE 1. POTENTIAL NET COMMERCIAL FLOORSPACE BY PRECINCT

	Net new floorspace (sqm)		
Precinct	**Scenario 1**	**Scenario 2**	**Scenario 3**
Ultimo-Central	-	78,000	228,000
Chippendale-Surry Hills	53,342	56,990	100,382
Redfern-Darlington	77,368	184,408	198,808
Waterloo	61,652	61,652	61,652
Total	**192,361**	**381,049**	**588,841**

Table 2 outlines the different amounts of additional floorspace each Scenario could provide. These job numbers are based on a more condensed floorspace to jobs ratio than is currently experienced within the Study Area and in the City of Sydney more broadly. This range is from 20 to 25sqm of floorspace per job.

TABLE 2. POTENTIAL NET NEW JOBS BY PRECINCT

	Net new floorspace (sqm)		
Precinct	**Scenario 1**	**Scenario 2**	**Scenario 3**
Ultimo-Central	5,689	9,589	17,089
Chippendale-Surry Hills	5,784	5,966	8,136
Redfern-Darlington	6,893	11,165	11,885
Waterloo	3,083	3,083	3,083
Total	**21,448**	**29,802**	**40,192**

1.7 Agglomeration benefits

Locating in an area which has a higher density of economic activity (as measured by employment) allows firms to achieve economies of scale through access to an extensive customer base. Within this large customer base, the opportunity for economies of scope is presented to firms. That is, with increased numbers of clients, firms will be able to gain efficiencies by specialising in a particular field.

This process is termed 'Agglomeration'. Agglomeration provides opportunities for firms to access a deep and diverse pool of skilled labour. With so many firms located together there will be a high level of technological / knowledge transfer between firms, which will help bolster innovation. This innovation is vital for firms to survive in a very competitive market place. Much of the knowledge transfer is provided by skilled labour moving between firms.

2 INTRODUCTION

2.1 Purpose

As Sydney continues to grow, so does demand for the CBD and its surrounds to provide additional jobs. As a consequence, areas such as the Central to Eveleigh Study Area are becoming increasingly important as future locations for economic activity. SGS Economics and Planning has been engaged by UrbanGrowthNSW to prepare a report identifying economic development directions for the Central to Eveleigh Study Area. The aims and objectives of the study are:

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2.2 Structure of report

The report is structured as follows:

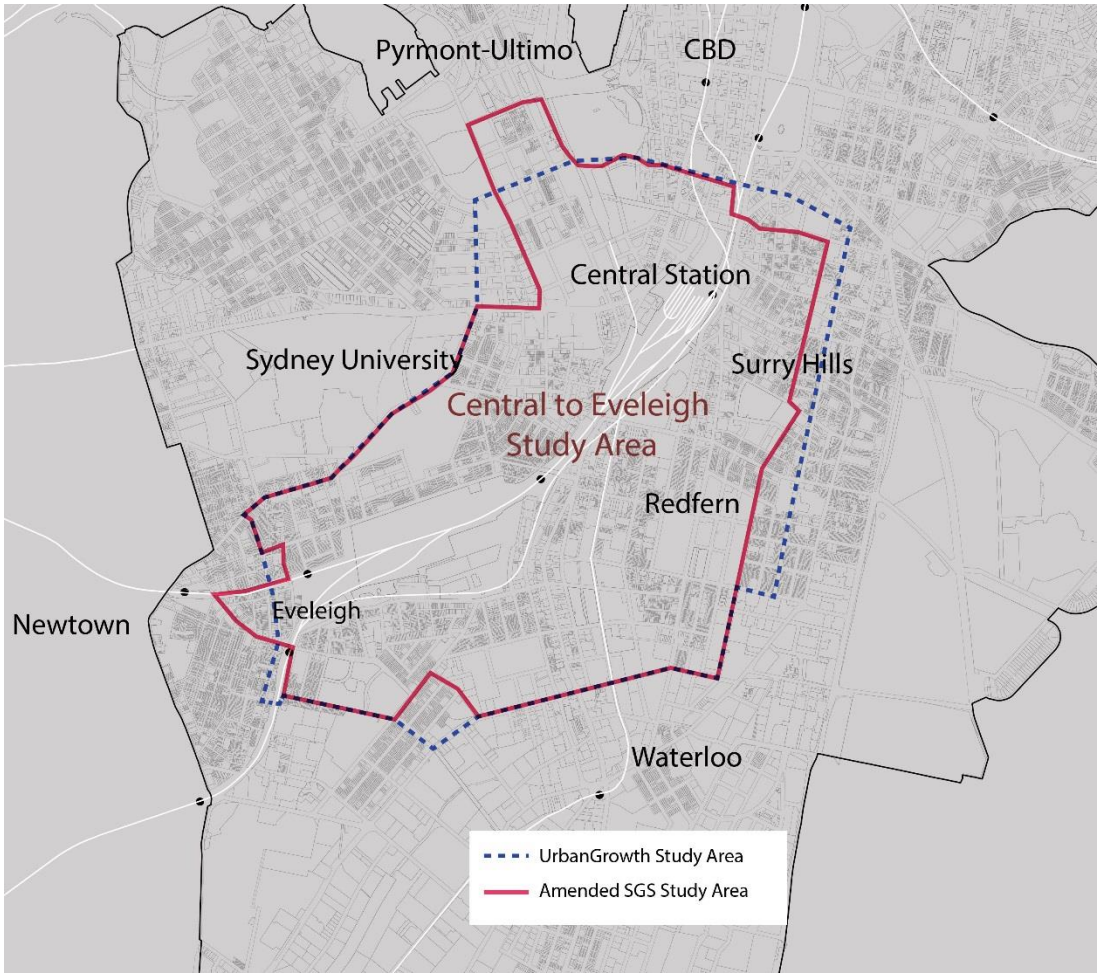
Chapter 3	Overview of the employment market in Central Sydney, capacity estimates, emerging trends in floorspace demand and an overview of comparable employment centres in Sydney.
Chapter 4	An overview of the Central to Eveleigh Study Area's characteristics and identification of four broad precincts across the Study Area.
Chapters 5-8	A study of the four precincts, including demographic and employment analysis, precinct overview, opportunities and challenges and economic development strategies for each
Chapter 9	A review of development scenarios and potential floorspace and job forecasts
Chapter 10	A summary of the issues facing the Study Area and economic development actions outlined in this report.

2.3 The Central to Eveleigh Study Area

The Central to Eveleigh Study Area has been identified by UrbanGrowth NSW and occupies a large area of the City of Sydney. It extends south from the CBD and includes the areas of Ultimo, Chippendale, Surry Hills, Redfern, Darlington, Waterloo and Eveleigh. The Study Area is defined by its proximity to the rail lines and associated rail land and infrastructure and includes Central Station, Redfern Station, Carriageworks and the Australian Technology Park (ATP). It includes major residential assets such as the social housing stock in Redfern-Waterloo and Surry Hills. This land is heavily influenced by its current and former industrial nature and retains strong links to the railway industry today.

In order to align the Study Area to the Bureau of Transport Statistics' travel zone statistical boundaries, SGS has slightly altered the boundary. This better assists with the analysis of employment forecasts and employment potential undertaken in this report.

FIGURE 3. EXTENT OF SGS'S CENTRAL TO EVELEIGH STUDY AREA AGAINST URBANGROWTH'S ORIGINAL BOUNDARY



The amended Study Area identified by SGS contains a diverse range of land uses in addition to its railway and industrial spine. In 2011, it was home to an estimated 47,000 residents and close to 70,000 jobs. Bureau of Transport (BTS) forecasts expect this to increase to 52,400 residents and 72,600 jobs by 2016 (BTS, 2014). For consistency, this amended boundary is used throughout this report.

3 EMPLOYMENT TRENDS IN CENTRAL SYDNEY

3.1 Introduction

This chapter highlights key employment trends emerging in Central Sydney. It identifies where employment growth is happening, emerging industry trends and changing work practice, all of which influence future capacity and prospects in the CBD, other commercial centres and the Central to Eveleigh Study Area.

Metropolitan Sydney is a significant contributor to Australia's economy, hosting almost 2.5 million jobs and generating approximately a quarter of Australia's total GDP. Much of this economic activity is concentrated in the Central Sydney sub-region (as defined by the NSW Department of Planning and Environment), with 36 percent of the metropolitan area's jobs in 2012-13 and 54 percent of total job growth from 2007-8 to 2012-13 (Table 3).

TABLE 3. SUB-REGIONS EMPLOYMENT GROWTH, 2007-8 TO 2012-13

Region	2007-08	2012-13	Annual Growth Rate	Contribution to Growth
Central	778,990	855,872	1.9%	54%
South	152,592	150,408	-0.3%	-2%
North	438,163	468,908	1.4%	22%
West Central & North West	378,116	396,006	0.9%	13%
West	118,313	122,568	0.7%	3%
South West	280,279	290,036	0.7%	7%
Central Coast	113,683	119,105	0.9%	4%
Sydney	**2,260,136**	**2,402,904**	**1.2%**	**100%**

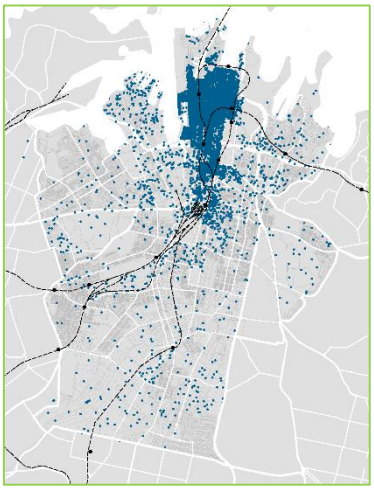
Source: SGS Economics and Planning

3.2 City of Sydney employment landscape

A diverse range of industries are located throughout the City of Sydney. The Sydney CBD is an obvious attractor for a range of knowledge sector and other office-locating jobs (such as finance and public administration). However, throughout the LGA, other industries cluster around key infrastructure such as hospitals and universities. Manufacturing, once a dominant industry in the inner city, has been pushed away from the core. Consolidated employment lands remain, and are actively protected from encroaching development, around Alexandria and along the Central to Eveleigh Corridor. Figure 4 illustrates where job numbers are clustered. Figure 5 illustrates where job densities are highest as a proportion of all jobs in the area. Areas of intense colour indicate that the industry makes up a higher proportion of jobs than other areas.

FIGURE 4. CITY OF SYDNEY LGA INDUSTRY LOCATION OF JOBS (2012)

1.



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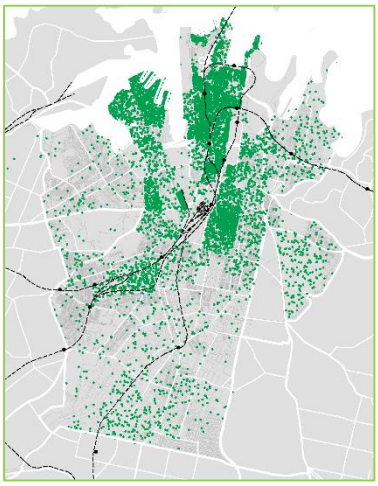

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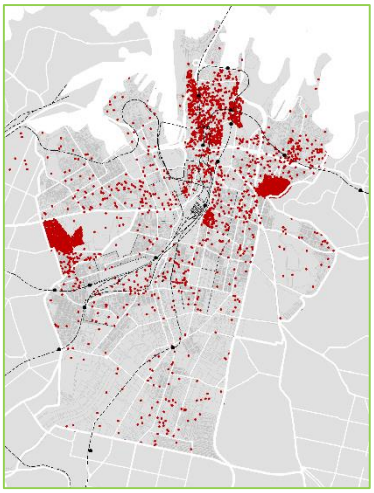

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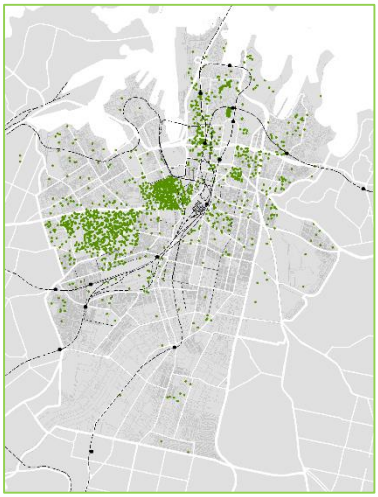

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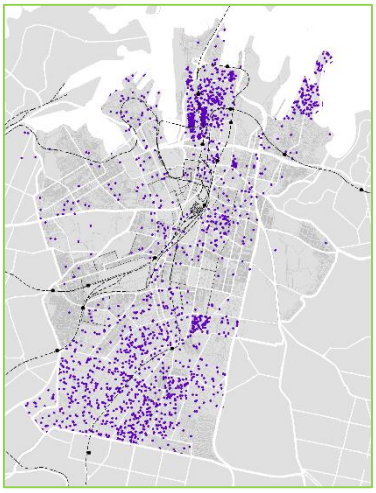
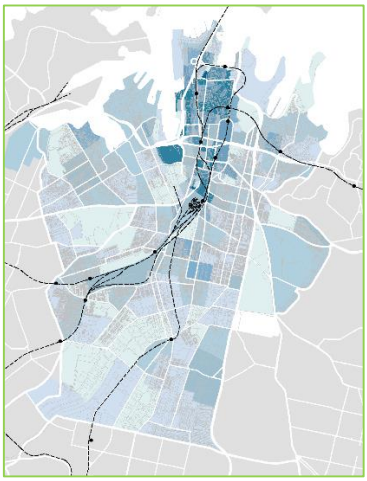


1. Professional services sector
2. Creative industries sector
3. Health sector
4. Education sector
5. Manufacturing sector

FIGURE 5. CITY OF SYDNEY LGA INDUSTRY PROPORTION OF JOBS (2012)

1.



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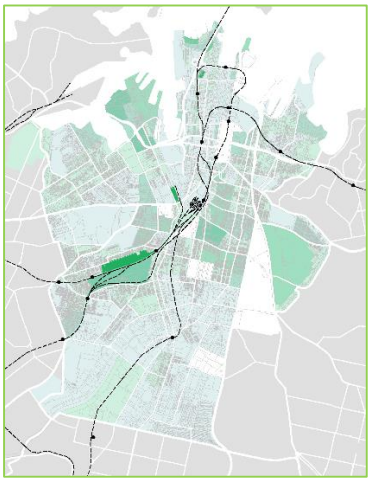

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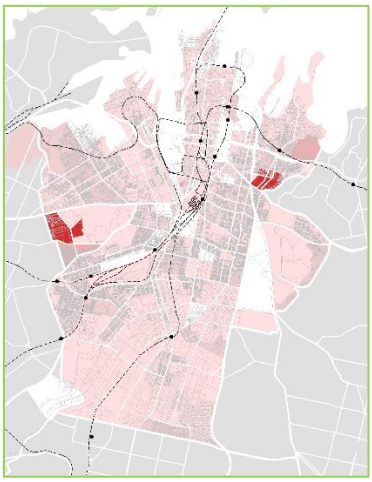

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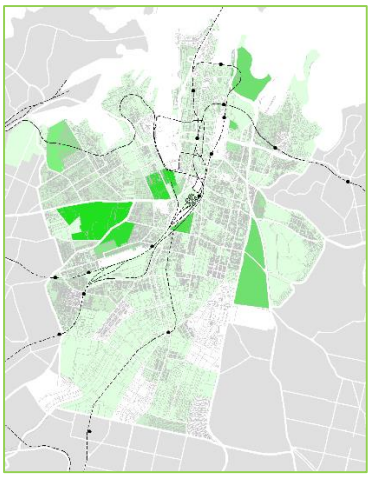

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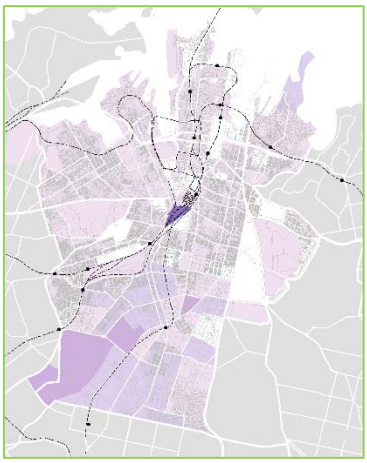


1. Professional services sector
2. Creative industries sector
3. Health sector
4. Education sector
5. Manufacturing sector

There is no surprise that there is a clear concentration of office-based jobs in the CBD. The dominance of these jobs is illustrated in both figures, with both office-based job numbers and the proportion of jobs they make up centred strongly on the CBD.

Figure 4 suggests that Creative Industries jobs have a strong presence throughout the LGA. Although as a proportion of jobs, they tend to concentrate around Surry Hills, Chippendale, Ultimo-Pyrmont, Millers Point and the Carriageworks (Figure 5).

Health Jobs are scattered throughout the LGA but strong clusters are found at RPA and St Vincent's Hospitals. There are jobs throughout the CBD, but as with most other industries, these are 'drowned out' but office-locating jobs.

Education is clustered strongly around the University of Sydney and UTS. Some of peripheral travel zones identified in Figure 5 are due to schools or other educational facilities being located there with few other jobs around. This is the case with Sydney Boys and Girls High Schools and the Royal Botanic Gardens.

Manufacturing gradually increases towards the south of the CBD and is concentrated around Alexandria and along the traditional manufacturing corridors such as the Central to Eveleigh Corridor. There is some harbourside concentration, in particular around Garden Island, however this is driven by Navy uses.

Figure 6 Consolidates these clusters to provide an illustration of industry concentrations throughout the LGA.

FIGURE 6. CONSOLIDATED CITY OF SYDNEY INDUSTRY LOCATION CLUSTERS (2012)

3.3 Industry trends

Professional services

In 2011, professional services sector jobs (consisting of industries such as professional services, insurance and financial sectors) made up 82 percent of office-locating jobs within the City of Sydney. The CBD has been the traditional location for many professional services organisations, in particular those with a national or international customer base. Proximity to clients and business customers is a key factor for these organisations. Centralised locations can also portray a corporation's status, with prime real estate locations important to many organisations. Although centres such as Parramatta and North Sydney are growing as centres for the premium office market, a central location is still in demand.

TABLE 4. OFFICE-BASED JOBS AS A PROPORTION OF TOTAL JOBS (2006 & 2012)

	2006	2012
Corridor	27%	35%
Study Area	30%	28%
City of Sydney	48%	47%

TABLE 5. OFFICE-BASED JOBS IN LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		*Forecast*		Growth rate
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	2,000	3,563	*6,261*	*11,001*	78%
Study Area	15,253	18,957	*21,582*	*24,570*	24%
City of Sydney	169,793	204,686	*240,972*	*283,692*	21%

Although concentrated in the CBD, demand for professional service industry jobs (and therefore floorspace) is distributed throughout the LGA, albeit unevenly. Across the City of Sydney, the professional services have grown by 21% between 2006 and 2012. Although the number of jobs have grown, as Table 4 illustrates, there has been a slight decline of these jobs as a proportion of all jobs in the LGA. This is due to the growth of other industries in the LGA over that time. The emergence of the ATP accounts for the sharp increase in office-locating jobs within the Corridor over the six year period.

Creative industries

'Creative industries' is a collective term used to define industries where creativity is used to create value for their consumers, or where the product or service created has a creative function or outlet. Creative industries operate in a diverse range of sectors including music and performing arts, design and visual arts, television, radio and film, marketing, finance and distribution, social media, software development and interactive content, animation and print, writing, publishing.

Creative industries locate in a range of building types, depending on their function. Some require large open formats for industries such as dance and visual arts. A high proportion, however, locate in office buildings similar to professional services. Their work structures are similar to professional services, however their output is what defines them as creative. These include industries such as software publishing, print or architectural services. Appendix 1 lists the professions this report considers as 'Creative Industries' by their four-digit ANZSIC code.

TABLE 6. CREATIVE INDUSTRIES JOBS AS A PROPORTION OF TOTAL JOBS (2006 & 2012)

	2006	2012
Corridor	4%	17%
Study Area	15%	19%
City of Sydney	9%	11%

TABLE 7. CREATIVE INDUSTRIES JOBS IN LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		*Forecast*		Growth rate
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	332	1,698	*8,559*	*43,158*	411%
Study Area	7,809	12,417	*18,085*	*26,342*	59%
City of Sydney	32,501	46,704	*65,544*	*91,982*	44%

In 2006, creative industries jobs made up 9% of total jobs in the City of Sydney, totalling 32,500 jobs. By 2012, this had grown by 44% to 46,700 and had also grown as a proportion of all jobs in the LGA to 11%. Within the Study Area and, more emphatically, within the Central to Eveleigh Corridor, these jobs have grown at a higher rate than the LGA. Across the LGA, this is likely to be due to the growth of Pyrmont-Ultimo and Surry Hills as major clusters of creative industries jobs. These growth patterns are forecast to continue out to 2021.

Education

Education is Australia's fourth largest export industry and largest non-resources export with a $15 billion revenue in 2012. Over the past decade, there has been an annual average growth of 8 percent in the number of international students coming to Australia. A relatively strong Australian dollar, plus trends in other international tertiary education market places (for example Japan) saw a 9 percent reduction between 2010 and 2011 ACPET, Australian Council for private education and training). Notwithstanding this fluctuation, the International Education Advisory Council estimates Australia will be hosting 520,000 international students by 2020, a 30 per cent increase on today's numbers. The Council estimates this will contribute $19.1 billion to the local economy, which will bring direct benefits to retailers, accommodation providers and community enterprises (International Education Advisory Council 2013).

TABLE 8. EDUCATION JOBS AS A PROPORTION OF TOTAL JOBS (2006 & 2012)

	2006	2012
Corridor	6%	3%
Study Area	10%	10%
City of Sydney	4%	4%

TABLE 9. EDUCATION JOBS IN LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		*Forecast*		Growth rate
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	445	343	*331*	*359*	-23%
Study Area	5,192	6,857	*6,617*	*7,185*	32%
City of Sydney	15,439	18,451	*17,805*	*19,334*	20%

In 2006, education sector jobs made up 4% of total jobs in the City of Sydney, totalling 15,400 jobs. The Study Area had a higher proportion than the LGA (10%) due to the location of some of Sydney University's campus within its boundary. The proportion of total jobs had not changed by 2012, although total jobs in the industry sector grew by 20%. With the continued expansion of both the University of Sydney and UTS, jobs in the education sector are forecast to continue to grow. Of interest is the decline of education jobs in the Corridor, contracting by 23% between 2006 and 2012. Given the sharp increase in Creative Industries jobs in the corridor, it is likely that these have replaced a number of the education jobs.

Health

The City of Sydney is home to three major hospital facilities, with clusters around RPA, St Vincents and the Sydney Hospital and Eye Hospital. As part of a global trend in health service provision, a number of cities have developed innovative health and/or health and education precincts. A complex range of factors influence the location and growth of health and biotechnology clusters. They operate in an environment where, to compete, they continually develop their knowledge base, interact with researchers and clinicians, make use of knowledge infrastructure and laboratories, work on interdisciplinary projects with complementary firms and organisations, meet the requirements of regulators and testing authorities, access venture capital, and draw from the knowledge based labour pool of talented scientific and medical researchers.

According to Cooke[1], "in bioscience, a university and medical school is a key factor, not only for its role in the production of talent, but the innovative research and entrepreneurial businesses it sustains. Similarly, large research hospitals, for patient trials of new treatments, add to regional constructed advantage. Notably, most of these facilities are the product of initial public provision and are sustained by public teaching and research subventions."

In 2012, the NSW Ministry for Health undertook a strategic review to assess what the NSW health system required in order to fulfil its potential. The review found that NSW needed to, among other things, build a globally relevant research capacity through enhancing interactive research hubs, strengthening the research workforce, improving research infrastructure support and building research assets such as equipment and buildings. The review also proposed that research hubs in the Greater Metropolitan Region should develop strategic plans that foster translation and innovation and build research capacity.

These observations align with the links between RPA and the University of Sydney and the possible role that the ATP could have as a location for these emerging clusters.

1 Philip Cooke (2006), "Global Bioregional Networks: A New Economic Geography of Bioscientific Knowledge", European Planning Studies, Volume 14, Issue 9, pp. 1265-1285

TABLE 10. HEALTH JOBS AS A PROPORTION OF TOTAL JOBS (2006 & 2012)

	2006	2012
Corridor	3%	2%
Study Area	3%	3%
City of Sydney	4%	4%

TABLE 11. HEALTH JOBS IN LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		*Forecast*		Growth rate
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	220	201	*216*	*237*	-9%
Study Area	1,775	2,065	*2,218*	*2,437*	16%
City of Sydney	14,985	17,925	*19,247*	*21,153*	20%

In 2006, education sector jobs made up 4% of total jobs in the City of Sydney, totalling 15,000 jobs. The proportion of total jobs had not changed by 2012, although total jobs in the industry sector grew by 20%. Health has grown at a higher rate outside the Study Area. This is due to the lack of significant health infrastructure within its boundaries, although RPA Hospital is nearby. As with Education, the decline of Health jobs in the Corridor is likely due to the growth in Creative Industries which compete for employment floorspace.

Manufacturing

Manufacturing's decline in Australian cities over the last half century has been well documented, with the process of globalisation and the decoupling of the value chain (the physical separation of processes along the value chain) and movement of production activities across national borders has had a profound impact on the structure of Australia's economy resulting in many manufacturing processes relocating overseas to lower cost countries. In more recent times, the impact of this macroeconomic restructuring has been compounded by a high Australian dollar and globally soft economic conditions that have reduced aggregate demand (Adonis, 2013). However, the experience of other manufacturing nations has been that manufacturing can still play a relevant role in the economy if, much like other sectors of the economy, production moves up the value chain.

At a Greater Sydney Metropolitan level the proportion of jobs in the industrial sector is predicted to decline although the actual number of jobs is still expected to increase through to 2036. Job growth is not expected in traditional industrial sectors but rather the highly specialised and technological manufacturing (advanced manufacturing). As a consequence an increasingly skilled workforce will be required.

Contemporary urban manufacturers can gain competitive advantage from their focus on innovation, creativity and specific location. Their location within dense urban networks allows them to capitalise on sophisticated design and local market insights, attract and retain valuable labour, and adjust quickly to shifts in local demand (Friedman and Byron, 2012). The urban manufacturing sector therefore appears to operate and prosper on many of the same attributes central to the success of advanced business services, namely the benefits gained through agglomeration.

A new employment lands strategy was adopted by the City of Sydney in June 2014. This strategy covers land currently zoned for business or industrial purposes and has informed the proposed changes to zoning and planning controls for much of the City of Sydney's employment lands. Some industrial areas

are expected to be retained for traditional uses, while other zones are to be introduced or expanded. This includes changes to the land uses within the B6 Enterprise Corridor and B7 Business Park zone.

The following key changes were proposed:

- A core industrial zone in the South West that will continue to accommodate 'traditional industrial' uses
- A flexible enterprise corridor zone through the centre part that will accommodate lower density industrial and commercial uses
- Business park zones in the North West and South East parts that are close to transport, services and amenities that will provide for denser commercial activity over time.

There is an express intent in this strategy to ensure that land value remains relatively affordable, allowing non-residential uses to locate in the area. The City of Sydney is committed to providing opportunities for innovative, creative and cultural industries to locate in the City.

TABLE 12. MANUFACTURING JOBS AS A PROPORTION OF TOTAL JOBS (2006 & 2012)

	2006	**2012**
Corridor	2%	1%
Study Area	3%	2%
City of Sydney	3%	2%

TABLE 13. MANUFACTURING JOBS IN LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		***Forecast***		**Growth rate**
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	185	94	*87*	*80*	-49%
Study Area	1,591	1,273	*1,177*	*1,080*	-20%
City of Sydney	10,774	9,806	*9,064*	*8,322*	-9%

Of all the industries assessed, manufacturing is the only one to have contracted across the LGA, both in real job numbers and as a proportion of total jobs. The decline is most significant within the Corridor and Study Area, with job numbers contracting by almost 50% over six years. This aligns with broader trends witnessed in many developed cities and, as with many of the other industries, is likely to have been replaced in part by the emergence of the Creative industries sector in the Study Area and Corridor.

Across the LGA, manufacturing declined in terms of jobs by 9% between 2006 and 2012. This is driven both by the move of industrial uses out of inner city locations as well as the increased automation of manufacturing processes. Some will remain in the area, however they may require fewer jobs to service them.

3.4 Overall employment growth

Throughout the LGA, total jobs have grown by 23% between 2006 and 2012. Growth has been higher in the Study Area and Corridor (30% and 35% respectively). As traditional manufacturing has moved away and former rail infrastructure has been repurposed for employment uses (such as the Carriageworks), jobs have grown. The gradual growth of the ATP has also seen a higher density of jobs in the Study Area than existed previously.

TABLE 14. TOTAL JOBS IN THE LGA, HISTORIC AND FORECAST (2006-2021)

	Historic		*Forecast*		Growth rate
	2006	**2012**	***2016***	***2021***	**(2006-2012)**
Corridor	7,474	10,089	*12,335*	*14,222*	35%
Study Area	51,185	66,735	*72,177*	*78,862*	30%
City of Sydney	356,289	437,724	*516,364*	*552,812*	23%

3.5 CBD floorspace trends

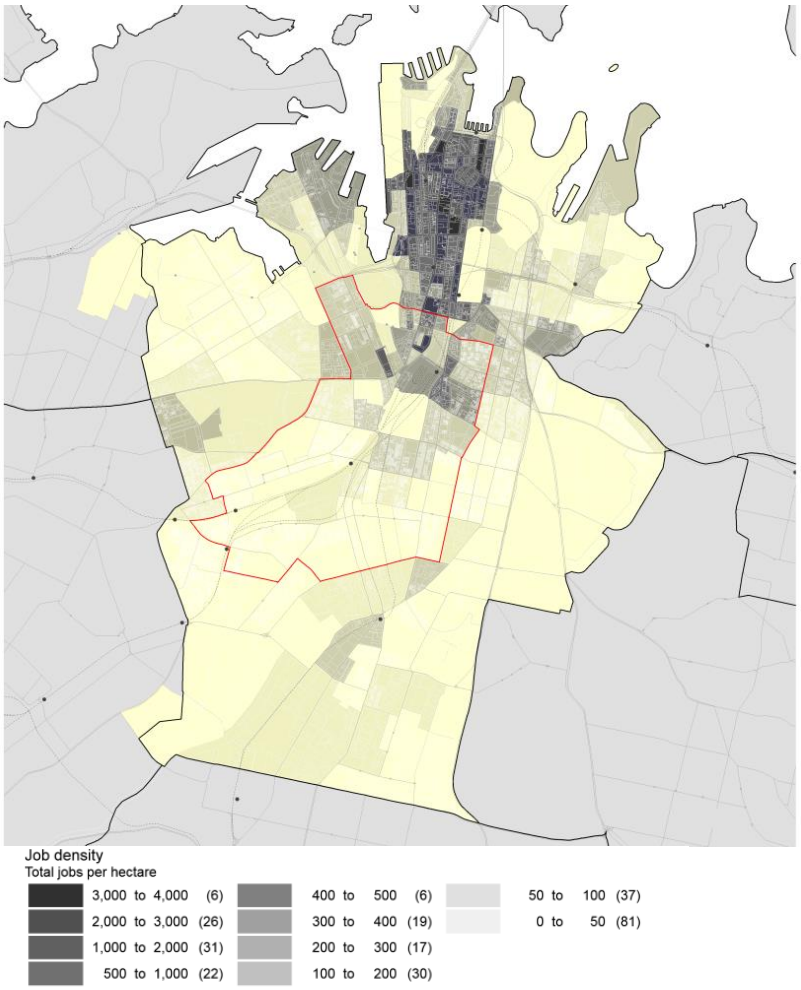
As demand for centrally-located office floorspace continues to rise, so too do commercial rents. Organisations are continually looking at ways to reduce costs and one emerging trend is the reduction of floorspace assigned to each employee. This trend is partly a response to increasing spatial efficiency and keeping costs down but is also attributed to changing work patterns. Working from home and 'hot-desking' (where employees are not assigned a personal desk, but rather share from a pool of work spaces) have both grown in popularity. As a consequence, floorspace per employee has gradually declined over the past twenty years, from an average of around 20 sqm per person[2] to as low as 14 sqm in some industries[3].

Sydney's CBD contains some of the highest job densities in Australia. The CBD is home to a significant proportion of service-related industry jobs including banking, legal, insurance and other professional services. Figure 7 identifies where the highest concentration of jobs are located in the City of Sydney. The CBD stands out and, with the exception of Surry Hills and Pyrmont, job density rapidly reduces away from the eastern and western margins as well as into the Central to Eveleigh corridor. Given the trend towards floorspace consolidation per job, the CBD's job density is likely to increase.

[2] Warren, Clive, 2003, Room for Thought: A Study of office Use in Australia'

[3] www.realcommercial.com.au/blog/tips-guides/much-office-space-business-need

FIGURE 7. TOTAL JOB DENSITY, CITY OF SYDNEY LGA



Source: SGS Economics and Planning, 2015

Another trend emerging in the professional services sectors (and in finance in particular) is the relocation of 'back office' functions (such as IT and human resources) to less central locations. An example of this is CBA's campus-style office in Sydney Olympic Park. The business functions locating in these secondary centres are less reliant upon central locations to undertake their work and so are being relocated to lower cost areas.

Businesses in some sectors are content to move their complete operations out of the CBD. Woolworths (retail), Optus (telecommunications) and Qantas (aviation) previously had a Sydney CBD or North Sydney presence (for head office, even if back office operations were suburban). Now however, head office and back office functions are in Norwest, Macquarie Park and Mascot respectively.

In Melbourne, Docklands (adjacent to the CBD) has provided a relatively cheap office location and this has allowed firms to wholly integrate their operations on a single site in a central city area.

3.6 Floorspace capacity and demand

Using the 2011 floorspace survey and ABS employment forecasts, SGS assessed the number of office-locating jobs throughout the City of Sydney in order to determine future commercial floorspace demand. Employment capacity assessments (based upon a previous study by SGS for the City of Sydney) suggest the LGA had capacity for approximately 140,000 jobs in 2012. By 2016, this is forecast to reduce to just over 87,000 jobs.

The net change in forecast job numbers for the LGA between 2016 and 2041 is 98,600, which, when compared against the estimated capacity, suggests that there is likely to be a floorspace shortage by 2041. Using the CBD average for floorspace to jobs of 24sqm per job (derived from the floorspace audit data), an estimated 2.1 million sqm of floorspace was identified as capacity across the LGA.

Two hypothetical scenarios were then tested. The first assumed that based on forecast growth, new jobs created between 2016 and 2041 would require 24sqm per job. This scenario would result in demand for an additional 2.3 million sqm and therefore a deficit of 278,600sqm by 2041.

A second scenario assumed the same job increase and the same existing capacity but used a reduced floorspace ratio of 15sqm per job for new jobs. This resulted in a surplus of over 600,000sqm across the LGA by 2041.

TABLE 15. POTENTIAL OFFICE FLOORSPACE AND JOBS BY PRECINCT

	Capacity	Demand	Gap (sqm)
	Estimated capacity (2016) (A)	Net increase (2016-2041) (B)	(A-B)
Jobs	*87,074*	*98,600*	
Potential floorspace (sqm) at 24 sqm/job	2,103,967	2,382,462	(278,598)
Potential floorspace (sqm) at 15 sqm/job	2,103,967	1,479,000	624,903

Source: SGS Economics and Planning, 2015. Figures derived from City of Sydney Floorspace Audit, 2011

It is unrealistic to assume that all new jobs will apply a single, reduced floorspace to jobs ratio as different industries and companies require different amounts of floorspace. What Table 15 does identify is that a slight intensification of floorspace use, driven either by a policy shift or guided naturally by market forces, means that additional jobs can be accommodated in other ways than simply providing more floorspace.

Continued investment in floorspace should take place in the CBD to retain its position as Australia's primary business hub, however alternative approaches to increase floorspace intensity, as outlined above, should complement future development. Coupled with major development such as Barangaroo and the Bays Precinct along with more ad hoc redevelopment of some CBD sites, the policy push in *A Plan For Growing Sydney* to extend the CBD into the Central to Eveleigh Corridor is most relevant to the northern part of the Study Area.

This process takes a long term view of floorspace supply and demand. It also assumes that current commercial floorspace continues in this capacity, rather than being lost to residential uses. It is acknowledged that in the current market, and inner city locations in particular, this loss to residential is occurring.

3.7 Competitive centres

In addition to capacity increases within the CBD, it is important to consider other commercial centres in Sydney's poly-centric structure and within its Global Economic Corridor. This section assesses the relative offerings of competing centres across Sydney to ascertain where particular industries are likely to locate if they do not seek a central Sydney location. This is helps to refine what the Study Area. The centres assessed are:

- Parramatta
- The North Shore (including North Sydney, St Leonards and Chatswood)
- Macquarie Park
- Sydney Olympic Park
- Green Square

Growth in office floorspace over the past decade across Sydney has been concentrated in the newer business park centres where there is more capacity for growth and development, as well as the former industrial precincts in Pyrmont/Ultimo and Surry Hills (CBD fringe) and Alexandria and Mascot (South Sydney) (refer to Table 16).

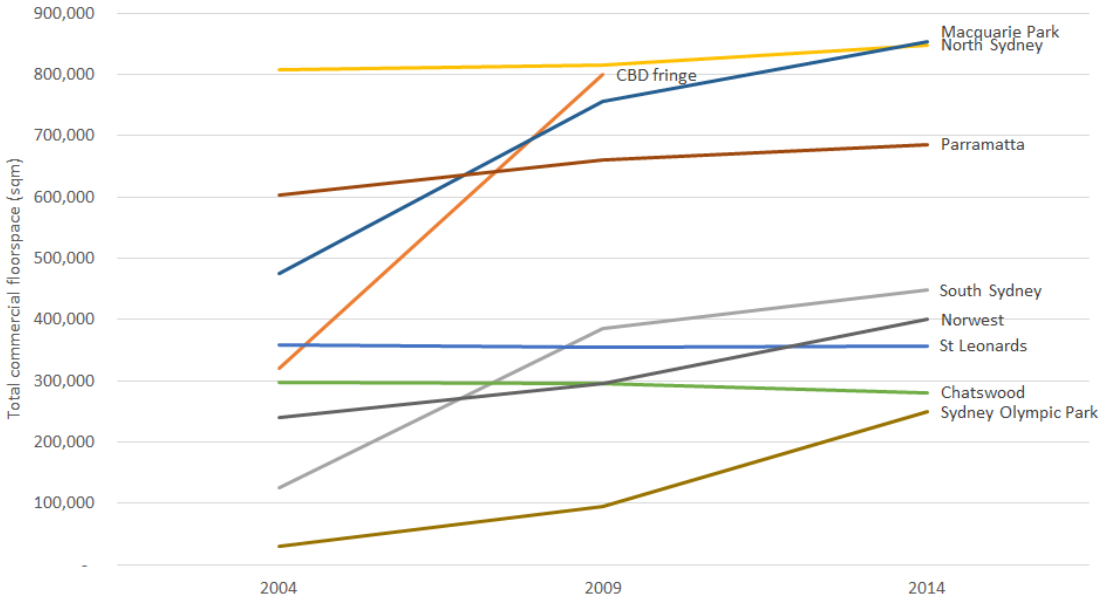
TABLE 16. SYDNEY METRO OFFICE MARKETS 2004-2014

	2004	% share	2009	% share	2014	% share	2004-2014	% change 2004-14
Sydney CBD	4,492,884	58%	4,742,798	52%	4,958,706	55%	465,822	10.4%
CBD fringe	320,000	4%	800,000	9%	(Not available)		480,000*	150.0%*
South Sydney	126,000	2%	385,717	4%	448,817	5%	**322,817**	**256.2%**
North Sydney	806,803	10%	814,893	9%	848,605	9%	41,802	5.2%
St Leonards	358,474	5%	354,084	4%	357,333	4%	-1,141	-0.3%
Chatswood	298,286	4%	295,332	3%	280,845	3%	-17,441	-5.8%
Macquarie Park	475,397	6%	755,897	8%	854,251	9%	378,854	79.7%
Parramatta	602,325	8%	660,326	7%	685,878	8%	83,553	13.9%
Norwest	240,000	3%	296,131	3%	400,000	4%	160,000	66.7%
Olympic Park	30,500	0%	95,261	1%	250,000	3%	**219,500**	**719.7%**
Total	7,750,669	100%	9,200,439	100%	9,084,435	100%	**2,133,766**	**27.5%**

Source: CBRE 2004, 2009, Colliers 2004, 2009, Savills 2014
*growth 2004 to 2009

The growth over the past two decades within these office markets (excluding the Sydney CBD) is illustrated in Figure 8, highlighting the strong growth in commercial floorspace over the past five years at Sydney Olympic Park. Macquarie Park experienced strong growth between 2004 and 2009, however this has stabilised somewhat over the past five years. A similar trend has been experienced in South Sydney.

FIGURE 8. SYDNEY METRO OFFICE MARKETS 2004-2014



Source: CBRE 2004, 2009, Colliers 2004, 2009, Savills 2014
*2005 figure

For the campus or business park office centres, growth has been driven by large floorplate formats (allowing integrated operations), lower rents (compared to the CBD), car based on accessibility and proximity to executive and office labour. For Parramatta, government policy has supported growth but it is also centrally located and accessible and is gaining new momentum as a more complex, mixed use and liveable CBD which also adds to its appeal for employment.

Net face rents within these centres are also much lower than within the more constrained and traditional CBD centres such as North Sydney (refer to Figure 9) as well as the Sydney CBD.

FIGURE 9. NON-CBD OFFICE MARKET INDICATORS (2014)

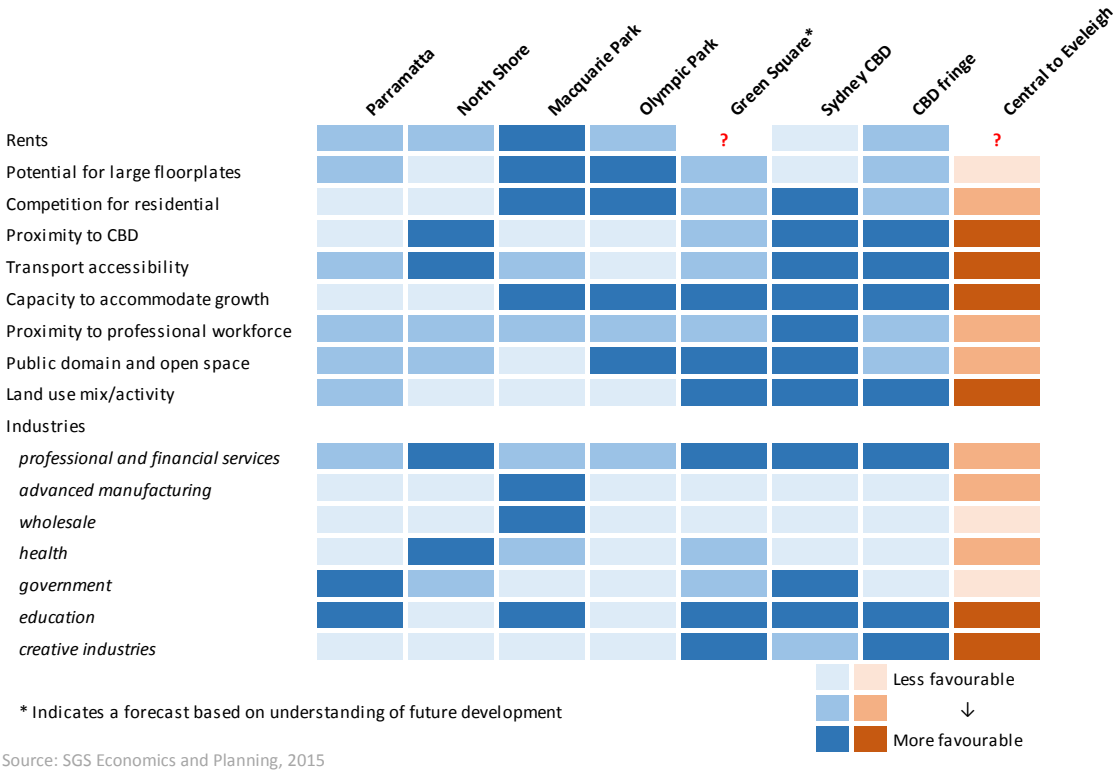
SYDNEY METROPOLITAN A GRADE OFFICE MARKET

MARKET	AVERAGE NET FACE RENTS ($/m² pa)		AVERAGE INCENTIVES		AVERAGE MARKET YIELD	
	H1 2014	H2 2014	H1 2014	H2 2014	H1 2014	H2 2014
North Sydney	$625	↔	25%	↔	7.4%	↔/↓
St Leonards	$455	↔	28%	↔	8.38%	↔
Chatswood	$455	↔/↑	26%	↔	8.5%	↔
North Ryde	$323	↔/↑	29%	↔	7.6%	↓
Parramatta	$405	↑	19%	↔/↓	7.6%	↔
SOP	$373	↔	18%	↔	8.4%	↔
Rhodes	$380	↔	28%	↔	7.75%	↔
Norwest	$330	↔	24%	↔	9.0%	↔
Sydney Fringe	$515	↔	27%	↔/↓	7.5%	↔/↓
South Sydney	$395	↔	28%	↔	8.0%	↔/↓

Source: Colliers International, 2014

These competing centres, along with the Sydney CBD, CBD fringe (Ultimo/Pyrmont and Surry Hills) and Central to Eveleigh have been compared based on various factors which are likely to affect the choice of location made by investors and tenants (Table 17). This provides a qualitative overview of competing centres against criteria that attract industry location. It also identifies industries that may be more suited to locating in the centres.

TABLE 17. COMPARISON OF CENTRES



* Indicates a forecast based on understanding of future development

Source: SGS Economics and Planning, 2015

Based on this comparison and the analysis above, the following conclusions can be drawn:

- Rents are likely to be a significant determinant for tenants. Rents are lowest in Macquarie Park and highest within the Sydney CBD. The Study Area is likely to provide an attractive, lower rent central Sydney location.
- Industries and tenants which require large floorplates are likely to be attracted to Macquarie Park and Sydney Olympic Park due to the availability of large campus-style developments with large floorplates, as well as the capacity within these centres for growth. If the Study Area can provide comparable large floor plate opportunities it will compete effectively with these locations.
- Competition for residential development is a significant issue in Parramatta and along the North Shore and these are the centres which have limited capacity to accommodate growth in commercial floorspace. Residential encroachment and price competition will impact on the Study Area.
- Professional services uses seeking A Grade office space outside of the Sydney CBD are likely to be attracted to commercial centres along the North Shore, particularly North Sydney and Chatswood, and Parramatta. The Study Area will satisfy a different market to these locations.
- 'Back office' financial services are currently attracted to Parramatta and Sydney Olympic Park and this is likely to continue, though the Study Area could attract some such uses if the right sites were available at competitive rents.
- Advanced technology and wholesale industries are likely to continue to be attracted to Macquarie Park due to the lower rents and existing concentrations of these industries.
- Green Square is a proposed commercial centre and therefore it is not known what sort of uses the centre will accommodate, however it is likely that it will be a range of information technology, financial and professional services uses. The Study Area can add to the early 'critical mass' that might make Green Square more attractive as a major office location in the medium to long term.

3.8 Implications for the Study Area

As workplace habits change, the capacity shortfall identified in some market reports can be overcome through more efficient use of space (as demonstrated in Table 15). As new capacity becomes available over time with projects such as Barangaroo, Green Square and the Bays Precinct, as well as development throughout Sydney's other office precincts, the need for the CBD to expand southward into the Study Area may ease.

Sydney's polycentric structure has helped to develop a number of centres. These centres are suited to particular industry requirements although not all centres are suitable to all industries. Each industry seeks (or desires) certain characteristics such as location, accessibility, floorspace or amenity characteristics.

This puts the Study Area in a position to attract commercial development that seeks the mix of characteristics that it offers; namely proximity to the CBD, good public transport accessibility and importantly, proximity to both the tertiary education and creative industries sectors. The Study Area may act as a catalyst for the growth of Green Square, given its proximity to the new town centre and the benefit of age that Green Square does not. The varied built form that defines the Study Area comes from over a century of development and re-appropriation of existing buildings to suit new purposes. This grain and character should not be underestimated as an attractor for industries and organisations.

Of the major industries assessed, all but manufacturing has shown growth in the Study Area and Corridor since 2006. Of these, the creative industries sector has grown most significantly, with jobs increasing in the Study Area by 59% between 2006 and 2012. This clustering of industries has begun to emerge in the Study Area and it suggests that the area is naturally attractive to this sector given its proximity to the CBD and urban form. The growth of the creative industries sector should therefore be a core focus for the development of the Study Area.

Office-locating industries have also grown with the development of the ATP, growing at 24%. Manufacturing on the other hand has declined by 20%, as its lower value struggles to compete with higher yielding competitive uses. The identified trend in health and bioscience clustering with universities aligns closely with land uses just outside of the Study Area boundary and their links can be explored within the ATP and Study Area more broadly.

The Study Area is an important future employment centre for Sydney, however it currently lacks large scale development opportunities required to develop a CBD typology and must therefore play to its strengths. Larger floorplate opportunities do exist, however they are primarily within sites at the ATP, and potential floorspace above Central and Redfern Stations. These latter developments are unlikely to be realised in the next ten to fifteen years without significant government intervention. This timing for development may be appropriate given capacity at Barangaroo, the existing CBD and Green Square and in centres such as Parramatta and North Sydney.

The availability of commercial floorspace throughout Sydney's centres, coupled with further supply in the CBD and floorspace to jobs intensification means that large format, CBD style office development is not likely to be the predominant format in the central and southern parts of the Study Area. Where it may be suitable, primarily in the north of the Study Area, it may not be required in the short to medium term given supply elsewhere. Instead, other formats more appropriate to the available site opportunities and surrounding economic assets may better support the Study Area's predominant uses and provide employment opportunities that strengthen the local and metropolitan economy overall.

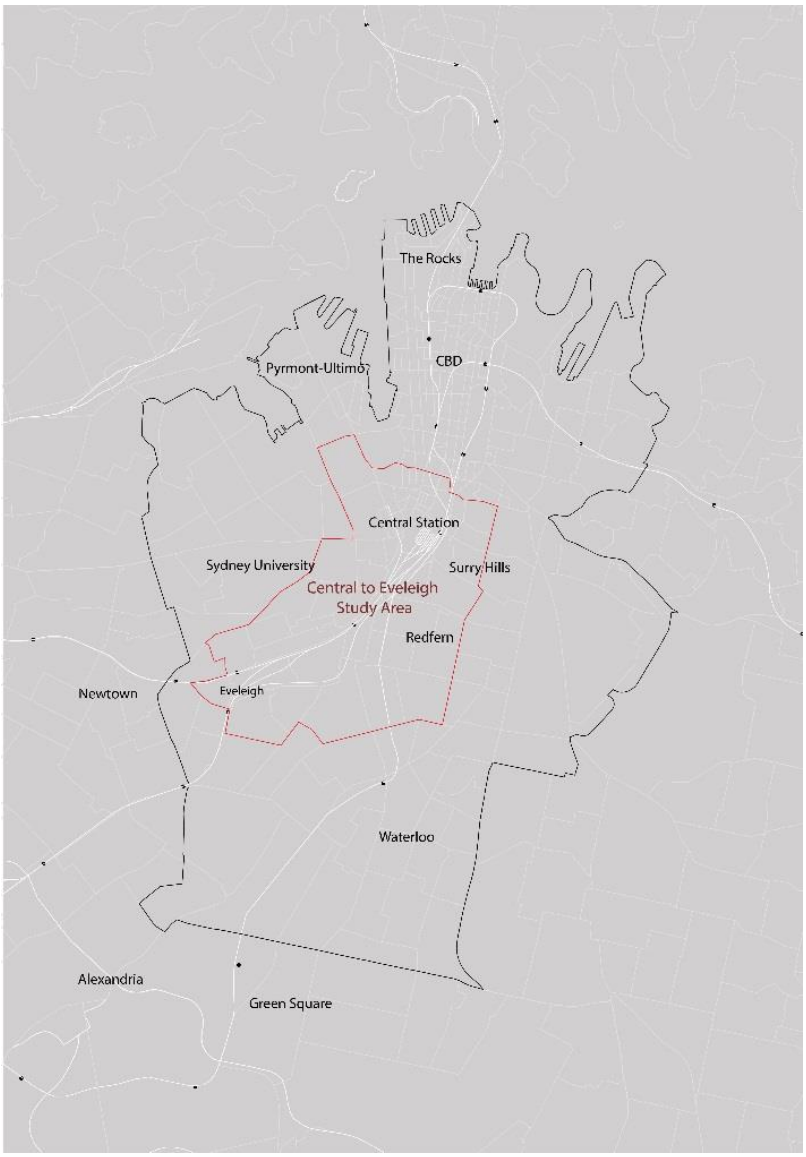
The following chapters examine the relative overall strengths of the Study Area and the opportunities it may attract based on the characteristics of its precincts and difference to competing centres.

4 CENTRAL TO EVELEIGH STUDY AREA

4.1 Introduction

The diversity of the Central to Eveleigh Study Area presents opportunities to attract a range of employment over the long term. This chapter examines the key influences on and characteristics of the Study Area, and draws on the analysis to identify different precincts within the Study Area.

FIGURE 10. CENTRAL TO EVELEIGH STUDY AREA CONTEXT MAP



4.2 Drivers and influences

Public transport accessibility

The Study Area is serviced by a number of train stations; Central, Redfern, Macdonaldtown and Erskineville. The majority of CBD-servicing trains run through these stations to the southern and western areas of Sydney. Redfern Station in particular enables the area to be accessed by a large proportion of the Sydney labour market as it is a main station and transfer for all rail lines except the East Hills Line (which goes to the airport). A journey from Redfern to Town Hall is approximately five minutes, highlighting its proximity to the CBD. In 2011, the station was identified as the eighth busiest station in Sydney during the AM peak[4] and is identified in the Long Term Transport Masterplan as requiring an upgrade. Although trains running between Macdonaldtown and Redfern stations currently operate at 93% seated capacity (2011), this is expected to rise to 147% by 2031[5].

The southern end of the Corridor has lower public transport accessibility when compared to the land immediately surrounding Redfern Station. The Australian Technology Park is accessed from Platform 10 at Redfern Station through a secondary entry point to the station via Marion Street. Although Macdonaldtown station is close by, it is not easily accessible from the Australian Technology Park and does not have regular services stopping at it. Erskineville and Newtown stations serve the southern fringe of the Corridor.

Redfern Station is located south of the intersection between Cleveland Street and Regent Street, two major CBD feeder roads. South of Cleveland Street, Regent Street splits to form Regent and Gibbons Streets. These create a one-way system that assist in the flow of traffic into and out of the CBD. This one-way system significantly reduces pedestrian accessibility to the east of Redfern Station, with the two roads separating the station from the retail and commercial strip of Redfern Street.

Redfern Station is the closest station to Sydney University and it is this proximity that accounts for the station's high patronage (beyond its major transfer role). The university is less than one kilometre from the station and the majority of students walk along Lawson and Abercrombie Streets to reach the campus. Lawson Street in particular is ill equipped to deal with the daily volume of student footfall, with its residential neighbourhood and narrow footpaths.

Bicycle accessibility is intermittent and dedicated cycle paths are predominantly north-south, running along George Street to Cleveland Street. A number of east-west streets are identified as bicycle friendly, however crossing the railway line at Lawson Street requires navigating the one-way system and a heavily congested road network.

Potential rail expansion through Sydney Metro project

Transport for NSW is progressing with a plan to develop a Sydney Metro through the CBD. Initial assessment of station locations did not include a station between Central Station and Sydenham, however this is currently being reviewed. Two options exist for a proposed station; at the University of Sydney and at Waterloo. Both options will influence the Study Area and have benefits to different parts of the Study Area. A station at the University of Sydney would likely lessen the number of journeys into Redfern Station while a station at Waterloo should increase the intensity of development between the station and Botany Road and may provide new employment opportunities as part of mixed-use renewal. This would include some commercial and retail floorspace.

[4] Compendium of Sydney Rail Travel Statistics, 8th Ed, 2012, p 51
[5] NSW Long Term Transport Master Plan, 2012 p86

This report does not undertake a study to determine whether the proposed Sydney Metro project would deliver sufficient capacity to support the intensification of commercial and residential development within the Study Area.

Proximity to CBD

The Study Area's central location attracts a variety of land uses. The CBD abuts the northern edge of the Study Area and extends towards the harbour. Approximately a quarter of a million jobs are located within the CBD, with an estimated 170,000 of these in the professional services industries (including finance, legal and insurance). The CBD's current southern boundary is created by Central Station and the scale of the associated rail infrastructure.

University links

To the west and north-west, the Corridor is bounded by the University of Sydney and University of Technology Sydney (UTS). These universities have student populations of approximately 54,000 and 37,000 respectively. The University of Sydney is expecting to increase its student population by 10,000 by 2025. Additionally, the University of Notre Dame has a small campus on Broadway.

Both Sydney University and UTS are investing in their campuses through expansion and redevelopment. Sydney University's faculty of Agriculture and Environment is already located at the Australian Technology Park, however it is isolated from the wider university campus. Given the development of the ATP around innovation and knowledge sharing, coupled with faculty buildings requiring a large floorplate, the ATP could be the focus for greater university investment, in particular around the emerging partnering with both private and public sector institutes being seen in the global tertiary education sector. By 'professionalising' the location of selective university faculties, they could align themselves more closely with the professions that they support. This is already seen in the legal profession in Sydney, with part of the University of Sydney's law school being located in a teaching space in the St James court district in the CBD.

Student accommodation

As a consequence of proximity to multiple university campuses and the prevalence of large floorplate traditional inner city warehouses, in recent years a number of self-contained student housing developments have emerged between Redfern Station through Chippendale to Broadway and the redeveloped CUB site. This accommodation is aimed at the growing international student market, which has grown by an average of 8 percent annually over the past decade across Australia and is expected to grow by a further 30 percent by 2020. Student accommodation requires close proximity to the universities, good public transport accessibility and local retail in order to provide an effective product for the students using them.

There is already a strong student housing accommodation offering in the Study Area, in particular on and north of Cleveland Street. Given the proximity to two major universities (and Notre Dame) and public transport access to others, the Study Area is well suited to providing some level of student accommodation. Student housing should complement rather than crowd out private or affordable residential development. The North and South Eveleigh precincts are well placed for this, especially if east-west pedestrian links to Macdonaldtown station and the University of Sydney are established.

Creative industries

To the north of Redfern Station, Pyrmont-Ultimo and Surry Hills are centres for a number of creative industries. This collection of industries is loosely categorised based on their use of creativity in developing their product or by the fact that the product itself is creative (such as artist studios). All three of these areas have a high proportion of their jobs identified as creative (61% and 42% respectively). The areas are constrained and are experiencing increasing demand and low vacancies. There is therefore a

gradual shift south towards Redfern & Waterloo of creative industries seeking proximity to the more established areas but either priced out or seeking 'new' areas and characteristics.

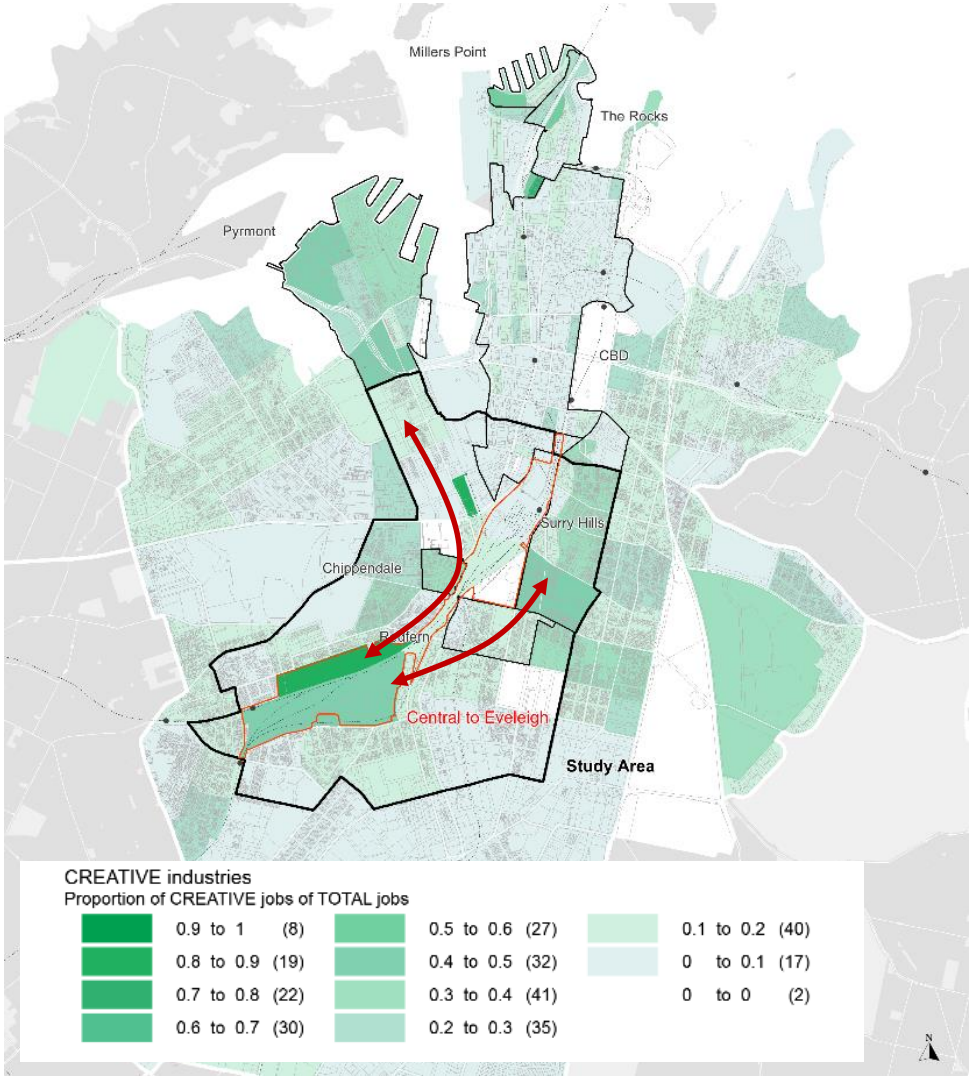
As demand continues to rise for commercial floorspace in Surry Hills and Chippendale, the Redfern Station precinct is a logical extension southward. Development of a number of shared office spaces south of Cleveland Street in Chippendale is an indicator of a new commercial floorspace typology that suits the flexibility of the creative industries. This flexibility extends beyond their working structure to their collaborative nature, where individuals or small companies scale up and down in terms of size, depending on project type.

The Corridor currently accommodates a number of creative industries in and around the Carriageworks site. A continuation of this corridor linking Chippendale to the Carriageworks would form the foundation for the commercial identity of the central section of the Corridor.

To the east of Redfern Station, the high street of Redfern Street is developing as a strong community centre in the Study Area. Already attracting retail aimed at the creative market, Redfern Street has the potential to form an east-west axis between Chippendale, the Carriageworks and across to Surry Hills. The area surrounding Redfern Street has several small to medium-sized development opportunity sites that could accommodate a number of creative industries-focused businesses and begin to reinforce the area's innovative identity. Such an identity is important in attracting larger businesses to the area who want to align with these professional communities.

These creative industry hot-spots identified in Figure 11 (where jobs within a range of creative industries make up a larger proportion of total jobs in the area) attest to this clustering either side of the corridor and their gradual move south towards Carriageworks.

FIGURE 11. CREATIVE INDUSTRY JOBS AS A PROPORTION OF TOTAL JOBS, CITY OF SYDNEY, 2012



These creative links extend towards the Ultimo-Pyrmont area where there is an emerging digital economy cluster. These currently disparate elements will form part of a broader creative arc running through the city. This is indicated by the two red arrows.

It is worth noting that many of these creative industry businesses or start-ups do not have the financial capacity to develop the sites and spaces that they are attracted to. They therefore rely on third parties to develop commercial premises that provide an attractive offering, both in terms of character and price point. Alternatively, a number of creative industry organisations start life in people's homes and often continue as home offices once established.

Australian Technology Park

The Australian Technology Park (ATP), located south of Redfern Station, is home to a number technology-focused businesses including Channel 7 and NEP. It was established in 1996 to provide large floorplate development potential for industries requiring larger, campus-style lots close to the CBD and had an emphasis on knowledge sharing. Development demand has not necessarily met expectations and ten years after the park opened, there is still capacity for approximately 100,000sqm of floorspace before the masterplan is realised. It could be said that the ATP lacks the activation that comes with job density and mixed uses, though it also provides unencumbered large floor plate development opportunities. UrbanGrowth has sought Expressions of Interest ahead of a sale at the ATP.

Lot size variety

To the east of Regent Street, adjacent to the Corridor, the suburbs of Redfern-Waterloo have undergone a gradual process of organic regeneration as people have been drawn to its terrace and warehouse building stock and proximity to transport and the city. The suburb has grown around the central east-west high street of Redfern Street which has developed as a cosmopolitan retail and commercial strip servicing the local area. It is characterised by independent cafes and stores and identifies with the creative mind-set of the industries locating in and around the area. Further south, the residential grain increases and is dominated by the Redfern-Waterloo housing public housing blocks that many people associate with the area.

The Chippendale-Redfern-Waterloo areas surrounding the Corridor present a mix of lot sizes and uses. There are a number of larger floorplate warehouses scattered throughout the Study Area, although many are located north of Lawson Street in Chippendale. Many, however, have been converted to residential or knocked down and redeveloped as residential towers and are therefore unlikely to develop for employment in the future.

Sites that are large enough to form part of a consolidated economic centre, are scattered throughout the Study Area, making a coordinated approach to a single large floorplate solution more challenging. Those that do offer larger floor area possibilities are still small relative to the floorspace levels found in the ATP or required by larger firms seeking to relocate.

The Study Area has a number of potential development sites that could attract smaller businesses looking to locate in the area. These are predominantly east of the rail line but also include potential in the Chippendale area. These sites are relatively small in area and scattered throughout the Study Area. Their size allows them to be developed by small-scale developers and investors, without the capital required for larger floorplate development. They could therefore be encouraged as a first wave of commercial infill development. These types of commercial developments can co-exist with residential uses and house creative industry offices such as architecture studios.

Development potential

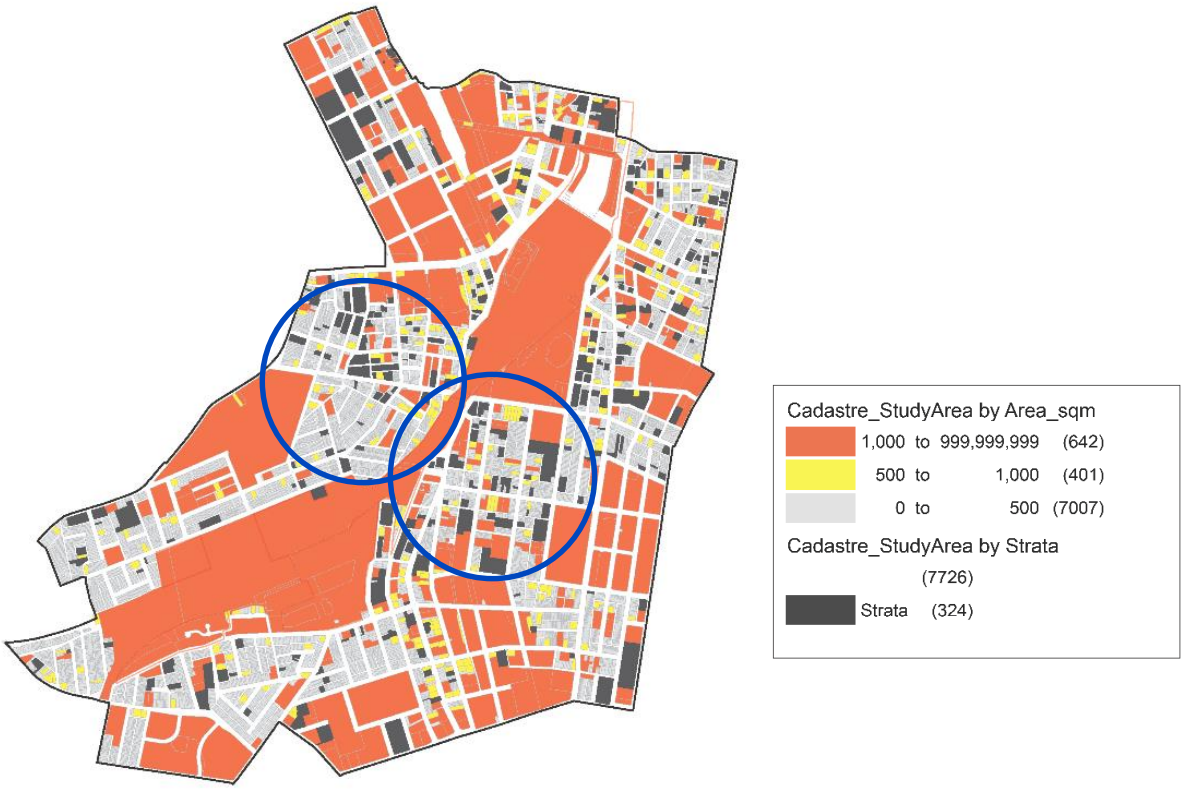
A number of potential development sites throughout the Study Area have already been converted to residential use and with strata title make it difficult to reconvert to commercial uses.

There is still significant capacity for future development at the ATP (approximately 100,000sqm). This capacity is important to the economic future of the Study Area, however it is likely that it requires better access to Redfern Station and better amenity in order to attract future tenants. A targeted, longer term strategy is required to address this.

The final type of development site involves the air rights to Redfern Station and the rail corridor towards Central Station. There is potential to locate a significant amount of floorspace above a redeveloped Redfern Station, however this relies on land values increasing in order to justify the costs. Initial concept plans for Central Station identified close to one million sqm of floorspace in a mixed use development. Both of these options are a long term propositions.

The diagram below shows the number of sites between 500-1,000sqm that are unencumbered by strata title and which have potential for future infill development. Although there are many larger lots, they are primarily rail lines, parkland or existing social housing sites. The areas circled indicate the opportunity for infill development due to the lack of development encumbrances in the identified areas, prior to any major development taking place over rail lines. Particularly in Chippendale, the smaller lot sizes and demand for current built form in these areas may mean that development potential is limited to conversion or intensification of existing buildings. Lot amalgamation and redevelopment is likely to be opportunistic and ad hoc.

FIGURE 12. LOT SIZE RANGES



Source: SGS Economics and Planning, 2015

Employment lands

South of the Corridor, between Redfern and the Airport are the primary industrial areas of the City of Sydney. These still serve a key local and sub-regional industrial function and increasingly, a mix of businesses. They, along with the industrial precincts of nearby Marrickville, are gradually beginning to accommodate urban manufacturing; a new manufacturing typology that is small-scale, specialised and focused at high-end clients, often located in or near the CBD. The proximity of these urban manufacturers to the creative industries is critical for business-to-business development.

Incumbent community

Aside from the Corridor's proximity to the CBD and its public transport accessibility, one of its keys points of difference to its competitors as discussed in Chapter 3, is its established and diverse residential community. The Study Area also includes small clusters of local retail that support a variety of residential typologies, from Victorian terraces to new residential towers and public housing developments. As a consequence, any development within the Study Area must be aware that the characteristics identified as attractive and unique are strongly influenced by this established residential layer.

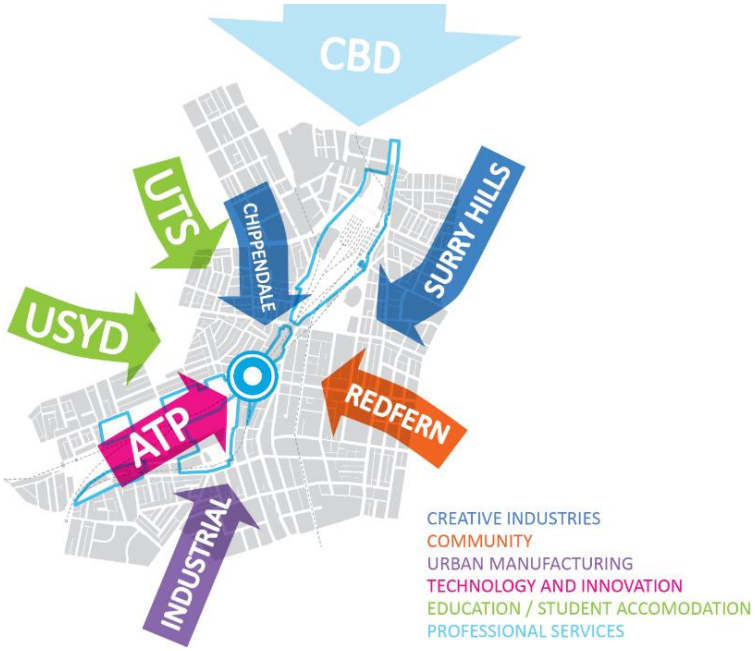
That is not to say that major development for strategic metropolitan uses should not take place. Instead, development within the Study Area should complement this existing community rather than seek to replace it. A residential component to development will help to contribute to this but must be done in a way that adds to the area's aesthetic characteristics. Any new residential development will impact on existing services, including retail offerings and therefore may require additional local shopping facilities to accommodate the growth.

Significant work has already been undertaken to explore redevelopment options for the large public housing estates around Redfern and Waterloo. The development of these have the potential to further increase the diversity of housing options and increase the population density of the Study Area.

Convergence of multiple uses

Figure 13 summarises these surrounding land uses and the direction their influence is moving within the Corridor and broader Study Area.

FIGURE 13. CURRENT PRECINCT INFLUENCES



4.3 Study Area precincts

In order to lay the foundation for targeted economic development actions and development scenarios, SGS has identified four broad precincts across the Study Area. These precincts have been identified by their dominant function, lot and site characteristics and urban form. These precincts are identified in Figure 14 and each is addressed in detail in the following chapters.

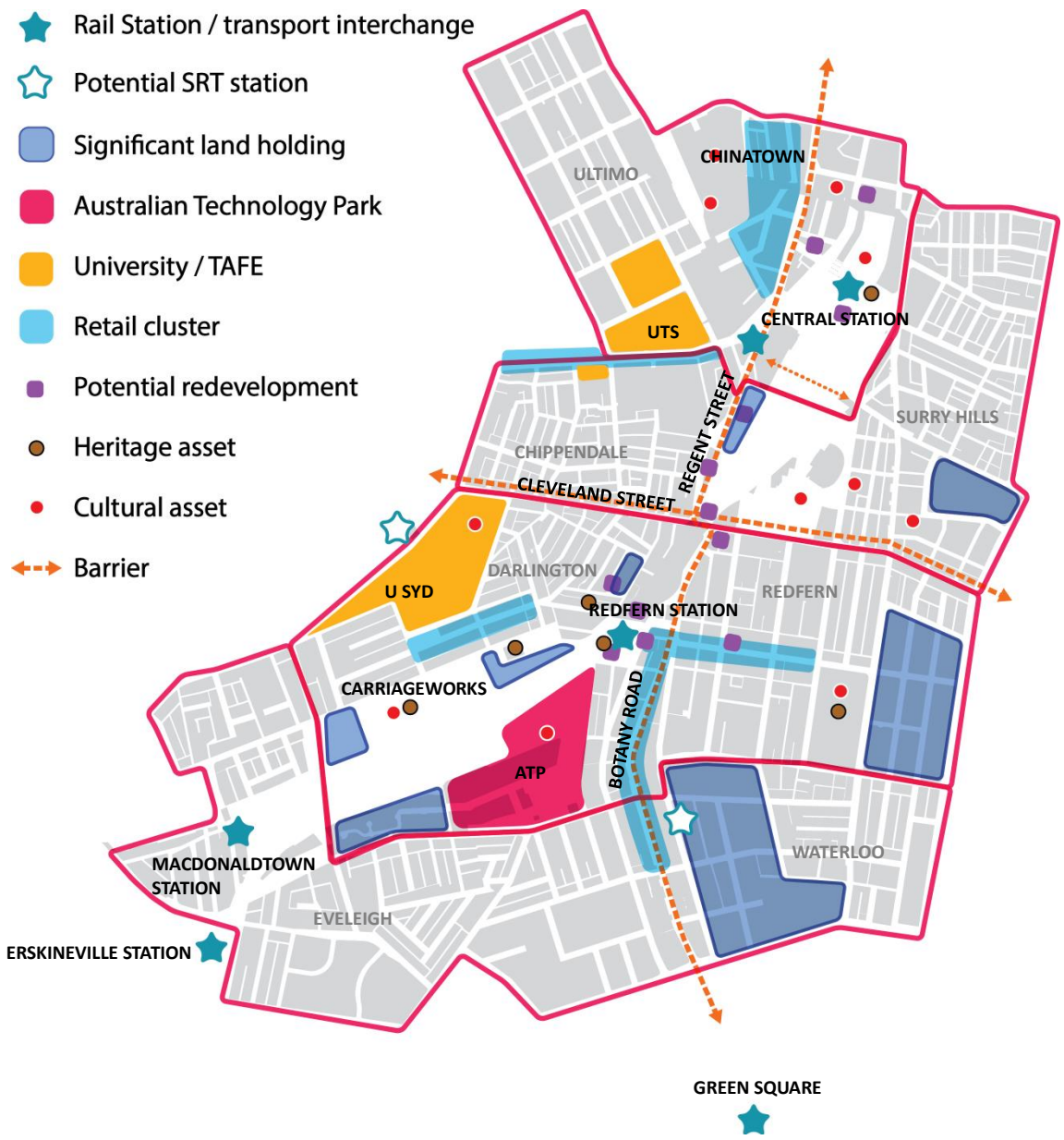
FIGURE 14. CORRIDOR PRECINCTS

Source: SGS Economics and Planning, 2015

4.4 Economic Assets

Throughout the Study Area, there a number of economic assets whose presence (or potential) can provide a foundation for economic development directions. The principles and actions outlined in the subsequent chapters expand on these, but are broadly identified in Figure 15.

FIGURE 15. ECONOMIC ASSETS OF THE STUDY AREA



4.5 Development horizons

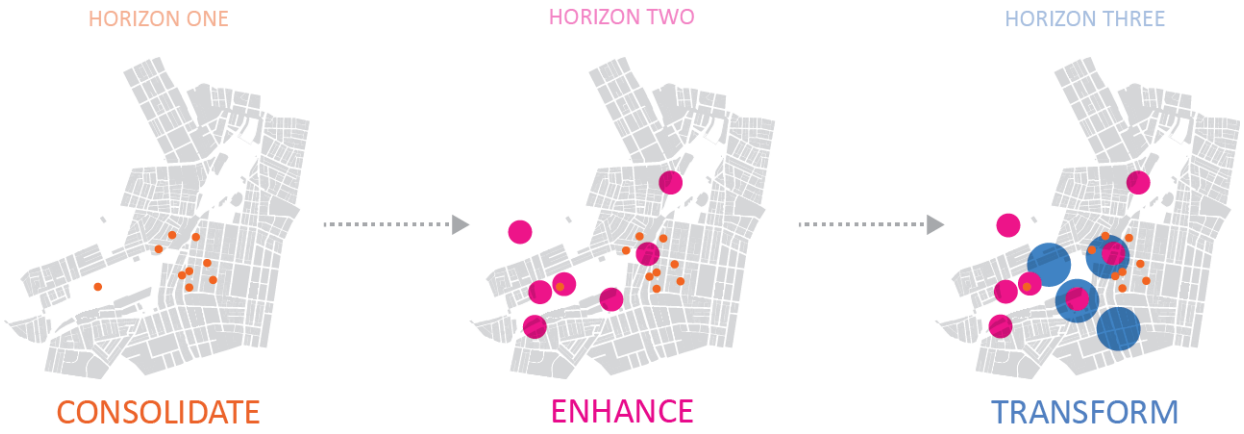
It is important to recognise the long term nature of a development such as the Central to Eveleigh Study Area. Implementation of a complex strategy will occur over various phases. Longer-term, transformative development will require smaller-scale development to build an economic platform. Due to the Study Area's scale, diversity and the complexity of delivering a coordinated strategy over a number of decades, this report suggests three 'Horizons' for each precinct within the Study Area. These three horizons are described as follows:

Consolidate Initial phase requiring identification of target market for economic growth and establishment of achievable adaptations that can be made without relying on other catalytic development. This is predominantly localised, targeted infill development that seeks to 'lock-in' obvious development prospects.

Enhance Takes the precinct to the 'next level' based on full development of competitive advantage. The stage in which significant change is undertaken to support the area's transformation.

Transform Seeks a 'step-change' in the precinct's prospects, well beyond what is currently envisaged. Likely to be achieved where larger investors are attracted to the area and can invest in major infrastructure improvements or provision.

FIGURE 16. THREE HORIZONS IMPLEMENTATION



While actions associated with any of these horizons are not necessarily time-bounded, the Three Horizons implementation strategy recognises the long-term nature of the Central to Eveleigh prospect. The need to develop relationships between public and private stakeholders over time as well as allow for initial development (in the Consolidate Horizon) to gradually increase land values. This enables Second and Third Horizon developments to become more viable and likely.

4.6 Development scenarios

The 'Three Horizon' model forms the basis for the three development scenarios outlined in this report. These build on the actions identified in the following chapters and are explained in greater detail in Chapter 9.

5 ULTIMO-CENTRAL PRECINCT

5.1 Precinct overview

The Ultimo-Central precinct is the northernmost precinct in the Study Area and the precinct most aligned to the CBD. The precinct does not have an identifiable centre. It is fragmented by intersecting transport corridors which has created separate sub-precincts such as Chinatown, Central Station (and surrounds), Ultimo and the education cluster of UTS and Sydney TAFE. The fragmentation is exacerbated by the awkward connection between the varied laneway patterns of Chinatown, the elongated grid of Ultimo and the divisive nature of George Street.

The precinct has a varied street pattern, with the grid pattern of Ultimo contrasting with the smaller informal laneways of Haymarket. These differences create a range in block and lot sizes. The expansion of the CBD southward has been constrained by this irregular form and smaller lot pattern. The precinct has a number of cultural assets such as Chinatown, theatres and restaurants and bars. The UTS and Sydney TAFE campuses dominate the Ultimo part of the precinct while the northern end contains a number of large-floorplate commercial buildings.

The southern end of George Street has a number of buildings of heritage value and these provide finer grained retail opportunities. Central Station is the precinct's anchor, accommodating Sydney's major local and intercity transport hub.

5.2 Employment and demographic profile

The precinct is currently forecast to grow to 38,301 jobs and 18,450 residents by 2031.

TABLE 18. POPULATION AND EMPLOYMENT GROWTH (2011 – 2031)

	2011	2016	2021	2026	2031
Precinct employment	31,723	32,095	34,768	36,759	38,301
Precinct population	11,006	11,524	14,149	16,016	18,450

Source: BTS Population and Employment Forecasts, 2014

The employment landscape over this time appears constant with the three largest industries by proportion of total jobs retaining their primacy. The slight decline across all three however (Table 19), coupled with the growth of competing industries (Table 20) suggests that the precinct is gradually diversifying its employment mix. Education still remains dominant due to the UTS and TAFE campuses within the precinct.

TABLE 19. TOP THREE INDUSTRIES OF EMPLOYMENT AND PERCENTAGE OF TOTAL EMPLOYMENT (2011 – 2031)

2011		2021		2031	
Industry	**%age of total jobs**	**Industry**	**%age of total jobs**	**Industry**	**%age of total jobs**
Education and Training	16.6%	Education and Training	15.8%	Education and Training	16.5%
Public Administration and Safety	16.2%	Public Administration and Safety	15.9%	Public Administration and Safety	15.7%
Transport, Postal and Warehousing	15.1%	Transport, Postal and Warehousing	13.6%	Transport, Postal and Warehousing	12.4%

Source: BTS Employment Forecasts, 2014

TABLE 20. TOP THREE INDUSTRIES BY FORECAST GROWTH RATE (2011 – 2031)

Industry	Percentage of total jobs
Health Care and Social Assistance	52.0%
Professional, Scientific and Technical Services	42.4%
Retail Trade	39.5%

Source: BTS Employment Forecasts, 2014

5.3 Opportunities and challenges

Opportunities

- **Southern gateway to Sydney CBD.** Inclusion of office buildings at CBD's southern reaches enables the precinct to provides a nexus between the CBD and the diversity of uses south of Central Station. As the UTS campus continues to develop (most recently with the Dr Chau Chuk Wing building) and with Central Park recently completed, the southern reaches of George Street can develop as a clear entry point into Sydney's CBD.
- **Central Station and Railway Square.** A high volume, mixed-mode transport interchange that offers a high degree of public transport accessibility for a broad workforce catchment. Development in this precinct is well serviced by a number of transport routes.
- **Highly-skilled workforce.** Within the precinct there are a high proportion of professional and creative industry jobs clustered around George Street and towards Pyrmont-Ultimo. This is well supported by UTS and Notre Dame Universities and the Sydney TAFE campuses.
- **Access to range of cultural and tourism destinations.** The inclusion of Chinatown, the southern reaches of Darling Harbour and the tourist strip of southern George Street and Eddy Avenue provide a number of cultural assets to align future developments with.
- **Fine grain street pattern**. The laneway typology of Haymarket and Ultimo provide opportunities for multiple uses within a contained area.
- **Operation of the CBD and South East Light Rail**. Increased public transport connectivty between the southern edge of the CBD with the rest of the CBD and south-eastern Sydney would improve accessibility to this area and Pyrmont-Ultimo. This will better position the Ultimo-Central Precinct to attract CBD-focused development.
- **Alignment with Darling Harbour and Haymarket**. The redevelopment of Darling Harbour and the proximity to the activity generators of Haymarket and the Convention Centre precinct may increase activation within the Ultimo-Central Precinct. This provides the opportunity for the precinct to better align with these areas.

Challenges

- **Lack of centre.** This precinct has no identifiable centre. It does not fully engage with the CBD and other uses such as Central Station and Chinatown are inwardly-focused. This is exacerbated by Belmore Park and the heavily-trafficked Eddy Avenue separating Central Station from the CBD's southern reaches.
- **Irregular street pattern.** Irregular blocks make amalgamation difficult and many of the uniform blocks are already amalgamated for high-rise offices or university uses. Narrow laneways make deliveries difficult for shops and offices.
- **Disconnect between Ultimo and CBD.** The two main employment areas of this precinct are poorly connected making integration with emerging tech industries in Ultimo with the capital in the CBD difficult.
- **Poor perception.** Although the area has seen significant development over recent years, the area suffers like many surrounding primary inter-state railway stations from a perception of grime and crime.
- **Demand for larger office space.** With the development of Barangaroo, Green Square and the Bays precinct, combined with the trend toward less floorspace per worker, the demand for office space in the Central to Eveleigh corridor is currently limited. This limited demand could continue for 20 years.
- **Sufficient supply of car parking and transport options.** As use increases within the precinct, demand for accessibility will continue, both for public transport and private vehicles With the latter, developments should consider the impact that increase visitiation will have on surrounding road networks.

5.4 Future demand

The Ultimo-Central Precinct is likely to see most of its demand coming from CBD-facing commercial development as well as longer term expansion of educational institutions such as UTS and Sydney TAFE. The Study Area has seen a 24% growth in demand for office-locating industries between 2006 and 2012 (Chapter 3). The Ultimo-Central Precinct is most suited to accommodating future growth in this market. An additional 5,600 jobs in these industries is forecast in the Study Area between 2012 and 2021.

5.5 Development vision

This precinct can become the southern anchor for CBD office and commercial activity. This aligns with policy 1.1.2 of The Department of Planning and Environment's 'A Plan for Growing Sydney' which encourages expansion of the CBD south towards the Central to Eveleigh Corridor.

5.6 Economic development actions

First horizon: Lock in benefits of recent renewal and investment

The precinct has witnessed a number of major developments over the past five years. These include the conversion of the former Carlton United Breweries (CUB) site to Central Park (although it is located in the Chippendale-Surry Hills Precinct), the development of the Sydney Goods Line and development within the UTS campus. The benefits of these developments to the broader Sydney economy should be leveraged as key assets within the precinct.

Recommendations:

1. **Upgrade connectivity throughout the precinct**
   - The City of Sydney is already considering connectivity issues in this precinct, along with relevant government and other partners, and this work is supported and should continue. Initiatives to be considered include reviewing traffic and pedestrian light sequences to optimise pedestrian flows and re-prioritising in favour of people and pedestrian movements around Central Station.
   - Encourage temporary events undertaken by both public and private sector stakeholders to enliven Belmore Park and public spaces fringing Central Station to extend usage of space beyond thoroughfares. This could involve partnering with cultural institutions such as theatre and community groups.
2. **Upgrade amenity throughout the precinct**
   - Improve safety through lighting upgrades and implementation of Crime Prevention through Environmental Design (CPTED) principles to reduce perception of safety issues, in particular around Central Station and Railway Square.
   - Improvements to Belmore Park to improve night-time access and reduce the activity gap between Central Station and the CBD. This should be in line with proposed improvements included in the City of Sydney in their Sydney's Sustainable 2030 Strategy.
   - Convert 'wasted' road carriageway and underutilised public realm to public plazas. These solutions can be short-term, through road closures or long-term through road realignment and public realm design. The approach taken by the City of New York with Times Square or Suwon in South Korea are good precedents. Any approach should involve local businesses to ensure local economic support and support of uses geared towards their support.
   - The state and federal governments, in partnership with social welfare organisations such as the Salvation Army could seek local precinct private sponsors and contributors to homelessness strategies (e.g the City of Sydney's Homelessness Brokerage Programme). This will assist in the improved perception of the Central Station part of the precinct.
3. **Encourage creative uses throughout government assets at Central Station and wider precinct**
   - Support for emerging businesses around Oxford Street has been successfully providedthrough the City of Sydney's Low Rent Scheme. This or a similar model could be adopted forgovernment property (and even underutilised private property assets) to build upon the established and growing creative industries sectors in Ultimo and across into Surry Hills.

Second horizon: Facilitate new office investment

To accommodate future demand for CBD floorspace, the northern section of this precinct, between Eddy Avenue and George Street, could accommodate new commercial developments.

4. **Audit existing sites suitable for large floor plate office or re-investment**
   - A number of existing buildings and sites provide the potential for development within the existing curtilage of the CBD. Sites within this precinct could increase A-grade office floorspace with excellent public transport accessibility. The City of Sydney already undertake a comprehensive floorspace audit and this and other investigations could be utilised to identify candidate office development sites.
5. **'Workshop' with key urban professionals and owners of suitable sites to identify barriers to redevelopment**
   - Numerous reasons may exist for why these sites (and others) are not developed or developed to their potential. A workshop with relevant landowners and stakeholders, along with professionals such as planners. architects, commercial realtors and valuers may identify development barriers through planning controls, development requirements or land use conflicts that, once articulated, can be assessed and, where required, amended.
6. **Identify barriers to growth actions that facilitate commercial opportunities on these sites**
   - For key sites that provide large floorplate opportunities initiatives to encourage a commercial or office floorspace outcome should be developed. This might include the encouragement of flexible floorspace layouts that reduce the floorspace per Full Time Employment (FTE), refinements to development controls to ensure a significant share of office floorspace in mixed use developments in (in either vertically or horizontally mixed-use configurations for example).
7. **Prepare incentive package that addresses barriers to development and intensification**
   - Once a credible package of urban design initiatives and planning control reforms have been prepared, it would be marketed to developers.
8. **Prepare prospectus to market the precinct and the opportunities**
   - The outputs and findings from the previous actions should be packaged into an investment prospectus (for example by the City of Sydney and/or Urban Growth) to attract commercial investment to the CBD's southern tip and focus any A and B grade, CBD-focused office floorspace in the northern section of the Study Area.

Third horizon: Provide a new commercial and activity hub at Central Station

A long-term development proposition is to develop above Central Station's vast rail yards and the immediate precinct. This area retains a physical connection with the CBD and could accommodate CBD-focused commercial floorspace.

9. **Provide new development sites by providing a platform for office development over the railyards**
   - There is significant floorspace potential in the airspace above the railyards and platforms south of Central Station. These are likely to require development partnerships between government organisations such as Transport for NSW and private developers.
   - It is understood that Transport for NSW is reviewing development prospects and approaches over the railyards. Subject to the findings of their analysis, funding strategies will depend on the scale and complexity of the project, however several mechanisms should be considered:
     - Partial funding through business levy
     - Sale of air rights development conditional upon the integration with station and delivery of project
     - Work with City of Sydney to identify revenue streams that could be partially utilised to contribute to funding (for example, a percentage of car parking revenues).

6 CHIPPENDALE-SURRY HILLS PRECINCT

6.1 Precinct overview

The Chippendale-Surry Hills precinct is defined by the similarity of its built form, street pattern and employment profile. Turn of the twentieth-century warehouses house an increasing number of creative industries and the two suburbs have some of the highest creative industry job densities within the City of Sydney, although they are separated by the Rail Corridor. Demand for commercial floorspace is high and vacancy rates are low. The precinct tends to attract a certain type of creative industries which have filled the void left by the decline of manufacturing and railway servicing.

The precinct has developed over the past decades to become some of Sydney's trendiest inner-city suburbs and this has attracted employment and residential uses to the precinct. This has resulted in a growth in service industries such as restaurants, cafes and bars which are a significant economic asset for the precinct as its evening economy continues to develop.

6.2 Employment and demographic profile

The precinct is currently forecast to grow to 28,887 jobs and 18,169 residents by 2031.

TABLE 21. POPULATION AND EMPLOYMENT GROWTH (2011 – 2031)

	2011	2016	2021	2026	2031
Precinct employment	22,336	24,107	25,715	27,662	28,887
Precinct population	11,872	15,751	17,011	17,843	18,169

Source: BTS Population and Employment Forecasts, 2014

The employment landscape over this time appears constant with the three largest industries by proportion of total jobs retaining their primacy. The slight decline across Information Media and Public Administration is representative of the pressures faced by Professional Service sector and other higher value competing uses such as Finance and Insurance. (Table 22 and Table 23). This reflects the growing demand for the precinct and its location on the immediate periphery of the CBD, providing good access to clients while attracting lower rents than premium office floorspace.

TABLE 22. TOP THREE INDUSTRIES OF EMPLOYMENT AND PERCENTAGE OF TOTAL EMPLOYMENT (2011 – 2031)

2011		2021		2031	
Industry	**%age of total jobs**	**Industry**	**%age of total jobs**	**Industry**	**%age of total jobs**
Professional, Scientific and Technical Services	21.4%	Professional, Scientific and Technical Services	20.8%	Professional, Scientific and Technical Services	21.5%
Information Media and Telecommunications	12.1%	Information Media and Telecommunications	11.4%	Information Media and Telecommunications	11.3%
Public Administration and Safety	9.6%	Public Administration and Safety	9.4%	Public Administration and Safety	9.2%

Source: BTS Employment Forecasts, 2014

TABLE 23. TOP THREE INDUSTRIES BY FORECAST GROWTH RATE (2011 – 2031)

Industry	Percentage of total jobs
Rental, Hiring and Real Estate Services	109.1%
Financial and Insurance Services	64.2%
Retail Trade	55.0%

Source: BTS Employment Forecasts, 2014

6.3 Opportunities and challenges

Opportunities

- **Strong creative industries sector.** Chippendale and Surry Hills have a high proportion of creative industry jobs. Collectively, these establish the precinct's character and attract similar indusitries to co-locate as well as a number of supporting industries such as retail, restaurants and bars and some urban manufacturing.
- **CBD and transport accessibility**. The precinct flanks Central Station and Railway Square with good transport options. The precinct is well suited to attract a workforce from a wide catchment.
- **Identifiable and flexible building stock**. The precinct is heavily defined by its early twentieth century building stock. These buildings, many former warehouses, are flexible in their use and attract a particular organisation and industry type due to their associated identity.
- **Air-rights development potential above transport infrastructure.** The Central to Eveleigh Rail Corridor splits the precinct fron north to south. There are several small land assets on the sides of this rail corridor (such as the Regent Street Mortuary that could be better used) as well as significant development potential bridging the trackwork.
- **Proximity to educational facilities.** The Chippendale part of the precinct is bounded by UTS and Notre Dame University to the north, as well as the Central sydney TAFE. To the west and south, it is bound by the University of Sydney, giving the area significant potential value to the tertiary education sector.
- **Strong evening economy.** A number of restaurants, bar and entertainment venues are located throughout Surry Hills. These help to foster activation over a longer daily period and enhance the area's perceived safety of an evening.

Challenges

- **Lack of development potential.** The urban characteristics that define the precinct and attract organisations to it are barriers to significant development. In order for the area to retain its identity, it must retain its ad-hoc appearance. This places constraints on large sections of the precinct in accommodating projected floorspace demand.
- **Cleveland Street is a barrier to southward expansion.** The arterial nature of Cleveland Street and its role as an edge between Surry Hills and Redfern limit the natural expansion south of the creative industries forced from Surry Hills due to lack of space or increasing rents.
- **Regent Street is a barrier to activation of Chippendale's eastern edge.** The arterial nature of the southern CBD feeder road limits activation through its lack of pedestrian amenity. The built form on its western edge is not appropriately used to define and celebrate the precinct.

- **Prince Alfred Park is a barrier to integration with Redfern.** Although a significant piece of social infrastructure, the park limits connectivity to the emerging Redfern creative industry community.
- **Loss of commercial floorspace to residential.** Retaining the ability for the precinct's B2 and B4-zoned land to provide commercial operations and facilitate agglomeration is hindered by the conversion to residential use.
- **Sufficient supply of car parking and transport options.** As use increases within the precinct, demand for accessibility will continue, both for public transport and prvate vehicle.s With the latter, developments should consider the impact that increase visitiation will have on surrounding road networks.

6.4 Future demand

The Chippendale-Surry Hills Precinct will continue to see demand from the creative industry sector. However, these established sectors are facing increasing pressure from office-based industries such as the professional and financial sectors who are seeking to piggy-back on the character established by the creative industry or simply looking for cheaper floorspace in proximity to the CBD. This trend accounts for the 64% forecast growth in the Financial and Insurance sectors. Throughout the Study Area, Creative industries have grown by 60% between 2006 and 2012 and much of this has occurred in the Chippendale-Surry Hills Precinct. This is forecast to continue, however growth is constrained by the precinct's built form and lot sizes. Retail aligned to the creative industries sector (for instance, high-end furniture stores) and cafes are forecast to grow by 55% to 2031. These will need to be accommodated in ground floor locations and can help to refine the street activation within the precinct.

6.5 Development vision

To be recognised as the premier creative services precinct in Australia

6.6 Economic development actions

First horizon: Consolidate the existing strengths of the precinct

The precinct has already established itself as a sought-after location for a range of industries, including the creative sector. Organisations of a certain size and industry locate in the precinct for its urban form. This is to be acknowledged and protected whilst increasing the capacity within existing sites and planning controls.

1. **Review planning and licensing regulations with a view to 'freeing-up' uses and activities within existing building footprints as appropriate**
   - The City of Sydney has supported initiatives to make it easier for business start ups but there should be a constant review of application and permission processes within the City of Sydney, with a view to facilitating the ability of new businesses to set up.
   - Undertake minor improvements to public domain through capital works program to ensure the low key, 'funky' nature of the precinct is retained.
   - Relax operational approvals (including outdoor seating licences) for restaurants/cafes to encourage street activation.

2. **Investigate ways of ensuring a commercial or business component in mixed use redevelopments and in existing residential areas.**

- Commercial uses and activities are being 'lost' to residential development in small and micro business precincts in inner Sydney including in the Chippendale-Surry Hills Precinct. A review of current permissible uses and urban design and economic development initiatives should be undertaken to to support existing and develop new commercial clusters. The City of Stonnington in Melbourne is proposing to address the loss of business floorspace in the South Yarra precinct by establishing a 'vertical zoning' system in the Chapel Street Activity Centre (including the South Yarra, Prahran and Windsor precincts). If adopted, the zone would require developers to retain the ground, first and second floors for retail and commercial use only. Any residential development on the lower floors would need a permit. However, the second floor could be used for residential purposes if the building was on a side street. The City of Sydney could consider such a system, or perhaps rely more on differential FSR controls (which are not such a feature of the planning system in Melbourne).
- Another approach would be to provide greater flexibility for uses in areas currently zoned R1 to encourage live-work arrangements.

3. **Retain the character that defines the Chippendale-Surry Hills precinct**
    - Chippendale-Surry Hills is defined by its street pattern, lot size and built form charecteristics. These should be seen as assets that attract certain sectors and retained to ensure the character continues to define the precint.

Second horizon – Add appropriate and complementary cultural facilities

Supporting industries, such as restaurants/cafes and other cultural facilities are important in providing a mix of uses. They can extend the precinct's trading times and period of activation, further consolidating the area as a premier creative precinct in the city.

4. **Seek expressions of interest for creative uses (design shops, galleries, bars) in public buildings and spaces**
    - Encouraging uses such design shops, galleries and bars in identifiable buildings such as the Regent Street Mortuary and Chalmers Street heritage buildings (at the Devonshire Street entrance to Central) can help to build the evening economy and align it with the growth in creative industries within the precinct.

Third horizon – Re-connect Chippendale and Surry Hills

There is currently little joining the suburbs of Chippendale and Surry Hills, aside from their similar urban form and the type of industries that locate there. The Central to Eveleigh Corridor significantly divides both commercial and physical connectivity. Increasing connectivity through improved pedestrian access and strategically-located commercial floorspace can break down this divide and enable the precinct to operate with the Redfern-Darlington precinct as a more effective creative precinct.

5. **Review the Regent Street – Cleveland Street junction**
    - Identify whether pedestrian separation and connectivity can be improved (e.g. lowering road carriageways or providing bridges for cyclists and pedestrians) as part of a broader review of the one way system south of Cleveland.
6. **Establish commercial floorspace on the northern edge of Cleveland Street as part of a mixed use development**
    - Consider bridging more of the rail line at the intersection of Cleveland and Regent Streets to provide additional floorspace as part of a mixed-use development and establish a connection across the rail line. Development could potentially integrate with the Greek Orthodox Church grounds in the south-western corner of Prince Alfred Park.

7. **Improve/enhance Devonshire Street tunnel or provide additional significant east-west concourse as part of the future development of Central linked to interventions of Sydney Metro.**
   - As an important pedestrian thoroughfare connecting Surry Hills and Chippendale, the current tunnel is unpleasant. Future development above the railyards could involve a retail-lined thoroughfare above the station concourse.

8. **Redevelop public housing estate on Devonshire Street**
   - Development could increase the provision of affordable housing whilst creating a more diverse community. Development fronting Devonshire Street could provide further activation to both sides through new retail and restaurant shop-fronts, increasing the commercial link between Central Station and Crown Street. This would need to 'work in' with the new light rail project which will run in Devonshire Street.

7 REDFERN-DARLINGTON PRECINCT

7.1 Precinct overview

The Redfern-Darlington precinct is central to the success of the Study Area. Centred on Redfern Station, the precinct is bound by Cleveland Street to the north and consists of a mix of residential and commercial land uses. The residential neighbourhoods of Darlington and Redfern are characteristic of turn of the twentieth century terraced housing stock. Abercrombie Street and Redfern Street serve as the local retail centre for each suburb. The integration of Darlington and Redfern is severely compromised by the railyards that separate the precinct. This is exacerbated by the one-way arterial road system of Gibbons and Regent Street east of Redfern Station.

The retail and commercial offering along both Abercrombie and Redfern Streets has seen a resurgence with the increase in creative industries and ad hoc residential gentrification. This is, however, limited to these stretches and the north-south thoroughfare of Regent Street/Botany Road still lacks the presence of a cohesive commercial street.

Between Botany Road and the railyards, the Australian Technology Park (ATP) occupies a significant land holding, yet lacks integration with the centre of Redfern. The ATP centres on a number of re-purposed heritage assets, complemented by a number of large floorplate commercial buildings, developed from the late 1990's as a destination for technological companies and university expansion. Adjacent Redfern Station are the twin GCA towers that easily identify the station precinct. Additional heritage assets are located throughout the precinct but many relate to the Victorian-era railway infrastructure along the Corridor.

The precinct is well served by rail, with Redfern Station the primary station for University of Sydney students. The area therefore commands a high footfall along Lawson and Abercrombie streets throughout the day and year.

7.2 Employment and demographic profile

The precinct is currently forecast to grow to 21,149 jobs and 19,698 residents by 2031.

TABLE 24. POPULATION AND EMPLOYMENT GROWTH (2011 – 2031)

	2011	2016	2021	2026	2031
Precinct employment	11,553	12,760	15,367	18,545	21,149
Precinct population	14,048	14,652	16,419	17,981	19,698

Source: BTS Population and Employment Forecasts, 2014

The employment landscape over this time is forecast to change dramatically, with growth expected to be approximately 83% between 2011 and 2031 (compared to approximately 29% for the Chippendale-Surry Hills precinct). This aligns with development plans for the precinct. Professional services is forecast to overtake IT and Public Administration as the precinct's largest employer. As seen in the Chippendale-Surry Hills precinct, a trend is emerging where professional services and the Finance and Insurances sector are beginning to locate in these CBD fringe areas given the proximity to the CBD. Industry growth

rates are significant in the precinct. The three industries forecast to grow fastest to 2031 (Table 26) are forecast to grow by almost 300%. The growth of the Arts and Recreation sector is testament to the area's growing attraction to a range of creative uses seeking to locate near the established creative precinct of Chippendale-Surry Hills.

TABLE 25. TOP THREE INDUSTRIES OF EMPLOYMENT AND PERCENTAGE OF TOTAL EMPLOYMENT (2011 – 2031)

2011		2021		2031	
Industry	**%age of total jobs**	**Industry**	**%age of total jobs**	**Industry**	**%age of total jobs**
Information Media and Telecommunications	16.3%	Information Media and Telecommunications	15.4%	Professional, Scientific and Technical Services	17.0%
Public Administration and Safety	15.9%	Professional, Scientific and Technical Services	15.4%	Information Media and Telecommunications	14.7%
Professional, Scientific and Technical Services	12.8%	Public Administration and Safety	14.0%	Public Administration and Safety	12.1%

Source: BTS Employment Forecasts, 2014

TABLE 26. TOP THREE INDUSTRIES BY FORECAST GROWTH RATE (2011 – 2031)

Industry	Percentage of total jobs
Financial and Insurance Services	297.3%
Rental, Hiring and Real Estate Services	287.6%
Arts and Recreation Services	283.5%

Source: BTS Employment Forecasts, 2014

7.3 Opportunities and challenges

Opportunities

- **Growing creative industries sector**. The precinct is beginning to experience spillover from the Chippendale-Surry Hills precinct with a number of creative industries clustering around the Carriageworks and Redfern Street.
- **Public transport accessibility.** The precinct is well serviced by public transport through Redfern Station and bus routes and to a lesser extent, MacDonaldtown Station. There is future potential public transport accessibility proposed through one of two Sydney Metro stations at either Sydney University or Waterloo. Both of these will have a positive influence on the precinct, albeit on different sides of the rail corridor.
- **Variety of development scale opportunities.** The precinct has a number of potential development sites and opportunities for potential development, ranging from small infill blocks in keeping with the current typology, through to strategic sites fringing and bridging the railway lines.
- **Established urban character and strong community**. The precinct has a characteristic built form and streetscape typology with an established and engaged community. This typology is similar in scale and composition to those in the Chippendale-Surry Hills precinct.
- **Strong heritage assets**. Throughout the precinct, but predominantely around the Redfern Station and the railway corridor, are a number of identifiable heritage assets. These include the Carriageworks, old NSW Railway building on Wilson Street, Redfern Station buildings, terrace rows and numerous current or former railway buildings.

- **Established local retail centres**. A number of local retail strips criss-cross the precinct. Abercrombie and Redfern Streets service both side of the corridor while Botany Road has potential to expand small business uses away from Redfern Station and towards the ATP.
- **University of Sydney presence**. The eastern section of the University of sydney campus extends into the precinct. Redfern Station is the primary means of public transport for many students and a well-established route along Lawson and Abercrombie Streets provides regular activation.

Challenges

- **Split north-south and east-west by dominant arterial roads**. Cleveland Street and Regent Street divide the precinct into quadrants. These divisions impede pedestrian flows throughout the precinct and into the Chippendale-Surry Hills precinct and limit business corridor expansion potential. The dominance of cars deter pedestrian use and impede develoment of smaller customer-focused businesses along their length.
- **Integration of Australian Technology Park**. The ATP has developed over nearly 20 years yet is still constrained by its access to Redfern Station and its integration with the wider precinct. Its remaining sites provide a large amount of unrealised floorspace potential, however it has been affected by changes to its vision and governance structure.
- **Optimising the value of Redfern Station**. Although one of Sydney's busiest stations, the primary entrance to Redfern Station is awkwardly aligned and does not create a strong sense of arrival. Realignment could be undertaken to better position it for better accessibility, local business generation and commercial and residential development potential.
- **Loss of commercial floorspace to residential.** Retaining the ability for the precinct's B2 and B4-zoned land to provide commercial operations and facilitate agglomeration is hindered by the conversion to residential use.
- **Sufficient supply of car parking and transport options.** As use increases within the precinct, demand for accessibility will continue, both for public transport and prvate vehicle.s With the latter, developments should consider the impact that increase visitiation will have on surrounding road networks.

7.4 Future demand

The Redfern-Darlington Precinct will absorb the expected overflow of creative industries from the Chippendale-Surry Hills Precinct. Higher rents and low vacancy rates in that precinct are forcing some smaller industries to seek new locations, whilst still locating near the CBD. There is also expected demand from the commercial office market with unrealised potential in the ATP. This is the likely location for the forecast 297% growth in the Financial and Insurance sectors outlined in Table 26. The growth of the creative industries by 60% between 2006 and 2012 in the Study Area is partially contained in this precinct and demand is forecast to continue. A decline in manufacturing offers the possibility of flexible former industrial floorspace being 'freed-up' for Creative industries to move into as this is an identity that many creative organisations align with. Additionally, pending future governance arrangements, the precinct may experience a growing demand for education and health floorspace.

7.5 `Development vision

To become Australia's premier research, knowledge and creative precinct

7.6 Economic development actions

First horizon: Expand the opportunities for creative business activity

With the continuing demand for floorspace in the Chippendale-Surry Hills precinct, organisations are increasingly migrating south to the Redfern-Darlington Precinct. The precinct has a stronger residential character than Chippendale-Surry Hills and a strong collection of heritage assets. Increasing opportunities to expand commercial floorspace within the precinct using existing building stock can build a critical mass of employment without significant development.

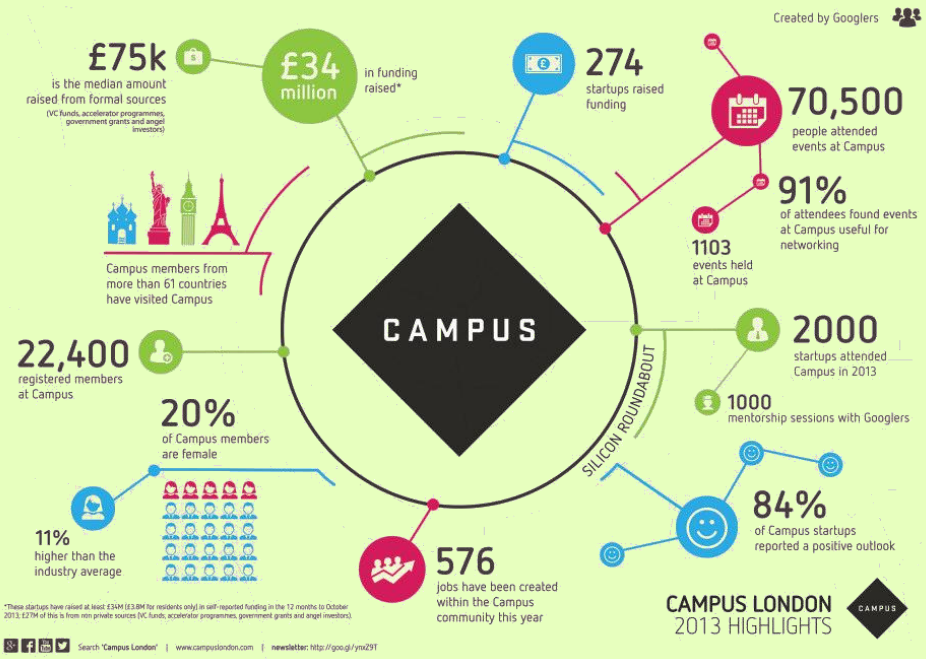
1. **Consider a range of planning and economic levers to strengthen existing and growing clusters**
   - Opportunities for expanding or encouraging office and business infill in residential areas should be purused.
   - This may require reviewing usecontrols (for example allowing more employment uses, modifying car parking requirements etc) or urban design initiatives to catalyse private investment. The expansion of the current B4 zoning towards Redfern Station around Lawson and Abercrombie Streets should be considered.
2. **Target a creative use for the NSW Railway building on Wilson Street through innovative leasing arrangements**
   - The NSW Railway building on Wilson Street could be a hub and icon for the precinct, with an appropriate restoration and tenant.
   - One option would be to offer a long term, low cost lease on the condition the building is restored, targeting education and/or creative uses (e.g. Sydney University, well-endowed art foundations such as the Peggy Guggenheim foundation etc). These and other leasing innovations should be considered.
3. **Establish a governance framework across the precinct to support business development, for example a Business Improvement District (BID) or similar mechanism**
   - The aim here is to ensure the various and key stakeholders and property owners are working towards a common vision. It is arguable that the initial 1996 high tech, university and research based economic development vision for the ATP was never properly fulfilled. A more exciting opportunity perhaps exists to pursue an innovation and creative precinct vision by establishing an enduring governance framework across the broader precinct.
   - The Melbourne University 'Carlton Connect Initiative' may provide some lessons. It is proposed to create Australia's premier innovation precinct in a series of buildings and spaces occupied by large businesses, research centres, entrepreneurs and small startups adjacent to the Parkville campus of the University and incorporating a redeveloped Royal Women's Hospital site.
   - Another alternative is to create a Business Improvement District (BID). This would apply a small levy on all business ratepayers (or seek a contribution where rates are not payable) across the precinct including the University, Carriageworks and the ATP. A board drawn from contributors would be established and it could be responsible for establishing a strategic development plan to guide spending, The BID would coordinate spending in partnership with the City of Sydney to prioritise works aimed at short and medium-term improvements. A BID can also work as a coordinated voice for independent local businesses in response to longer-term development of the precinct, in particular around Redfern Station.
4. **Engage in discussions with possible creative industries anchor tenants**
   - Targeted approaches to identified potential tenants such as Google or creative industry 'incubator hubs' would highlight barriers to entry for those organisations locating in the Study Area. A coordinated approach by UrbanGrowth and City of Sydney, as well as potential private-sector or institutional stakeholders (such as Universities) would be appropriate.

5. **Prepare prospectus to market the precinct and potential development sites**
   - A prospectus to identified anchor tenants would provide an overview of the area's key attributes and development timeline. It would be used to showcase potential sites and engage targeted organisations in outlining requirements for their operations.
6. **Explore the provision of additional Key Worker accommodation to the west of Carriageworks as part of a mixed-tenure residential development.**
   - This part of the Study Area is within ten minutes walking to Royal Prince Alfred Hospital. Provision of dedicated accomodation for nurses and other employees can be delivered through a partnership arrangement with the hospital and help decrease travel times and associated transport costs for employees commuting to the hospital. These targeted housing types can be part of a residential development that includes public and private housing.

Case Study: Campus London, Shoreditch

A model developing in cities is the entrepreneurial incubator model championed by high value innovation companies such as Google. Google's Campus London is a specialised start-up 'incubator' located in the city's tech hub centred around Shoreditch in the city's east. Developments such as Campus London and others are a hybrid of education and innovation. With the investment of a primary backer, they support start-ups and individuals working in innovative fields and support them with networks and resources, as well as subsidised rates. They also offer a number of training courses open to the public, geared towards fostering idea generation. They are located within areas where there is a high proportion of creative development, available land and good transport accessibility. The nature of those working within these campuses is that they require 24-hour access. Therefore, positioning near stations such as Redfern or Central stations would help to provide such accessibility.

FIGURE 17. CAMPUS LONDON 2013 REVIEW INFOGRAPHIC



Source: http://techcrunch.com/2013/12/02/after-20-months-googles-campus-london-hub-has-22000-members-so-where-next/

Second horizon: Develop Redfern Station as the connectivity hub for the precinct

In order for the precinct (and ATP in particular) to fully benefit from its location and accessibility, significant upgrades to Redfern Station are required. These will help to increase surrounding land values, making new development more feasible, as well as provide a more attractive proposition to larger organisations looking to locate here.

7. **Provide a southern bridge connecting the ATP with Darlington including a new entry to Redfern Station**
   - Connecting the ATP with Darlington and the University should be a key aim of any redevelopment in the area. Steps to achieve this might involve:
     - Identifying development sites for commercial development leases on the ATP and Darlington sides of the rail line, including a minimum employment element and affordable or student housing.
     - Identifying the minimum elements of a southern connection and bridge for pedestrians and cyclists including a major new entrance to Redfern station.
     - Offering the design and development 'package' via expression of interest to the market might provide development sites at a sub-market rate but require the delivery of the gantry as part of development conditions.
     - Innovations to generate a revenue stream to service development and construction costs may be considered. Options might include a surcharge on Redfern station passenger traffic (for example 10-20 cents per entrance and exit), an infrastructure contribution requirement for nearby development (similar to the UK's Community Infrastructure Levy) or a public-private partnership with private sector-led development at either end of the bridge.
8. **Redevelop Redfern Station with a mixed-use development above the platforms**
   - To fund the delivery of a major Redfern station upgrade, the airspace development rights could be sold to a developer with approval of the development conditional upon the redvelopment of the station.
   - This station redevelopment could be done in conjucntion with the identified development opportunity in Action 7.
9. **Explore opportunities within the ATP or potential new floorspace around Redfern Station for research facilities in partnership with RPA**
   - RPA is a leading teaching and research hospital in Sydney. In light of trends in the health industry, the future owners or managers of the ATP (and potentially floorspace as part of an future station redevelopment) could work with RPA to provide research biomedical facilities. This could be delivered as a joint venture with private health organisations given the area's proximity to the hospital, unviersity and CBD.

Third horizon: Create a public transport, cycling and pedestrian connected network of activities from Sydney University to Waterloo

To truly integrate the Study Area, this precinct's network should extend beyond its and the Study Area's boundaries. Connectivity should take multiple forms. It should ensure that development is suited to the future demographic demands of the Study Area and is physically connected through sustainable transport options.

10. **The north-south rail corridors (through Redfern and Waterloo) should be crossed by a highly defined 'liveable green network' that prioritises pedestrian and cycle connections from Waterloo, through Redfern to Darlington and beyond to the University and Victoria Park**
    - As the precinct and Study Area's population grows, many new residents will be employed in or near the CBD. Pedestrian and cycle connections through the precinct should connect the developing residential communities of Waterloo and Green Square to Redfern and through to the CBD.
11. **Plan for the future restoration of a two way system using Botany Road and Gibbons Street with the objective of returning Botany Road to a functioning main street for the wider precinct and better integrating the ATP into Redfern**
    - Including a high quality public transport corridor – a surface connection from Green Square to Central and the CBD (possibly along Gibbons Street to allow Botany Road to be calmed). This would further improve east-west connections from Redfern to Redfern Station.
    - Review planning controls following the identification of potential development opportunities in Botany Road, Alexandria.
12. **Plan for a further southern connection across the rail land**
    - A new bridge at the southern end of Redfern Station could ultimately be supplemented by a more southerly crossing which would directly connect the university to the ATP.

8 WATERLOO PRECINCT

8.1 Precinct overview

The Waterloo precinct is predominantly residential with several public housing estates east of the railway yards in Waterloo. The building stock varies significantly, with a mix of mid-century residential towers, early twentieth century working terraces and modern apartments.

The precinct focuses towards Botany Road to some degree, however the road does not act well as a central focal point given its arterial quality and the development of bulky goods and semi-industrial uses towards the southern part of the precinct.

The precinct is in close proximity to Alexandria's employment lands and north of the currently under-construction Green Square Town Centre. The precinct's predominantly residential character acts as a buffer between the two growing commercial centres of Redfern and Green Square.

The precinct has been identified as a potential location for an additional Sydney Metro station between Central Station and Sydenham.

8.2 Employment and demographic profile

The precinct is currently forecast to grow to 4,141 jobs and 13,038 residents by 2031.

TABLE 27. POPULATION AND EMPLOYMENT GROWTH (2011 – 2031)

	2011	2016	2021	2026	2031
Precinct employment	3,617	3,699	3,827	3,979	4,141
Precinct population	10,224	10,532	11,815	12,831	13,038

Source: BTS Population and Employment Forecasts, 2014

The precinct's high proportion of public housing and proximity to the City of Sydney's employment lands is reflected in the clear distinction between growth industries in this precincts versus others in the Study Area. Although Professional Services accounts for 10% of jobs in the precinct (Table 28), Construction and Social Assistance jobs are forecast to grow the most between 2011 and 2031 (Table 29). Retail is also forecast to grow significantly, highlighting the lack of a significant commercial centre within the precinct.

TABLE 28. TOP THREE INDUSTRIES OF EMPLOYMENT AND PERCENTAGE OF TOTAL EMPLOYMENT (2011 – 2031)

2011		2021		2031	
Industry	**%age of total jobs**	**Industry**	**%age of total jobs**	**Industry**	**%age of total jobs**
Total Manufacturing	11.4%	Retail Trade	10.5%	Health Care and Social Assistance	11.0%
Retail Trade	10.0%	Health Care and Social Assistance	10.4%	Retail Trade	10.9%
Professional, Scientific and Technical Services	10.0%	Professional, Scientific and Technical Services	10.0%	Professional, Scientific and Technical Services	10.3%

Source: BTS Employment Forecasts, 2014

TABLE 29. TOP THREE INDUSTRIES BY FORECAST GROWTH RATE (2011 – 2031)

Industry	Percentage of total jobs
Health Care and Social Assistance	36.0%
Construction	32.5%
Retail Trade	24.6%

Source: BTS Employment Forecasts, 2014

8.3 Opportunities and challenges

Opportunities

- **Significant public housing assets.** Current government landholdings through public housing estates provide strong development potential. These have the ability to increase the amount of affordable housing provided in inner-city areas and increase housing stock in established communities.
- **Possibility of creating finer grain blocks**. Breaking up these blocks through improved pedestrian and road access can increase the potential for local retail and commercial uses along key pedestrian thoroughfares.
- **Possible Sydney Metro station at Waterloo**. Should this option go ahead, it has the potential to increase job accessibility to an inner-city demographic in an area with relatively low public transport accessibility. Such a development would facilitate the establishment of local shops, restaurants and other businesses within a station precinct.

Challenges

- **Increasing economic development opportunities.** This precinct has a strong residential land use, with few immediate economic uses. The challenge is to link this community with an established economic centre by Increasing links either towards Redfern or south the Green Square.
- **Creating a centre to the precinct.** The scattered nature of the precinct's public housing and the introspective nature of the adjoining developments in Zetland mean that the precinct does not have an identifiable commercial centre.

8.4 Future demand

The Waterloo Precinct will primarily see demand for intensification of residential development. Alongside development opportunities within public housing stock, the potential Sydney Metro station at Waterloo will provide floorspace for locally-serving retail and small scale population-driven commercial floorspace.

8.5 Development vision

To increase housing diversity and residential density while providing appropriate centrally-located, local retail and commercial services and employment opportunity.

8.6 Economic development actions

First horizon: Identify opportunities for potential commercial expansion

1. **Review zoning and planning controls to allow for more compatible employment uses in residential areas**
   - Expanding opportunities for office and business infill in residential areas. This will require reviewing controls and identifying opportunities, for example allowing more employment uses or modifying car parking requirements.
2. **Establish online marketplace to advertise and sub-let vacant ground floor floorspace along Botany Road**
   - A website or network that matches people seeking retail and commercial floorspace for temporary uses to vacant floorspace along Botany Road. This can be done as a part of the City of Sydney's support for creative uses or through a third-party charity or organsiation. Its purpose is to re-activate this section of Botany Road by encouraging a mix of uses to temporarily locate along Botany Road in a 'safe to fail' environment. This can help to test successes of future uses along the corridor.
3. **Identify potential development sites along Botany Road**
   - Through a stakeholder and landowner workshop, facilitated by the City of Sydney, potential development sites can be identified along with their barriers to development. This will help to tease out future potential for this section of Botany Road and ensure a co-ordinated reponse.
   - Establish a funding mechanism through City of Sydney or surrounding business groups to subsidise these temporary uses along the Botany Road corridor.

Second horizon: Expand opportunities for local business and skills development

4. **Focus retail and business development along Botany Road and in any new station precinct**
   - The aim should be to grow Botany Road from a semi-industrial strip to a local retail centre and the main hub for the wider precinct.. Ground floor uses must be protected for retail however residential shop-top development could be encouraged in any amendments to the Development Control Plan. In addition, Botany Road and surrounding streets should be the primary focus for retail and commercial opportunities within the precinct (rather than being generally dispersed, for example throughout a redeveloped public housing area). A careful expansion of B2 and B4 zonings in this area will accommodate new commercial floorspace without dispersing commercial uses or undermining existing activity. Any expansion of B2 zones should be accompanied by public domain improvements and could be funded for example through development contributions or voluntary planning agreements.
   - If Waterloo is chosen as the additional Sydney Metro Station, then commercial and retail

floorspace should be ecncouraged in and around the station precinct to make best use of the foot traffic generated by the new station.

5. **Establish a training programme to assist local employment during construction and upon completion of major development projects in the Study Area.**
   - In anticipation of major development in and around the Study Area, a training programme could facilitate the alignment of existing local disadvantaged and unemployed residents residents with construction jobs on the various development projects. This aligns with the growth in the construction jobs forecast in the precinct.
   - The training programme could extend to providing training and qualifications for unskilled residents or residents with different skill sets who wish to live and work in the area upon completion of development. These could include retail and service jobs that will make up a prtion of the employment mix in future commercial development.
   - Such a programme could be jointly organised by the City of Sydney in partnership with educational institutions such as TAFE, private training organisations or local charities. Funding could be sourced through development contributions or Voluntary Planning Agreements (VPAs) negotiated with development partners. Such an arrangement could, at least in part, offset other development contributions developers are required to pay.

Third horizon: Build on delivery of Sydney Metro station at Waterloo

6. **Include a new station at Waterloo to facilitate mixed use renewal of the Waterloo housing estate**
   - The Sydney Metro line (as part of a second harbour crossing) could include a new station at Waterloo.
   - Any associated renewal of public housing should include the dual objectives of:
     - 'job matching' new residents with the high value 'knowledge sector' employment opportunities in central Sydney and
     - developing skills for existing residents in local construction jobs.
   - A mixed urban renewal project should also reserve sites for and space for small creative businesses.

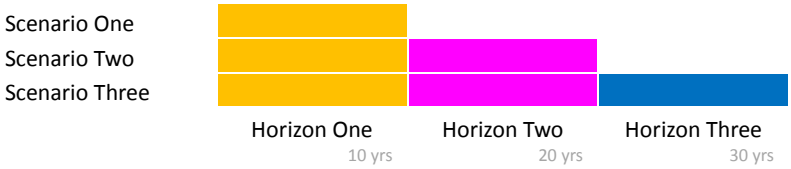
7. **Focus cluster of retail and employment opportunities around proposed Waterloo station**
   - Should the Waterloo Station go ahead, it will generate an increase in land values along the southern section of Botany road. Mixed use development, building on the current road corridor zoning, would cluster around the station with provision for retail and commercial floorspace provision.

9 STUDY AREA DEVELOPMENT SCENARIOS

9.1 Scenario development

This report identifies three potential development scenarios for the Study Area. These scenarios are based on the recommendations made for each precinct in the preceding chapters. They differ through their mix of horizon projects, with Scenario One considering only Horizon One projects, Scenario Two considering Horizons One and Two and Scenario Three considering all three horizons. Figure 18 illustrates this method.

FIGURE 18. DEVELOPMENT SCENARIO STRUCTURE



Four types of development were considered to be relevant to the future of the Study Area:

Commercial floorspace intensification: Assumes that existing commercial floorspace in the Study Area that currently provides jobs at a ratio of greater than 25sqm per job is intensified to this ratio. Commercial floorspace with an employment density greater than 25sqm retains its current density.

Residential conversion: A number of jobs, in particular within the creative industries, are located at home. There is an opportunity to enable some of this residential floorspace to be converted to commercial use in either a live-work configuration or as a total conversion. This report assumes that 10 percent of all residential floorspace is converted to commercial. Although an optimistic proportion, this assumes residential intensification would be undertaken compensate for this loss. This commercial floorspace is modelled on a floorspace to jobs ratio of 20sqm/job. It also assumes that this conversion would not happen in the Ultimo-Central Precinct given the higher proportion of apartments.

Achievable strategic development: Certain sites within the Study Area could be developed in the short to medium term. Nine sites have been considered and their net floorspace increase has assumed a ratio of 20sqm/job. These site are: Redfern Station and the GCA Towers, North Eveleigh (East), Corner of Hay and Campbell Streets, Corner of Rawson and Pitt Streets, Regent Street, Corner of Regent and Cleveland Street (south), Centrelink Building (Redfern Street), Cope Street Carpark and the area around Eveleigh Street. These are identified on the economic assets map (Figure 15).

Step-change development: Some developments are dependent upon strategic government intervention or significant surrounding land value increase in order to be delivered. These are long-term propositions and include: Airspace above Central Station, the Lee Street Bus Depot, Railway airspace north of Cleveland Street and the Airspace north of Lawson Street. These are identified on the economic assets map (Figure 15).

In both the 'achievable strategic development' and 'step-change development' typologies, the development potential was guided by the built form that would likely support the identified uses. The focus on creative industries and innovation tends to locate in lower rise built form similar to those in Pyrmont-Ultimo (such as the Google headquarters). This typology was used to define floorspace potential.

When the potential development opportunities identified with the principles are converted to floorspace figures, they provide three different scenarios of increasing floorspace potential. This increase is due to each subsequent scenario assuming more ambitious development opportunities throughout the Study Area.

9.2 Agglomeration benefits

The term agglomeration is used in spatial economics to describe the benefits which flow to firms from locating in areas which have a higher density of economic activity. Macroeconomic theory describes agglomeration as part of 'economies of scale and scope'.

Locating in an area which has a higher density of economic activity (as measured by employment) allows firms to achieve economies of scale through access to an extensive customer base. Within this large customer base, the opportunity for economies of scope is presented to firms. That is, with increased numbers of clients, firms will be able to gain efficiencies by specialising in a particular field.

The competitive marketplace also presents a firm with many potential clients, freeing it from reliance on a single client. This enables firms to manage a range of business risks. The automotive manufacturing supply chain provides examples of the dangers of poor diversification of risk for firms. The closure of the automotive assembly plant generally results in the closure of component manufacturers.

Agglomeration also provides opportunities for firms to access a deep and diverse pool of skilled labour. With so many firms located together there will be a high level of technological / knowledge transfer between firms, which will help bolster innovation. This innovation is vital for firms to survive in a very competitive market place. Much of the knowledge transfer is provided by skilled labour moving between firms.

In order to determine the potential agglomeration benefits of these scenarios, an indicative delivery timeframe has been identified of ten years for each horizon. Therefore, in Scenario Three, development is expected to take place over thirty years. In practice it is difficult to outline specific delivery timeframes. This is because each horizon is dependent upon the preceding horizons to lay the foundation through land value uplift, critical mass of targeted activities and so on. For the purposes of forecasting agglomeration benefits, however, a ten year period per horizon has been applied.

9.3 Scenario One

Summary

Scenario One consists of development opportunities that build on policy changes and development incentives. These aim to build a critical mass of employment floorspace throughout the Study Area in order to capture some of the smaller creative industries and start-ups seeking to locate in the Chippendale-Surry Hills and Redfern-Darlington precincts. This level of development assumes that ten percent of residential dwellings in all but the Ultimo-Central Precinct turn over to commercial uses.

Throughout the Study Area, Horizon One principles also seek to intensify the use of existing commercial floorspace in line with trends witnessed in the CBD and globally. In this development strategy, jobs can be increased without the need for additional floorspace.

Floorspace and job potential

Scenario One suggests that there is up to 192,000 sqm of additional floorspace across the Study Area. This consists of floorspace that could be gained if residential floorspace was more flexibly used to accommodate live-work practices in existing residences. It assumes that Ultimo-Central's high density residential developments are not suited to this type of use and have therefore been excluded.

TABLE 30. SCENARIO 1: NET ADDITIONAL FLOORSPACE (SQM) AND JOBS BY PRECINCT

Precinct	Employment intensification		Residential conversion		Totals	
	f/space	jobs	f/space	jobs	f/space	jobs
Ultimo-Central	-	5,689	-	-	-	5,689
Chippendale-Surry Hills	-	3,117	53,342	2,667	53,342	5,784
Redfern-Darlington	-	3,024	77,368	3,868	77,368	6,893
Waterloo	-	-	61,652	3,083	61,652	3,083
Total	**-**	**11,830**	**192,361**	**9,618**	**192,361**	**21,448**

Agglomeration benefits

Under a Scenario One development approach, it would generate an additional $47.4 million by 2031 and $200.5 million by 2051.

TABLE 31. AGGLOMERATION BENEFITS OF SCENARIO ONE

Year	Scenario One ($ m)
2021	$8.2
2031	$47.4
2041	$122.2
2051	$200.5

9.4 Scenario Two

Summary

Scenario Two builds on the assumed development within Scenario One. In addition, it identifies opportunities for a range of infill development across the precincts (with the exception of the residential-focused Waterloo precinct). These development range in size and capacity, from opportunistic small development sites to more strategic projects such as the redevelopment of Redfern Station.

Floorspace and job potential

Scenario Two suggests that there is approximately 381,000 sqm of additional floorspace across the Study Area. Building on the Scenario One floorspace potential, it also includes significant development in and around Redfern Station as well as potential capacity increases at the southern end of the CBD on selected sites.

TABLE 32. SCENARIO 2: NET ADDITIONAL FLOORSPACE (SQM) AND JOBS BY PRECINCT

Precinct	Employment intensification		Residential conversion		Infill development		Totals	
	f/space	jobs	f/space	jobs	f/space	jobs	f/space	jobs
Ultimo-Central	-	5,689	-	-	78,000	3,900	78,000	9,589
Chippendale-Surry Hills	-	3,117	53,342	2,667	3,648	182	56,990	5,966
Redfern-Darlington	-	3,024	77,368	3,868	107,040	4,272	184,408	11,165
Waterloo	-	-	61,652	3,083	-	-	61,652	3,083
Total	**-**	**11,830**	**192,361**	**9,618**	**188,688**	**8,354**	**381,049**	**29,802**

Agglomeration benefits

Under a Scenario Two development approach, it would generate an additional $49.3 million by 2031 and $208.9 million by 2051.

TABLE 33. AGGLOMERATION BENEFITS OF SCENARIO TWO

Year	Scenario One ($ m)
2021	$8.6
2031	$49.3
2041	$127.3
2051	$208.9

9.5 Scenario Three

Summary

The final scenario furthers the development proposed in Scenario Two, increasing development opportunities around Redfern Station driven by the need to increase accessibility from the ATP westward towards the Carriageworks and Sydney University. Additionally, it envisages transformative development above Central Station's platforms and railyards.

Floorspace and job potential

The inclusion of significant and transformative development on and around Central Station could contribute an additional 579,000sqm of commercial floorspace.

TABLE 34. SCENARIO 3: NET ADDITIONAL FLOORSPACE (SQM) AND JOBS BY PRECINCT

Precinct	Employment intensification		Residential conversion		Infill development		Large-scale development		Totals	
	f/space	jobs	f/space	jobs	f/space	jobs	f/space	jobs	f/space	jobs
Ultimo-Central	-	5,689	-	-	78,000	3,900	140,880	7,044	228,000	17,089
Chippendale-Surry Hills	-	3,117	53,342	2,667	3,648	182	43,392	2,170	100,382	8,136
Redfern-Darlington	-	3,024	77,368	3,868	107,040	4,272	14,400	720	198,808	11,885
Waterloo	-	-	61,652	3,083	-	-	-	-	61,652	3,083
Total	**-**	**11,830**	**192,361**	**9,618**	**188,688**	**8,354**	**198,672**	**9,934**	**588,841**	**40,192**

Agglomeration benefits

Under a Scenario Three development approach, it would generate an additional $69.3 million by 2031 and $293.6 million by 2051.

TABLE 35. AGGLOMERATION BENEFITS OF SCENARIO THREE

Year	Scenario One ($ m)
2021	$12.1
2031	$69.3
2041	$178.8
2051	$293.6

9.6 Floorspace and job comparisons

Table 36 provides a summary of the potential commercial floorspace quantum for each Scenario.

TABLE 36. POTENTIAL NET COMMERCIAL FLOORSPACE BY PRECINCT

	Net new floorspace (sqm)		
Precinct	**Scenario 1**	**Scenario 2**	**Scenario 3**
Ultimo-Central	-	78,000	228,000
Chippendale-Surry Hills	53,342	56,990	100,382
Redfern-Darlington	77,368	184,408	198,808
Waterloo	61,652	61,652	61,652
Total	**192,361**	**381,049**	**588,841**

Table 37 identifies the conversion of this floorspace to job numbers by precinct for each of the scenarios. As identified above, there is no single floorspace to jobs ratio used. The conversions in Table 37 are a combination of various development types and therefore various floorspace to job ratios.

TABLE 37. POTENTIAL NET NEW JOBS BY PRECINCT

	Net new floorspace (sqm)		
Precinct	**Scenario 1**	**Scenario 2**	**Scenario 3**
Ultimo-Central	5,689	9,589	17,089
Chippendale-Surry Hills	5,784	5,966	8,136
Redfern-Darlington	6,893	11,165	11,885
Waterloo	3,083	3,083	3,083
Total	**21,448**	**29,802**	**40,192**

It is important to note that the floorspace quantum for each scenario makes a number of assumptions with regards to the amount of potential net new floorspace a site may deliver. This report does not undertake feasibility appraisal of these developments, nor does it undertake built form assessment of individual sites. Rather, it assesses surrounding building heights, site area coverage and existing uses to determine an approximate net additional floorspace figure.

The zoning principles outlined under Horizon One in several of the precincts assume that a proportion of floorspace within existing residential developments could make way for commercial development. This could either be through encouraging live-work arrangement for small businesses whilst retaining residential uses, or a replacement of residential uses for commercial uses. Again, this does not consider feasibility, nor does it consider the potential impact on residential demand within the Study Area and more broadly. Rather, it provide an indication of the potential floorspace available if precincts within the Study Area were to develop in a more mixed-use environment, whilst retaining the prevailing urban character that they currently have.

A breakdown of each precinct's net additional floorspace and net new jobs by precinct and travel zone is included in Appendix 2.

9.7 Agglomeration comparisons

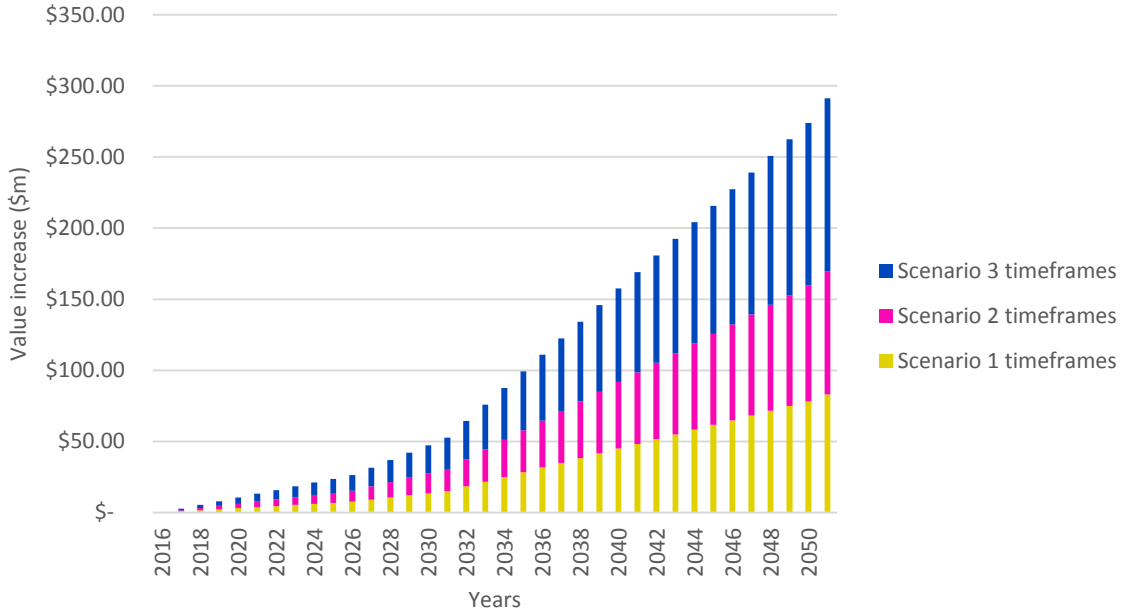
Each of the three development scenarios provides a different amount of floorspace and jobs. The agglomeration benefits across the three scenarios differ, with Scenario One creating an additional $93.6 million above Scenario One by 2051. This uses a Net Present Value (NPV) rate of 7%.

TABLE 38. COMPARISON OF AGGLOMERATION BENEFITS

Year	Scenario One ($m)	Scenario Two ($m)	Scenario Three ($m)
2021	$8.2	$8.6	$12.1
2031	$47.4	$49.3	$69.3
2041	$122.2	$127.3	$178.8
2051	$200.5	$208.9	$293.6

Figure 19 compares the relative value increases each scenario would generate between 2016 and 2051. The increase after ten to fifteen years is when larger scale development such as Redfern Station is likely to be realised.

FIGURE 19. AGGLOMERATION VALUE COMPARISON BY SCENARIO



9.8 Comparison to UrbanGrowth Scenarios

As part of UrbanGrowth's own work, they have developed three scenarios with different degrees of development. As Table 39 identifies, UrbanGrowth's low scenario estimates more floorspace but fewer jobs than SGS's Scenario One. UrbanGrowth's higher floorspace is likely due to the consideration that major development will happen under this scenario, just at lower levels. SGS's Scenario One only considers residential infill and intensification of existing commercial floorspace. The discrepancy in job numbers is due to the lower floorspace to job ratio used by SGS. Modelling undertaken in this report uses a range of 20-25 sqm per job whereas UrbanGrowth's figures use an average of 20 sqm per job. SGS's floorspace to job ratio is based upon observed floorspace ratios and market reports that identify a contraction from 'traditional' rates.

TABLE 39. FLOORSPACE AND JOBS COMPARISON – URBANGROWTH AND SGS SCENARIOS

Scenario (UrbanGrowth / SGS)	UrbanGrowth GFA	UrbanGowth jobs	Average floorspace to job ratio (sqm)	SGS GFA	SGS jobs	Average floorspace to job ratio (sqm)*
Low Scenario / Scenario One	286,990	14,349	20	192,361	21,448	9
Medium Scenario / Scenario Two	392,070	19,603	20	381,049	29,802	13
High Scenario / Scenario Three	503,106	25,155	20	588,841	40,192	15

* This is not an accurate reflection of the floorspace to jobs ratio due to different development methods being used to provide a total floorspace and jobs figure. This is explained in Appendix 4.

UrbanGrowth's medium scenario more closely aligns with SGS's Scenario Two. The floorspace discrepancy is much smaller (UrbanGrowth with 392,000sqm and SGS with 381,000sqm). This is likely due to more significant development opportunities being factored into SGS's scenario. Again, there is a job discrepancy and again a higher floorspace to jobs ratio is used.

SGS's Scenario Three forecasts more floorspace than UrbanGrowth's High scenario. This is due to the indicative floorspace quantum assumed on the development of Central Station, however SGS's quantum is aspirational.

As highlighted in Table 39, if a floorspace to jobs ratio is calculated directly from the table, the SGS figures report very low ratios, ranging from 9 to 15 sqm per job. This is due to some of the jobs being created in Horizon One developments occurring on existing commercial floorspace through intensification of job densities. When combined with the residential conversion development type (outlined in Section 9.1), which provides both floorspace *and* jobs, it appears that a high number of new jobs are being created on a limited amount of new floorspace. In practice, over 50% of these new jobs would be created in existing commercial developments and so would not impact on the floorspace to jobs ratios of new developments. This methodology is explained further in Appendix 4. The range used by SGS to calculate net new jobs ranges from 20 to 25 sqm per job and is summarised in Appendix 2.

10 SUMMARY

10.1 Summary of key issues

The Central to Eveleigh Study Area has the potential to develop its distinctive identity by encouraging development that suits patterns of industry demand and aligns with its urban form. This report addresses a number of issues regarding land use demand and potential growth opportunities.

The precinct is a point of convergence for multiple uses. On the fringe of the CBD, close to universities, good public transport accessibility and proximity to inner city employment lands, the Study Area has a number of characteristics and assets that can guide its economic and physical development.

The Central to Eveleigh Study Area is more than an extension of the CBD. This range of activities, coupled with the significant separation by rail and road infrastructure and competition from other centres, means that the Study Area should focus on uses it can attract that no other centre can.

The creative and innovation industries are growing in the area. Attracted to the area's CBD proximity and distinctive urban character, the Study Area is becoming Sydney's premier creative and innovation precinct. These industries are often attracted to urban character and particular built form typologies, not simply proximity opportunities.

The ATP is a strategic asset for the study area to build on. Although currently under-utilised, the ATP is well placed to consolidate its role as the strategic commercial centre for the Study Area, due to its large floorplate offering and proximity to Redfern Station. In order to achieve this, it needs a critical mass of complementary commercial uses such as supporting retail and a wider mix of industries along with better integration to Redfern Station and the University of Sydney and RPA.

The link to Universities is strong. With Sydney University and UTS both expanding and Redfern Station being the primary station for a number of students, the Study Area's link with the university sector is strong. This is furthered by the amount of student accommodation developing in the Study Area.

The future of the Sydney Metro station location is uncertain. Both Waterloo and the University of Sydney have been identified as potential station locations. Both will influence the Study Area in different ways, with Waterloo being a catalyst for greater intensification of land uses while Sydney University may lessen demand and footfall through Redfern.

Development will occur through numerous channels. The complexity, scale and number of stakeholders in the Study Area mean that a single delivery mechanism will not be appropriate for all developments. Instead, a range of partnerships are likely to deliver long-term change. These include: Partnerships between institutions (RPA and University of Sydney); Joint venture/Public Private Partnerships (UrbanGrowth and development partners); and inter-government partnerships such as between the City of Sydney and various State government agencies.

10.2 Summary of actions and development scenarios

The report also identifies a number of actions that would help to stimulate economic development throughout the Study Area. These actions manifest in development scenarios for how growth could occur.

There is no single governance solution. No single department organisation has control of the Study Area. Different economic development actions require different stakeholders in order to be implemented. These vary from local government teams through to public-private partnership opportunities and are driven by the scale and intent of the development opportunities.

CBD expansion should remain in the north of the Study Area. There is opportunity for the Study Area to accommodate some CBD expansion, however this should be contained in the northernmost precinct and may include development over Central station.

There are significant development opportunities over railyards. Between Central and Redfern Stations, there exists significant potential to deliver mixed-use floorspace over the long term. This requires significant capital investment and government support. Such development would be transformative for the Study Area and Redfern in particular.

Redevelopment of Redfern Station is catalytic for further development. A redevelopment of Redfern Station as part of any development proposal will be a catalyst for further investment in the ATP and Redfern's relationship with the University of Sydney.

Commercial floorspace doesn't need to be concentrated. Not all commercial development needs to be located in large floorplate developments. Many of the creative industries organisations require only small spaces and, initially, low rents. Flexibility in floorspace conversion throughout residential areas would encourage commercial floorspace throughout the Study Area. Organisations seeking premium floorspace may not always be attracted to areas of greater mix, preferring core commercial precincts, however industries suited to the Study Area are regularly found in areas of greater land use diversity.

Local character should be protected. Proximity to the CBD is not the only driver of employment growth in the Study Area. Many organisations are attracted to the character of the different precincts and protection of this is important in attracting future creative industry investment.

Strategic decisions should have government backing. Development of significant sites such as Central and Redfern Stations requires strategic and financial support from the government. The agglomeration benefits of development are demonstrated, but require commitment to deliver strategically located assets in order to achieve them.

Development scenarios depend on the degree of ambition and public sector support. Lower-scale development can be delivered through zoning and infill development flexibility. In order to achieve a higher floorspace quantum, government support for the development of major infrastructure (in particular Redfern Station) is necessary.

Take a long-term approach. In order to justify second and third horizon development, a critical mass of employment needs to be developed in the Study Area. This takes time and does not necessarily translate into large floorplate developments in the initial stages.

APPENDIX 1: CREATIVE INDUSTRY DEFINITION

'Creative industries' is often used inter-changeably as a loosely-defined term to capture a number of professions. SGS has sought to categorise these industries by the 4-digit ANZSIC category in order to provide structure to the definition and assist in forecasting growth. The broad definition of 'Creative Industries' used in this report contains the following industry classifications:

5622 Cable and Other Subscription Broadcasting
5600 Broadcasting (except Internet), nfd
1612 Printing Support Services
5413 Book Publishing
7000 Computer System Design and Related Services
5500 Motion Picture and Sound Recording Activities, nfd
J000 Information Media and Telecommunications, nfd
5420 Software Publishing
5411 Newspaper Publishing
9000 Creative and Performing Arts Activities, nfd
5620 Television Broadcasting, nfd
5510 Motion Picture and Video Activities, nfd
5700 Internet Publishing and Broadcasting
6940 Advertising Services
5412 Magazine and Other Periodical Publishing
5400 Publishing (except Internet and Music Publishing), nfd
2591 Jewellery and Silverware Manufacturing
5410 Newspaper, Periodical, Book and Directory Publishing, nfd
5621 Free-to-Air Television Broadcasting
9001 Performing Arts Operation
5610 Radio Broadcasting
5514 Post-Production Services and Other Motion Picture and Video Activities
5511 Motion Picture and Video Production
6921 Architectural Services
6924 Other Specialised Design Services
9002 Creative Artists, Musicians, Writers and Performers
6991 Professional Photographic Services

APPENDIX 2: PRECINCT DEVELOPMENT TABLE

Scenarios >>	Scenario 1 / Scenario 2 / Scenario 3									
Horizons >>	First Horizon (10 years)				Second Horizon (20 years		Third Horizon (30 years)		Totals	
Precinct	Summary	Employment intensification		Residential conversion		Infill development		Large-scale development			
	TZ	Net additional floorspace	Net new jobs	Net additional floorspace	Net new jobs	Net additional floorspace	Net new jobs	Net additional floorspace	Net new jobs	Total new floorspace (sqm)	Net new jobs
Ultimo-Central	125	-	847	-	-	-	-	-	-	-	847
Ultimo-Central	126	-	121	-	-	-	-	-	-	-	121
Ultimo-Central	127	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	128	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	129	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	130	-	402	-	-	-	-	-	-	-	402
Ultimo-Central	131	-	403	-	-	-	-	-	-	-	403
Ultimo-Central	133	-	39	-	-	-	-	-	-	-	39
Ultimo-Central	134	-	-	-	-	33,600	1,680	-	-	33,600	1,680
Ultimo-Central	135	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	136	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	137	-	13	-	-	-	-	-	-	-	13
Ultimo-Central	138	-	34	-	-	-	-	-	-	-	34
Ultimo-Central	139	-	216	-	-	-	-	-	-	-	216
Ultimo-Central	140	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	141	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	142	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	143	-	-	-	-	44,400	2,220	-	-	44,400	2,220
Ultimo-Central	144	-	10	-	-	-	-	-	-	-	10
Ultimo-Central	145	-	61	-	-	-	-	-	-	-	61
Ultimo-Central	146	-	-	-	-	-	-	150,000	7,500	150,000	7,500
Ultimo-Central	157	-	2,988	-	-	-	-	-	-	-	2,988
Ultimo-Central	159	-	-	-	-	-	-	-	-	-	-
Ultimo-Central	160	-	554	-	-	-	-	-	-	-	554

Chippendale-Surry Hills	192	-	272	1,448	72	-	-	-	-	1,448	344
Chippendale-Surry Hills	193	-	129	6,087	304	-	-	-	-	6,087	433
Chippendale-Surry Hills	194	-	-	-	-	-	-	-	-	-	-
Chippendale-Surry Hills	195	-	180	3,644	182	-	-	-	-	3,644	363
Chippendale-Surry Hills	197	-	-	1,833	92	-	-	-	-	1,833	92
Chippendale-Surry Hills	198	-	-	6,233	312	-	-	-	-	6,233	312
Chippendale-Surry Hills	200	-	57	36	2	-	-	-	-	36	59
Chippendale-Surry Hills	201	-	459	14,435	722	-	-	-	-	14,435	1,180
Chippendale-Surry Hills	205	-	71	2,530	127	-	-	-	-	2,530	197
Chippendale-Surry Hills	206	-	37	-	-	-	-	-	-	-	37
Chippendale-Surry Hills	207	-	595	13,659	683	-	-	-	-	13,659	1,278
Chippendale-Surry Hills	208	-	705	-	-	-	-	43,392	2,170	43,392	2,874
Chippendale-Surry Hills	209	-	612	3,436	172	3,648	182	-	-	7,084	967
Redfern-Darlington	210	-	261	3,859	193	25,632	1,282	-	-	29,491	1,736
Redfern-Darlington	211	-	195	3,544	177	1,200	60	-	-	4,744	433
Redfern-Darlington	212	-	1	11,717	586	2,640	132	-	-	14,357	719
Redfern-Darlington	213	-	87	5,069	253	-	-	-	-	5,069	341
Redfern-Darlington	215	-	459	6,616	331	28,128	326	14,400	720	49,144	1,836
Redfern-Darlington	216	-	268	461	23	45,600	2,280	-	-	46,061	2,571
Redfern-Darlington	217	-	195	1,593	80	3,840	192	-	-	5,433	466
Redfern-Darlington	218	-	211	8,036	402	-	-	-	-	8,036	613
Redfern-Darlington	219	-	174	9,224	461	-	-	-	-	9,224	635
Redfern-Darlington	222	-	727	8	0	-	-	-	-	8	727
Redfern-Darlington	223	-	-	2,389	119	-	-	-	-	2,389	119
Redfern-Darlington	239	-	309	-	-	-	-	-	-	-	309
Redfern-Darlington	240	-	77	6,759	338	-	-	-	-	6,759	415
Redfern-Darlington	243	-	21	5,309	265	-	-	-	-	5,309	287
Redfern-Darlington	244	-	38	2,396	120	-	-	-	-	2,396	158
Redfern-Darlington	246	-	-	10,388	519	-	-	-	-	10,388	519
Waterloo	254	-	-	4,081	204	-	-	-	-	4,081	204
Waterloo	256	-	-	8,253	413	-	-	-	-	8,253	413
Waterloo	257	-	-	8,422	421	-	-	-	-	8,422	421
Waterloo	258	-	-	10,970	548	-	-	-	-	10,970	548
Waterloo	270	-	-	18,119	906	-	-	-	-	18,119	906
Waterloo	271	-	-	11,808	590	-	-	-	-	11,808	590
		-	11,830	192,361	9,618	188,688	8,354	207,792	10,390	588,841	40,192

APPENDIX 3: AGGLOMERATION MODELLING

Theoretical Underpinnings

The term agglomeration is used in spatial economics to describe the benefits which flow to firms from locating in areas which have a higher density of economic activity. Macroeconomic theory describes agglomeration as part of 'economies of scale and scope'.

Locating in an area which has a higher density of economic activity (as measured by employment) allows firms to achieve economies of scale through access to an extensive customer base. Within this large customer base, the opportunity for economies of scope is presented to firms. That is, with increased numbers of clients, firms will be able to gain efficiencies by specialising in a particular field.

The competitive marketplace also presents a firm with many potential clients, freeing it from reliance on a single client. This enables firms to manage a range of business risks. The automotive manufacturing supply chain provides examples of the dangers of poor diversification of risk for firms. The closure of the automotive assembly plant generally results in the closure of component manufacturers.

Agglomeration also provides opportunities for firms to access a deep and diverse pool of skilled labour. With so many firms located together there will be a high level of technological / knowledge transfer between firms, which will help bolster innovation. This innovation is vital for firms to survive in a very competitive market place. Much of the knowledge transfer is provided by skilled labour moving between firms.

Literature related to agglomeration can be traced back to the work of Marshall (1920). Despite the passage of a century, this still provides an excellent conceptual analysis of the benefits which firms can gain by occupying a strategic location. Within this conceptual framework, agglomeration has since been measured in a number of ways including city population (Aaberg, 1973; Tabuchi, 1986), industry employment (Nakamura, 1985; Henderson, 1986), the number of industrial plants (Henderson, 2003b) and 'effective job density' (Graham, 2006).

Although all these methods attempt to measure the same basic economic phenomena, there are two somewhat distinct effects at work. The first is that the larger the city (in terms of population, employment, or economic production), the higher the labour productivity. The literature often refers to this as **urbanisation**. The second is related to the spatial organisation of the city (the ease at which firms can interact with each other). The literature often refers to this as **localisation**.

Consider two cities, A and B, each with a population of five million people. Both will gain a labour productivity premium from their size. However, economic activity in City A is poorly linked while City B features distinct employment centres which are well integrated via a robust transport network. In this case the labour productivity in City B is likely to be higher than City A.

Elements of the Agglomeration Modelling

Effective Job Density

A simple measure such as looking at the employment density of an area does not adequately reflect the phenomenon of agglomeration. A firm in a relatively low-employment area but located on the edge of a Central Business District (CBD) could potentially capture agglomeration benefits through such proximity. Thus a measure of agglomeration must "incorporate both proximity and the scale of the economic activity and …be calculated for very small areas" (Graham, 2006).A travel time matrix (sourced from the NSW Government's Strategic Transport Model) shows how long it takes to travel from one zone in the city to all other zones by both car and public transport. In the analysis presented in this section the travel times have been converted from the travel zone level to a Statistical Area 2 (SA2) level.

This measure of effective job density (EJD) enables a more 'real life' representation of the proximity (in terms of travel time) component of agglomeration that other more basic measures overlook. That is, a rational commuter would use the mode of transport which minimises their travel costs including value of time and any monetary cost.

Estimate the EJD for each zone.

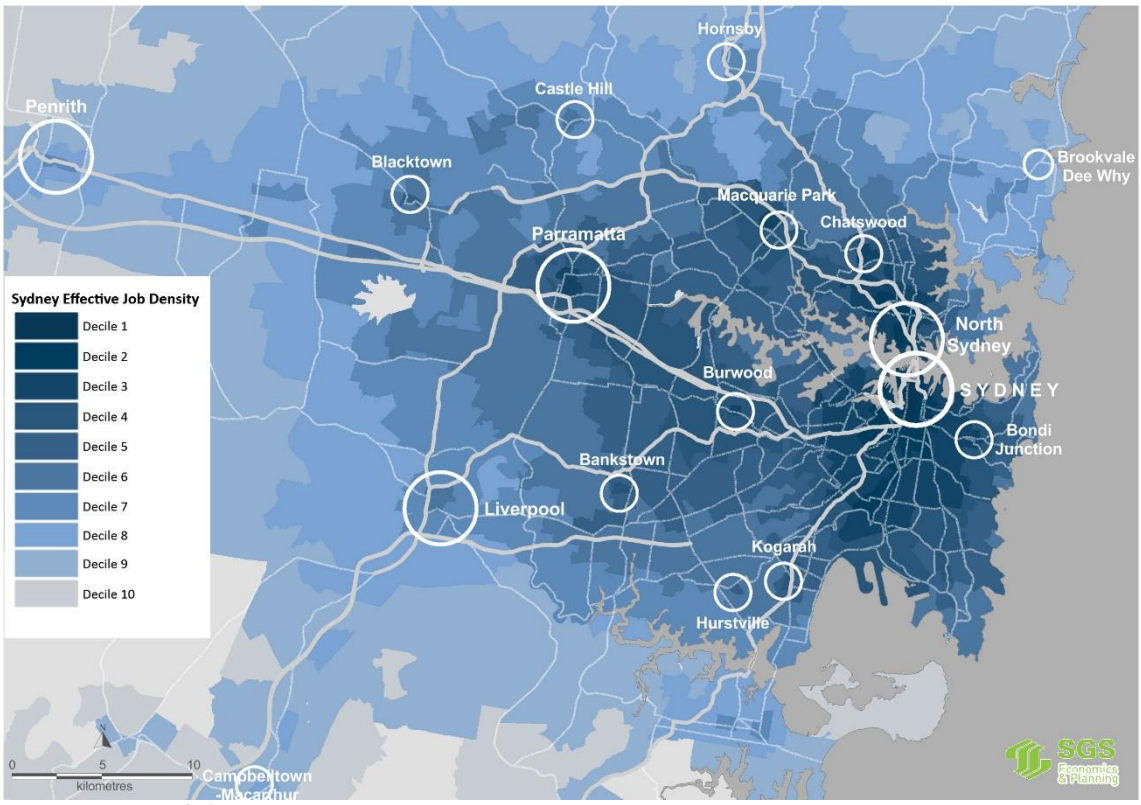
$$EJD_i = \sum_j \left(\frac{PT\ Mode\ Share_j \times Emp_j}{PT\ Travel\ Time_{ij}} + \frac{(1 - PT\ Mode\ Share_j) \times Emp_j}{PV\ Travel\ Time_{ij}} \right)$$

Where:

EJD_i= Effective Job Density for zone i
$PT\ Mode\ Share_j$ = per cent of work trips which involve public transport for zone j
Emp_j= number of jobs/employment within zone j
$PT\ Travel\ Time_{ij}$ = time it takes to travel on public transport from zone i to zone j
$PV\ Travel\ Time_{ij}$ = time it takes to travel by private vehicle from zone i to zone j

Figure 20 presents the EJD pattern for Sydney.

FIGURE 20. EFFECTIVE JOB DENSITY



Source: SGS Economics & Planning

Labour Productivity

Labour productivity[6] is calculated by dividing the Gross value added (GVA) for an industry by the total number of hours worked in that industry. Gross value added is a measure of economic activity. It is the sum of all wages and profits generated by economic units within a particular area.

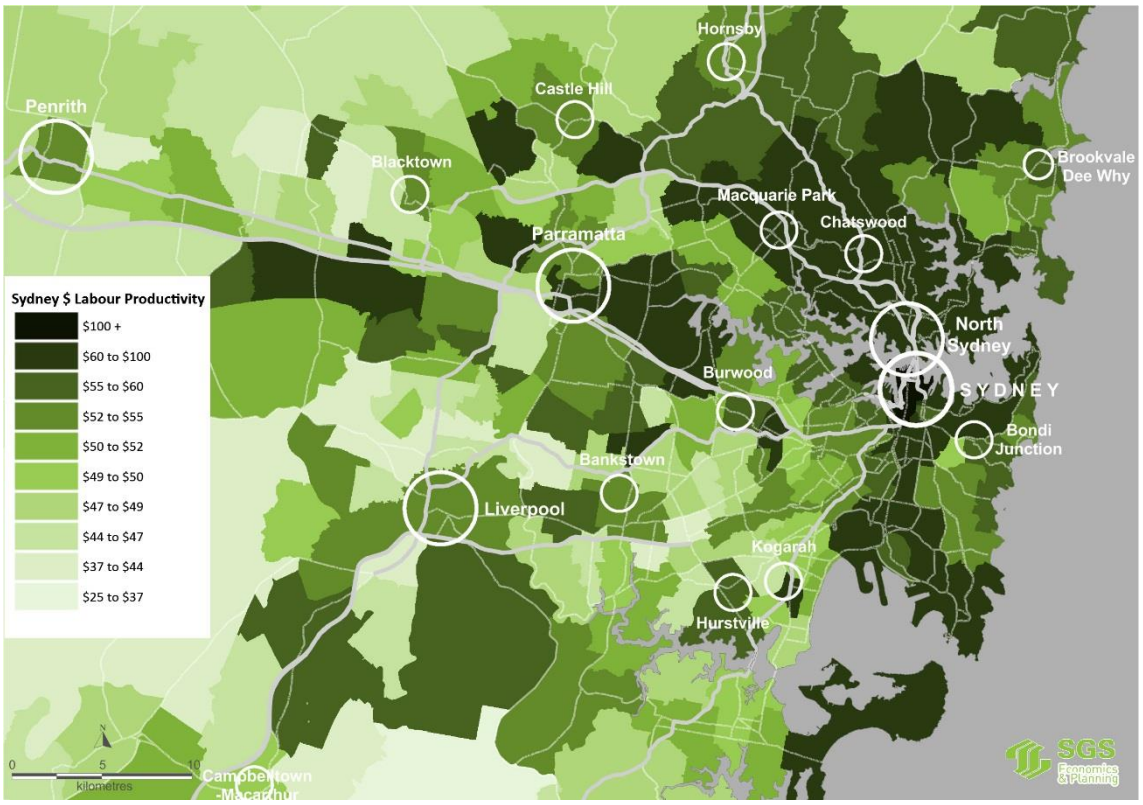
$$LP_i = \frac{GVA_i}{Hours\ Worked_i}$$

Where: LP_i is the Labour Productivity for zone i
GVA_i is the Gross Value Added for zone i
$Hours\ Worked_i$ is the number of hours worked for zone i

Figure 21 presents the labour productivity profile for Sydney.

[6] Labour productivity is a partial measure of productivity as changes in GVA could be driven by changes to other factors of production such as capital. The most comprehensive measure of productivity is known as Multifactor Productivity (MFP). MFP measures the ratio of growth in GVA to growth in both labour and capital inputs and also represents that part of the change in GVA that has not been explained by changes in labour and / or capital. However, do to data limitations only labour productivity is available at the small area level.

FIGURE 21. LABOUR PRODUCTIVITY



Regression Analysis

The degree to which agglomeration affects labour productivity for each industry is now estimated using a translog regression where the natural log of labour productivity levels for the respective industry is regressed against the natural log of effective job density by SA2. The statistical relationship has been estimated as follows:

$$\log_n(\mathrm{ILP_i}) = \beta_0 + \beta_1 \, w \log_n(\mathrm{EJD_i}) + \beta_2(Other_i) + \varepsilon_i$$

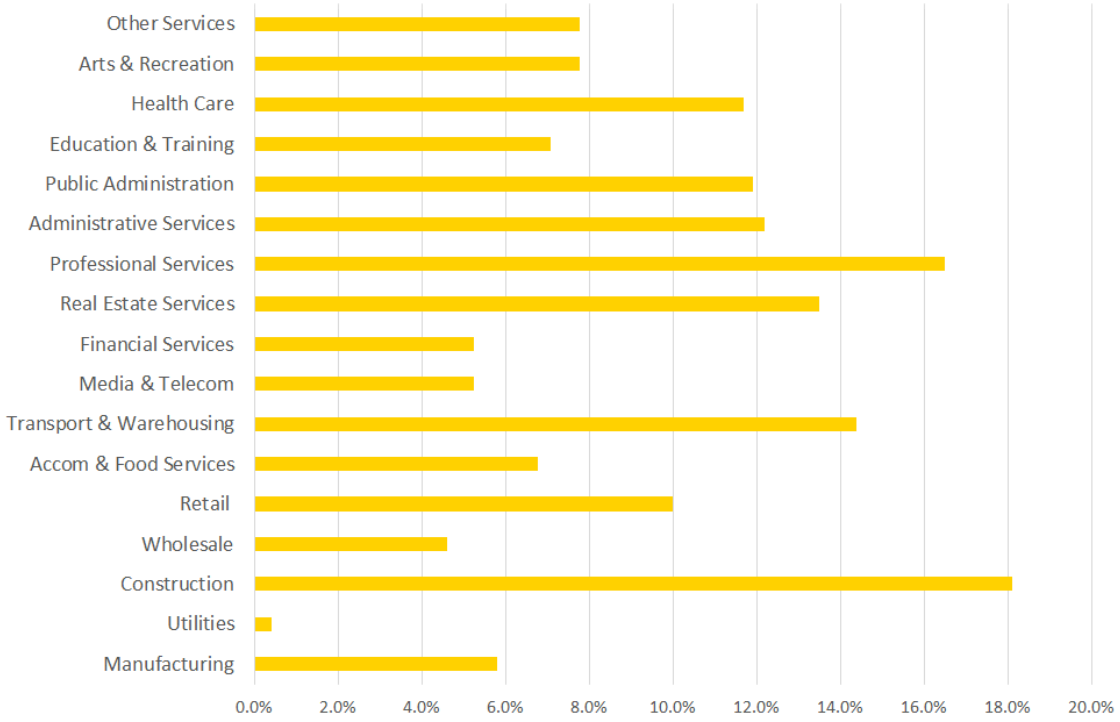
Where:

$\mathrm{ILP_i}$ is the Industry Labour Productivity for SA2 i
$\mathrm{EJD_i}$ is the Effective Job Density for SA2 i
$\mathrm{Other_i}$ are other industry specific variables[7] for each for SA2 i
w is the weighted based on total SA2 i industry GVA and
ε_i is a zero mean random disturbance.

This statistical analysis results in an estimate of the relationship (elasticity) between EJD and labour productivity. The elasticity shows how a one unit increase in EJD will impact on labour productivity. The industry specific elasticity are shown below.

[7] Other variables included in the regression analysis included CBD dummy, port dummy, higher amenity dummy and industrial mass dummy.

FIGURE 22. INDUSTRY ELASTICITY



APPENDIX 4: FLOORSPACE TO JOBS RATIO METHODOLOGY

There is an apparent discrepancy in floorspace to jobs ratios across SGS's three development scenarios identified in Table 39 of Section 9.8. Using a simple calculation of floorspace per job is calculated from the total floorspace and total job columns in the SGS scenarios, it presents a series of very low ratios, ranging from 9 sqm per job to 15 sqm per job. The low ratios expressed in Table 39 are a result of the two development types that make up Horizon One (commercial floorspace intensification and residential conversion) having distinctly different qualities but being combined for reporting purposes. In the first development type, the conversion of residential floorspace to commercial adds both jobs *and* floorspace to the total figures as new commercial floorspace is being created at the expense of residential floorspace. This is done at a floorspace to jobs ratio of 20sqm per job.

However, the second development type, commercial intensification, is simply a process of extracting more jobs out of floorspace that currently has a ratio greater than 25 sqm per job. Increasing the efficient use of floorspace currently above 25sqm per job would *only add jobs* to the equation, not floorspace, as it is occurring on pre-existing commercial floorspace. As such, this equation would return a ratio of zero sqm per job if net new floorspace per net new job was being calculated. In reality, it is assuming that across all pre-existing commercial floorspace in the Study Area (except Waterloo Precinct), current job density would uniformly condense to 25sqm per job where it is currently above this ratio, thereby increasing efficiency and creating the potential for additional jobs.

When combined, as in Horizon One, and reported as a total figure (as it is in Scenario One), it provides two separate amounts of net job increases (11,830 and 9,618) but only one lot of floorspace increase (192,361sqm). 55% of the jobs are therefore not actually occurring on net new floorspace and therefore should not be included in the calculation of ratios. This is explained in Table 40 and more detail is provided in Appendix 2.

TABLE 40. EXPLANATION OF JOBS TO FLOORSPACE RATIOS: SCENARIO ONE

	Commercial floorspace intensification		Residential floorspace conversion		%age of net new jobs occurring on net new floorspace
	Floorspace (sqm)	Jobs	Floorspace (sqm)	Jobs	
Study Area total	0	+ 11,830	+ 192,361	+ 9,618	45%

As each of the three development scenarios uses Horizon One as a base, a simplified calculation of floorspace to jobs ratio therefore distorts the global jobs to floorspace ratio for each. As more new floorspace is subsequently added in Scenarios Two and Three, this 'pulls' the average back towards the 20-25sqm range used in the calculations (to 13sqm per job under Scenario Two and to 15sqm under Scenario Three).

It is therefore counter-intuitive to apply a simplified floorspace to jobs ratio to the scenarios as a basis for comparison to the UrbanGrowth scenarios as has been done in Table 39. For all new floorspace estimated in the SGS scenarios, it will be delivered at a floorspace to jobs ratio range of between 20 and 25 sqm per job.

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