

ATTACHMENT BOOKLET 2

ORDINARY COUNCIL MEETING

TUESDAY 23 APRIL 2013



TABLE OF CONTENTS

Item No	Subject	
ATTACHMENT BOOKLET 1		
7.2	TREASURY CORPORATION NEW SOUTH WALES FINANCIAL ASSESSMENT, SUSTAINABILITY AND BENCHMARKING REPORT FOR WARRINGAH COUNCIL	
	Attachment 1: TCorp Financial Assessment, Sustainability and Benchmarking Report.....	2
	Attachment 2: TCorp Financial Assessment of NSW Councils.....	41
	Attachment 3: TCorp Financial Assessment of NSW Councils Appendix 1.....	43
	Attachment 4: TCorp Report - Financial Sustainability of the New South Wales Local Government Sector	46
9.2	DRAFT SUSTAINABLE TRANSPORT STRATEGY	
	Attachment : Draft Sustainable Transport Strategy	134
ATTACHMENT BOOKLET 2		
9.3	WARRINGAH EMPLOYMENT STUDY 2013	
	Attachment : Warringah Employment Study	167
9.5	INTERIM REPORT NARRABEEN LAGOON RECREATIONAL DREDGING	
	Attachment : Maps and List of Feasible Dredging Sites	336
ATTACHMENT BOOKLET 3		
9.6	PUBLIC EXHIBITION OF THE FINAL DRAFT MANLY LAGOON FLOOD STUDY	
	Attachment 1: Draft Manly Lagoon Flood Study	347
	Attachment 2: Draft Manly Lagoon Flood Study - Mapping Compendium.....	479
	Attachment 3: Draft Manly Lagoon Flood Study - Flood Planning Level Report.....	547

Warringah Employment Study 2013

Final Report

Warringah Council

April 2013

Prepared for
Warringah Council



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Table of Contents

1	Introduction	1
1.1	Study background	1
1.2	Scope of the work.....	2
2	Local profile	4
2.1	Location	4
2.2	Population	8
2.3	Employment and industry profile	9
2.4	Emerging issues	21
3	Development context.....	25
3.1	Policy context and document review	25
3.2	Broader trend and drivers.....	25
3.3	Emerging issues	35
4	Employment land supply	37
4.1	Development controls	37
4.2	Employment generating lands audit	42
	Audit method.....	42
	ANZSIC codes and Broad Land Use Categories (BLCs)	43
	Audit areas	46
	Audit results	47
4.3	Subregional employment precincts assessment	49
5	Supply and Demand Analysis.....	57
5.1	Key steps	57
5.2	Emerging issues	77
6	Key issues and recommendations	79
6.1	Review of findings and key issues.....	79
6.2	Strategies and actions.....	89
	Appendix 1: Policy and document review	99
	NSW 2021 Plan	99
	Metropolitan Plan for Sydney 2036	99
	Draft North East Subregional Strategy	101
	SHOROC Regional Employment Study (Hill PDA 2010)	102
	SHOROC 'Shaping Our Future' Study (SHOROC, 2010).....	104
	Northern Beaches Key Worker Study (Epic DotGov, 2004).....	105
	Frenchs Forest Specialised Centre – State Significant Site Study (COX, 2010).....	106

Table of Contents

Employment Land Development Program (ELDP) 2010 – Report 6, North East Subregion .	106
Draft Brookvale Employment Lands Issues Paper.....	107
Appendix 2 – Land audit results	109
Appendix 3 - Precinct by precinct analysis	124
Introduction.....	124
Main employment precincts	124
Special purpose precincts	154

1 Introduction

1.1 Study background

Warringah is one of four councils within Shore Regional Organisation of Councils (SHOROC), a partnership between Manly, Mosman, Warringah and Pittwater Councils that make up the region of the Northern Beaches from Bradleys Head to Barrenjoey. The SHOROC economy in 2010 was worth \$13.0 billion or about 5% of Sydney's Gross Regional Product.

Located in the North East subregion (which consists of all SHOROC Council's except Mosman), Warringah has the highest number of jobs in employment lands within this subregion. In 2006, there were around 45,540 jobs¹ located in employment lands in the Warringah LGA, representing more than 60% of all jobs in the subregion. This also accounted for 3% of all jobs within employment lands throughout the Sydney Region. The *Metropolitan Plan for Sydney 2036* sets an employment capacity target for North East Subregion of 112,000 jobs by 2036 (additional 23,000 jobs from 2006).

In 2009, over 85% of registered businesses in the SHOROC region were classified micro and small businesses employing between either none or up to four employees. As at June 2009, over 83% of the 15,857 businesses in Warringah LGA had a turnover up to \$500,000².

The Sydney Metropolitan Plan 2036 designates Brookvale-Dee Why as a Major Centre. The two are physically separated and have distinct characteristics and they will continue to have complementary roles. Bringing the two together highlights the opportunities to build strong employment and activity centres and to focus inter-regional and intra-regional public transport improvements on the two centres. Around 30% of Warringah's jobs are located at the Brookvale-Dee Why Major Centre³.

The following key trends in job sector for the 2006-10 period were identified in the *Warringah Economic Development Plan* (2011):

- The increase of construction jobs over retail jobs growth to almost equal numbers (15,964 construction jobs and 14,452 retail jobs in 2010)
- The rising levels of jobs in the professional, scientific and technical services with almost 1,800 new jobs created between 2006 and 2010
- The loss of health care and social assistance jobs of around 10% (or 1,698 jobs) following closely the drop for the Sydney SD of 9.5% for this same period
- The loss of education and training jobs over the period, down 641 jobs for the SHOROC region
- The total increase of jobs in the SHOROC region increasing by 3,380 to 104,513 jobs in 2010.

¹ Bureau of Transport Statistics (2009), Employment Forecasts by Travel Zone

² Warringah Council (2011) Warringah Economic Development Plan.

³ Bureau of Transport Statistics (2009), Employment Forecasts by Travel Zone

The industry sectors trend for SHOROC in the 2001–06 period reveals a gradual decline of traditional manufacturing amongst the SHOROC councils. The manufacturing business sector movement to cheaper, larger land packages further west in Sydney (and greater transport infrastructure involving simpler distribution logistics) is a clear trend. The increase of employment in health and community services areas reflects the demands of an ageing SHOROC population and existing strengths associated with the hospitals and allied healthcare services⁴.

A total zoned Employment Lands supply of 242 hectares in the North East Subregion accounts for over 1.5% of the Sydney Region's total stocks, according to the *Employment Land Development Program (ELDP) 2011 Update Report*. The report found that Warringah LGA supplied 79% of the subregion's total stocks or 191 hectares. This includes 85 hectares at the Brookvale-Dee Why Major Centre, 57 hectares in Frenchs Forest Industrial Area and 44 hectares in Cromer Industrial Area. The majority of undeveloped zoned land⁵ in the North East Subregion is also located within Warringah LGA, particularly in Brookvale-Dee Why Centre (0.3 hectares), Frenchs Forest (1.5 hectares) and Cromer (0.6 hectares) Industrial Areas. In terms of the demand for employment precincts in the subregion between 2001/02 and 2008/09, the highest values of warehouse building and factory building approvals were also in Warringah LGA (at \$63 million and \$43 million). Warringah also had around \$23 million of 'other industrial' building approvals during this period, likely to be associated with high-technology industries⁶.

In terms of the broader strategic land use planning context, the Warringah Employment Strategy needs to demonstrate the LGA's ability to accommodate the additional employment capacity target of 12,500 jobs from 2001 to 2031 set by the Draft North East Sub-regional Strategy. This is equivalent to an additional employment target of 7,500⁷ jobs for the period from 2013 to 2031.

1.2 Scope of the work

This study aims to deliver Phase 2 *Assessment of Economic Development* of the Warringah Employment Strategy development process which consists of three phases:

- Phase 1: Employment Precinct Profile
- Phase 2: Assessment of Economic Development
- Phase 3: Strategic Recommendations and Implementation Plan

A number of objectives as identified in the project brief are:

- Clearly understand the supply and demand for 46 employment precincts, now and to 2031 and 2036

⁴ Warringah Council (2011) Warringah Economic Development Plan.

⁵ This is only industrial or commercial zoned land

⁶ Department of Planning and Infrastructure (2011) Employment Lands Development Program 2010 - Report 6 North East Subregion. May 2011. Sydney. Government of New South Wales.

⁷ This assumes that employment growth in Warringah from 2001 to 2013 has been on track to achieve the 20 year employment capacity target set by the Draft North East Sub-regional Strategy.

- Establish a robust analysis upon which to base future land use planning decisions, including the zoning of lands, the prioritisation of future development opportunities (short, medium and long term)
- Better understand the needs and demands of the local business community and workforce so as to inform future planning decisions
- Suggest methods to improve and strengthen employment containment in Warringah

The Assessment of Economic Development will also take into account the principles of sustainable economic development.

2 Local profile

2.1 Location

Warringah is the largest local government area in the SHOROC subregion, located between Manly to the south, Mosman to the south east and Pittwater to the north. The Metropolitan Strategy uses a slightly different boundary for its North East sub-region, which excludes Mosman. Warringah is centrally located on a north-south spine between Pittwater and Manly. The main access north-south road is Pittwater Road, which connects the area to many ferries and buses, and the Spit Road, which provides road access to the city. Warringah also has strong and growing east-west links, between the major centre of Brookvale Dee Why to Frenchs Forest and Forestville along Warringah Road, and with a link across Forest Way to Belrose and onto Austlink/Terry Hills.

The North East subregion grew strongly in the 1950's, mainly driven by the natural amenities and access to major employment centres, particularly the Sydney CBD and later North Sydney. More recently Warringah has developed stronger linkages with Chatswood, Ryde, St. Leonards and Macquarie Park, with access along Pittwater Road and Mona Vale Road. It is well known that infrastructure investment has not kept pace with economic activity and population growth, resulting in increased car dependence and a high degree of traffic congestion.

As part of NSW 2021, the NSW Government prepared regional action plans for regions across the state, including within Sydney. For the Northern Beaches, the Community Discussion paper highlights the importance of addressing major transport infrastructure impediments to, from and within the region by investing in additional road capacity and strengthening new economic and employment opportunities within the region. In particular, local and state governments recognise the importance of upgrading transport infrastructure around the proposed Frenchs Forest Hospital, which is at the geographic centre of the area.

There are three interesting features in relation to employment locations for the local resident workforce. These include:

- Warringah has a high degree of employment self-containment compared to many suburban local government areas, with a relative large number of local jobs potentially available for local workers;
- Around 22% of resident workers work in global Sydney, an area encompassing the Sydney CBD and North Sydney. This is relatively high compared to many local government areas in the metropolitan area;
- A relatively large and growing number of local workers actually work from home.

In 2006, there were 55,290 jobs located in Warringah. By 2036, the Bureau of Transport Statistics forecasts that employment capacity will increase to 69,784. This creates the need to plan for an additional 15,500 jobs in the area. To ensure optimal outcomes, most additional jobs will need to be accommodated in major activity centres, particularly Brookvale-Dee Why Major Centre, and

existing employment lands, including zoned industrial areas and business parks. In addition, more jobs will be home-based work and located in other dispersed locations.

Brookvale-Dee Why Major Centre

The Sydney Metropolitan Strategy develops a framework to compact employment in accessible strategic centres and employment lands. Strategic Centres play a vital role in shaping the future of the Greater Metropolitan Region and its subregions. Strategic Centres, which are comprised of the global centre, regional cities, specialised centres and major centres, are essential to sustainable growth and, as Sydney moves towards a service and knowledge-based economy, they provide a focus for economic activity within subregions and across the greater metropolitan region (GMR). Strategic centres are areas that compact activities such as service-based industries, employment, services and shopping. The Metropolitan Strategy defines a strategic centre as a centre with more than 8,000 jobs. The North East Subregion, encompassing Manly, Pittwater and Warringah, lacked a single physical centre of this scale. To encourage further compactness, the 2005 Metropolitan Strategy City of Cities: A Plan for Sydney's Future brought together two smaller, proximate and complementary centres Brookvale and Dee Why and designated the combined area as a Major Centre servicing the North East Subregion of Sydney.

Dee Why is the primary civic, recreational and community centre with a large residential component and lifestyle commercial focus along the beachfront, while Brookvale has the major employment, industrial and retail role for the Subregion. The two areas are distinctive and separated from each other physically, but connected by the Pittwater Road Enterprise Corridor. The complementarities between them create an opportunity, despite the physical separation, to consolidate a single centre and transport hub over time. They are designated as a single centre in order to focus land-use and transport planning on this area to consolidate a major activity area in the North East Subregion.

Employment is growing strongly in the Major Centre. Between 2001 and 2006, employment in Brookvale-Dee Why grew from 10,300 jobs to 12,300 jobs. This has reinforced the role of Brookvale, as an important activity centre, able to service the large catchment area of the North East Subregion. Brookvale-Dee Why is on track to attain the employment capacity target of an additional 5,000 jobs (by 2036) set by the Sydney Metropolitan Strategy, although significant traffic upgrades are required to deliver this target. An important challenge is how to increase transport capacity. The draft Dee Why/Brookvale Transport Management and Accessibility Study (TMAS) finds that the Brookvale-Dee Why Major Centre could accommodate an additional 3,500 jobs⁸ under the current road network conditions (with a range of 'lower order' transport improvements identified by the draft TMAS).

Brookvale comprises approximately 166 hectares of predominantly retail and construction oriented businesses provided approximately 5,000 jobs in 2001. Some vital social services are provided in Brookvale such as regional scale medical centres and a Centrelink office. The majority of businesses, however, are industrial, warehousing and ancillary services, with an emerging market

⁸ Note that overspill 1500 jobs (5000-3500) and associated floorspace demand have been redistributed to other employment precincts. The detailed assumptions in relation to the redistribution are provided in section 5 of this report.

in commercial office activities. It is important to recognise that the North East doesn't have a significant commercial office market, although a high proportion of the local labour force are employed in commercial office activities, particularly finance and business services.

Brookvale contains Warringah Mall, opened in 1963. It provides valuable employment and retail opportunities to the Northern Beaches and the Lower North Shore. Northern Sydney Institute of TAFE, Northern Beaches Campus is also located in Brookvale and provides tertiary education to the North East Subregion. These facilities are bounded to the north, east and west by employment lands containing light industry and commercial enterprises.

Dee Why contains a number of civic, cultural and social amenities including Warringah Council, Warringah Library, neighbourhood centre and a senior citizens club, as well as lifestyle commercial along the Strand. Pittwater Road contains street front (strip) retail development that extends into side streets, especially in the eastern portion of Dee Why where there is significant retail clustering. Dee Why has the potential to become an active main street. There are medium density three storey walk-up flats east of Pittwater Road towards the beach, with some new five and six storey developments as part of the Dee Why Town Centre Masterplan. West of Pittwater Road is a retail strip leading to detached suburban dwellings.

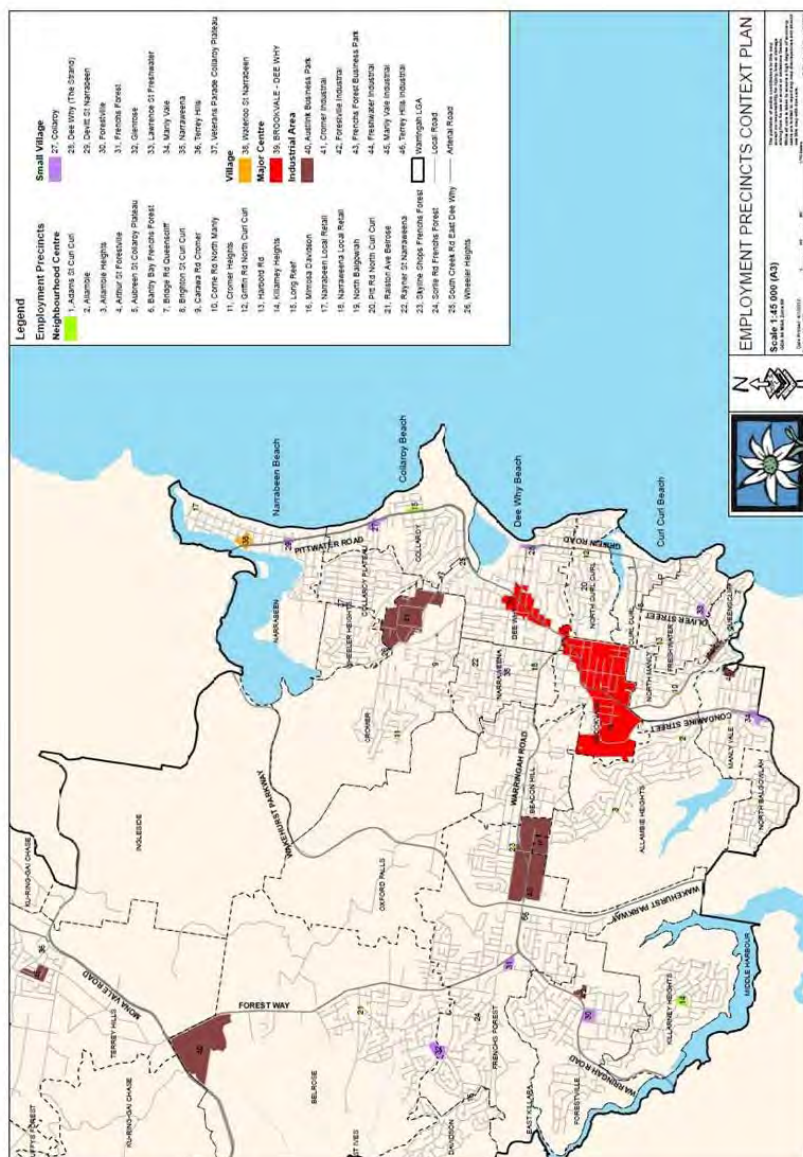
Brookvale-Dee Why is one of only two Major Centres in Sydney not on the rail network, which may have inhibited the development of a stronger commercial presence in the centre, despite its nomination as a subregional centre in the 2005 Metropolitan Strategy. Poor transport access to and from the rest of Sydney reinforces the importance of Brookvale-Dee Why to provide employment, retail and administration services for the North East Subregion.

The combined total number of jobs for Brookvale-Dee Why Major Centre in 2001 was 13,500 (North East Subregional Strategy). The anticipated total jobs forecast for the Major centre is 21,540 in 2031 and 22,350 in 2036, according to the Bureau of Transport Statistics. However, this can only be accommodated if existing traffic conditions are improved.

Employment precincts

Warringah LGA has 46 employment precincts ranging from large scale industrial areas, to small neighbourhood centres. As shown on the map below, employment precincts include:

- Major Centre
- Villages
- Small Villages
- Neighbourhood Centres
- Industrial Areas



Source: Study Brief for the Economic Analysis of Wamingah Employment Strategy (2012)

2.2 Population

The population of Warringah LGA has experienced steady growth at an average annual rate of 1.1% since 2001. This is slightly lower than the growth rate of 1.4% per annum in NSW. The LGA was home to 147,000 residents in 2011⁹.

Department of Planning and Infrastructure (DP&I) population projections (2010) suggest that the Warringah population will grow from 139,200 in 2011 to 162,000 in 2036, an increase of 23,000 people. As shown in the table below, population increases are expected in all age groups (including children 0-14), but the largest increase will be in the 65+ cohort, projected to increase from 21,700 in 2011 to 28,400 in 2036.

Table 1. Population projection for Warringah, 2006 - 2036

Age	2006	2011	2016	2021	2026	2031	2036
0-4	9,430	9,350	9,220	9,590	9,900	10,270	10,610
5-9	8,640	9,390	9,210	9,240	9,480	9,770	10,100
10-14	7,980	8,690	9,120	9,090	9,040	9,270	9,530
15-19	7,960	8,340	8,750	9,210	9,120	9,090	9,290
20-24	8,180	8,980	9,190	9,640	9,960	9,960	10,000
25-29	9,330	9,340	9,810	10,180	10,430	10,730	10,910
30-34	11,670	10,790	10,880	11,440	11,710	11,940	12,240
35-39	11,700	12,340	11,550	11,920	12,330	12,630	12,860
40-44	11,160	11,420	11,740	11,290	11,560	11,920	12,220
45-49	9,580	10,380	10,380	10,770	10,340	10,600	10,920
50-54	8,390	8,770	9,230	9,330	9,580	9,250	9,490
55-59	7,880	7,510	7,700	8,160	8,180	8,390	8,150
60-64	6,760	6,900	6,510	6,770	7,100	7,120	7,310
65+	20,530	21,660	22,580	23,680	25,040	26,740	28,420
Total	139,200	143,900	145,900	150,300	153,800	157,700	162,000

Source: NSW SLA Population Projections, 2006-2036, Department of Planning (2010)

Warringah's population growth rate (0.5% per annum) is projected to be well below the metropolitan growth rate of around 1.1% per annum to 2036. This reflects constraints on future urban development and infrastructure impediments. On the other hand, participation rates remain relatively high. According to the DP&I projection, the LGA is expected to maintain a working age population (aged 15 to 64) of around 65% of the total population over this period suggesting an increasing resident workforce.

The Draft North East Subregional Strategy projected a target of 10,300 additional dwellings in Warringah from 2006 to 2031. The current occupancy rate is 2.6 persons per dwelling. If a lower

⁹ Australian Bureau of Statistics, Cat. No. 3218.0 - Regional Population Growth, Australia, 2010-11

occupancy rate of two persons per dwelling is applied, Warringah will have an increase in population of 20,600 residents (occupancy rate of two) over the 25 year period.

The Census-based community profile prepared by .id reveals the following key headlines that have implications for this study:

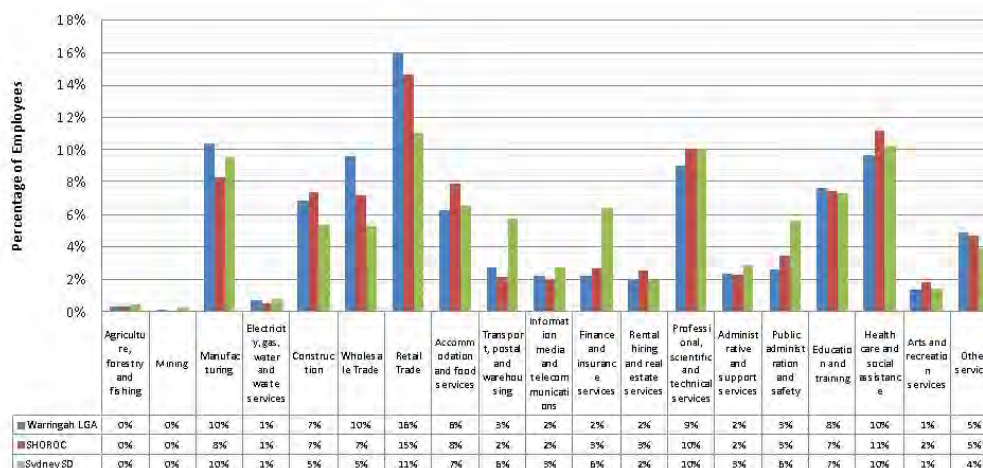
- Warringah has a very similar age profile to the rest of the SHOROC region. Compared to the Sydney SD, the LGA has a higher share (difference of 3.4%) of population aged above 60. Both 35-49 and 60-69 age groups have experienced the highest population growth from 2001 to 2006, with an increase of 2373 and 1320 persons respectively.
- A slightly lower proportion of households in Warringah are earning higher incomes (above \$1,700 per week) compared to the SHOROC region, although the LGA has seen an increase of 1,084 households in the highest income quartile over the 2001-06 period. The LGA has a much higher income profile when compared to the Sydney SD, with a higher proportion of households (7% more) in the top income quartile.
- Warringah residents are well educated, with almost half of the population holding formal educational qualifications in comparison to 43% in Sydney SD.
- Working age residents in the LGA have a higher work participation rate and a lower unemployment rate compared to the Sydney SD (while these labour market indicators are found to be very similar to the SHOROC region).
- Residents' occupation profile is dominated by professionals (28%), managers (15.6%) and clerical and administrative workers (16.6%). However, the total share of residents employed in these occupations is 5% lower than the SHOROC region but 3.3% higher than the Sydney SD.
- Retail Trade, Professional, Scientific and Technical Services and Health Care and Social Assistance industries employ almost a third of the employed residents in Warringah, albeit residents employed in the Retail Trade industry have fallen by 380 from 2001 to 2006.

2.3 Employment and industry profile

Industry Profile

Figure 2 shows employment by industry category (1-digit ANZSIC) for all people who work in the Warringah LGA compared to all employees in SHOROC's LGA as well as in Sydney SD. Retail trade was the largest industry sector in Warringah and employed around 9,121 people (or 16% of total jobs in Warringah), followed by manufacturing (10%), health care and social assistance (10%), wholesale trade (10%) and professional, scientific and technical services (9%). The dominance of the wholesale and retail trade sectors is evident when compared against the SHOROC region and the Sydney SD.

Figure 2. Employment by Industry, 2006 (1 Digit ANZSIC 06)



Source: Bureau of Transport Statistics (2009)

Figure 3 shows the projected percentage change in employment from 2006 to 2011 in Warringah compared to the SHOROC region and Sydney SD. The forecasts estimate that Warringah will experience significant growth in the transport, postal and warehousing and professional, scientific and technical services industries. According to the Bureau of Transport Statistics (BTS) projections (2009), Warringah lost around 470 jobs (or 8%) in wholesale trade (one of its largest industries) from 2006 to 2011, followed by a 11% loss (or a loss of 169 and 182 jobs) in both administrative and support services and public administration and safety industries. In contrast to the SHOROC region and Sydney SD, Warringah was projected to experience a strong growth of 10% (against -4% in Sydney SD) in the information media and telecommunication industry.

Figure 3. Change in Employment by Industry in percentage, 2006-2011, (1 Digit ANZSIC 06)



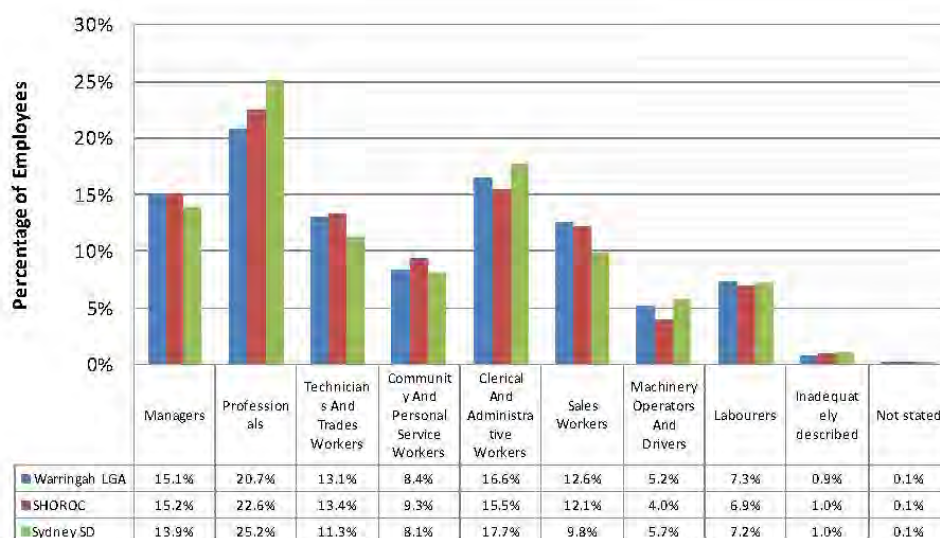
Source: Bureau of Transport Statistics, Employment Forecasts (2009)

Note: The high growth rate in agriculture and mining industries is a result of low job numbers in 2006.

Occupation Structure

Figure 4 illustrates the share of occupations held by workers in Warringah, the SHOROC region and Sydney SD. It shows Sydney SD and SHOROC region have a higher proportion of professional jobs, whereas Warringah, when compared to Sydney SD, has more managers, technicians, as well as trade and sales workers.

Figure 4. Occupation structure, 2006 (1 Digit ANZSIC 06)



Source: Bureau of Transport Statistics, Journey to Work data (2006)

Employment Self-Containment and Self-Sufficiency

Employment self-containment and self-sufficiency, as shown in Table 2, was assessed by examining BTS Journey to Work (JTW) data for employment 'origin' and 'destination' pairs. Self-containment is defined as the percentage of employed residents who are employed within the boundaries of the LGA/s, while self-sufficiency refers to the proportion of local jobs that are filled by local residents.

Overall, Warringah LGA has a relatively high level of self-containment compared to other SHOROC LGAs such as Manly and Mosman. It is an important employment destination for resident workers from the SHOROC region and, increasingly from other areas, such as North Sydney, Willoughby, Ryde, Hornsby and Ku-ring-gai. Journey to Work (JTW) data suggests that Warringah is drawing from a resident workforce catchment from outside the North East subregion, covering all local government areas of Northern Sydney and the Northern Beaches. Hence, concentration on local labour markets within the North East Subregion is not sufficient. Warringah probably has a larger workforce catchment for two reasons. Firstly, it zoned more land for industrial estates and attracted early investment in employment related industrial activities and has more accessible and developed land than its neighbours. Land prices in Warringah tend to be lower than north shore locations. Secondly, Warringah Mall, developed in the 1960's, became one of Australia's largest retail shopping complexes, and generated large numbers of jobs in retail related activities and attracted customers from many parts of Sydney. The construction of a level 5 hospital at Frenchs Forest, and a growing east-west corridor, is likely to enhance the attractiveness of Warringah as an employment destination.

Of total employed residents in Warringah, 40% (27,563 people), worked within the Warringah LGA in 2006. Other key destinations for Warringah working residents include Sydney CBD (14%) and North Sydney (5%), along with adjoining LGAs such as Willoughby (6%), Manly (5%) and Pittwater (5%). The number of employed residents commuting to Global Sydney (basically the Sydney CBD and North Sydney combined) is relatively high by metropolitan standards. Together with the 1% taken by Mosman, 52% of working residents in Warringah were employed within the SHOROC LGAs in 2006.

The SHOROC area as a whole has a self-containment level of approximately 49%. This may be due to the location of the area which incurs higher travelling costs due to longer travelling distances, the congestion on the roads leaving and entering the region and the time taken to travel to and from the region. It is also a result of perhaps of a relatively "entrepreneurial" labour force and the greater 'lifestyle choices' that the LGA is able to offer. The consistently high rate of self-containment in both Pittwater and Warringah LGAs appears to reflect some of these issues. On the other hand, Mosman and Manly have lower rates of self-containment, presumably due to the convenient location of the ferry stop and lesser distance to North Sydney.

Table 2 shows the jobs occupied by residents as a proportion of all available jobs in each LGA (self-sufficiency). Similar to self-containment pattern, Warringah and Pittwater have a higher rate of self-sufficiency than Manly, which only has 40% and Mosman, which only sources 35% of local jobs from local residents. However, the combined self sufficiency of the SOHROC region as whole is almost 80%. It can be argued that these high figures may be a result of the relatively high proportion of jobs in community servicing industries, such as retail, health and other community services.

Table 2. Employment self-containment and self-sufficiency in Warringah and SHOROC LGAs, 2006

	Employed residents in Warringah (A)	Jobs in Warringah (B)	Employed residents working in Warringah (C)	% Self-containment (C/A)	% Self-sufficiency (C/B)
Warringah	69,085	45,544	27,536	40%	60%
Manly	18,684	10,650	4,256	23%	40%
Mosman	13,096	7,476	2,638	20%	35%
Pittwater	27,137	16,611	10,612	39%	64%
SHOROC Region	128,002	80,281	62,755	49%	78%

Source: Bureau of Transport Statistics, Journey to Work data (2006)

Jobs to workers ratio

The JTW data reveals the jobs to workers ratio in terms of both industry types and occupation types in Warringah. This is shown in Table 3. In broad terms, this data suggests a 'leakage' of employment to other employment destinations in that there are fewer jobs in high-skilled occupations, than there are workers. This is particularly noticeable for manager, professional and technician occupations working in the finance and insurance and transport, postal and warehousing industries.

In contrast, there are fewer residents that work as machinery operators and drivers, than the amount employed in the area. This suggests that these workers commute from other areas to work in the area. This is particularly marked for the electricity, gas, water and waste services and education and training industries.

Table 3. Warringah's Jobs to Workers Ratio (1 Digit ANZSIC 06 by 1 digit ANZSCO)

ANZSIC 06	Managers	Professionals	Technicians And Trades Workers	Community And Personal Service Workers	Clerical And Administrative Workers	Sales Workers	Machinery Operators And Drivers	Labourers
Agriculture, Forestry and Fishing	0.58	1.00	0.87	N/A	1.18	0.50	1.00	0.88
Mining	0.50	0.41	0.00	-	0.20	N/A	-	0.00
Manufacturing	0.88	0.76	0.99	0.82	0.91	0.70	1.06	0.98
Electricity, Gas, Water and Waste Services	0.48	0.34	0.52	-	0.45	0.91	1.57	1.45
Construction	0.58	0.55	0.50	1.12	0.83	0.74	0.58	0.50
Wholesale Trade	1.09	1.24	1.15	1.00	1.06	0.90	1.16	0.91
Retail Trade	0.88	0.94	0.87	0.65	1.02	0.93	1.09	0.91
Accommodation and Food Services	0.70	0.94	0.61	0.69	0.75	0.90	1.12	0.81
Transport, Postal and Warehousing	0.34	0.19	0.39	0.06	0.65	0.45	0.72	0.32
Information Media and Telecommunications	0.32	0.35	0.44	0.70	0.42	0.42	0.35	0.51
Financial and Insurance Services	0.18	0.20	0.22	0.68	0.31	0.25	1.00	0.63
Rental, Hiring and Real Estate Services	0.57	0.45	0.62	0.71	0.68	0.74	0.89	0.65
Professional, Scientific and Technical Services	0.45	0.49	0.68	0.63	0.50	0.51	0.65	0.95
Administrative and Support Services	0.44	0.31	0.46	0.35	0.54	0.35	1.35	0.53
Public Administration and Safety	0.31	0.34	0.49	0.45	0.42	0.65	0.89	0.60
Education and Training	0.74	0.73	0.79	0.83	0.67	0.32	1.57	0.87
Health Care and Social Assistance	0.78	0.51	0.61	0.82	0.64	0.96	0.77	0.96
Arts and Recreation Services	0.50	0.60	0.52	0.65	0.54	0.52	0.00	0.91
Other Services	0.68	0.87	0.80	0.65	0.89	0.90	0.82	0.80
Inadequately described	0.68	0.65	0.76	0.54	0.72	0.57	0.41	0.56
Total Occupation	0.64	0.58	0.67	0.67	0.66	0.82	0.93	0.76

Source: BJS, JTW Data 2006

	0 - 0.25
	0.26 - 0.5
	0.51 - 0.75
	0.76 - 1
	101 - 125
	126 - 15
	151 - 175
	> 175

Table 4 shows the Job to Workers ratio for SHOROC. Overall, the situation appears to be similar to Warringah LGA. There is a leakage in high-skilled occupations and almost an equal ratio in some labouring jobs. Furthermore the same leakage is seen in the finance and insurance services and transport, postal and warehousing industries. However, Warringah, in contrast to SOHROC region, has strength in wholesale trade and manufacturing industries.

Table 4. SHOROC's Jobs to Workers Ratio (1 Digit ANZSIC 06 by 1 digit ANZSCO)

ANZSIC 06	Manager s	Professi onals	Techni cians And Trades Workers	Commun ity And Personal Service Workers	Clerical And Administ rative Workers	Sales Workers	Machiner y Operato rs And Drivers	Labourer s
Agriculture, Forestry and Fishing	0.47	0.85	0.57	2.00	0.97	0.40	0.73	0.54
Mining	0.30	0.34	0.00	0.00	0.29	N/A	0.00	0.50
Manufacturing	0.87	0.84	0.91	0.71	0.80	0.63	1.02	0.96
Electricity, Gas, Water and Waste Services	0.35	0.22	0.59	1.00	0.44	0.71	1.22	1.14
Construction	0.59	0.50	0.60	1.00	0.80	0.61	0.84	0.84
Wholesale Trade	0.72	0.82	0.96	0.70	0.87	0.74	1.01	0.88
Retail Trade	0.82	0.78	0.94	0.91	0.86	0.91	0.99	0.94
Accommodation and Food Services	0.83	0.77	0.93	0.82	0.77	0.91	1.02	0.96
Transport, Postal and Warehousing	0.31	0.13	0.37	0.03	0.55	0.40	0.63	0.46
Information, Media and Telecommunications	0.27	0.31	0.31	0.53	0.36	0.43	0.32	0.61
Financial and Insurance Services	0.19	0.21	0.17	0.71	0.33	0.21	1.00	0.84
Rental, Hiring and Real Estate Services	0.51	0.42	0.62	0.88	0.78	0.78	1.17	0.73
Professional, Scientific and Technical Services	0.37	0.44	0.65	0.57	0.52	0.53	0.73	0.81
Administrative and Support Services	0.36	0.26	0.50	0.45	0.51	0.36	1.14	0.58
Public Administration and Safety	0.37	0.40	0.69	0.59	0.49	0.72	0.92	0.92
Education and Training	0.65	0.68	0.82	0.80	0.67	0.33	0.82	0.96
Health Care and Social Assistance	0.87	0.64	0.81	0.86	0.74	0.63	0.85	1.06
Arts and Recreation Services	0.80	0.70	1.02	0.68	0.65	0.80	0.86	0.95
Other Services	0.88	0.75	0.91	0.82	0.85	1.05	0.97	0.98
Inadequately described	0.51	0.57	0.72	0.50	0.64	0.58	0.43	0.65
Total Occupation	0.55	0.51	0.73	0.74	0.63	0.79	0.87	0.82

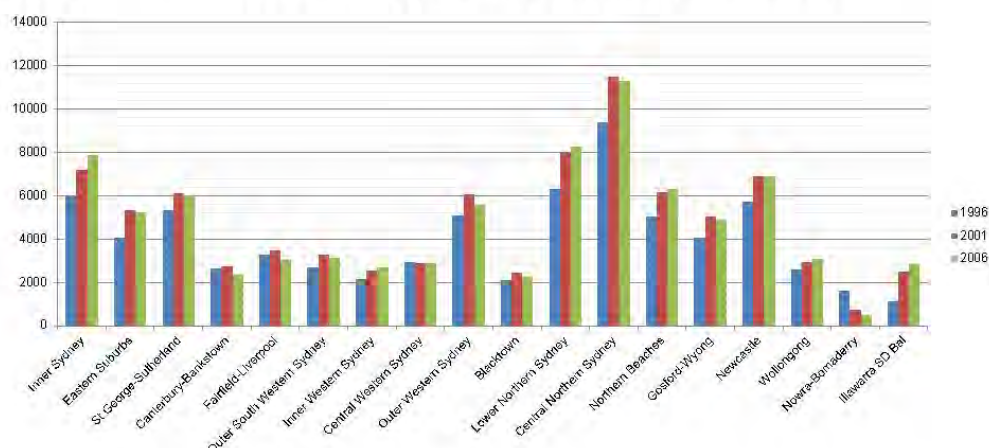
Source: BTS, JTW Data 2006

	0 - 0.25
	0.26 - 0.5
	0.51 - 0.75
	0.76 - 1
	1.01 - 1.25
	1.26 - 1.5
	1.51 - 1.75
	> 1.75

Home Based Work (HBW)

To analyse the structure of employees working from home, the BTS JTW data was again used. Home based work in Sydney SD regions is displayed in Figure 5. Compared with other regions in the Sydney Greater Metropolitan Region (GMR), Northern Beaches Statistical Subdivision (SSD) experienced a steady increase of 1,260 home based workers from 1996 to 2006. In 2006, around 6,300 residents worked from home in the Northern Beaches SSD, an increase of 1,260 people from 1996. This represents 8.7% of total jobs in the SSD, which is significantly higher than the average share (of 4.2%) across the Sydney SD. About half of home based workers in Northern Beaches lived in Warringah LGA in 2006.

Figure 5. Home based work by Statistical Subdivision, 1996-2006



Source: BTS, JTW 1996, 2001 and 2006

The proportion of home based work in Warringah is broken down by industry and occupation category, as shown in Table 5. At 37%, the highest incidence of home based work occurs in the professional occupation, followed by clerical and administrative workers at 24% and managers at 19%. In terms of industry, the highest level of home based work occurs in professional, scientific and technical services at 27% and construction industry at 10%.

Table 5. Home based Work by Industry (1 Digit ANZSIC 06) and Occupation (1 digit ANZSCO), Warringah

ANZSIC 06	Manag ers	Profes sionals	Techni cians And Trades Worker s	Comm unity And Person al Service Worker s	Clerica l And Admini strative Worker s	Sales Worker s	Machin ery Operat ors And Drivers	Labour ers	Others	Total
Agriculture, Forestry and Fishing	0.3%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	1%
Mining	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Manufacturing	1.5%	1.2%	0.6%	0.1%	1.3%	0.6%	0.2%	0.2%	0.0%	6%
Electricity, Gas, Water and Waste Services	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Construction	1.7%	0.8%	1.2%	0.0%	6.2%	0.0%	0.0%	0.1%	0.1%	10%
Wholesale Trade	2.4%	0.8%	0.2%	0.0%	1.2%	0.7%	0.1%	0.0%	0.0%	5%
Retail Trade	2.4%	0.5%	0.3%	0.1%	0.3%	1.6%	0.0%	0.1%	0.0%	5%
Accommodation and Food Services	0.5%	0.1%	0.0%	0.1%	0.2%	0.3%	0.0%	0.0%	0.0%	1%
Transport, Postal and Warehousing	0.7%	0.2%	0.0%	0.0%	0.5%	0.0%	0.3%	0.0%	0.0%	2%
Information Media and Telecommunications	0.9%	2.6%	0.2%	0.1%	1.1%	0.3%	0.0%	0.0%	0.0%	5%
Financial and Insurance Services	1.2%	3.6%	0.0%	0.2%	1.7%	0.1%	0.0%	0.0%	0.5%	7%
Rental, Hiring and Real Estate Services	0.6%	0.6%	0.0%	0.0%	0.7%	0.7%	0.0%	0.3%	0.1%	3%
Professional, Scientific and Technical Services	3.7%	15.6%	1.6%	0.0%	5.4%	0.7%	0.0%	0.2%	0.2%	27%

Assessment of Economic Development of the Warringah Employment Strategy / Final report

ANZSIC 06	Managers	Professionals	Technicians And Trades Workers	Community And Personal Service Workers	Clerical And Administrative Workers	Sales Workers	Machinery Operators And Drivers	Labourers	Others	Total
Administrative and Support Services	1.0%	0.9%	0.0%	0.3%	1.9%	0.0%	0.1%	0.4%	0.0%	5%
Public Administration and Safety	0.1%	0.2%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	1%
Education and Training	0.6%	3.0%	0.1%	0.8%	0.8%	0.1%	0.0%	0.2%	0.1%	5%
Health Care and Social Assistance	0.6%	2.1%	0.0%	2.7%	0.9%	0.2%	0.0%	0.0%	0.0%	6%
Arts and Recreation Services	0.1%	1.7%	0.1%	0.0%	0.3%	0.1%	0.0%	0.0%	0.2%	2%
Other Services	0.6%	1.0%	1.0%	0.7%	0.8%	0.1%	0.0%	0.3%	0.2%	5%
Inadequately described	0.5%	1.4%	0.1%	0.1%	0.6%	0.0%	0.0%	0.0%	0.1%	3%
Total	19%	37%	5%	5%	24%	6%	1%	2%	1%	100%

Source: BTS, ITW Data 2006

Location Quotient analysis

A Location Quotient (LQ) is calculated by dividing the proportion of local jobs within a particular industry by the proportion of jobs within that industry in a benchmark area. If the proportion of jobs in a local industry is higher than that of the benchmark area, the industry will show a location quotient of greater than 1. This may indicate that the local industry is relatively strong with local specialisation, and suggests that the industry is 'export focused', possibly serving markets outside just the local area.

Table 6 shows the Location Quotients for two digit ANZSIC industries in Warringah, which constitute at least 1% of total employment in the LGA.

Table 6. Location Quotient by two digit ANZSIC industry

Industry	LQ relative to Sydney SD	LQ relative to SHOROC	Share of total employment in Warringah LGA
Industries with shares greater than 1%			
Business Services	0.88	0.94	11%
Personal and Household Good Retailing	1.62	1.14	10%
Education	1.00	1.01	7%
Personal and Household Good Wholesaling	2.16	1.31	6%
Food Retailing	1.17	0.98	6%
Community Services	1.78	1.22	5%
Health Services	0.62	0.67	5%
Accommodation, Cafes and Restaurants	0.95	0.73	4%
Construction Trade Services	1.49	0.95	4%
Machinery and Motor Vehicle Wholesaling	1.77	1.47	4%
Machinery and Equipment Manufacturing	1.29	1.18	3%
General Construction	1.13	0.85	3%
Motor Vehicle Retailing and Services	1.38	1.15	3%
Government Administration	0.59	0.90	2%
Personal Services	1.35	0.84	2%
Printing, Publishing and Recorded Media	1.07	1.16	2%
Property Services	1.02	0.77	2%
Other Services	0.81	0.99	2%

Assessment of Economic Development of the Warringah Employment Strategy / Final Report

Sport and Recreation	1.40	0.96	2%
Petroleum, Coal, Chemical and Associated Product Manufacturing	1.11	1.12	1%
Non-Classifiable Economic Units	1.18	0.98	1%
Finance	0.39	0.89	1%
Communication Services	0.65	1.31	1%
Basic Material Wholesaling	1.45	1.29	1%
Manufacturing, undefined	1.48	1.29	1%
Metal Product Manufacturing	1.02	1.36	1%
Road Transport	0.58	1.32	1%
Other Manufacturing	1.69	1.30	1%
Services to Finance and Insurance	0.39	0.73	1%
Retail Trade, undefined	1.38	1.05	1%
Motion Picture, Radio and Television Services	0.81	1.01	1%
Wholesale Trade, undefined	1.47	1.16	1%
Food, Beverage and Tobacco Manufacturing	0.34	1.22	1%

Source: SGS calculations based on ABS (2001) and 2006 Census

The LQ analysis shows that compared to Sydney SD and SHOROC region, Warringah LGA has particular strengths in personal and household goods retailing and wholesaling. Both industries have high LQs and industry shares. Community services, construction trade services and machinery and motor vehicle wholesaling all have relatively high specialisation with some concentration of employment.

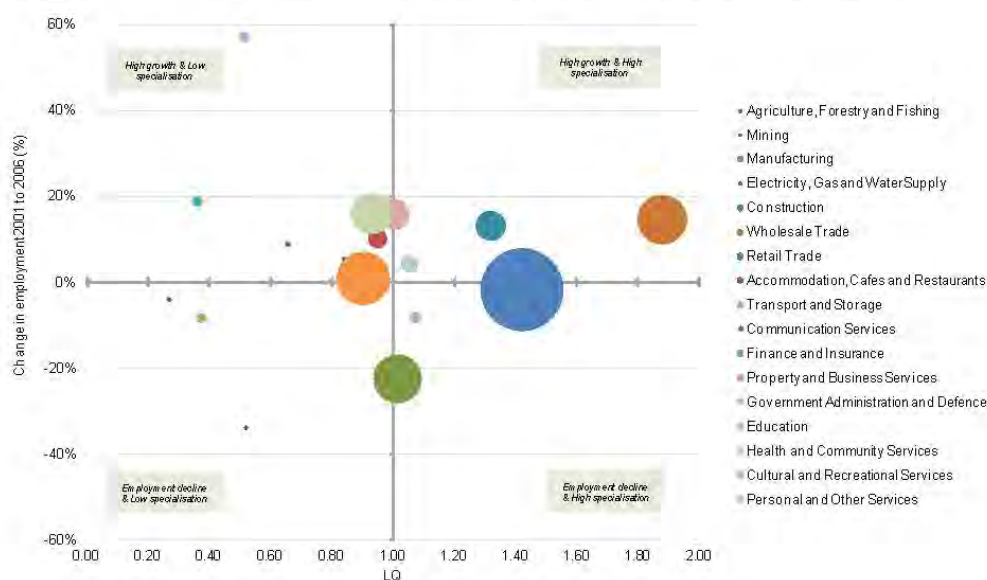
The location quotient analysis will serve as a filter to identify industries of comparative strength for additional consideration and analysis. Successful regional development strategies are focused on building and nurturing local businesses with the capacity to generate 'export income' for the local region. In broad terms, the above analysis reveals that Warringah LGA is specialised in wholesale, services and to a lesser extent some retail.

Growth share analysis

Building on the LQ analysis, growth-share analysis involves an assessment of the relative size and specialisation of key industries, or industry clusters, and their recent change relative to the benchmark total growth in employment. Progression can be understood and assessed by comparing the recent relative growth against the benchmark, specialisation and size of key industries. Analysing industries or clusters in this way assists in the understanding of appropriate policies to guide their further growth and development, or to prioritise actions for economic development facilitation across various industry sectors.

Figure 6 and Figure 7 show the growth share analysis diagram for Warringah LGA compared to Sydney SD as well as the SHOROC LGAs. The LQ is shown on the horizontal axis, while the change in employment from 2001 to 2006 on the vertical axis. The size of the marker represents the relative size of the industry within the LGA. The north-eastern quadrant shows specialised industries experiencing growth in employment, while the north-western quadrant shows employment growth and low specialisation. The bottom half of the diagram shows industries experiencing a decline in employment with the south-eastern quadrant indicating high specialisation and the south-western quadrant indicating low specialisation.

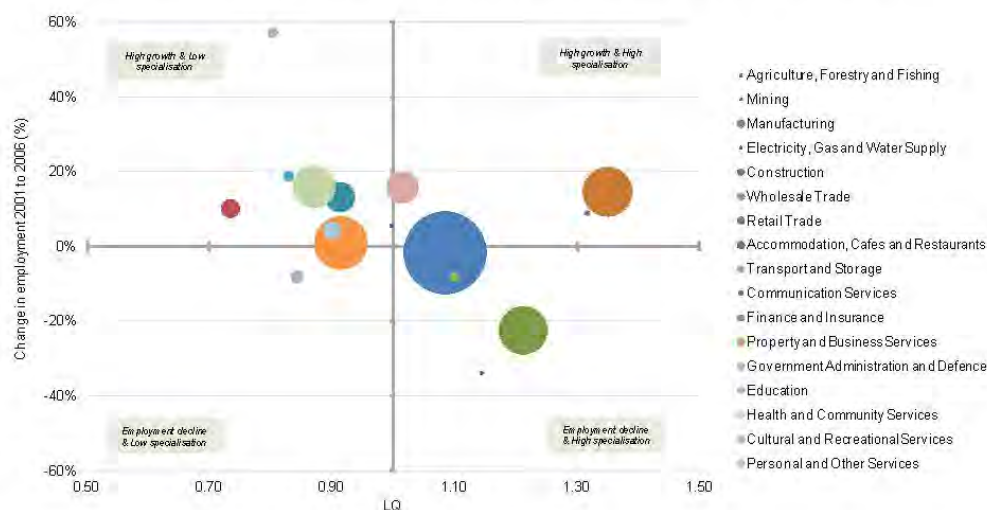
Figure 6. Growth share analysis for Warringah LGA compared to Sydney SD



Source: SGS (2011), based on ABS (2001) and (2006) Census data

Note: ANZSIC 1993 industry classification.

Figure 7. Growth share analysis for Warringah LGA compared to SHOROC



Source: SGS (2011), based on ABS (2001) and (2006) Census data

Note: ANZSIC 1993 industry classification

Nearly half of the 19 one-digit ANZSIC industries in the LGA achieved some level of specialisation compared to both benchmark areas: Sydney SD and SHOROC region.

In contrast to Sydney SD, Warringah LGA has a particular strength in the wholesale trade, retail trade and construction industries, where wholesale trade (the second largest industry) has experienced a 15% increase in employment from 2001 to 2006. Compared to the SHOROC region, the LGA is also specialised in manufacturing, even though it has been losing its industry share over the period 2001 to 2006.

On the other hand, the LGA (compared to both the Sydney SD and the SHOROC region) is less specialised in health and community service and accommodations, cafes and restaurants industries, although both industries experienced strong growth from 2001 to 2006.

Other fast growing industries in Warringah include finance and insurance, communication services and government administration and defence. However, in relative terms, the LGA is currently not specialised in these industries given their smaller industry shares. Considering their recent growth, it is conceivable that there may be room for further growth and improved specialisation in these industries. Appropriate policy settings could potentially increase specialisation in the context of continued employment growth.

2.4 Emerging issues

Population

Warringah's population has been steadily growing – driving demand for services.

Warringah has experienced steady population growth (at a rate of 1.1% per annum) since 2001 and is home to approximately 147,000¹⁰ residents. DP&I population projections suggest Warringah will reach close to 162,000 residents by 2036, an increase of 23,000 residents or 16% from 2006. A growing population will lead to increased consumer spending, stimulating additional local 'serviced based' employment (retail and wholesale trade, urban support services). Population growth is expected to slow and this will have some impact on demand for employment lands, although relatively high employment self-containment will continue to be an important driver for demand. As a result of both housing affordability and lifestyle benefits, the LGA has seen a proliferation of professional services and executive population.

Warringah has a strong base of skilled resident workers, with about 60% of them in white-collar occupations.

Warringah's residents of working age have a higher work participation rate and a lower unemployment rate than the Sydney SD average, but have a similar employment level to SHOROC region. The population of the North East is generally affluent with higher than average levels of education attainment. Almost half of Warringah's population have formal qualifications. Around 60% of the resident workers are professionals, managers or clerical and administrative workers, yet this share is slightly lower than the SHOROC region. There are concentrations of workers in specific high-end industries and managerial positions. Many of these knowledge workers commute to business parks and Global Sydney. Currently there is a mismatch between the availability of higher order knowledge jobs in Warringah and the supply of local residents with knowledge-based skills. A high skilled workforce is a potential asset to strengthen specialisation and future employment opportunities in the centre. From a low base, some commercial office development has occurred in Belrose, Frenchs Forest and Brookvale-Dee Why in the past five years.

Employment

Warringah has achieved a high specialisation in wholesale and retail trade. In 2006, around a quarter of all jobs in Warringah were in wholesale and retail trade industries, while manufacturing and health care and social assistance industries employed 10% of total local jobs each. The LGA has a strong specialisation in wholesale and retail trade industries when compared to both Sydney SD and the SHOROC region. Warringah has a particular strength in manufacturing when compared to the SHOROC region, although manufacturing industries have diminished in size from 2001 to 2006, and this decline is likely to continue given national and state manufacturing trends.

¹⁰ ABS, Cat. No. 3218.0 - Regional Population Growth, Australia, 2010-11

Warringah Mall, in particular, has been an important local and regional retail destination. It attracts customers from across the North East subregion and beyond, because of its size, diversity and relative accessibility. It is one of the largest retail centres in Sydney, providing around 125,000 sqm of floorspace. The owners have put forward a plan to increase supply by a further 35,000 sqm by 2021¹¹. Warringah Mall, which is centrally located, is a major magnet for retail consumers across the Northern Beaches. The size and potential for expansion of Warringah Mall is likely to have an influence on retail employment in smaller centres and other LGAs. Care needs to be taken in forecasting retail growth. From the early 1980s up until the onset of the Global Financial Crisis in 2008, retail employment growth was driven by increasing disposable incomes and the easy availability of credit. Post GFC, real incomes are not increasing at the same rate as previously. Savings rates have increased and households are spending more of their household incomes on reducing mortgages, which tend to dampen retail expenditure. In addition, online shopping is posing a threat to face-to-face shopping. Online retailing currently accounts for around 5.5% of national retail sales, but is growing twice as fast.

Health and community service industry has been growing quickly. Between 1996 and 2006, employment in health and community services increased from 3,682 to 4,437 (or by 20%). Most employment increases are in accommodation for the aged and non-residential care services, with significant increases also occurring in childcare and community services. The construction of a level 5 hospital at Frenchs Forest was identified by SHOROC as the highest priority infrastructure project for the North East, along with road infrastructure upgrades. In 2011, the NSW Government allocated funds from the budget to commence the construction of the hospital. The development of the hospital will create significant opportunities for employment growth in health and wellbeing industries and spinoffs to related activities including information industries, bio-medical and pharmaceuticals industries, hospitality and retail. Increasingly higher education institutions are establishing facilities close to hospitals, often building on research and clinical schools. A group of business leaders on the Northern Beaches are investigating opportunities to establish a higher education presence in proximity to the hospital. Hence, the new hospital can be considered as critical magnet infrastructure for the North East, and is likely to transform Frenchs Forest into a more significant activity centre including the education, research and, possibly, bio-medical industries.

Warringah has a high level of self-containment and self-sufficiency. About 40% of the employed residents in Warringah worked within the LGA, while 60% of jobs in Warringah were sourced from the local labour market in 2006. A relatively high level of these indicators, compared to the rest of the SHOROC region, reflect that the LGA is relatively poorly serviced by public transport.

- **A leakage of resident workers in high-skilled occupations and an inflow of machinery operators and drivers.** In broad terms, the BTS JTW data suggests a 'leakage' of employment to other employment destinations, in that there are fewer jobs in high-skilled occupations, than there are resident workers. This is particularly noticeable for manager, professional and technician occupations working in the finance and insurance and transport, postal and warehousing industries, as they have been attracted to CBD, North

¹¹ Urbis (2008), Warringah Mall Draft DCP Volume 1, Prepared for AMP Warringah Mall Pty Ltd and Westfield Management Limited, December.

Sydney, Ryde, Chatswood and Macquarie Park where more highly-skilled workers are located (also known as 'brain-drain').

In contrast, there is an inflow of key workers including some trades and technical workers such as machinery operators and drivers to the LGA. This is particularly pronounced for those workers in the electricity, gas, water and waste services and education and training industries.

High share of home based work. One of the economic development opportunities identified by the *Warringah Economic Development Plan* is to pursue micro and home based business to locate or expand within Warringah. This is also consistent with the major policy directions of the Metropolitan Plan and NSW State Plan which are to provide jobs close to home and to increase employment opportunities in strategic centres.

Compared to other sub regions, Warringah has a much higher level of home based work. People are attracted by the lifestyle opportunities in the area. Further, long journey to work times for those working outside the subregion is a factor driving local employment opportunities, including home-based work. Demographic change, with more high skilled people over 50, is an additional factor, as experienced people leave full time employment and set up their own businesses from home. The highest incidence of home based work occurs in the professional and manager occupations. In terms of industry, the highest level of home based work occurs in professional, scientific and technical services and construction industries. This is similar to other high amenity areas of the Greater Metropolitan Region, where highly skilled workers live close to beautiful natural assets (for example, beaches and bushland) or a vibrant social environment.

Home-based businesses include knowledge based workers such as accountants, financial advisers, designers, architects, marketing and advertising professionals, consultants and IT specialists. They also include traditional self-employed occupations such as gardening, repairs and home-based childcare. The growth of home-based business is driven by a number of factors. Firstly, technological innovations are improving the capacity, affordability and security of information and communication technologies. The roll out of the National Broadband Network is likely to accelerate this trend. Secondly, industrial restructuring is resulting in an increase in outsourcing from large corporations, in such areas as finance, design, IT and human resource management. Thirdly, social changes, including in some instances greater gender equality in home life and associated demand for work flexibility, is increasing the demand for home-based employment.

The rapid growth of home-based business has a number of important implications for employment planning in Warringah. It is likely to lead for growth in demand for services supporting home base businesses such as IT, finance, cafés and restaurants and office fittings. Many of these activities are likely to result in a further revitalisation of local villages located close to where people live/work. It also has implications for planning, with greater emphasis on local infrastructure and amenities.

Online shopping

Australian retail is currently undergoing big changes, with people turning to the internet to find bargains, compare prices and acquire goods both locally and overseas. As a result of the strength

of the Australian dollar and the ease of online shopping, people are increasingly finding that online shopping is more convenient, cheaper and time saving for today's busy lifestyle.

During 2011, the Australian Bureau of Statistics revealed that Australian businesses had taken \$143 billion worth of internet orders, an increase of 15% over the previous year. This trend suggests a fundamental change is occurring in people's shopping habits with an adverse effect on traditional retailer specialists. Areas showing increases in online sales include clothing, travel, food, furniture and electronic goods.

Other recent research has also indicated that e-commerce, including online retail sales and travel and motor vehicle purchases, will increase world-wide by 13.5% annually for the next four years, reaching an estimated \$1.4 trillion by 2015. Web application development, including Android and iPhone, are in huge demand, with the recent development of so-called 'mRetailing' ('mobile retailing') or the 'electronic wallet.' Customers are able to use their smart phones to research the market and compare pricing, as well as purchase items from advertisements without having to enter the store. In Australia, it is claimed that nearly half the adult population has browsed or researched products on their mobile phones in this way.

Some of our major retail chains have taken up the challenge with web-related technologies to diversify selling. People can now order online and follow up with fast, in-store pickups or home deliveries. Many bookshops, clothing outlets, jewellery stores, pharmaceutical chains and electrical retailers, for example, have begun to reduce shop floor space. It is suggested that online purchasing nationally is increasing and currently represents about 5 to 6% of total retail sales in Australia. Online retail will continue to increase which will have negative effects on the Australian retail sector, currently worth about \$250 billion in annual sales.

Some of our major retail chains, including Myer, Solomon Lew's Premier Retail, Speciality Fashion and JB Hi Fi are seeking to close under-performing stores, negotiate rent reductions or minimise annual rent increases to protect margins in the face of weak sales. An Urbis Report 'Urbis Retail Perspectives, August 2011 suggests that the sharp rise of the Australian dollar in recent times is likely to have contributed to the short-term growth in online spending by Australians. However, the report also suggests that this is a temporary effect that could disappear as the dollar stabilises and as Australian retailers restock for imported goods at lower cost.

3 Development context

3.1 Policy context and document review

We have reviewed the following policies, strategies or studies to understand the existing policy framework and their implication for this study. These documents include:

- NSW 2021 Plan
- Metropolitan Plan for Sydney 2036
- Draft North East Subregional Strategy
- SHOROC Regional Employment Land Study (Hill PDA 2010)
- SHOROC 'Shaping Out Future' Study (SHROC, 2010)
- Northern Beaches Key Workers Study (Epic DotGov, 2004)
- Frenchs Forest Specialised Centre – State Significant Site Study (COX, 2010)
- Employment Land Development Program (ELDP) – Report 6, North East Subregion
- Draft Brookvale Employment Lands Issues Paper

A detailed review of these documents is provided in Appendix 2. Findings from the review have been used to identify any emerging policy directions that are likely to impact on this study.

3.2 Broader trend and drivers

Globalisation

Global economic trends will impact employment in Warringah, the North East Subregion and Sydney Greater Metropolitan area. Globalisation has impacted industrial competitiveness in the North East Subregion. In particular, trade liberalisation pressured higher cost local manufacturing industries, resulting in increasing imports from low wage cost countries and job losses in local manufacturing. More recently, the appreciation of the Australian dollar has put pressure on manufacturing companies. The dramatic increase in trade and associated with globalisation and technological innovation in transport and communications has resulted in an increasing demand for warehouse space, and employment spin-offs to logistics. Like other regions the Warringah economy is becoming more service based, with long term growth of retail, business services and increasingly health and wellbeing activities. Warringah competes well in those areas where face to face (F2F) service or customised solutions are provided (for example, building and construction). Globalisation pressures and industrial restructuring have opened up the economy, resulting in greater diversification of activities and an increasing transition from industrial to commercial floor space. The Metropolitan Sydney Plan's key push for 'more jobs closer to home' has strong implications for Warringah as it is expected to meet targets for housing and employment in the near future.

Globalisation has been marked by a rapid increase in global trade in goods and services and in particular capital flows. This has been facilitated by technological innovation in transport and

communications, the promotion of deregulation in particular industry sectors, the removal of trade restrictions and exchange controls and innovation in the management and pricing of transaction risks (insurance, hedging, partnership formation etc).

Globalisation is likely to continue to drive a separation between the 'thinking' part of the value chain (design, brokerage, marketing, strategy formulation) and the 'making' (manufacturing) and 'distribution' (transport, logistics, after sales service) aspects. Key services within the thinking part of the value adding process are showing increasing tendencies to centralise within one or two centres in advanced countries. This is evident in Australia, with Sydney being the pre-eminent national dispenser of advanced business services.¹²

More countries are opening up their economies and seizing the opportunities that come from closer integration into the global economy. China and India, as well as other countries such as Russia, Brazil and Mexico, are growing rapidly.

Furthermore, as communication and technology continue to improve, global production networks are becoming increasingly flexible, specialised and dispersed across continents. In an era where resources, technology and ideas can be moved rapidly to the most productive location, no economy can rely on its past strengths or traditional expertise.

These trends have significant implications for the developed world. Under the globalisation paradigm, the current and future economic context is one of increased global competition, albeit also one of increasing interdependence of national and urban economies. For Australia the specific implications include:

- Increased competition in lower order tertiary sectors of the economy
- Opportunities for increased trade, namely in resources, advanced manufacturing and sophisticated services.

Both implications are particularly relevant to the economic development in Warringah given its strong manufacturing base. The burgeoning middle classes in developing countries like China and India are providing new markets for very high quality manufactured goods from the developed world. For example, high end fashion and footwear manufacturers in Italy are now targeting high income customers in key locations such as Shanghai and Beijing.

Issues affecting the Manufacturing Sector

There are significant issues currently affecting the Australian manufacturing sector which are likely to intensify over the coming years. Between 1996 and 2006, manufacturing employment declined in Warringah from 6,451 to 5,098 jobs, a decline of over 20%. Job losses have been concentrated in printing, clothing, electrical equipment, cosmetics, pharmaceuticals and metal products.

¹² Spiller, M. (2004) Urban Agglomeration of Advanced Business Services in Australia – Some Policy Implications, State of Australian Cities Conference, Sydney, December 2003

A 2006 study completed by the Australian Industry Group (AI Group)¹³ identified several sources of concern amongst manufacturers including:

- Competition from low cost countries
- Insufficient domestic market growth
- Inability to secure skilled staff
- Insufficient labour flexibility
- Inability to keep pace with regulations.

While the manufacturing sector is relatively small in Warringah, the area is still vulnerable to these issues, particularly the ability to remain globally competitive. Competition from low cost countries has affected the manufacturing industry in Australia as a whole, forcing them to decrease costs as much as possible. This has meant the moving of manufacturing to the outer suburbs of Sydney, particularly Western Sydney, if not offshore. The lack of land in Sydney plays a large role in keeping rent prices high, it is also a source of tension between residential and businesses as each are concerned with new land at a lower cost.

But it would be mistake to extrapolate some of these trends and predict the demise of manufacturing. Although local manufacturing employment has declined it remains important. Manufacturing is increasingly linked to value added services such as design, engineering, computing and marketing. Many of these functions are outsourced from manufacturing companies to advanced service companies. It is also self-evident, from long national experience, that the resource boom, which largely drives the appreciating currency resulting in pressure on trade intensive industries, will not last forever. Finally, a number of manufacturing industries are highly productive and globally competitive, particularly in value added niches such as bio-medical technologies and advanced engineering, technology as well as high volume and lower value industries including building materials and perishables such as foods.

Remaining Globally Competitive

Increasing competition from China and other low wage economies, coupled with an increasingly strong Australian dollar, have heightened the need for manufacturing to develop new methods and different approaches to address the challenges it faces¹⁴. The cost of production in these emerging economies has not only made it harder for Australian businesses to raise or, in some cases, stabilise profit margins, but with limited difference in the quality of product it has made it harder to compete.

To maintain international competitiveness there needs to be a much stronger focus on the production of specialised products or 'niche' manufacturing in the Australian market. Some products place a premium on Just-in-Time (JIT) delivery or otherwise rapid response delivery, to service breakdowns, and so on. This offers local manufacturers a competitive advantage particularly within the Australasian region covering Australia, New Zealand, and the Pacific Islands.

¹³ Australian Industry Group (2006) Manufacturing Future: Achieving Global Fitness, April 2006

¹⁴ Australian Industry Group (2006) Manufacturing Future: Achieving Global Fitness, April 2006

Major shifts would have to occur in the economy for the Australian manufacturing industry to reverse its decline. There are a number of inter-related issues here. First, domestic demand for manufactured goods is unlikely to increase given the current economic downturn. Equally, overseas demand is contracting. A reversal of this trend would require a significant adjustment of the relative value of the Australian dollar. Related to this, a carbon tax has the potential to make Australian manufactured goods relatively more expensive than their overseas counterparts. While rising oil prices may stimulate domestic demand of locally produced goods in the long term, in the short-to-medium term the rise in oil prices will not offset the other factors discussed.

However, the decline in manufacturing does not appear to be excelling in higher order skilled areas vital to the Australian economy. For Sydney this means that certain geographical regions will have to specialise in order to keep up. That is, if manufacturing moves to the outer suburbs, then the inner-suburbs will have to adjust so as not to fall behind. Providing for a broad range of local employment types in dispersed locations with Subregional strategies to ensure employment in industries, is one of the objectives of the Sydney Metropolitan Plan. For the North East Subregion, and Warringah, this means promoting a broad range of employments locally; in particular the professional skilled workers, and rezoning to allow work from home.

However, it is not just the manufacturing industry affected by cost lowering and globalisation. As oil prices rise and the cost of living increases, lower salary workers may also force businesses to move out of the area, into lower cost areas. While not a solution, there are strategies available to attempt to offset this. These include, but are not limited to, improving public transport to the area, retaining a range of employments and building a variety of housing to suit multiple budgets. Also, as the population of the area ages, different intensities of employment need to be available to suit the elderly who wish to work.

Health and Education: Magnet Infrastructure

Magnet infrastructure is infrastructure that attracts activities to a location. In the North East Subregional Strategy, it is said to be infrastructure enabling a centre to distinguish itself from other centres by becoming a Specialised Centre. Magnet infrastructure is concerned with the transformation of centres to enable them to attain their economic and social potential. Specialised centres perform a vital economic and employment role, generate metropolitan-wide benefits and build on Sydney's knowledge infrastructure.

As the population in Warringah continues to age over the next 35 years, needs for health-related services will emerge strongly. Frenchs Forest was identified as a potential Specialised Centre, but that has since been reassessed by the NSW Government as public transport to the area was deemed at full capacity. Despite this, the Level 5 Hospital at Frenchs Forest is still proceeding and will be a major spur for local economic activities. If successful, it will reduce out-commuting from Warringah.

It was the location and amenity of the Frenchs Forest area that deemed it potentially as a significant contributor to enabling a growing population, living, working, shopping and learning in a

sustainable manner. The NSW and local government visions were of a coordinated and integrated precinct with strong connections to the neighbouring centres, with increased urban atmosphere. To support this growth, the NSW Government believes that significant investment in road infrastructure and public transport improvements will be needed to accommodate background growth expected over next five years.

The largest draw card in the area will be the proposed Northern Beaches Hospital at Frenchs Forest, supported by an upgrade of the Sydney University Teaching Hospital at Mona Vale (Mona Vale Hospital). The importance of clustering industries is uncontested as it has many positives, including convenience for those using the services. However, the hospital is more important and will continue, with plans to improve infrastructure upgrades and to better coordinate transport with health infrastructure. Warringah Council have stated that approximately 60% of vehicle trips on Warringah Road through Frenchs Forest originate from Brookvale, Dee Why and Pittwater LGA.

The subregion has a shortage of tertiary education facilities, with the exception of the Warringah TAFE, and most people wishing to further their studies have to leave the region. The possible expansion of tertiary education could help to decongest traffic while the clustering of educational facilities relating to the health industry is a possibility that could be greatly beneficial to the area. However, results of the transport capacity study have an impact on education and housing developments also.

National Broadband Network (NBN)

The National Broadband Network (NBN) will provide the infrastructure allowing service providers to deliver superfast broadband to Australian businesses. With a combination of fibre, fixed wireless and satellite, the NBN will make possible new and improved connection. It will connect all Australians at home, school or in the work place regardless of geography. Apart from the benefits to business, it is anticipated that the NBN rollout will bring with it benefits in lifestyle, medical care and education. The emergence of the digital economy which is the network of economic and social activities that are enabled by the internet, mobile and sensor networks has highlighted the need for appropriate telecommunications infrastructure to ensure the long-term growth of our digital industries and meet the needs of our changing communities.

Given the large numbers of small to medium businesses across Sydney and on the northern beaches, broadband services will provide many ways of connectivity and accessing information about services both within individual local government areas, as well as across regional boundaries in Sydney. For the local economy it is also important that improved connectivity will directly benefit educational and training resources in local schools with significant positive impacts such as further enhancing education, qualification levels and jobs as well as improving the accessibility to resources by helping to reduce current service inequalities. NBN will greatly contribute to a wider influence of tertiary educational institutions and may help to encourage local qualified youth, to live and work locally.

The NBN could potentially help promote growth in home-based and micro businesses productivity and also reduce commuter costs and local traffic movements / congestion throughout the LGA.

Recognising the importance of micro and home based businesses, further consideration could be given to cater to local residents who choose to work from their homes. Home-based businesses could link into any future business incubator that would allow the coordination of shared business services and use of facilities, provision of business advice and assistance to member companies.

The NBN, together with other critical infrastructure such as better public transport, roads and health services will help to ensure a more liveable, productive and accessible Warringah and NE Subregion for future generations and will support Sydney's international role as a Global City. The NBN as part of the Strategy could also help Sydney becoming an international leader in educational innovation.

Services offered over the NBN will enable schools to collaborate effectively online, regardless of location and will support new teaching environments, such as virtual classrooms and video streaming. This infrastructure also has direct relevance to the future Level 5 Northern Beaches Hospital as it is expected it will enable expanded access to care through interactive online consultations; support telemedicine; and address health shortages through internet-based care.

Federal Government funding is becoming available to establish local NBN and Digital Economy training services under the Digital Hubs and Digital Enterprise programs.

For SHOROC Councils these programs can:

- help individuals in local communities improve their online and digital literacy skills
- assist local residents to understand the opportunities created by the fast, affordable and reliable broadband delivered by the NBN
- work with small businesses and not-for-profit organisations to develop their online presence and take full advantage of the NBN.

Cities

The population of the Sydney Metropolitan Region is projected to grow to 5,635,209 by 2036, equating to an average annual growth rate of 1.1%¹⁵. The future projected population growth will drive economic growth in many population demand driven service sectors (that is, industry sectors that are driven by residential consumption). Examples include retail, personal, recreational and community services that the Northern Beaches must accommodate for growth¹⁶.

In the absence of trade barriers, the underlying characteristics and resources of nations have come to determine the activities in which they specialise. In general, more labour-intensive and lower-technology production is taking place in countries with an abundance of low-cost labour, whilst advanced economies with higher labour costs, and more developed skills and physical capital, concentrate on the production of high-value, knowledge-based goods and services. Importantly, these knowledge driven sectors rely on productivity and innovation for their competitive advantage.

¹⁵ RDA Sydney Metropolitan Region Economic Baseline Assessment – Update Final Report

¹⁶ RDA Sydney Metropolitan Region Economic Baseline Assessment – Update Final Report

High-value and knowledge based jobs have an acute preference for locating in cities. This is because cities provide the most productive business environment and enhance firms' propensity to innovate as a result of agglomeration economies. Cities are now being increasingly recognised for the benefits simply arising from workers and firms being located close together.

However, cities themselves develop their own specialities in global high value supply chains, and not all cities have benefitted equally from the recent era of globalisation. Sydney, for example, contains Australia's critical global gateway infrastructure (Sydney airport and port), and has carved out a competitive role in the global trade network providing financial services to the Australian commodity trade (metals, mining and so on), financial brokerage in the New Zealand/Pacific region and financial brokerage into the Australian consumption economy.

The attraction and retention of high-value, knowledge based sectors is crucial to long-term prosperity. Successful national economies are increasingly measured by their capacity to generate wealth through innovation and productivity, and to attract the labour and capital to support an innovation based economy. Because these functions are concentrated in cities, the efficiency, amenity and quality of life available in cities is an increasingly important factor in economic success.

Lifestyle and Desirability

The North East Subregion is located within the peninsular that extends from Sydney Harbour North Head, the Tasman Sea, Middle Harbour and Ku-ring-gai National Park, and Pittwater and the Hawkesbury River. Its geographical location endows it with coastal shores and National Parkland. These physical attributes, along with the atmosphere, community sentiment and distance from city life without really leaving the city, make the North East region a desirable place to live. It is reflected by a high rate of self-containment and self-sufficiency in the SHOROC region. This coupled with the traffic congestion and inadequate public transport means there is a demand for local jobs.

This creates an issue for the Warringah Council, who have to balance keeping the Northern Beaches a desirable place to live, while focusing on how best to use the existing land to generate employment. However, there are many problems to overcome, such as diversifying employment opportunities and overcoming extreme traffic congestion and a lack of onsite parking.

For example, Warringah Council can help promote and market the opportunity for home-based businesses throughout Warringah by producing and promoting plain English, concise, graphic guidelines incorporating compliance matters, as well as encouraging the community to consider this option as appropriate.

Sydney's Economic Geography

In recent years, rapid growth has been experienced in the advanced and property services sectors in office markets in Central Sydney and 'satellite' locations in the global economic corridor. Office employment has tended to concentrate in these areas. As some firms have integrated their

operations across administration, research and development and warehousing, there has been some suburbanisation.

In older industrial areas where the employment profile has shifted toward white collar occupations, the component of floor area that is used for office activities has increased.

With the growth in logistics and warehousing the amount of land consumed per employee has increased and this has accelerated demand for large lots on the urban fringe.

Growing demand for employment lands in the outer subregions of Sydney has also been the result of numerous 'push' and 'pull' factors. These factors are listed as follows:

- **Push Factors (from inner areas)**
 - Increasing rents and outgoings
 - Lack of appropriately zoned industrial land
 - Small lot sizes
- **Pull Factors (to outer areas)**
 - Release of SEPP 59 lands (designated employment lands located in and around Erskine Park, Eastern Creek and Greystanes)
 - Availability of serviced land
 - Improved transport opportunities and infrastructure
 - Lower rents and cheaper land
 - Growing population and customer base
 - Closer to CEO and executives home base

These factors have reshaped Metropolitan Sydney's industrial structure, in particular the traditional inner city industrial areas which are now characterised by new types of commercial and industrial development, or have been converted for residential usage. Located in North East Sydney, with a large amount of National Parkland and coastal areas, Warringah has experienced these pressures, but not to the same extent as the inner west and Sydney City areas.

Subregional Supply of Employment Lands

Employment Lands play an important role in providing and developing a diversity of employment opportunities. Diversity of employment opportunities is a crucial component in the pursuit of sustainability within both the Warringah local government area and the broader region. Warringah has built a high level of economic self-sufficiency due to the strength and variety of its local businesses. Maintaining economic sustainability, with an increasingly short supply of land available for commercial and economic activity, provides one challenge as Warringah moves into the future.

The supply of Employment Lands in the North East Subregion is considered to be fixed. The *ELDP 2010- Report 6, North East Subregion* report identifies that there is very little zoned employment land that remains unused. It also states that there is none planned for the future. Warringah is identified as having the largest amount of people employed in Employment Lands and as previously receiving the highest value of building approvals. Of the zoned industrial land in Warringah, less

than 2.5 hectares of this is undeveloped land, 0.3 hectares in Brookvale, 1.5 hectares in Frenchs Forest and 0.6 hectares in Cromer Industrial Precinct.

Nearby Ku-Ring-Gai LGA had similar issues where employment land for industrial purposes is highly constrained by natural bush land and national parklands. Previous studies found that sufficient land was available for industrial employment land and that highly sensitive lands (national park) should not be encroached upon for industrial employment land development.

Home Based Work

Home-based businesses are amongst the fastest growing industries annually, with an increasing number of people entering the marketplace. The rise can be attributed to the affordability of computers, the internet and other communication technologies. In Australia, approximately 50% of business owners are occupied in home-based businesses, with this trend continuing to increase.

When starting a home-based business, expansion is a key requirement for business choice. Industries that home-based businesses are more likely to be successful in include: e-commerce, health, nutrition, cosmetics, and so on. These industries are new industries or industries that undergo frequent change. Because of the nature of home-based businesses innovation is critical.

Consumer spending should also be considered; knowing consumer habits and trends of the market you are entering is crucial. Knowing where your business is going to deliver to is important, so that you appreciate your target market.

Changes that are affecting home-based businesses are:

- The rapid development of the internet and associated technologies
- Globalisation of the marketplace
- Changing purchasing habits of consumers

These have an impact on the efficiency of goods and services being delivered to consumers. With competition for home-based businesses not just located locally but internationally, while trying to deal with ever-changing customers wants and demands. However, positives to emerge from these changes include cheaper and more extensive advertising, promotions and sales for a company.

The attraction of home based work is flexibility in work hours and the avoidance of a commute to work. Thus, incidence of home based work is usually highest in areas that are distant from employment centres. It is also important to note that home based work is more suited to some types of work than others and professional service, white collar work, has traditionally made up a large percentage of this type of employment.

Defining home-based work can be difficult. Levels of home based work can be found through census data, by examining mode of travel to work and 'worked at home' numbers. The Australian Bureau of Statistics (ABS) 'Locations of Work' indicated that there were approximately 760,000 people who usually worked at home in their main or second job in November 2008.

Home-based work is also attractive to mature age and disabled workers. With the population of Warringah ageing, the area may benefit from the lifestyle change that home-based work can offer. The ABS (2008) data indicated that the number of people who worked some hours at home as a proportion of all employed people generally increased with age. For example, 3% of those aged 15 to 19 worked some hours at home, 30% of those aged 35 to 44 worked some hours at home and 43% of those aged 65 and over worked some hours at home. Therefore the ageing population of Warringah, along with the traffic congestion, could benefit from the Metro Plan push to increase the numbers of those working from home.

Home-based work is increasing rapidly across most industry sectors, and across all sub-regions in Sydney, but especially for managers and professionals (ABS 2008). This trend is visible of more flexible modes of working, which characterise the 'new economy'. In addition, labour market participation rates have increased over the past decades, as more women enter the workforce. Women are more likely to work from home, with the ABS stating that 8% of women in the workforce do this, compared to only 5% of men. An accompanied trend has been the rapid increase in part-time employment. Part of this increase in part time work and hours worked by women is home-based work.

At present, the Warringah Economic Development Plan contains objectives to promote and market opportunities for home-based business. However, the growing trends associated with home-based and part-time work will necessitate a review of the variety of office spaces in order to support business needs (for example incubator hubs).

3.3 Emerging issues

The key issues emerging from the discussions above include the followings.

Warringah must adjust to stay competitive in a changing world

As globalisation takes an even stronger hold of the world, firms constantly seek to cut costs, move their operations to less expensive locations with lower employment costs, and create the constant need for nations to remain economically competitive. Cities and areas within cities must specialise and increase efficiencies. Providing for a broad range of local employment types in dispersed locations with Subregional strategies to ensure employment in industries, is one of the objectives of the Metropolitan Sydney Plan. For the North East Subregion, and Warringah, this means promoting a broad range of employment locally, and encouraging working from home. As local industries restructure, more emphasis is required in expanding high value added industries that can compete globally, creating more opportunities for local services, and increasing space available for warehousing and retail of larger goods, particularly bulky goods. With the city wide aim of living and working locally, varied industries and housing types must be sustained. For Warringah this means creating a wide variety of housing mix to suit the ageing demographic and attracting moderate and lower income earners. A high value is placed on retaining the desirability of the northern beaches as a place to live, while still meeting all of the targets.

Changes must be strategic to best utilise the lands available

The creation of vibrant and focused centres signifies the need for upgrades and changes to current town centres and shopping strips, the largest of which being the upgrade of Dee Why-Brookvale into a major strategic centre. The creation of a specialised centre in Frenchs Forest is in response to the need for greater medical service. These centres are being expanded to reduce the strain on the already over extended public transport and congestion of roads in the area. It has been suggested that large increases in retail be met through the building of more supermarkets in centres or areas with adequate infrastructure, whilst out of centre large supermarket development should be limited. This would increase local amenity and decrease congestion. Also taking into account that the supply of Employment Lands in the North East Subregion is considered to be fixed, (under 5 hectares of this zoned land is undeveloped, 1.6 hectares falling in Brookvale, 1.5 hectares in Frenchs Forest and 0.7 hectares in Cromer Industrial Precinct), strategic planning to constructively and effectively use this land must be undertaken. Utilising the Austlink Business Park will also help meet the employment targets, and promote businesses in the area.

Neighbourhood/centres based planning

Further, Warringah Council suggests that the neighbourhood/centres based planning should focus on:

- Co-location of employment uses with residential components so that people can work and live in an active urban environment

- Promotion of infill development
- Gentrification and redevelopment opportunities
- Revitalisation of existing centres currently underutilised and abandoned.

4 Employment land supply

4.1 Development controls

Warringah Local Environment Plan (LEP) 2011

The LEP 2011 aims to make local environmental planning provisions for land in Warringah in accordance with the relevant standard environmental planning instrument under section 33A of the Act.

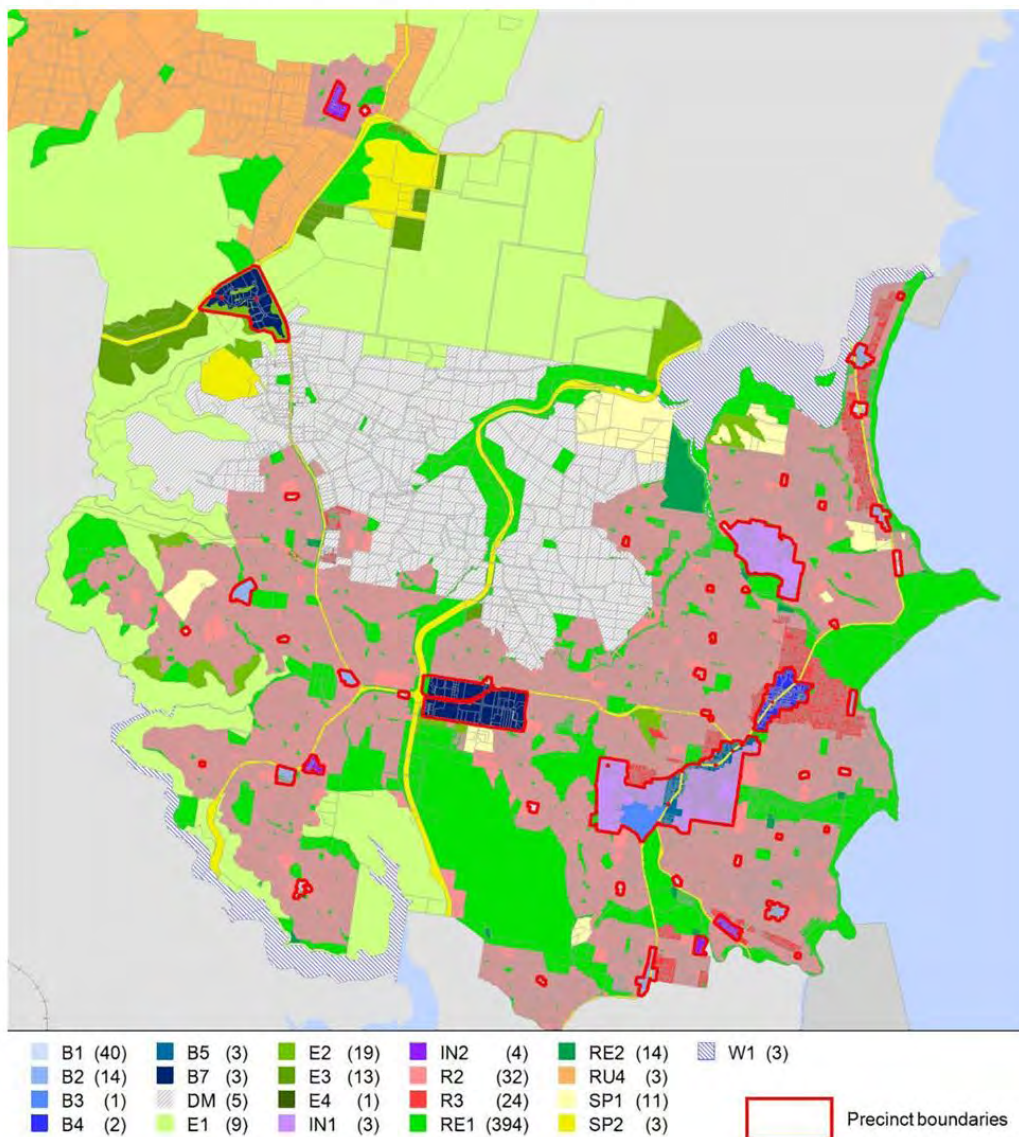
The LEP 2011 applies a standard suite of land use zones, and corresponding permissible land uses that shape development in employment precincts. These are described in detail in the Employment Precinct Profiles (Attachment A of the Study Brief).

The land use zones which apply to employment generating land are:

- Business Zones (B1 – Neighbourhood Centres, B2 – Local Centres, B3 – Commercial Core, B4 – Mixed Use, B5 – Business Development, B7 – Business Park)
- Industrial Zones (IN1 – General Industry and IN2- Light Industrial)

Figure 8 illustrates the distribution of these zones amongst the 46 employment precincts in Warringah LGA.

Figure 8. Business and industrial zones in Warringah



Source: Warringah LEP 2011

Table 7 details objectives for each of these zones as in the Warringah LEP 2011.

Table 7. Warringah LEP 2011 zones and objectives

Zones	Objectives
Zone B1 - Neighbourhood Centre	<ul style="list-style-type: none"> • Provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood. • ensure that neighbourhood centres provide a village-like atmosphere and safety and comfort for pedestrians. • minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of any adjoining or nearby residential land uses.
Zone B2 - Local Centre	<ul style="list-style-type: none"> • provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. • encourage employment opportunities in accessible locations. • maximise public transport patronage and encourage walking and cycling. • provide an environment for pedestrians that is safe, comfortable and interesting. • create urban form that relates favourably in scale and in architectural and landscape treatment to neighbouring land uses and to the natural environment. • minimise conflict between land uses in the zone and adjoining zones and ensure the amenity of any adjoining or nearby residential land uses.
Zone B3 - Commercial Core	<ul style="list-style-type: none"> • provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community. • encourage appropriate employment opportunities in accessible locations. • maximise public transport patronage and encourage walking and cycling. • recognise and support the role of Warringah Mall as a retail centre of sub-regional significance.
Zone B4 - Mixed Use	<ul style="list-style-type: none"> • provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community. • encourage appropriate employment opportunities in accessible locations. • maximise public transport patronage and encourage walking and cycling. • recognise and support the role of Warringah Mall as a retail centre of sub-regional significance.
Zone B5 - Business Development	<ul style="list-style-type: none"> • enable a mix of business and warehouse uses, and bulky goods premises that require a large floor area, in locations that are close to, and that support the viability of, centres. • provide for the location of vehicle sales or hire premises. • create a pedestrian environment that is safe, active and interesting by incorporating street level retailing and business uses.
Zone B7 - Business Park	<ul style="list-style-type: none"> • provide a range of office and light industrial uses. • encourage employment opportunities. • enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • create business park employment environments of high visual quality that relate favourably in architectural and landscape treatment to neighbouring land uses and to the natural environment. • minimise conflict between land uses in the zone and adjoining zones and ensure

	the amenity of adjoining or nearby residential land uses.
Zone IN1 - General Industrial	<ul style="list-style-type: none"> • provide a wide range of industrial and warehouse land uses. • encourage employment opportunities. • minimise any adverse effect of industry on other land uses. • support and protect industrial land for industrial uses. • enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • enable a range of compatible community and leisure uses. • maintain the industrial character of the land in landscaped settings.
Zone IN2 - Light Industrial	<ul style="list-style-type: none"> • provide a wide range of light industrial, warehouse and related land uses. • encourage employment opportunities and to support the viability of centres. • minimise any adverse effect of industry on other land uses. • enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • support and protect industrial land for industrial uses. • maintain the industrial character of the land in landscaped settings.

Source: BTS, JTW Data 2006

Part 4 of the Warringah LEP details principal development standards and covers minimum subdivision lot size, minimum subdivision lot size for community title schemes, rural subdivision, minimum subdivision lot size for strata subdivision of residential or tourist and visitor accommodation in certain zones, height of buildings and exceptions to development standards.

Part 7 of the Warringah LEP is focused on the Dee Why Town Centre. The Dee Why Town Centre is to have: a village like atmosphere, street level activity, such as cafes, restaurants and retailers; and to encourage pedestrian comfort, through a seamless integration of public and private spaces. There is also to be shop top housing, especially on Pittwater Road, and Roger Street Brookvale.

Objectives for the development within Dee Why Town Centre include:

- to create an attractive living centre that sustains the social, economic and environmental needs of its community and visitors,
- to ensure a balance between the provision of high quality housing with a mix of retail, business, employment, civic, cultural and recreational facilities,
- to ensure that development is consistent with the role of Dee Why as a major centre for the sub-region,
- to create a built environment that has unified and consistent building form.

Warringah LEP 2000 (Applicable to WLEP2011 deferred matters)

In approving LEP 2011, the Minister for Planning and Infrastructure decided to defer certain land from the new LEP. The deferred land is identified on the LEP 2011 Land Application Map as 'Deferred matter'. This means Council is running two Local Environmental Plans, LEP 2000 and LEP 2011, until the NSW Government resolves the issues involved in the deferral of land. The deferred

land is currently within the B2 Oxford Falls Valley and C8 Belrose North localities under LEP 2000 and remains under the provisions of LEP 2000.

The LEP 2000 provides DCP like controls for the deferred land. The LEP 2000 planning controls cover general principles of development control, such as local retail centres, noise, pollutants, flood affected land; public domain matters, including safety and security, signs; site planning and building design, such as views, provision and allocation of utility services, rear building setback, building bulk and conservation of energy and water; traffic, access and carparking; soil and water management; and heritage.

It must be noted that there are presently no defined or planned employment precincts within the deferred areas.

Warringah Development Control Plan (DCP) 2011

The provisions of the DCP are in addition and complementary to the provisions of Warringah Local Environmental Plan 2011. The DCP 2011 controls do not apply to the deferred land; and there are no DCP controls that apply to the deferred land¹⁷.

The DCP 2011 details built form controls, including setbacks and landscaped open space (Part B); siting factors, including subdivision, traffic and parking, stormwater erosion and the like (Part C); matters relating to design (Part D); matters relating to the natural environment, including trees on private property, flooding, vegetation and riparian land (Part E); and development and activities in certain zones and sensitive areas (Part F).

Part G *Special Area Controls* of the DCP covers development control in specific parts of Warringah, in particular parts of Dee Why, Warringah Mall, Forestway shops and Belrose Corridor. Part B *Built Form Controls* of the DCP does not apply to land described in Part G. All other parts of the DCP apply to land described in Part G. In the event of any conflict between this part and other parts of the DCP, the provisions of this part shall prevail in relation to the identified areas.

In regard to the Dee Why Mixed Use Area, Part G of the DCP applies planning controls to the land shown as Area 1 – Dee Why Parade, Area 2 – Howard Avenue, Area 3 – Oaks Avenue, Area 4 – Pacific Parade, Area 5 – Sturdee Parade, Area 6 – Town Centre South, Area 7 – Pittwater Road, Area 8 – Mooramba Road, Area 9 – Fisher Road, Area 10 – Civic Centre.

In regard to the Warringah Mall Shopping Centre (Warringah Mall) site, the DCP provisions detail built form, design quality and excellence, building setbacks and street frontages, building height, floor space, amenity, public art, advertising and signage, safety and security, social impacts, access and movement, pedestrian access, public transport, parking facilities, environmental and stormwater management and environmental sustainability.

¹⁷ DCP like controls remain in the Warringah LEP 2000.

If there is an inconsistency between the two documents, Warringah Local Environmental Plan 2011 shall prevail.

4.2 Employment generating lands audit

Audit method

An audit of all employment generating precincts within Warringah was completed using a method developed by SGS in association with the Department of Planning. Three levels of information are collected about each lot within the 46 employment generating precincts:

	Data Collected	Source of Data
Level 1.	Zoning, size of lot	Cadastre with LEP information and environmental constraint layers provided by Warringah Council
Level 2	Building envelope, above-ground car parking	GIS base for on-ground verification (digitised building outlines using aerial photographs)
Level 3	Building size, Broad Land Use Category and ANZSIC categories of land use	On-ground field survey

The field work and internal building survey built on the **Level 1** and **Level 2** data inputted via GIS. The field and internal survey included direct data entry through the use of hand-held Palm Pilots.

- **Level 1 data** – was used to identify the land parcels to be audited. Zoning information was added to the cadastre and land by zone was calculated.
- **Level 2 data** – From geo-referenced aerial images provided by Council, employment building footprints were digitised. The respective zoning information from the cadastre layer addressed in **Level 1** was added to these building records.
- **Level 3 data** – involved site by site visits and building auditing. In this stage each building was allocated an SGS Broad Land Use Category (BLCs), for example urban services, light industry, light manufacturing, and all ANZSIC activities were documented by storey of each building.

Finally the data is compiled and its integrity checked for errors before being compiled and analysed. The aim of the audit is ultimately to describe each of employment precincts by:

- current use
- broad land use category
- ANZSIC industries
- current floorspace ratios (FSRs)
- vacant floorspace¹⁸

¹⁸ The vacant floorspace within each audited building was recorded as one of the BLC categories by on-ground field surveyors.

- vacant sites
- capacity under existing controls

The data generated is highly detailed and can be updated in future surveys or, desirably, it could become a platform on which 'real time' data from Council development applications could be included.

The categorised data will allow for additional future analysis to be conducted. With the identification of employment by ANZSIC industries and looking at the future demand for these industries, the gap between current supply (the combination of current vacant floor space, vacant sites and underdeveloped lots under existing controls) and future demand will be determined.

As BLCs describe the possible function of the land and existing built form, as well as the actual employment activity, assessing land use in terms of BLCs allows for the consideration of the future character of an area.

Internal building inspections have not been completed and as such internal voids, circulation space and storage space within each building has not been determined. The reported figures are therefore *gross* floorspace figures and do not take into account building efficiency.

ANZSIC codes and Broad Land Use Categories (BLCs)

Data has been gathered at the finest grain (4 digit ANZSIC) and assessed at a coarser grain (1 digit ANZSIC). The following table shows the one digit ANZSIC industries.

Table 8. 1 Digit ANZSIC Categories

1 Digit Code	ANZSIC 1 Digit Category
A	Agriculture, Forestry and Fishing
B	Mining
C	Manufacturing
D	Electricity, Gas, Water and Waste Services
E	Construction
F	Wholesale Trade
G	Retail Trade
H	Accommodation and Food Services
I	Transport, Postal and Warehousing
J	Information Media and Telecommunications
K	Finance and insurance services
L	Rental hiring and real estate services
M	Professional, Scientific and Technical Services
N	Administrative and Support Services
O	Public Administration and Safety
P	Education and Training

1 Digit Code	ANZSIC 1 Digit Category
Q	Health Care and Social Assistance
R	Arts and Recreation Services
S	Other Services

Source: ABS (2006)

The ANZSIC industry categories are limited in their description of land use patterns as the categories cut across land use types and zones. For example, for the manufacturing industry category, parts of a manufacturing business may be in heavy industrial areas, other parts may be in light industrial areas and jobs in head office/ administrative functions in the same manufacturing firms may be in commercial areas (in offices).

Different industries operate at different geographic scales and have different key drivers. Local service industries – automotive repairs, printing, domestic storage and so on – need to be relatively close to customers, and are responsive to (and changes with) population growth. On the other hand, large transport and warehouse distribution centres are more sensitive to state and national population growth and shifts in freighting technologies and dependencies. They have different locational and access needs. These issues have significant implications for forecasting the demand for industrial or employment lands.

For these reasons, Broad Land Use Categories have been used in conjunction with ANZSIC industry classifications to overcome the limitations of each employment descriptor.

The BLC codes used in this employment assessment are shown below in Table 9.

Table 9. Broad Land Use Categories (BLCs)

Land Use Category	Description
Freight and Logistics (FL)	Warehousing and distribution activities. Includes buildings with a number of docking facilities; 'hard stand' areas with trucks or goods awaiting distribution; and large storage facilities. Warehousing and distribution is a metro level issue with activities preferably locating close to air, sea and inter-modal inland ports, or with access to the motorway system.
Local light industrial and urban support (LL)	Car service and repair; joinery, construction and building supplies; and domestic storage. Wide range of businesses that service other business (components, maintenance and support) and Subregional populations. Needed at local (LGA) to Subregional level.

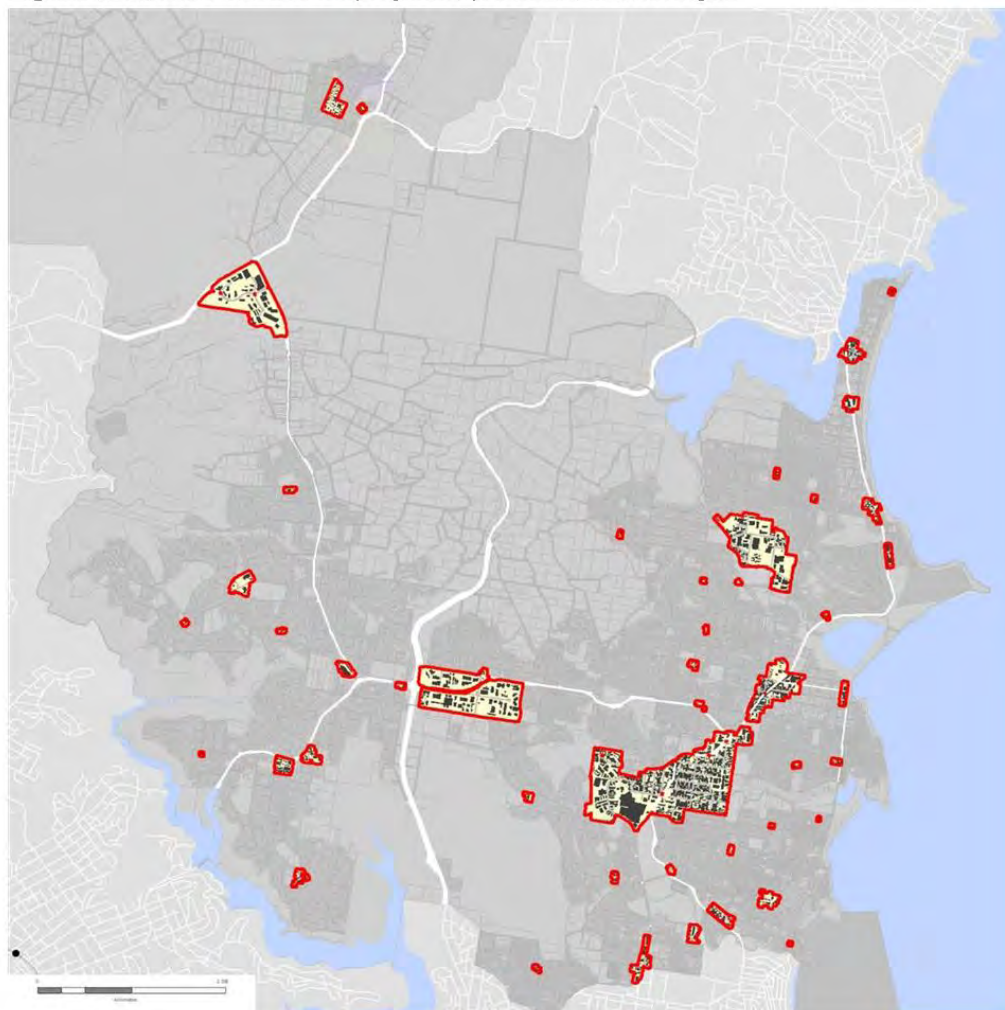
Land Use Category	Description
Manufacturing – Heavy (MH)	Large scale production activity. Likely to be characterised by high noise emission; emission stacks; use of heavy machinery; and frequency of large trucks. Heavy manufacturing is in decline in Sydney, but will continue to cluster in some locations such as Wetherill Park, Campbelltown/ Ingleburn etc. There are strong arguments for collocation in terms of raw material delivery and to concentrate externalities (though impacts on surrounding uses are generally moderate).
Manufacturing – Light (ML)	Clothing manufacturing, boat building and electrical equipment manufacturing Small scale production\ with lower noise and emission levels than heavy manufacturing.
Urban Services (US)	Concrete batching, waste recycling and transfer, construction and local and state government depots, sewerage, water supply, electricity construction yards. These typically have noise dust and traffic implications and need to be isolated or buffered from other land uses. Needed in each sub-region.
Office (O)	Administration, clerical, business services, research. Office buildings that are independent (i.e., are not ancillary to another use on site) and likely to accommodate a significant number of administration staff (>10 people).
Business / Office Parks (BP)	Integrated warehouse, storage, R&D, 'back-room' management and administration with typically a higher office component.
Retail - Main Street (RM)	Retailing services traditionally found in main street locations (e.g., supermarkets) and small cluster or strips of stores located next to a street or road.
Retail – Big Box (RB)	Large shopping complexes, including Westfield.
Retail Bulky Goods (RBG)	Typically large, one-story buildings surrounded by car-parking, usually located out of centre and in high exposure (main road) locations.
Special Activities (S)	Tertiary level education, health, and community services. Typically require strategic locations and needed in each sub-region.
Dispersed Activities (D)	Primary and secondary education, lower level health, social and community services, trades construction, other 'nomads'.
Residential (RES)	Residential development.
Accommodation (Short Term) (AST)	Hotels and Motels (not including pubs), backpacker establishments.
Car park (CP)	Stand-alone car parking stations
Vacant sites/lots (VSI)	Vacant sites
Vacant buildings (VBL)	Vacant buildings

Source: SGS (2012).

Audit areas

Figure 9 illustrates the audited sites within each employment precinct in Warringah.

Figure 9. Audited sites of employment precincts in Warringah



Source: SGS 2012

Audit results

Overall a total of 2,229,161 square metres of floorspace within the employment generating precincts was audited by SGS. There are totals of 73,951 square metres of gross vacant land and 190,792 square metres of vacant floorspace. Table 10 shows gross lot area, vacant floorspace and current employment generating floorspace by precinct.

Table 10. Total audited floorspace and vacancies by employment precinct

Precinct name	Gross lot area (sqm)	Vacant floorspace (sqm)	Current employment generating floorspace (sqm)
Neighbourhood centres	84,432	5,116	45,953
1 - Adams St Curl Curl	473	-	377
2 - Allambie	4,610	590	2,295
3 - Allambie Heights	6,099	92	2,669
4 - Arthur St Forestville	587	-	712
5 - Aubreen St Collaroy Plateau	2,019	-	1,007
6 - Bantry Bay Frenchs Forest	3,531	106	1,824
7 - Bridge Rd Queenscliff	604	-	238
8 - Brighton St Curl Curl	906	-	343
9 - Carawa Rd Cromer	1,475	74	539
10 - Corrie Rd Manly North	4,152	-	1,238
11 - Cromer Heights	2,168	-	1,179
12 - Griffin Rd North Curl Curl	4,064	969	999
13 - Harbord Rd	2,292	-	914
14 - Killarney Heights	10,413	248	4,501
15 - Long Reef	12,264	417	12,784
16 - Mimosa Davidson	2,272	2,182	-
17 - Narrabeen Local Retail	1,574	369	1,005
18 - Narrabeena Local Retail	2,906	-	1,241
19 - North Balgowlah	2,344	-	1,076
20 - Pitt Rd North Curl Curl	2,722	69	1,664
21 - Ralston Ave Belrose	4,640	-	3,417
22 - Rayner St Narrabeena	482	-	177
23 - Skyline Shops Frenchs Forest	3,203	-	1,790
24 - Sorlie Rd Frenchs Forrest	2,699	-	919
25 - South Creek Rd East Dee Why	2,136	-	1,714
26 - Wheeler Heights	3,796	-	1,332
Small Villages	212,783	6,937	124,977
27 - Collaroy	21,528	179	13,258
28 - Dee Why (The Strand)	12,532	348	6,582
29 - Devitt St Narrabeen	14,963	624	11,487
30 - Forestville	31,690	324	17,687
31 - Frenchs Forrest	20,743	-	12,202
32 - Glenrose	41,706	263	14,862
33 - Lawrence St Freshwater	25,944	398	15,221
34 - Manly Vale	35,484	4,696	24,940
35 - Narrabeena	1,426	-	3,975
36 - Terry Hills	3,599	105	2,193
37 - Veterans Parade Collaroy Plateau	3,169	-	2,570

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Precinct name	Gross lot area (sqm)	Vacant floorspace (sqm)	Current employment generating floorspace (sqm)
Villages	30,176	1,079	20,188
38 - Waterloo St Narrabeen	30,176	1,079	20,188
Major Centres	1,803,425	108,799	1,116,947
39 - Brookvale	1,235,378	85,650	980,147
Brookvale East	470,347	38,198	422,469
Brookvale West	392,963	31,651	282,120
Brookvale Pittwater Rd Corridor	201,163	15,457	143,799
Brookvale - Warringah Mall	170,905	344	131,759
39 - Dee Why	568,047	23,149	136,799
Industrial Areas	1,538,936	68,862	921,097
40 - Austlink Business Park	439,149	26,163	246,790
41 - Cromer Industrial	404,247	14,355	229,770
42 - Forestville industrial	21,808	-	10,778
43 - Frenchs Forest Business Park	578,178	22,218	383,719
44 - Freshwater Industrial	25,607	2,948	18,907
45 - Manly Vale Industrial	18,152	313	9,259
46 - Terry Hills, Industrial	51,795	2,865	21,874
Total	3,669,753	190,792	2,229,161

Source: SGS (2012)

The details and analysis of land audit results are provided in the Appendix 2.

4.3 Subregional employment precincts assessment

An assessment of the employment lands landscape in the SHOROC subregion has been conducted by reviewing the March 2008 *SHOROC Regional Employment Study (RES)*. The current and future roles/functions, site characteristics and capacity has been discussed where possible. This assessment only includes industrial and commercial areas – retail has not been included as it is closely tied to the needs of population within the Warringah LGA. This assessment will be considered as important context when determining the future roles or functions of employment precincts in Warringah. A summary of each of the important commercial and industrial areas in the SHOROC region has been provided below.

Table 11. Summary Of Commercial and Industrial Land in SHOROC Region (SHOROC Res)

Name	Location	LGA	Character and land uses	Size (sqm)	Future role indicated in SHOROC ELs	Potential competitor
Commercial						
Austlink Business Park	Belrose	Warringah	Bulky goods premises such as Domayne and Homemakers. A number of high profile tenants occupy the precinct including Beam Global and Ricoh	520,000	<p>Safeguard and promote as a strategic employment site within the Region for commercial and industrial uses and limit the further expansion of bulky goods premises. Aim to enhance the prominence and prestige of the Business Park by promoting it as a 'Specialised Centre for employment'. Encourage business relocation to the park through increased FSR's and flexible development standards.</p> <p>Sustainability is a central driver for economic change. Sustainable economic activities can be broadly divided into industries that are directly geared to improving environmental outcomes including carbon reduction, and activities that embed green technologies and practices into existing industries. There is a growing cluster of green industries at Austlink including innovative water, solar businesses and R&D linking sustainability with economic development, to ensure that the transition to a low carbon economy creates new green jobs or supports a 'greening' of existing jobs.</p>	n.a.
Frenchs Forest Business Park	Frenchs Forest	Warringah	Key tenants including the Capital Business Park, Allamby Grove Business Park, Life Therapeutics, Tecra Biotech and the Dairy Farmers Distribution Centre	700,000	<p>Promote Frenchs Forest as a Specialised Centre for Health and Technology. It is recommended that the area is designated Zone B7 Business Park and FSR's enhanced to encourage investment and business relocation to the precinct. Note that what may eventuate around the Hospital precinct is still uncertain and may be subject to further studies.</p>	n.a.
Old Pittwater Road West	Brookvale	Warringah	Within this location there are a number of higher specification office buildings with major tenants including Fuji and Avon		Suitable for higher specification commercial offices	n.a.

Spit and Mosman Junction	Spit Junction Village Centre / Mosman Junction Village Centre	Mosman	This space is generally comprised of smaller, individual commercial units located above retail units fronting Military Road and relates to property or business services, health and professional services		Prioritise key sites fronting Military Road for mixed use buildings with a reasonable component of high specification commercial floorspace on lower floors	No, likely to serve a more local role.
Dispersed three - four storey offices between Spit Junction and Cremorne	Military Road between Spit Junction and Cremorne	Mosman	A range of services including financial planners, legal advisors, marketing and advertising		n.a.	No, likely to serve a more local role.
Warriewood Valley	Between Vuko Place and Pittwater Road	Pittwater	Stand alone office or mixed office / industrial buildings		Continue to promote the Warriewood Release Area as a location for high quality commercial floorspace in association with light industry and distributions. The Boondan Road South area should be investigated for its potential contribution to employment lands and its synergy with existing office space in Vuko Place and/or retailers such as Warriewood Centre.	No, smaller centre serving a local function.
Mona Vale Town Centre		Pittwater	Provides a number of commercial office spaces supported by the wider retail and community services. The most prominent building of this type is located above the Peninsula Shopping Centre		Promote Mona Vale Town Centre as a prime location for higher specification office floorspace in Pittwater. Mixed use developments should be encouraged within the centre with a mix of retail at lower levels and commercial uses on the upper floors	No, likely to serve a more local role.

Industrial						
Condamine Street/ Balgowlah Industrial Area	Balgowlah	Manly	Manly LGA has one predominant industrial precinct which is occupied by a mix of Bulky Goods Retail (fronting Condamine Street) and light industrial uses with ancillary office space to the rear	101,000	Safeguard Balgowlah Industrial Area from further encroachment of non light industrial uses. Zone as IN2 Light Industrial and maintain viability of uses with an appropriate FSR	May compete for industrial and commercial uses. Very limited capacity for expansion
Cromer Industrial area	Cromer	Warringah	Cromer Industrial Area has a range of local industries. It also has a significant component of land dedicated to plastic and cable distributors as well as Roche pharmaceuticals	2,508,000	Safeguard and promote Cromer Industrial Area for a range of light industrial and urban support services as Zone IN2 Industrial and maintain viability of uses through appropriate FSRs. Cromer should be promoted as a flow over industrial area for uses that are not able to find sites or affordable sites within Brookvale Industrial Area	n.a.
Pittwater Road in Brookvale	Brookvale	Warringah	Industrial land in Brookvale is heavily occupied by a range of local urban support industries, car retailers, warehouse and distribution uses		Safeguard Brookvale Industrial Area to the east of Pittwater Road for a range of light industrial and urban support services. Zone as IN2 Light Industrial and maintain viability of uses with an appropriate FSR	n.a.

Mona Vale Industrial Area	Mona Vale	Pittwater	Occupied by a range of uses including the Audi Car Service Centre, carpet and kitchen cabinet dealers, plumbing and electrical supplies. The Mona Vale Industrial Area also has a distinct focus on marine industries and pockets of bulky goods retail	465,000	Safeguard Mona Vale Industrial Area for light industry and Urban Support Services. The site should be safeguarded from the further encroachment of retail uses with exception to the band of bulky goods retail fronting Barrenjoey Road. Zone as IN2 Light Industrial with an appropriate FSR	May compete for industrial and commercial uses. Very limited capacity for expansion
Warriewood	Warriewood – Ponderosa Parade and Jubilee Ave	Pittwater	Warriewood industrial precinct has been developed more recently and comprises a number of larger industrial and commercial premises		n.a.	May compete for industrial and commercial uses. Some capacity for expansion.
Garden Street, Warriewood	Warriewood	Pittwater	There are a number of successful and active lower grade automotive repair and household / business service uses.		n.a.	May compete for industrial uses. Very limited capacity for expansion

Source: Hill PDA 2008.

Commercial

The DP&I estimates that the SHOROC Region contains approximately 2,264,000 square metres of Business zoned land.

The *SHOROC RES* provides an estimate of the commercial-only floorspace in the region by applying floorspace per job ratios to the number of jobs in the region, using 2006 Bureau of Transport Statistics data on employment. Accordingly, it was suggested that there is approximately 480,000 square metres of occupied commercial floorspace in the SHOROC region as of 2006. The land audit finds that Warringah currently has around 400,000 square metres of office floorspace.

Table 12. Estimated Commercial Jobs and Occupied Floorspace in SHOROC as of 2006

Category	Jobs	Floorspace
Communication Services	1,050	73500
Finance and Insurance	2,598	51,960
Government Administration	2,152	43,040
Property & Business Services	15,549	310,980
Total	21,349	479,480

Source: Hill PDA 2008.

Industrial

There is 3.6 million square metres of existing industrial zoned land in the SHOROC region, with 82% of all industrial land in the subregion within Warringah LGA and no industrially zoned land in Mosman LGA. The three industrial areas in Warringah – Condamine Street/Balgowlah, Brookvale and Cromer Industrial Area – are the largest and most comprehensive in the SHOROC Region. The *SHOROC RES* indicates that these sites in Warringah are therefore regionally important, particularly given Mosman's lack of industrial zoned land and Manly's limited land supply.

Table 13. Existing industrial zoned land

LGA	Site Area (sqm)
Mosman	0
Manly	101,000
Warringah	2,508,000
Pittwater	465,000
SHOROC	3,600,000

Source: Hill PDA 2008.

Density

Given the above analysis, the *SHOROC RES* found that the density of development across the region is low with an average FSR less than 0.6:1. Warringah and Pittwater LGAs had the lowest

FSRs of 0.47:1, respectively; while both Mosman and Manly had FSRs of 1.17 and 1.19 to 1. This is indicative of the fact that a high proportion of commercial space in Warringah and Pittwater was located in traditionally less-dense business parks. On the other hand most commercial space in Mosman and Manly was shop-top commercial and smaller three and four storey strata developments in centre. Given the nature of commercial office development in Mosman and Manly, it is likely that these areas provide professional services to the local catchment and would not compete with the larger, business park and more corporate-focussed commercial space in Warringah including Forest central Business Park and Austlink. The industrial area in Warriewood (based on Jubilee Ave and Ponderosa Parade) includes some larger floorplate commercial premises and hence may compete with Warringah for larger commercial uses.

In terms of industrial land, the density of development is low in Warringah at 0.39:1. However, Pittwater and Manly had higher density of development with FSRs of 0.83:1 and 1.46:1, respectively. The high intensity of industrial use in Pittwater and especially Manly reflects the significant demand for industrial sites within the locality yet the correspondingly limited supply. Given the high FSRs in Pittwater and Manly it is unlikely that these LGAs will compete with Warringah for new industrial development unless additional industrial land is created.

Table 14. 2006 Estimated Average FSR for Employment Uses

LGA	Business	Industrial
Mosman	1.17	n/a
Manly	1.19	1.46
Warringah	0.47	0.39
Pittwater	0.47	0.83
SHOROC	0.57	0.52

Source: Hill PDA 2008.

The SHOROC RES indicated that the 'growth in demand for employment generating floorspace, assuming no change in site supply will necessitate an increase in FSRs'.

Table 15. Estimated FSR 2031

LGA	Business	Industrial
Mosman	1.31	n/a
Manly	1.4	1.13
Warringah	0.6	0.37
Pittwater	0.6	1.06
SHOROC	0.71	0.52

Source: Hill PDA 2008.

Summary

The total amount of commercial floorspace in the SHOROC region was found to be approximately 480,000 square metres. Commercial space in the SHOROC region is dominated by local professional services businesses that serve a relatively local function. Warriewood industrial was

the only area that was deemed to have higher order, strategic commercial uses that would potentially compete with those in Warringah.

The amount of zoned industrial land in the SHOROC region was found to be 3.6 million square metres. The potential competitor precincts to Warringah were noted as Balgowlah industrial in Manly and Mona Vale industrial and several industrial precincts in Warriewood, Pittwater. The Warriewood industrial precincts are the most significant competitors for new industrial development.

5 Supply and Demand Analysis

The supply and demand analysis assesses the capacity of employment zoned land to accommodate the projected jobs and the associated floorspace.

For the demand analysis, the BTS employment growth rates are applied to audited floorspace¹⁹. This assumes that historical trends persist into the future and there will be no major change to the current BLC profile (proportion of each BLC) within each precinct.

Between 2006 and 2031, it is forecast that there will be demand for 12,316 additional jobs. This is broadly similar to the employment target of 12,500 outlined in the Draft North East Sub-regional Strategy. The BTS forecast takes the increase in population as well as the future additional supply of employment lands into account.

However, the draft Dee Why/Brookvale Transport Management and Accessibility Study (TMAS) finds that the Brookvale-Dee Why Major Centre can only accommodate 3,500 additional jobs (between 2006 and 2036) under the current road network conditions. The study suggests that meeting the 5,000 job target of the NSW Metropolitan Plan for Sydney 2036 would require major transport infrastructure upgrades with largely prohibitive social and economic impacts. In line with these findings and advice from the DP&I, the employment capacity for Brookvale-Dee Why Major Centre has been capped at 3,500 in the demand projection. This number is 1,708 less than the employment forecast prepared by BTS for Brookvale-Dee Why Major Centre. The overspill demand (of 1,708 jobs) has been reallocated to other employment precincts within Warringah. The details about this redistribution process are described in the following section.

5.1 Key steps

The supply-demand analysis is completed through the following steps:

- Step 1: Calculate the forecast employment growth rate by industry (ANZSIC) between 2011 and 2036 using BTS projections
- Step 2: Convert employment projections to floorspace demand (before allocation)
- Step 3: Distribute overspill demand from Brookvale-Dee Why Major Centre to other employment precincts
- Step 4: Calculate maximum floorspace capacity
- Step 5: Compare estimated floorspace capacity to projected demand.

¹⁹ Given that the floorspace audit was conducted in 2012, to remain consistent with time frame of five-yearly BTS employment projections, it is assumed that floorspace in 2011 is largely similar to floorspace in 2012.

Step 1: Calculate employment growth rates by industry

The employment forecasts (by ANZSIC industry) for Warringah LGA are sourced from the BTS. As noted earlier, in line with the TMAS study, the jobs forecast for Brookvale-Dee Why Major Centre is capped at 3,500 additional jobs between 2006 and 2036. The adjusted forecasts provide an indication of the magnitude and distribution of future employment and account for future trends by industry. It is important to note that these projections are trend based. For the period 2011 to 2036, it is projected that total employment in Warringah LGA will increase by 11,238 jobs.

The adjusted five-yearly employment forecast for Warringah LGA (excluding Brookvale-Dee Why Major Centre) from 2011 to 2031 is shown in Table 16. Change in employment and the Cumulative Annual Growth Rate (CAGR) between 2011 and 2036 is also reported. Shaded cells show the highest demand levels and highest growth rates.

Table 16. Projected employment in the LGA (excluding Brookvale-Dee Why Major Centre) 2011-2031 (Jobs)

ANZSIC industry (1 digit)	2011	2016	2021	2026	2031	2036	Change 2011 - 2036	CAGR 2011 - 2036
Agriculture, forestry and fishing	137	144	156	162	167	174	37	0.96%
Mining	42	44	48	50	52	54	12	0.98%
Manufacturing	3,343	3,410	3,541	3,564	3,593	3,668	324	0.37%
Electricity, gas, water and waste services	340	322	329	325	322	323	-17	-0.20%
Construction	3,212	3,153	3,299	3,319	3,351	3,416	204	0.25%
Wholesale Trade	3,680	3,902	4,153	4,180	4,201	4,202	523	0.53%
Retail Trade	4,130	4,489	4,906	5,056	5,198	5,368	1,238	1.05%
Accommodation and food services	2,388	2,666	2,952	3,113	3,273	3,455	1,067	1.49%
Transport, postal and warehousing	1,102	1,122	1,201	1,237	1,285	1,357	255	0.84%
Information media and telecommunications	1,055	1,121	1,172	1,156	1,115	1,065	10	0.04%
Finance and insurance services	840	831	872	875	884	910	69	0.32%
Rental hiring and real estate services	750	804	876	914	953	1,001	251	1.16%
Professional, scientific and technical services	4,174	4,407	4,478	4,588	4,680	4,776	602	0.54%
Administrative and support services	1,079	1,062	1,018	986	956	941	-138	-0.55%
Public administration and safety	683	684	740	768	792	830	147	0.78%
Education and training	3,891	4,040	4,402	4,606	4,827	5,072	1,180	1.07%
Healthcare and social assistance	4,406	4,791	5,320	5,628	5,862	6,126	1,720	1.33%
Arts and recreation services	653	652	668	655	649	656	3	0.02%
Other services	1,640	1,662	1,760	1,776	1,790	1,813	173	0.40%
Unclassified	1,559	1,684	1,889	2,002	2,111	2,219	661	1.42%
Total	39,106	40,990	43,780	44,968	46,064	47,427	8,321	0.77%

Source: BTS (2009) rates adjusted by SGS

Health Care and Social Assistance is forecast to experience the highest employment growth with an additional 1,720 jobs in the period 2011 to 2036. These jobs will be both centralized in and around the new hospital at Frenchs Forest, but there is also likely to be significant decentralization of

employment, with high growth forecast for community health, aged care facilities and community services provided in the home. Retail Trade is forecast to accommodate an additional 1,238 jobs, and Education and Training an additional 1,180 jobs. Professional Services and Wholesale trade are other industries projected to experience strong employment growth. The greatest decline is forecast for employment in Administration and Support Services with a loss of 138 jobs. The Utilities sector is projected to experience a small reduction in employment.

The profile of employment in 2036 is projected to be largely similar to that in 2011. Health Care is anticipated to contribute 13% of total employment (11% in 2006) and Retail Trade is projected to constitute 11% of total employment (10.6% in 2006).

The adjusted five-yearly employment forecast for Brookvale-Dee Why Major Centre is shown in Table 17. Change in employment (from 2006 to 2036 and 2011 to 2036) and the Cumulative Annual Growth Rate (CAGR) between 2011 and 2036 are also reported. Shaded cells show the highest demand levels and highest growth rates. Note that the job growth has been capped at 3,500 in line with the findings from the draft Dee Why/Brookvale Transport Management and Accessibility Study.

Table 17. Projected employment in Brookvale-Dee Why Major Centre, 2011-2031
(Jobs)

ANZSIC Industry (1 digit)	2006	2011	2016	2021	2026	2031	2036	Change 2006 - 2036	Change 2011 - 2036	CAGR 2011 - 2036
Agriculture, Forestry and Fishing	22	24	26	27	29	31	33	12	10	1.37%
Mining	11	12	13	13	14	15	15	4	3	0.98%
Manufacturing	2,588	2,553	2,518	2,483	2,448	2,413	2,378	-210	-175	-0.28%
Electricity, Gas, Water and Waste Services	58	57	56	55	54	53	52	-6	-5	-0.38%
Construction	750	747	744	740	737	734	731	-19	-16	-0.09%
Wholesale Trade	1,727	1,712	1,698	1,684	1,670	1,655	1,641	-86	-71	-0.17%
Retail Trade	4,610	4,983	5,357	5,730	6,104	6,478	6,851	2,241	1,868	1.28%
Accommodation and Food Services	1,058	1,123	1,190	1,258	1,325	1,393	1,460	404	337	1.06%
Transport, Postal and Warehousing	295	306	317	328	340	351	362	68	56	0.68%
Information Media and Telecommunications	201	198	194	191	187	183	180	-21	-18	-0.38%
Finance and insurance services	444	439	434	429	424	419	414	-30	-25	-0.23%
Rental hiring and real estate services	357	372	387	402	416	431	446	89	74	0.73%
Professional, Scientific and Technical Services	924	931	937	943	949	956	962	37	31	0.13%
Administrative and Support Services	299	288	278	268	258	247	237	-61	-51	-0.78%
Public Administration and Safety	958	968	977	986	995	1,005	1,014	56	46	0.19%
Education and Training	440	455	471	486	501	517	532	92	77	0.63%
Health Care and Social Assistance	1,038	1,085	1,132	1,180	1,227	1,274	1,322	284	237	0.79%
Arts and Recreation Services	117	117	116	116	116	115	115	-2	-2	-0.06%
Other Services	856	940	1,024	1,108	1,192	1,276	1,360	504	420	1.49%

ANZSIC industry (1 digit)	2006	2011	2016	2021	2026	2031	2036	Change 2006 - 2036	Change 2011 - 2036	CAGR 2011 - 2036
Unclassified	400	424	448	472	496	520	544	145	120	1.01%
Total	17,149	17,732	18,315	18,899	19,482	20,065	20,649	3,500	2,917	0.61%

Source: BTS (2009) rates adjusted by SGS.

Retail Trade is forecast to experience the highest employment growth with additional 1,868 jobs in the period 2011 to 2036, followed by Accommodation and Food services with additional 337 jobs. Other Services and Healthcare are other industries projected to experience strong employment growth. In contrast to the remainder of the LGA, Brookvale and Dee Why are expected to experience declining employment in a number of industries (highlighted in red). The greatest decline is forecast for employment in Manufacturing - a loss of 138 jobs.

The profile of employment in 2036 is projected to be largely similar to that in 2011. Retail Trade is anticipated to contribute 33% of total employment (28% in 2006) and even though Manufacturing is projected to decline, it is still expected to constitute 11.5% of total employment (14.4% in 2006).

Step 2: Convert employment projections to floorspace demand (before allocation)

Table 18 shows the total projected floorspace by precinct prior to allocation of excess floorspace demand generated from Brookvale-Dee Why Major Centre²⁰. Floorspace demand is derived by applying the adjusted BTS employment growth rates by ANZSIC industry sector to the recorded floorspace by industry sector for each precinct²¹. The LGA-wide growth rates (in Table 16) were applied to all precincts, except Brookvale-Dee Why Major Centre where the growth rates from Table 17 were applied.

Shaded cells show the highest demand levels and highest growth rates. The Brookvale employment precinct has also been broken down into four sub-precincts which are shaded in grey.

²⁰ The BTS projects 5,208 additional jobs for the Brookvale-Dee Why precinct. Given that the total projected jobs in Brookvale and Dee Why were capped at 3,500 in Step1, the floorspace demand generated by the additional 1,708 jobs is re-allocated to other precincts in Step 3

²¹ For ease of conversion (from ANZSIC to BLC), the BTS employment growth rates were applied to lot level floorspace and lots were aggregated to form precinct level floorspace demand. The floorspace audit was conducted by ANZSIC and BLC. It is therefore possible to apply BTS growth rates to audited floorspace by ANZSIC. Floorspace projections can then be aggregated by BLC.

Table 18. Projected floorspace by precinct 2011-2036 (sqm) – before allocation

Precinct name	Floorspace demand (sqm)						Change 2011 - 2036	CAGR 2011 - 2036
	2011	2016	2021	2026	2031	2036		
1 - Adams St Curl Curl	377	397	423	430	433	437	60	0.6%
2 - Allambie	2,295	2,470	2,665	2,725	2,746	2,767	472	0.8%
3 - Allambie Heights	2,669	2,911	3,189	3,306	3,420	3,554	885	1.2%
4 - Arthur St Forestville	712	760	828	857	884	915	203	1.0%
5 - Aubreen St Collaroy Plateau	1,007	1,097	1,204	1,254	1,304	1,362	355	1.2%
6 - Bantry Bay Frenchs Forest	1,824	1,999	2,198	2,296	2,390	2,500	677	1.3%
7 - Bridge Rd Queenscliff	238	253	276	287	297	309	71	1.1%
8 - Brighton St Curl Curl	343	368	394	403	410	417	75	0.8%
9 - Carawa Rd Cromer	539	581	633	653	674	698	158	1.0%
10 - Corne Rd Manly North	1,238	1,338	1,458	1,498	1,535	1,580	342	1.0%
11 - Cromer Heights	1,179	1,252	1,355	1,391	1,425	1,467	288	0.9%
12 - Griffin Rd North Curl Curl	999	1,065	1,155	1,190	1,219	1,256	257	0.9%
13 - Harbord Rd	914	995	1,089	1,124	1,158	1,197	283	1.1%
14 - Killamey Heights	4,501	4,718	5,056	5,181	5,310	5,480	978	0.8%
15 - Long Reef	12,784	13,539	14,480	14,697	14,878	15,151	2,367	0.7%
16 - Mimosa Davidson	-	-	-	-	-	-	-	n.a.
17 - Narrabeen Local Retail	1,005	1,122	1,243	1,310	1,378	1,454	449	1.5%
18 - Narrabeena Local Retail	1,241	1,340	1,453	1,505	1,556	1,616	375	1.1%
19 - North Balgowlah	1,076	1,166	1,276	1,327	1,376	1,435	359	1.2%
20 - Pitt Rd North Curl Curl	1,664	1,815	1,983	2,048	2,107	2,176	513	1.1%
21 - Ralston Ave Belrose	3,417	3,694	4,035	4,168	4,290	4,435	1,018	1.0%
22 - Rayner St Narrabeena	177	192	210	216	222	230	53	1.1%
23 - Skyline Shops Frenchs Forest	1,790	1,928	2,088	2,170	2,246	2,337	548	1.1%
24 - Sorlie Rd Frenchs Forest	919	979	1,063	1,098	1,133	1,175	257	1.0%
25 - South Creek Rd East Dee Why	1,714	1,816	1,970	2,027	2,078	2,137	423	0.9%
26 - Wheeler Heights	1,332	1,439	1,571	1,627	1,679	1,741	409	1.1%
27 - Collaroy	13,258	14,421	15,712	16,295	16,856	17,518	4,260	1.1%
28 - Dee Why (The Strand)	6,582	7,294	8,072	8,498	8,922	9,401	2,819	1.4%
29 - Devitt St Narrabeen	11,487	12,460	13,605	14,035	14,445	14,940	3,453	1.1%
30 - Forestville	17,687	18,644	19,847	20,256	20,665	21,233	3,547	0.7%
31 - Frenchs Forrest	12,202	13,010	14,123	14,590	15,034	15,584	3,382	1.0%
32 - Glenrose	14,862	15,680	16,804	17,134	17,482	17,981	3,119	0.8%
33 - Lawrence St Freshwater	15,221	16,345	17,792	18,418	19,005	19,706	4,485	1.0%
34 - Manly Vale	24,940	26,695	28,805	29,585	30,312	31,195	6,255	0.9%
35 - Narrabeena	3,975	4,301	4,677	4,821	4,962	5,135	1,160	1.0%

Precinct name	Floorspace demand (sqm)						Change 2011 - 2036	CAGR 2011 - 2036
	2011	2016	2021	2026	2031	2036		
36 - Terry Hills	2,193	2,340	2,544	2,630	2,715	2,819	625	1.0%
37 - Veterans Parade Collaroy Plateau	2,570	2,807	3,077	3,195	3,312	3,451	881	1.2%
38 - Waterloo St Narrabeen	20,188	21,402	23,152	23,833	24,486	25,322	5,135	0.9%
39 - Brookvale	980,147	1,013,536	1,046,925	1,080,315	1,113,704	1,147,093	166,946	0.6%
39 - Dee Why	136,799	143,885	150,970	158,055	165,140	172,225	35,425	0.9%
39 - Brookvale East	422,469	435,126	447,784	460,441	473,098	485,755	63,286	0.6%
39 - Brookvale West	282,120	286,523	290,925	295,328	299,730	304,133	22,013	0.3%
39 - Brookvale Pittwater Rd Corridor	143,799	151,379	158,960	166,540	174,121	181,701	37,903	0.9%
39 - Brookvale - Warringah Mall	131,759	140,508	149,257	158,006	166,755	175,503	43,744	1.2%
40 - Austlink Business Park	246,790	257,841	271,346	275,985	280,754	287,924	41,135	0.6%
41 - Cromer Industrial	229,770	235,578	245,277	248,099	251,036	255,993	26,224	0.4%
42 - Forestville industrial	10,778	11,094	11,725	11,903	12,099	12,411	1,633	0.6%
43 - Frenchs Forest Business Park	383,719	398,629	414,366	419,420	423,379	429,730	46,011	0.5%
44 - Freshwater Industrial	18,907	19,612	20,932	21,345	21,766	22,324	3,417	0.7%
45 - Manly Vale Industrial	9,259	9,481	9,981	10,118	10,261	10,479	1,220	0.5%
46 - Terry Hills, Industrial	21,874	22,530	23,458	23,684	23,923	24,342	2,469	0.4%
Total	2,229,161	2,316,821	2,416,484	2,477,004	2,536,406	2,604,635	375,474	0.6%

Source: SGS (2012), Adjusted BTS (2009) growth rates.

Step 3: Distribute overspill floorspace demand from Brookvale-Dee Why Major Centre to other employment precincts

The baseline BTS projection indicates that Brookvale and Dee Why could expect 5,208 additional jobs between 2006 and 2036. However, the draft Dee Why/Brookvale Transport Management and Accessibility Study (TMAS) finds that the Brookvale-Dee Why Major Centres can only accommodate 3,500 additional jobs over the same period under the current road network conditions. In line with these findings and advice from the DP&I, the BTS employment projections for Brookvale-Dee Why Major Centre from 2006 to 2036 are capped at 3,500. This reduces the original BTS projection for the LGA by 1,708 jobs²².

Based on the current floorspace profile of the precinct and the BTS growth rates used, the excess 1,708 jobs translate to demand for around 90,000 sqm of employment generating floorspace. As was assumed in Step 1, this assumes that the reduction in employment does not alter the projected profile of employment (by ANZSIC industry or BLC land-use) in the precinct. Following is the land-use profile of the excess floorspace demand due to the capping of jobs.

²² Between 2011 and 2036, the original BTS projection for the whole LGA is 12,658. This is adjusted to 11,236. This implies a reduction of 1,422 for the period. Additional jobs in Brookvale and Dee Why, from 2011 to 2036 is therefore capped at 2,917 jobs.

Table 19. Excess floorspace demand due to capping jobs (sqm)

BLC names	BLC code	Excess floorspace demand
Office	O	5,202
Local light	LL	33,745
Retail main street	RM	21,681
Manufacturing light	ML	949
Urban services	US	909
Business park	BP	999
Freight logistics	FL	552
Retail bulky goods	RBG	4,113
Dispersed activities	D	767
Short term accommodation	AST	659
Retail big box (such as Westfield)	RB	18,774
Special uses	S	1,534
Total		89,885

Source: SGS (2012).

The last column of Table 20 indicates the precincts that the overspill demand will likely be attracted to. For example, we have nominated the French Forest and Austlink Business Park as suitable candidates to absorb the overspill office demand. Wherever no specific precinct is chosen for a particular BLC, the demand has been pro-rata distributed to precincts that currently feature such BLC type.

In relation to Retail Bulky Goods floorspace, a high-level demand assessment was completed at the LGA level to examine whether the forecast demand for bulky goods floorspace is required to service the needs of future residents in Warringah by 2036. The assessment suggested that the forecast Retail Bulky Goods floorspace (of around 188,000 sqm) by 2036 would meet to the demand for household goods expenditures of future residents in Warringah. As a result, we have redistributed 100% of the excess Retail Bulky Goods floorspace demand from Brookvale to the northeast part of the Austlink Business Park.

Table 20. Excess floorspace demand allocation due to capping jobs (sqm)

Broad Land Use Categories	Excess floorspace demand from Brookvale-Dee Why Major Centre	Precinct/s to which the overspill demand will likely be attracted
Office	5,202	Frenchs Forest BP, Austlink BP
Local light	33,745	Other industrial areas (such as Cromer)
Retail main street	21,681	Other villages and small villages
Manufacturing light	949	Other industrial areas (such as Cromer)
Urban services	909	The rest of Warringah
Business park	999	Austlink and Frenchs Forest BPs
Freight logistics	552	The rest of Warringah
Retail bulky goods	4,113	Austlink BP

Forecasting of Economic Development of the Warringah Employment Study / Final Report

Broad Land Use Categories	Excess floorspace demand from Brookvale-Dee Why Major Centre	Precinct/s to which the overspill demand will likely be attracted
Dispersed activities	767	The rest of Warringah
Short term accommodation	659	The rest of Warringah
Retail big box (such as Westfield)	18,774	None (i.e. excess demand will be lost)
Special uses	1,534	The rest of Warringah
TOTAL	89,886	

Source: SGS (2012).

Where more than one precinct is assumed to 'absorb' the excess demand for a given land-use, the current distribution of floorspace (for the given land-use) amongst those precincts is used. For instance, of the total current Office floorspace in Frenchs Forest and Austlink BP, 73% is in the former and 27% in the latter. This implies that of the 5,202 square metres of excess demand, 3,785 square metres is allocated to Frenchs Forest and 1,417 square metres is allocated to Austlink.

Based on this allocation process, Cromer Industrial (14,939 sqm), Frenchs Forest Business Park (12,948 sqm), and Austlink Business Park (11,025 sqm) absorb the majority of the excess demand due to capping employment in Brookvale-Dee Why Major Centre. The majority of the excess demand absorbed by these three precincts is for Local Light uses (13,006 sqm, 7,429 sqm, and 4,868 sqm respectively). In addition, 4,113 square metres of Retail Bulky Goods is absorbed by Austlink Business Park.

Table 21 shows the total projected floorspace by precinct after the allocation of excess floorspace demand generated by capping employment in Brookvale and Dee Why. Shaded cells show the highest demand levels and highest growth rates. The Brookvale Major Centre has also been broken down into four sub-precincts which are shaded.

It is forecast that all industrial precincts, will have demand for additional floorspace. The highest level of additional floorpace demand is projected to occur in Brookvale, where an additional estimated 166,946 square metres (growth of 0.6% per annum) will be required by 2036. The majority of the additional floorsapce demand in this Major Centre is likely to occur in Brookvale East (63,286 sqm) and Warringah Mall (43,744 sqm). Across the LGA, it is projected that there will be demand for **446,585 additional square metres of floorspace** by 2036.

Table 21. Projected floorspace by precinct 2011-2036 (sqm) – after allocation

Precinct name	Floorspace demand (sqm)						Change 2011 - 2036	Difference compared to Step 2	CAGR 2011 - 2036
	2011	2016	2021	2026	2031	2036			
1 - Adams St Curl Curl	377	397	423	430	433	437	60	0	0.6%
2 - Allambie	2,295	2,607	2,957	3,064	3,102	3,138	843	372	1.3%
3 - Allambie Heights	2,669	3,029	3,442	3,617	3,786	3,986	1,317	432	1.6%
4 - Arthur St Forestville	712	788	893	939	987	1,030	319	115	1.5%
5 - Aubreen St Collaroy Plateau	1,007	1,137	1,291	1,363	1,435	1,518	512	156	1.7%
6 - Bantary Bay Frenches Forest	1,824	2,057	2,322	2,452	2,578	2,725	901	224	1.8%
7 - Bridge Rd Queenscliff	238	261	294	309	324	341	104	32	1.5%
8 - Brighton St Curl Curl	343	387	432	448	460	473	130	55	1.3%
9 - Carawa Rd Cromer	539	604	684	716	748	785	246	87	1.5%
10 - Corrie Rd Manly North	1,238	1,386	1,563	1,622	1,677	1,743	505	163	1.4%
11 - Cromer Heights	1,179	1,288	1,443	1,496	1,548	1,610	431	143	1.3%
12 - Griffin Rd North Curl Curl	999	1,106	1,253	1,310	1,357	1,418	419	162	1.4%
13 - Harbord Rd	914	1,028	1,158	1,207	1,254	1,309	395	112	1.4%
14 - Killamey Heights	4,501	4,854	5,404	5,607	5,818	6,095	1,593	615	1.2%
15 - Long Reef	12,784	14,200	15,963	16,369	16,709	17,221	4,436	2,070	1.2%
16 - Mimosa Davidson	0	0	0	0	0	0	0	0	n.a.
17 - Narrabeen Local Retail	1,005	1,156	1,312	1,399	1,486	1,585	580	131	1.8%
18 - Narrabeena Local Retail	1,241	1,467	1,728	1,847	1,964	2,102	861	486	2.1%
19 - North Balgowlah	1,076	1,166	1,276	1,327	1,376	1,435	359	0	1.2%
20 - Pitt Rd North Curl Curl	1,664	1,895	2,151	2,250	2,340	2,446	782	269	1.6%
21 - Ralston Ave Belrose	3,417	3,837	4,355	4,557	4,743	4,962	1,545	527	1.5%
22 - Rayner St Narrabeena	177	200	228	238	247	258	82	29	1.5%
23 - Skyline Shops Frenches Forest	1,790	1,953	2,144	2,242	2,332	2,440	651	103	1.2%
24 - Sorlie Rd Frenches Forrest	919	979	1,063	1,098	1,133	1,175	257	0	1.0%
25 - South Creek Rd East Dee Why	1,714	1,883	2,138	2,233	2,317	2,415	701	277	1.4%
26 - Wheeler Heights	1,332	1,495	1,697	1,782	1,862	1,957	625	216	1.5%
27 - Collaroy	13,258	14,875	16,669	17,480	18,258	19,179	5,921	1,661	1.5%
28 - Dee Why (The Strand)	6,582	7,560	8,631	9,217	9,800	10,459	3,877	1,058	1.9%
29 - Devitt St Narrabeen	11,487	12,984	14,746	15,407	16,039	16,799	5,313	1,860	1.5%
30 - Forestville	17,687	19,119	20,919	21,531	22,142	22,993	5,306	1,759	1.1%
31 - Frenches Forrest	12,202	13,010	14,123	14,590	15,034	15,584	3,382	0	1.0%

Assessment of Economic Development of the Warringah Employment Strategy - Final report

Precinct name	Floorspace demand (sqm)						Change 2011 - 2036	Difference compared to Step 2	CAGR 2011 - 2036
	2011	2016	2021	2026	2031	2036			
32 - Glenrose	14,862	15,875	17,267	17,676	18,107	18,725	3,862	743	0.9%
33 - Lawrence St Freshwater	15,221	16,929	19,128	20,078	20,970	22,035	6,814	2,329	1.5%
34 - Manly Vale	24,940	27,618	30,836	32,026	33,135	34,482	9,542	3,287	1.3%
35 - Narrabeena	3,975	4,474	5,049	5,270	5,486	5,751	1,776	616	1.5%
36 - Terry Hills	2,193	2,423	2,742	2,878	3,011	3,174	981	355	1.5%
37 - Veterans Parade Collaroy Plateau	2,570	2,919	3,316	3,491	3,663	3,867	1,297	416	1.6%
38 - Waterloo St Narrabeen	20,188	22,036	24,699	25,736	26,730	28,003	7,816	2,681	1.3%
39 - Brookvale	980,147	1,013,536	1,046,925	1,080,315	1,113,704	1,147,093	166,946	0	0.6%
39 - Dee Why	136,799	143,885	150,970	158,055	165,140	172,225	35,425	0	0.9%
39 - Brookvale East	422,469	435,126	447,784	460,441	473,098	485,755	63,286	0	0.6%
39 - Brookvale West	282,120	286,523	290,925	295,328	299,730	304,133	22,013	0	0.3%
39 - Brookvale Pittwater Rd Corridor	143,799	151,379	158,960	166,540	174,121	181,701	37,903	0	0.9%
39 - Brookvale - Warringah Mall	131,759	140,508	149,257	158,006	166,755	175,503	43,744	0	1.2%
40 - Austlink Business Park	246,790	260,803	277,928	283,809	289,857	298,949	52,159	11,025	0.8%
41 - Cromer Industrial	229,770	238,887	254,111	258,541	263,151	270,933	41,163	14,939	0.7%
42 - Forestville Industrial	10,778	11,296	12,330	12,621	12,943	13,455	2,677	1,044	0.9%
43 - Frenches Forest Business Park	383,719	402,824	422,991	429,467	434,540	442,678	58,959	12,948	0.6%
44 - Freshwater Industrial	18,907	20,167	22,527	23,266	24,018	25,015	6,108	2,691	1.1%
45 - Manly Vale Industrial	9,259	9,784	10,966	11,290	11,628	12,143	2,884	1,664	1.1%
46 - Terry Hills, Industrial	21,874	23,396	25,549	26,073	26,628	27,599	5,725	3,257	0.9%
Total	2,229,161	2,335,563	2,460,036	2,528,742	2,595,992	2,675,745	446,585	71,111	0.7%

Source: SGS (2012).

20120028/10ml report 130415

P. 66

Table 22 shows the additional floorspace demand (between 2011 and 2036) by Broad Land Use Category in each employment precinct. The red shaded cells refer to contractions in floorspace demand while the green shaded cells refer to the top three additional floorspace demand figures in each BLC. This analysis identifies how land uses will shift over time. All land uses (BLC categories) are projected to experience increased floor space demand. In terms of the land-use demand within each precinct, Brookvale West is projected experience decline in demand for Office and Business Park floorspace. In addition, Brookvale East is projected to experience some decline in demand for Manufacturing Light floorspace.

In line with the BTS projections, Retail Main street (118,000 additional sqm), Local Light (133,000 additional sqm), Retail Big-Box (56,500 additional sqm) and Retail Bulky Goods (44,500 additional sqm) land uses are projected to experience significant increases in floorspace demand across the LGA.

Table 22. Additional projected floorspace demand (2011 to 2036) by BLC and precinct (sqm) – after allocation

	O	LL	RLM	ML	RES	US	BP	FL	RBG	D	AST	RB	S	TOTAL
1 - Adams St Curl Curl	60	0	0	0	0	0	0	0	0	0	0	0	0	60
2 - Allambie	0	0	843	0	0	0	0	0	0	0	0	0	0	843
3 - Allambie Heights	0	0	1,317	0	0	0	0	0	0	0	0	0	0	1,317
4 - Arthur St Forestville	0	0	319	0	0	0	0	0	0	0	0	0	0	319
5 - Aubreen St Collaroy Plateau	0	0	494	0	18	0	0	0	0	0	0	0	0	512
6 - Bantary Bay Frenches Forest	0	131	770	0	0	0	0	0	0	0	0	0	0	901
7 - Bridge Rd Queenscliff	0	0	88	0	16	0	0	0	0	0	0	0	0	104
8 - Brighton St Curl Curl	0	0	130	0	0	0	0	0	0	0	0	0	0	130
9 - Carawa Rd Cromer	0	0	246	0	0	0	0	0	0	0	0	0	0	246
10 - Corrie Rd Manly North	0	0	357	0	0	148	0	0	0	0	0	0	0	505
11 - Cromer Heights	0	31	400	0	0	0	0	0	0	0	0	0	0	431
12 - Griffin Rd North Curl Curl	0	0	419	0	0	0	0	0	0	0	0	0	0	419
13 - Harbord Rd	0	0	238	0	0	157	0	0	0	0	0	0	0	395
14 - Killamey Heights	2	0	1,437	0	0	0	0	0	0	0	0	0	154	1,593
15 - Long Reef	0	0	4,436	0	0	0	0	0	0	0	0	0	0	4,436
16 - Mimosa Davidson	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 - Narrabeen Local Retail	0	0	493	0	88	0	0	0	0	0	0	0	0	580
18 - Narrabeena Local Retail	0	0	539	0	0	0	0	0	0	322	0	0	0	861
19 - North Balgowlah	0	359	0	0	0	0	0	0	0	0	0	0	0	359
20 - Pitt Rd North Curl Curl	0	0	782	0	0	0	0	0	0	0	0	0	0	782
21 - Ralston Ave Belrose	0	0	1,431	0	0	114	0	0	0	0	0	0	0	1,545
22 - Rayner St Narrabeena	0	0	82	0	0	0	0	0	0	0	0	0	0	82
23 - Skyline Shops Frenches Forest	321	0	329	0	0	0	0	0	0	0	0	0	0	651
24 - Sorlie Rd Frenches Forest	0	257	0	0	0	0	0	0	0	0	0	0	0	257
25 - South Creek Rd East Dee Why	0	0	701	0	0	0	0	0	0	0	0	0	0	701
26 - Wheeler Heights	0	0	625	0	0	0	0	0	0	0	0	0	0	625
27 - Collaroy	0	0	3,774	0	186	0	0	0	0	0	1,960	0	0	5,921
28 - Dee Why (The Strand)	0	0	3,856	0	21	0	0	0	0	0	0	0	0	3,877
29 - Devitt St Narrabeen	0	0	5,313	0	0	0	0	0	0	0	0	0	0	5,313
30 - Forestville	0	50	4,049	0	0	0	0	0	0	0	0	816	391	5,306
31 - Frenches Forest	0	10	0	0	0	0	0	0	125	0	0	3,247	0	3,382
32 - Glenrose	184	0	0	0	0	108	0	0	0	535	0	2,463	573	3,862

Assessment of Economic Development of the Warringah Employment Strategy - Final report

	O	LL	RM	ML	RES	US	BP	FL	REG	D	AST	RB	S	TOTAL
33 - Lawrence St Freshwater	0	0	6,805	0	0	6	0	0	0	0	0	0	203	6,814
34 - Manly Vale	235	0	8,625	0	0	0	0	0	682	0	0	0	0	9,542
35 - Narrabeena	0	0	1,672	0	0	0	0	0	0	0	0	0	104	1,776
36 - Terry Hills	0	0	981	0	0	0	0	0	0	0	0	0	0	981
37 - Veterans Parade Collaroy Plateau	0	0	1,297	0	0	0	0	0	0	0	0	0	0	1,297
38 - Waterloo St Narrabeen	0	0	6,917	0	748	20	0	0	0	0	0	0	131	7,816
39 - Brookvale	-25	77,227	35,267	-1,925	-29	1,915	-2,486	1,417	10,484	1,214	1,752	42,009	127	166,946
39 - Brookvale East	4,206	45,493	11,867	-1,538	46	-78	496	301	2,366	0	0	0	127	63,286
39 - Brookvale West	-6,106	23,569	3,947	393	0	0	-2,982	1,116	2,076	0	0	0	0	22,013
39 - Brookvale Pittwater Rd Corridor	1,875	8,030	17,644	-780	-74	1,992	0	0	6,041	1,214	1,752	208	0	37,903
39 - Brookvale - Warringah Mall	0	135	1,809	0	0	0	0	0	0	0	0	41,801	0	43,744
39 - Dee Why	2,044	0	21,380	0	115	135	0	0	0	745	0	7,277	3,730	35,425
40 - Austlink Business Park	1,055	7,334	0	0	0	0	4,920	6,991	31,860	0	0	0	0	52,169
41 - Cromer Industrial	1,112	20,941	493	11,671	0	1,812	0	1,302	537	0	0	0	3,294	41,163
42 - Forestville Industrial	97	1,395	0	0	81	378	0	0	0	0	0	666	60	2,677
43 - Frenches Forest Business Park	17,915	12,290	166	7,959	0	-76	17,440	1,735	0	0	1,529	0	0	58,959
44 - Freshwater Industrial	0	4,867	719	0	0	0	0	0	239	0	0	0	283	6,108
45 - Manly Vale Industrial	0	2,884	0	0	0	0	0	0	0	0	0	0	0	2,884
46 - Terry Hills, Industrial	-67	5,390	252	0	0	150	0	0	0	0	0	0	0	6,725
Total	22,935	133,166	117,938	17,705	1,245	4,866	19,873	11,446	43,927	2,816	5,242	56,477	9,051	446,585

Sources: SGS (2012), Adjusted BTS (2009) growth rates.

20120028-final report-130415

P. 69

Step 4: Calculating maximum floorspace capacity

Floorspace capacity is the maximum of potential floorspace under current controls. This has been calculated by applying two types of controls to the Gross Land Area (GLA) of each audited lot: set-back controls and height controls.

Given that there are 30 unique set-back types for the LGA, the site coverage for a sample of lots in each unique set-back type was calculated. The weighted average site-coverage ratio (weighted by size of the lot) in each sample was then used as the site coverage applicable under a unique set-back type. The following table shows the weighted average site-coverage ratio used to calculate floorspace capacity.

Table 23. Site coverage assumptions (estimated)

Unique set-back control ²³	Weighted average site coverage ratio	Number of lots applicable
DBBXX	0.84	12
DXBXX	0.87	13
ANNXX	1.00	166
HNNBX	0.93	2
HNNXX	0.94	11
GNFXD	0.56	10
GNFXX	0.89	21
XNNXX	1.00	9
XXXXX	1.00	160
INNXX	0.88	19
LNNXX	1.00	218
LXXXX	1.00	1
FDGXX	0.68	3
NNNXX	1.00	7
FDBXX	0.86	9
DNNXX	0.91	620
FNAXX	0.92	10
XNNDX	0.56	2
XNNXA	0.83	3
XNNDX	1.00	2
HNAXX	0.79	45
HNAXD	0.80	19
FDCZZ	0.53	2
PNNXX	1.00	154
KNNXX	0.94	12
JNNXX	1.00	5
FNNXX	0.93	7
BNAXX	0.90	33
HNNXC	0.96	2
XXXBX	0.98	1
Total		1578

Source: SGS (2012)

²³ Refer to Warringah Council DCP for an explanation of each set-back control.

There are two exceptions to the above site coverage assumptions:

- In line with the WDCP 2011, a site coverage proportion of 33.33% is applied to Austlink Business Park and Frenchs Forest
- Only 10% of lots zoned B4 are assumed to be used for employment generating activities.

The following height controls are used to calculate the maximum number of storeys developable on each lot. It is assumed that each storey would be three metres high. Moreover, for lots subject to no height control, it is assumed that a maximum of four storeys would apply.

Table 24. Maximum number of levels (estimated)

Height control ²⁴	Maximum developable height (metres)	Maximum number of storeys
A	0	1
C	5	2
I	8.5	3
J	9	3
L	11	4
M	12	4
N	13	4
R	21	7
S	24	8
T	27	9
O	0	1
Not Subject to a control	11	4

Source: SGS (2012) using DCP

The appropriate set-back type and height control is applied to the land area of each audited lot to derive maximum developable floorspace capacity.

This implies that total floorspace capacity is the sum of:

- Maximum floorspace capacity under current controls on vacant sites
- Existing vacant floorspace in buildings
- Maximum floorspace capacity under current controls on occupied sites

Note that the capacity does not consider the current condition of development and the likelihood of redevelopment. For example, shops in a newer condition or strata titles ownership are less likely to be redeveloped than the old shops or those under a single ownership.

The total capacity figure also does not include sites in the audited areas that are utilised for non-employment uses (for example, residential or car park uses). Table 25 shows maximum developable floorspace capacity by precinct based on the height and site-coverage assumptions discussed above. Note that the maximum developable floorspace capacity includes current utilised floorspace, vacant floorspace, and maximum floorspace on vacant lots.

²⁴ Refer to Warringah Council DCP for an explanation of each height control.

Brookvale (and its East, and West precincts in particular), and Cromer Industrial have the most floorspace capacity (including utilised floorspace).

Table 25. Maximum developable floorspace (sqm)

Precinct name	Max developable floorspace (includes utilised, and vacant floorspace as well as vacant lots)
1 - Adams St Curl Curl	1,340
2 - Allambie	13,062
3 - Allambie Heights	17,281
4 - Arthur St Forestville	1,663
5 - Aubreen St Collaroy Plateau	5,721
6 - Bantry Bay Frenches Forest	10,007
7 - Bridge Rd Queenscliff	1,711
8 - Brighton St Curl Curl	2,564
9 - Carawa Rd Cromer	4,176
10 - Corrie Rd Manly North	11,764
11 - Cromer Heights	6,140
12 - Griffin Rd North Curl Curl	11,515
13 - Harbord Rd	6,494
14 - Killarney Heights	7,452
15 - Long Reef	44,969
16 - Mimosa Davidson	6,437
17 - Narrabeen Local Retail	2,228
18 - Narrabeen Local Retail	8,091
19 - North Balgowlah	6,647
20 - Pitt Rd North Curl Curl	7,712
21 - Ralston Ave Belrose	13,150
22 - Raymer St Narrabeen	1,366
23 - Skyline Shops Frenches Forest	9,072
24 - Sorlie Rd Frenches Forest	7,644
25 - South Creek Rd East Dee Why	6,052
26 - Wheeler Heights	10,755
27 - Collaroy	35,214
28 - Dee Why (The Strand)	44,339
29 - Devitt St Narrabeen	21,198
30 - Forestville	107,127
31 - Frenches Forest	82,969
32 - Glenrose	117,876
33 - Lawrence St Freshwater	95,126
34 - Manly Vale	121,623
35 - Narrabeen	4,038
36 - Terry Hills	10,200
37 - Veterans Parade Collaroy Plateau	8,976
38 - Waterloo St Narrabeen	54,282
39 - Brookvale	3,242,473
39 - Brookvale East	1,200,869
39 - Brookvale West	1,112,771
39 - Brookvale Pittwater Rd Corridor	615,507
39 - Brookvale - Warringah Mall	313,326
39 - Dee Why	264,836
40 - Austlink Business Park	403,116
41 - Cromer Industrial	1,091,546
42 - Forestville Industrial	60,281
43 - Frenches Forest Business Park	674,338
44 - Freshwater Industrial	42,227
45 - Manly Vale Industrial	23,372
46 - Terry Hills, Industrial	124,866
Total	6,855,038

Sources: SGS (2012)

Step 5: Compare demand forecast with capacity – Gap analysis

The gap analysis compares potential floorspace capacity to the projected demand for floorspace. The gap is calculated by subtracting the projected floorspace demand from estimated floorspace capacity.

Three floorspace capacity scenarios are considered in this analysis.

- Scenario 1: 80% of maximum developable floorspace
- Scenario 2: 50% of maximum developable floorspace
- Scenario 3: Maximum developable floorspace on vacant lots and current vacant floorspace only.

Scenario 3 is highly pessimistic and unlikely to be realised since re-development of current sites is likely to occur in some employment precincts such as Frenchs Forest Business Park. As a result, Scenario 1 and 2 are more likely reflections of future capacity. Projected demand for floorspace in 2031 and 2036 is compared to each capacity scenario.

Table 26 shows the results of the gap analysis. The red cells show shortages in floorspace capacity. The gap is calculated by taking the difference between the maximum floorspace capacity and the floorspace demand at a given point in time²⁵.

²⁵ Both floorspace capacity and floorspace demand at a given point in time include utilised floorspace. Therefore the difference between capacity and demand would by definition preclude utilised floorspace. However, when calculating the gap for Scenario 3, current floorspace needs to be subtracted since vacant floorspace and vacant sites does not include current utilised floorspace.

Table 26. Gap analysis by precinct

Precinct name	Floorspace demand		Scenario 1			Scenario 2			Scenario 3		
	2031	2036	80 % of max dev floorspac e	Gap at 2031	Gap at 2036	50 % of max dev floorspac e	Gap at 2031	Gap at 2036	Max dev floorspac e on vacant sites + vacant floorspac e	Gap at 2031	Gap at 2036
1 - Adams St Curl Curl	433	437	1,072	639	635	670	237	233	0	-56	-60
2 - Allambie	3,102	3,138	10,449	7,347	7,311	6,531	3,429	3,392	590	-217	-254
3 - Allambie Heights	3,786	3,986	13,824	10,038	9,839	8,640	4,854	4,854	92	-1,025	-1,125
4 - Arthur St Forestville	981	1,030	1,331	349	300	832	-150	-199	0	-269	-319
5 - Aubreen St Collaroy Plateau	1,435	1,518	4,576	3,141	3,058	2,860	1,425	1,342	0	-428	-512
6 - Bantry Bay Frenches Forest	2,578	2,725	8,006	5,428	5,281	5,004	2,425	2,279	106	-849	-795
7 - Bridge Rd Queenscliff	324	341	1,369	1,045	1,028	856	532	515	0	-87	-104
8 - Brighton St Curl Curl	460	473	2,051	1,591	1,578	1,282	822	809	0	-117	-130
9 - Carara Rd Cromer	748	785	3,341	2,593	2,556	2,088	1,340	1,303	74	-134	-172
10 - Corrie Rd Manly North	1,677	1,743	9,411	7,734	7,669	5,882	4,205	4,139	0	-439	-505
11 - Cromer Heights	1,548	1,610	4,912	3,364	3,302	3,070	1,522	1,460	0	-368	-431
12 - Griffin Rd North Curl Curl	1,357	1,418	9,212	7,854	7,794	5,757	4,400	4,340	969	610	550
13 - Harbord Rd	1,254	1,309	5,195	3,941	3,886	3,247	1,993	1,938	0	-340	-395
14 - Killamey Heights	5,818	6,095	5,961	143	-133	3,726	-2,092	-2,369	248	-1,069	-1,346
15 - Long Reef	16,709	17,221	35,975	19,266	18,755	22,485	5,776	5,264	417	-3,507	-4,019
16 - Minosa Davidson	0	0	5,150	5,150	5,150	3,219	3,219	3,219	2,182	2,182	2,182
17 - Narrabeen Local Retail	1,486	1,585	1,783	297	197	1,114	-372	-471	369	-112	-211
18 - Narraweena Local Retail	1,964	2,102	6,473	4,509	4,371	4,046	2,082	1,943	0	-723	-861
19 - North Balgowlah	1,376	1,435	5,318	3,941	3,882	3,324	1,947	1,888	0	-300	-359
20 - Pitt Rd North Curl Curl	2,340	2,446	6,170	3,830	3,724	3,856	1,516	1,411	69	-607	-713
21 - Ralston Ave Belrose	4,743	4,962	10,520	5,777	5,557	6,575	1,832	1,813	0	-1,325	-1,545
22 - Rayner St Narraweena	247	258	1,093	845	834	683	436	425	0	-70	-82
23 - Skyline Shops Frenches Forest	2,332	2,440	7,258	4,926	4,818	4,536	2,204	2,096	3,222	2,679	2,571
24 - Sofrie Rd Frenches Forrest	1,133	1,175	6,115	4,983	4,940	3,822	2,689	2,647	0	-214	-257
25 - South Creek Rd East Dee Why	2,317	2,415	4,842	2,524	2,427	3,026	709	611	0	-603	-701
26 - Wheeler Heights	1,862	1,957	8,604	6,742	6,647	5,378	3,515	3,421	0	-530	-625

Precinct name	Floorspace demand		Scenario 1		Scenario 2		Scenario 3	
	2031	2036	80 % of max dev floorspace	Gap at 2031	Gap at 2036	50 % of max dev floorspace	Gap at 2031	Gap at 2036
27 - Collaroy	18,258	19,179	28,172	9,913	8,993	17,607	-651	-1,571
28 - Dee Why (The Strand)	9,800	10,459	35,471	25,671	25,013	22,169	12,369	11,711
29 - Devitt St Narrabeen	16,039	16,799	16,958	920	159	10,599	-5,440	-6,201
30 - Forestville	22,142	22,993	85,702	63,560	62,709	53,564	31,421	30,571
31 - Frenches Forrest	15,034	15,584	66,375	51,342	50,791	41,485	26,451	25,900
32 - Glenrose	18,107	18,725	94,301	76,194	75,576	58,938	40,831	40,213
33 - Lawrence St Freshwater	20,970	22,035	76,101	55,130	54,066	47,563	26,593	25,528
34 - Manly Vale	33,135	34,482	97,299	64,163	62,817	60,812	27,676	26,330
35 - Narrabeena	5,488	5,751	3,230	-2,256	-2,521	2,019	-3,467	-3,732
36 - Terry Hills	3,011	3,174	8,160	5,149	4,986	5,100	2,089	1,926
37 - Veterans Parade Collaroy Plateau	3,663	3,867	7,181	3,518	3,314	4,488	825	621
38 - Waterloo St Narrabeen	26,730	28,003	43,425	16,695	15,422	27,141	411	-862
39 - Brookvale	1,113,704	1,147,093	2,593,979	1,480,275	1,446,886	1,621,237	507,533	474,144
39 - Brookvale East	473,098	485,755	960,695	487,597	474,940	600,435	127,337	114,679
39 - Brookvale West	299,730	304,133	890,217	590,487	586,084	556,386	256,655	252,253
39 - Brookvale Pittwater Rd Corridor	174,121	181,701	492,405	318,285	310,704	307,753	133,633	126,052
39 - Brookvale - Warringah Mall	166,755	175,503	250,661	83,906	75,157	156,663	-10,092	-18,841
39 - Dee Why	165,140	172,225	211,869	46,730	39,645	132,418	-32,721	-39,806
40 - Austlink Business Park	289,857	298,949	322,492	32,635	23,543	201,558	-88,299	-97,391
41 - Cromer Industrial	263,151	270,933	873,237	610,086	602,304	545,773	282,622	274,841
42 - Forestville industrial	12,943	13,455	48,225	35,282	34,770	30,141	17,198	16,686
43 - Frenchs Forest Business Park	434,540	442,678	539,470	104,930	96,792	337,169	-97,371	-105,509
44 - Freshwater Industrial	24,018	25,015	33,781	9,764	8,766	21,113	-2,905	-3,902
45 - Manly Vale Industrial	11,628	12,143	18,698	7,069	6,554	11,686	58	-457
46 - Terry Hills, Industrial	26,626	27,599	99,893	73,267	72,294	62,433	35,807	34,834
Total	2,595,992	2,675,745	5,484,030	2,888,038	2,808,285	3,427,519	831,527	751,773
Source: SES (2012)								
							-106,352	-186,105

Following is a summary of the gap results in the table above:

- Based on the first capacity scenario – 80 percent of maximum developable capacity; Narraweena is expected to face a noteworthy shortage by 2036.
- Based on the second capacity scenario – 50 percent of maximum developable capacity; 10 precincts are projected to face shortages greater than 500 sqm by 2036. They are Killarney Heights, Collaroy, Devitt St Narrabeen, Narraweena, Waterloo St Narrabeen, Brookvale - Warringah Mall, Dee Why, Austlink Business Park, Frenchs Forest Business Park, and Freshwater Industrial.
- For the precincts with shortages, we have calculated the threshold (share of capacity) required for each precinct to be in capacity (that is, not face a shortage)²⁶. The thresholds (share of capacity) are as follows:
 - Killarney Heights 82%
 - Collaroy 54%
 - Devitt St Narrabeen 79%
 - Narraweena 142%
 - Waterloo St Narrabeen 52%
 - Brookvale - Warringah Mall 56%
 - Dee Why 65%
 - Austlink Business Park 74%
 - Frenchs Forest Business Park 66%
 - Freshwater Industrial 59%
- Of the precincts facing shortages in Scenario 3, the scarcities are most pronounced in Frenchs Forest Business Park, Austlink Business Park, Dee Why, and Brookvale -Warringah Mall precincts.
- These shortages are likely to arise due to the land-use in most demand for each precinct. Business Park and Office for Frenchs Forest Business Park, Retail Bulky Goods and Freight and Logistics for Austlink Business Park, Retail Main street for Dee Why, and Retail Big Box for Warringah Mall.
- However, if 65% of maximum developable floorspace is considered as the capacity measure, only four (Devitt St Narrabeen, Narraweena, Austlink Business Park, and Frenches Forest Business Park) face shortages greater than 3,000 square meters.
- Even though some precincts face shortages under scenarios one and two, there is sufficient capacity across the LGA to accommodate total floorspace demand. That is, other precincts in the LGA have sufficient capacity to accommodate the excess demand from precincts with shortages.
- Based on the third measure of capacity (vacant sites and vacant floorspace only), most precincts (except Austlink Business Park, Brookvale West, Griffin Rd North Curl Curl, Mimosa Davidson, and Skyline Shops Frenches Forest) are projected to experience shortages by 2036. The shortages are likely to be due to the major land-uses in demand in the LGA (Local Light, Retail Main Street, and Retail Big Box). Brookvale West is the only precincts with notable excess floorspace capacity under this scenario.

²⁶ For instance, if 58 percent of maximum floorspace capacity is considered achievable (which is reasonable for most precincts), then only seven precincts would face shortages.

5.2 Emerging issues

- **There will be additional floorspace demand for all employment lands in Warringah.**

While future employment is forecast to decline slightly in some ANZSIC industry categories (for example, Manufacturing), employment is projected to increase overall. This implies that floorspace requirements will increase.

It is forecast that total floorspace demand will increase by 446,585 sqm between 2011 and 2036. The highest demand is forecast to occur in Brookvale (167,000 sqm) and in particular Brookvale East (63,300 sqm). This precinct also has the highest maximum developable floorspace capacity.

- **In line with the BTS employment forecast, demand for additional Retail (main street, bulky goods and big box) and Local Light floorspace is expected to remain strong.**

Retail Main street (118,000 sqm), Retail Big-Box (56,500 sqm) and Retail Bulky Goods (44,000 sqm) land uses are projected to experience strong demand across the LGA. The majority of the Retail uses are expected to locate in Brookvale.

Even though BTS forecasts that there will only be moderate employment growth in the manufacturing industry, in terms of land uses, Local Light industries including auto parts and repairs and home and building components and supplies (which is mostly population driven²⁷) are projected to experience additional floorspace demand of 133,200 sqm. In addition to retail and manufacturing land-uses, there is also demand for 23,000 sqm of additional Office space.

Austlink Business Park, which originally focused on attracting business park related activities, has increasingly diversified into bulky goods retail. Austlink has sought to provide a business park offering of large corporate floorplates with some amenities and surrounded by bush land. Over time, more bulky goods activities have been attracted to the area, with customers attracted to the Belrose Supa Centre including Domayne and Bunnings Warehouse. Given slow growth in demand for business park related investments, the attractiveness of the area for bulky goods retail offerings is likely to increase. Its disadvantage as a location for bulky goods is that it is not located close to a centre. On the hand, it is relatively close to some of the population growth areas in Belrose and picks up passing traffic on Forest Way and Mona Vale Road and it is accessible from higher income residential catchment areas on the upper North Shore. If Pittwater Council proceeds with the proposed Ingleside residential development, this will reinforce the potential of Austlink as a bulky goods location. Despite the fact that it is probably not an optimal location for bulky goods, the fact that it is increasingly involved in this sub-market suggests that this role may be strengthened, particularly with the identified shortage of space for bulky goods in Warringah. With Warringah Council rezoning 56.3 hectares of land B7 in Frenchs Forest, combined with health and transport infrastructure improvements in Frenchs Forest, this latter area is likely to become a major competitor for Austlink for business park investors. Hence, it is recommended that Warringah continue to plan for

²⁷ Local Light Manufacturing is comprised of the following ANZSICS: Manufacturing, Retail Trade and Other Services. The latter two industries are likely to be driving this result. Refer to BLC-ANZSIC matrix for more information.

business park growth in the Frenchs Forest Business Park, while supporting greater flexibility to accommodate more bulky goods spillover investments in Austlink.

- **The gap analysis shows that Warringah's employment precincts have capacity to cater for the forecast future growth**

Based on the 80% of maximum developable floorspace capacity figures (scenario 1), all employment precincts, except Narrabeena, have sufficient capacity to accommodate the forecast demand for employment generating uses. Brookvale and Cromer Industrial have the most excess floorspace capacity at 2036.

In scenario 2 (50% of maximum developable floorspace capacity), ten precincts are likely to experience noteworthy shortages in capacity. However, if 75 percent of maximum developable floorspace is considered capacity, only three (Killarney Heights, Devitt St Narrabeen, Narrabeena) face noteworthy shortages. This indicates that moderate re-development and new developments should be able to accommodate the projected demand for floorspace in most precincts.

However, in the extreme case where no re-development occurs (vacant sites and vacant floorspace only) most precincts are likely to experience floorspace shortages.

- **Transport issues are key capacity constraints for major employment hubs in Warringah**

As suggested by the draft TMAS, the road network at Brookvale-Dee Why Major Centre is already at capacity. The study indicates that the Major Centre could only accommodate an additional 3,500 jobs by 2036. In line with the Metropolitan Plan's target of 5000 jobs, BTS has projected an increase of 5,200 jobs at the Major Centre by 2036. For the purpose of this analysis, the excess 1,700 jobs have been reallocated to other employment precincts. This puts more pressure on the alternative employment destinations within the LGA such as Frenchs Forest Business Park.

However, *Frenchs Forest Specialised Centre Local Transport Assessment* report prepared by AECOM suggested that the Frenchs Forest area would need significant investment in transport infrastructure to accommodate existing travel demand and potential growth, prior to it being able to support the development of the specialised centre. Similar to the TMAS, the study finds that the road network at Frenchs Forest is nearing capacity today and will need a significant investment in infrastructure in the short term to support the forecast job growth, including the need for grade separation of the intersections of Warringah Road with Wakehurst Parkway and Forest Way. A review of the public transport in AECOM's assessment also revealed the need for improved east-west bus services along Warringah Road to accommodate the demand for travel between the coastal suburbs and external employment centres (such as Chatswood and North Sydney) and to reduce the private vehicle usages and hence traffic at peak hours.

These identified transport improvements are critical for Warringah to secure the new investment and employment opportunities in both the proposed hospital precinct and the surrounding Frenchs Forest Business Park.

6 Key issues and recommendations

6.1 Review of findings and key issues

The following findings are based on the balance of evidence from the previous sections and the Business Consultations Report prepared by Warringah Council.

Warringah is forecast to meet its Subregional employment capacity target

According to the BTS Employment Forecasts (2009), Warringah's employment will increase by a total of **12,316 jobs** from 2006 to 2031 and **12,553 jobs** from 2011 to 2036. The projected employment level by 2031 is in line with the additional employment capacity target of 12,500 jobs to 2031 that the draft North East Subregional Strategy (2007) set for the Warringah LGA.

The floorspace projection based on the BTS employment forecast has shown that there will be additional floorspace demand for all employment generating precincts in Warringah. In total, there is a demand for additional employment-related floorspace of 446,600 square metres by 2036 and 366,800 square metres by 2031 across the LGA.

Within Warringah, the overspill floorspace demand of around 71,000 square metres from Brookvale-Dee Why Major Centre (due to traffic constraints identified in the TMAS) has been reallocated to the other employment precincts, largely based on the current land use patterns.

Warringah's employment precincts have capacity to cater for the forecast future growth

The gap analysis shows that all employment precincts in Warringah have capacity to accommodate the forecast growth (except for Narrabeena), if 80% of the floorspace capacity under the current controls is applied.

However, when 50% of maximum developable floorspace capacity is applied, ten precincts are likely to experience noteworthy shortages in capacity. Of those, only three villages and small villages (Killarney Heights, Devitt St Narrabeen, Narrabeena) still face some shortages, when precincts are developed up to 75% of maximum capacity.

Of all the employment precincts, Brookvale-Dee Why Major Centre has the greatest theoretical floorspace capacity under the current control, although the additional job capacity has been capped at 3,500 jobs by 2036 due to the traffic constraints (in line with the findings from the TMAS).

Steady population growth is forecast to drive demand for service sectors

DP&I population projections suggest Warringah will reach close to 162,000 residents by 2036, an increase of 23,000 residents or 16% from 2006. Additional population will lead to increased consumer spending, stimulating additional local 'serviced based' employment. The highest job growth rate is forecast to occur in retail trade, accommodation and food services, and health care service.

The Frenchs Forest Hospital development will create significant opportunities for employment growth in health and wellbeing industries

A small health related cluster of businesses and services related to the medical sector - pathology, x-ray, and physiotherapy is growing in Frenchs Forest with the knowledge and certainty that the new level 5 Frenchs Forest Hospital has been endorsed by the NSW State Government. The new hospital will create substantial opportunities for complementary industries. A number of hospitals have become magnets for new educational institutions, medical devices and pharmaceutical industries, as well as increasing local demand for short-stay accommodation and hospitality. In fact, because of locational advantages and knowledge based workforce catchment, the industrial areas close to the proposed hospital have a long history of engagement with these higher order industries. The clustering on health activities in and around the hospital is likely to spur new interest in education, medical related research and pharmaceuticals industry. The growth of these activities will create significant economic and employment opportunities and strengthen both north-south and east-west transport corridors.

However, investment in transport infrastructure will be needed at Frenchs Forest to accommodate this growth

AECOM's *Local Transport Assessment* for Frenchs Forest Specialised Centre suggested that a significant investment in road infrastructure and public transport is needed in the short term to support the development of Frenchs Forest Hospital, including the need for grade separation of the intersections of Warringah Road with Wakehurst Parkway and Forest Way. A review of the public transport in AECOM's assessment also revealed the need for improved east-west bus services along Warringah Road to accommodate the demand for travel between the coastal suburbs and external employment centres (such as Chatswood and North Sydney) and to reduce the private vehicle usages and hence congestion on Warringah Road at peak hours.

Retail is also forecast to grow strongly, with a planned expansion of Warringah Mall

The retail trade jobs in Warringah are forecast to grow at 1.52% per annum to 2036, which is the fastest rate across all industries.

Warringah Mall, in particular, has been an important local and regional retail destination. It attracts customers from across the North East subregion and beyond, because of its size, diversity and relative accessibility. It is one of the largest retail centres in Sydney, providing around 125,800 sqm of floorspace. The owners have obtained development consent for the potential increase in floorspace by a further 35,000 sqm by 2021²⁸. Warringah Mall, which is centrally located in Brookvale, is a major magnet for retail consumers across the Northern Beaches. The size and potential for expansion of Warringah Mall is likely to have an influence on retail employment in smaller centres and other LGAs.

Forestway shops provide a sense of place and friendly village feel, which should be promoted in similar developments

²⁸ Ubris (2002), *Warringah Mall Draft DCP, volume 1*. Prepared for AMP Warringah Mall Pty Ltd and Westfield Management Limited, December.

Consultation conducted by Warringah Council suggests that the growth of retail centres is currently driven by anchors such as Coles and Woolworths.

It is also noted that character and amenity of Forestway shops are considered appropriate for servicing the local needs and offering a wide range of retail choices. The sense of place and friendly village feel of Forestway shops should be promoted in similar developments of village or neighbourhood centres. Adequate Park 'n' Ride would be needed for such centres to reduce congestion and improve transport connectivity and potential integration with public transport.

Village centres such as Forestway are also community focal points that provide an important sense of place, vibrancy and social inclusion. A process of continual physical enhancement driven by Council can add to their attractiveness for business investment, visitors and community enjoyment. This centre also presents marketing and branding opportunities to attract new business activity and investment and to develop as economically sustainable centres that are vibrant, pedestrian friendly, serviced by arterial road public transport and have housing choice, retail diversity and localised employment opportunities.

Over half of the additional floorspace demand is forecast to occur in Brookvale-Dee Why Major Centre

Over half of the additional floorspace demand is forecast to occur in Brookvale Major Centre, using the BTS employment forecast for the LGA. The strong demand is consistent with the 5,000 job target that the Metropolitan Plan for Sydney 2036 envisaged for the Brookvale-Dee Why Major Centre.

A quarter of the additional demand to 2036 in Brookvale is for Big Box Retail (that is, Warringah Mall), while around 60% of the additional demand in Dee Why is for main street retail (mainly along the Pittwater Road).

..... However, under current road network conditions, Brookvale-Dee Why Major Centre is expected to only accommodate additional 3,500 jobs by 2036

The draft Dee Why/Brookvale Transport Management and Accessibility Study (TMAS) finds that the Brookvale-Dee Why Major Centre could accommodate additional 3500 jobs by 2036 under the current road network conditions (with a range of 'lower order' transport improvements identified by the draft TMAS). The study suggests that meeting the 5,000 jobs target of the NSW Metropolitan Plan for Sydney 2036 would require major transport infrastructure upgrades with largely prohibitive social and economic impacts.

According to the findings of TMAS and the advice from the DP&I, we have revised the floorspace projection for Brookvale-Dee Why Major Centre using the 3,500 job target.

The revised projection shows that there will be demand for additional floorspace of 170,553 square metres in Brookvale and 34,131 square metres in Dee Why by 2036.

Dee Why also needs major public domain upgrades, street activation and refurbishment of Civic Centre

Consultation also suggests that the public domain in Dee Why is in need of major upgrade, which is particularly important since the opening of Dee Why Grand which has started the process of gentrification.

The potential redevelopment or refurbishment of Civic Centre could also provide a cultural identity to the area and regenerate the urban environment to activate the use of Dee Why Town Centre.

Improved foot traffic and street activation are required to attract pedestrians to area.

Warringah LGA has a strong base of skilled resident workers

The population of the North East is generally affluent with higher than average levels of education attainment. Almost half of Warringah's population have formal qualifications. Around 60% of the resident workers are professionals, managers or clerical and administrative workers. There are concentrations of workers in specific high-end industries and managerial positions. The high skilled workforce is an asset to strengthen specialisation and future employment opportunities in the centre.

Self-containment and self-sufficiency rates are high

About 40% of the employed residents in Warringah worked within the LGA, while 60% of jobs in Warringah were sourced from the local labour market in 2006. A relatively high level of these indicators, compared to the rest of the SHOROC region partly reflects that the LGA is poorly serviced by the public transport.

.... but with a leakage in high-skilled occupations

In broad terms, the BTS JTW data suggests a 'leakage' of employment to other employment destinations, in that there are fewer jobs in high-skilled occupations, than there are resident workers. This is particularly noticeable for manager, professional and technician occupations working in the finance and insurance and transport, postal and warehousing industries, as they have been attracted to CBD, North Sydney, Ryde, Chatswood and Macquarie Park where more highly-skilled workers are located.

Currently there are insufficient higher order knowledge local jobs in Warringah, compared to the supply of local residents with knowledge-based skills.

Commercial office space take-up is slow throughout the LGA but is expected to pick up over time

There is a recognised oversupply of commercial office space throughout Warringah, with an estimated vacant floorspace of 40,000 square metres.

The land audit shows that Austlink Business Park Precinct has a vacancy rate of 10%, while the Frenchs Forest Business Park has a vacancy of 5%.

But consultation suggests that the demand for commercial office is likely to pick up over the next 10 to 25 years as a result of changing global market conditions.

Consultation indicates that there is demand for high quality commercial office space, as a result of emerging executive population

The 'lifestyle' setting, coupled with housing affordability issues is also drawing executive and upper management professionals to Warringah, who are relocating their offices to the Northern Beaches. There is also a willingness to accept lower salaries to offset the amenity and lifestyle on the northern beaches.

Consultation indicates that there is demand for high quality and flexible commercial office space, such as the Lifestyle Working at Brookvale. It is further recommended by consultation participants that some commercial office space in Brookvale (near Warringah Mall) should be planned for in the medium term, given its good access to public transport, retailers and graduates of TAFE.

.... However, demand for office and business park use is forecast to decline in Brookvale West

Contrary to the consultation findings, the floorspace projection shows that there is likely to be a decline in demand for office and business park floorspace in Brookvale Industrial Area, West. The primary focus for future development of this area should be improvements in the quality of urban design and the built environment and continuous improvement in amenity.

Austlink and Terrey Hills can also be promoted to attract more 'green industries'

Austlink Business Park has an existing clustering of 'green' business sectors. Consultation suggests that this existing clustering has the potential to be expanded and possibly extended to Terrey Hills, given its strategic location and positioning along key transport corridors.

... but traffic and transport issues are key constraints to future employment generations in main employment precincts, such as Brookvale and Frenchs Forest

Currently, there are congestion issues along Pittwater Road from Narrabeen to Warringah Mall, particularly through Dee Why. As per the findings from the draft TMAS, Brookvale is likely to increase its employment capacity with various transport infrastructure upgrades identified.

Similarly, Frenchs Forest is likely to attract more jobs if traffic pressures can be eased (via connecting Aquatic Drive to Wakehurst Parkway).

Further, consultation suggests that the benefits of the existing public transport servicing the Northern Beaches should be promoted so that more commuters are able to enter Warringah easily. It was also raised during the consultation that east-west public transport should be better integrated to improve access of workers from outside of Warringah.

The LGA has a high share of home based workers and businesses

Compared to other sub regions, Warringah has a much higher level of home-based work. The highest incidence of home-based work occurs in the professional and manager occupations. In terms of industry, the highest level of home-based work occurs in professional, scientific and technical services and construction industries. This is a similar pattern to that observed in other high amenity areas of the Greater Metropolitan Region, where highly skilled workers live close to natural assets (for example, beaches and bushland) or a vibrant social environment.

It is also suggested by the business consultations that home-based work will continue to increase with the NBN rollout and prevalence of online shopping.

... and it is likely to drive demand for business supporting services and needs for upgrades of local infrastructure and amenities in local centres

The rapid growth of home-based business has a number of important implications for employment planning in Warringah. It is likely to lead to growth in demand for services supporting home-based businesses such as IT, finance, cafés and restaurants and office fittings.

Many of these activities are likely to result in a further revitalisation of local villages located close to where people live/work. It also has implications for planning, with greater emphasis on local infrastructure and amenities.

Further, retail operational hours may need to be extended to better suit the changing work force requirements and flexible work hours.

Warringah has a particular strength in manufacturing, but little growth is projected over the next 25 years

Location quotient analysis shows that the LGA has a specialisation in manufacturing compared to the SHOROC region. However, manufacturing employment has fallen in the period 2001 to 2006, and is forecast to have little growth to 2036.

Business consultation suggests that demand for manufacturing space is currently declining throughout Warringah.

As demand for traditional industrial space continues to fall, rezoning pressures rise in some parts of the industrial precincts

Consultation suggests that Brookvale is experiencing rezoning pressures from industrial to residential, particularly on the northern periphery of Brookvale West and areas around Warringah Mall.

It was also mentioned during the business consultation that the mixed use development (shop top housing) in existing industrial areas requires careful consideration, as the conflict of uses could set a precedent for industrial restrictions.

Strategic industrial land should be preserved

Considering the strong demand forecast for light manufacturing uses in some existing industrial estates, sufficient land/floorspace (zoned IN1 General Industrial) should be preserved in strategic locations (such as Cromer Industrial) to meet needs over time.

However, some flexibility should be allowed to accommodate changing needs

It is also noted by business representatives that as the demand for manufacturing uses continues to fall, manufacturing premises are being converted to more warehouse and distribution centre uses.

Some flexibility in permissible uses of IN1 zoning should be allowed to accommodate these changing needs.

There is an underlying need to review zoning, permissibility and controls for industrial activities

Currently there is around 5ha of undeveloped industrial land in Warringah. In addition, many existing and developed industrial sites are small, ownership is fragmented and cost of land is too high to make redevelopment of sites economically viable.

Consultation suggests there is an underlying need to review LEP/DCP zoning and land use permissibility within existing built industrial land. It is noted that removing the landscaping, car parking and building footprint controls in Terrey Hills would better suit market needs and encourage redevelopment of industrial uses.

6.2 Strategies and actions

Based on the findings of this Study, it is recommended that Council pursue the following strategies:

Strategy 1: Protect strategic traditional industrial areas

Strategic industrial areas typically accommodate industries that serve a broad catchment. The location decisions of firms are based on an assessment of the area's strategic assets (proximity to major arterials, distance from key centres, proximity to population, and so on).

One of the distinctive features of Warringah and the North East subregion is the high level of employment self-containment. This high employment self-containment is largely a consequence of geography and infrastructure constraints. Whereas much of the Sydney metropolitan area is becoming more integrated and many areas are more accessible to each other, particularly with the development of the Sydney Orbital Network, Warringah and the North East are less integrated. For many residents, this of course enhances the lifestyle advantages of the area. It also reinforces the importance of sustaining a strong commitment to employment lands. Whereas some more centrally located areas have rezoned industrial areas to residential, Warringah is more constrained because it is relatively more isolated. Hence sustaining a high level of employment self-containment is an important goal for Warringah, and this is unlikely to change. The area needs relatively more employment land per capita compared to areas better integrated into the metropolitan area. Protecting traditional industrial areas is important, particularly to accommodate both light industries serving the local catchment and for more globally competitive industries. In relation to the latter, there are many case studies of competitive local companies on the peninsula established by business people that have established their businesses close to where they live.

Strategic industrial areas accommodate Manufacturing Light, Manufacturing Heavy and Freight and Logistics land uses. Those lands should be preserved for current uses. Rezoning of General Industrial (IN1) to Light Industrial (IN2) should only be considered if it does not jeopardise Council's ability to accommodate General Industrial uses. Where rezoning is justified it should not result in a fragmentation IN1 zoned land.

Action 1.1: Preserve IN1 General Industrial zones in Cromer Industrial and Brookvale Industrial West

- In addition, we suggest applying IN2 Light Industrial zones on the fringe of Cromer Industrial precinct to minimise potential conflict with surrounding residential areas. Council needs to maintain sufficient buffer areas to protect residents from noise and traffic impacts and to maintain the identity of traditional industrial areas. Modern business parks are more able to integrate residential and employment related activities. Where this is not possible, the current practice of applying large setbacks should be continued.

Action 1.2: Ensure there are complying uses only in IN1 zones

- There are currently some office uses in Cromer Industrial precinct. IN1 should be preserved for industrial activities only. Non-industrial and non-ancillary uses should continue to be prohibited in the LEP.

Action 1.3: Restrict further subdivision and/or strata titling of larger lots in industrial lands to prevent fragmentation.

- To meet its employment self-containment goals and objectives, Warringah needs to ensure that it maintains some larger strategic sites and not fragment industrial lands. As with residential development, there is often pressure to subdivide to create smaller lots. A proportion of smaller businesses grow into medium sized and larger businesses. Some firms consolidate multi-plant operations on one site. Warringah needs to compete to attract larger firms but can only do so if there are suitable sites available. A recent example is the location of Blackmores at Warriewood industrial estate in Pittwater. The site was sufficient to accommodate a 25,000 square metre facility and employ 250 workers. Although these opportunities don't always come up regularly, they do occur from time to time.

Action 1.4: Prevent the spread of local retailing and services into strategic industrial lands

- It is essential to ensure that small scale local service industry does not impinge on strategic employment lands. This is important from the perspective of land costs (with bulky goods or trade retailing putting upwards pressure on prices). Appreciation of industrial land prices and rentals often forces out low margin smaller industrial uses. Their competitiveness depends on keeping costs low. Warringah needs to maintain a diverse stock of employment lands, from premium business parks to low cost industrial areas that support local light industries. The latter have been called "bangers and clangers". They include auto and marine maintenance and repairs, small metal fabrication and engineering and building industry suppliers. They provide essential industrial products and services to a local catchment. They tend to be labour intensive. If higher value added businesses including retail related activities encroach on these areas, or substantial investments are made to improve amenity, this puts upward pressure on costs. This is not to suggest that continuous maintenance and improvements in local infrastructure and amenity should be avoided. Increasing opportunities for cafes and services such as childcare facilities can support local businesses in these industrial areas, and maintaining roads and pavements are important Council functions. In these traditional industrial areas, it is important to distinguish between maintaining infrastructure and appropriate standards and responding to the needs of businesses on the one hand, and attempting to continuously upzone and transform areas that are better suited to a low cost environment.
- Another challenge is maintaining the profile and the image of traditional industrial precincts. Large scale businesses may seek a location which presents a superior image. The growth in demand for bulky goods retail, and non-industrial uses such as gyms and other entertainment facilities and shopping can undermine the character and in some cases efficient functioning of traditional industrial areas.

Strategy 2: Protect population serving industrial land

The demand for population serving industries will increase in Warringah driven by the forecast population growth. Population serving industries include automotive services, building supplies, wood manufacturing (cabinet makers, kitchen makers), light industrial glass cutters and glaziers.

Action 2.1: Allow for flexible use of the IN2 zone

- IN2 zones outside residential areas should be kept flexible to allow for a range of uses. Possible uses could include:
 - o Timbers and Building supplies
 - o Vehicle repair workshops.

Action 2.2: Promote the use of public transport to employment land precincts and lobby for improved bus services from and to the industrial precincts

- The use of alternative transport options is becoming more evident as private transportation costs continue to rise.
- Council should take a pro-active approach in promoting public transport. This may be through simple means such as making bus-timetables accessible, or where transport is lacking, lobbying the State Government for improved bus connection.

Strategy 3: Strengthen commercial functions in Brookvale

The Sydney Metropolitan Plan 2036 designates Brookvale-Dee Why as the Major Centre for the Northern Beaches. Despite the physical difficulties in integrating Brookvale and Dee Why into one centre, it is working well as an employment destination. Employment is growing strongly in Brookvale-Dee Why Major Centre, from 10,300 jobs in 2001 to 12,300 jobs in 2006. The North East subregion needs a strong centre to service a large catchment and Brookvale-Dee Why is well on track to grow its employment capacity despite the traffic constraints. One of the challenges is to grow a strong commercial office market in the centre. There is strong growth in finance and business services, but a vibrant office precinct is yet to emerge. Large commercial office buildings are not suited, but smaller quality suites are likely to be attractive. Some home-based businesses, which are growing rapidly in the subregion, will be transformed into small to medium enterprises with a demand for commercial office space.

Measures to strengthen the commercial functions associated with this precinct should therefore be considered.

Action 3.1: Ensure that development consent provides the market with a degree of flexibility, and therefore consolidates commercial vitality in Brookvale

- Development consents granted can be very specific, which sometimes limits flexibility.
- Reducing time taken for the assessment of 'change of use' applications (In many cases leases must be secured prior to approval having been granted).

- Provide investors, developers and occupants with as much information as possible about the development assessment process and the kinds of information that must be provided.
- Provide new applicants with details of previously approved plans (which are in the public domain) so it is easier to assess what changes the new application is making to previously approved plans.

Action 3.2: Promote consistent branding of the area

- Council must ensure that a consistent image of the area is presented. Economic development promotional material should reflect this concept and suitable provision should be made in the draft Warringah Urban Design Guidelines.
- To this end Council, perhaps in conjunction with local traders, should commission the design and implementation of a centre branding strategy to reflect and communicate local attributes and the preferred image for the Brookvale centre. If successful, this marketing approach will be rolled out across all centres and employment precincts within the LGA.

Action 3.3: Promote consistent branding of the area

- Council must ensure that a consistent image of the area is presented. Economic development promotional material should reflect this concept.

Strategy 4: Promote Dee Why as a civic and community centre

Plans to consolidate the civic and community functions of Dee Why Town Centre are continuing, and the capacity of Council to sustainably meet the challenges of population growth and service consolidation, as set out by targets for Major Centres under the NSW Metropolitan Strategy, will be framed by its capacity to address a range of challenges including those relating to dimensions of transport management, open space provision, retail/entertainment mix and overall urban design. As the centre grows into this role, these components of place making will help underpin the development of a strong civic and community centre.

Action 4.1: Improve public domain within the centre

- Dee Why houses many civic, cultural and social facilities including Warringah Council, Warringah Library, neighbourhood centre and senior citizens club. A vibrant main street retail centre extends along Pittwater Road and into side streets, mainly to the east towards Dee Why Beach. The area is becoming more closely integrated into an attractive village/environment with increased demand for medium density flats east of Pittwater Road towards the beach. The refurbishment of the Civic Centre would strengthen the role of the centre. Some parts of the centre are a bit rundown and there is some unsold commercial office. Investing in public domain and amenity will play an important role in activating under-utilised precincts.

Action 4.2: Plan for a 'fine grain' of retail and commercial development

- Dee Why differs from Brookvale in that its retail and commercial functions are distributed across a grid of streets, rather than consolidated into 'big box' retail. It is recommended that this fine grain be enhanced through planning controls that establish a maximum width of individual tenancies at the street frontage.
- Detailed controls for the centre should address public domain issues, such as the location (and definition) of active frontages and maximum frontage widths for retail.

Action 4.3: Increase residential densities in the immediate vicinity of Dee Why centre to support the viability of public transport, which requires adjustment to

- Local zoning controls
- Shop-top provisions (to encourage residential)
- Parking controls
- Pedestrian and cycling facilities.

Action 4.4: Ensure that parking rates reflect neighbouring land uses

- Parking rates for development in centres that are located on major transport routes are high. In particular, rates for commercial, retail and food and beverage outlets should be lower where good public transport access is available.
- Ensure that any change in parking restrictions is combined with advocacy for more effective public transport and improved walking and cycling connections.
- Continue to support Car Sharing Schemes to minimise demand for parking. This could include providing car share car spaces within 'in-centre' Council car parks (such as Dee Why Civic Centre).

Action 4.5: Council to investigate 'catalyst' sites for major redevelopment

- A major redevelopment on a 'catalyst' site could help to enhance the local amenity and promote the sense of place of Dee Why as a civic and community centre. There is a scope for Council to investigate these opportunities, such as the rear car parking site of Warringah Council suggested by the consultation.

Strategy 5: Provide appropriate provision of BGR

From a strategic land use perspective, industrial land uses should be separated from other uses. BGR interception with industrial uses might put pressure on industrial land value and detract from the value of business parks. They generally are of a size that requires large areas for handling, storage and display and require easy vehicular access. There are significant opportunities for BGR activities along key corridors in Warringah where traffic limits these areas for residential development. Bulky goods retail has a particular physical need for car access and parking and best practice planning seeks to ensure that they are located along corridors and support the role of centres. Bulky goods outlets also seek to locate in areas close to where new household formation is taking place.

Bulky goods retailing is growing and needs to be accommodated in Warringah. If possible they should be located close to Brookvale-Dee Why major centre. However, given space constraints around the major centre and forecast increases in demand, it is likely that more space will be required in Warringah shire to accommodate growth in bulky goods. It is not recommended to encourage bulky goods in the Frenchs Forest Business Park. The transformation of this area is at an early stage. Improvements in transport infrastructure and the establishment of a level 5 hospital at Frenchs Forest will substantially transform the surrounding employment lands. Warringah Council has anticipated this by zoning the land B7 business park. From the experiences of successful business parks and new health infrastructure elsewhere it takes a number of years for strong clusters in high value industries, such as medical devices, pharmaceuticals and other life science industries to emerge. The business park is most likely to be successful if it retains a focus on complementary high growth industries rather than fragmenting land uses too soon.

The other business park in Warringah, Austlink, is a competitor for Frenchs Forest. Increasingly bulky goods retail has established a presence in this precinct and is growing faster than business park related industries. Austlink is not a perfect location for bulky goods as it is not located in proximity to a centre. On the other hand, it is located on a busy transport corridor and serves relatively large transport catchment. If major residential development planned for Ingleside proceeds, then this will also reinforce bulky goods opportunities at Austlink. The conclusion is that although Austlink is designated as a business park, flexibility in the planning system has encouraged the growth of bulky goods, particularly in the northern precinct, and this area may play an important role in accommodating growth of demand for bulky goods in the North East subregion.

Action 5.1: Encourage BGR uses in the B5 zone of Brookvale

- This will ensure that BGR is clustered at a highly accessible location within close proximity to the Major Centre.
- Locations on major arterial roads are preferred by bulky goods retailers, as sites with exposure to high traffic volumes enable business promotion.

Action 5.2: Limit BGR outside of centres

- Bulky goods retailing, located outside of centres has the potential to undermine existing retailing.
- It is not recommended to encourage bulky goods in the Frenchs Forest Business Park.
- But flexibility may need to be allowed in the planning system for Austlink to accommodate the overspill demand for bulky goods retail uses, for the reasons mentioned above.

Strategy 6: Improve the amenity of business park areas

The success of a business park location is reliant on a number of factors. The site needs to offer 'good business park fundamentals' including high quality external environment, high quality internal environment, motorway access, multi-modal access and services, proximity to skills and supply chains, high quality digital connectivity and other infrastructure serving the site and a variety of on-site support services and facilities.

The ability of a business park to attract tenants (and employment) is based on its ability to address broad site and location requirements. However, there are a number of actions Council could take to improve the visibility and attractiveness of its business parks.

Action 6.1: Provide signage for business park estates

- Tenancy lists could improve the profile of business parks. From this information, Council could maintain an up to date database of businesses within these areas including the name, contact details, number of employees and industry of each business.

Action 6.2: Promote existing Council services, focussing on those with a high visibility factor

- Council should be recognised by business park operators and tenants as being committed to improving the conditions of business parks. It is important to increase tenant awareness of Council's existing services, such as rubbish removal.

Action 6.3: When undertaking open space planning, ensure there is sufficient amenity provided for employees. Pedestrian links and cycleways should be considered.

- Appropriate facilities for employees, such as picnic tables, pocket parks, cycleways and pedestrian connections, are a means of increasing the attractiveness of employment land precincts as business locations. Opportunities to provide such amenities, in identified areas, should be pushed.

Action 6.4: Prohibit BGR uses in industrial and business park precincts.

- Apart from the existing BRG activities in Austlink Business Park that are permissible under the schedule 1 (additional uses) of the WLEP 2011, introduction of BGR uses should remain prohibited in other industrial or business park precincts, as it would undermine the retail in other centres and distort the image of these precincts.

Strategy 7: Develop medical cluster around Frenchs Forest Hospital

The specialised nature of hospitals and large health centres ensure that these attract visitors coming from outside Warringah, who contribute further to the local economy. Developing a medical cluster around the Frenchs Forest Hospital can ensure that the agglomeration benefits

associated with cluster development are maximised, and that flow-on effects to the local economy occur through local retail and business services.

Actions: Encourage, or work with, the Frenchs Forest Hospital to:

- Increase residential accommodation on or near the hospital site for key support workers
- Pursue intensification of medical research and related activities
- Investigate opportunities for retail and commercial development and examine other opportunities for activity hubs that combine open spaces and retail facilities to improve amenity for workers and visitors
- Identify opportunities to upgrade existing, or provide new small public and local, open space (particularly through the development of larger sites) ideally corresponding with transport nodes and/or the locations of active uses
- Lobby for improved transport connections to this area
- Improve legibility of hospital entries and provide clear and direct connections through the site. It is recommended that this encompass development of a signage strategy.

Strategy 8: Revitalise neighbourhood centres

The small outlying centres have an important role to play as neighbourhood centres to serve the needs of the residents in the immediately surrounding area. These areas should not accommodate any users that draw trade from a broad catchment nor should they host any significant employers that would position the centre as an employment destination.

Action 8.1: Promote a complementary business mix in smaller centres to support successful neighbourhood hubs.

- Work with the Chamber of Commerce and established businesses and property owners to publicise opportunities and attract the 'right' uses and to brand the centres (in light of their catchments and typology) while promoting innovation, start-up or home-based businesses, particularly in those centres that are well-placed to expand.
- Explore the implementation of planning controls to support flexible work/home arrangements and small businesses provided through development styles such as Small Office/Home Office (SOHO) and dual key apartments (a self-contained unit within an apartment that can be used as office accommodation) within village and small centres.
- Key characteristics of SOHO development that should be incorporated into development controls include:
 - o Separate entrance for office and living parts of the tenancy
 - o Broadband connectivity
 - o Easy on-street access to offices
 - o Potential for customer/client parking.
- Council could consider the development of a strategy for the provision of business support services in the form of an incubator. This would allow the coordination of shared services and use of facilities, provision of business advice and assistance to member companies, recruitment and facilitation of the involvement of business mentors, client selection and

graduation process, monitoring and evaluation of incubators and member companies' performance and reporting on program operations and activities.

Action 8.2: Ensure the retention of 'fine grained' ground floor to ensure an active and vibrant public domain

- Where permitting site amalgamations to facilitate redevelopment and intensification is desirable, controls on the maximum width of tenancy at the street frontage should be implemented (for example, six metres or less).

Action 8.3: Review the locations and design of existing public transport nodes

- It is preferable that interchanges and transport nodes are co-located with small open spaces and/or retail facilities or other active uses. This should assist to further revitalise neighbourhood centres and increase public transport patronage.

Action 8.4: Investigate rezoning opportunities for centres with high vacancies

- Land audit shows that some neighbourhood centres currently have high vacancy rates or are completely vacant, such as Griffin Rd North Curl Curl and Mimosa Davidson.
- Demand for retail activities in those centres should be examined. Possible rezoning to residential uses should be considered if demand is weak.

Action 8.5: Support the creative industries sector

- Economic change and technological innovation is creating new opportunities in a diverse range of industries involving an artistic and cultural input. This includes tourism, fashion, information technologies and multimedia. They include industries currently in Warringah that create cultural products in arts, film and interactive games, as well as industries with a significant creative content in business-to-business services, such as advertising, design and architecture, and web and software development.

Strategy 9: Encourage home-based businesses

Home-based businesses are an important growth sector. Local design and planning instruments can influence the expansion of this sector. Council has an important role in creating an enabling environment. Some of the issues that need to be addressed include regulations on signage and parking. Vibrant village economies, with cafés, restaurants and meeting rooms provide an attractive local environment and meeting place for home-based businesses. Further, Council can support local business networks which can facilitate the growth of local skills and contacts to encourage the growth of this sector.

Home-based work does not appear to be a temporary state of business operation. The attraction of home-based work is flexibility in work hours and the avoidance of a commute to work. Thus, the incidence of home-based work is usually high in areas that are distant from employment centres and which also offer a high quality natural environment.

Home-based work is also attractive to mature age and disabled workers, and can therefore promote benefits linked to increased workforce participation, and enhanced social capital, among these groups.

Action 9.1: Ensure planning controls allow for Home Based Work and Home Based Business in areas with high levels of amenity

- Ensure that residential zones in the LEP do not prohibit potential home businesses in designated residential areas. 'Home occupation' and/ or 'home businesses' should be permissible in appropriate residential areas.
- Ensure that local centre zones (B2) in local/village centres permit the development of business supporting services for home based businesses.

Action 9.2: Facilitate the establishment of a network of Home Based Business.

- Encourage the provision of local meeting rooms, business support services, signage or promotional opportunities for home-based business using existing private operators.
- Explore the opportunity and feasibility of facilitating a network of home-based businesses. The network could provide an important forum for the exchange of information and ideas to mutual benefit of forum members and could be formed to provide a voice for Warringah's home-based business sector with Council and other agencies. Through this Strategy and the Warringah Economic Development Plan a network of home-based businesses could be established with a web presence for exchange of ideas and information.
- Council support for talented entrepreneurs' business start-ups and existing small businesses accelerating the growth of their businesses. Implement affordable mentoring programs, business advisory sessions and encourage the growth of local and regional networks to build expertise and encourage collaboration of home-based businesses. Investigate affordable ways to strengthen business infrastructure and advisory services to support business start-ups and business acceleration.

Appendix 1: Policy and document review

NSW 2021 Plan

The NSW 2021 Plan is a guide for sustainable economic growth in NSW. It is a 10 year plan to rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen local environment and communities. It replaces the State Plan as the NSW Government's strategic business plan, setting priorities for action and guiding resource allocation.

The goals that directly affect employment development in Warringah include:

- **Goal 1. Improve the performance of the NSW economy.** A growing economy delivers jobs, opportunities and increased prosperity. It also delivers the tax revenue needed to fund services and infrastructure. More specifically, this is relevant through the aim of supporting small and medium size business through creation of 'Office for small business' and the 'small business commissioner'.
- **Goal 4. Increasing the competitiveness of doing business in NSW.** This is relevant through the creation of the Innovations Council and Industry Actions Plan, which will grow knowledge industries. Also the delivery of training to support high growth industries, for example health services, will aim to solve skill shortage issues and grow key industries
- **Goal 19. Invest in critical infrastructure.** Strategic and coordinated infrastructure improvements are likely to increase productivity and competitiveness. Through these improvements, potential will be found and business confidence boosted. This will be done through the 'local infrastructure renewal scheme', which will provide interest subsidies to local councils to assist in unlocking resources for councils to upgrade urban and economic infrastructure for roads, community halls, libraries, parks, sports grounds and water infrastructure.
- **Goal 20. Build liveable centres.** A liveable centre is described as a great place to live and work, and it aims to reduce commuting time, to allow for increased family and leisure time, and to improve all round satisfaction within one community. This is the most important goal in relation to Warringah as it shaped all planning for the strategic centres and commercial development in the area. It includes housing and employment targets along with zoning, all of which facilitate urban development and promote local employment
- **Goal 22. Protection of natural environment.** As Warringah is home to much national parkland, this formulates a key aspect of planning. Programs like the 'Green Corridor Program' which is set to conserve biodiversity and increase renewable energy will be relevant to the area.

Metropolitan Plan for Sydney 2036

The Metropolitan Plan (Metro Plan) is the overarching planning guidance for the Sydney Greater Metropolitan Area (GMA). It was produced by the New South Wales Department of Planning and Infrastructure (DP&I) to succeed the 2006 Metro Strategy: A City of Cities. It guides urban growth

and development to 2036 and establishes criteria for the amount, location and type of industrial development that is required across the GMR at a subregional level.

The Metro Plan updates its targets every five years. It is currently only enabling residential and employment growth in areas where there is available or planned public transport capacity (p 13, 14). Warringah is currently included in two corridors, these include: North Sydney to Mona Vale corridor which passes by Warringah area, and Chatswood to Brookvale-Dee Why.

The Metro Plan is draws from principles of two documents—*2005's Metropolitan Strategy—City of Cities: A Plan for Sydney's Future*, and the *2010 Metropolitan Transport Plan: Connecting the City of Cities*.

The Metro Plan is split into Objectives and Actions, the Actions being the corresponding policy answers to the Objectives. The main Objectives and Actions that are of importance to Warringah include:

- **Objective D1: To ensure an adequate supply of land and sites for residential development**
 - *Action D1.1* - Locate at least 70% of new housing within existing urban areas and up to 30% of new housing in new release areas. Using comprehensive LEPs, zoning patterns can be changed to accommodate 70% of new dwellings in existing urban areas (p 114)
 - *Action D1.2* - Reflect new subregional housing targets in *Subregional Strategies* and *Local Environmental Plans*, and monitor their achievement. The North East subregional new dwelling target for 2036 is 29,000. Targets come from the ratio of subregional jobs to population. Again through the use of comprehensive LEPs this can be achieved. This is in line with the a key consideration from the Metro Plan, having 'more jobs closer to home' (p 115)
- **Objective E1: To ensure adequate land supply for economic activity, investment and jobs in the right locations.** The overarching principles for guiding Sydney's economic growth are to provide jobs closer to home by setting new employment capacity targets for each subregion; and ensuring employment lands continue to meet Sydney's freight and industry needs by establishing an Employment Lands Task Force
 - *Action E1.1* - Reflect new subregional employment capacity targets in *Subregional Strategies* and *Local Environmental Plans*. The North East 2036 employment capacity target is 112 000, from 2006-2026 this means a growth of 23 000, which is equal to 26% (p 133)
- **Objective E2: 'focus Sydney's economic growth and renewal, employment and education in centres'.**
 - *Action E2.1* - Plan for more commercial and retail jobs in highly accessible strategic centres. The Brookvale-Dee Why 2036 long term employment capacity target 17,000 which is up 5000 from 2006 (p 135)
 - Public transport usage is higher for people who live/work in strategic centres – *Action B4* of the 2005 Metropolitan Strategy that will continue in this Metropolitan Plan: encourage public transport usage. Brookvale-Dee Why is a strategic centre, so

- promoting retail jobs (*Action E2.1*) comes with a need to promote active transport (p 136)
 - *Action E2.2* - Ensure an adequate supply of retail, office space and business parks. DP&I's Employment Lands Development Program (ELDP) provides estimates in relation to supply, vacancy levels and demand. Each council's standard instrument is LEP. High grade office, retail and commercial space in strategic centres aims to meet employment targets and enhancing Sydney's Global competitiveness (p 136)
 - *Action E2.3* - Plan to meet future demand for business parks by establishing a framework to identify suitable sites in Subregional Strategies. Business parks must meet criteria: public transport, freight, land area, proximity, and economic infrastructure (p 137)
 - *Action E2.5* - Strengthen clusters of activity in Specialised Centers, particularly those for high growth and high value sectors, and support emergence of new clusters (p 138)
 - *Action E2.7* - DP&I work with local government to support commercial space, low cost creative industry, business start ups and innovation related activities (p 139)
- **Objective E3: To provide employment lands to support the economy's freight and industry needs**
 - *Action E3.1* - Monitor supply and demand for employment lands, and plan for new employment lands. The ELDP is the NSW Government's key program for managing the supply of Employment Lands in the Sydney Region and assisting associated infrastructure coordination (p 141).
 - *Action E3.2* - Identify and retain strategically important employment lands. Only areas that are not strategically important will be considered for rezoning. 'Rolling Program'-release, rezoning and servicing of new and existing Employment Lands (p 141). Employment needs to be specialised and sustainable (p 145).
- **Objective E4: To provide for a broad range of local employment types in dispersed locations.** Subregional strategies need to ensure employment in industries.
 - *Action E4.1* - Broad range of employments, rezone to allow work from home to reduce traffic congestion pressures (p 146)

Draft North East Subregional Strategy

Subregional Strategies are the next step in translating the objectives for the whole city, as found in the Metro Plan, into strategies for each grouping of local government areas and the many communities of Sydney. The draft Subregional Strategies provide a vision for the future role of the subregion, clarity on the future roles of centres, a framework for potential agreements and to better align State Government infrastructure spending with expected growth; and local government area housing and employment capacity targets to 2031. This Subregional Strategy will provide a framework for the local councils in their preparation of new Principal LEPs.

There are six key outcomes for this Subregional Strategy. These are:

1. Plan for employment growth
2. Better access to a variety of housing choice and create liveable and sustainable communities

3. Strengthen the major centre
4. Better access to, from and within the north east subregion
5. Plan for Frenchs Forest
6. Protection of the environment and lifestyle of the region

As described in the Draft Subregional Strategy, the North East Subregion has historically had high levels of self-containment; 80% of jobs in the region are occupied by residents (p 5); and retention is now considered to be an area goal (p 22).

Additional employment capacity by local Government area for the North East Subregion can be broken down into 12,500 for Warringah and 1000 for Manly. Much of this can be found through the creation of an Enterprise Corridor on Pittwater Road between Brookvale and Dee Why (p 24).

Small retail outlets would benefit from the creation of an Enterprise Corridor, and the possible location of three corridors would be even more beneficial (p 44). This would impact the creation of 'jobs closer to home', increased employment in strategic centres and intensification of employment lands (p 24). The Subregional Strategy places a capacity target of 4,000 additional jobs for Brookvale-Dee Why (p 44), with Brookvale having the potential to create a commercial core (p 102), should future studies see opportunities in that area.

Employment growth could also be found if the Austlink Business Park were to become a more significant centre (p 28), and if the Northern Beaches Hospital at Frenchs Forest were to go ahead, there would be much potential for industry clustering as this would act as a magnet infrastructure (p 29,30). The relative proximity of the Austlink Park to the projected site could drive expansion of medical related activities in the park (PDF 5).

Brookvale-Dee Why, as the strategic centre, is a key area in need of increased density. This fits with 'liveable city' aims as it promotes centres that are a great place to live and work (p 55), along with creating vibrant interesting centres that attract people and culture (p 94). It currently holds older low density housing which could be upgraded into more modern medium density dwellings. A possible solution may include increased numbers and utilisation of shop top housing, such as Area 9 of the WLEP 2011. This could also help to encourage emerging business, and provide them with lower rents (p 31).

Another point to take into consideration is the ageing population, and the implications this has for housing, public transport and services, and what these mean for employment. An ageing population is in need of higher density housing, located in central areas with easy access to public transport and services. Health care services and home help varieties will need to be in plentiful supply (p 55).

SHOROC Regional Employment Study (Hill PDA 2010)

The SHOROC Regional Employment Study (the SHOROC study) was commissioned in response to the release of two draft subregional strategies by the DP&I that are relevant to the SHOROC Region (the draft Inner North Subregional Strategy and the draft North East Subregional Strategy). These

strategies establish targets and actions for the sustainable growth of the aforementioned subregions up to 2031. The key findings of this study will assist in the refinement of the Subregional Strategies and in the preparation of a Regional Economic Development Strategy.

The key objectives of the study are to:

1. Research and document existing employment in the SHOROC Region (the Region);
2. Identify economic, social and environmental trends that may influence employment in the Region over the study period; and
3. Identify key strategies and principles that will enable sustainable employment and business growth across the Region up to 2031. (p 8 of the SHOROC Study)

The SHOROC Region extends from Sydney Harbour North Head, the Tasman Sea, Middle Harbour and Ku-ring-gai National Park, and Pittwater and the Hawkesbury River. The Region incorporates the local government areas of Mosman, Manly, Warringah and Pittwater (p 9 of the SHOROC Study), with Warringah being the largest. Due to geographical constraints (the limitations of a peninsula and national parkland) and the absence of public transport, there is a high rate of job containment (p 11 of the SHOROC Study). The key employment areas in the region include Brookvale, Dee Why, Austlink, Mona Vale and Frenchs Forest (p 15 of the SHOROC Study). Expansion of these areas, along with Forestville and Glenrose could help to minimize travel, and in turn traffic and transit time.

The study identified main trends that will influence future employment in Warringah. These include, but are not limited to:

Ageing population, housing and service needs

- An ageing population needs increased health care and home help services. Clustering of medical facilities around Frenchs Forest was recommended, especially if the proposed Northern Beaches Hospital is to go ahead (p 143 of the SHOROC Study)
- A need for housing diversity for workforce diversity will result in increased density and lower cost housing to be built. This is important to consider as with an ageing population, turnover of lower paid workers will result in a reduced proportion of the labour market who can buy houses in the area, putting a greater strain on the rental market, public transport and roads entering/exiting the area (p 13/14 of the SHOROC Study).
- Increased costs of lower salary workers could negatively affect businesses if they sought employment in other regional centres, this issue is then solved through better public transport provision and varied budget housing (p 14)

Retail

- Demand for retail floor space will increase significantly. With Warringah to experience the greatest growth in commercial floor space, the majority of this is to be in property and business sectors (p 12 of the SHOROC Study)
- SHOROC residents are working longer hours and, therefore, increasing demand for out of hours retail and service provision

- Growing demand for bulky goods retailing and supermarkets. The provision of these types of retail and other services, resulting in residents not having to travel out of the area (p 57 of the SHOROC Study). Bulky goods to stay out of business parks, and occupy space on Enterprise Corridors, which are to be rezoned accordingly (p 25 of the SHOROC Study)

Commercial

- A low intensity of use of business lands, lower density business development and site coverage across Warringah, which translates into opportunities for more efficient use of sites through redevelopment at greater density (p 118 of the SHOROC Study)
- Increased demand for higher specification, flexible commercial units to accommodate high skilled business and technology jobs, in property and business, retail, wholesale trade and accommodation, cafes and restaurants (p 15)
- Growing demand for business parks for co-location of commercial and industrial components, the rezoning of business parks, and the updating of infrastructure to promote the business parks will lead to increased activity and a utilisation of Austlink Business Park. Austlink to be promoted as a Specialised Centre for Employment and actively promoted (p 24)

Industrial

- Manufacturing changes due to new technology and increased efficiencies
- The forecast is for industrial floor space demand to decline in Warringah between 2016 and 2031, after experiencing modest growth in demand up to 2016 (p 12)
- The number of jobs in manufacturing and construction industry sectors will decline, resulting in a net loss of industrial jobs in Warringah by 2031
- A need to recognise regional importance of industrial land in Brookvale. Allow higher order commercial office and distribution services in Brookvale West, maintaining Brookvale East for a range of industrial and urban support services

SHOROC 'Shaping Our Future' Study (SHOROC, 2010)

SHOROC's *Shaping Our Future* is an integrated whole-of-region strategy setting out the long term direction for 2010 -2031 for the SHOROC region. A response to the NSW State Plan, Metropolitan Transport Plan and Metropolitan Strategy, it links Council land use management set by individual councils with critical improvements in infrastructure, enabling a more coordinated and cooperative regional inter-governmental approach. SHOROC's *Shaping Our Future* seeks to address the critical issues for the region now and the challenges ahead while maintaining and enhancing the region's liveability, sustainability and significant contribution to Sydney as a global city.

This Study outlines how SHOROC will meet the Metropolitan Strategy targets for housing and jobs. Increases to capacity expectations for housing and jobs will be met through sustainable development by focusing the main growth around four key areas as vibrant sustainable centres. These are:

- Dee Why/Brookvale: as a major centre for housing and jobs;
- Frenchs Forest: as a new specialised centre for housing, jobs and health;
- Terrey Hills: as an area for jobs;
- Warriewood/Ingleside: as a new centre for housing and jobs.

These locations have been identified as they can maintain the high ratio of people who live and work locally, are in locations with maximum access to public transport, and can potentially provide a mix of housing that will respond to demographic changes and attract low and moderate income earners, such as key workers, to live in the region.

These locations will meet Metropolitan Strategy requirements for the provision of

- An additional 22,800 dwellings (including potentially up to 4,900 in Ingleside), taking the total to around 130,000, and
- An additional capacity for 20,800 jobs, taking the total to over 120,000.

The study identifies barriers to future growth that include, but are not limited to:

- Lack of appropriate access to high quality hospital and complementary health services across the region. This could be addressed through immediate construction of the Northern Beaches Hospital at Frenchs Forest and upgrades to Mona Vale Hospital
- Declining quality and availability of current services. Public transports being an area of concern as current services are inadequate and not capable of handling population growth. This would mean improving the North/South corridor, investing in the East/West connection to take pressure off the N/S and unclogging pinch points such as Spit Junction. Roads and traffic are related areas of concern
- The effects of an ageing population and higher proportion of residents aged over 65 years than the rest of Sydney, bringing with it a greater need for enhancement of acute and community health services, access to carers, health and community care services, housing and residential care options

Northern Beaches Key Worker Study (Epic DotGov, 2004)

A key worker, as defined by this study, is a low/medium waged worker who provides essential community services. Key workers are important as a strategic concept since they personify the underlying relationship between housing and labour markets, and the provision of affordable housing in competitive economies.

The Northern Beaches does not currently have significant issues as key workers purchased houses up to thirty years ago when prices were lower. However, home ownership of key workers will decrease as the population ages and there is a turnover of staff. This will also place greater strain on main roads, public transport and possibly forcing business to leave the area. Key workers will be even more vital as the local population ages and also if the Northern Beaches Hospital is to be built.

A key solution from this study is to build smaller, cheaper town houses and apartments in strategic centres and close to the site of the hospital. Along with improving cross regional public transport, there needs to be a focus on ensuring wages and training programs to keep key worker roles attractive.

Frenchs Forest Specialised Centre – State Significant Site Study (COX, 2010)

Frenchs Forest was identified as a potential 'Specialised Centre' in 2010, however the 'Specialised Centre' is now discontinued. The focus of future development in the Frenchs Forest area relates to the Level 5 Northern Beaches Hospital. Construction of the hospital is committed to during the 2011-15 parliamentary term.

The proposed construction of the Northern Beaches Hospital at Frenchs Forest is a significant infrastructure investment that could contribute to reinforcing Frenchs Forest as a cluster of medical uses, related services and structures.

While this may cause increased traffic congestion, the hospital at Frenchs Forest may actually capture some of the through-traffic, which could relieve the congestion associated with commuters travelling through the area to employment destinations elsewhere. There is potential for a tunnel to draw the regional through traffic off Forestway and Warringah Road at the western gateway to the area.

Frenchs Forest is conveniently located in the east/west economic corridor going from Dee Why-Brookvale to Macquarie Park via Frenchs Forest and Chatswood. Promotion of this connectivity, it is suggested that Warringah Road will be addressed as a more urban and city street with regular crossings and intersections and serve as the spine for activity and movement.

Employment Land Development Program (ELDP) 2010 – Report 6, North East Subregion

The key findings from this report is summarised below:

- The total zoned Employment Lands supply in the North East Subregion is 242 hectares, which is approximately 2% of Sydney total stocks;
- Less than 5 hectares of this zoned land is undeveloped land, including 1.6 hectares in Brookvale, 1.5 hectares in Frenchs Forest and 0.7 hectares in Cromer Industrial Precinct. No potential future Employment Lands have been identified for the North East Subregion. And it is not likely that any will be made available.
- From 2001- 2006 there were 900 jobs created in Employment Lands in Warringah. Warringah has the highest number of people working in Employment Lands, 16,400 jobs, which is 30% of total jobs.

Note: As defined by the NSW Department of Planning and Infrastructure, employment lands referred in the ELDP report include the traditional industrial areas for manufacturing, warehousing, construction and repairs; business and technology parks for higher-order jobs; and areas containing a mix of activities associated with transforming, storing, maintaining and repairing materials and goods.

Draft Brookvale Employment Lands Issues Paper

This paper is a response to the Draft North East Subregional Strategy. The issues that the council must balance include keeping the Northern Beaches a desirable place to live, while focusing on how best to use the existing land to generate employment. However, there are many problems to overcome, such as diversifying employment opportunities and overcoming extreme traffic congestion and a lack of onsite parking.

The Brookvale Employment Lands consist of that land zoned for industrial, commercial or retail development at Brookvale. They are known as employment lands as they play an important role in providing and developing a diversity of employment opportunities within Warringah and also within the overall northern beaches region. Diversity of employment opportunities is a crucial component in the pursuit of sustainability within both the Warringah LGA and the broader region. Warringah has built a high level of economic self-sufficiency due to the strength and variety of its local businesses. Maintaining economic sustainability, with an increasingly short supply of land available for commercial and economic activity, provides one challenge as Warringah moves into the future.

Due to its geography and the constricting nature of national parklands, water and limited road networks, this paper pointed out a number of issues that the future planning needs to keep in mind. These include, but are not limited to:

- Northern Beaches subregion is attractive because it is a desirable place to live (p 4 of the Issues Paper)
- There are few opportunities for future expansion, so it is more important to focus on how best to utilise the existing land to generate employment (p 16 of the Issues Paper)
- The narrow nature of road network being unable to cope with larger trucks (p 57 of the Issues Paper)
- Lack of onsite parking – roof top parking underutilised and streets over crowded (p 57 of the Issues Paper)

Brookvale centre is conveniently located at the intersection of Warringah Rd and Pittwater Rd, the east/west and north/south routes. Council needs to promote and develop a brand for the Brookvale Employment Lands for future marketing purposes (p 36). Correspondingly Council will have to address the issue of high congestion levels. There is also a parking shortage, which needs to be explored (p 21).

While this paper recommends safeguarding Brookvale East Industrial area for a range of industrial and urban support services and allowing Brookvale West to develop with higher order commercial office and distribution services (p 20), redevelopment is constrained in the Brookvale east

industrial area due to multiple and fragmented ownership patterns (p 35), which is extremely complex to address.

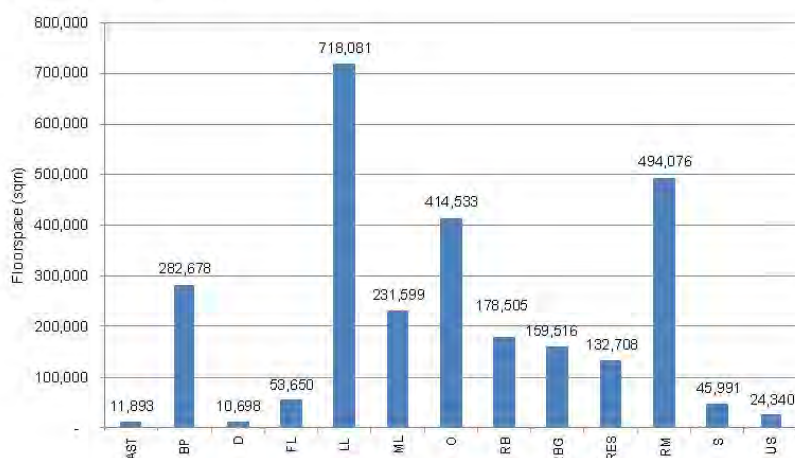
On a community level, alongside this kind of growth, Warringah Council also looks towards recognising and enhancing the nightlife and entertainment in Brookvale, in areas not adjacent to residential areas (p 56). Warringah Mall is the main shopping centre for the North East and lower North Shore (p 33). Promoting the growth of the Warringah Mall is a key goal, not only for retail but alongside community and education. This would be achieved through integration with TAFE, via local business and TAFEs proximity to Warringah Mall (p 33).

Appendix 2 – Land audit results

Floorspace by BLC

The following figure shows total floorspace in the LGA by BLC. Overall, within the Warringah LGA, Local Light Industry (LL) is the dominant land-use with 26% of total floorspace, followed by Retail-Main Street (RM) 18% and Office (O) 15%.

Figure 10. Floorspace by BLC

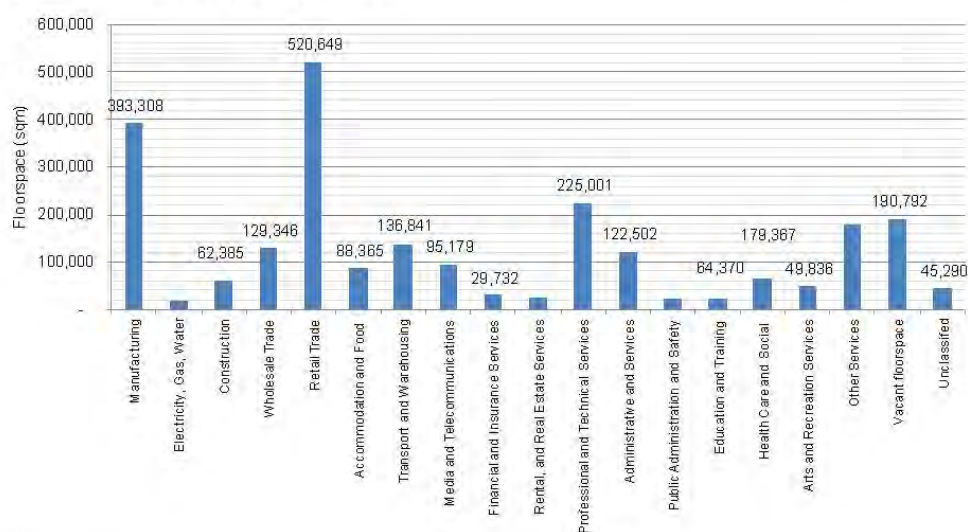


Source: SGS (2012)

Floorspace by ANZSIC

The following figure shows total floorspace in the LGA by ANZSIC industry²⁹. This shows that the Retail Trade utilises the most floorspace in the LGA (19%), followed by Manufacturing (14%) and Professional and Technical Services (8%). Moreover, the audit reveals that there is 190,792 sqm of vacant floorspace in the LGA. Audit tables by precinct are reported in the Appendix 1.

Figure 11. Floorspace by ANZSIC



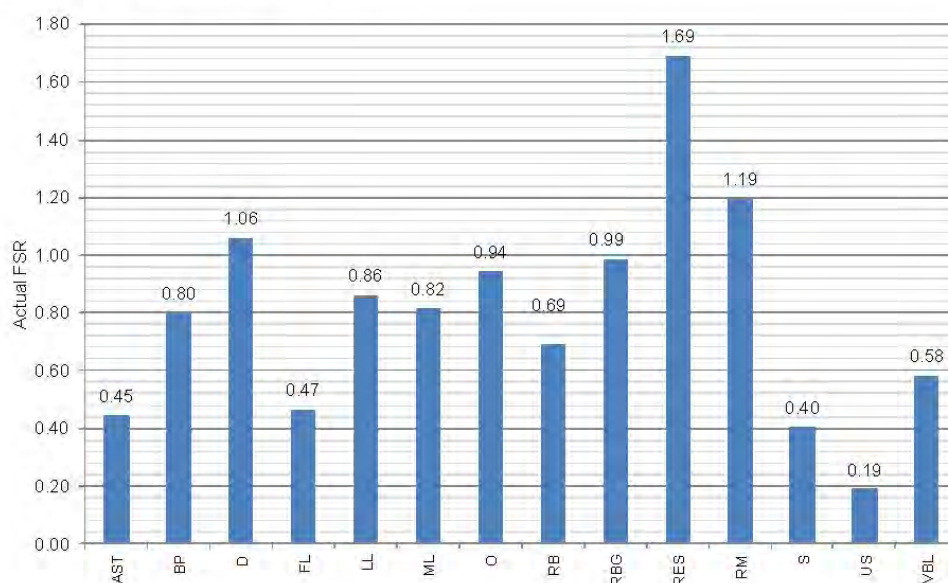
Source: SGS (2012)

²⁹The ANZSIC industries in this figure below have been truncated for readability.

Derived FSR by ANZSIC

The following figure shows derived FSRs in the LGA by BLC. This is calculated as the ratio of audited floorspace to gross land area. The derived average FSR in Warringah is 0.8:1. Residential and Retail-Main Street displayed the highest derived FSRs at 1.69:1 and 1.19:1 respectively. Urban Services recorded the lowest FSR at 0.19:1, equating to site coverage of approximately 20%. Audit tables by precinct are reported in the Appendix 1.

Figure 12. Derived FSR by BLC



Source: SGS (2012)

Derived FSR by precinct

Table 27 depicts the derived FSRs by each precinct in the LGA. Brookvale-Dee Why Major Centre has an average FSR of 1:1, while the industrial areas have an average FSR of 0.6:1.

Table 27. Derived floorspace ratios by precinct

Precinct name	FSR
Neighbourhood centres	
1 - Adams St Curl Curl	1.59
2 - Allambie	1.86
3 - Allambie Heights	0.45
4 - Arthur St Forestville	1.21
5 - Aubreen St Collaroy Plateau	0.99
6 - Bantry Bay Frenchs Forest	0.55
7 - Bridge Rd Queenscliff	1.41
8 - Brighton St Curl Curl	0.84
9 - Carawa Rd Cromer	0.74
10 - Corrie Rd Manly North	0.38
11 - Cromer Heights	0.54
12 - Griffin Rd North Curl Curl	1.23
13 - Harbord Rd	0.62
14 - Killarney Heights	0.79
15 - Long Reef	2.05
16 - Mimosa Davidson	0.96
17 - Narrabeen Local Retail	2.11
18 - Narrabeena Local Retail	0.55
19 - North Balgowlah	1.43
20 - Pitt Rd North Curl Curl	1.05
21 - Ralston Ave Belrose	0.74
22 - Rayner St Narrabeena	0.12
23 - Skyline Shops Frenchs Forest	0.56
24 - Sorlie Rd Frenchs Forrest	1.13
25 - South Creek Rd East Dee Why	0.83
26 - Wheeler Heights	0.42

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Precinct name	FSR
Small Villages	
27 - Collaroy	1.79
28 - Dee Why (The Strand)	1.99
29 - Devitt St Narrabeen	1.36
30 - Forestville	1.13
31 - Frenchs Forrest	0.59
32 - Glenrose	0.40
33 - Lawrence St Freshwater	0.68
34 - Manly Vale	1.12
35 - Narrabeena	0.97
36 - Terry Hills	0.64
37 - Veterans Parade Collaroy Plateau	1.44
Villages	
38 - Waterloo St Narrabeen	1.77
Major Centres	
39 - Brookvale	0.90
39 - Dee Why	1.09
Industrial Areas	
40 - Austlink Business Park	0.71
41 - Cromer Industrial	0.56
42 - Forestville industrial	0.49
43 - Frenchs Forest Business Park	0.59
44 - Freshwater Industrial	0.84
45 - Manly Vale Industrial	0.53
46 - Terry Hills, Industrial	0.49
LGA Average	0.80

Source: SGS (2012).

ANZSIC-BLC Matrix

The following table shows the distribution of ANZSIC industry floorspace by BLC across the LGA. Where relevant, the green-shaded cells indicate the top three ANZSIC industries operating in each BLC in Warringah LGA. This analysis provides a useful indication regarding the types of industries operating within each land-use category (BLC) and their floorspace contributions. It is usually the case that more than one ANZSIC industry is located in any given BLC. For instance, 32% of Business Park (BP) land-use in the LGA is comprised of the Manufacturing (C) industry sector, while 15% of BP floorspace is due to Professional and Technical Services (M).

It was noted earlier that Retail Main-street (RM) and Local Light (LL) were the two main land-uses in the LGA. Of the total RM floorspace, 32% is due to Retail Trade (G), while 9% is due to Accommodation and Food (H). Of the total Local Light (LL) floorspace, 19% is due to Manufacturing (C), 16% is due to Other Services (S) and 13% is due to Retail Trade (G).

Of the total Manufacturing Light (ML) floorspace, 53% is due Manufacturing (C), and interestingly, 12% is due to Information Media and Telecommunications (J) and 15% is due to Professional and Technical Services.

Table 28. ANZSIC-BLC matrix, Warringah LGA

	AST	BP	D	FL	LL	ML	O	RB	RBG	RES	RM	S	US	VBL
C	0%	32%	0%	2%	19%	53%	7%	0%	4%	0%	1%	0%	2%	0%
D	0%	1%	0%	0%	1%	0%	2%	0%	0%	0%	0%	0%	5%	0%
E	0%	5%	0%	0%	5%	0%	1%	0%	3%	0%	1%	1%	1%	0%
F	0%	4%	0%	14%	11%	3%	2%	0%	5%	1%	0%	0%	0%	0%
G	0%	0%	7%	0%	13%	4%	3%	74%	86%	0%	32%	2%	19%	0%
H	100%	1%	39%	0%	0%	0%	1%	5%	6%	0%	9%	0%	0%	0%
I	0%	8%	0%	81%	7%	3%	1%	1%	0%	0%	1%	0%	30%	0%
J	0%	10%	0%	0%	1%	12%	3%	5%	0%	1%	1%	4%	5%	0%
K	0%	1%	0%	0%	0%	0%	2%	3%	0%	0%	2%	0%	0%	0%
L	0%	0%	0%	0%	1%	0%	1%	0%	0%	1%	2%	0%	0%	0%
M	0%	15%	1%	0%	4%	15%	24%	0%	0%	0%	2%	10%	0%	0%
N	0%	5%	0%	2%	2%	1%	19%	2%	0%	0%	0%	0%	9%	0%
O	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	26%	0%
P	0%	1%	0%	0%	0%	0%	2%	0%	0%	0%	1%	17%	0%	0%
Q	0%	3%	8%	0%	1%	0%	2%	1%	3%	1%	4%	20%	0%	0%
R	0%	1%	39%	0%	2%	0%	2%	1%	3%	0%	2%	18%	0%	0%
S	0%	1%	6%	0%	16%	3%	3%	5%	1%	0%	8%	15%	2%	0%
V	0%	7%	0%	0%	7%	3%	14%	0%	1%	4%	4%	0%	0%	100%
W	0%	4%	0%	0%	6%	0%	8%	2%	9%	90%	28%	11%	1%	0%
X	0%	0%	0%	0%	3%	3%	2%	0%	0%	1%	2%	2%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: SGS (2012)

Note: A (Agriculture) and B (Mining) industries do not present in the employment precincts audited in Warringah

FSR by Zone and BLC

The following table shows FSRs in each zone split by BLC. As one might expect, in broad terms, industrial activities are concentrated in the industrial zones and commercial activities are concentrated in the business zones. However, use patterns in the zones are certainly not homogeneous. For instance, Local Light (LL) and Office (O) in the Business Development (B5) zones have relatively high FSRs.

Table 29. FSR by Zone by BLC

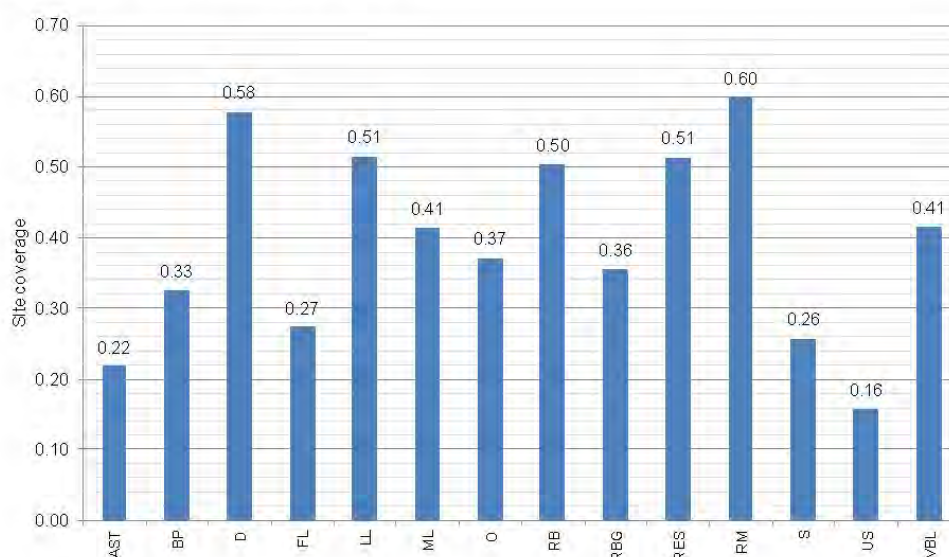
BLC	B1	B2	B3	B4	B5	B7	IN1	IN2
AST	-	1.76	-	-	0.98	0.15	-	-
BP	-	-	-	-	-	0.71	1.37	-
D	-	-	-	0.84	1.27	-	-	-
FL	-	-	-	-	-	0.40	0.74	-
LL	0.78	2.00	-	-	1.32	0.66	0.93	0.63
ML	-	-	-	-	1.11	0.95	0.75	-
O	0.89	0.38	-	0.55	1.55	0.86	1.25	0.50
RB	-	1.83	0.75	0.34	0.43	-	-	0.22
RBG	-	0.15	-	-	0.96	1.39	0.71	0.58
RES	1.06	2.04	-	1.97	1.05	-	0.69	-
RM	1.20	1.23	-	1.81	0.91	0.13	0.82	0.57
S	0.51	0.34	-	1.31	-	-	0.21	2.34
US	0.31	0.23	-	0.33	0.25	0.07	0.20	0.45
VBL	0.33	0.87	-	1.51	-	-	0.41	0.97

Source: SGS (2012).

Site coverage by BLC

The following figure shows site coverage ratios by BLC for Warringah LGA. Site coverage is a measure of the building footprint's coverage of a lot area. Retail Main-street (RM) land uses have the highest site coverage with 60% of the lot area being used for the building. Dispersed Activities (D) have the second highest site coverage across the LGA at 58%. In addition to set-back controls, the land audit indicates that these land use categories are likely to require a greater building footprint. Total site coverage across all land use types in the LGA is around 40%. This analysis shows that there is some variation in the site coverage of each land use.

Figure 13. Site coverage by BLC



Source: SGS (2012)

Land audit results by precinct

Audit results by precinct are detailed in the following tables.

Table 30. Floorspace (sqm) by precinct and ANZSIC category (1 digit)

	ANZSIC Industry category (1 digit)																			
	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	V	W	X
1 - Adams St Curl Curl	-	-	-	-	-	-	-	113	-	-	-	-	-	-	151	113	-	-	377	-
2 - Allambie	-	-	-	-	396	-	-	1,019	-	-	-	-	-	-	880	-	-	590	5,705	-
3 - Allambie Heights	-	-	-	-	1,703	736	-	-	-	92	-	-	-	-	-	-	138	92	-	-
4 - Arthur St Forestville	-	-	-	-	129	194	-	-	-	-	-	-	-	-	129	-	259	-	-	-
5 - Aubreen St Collaroy Plateau	-	-	-	-	279	486	-	-	-	69	-	-	-	-	-	-	131	-	987	42
6 - Bantley Bay Frenchs Forest	-	-	-	-	526	918	-	-	-	144	-	-	-	-	125	-	111	106	-	-
7 - Bridge Rd Queenscliff	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	100	-	616	37
8 - Brighton St Curl Curl	-	-	-	-	-	137	-	103	-	-	51	-	-	-	-	-	51	-	420	-
9 - Carawa Rd Cromer	-	-	-	-	242	159	-	-	-	-	-	-	-	-	-	-	138	74	472	-
10 - Corrie Rd Manly North	-	-	-	-	1,111	-	-	49	-	-	-	-	-	-	-	-	77	-	352	-
11 - Cromer Heights	-	-	-	-	531	177	-	-	-	-	-	-	-	-	-	-	472	-	-	-
12 - Griffin Rd North Curl Curl	-	-	-	-	347	-	246	164	-	-	-	-	-	-	242	-	-	989	3,014	-
13 - Harbord Rd	-	-	-	-	852	62	-	-	-	-	-	-	-	-	-	-	-	-	485	-
14 - Killarney Heights	96	-	226	-	1,001	539	-	192	292	65	162	65	-	903	104	606	228	246	3,523	23
15 - Long Reef	-	-	-	-	4,296	417	-	2,542	-	1,555	-	-	-	-	417	3,156	-	417	11,883	401
16 - Minrosa Davidson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,182	-	-
17 - Narrabeen Local Retail	-	-	-	-	-	1,005	-	-	-	-	-	-	-	-	-	-	-	369	1,940	-
18 - Narrabeen Local Retail	-	-	-	-	427	396	38	-	-	71	121	-	-	-	-	-	188	-	365	-
19 - North Balgowlah	-	-	-	-	442	325	111	-	-	42	-	-	-	-	88	-	67	-	2,271	-
20 - Pitt Rd North Curl Curl	-	-	-	-	1,181	353	-	130	-	-	-	-	-	-	-	-	-	69	1,121	-
21 - Raiston Ave Belrose	-	-	-	-	2,480	212	-	-	-	-	-	-	-	-	363	-	363	-	-	-
22 - Rayner St Narrabeena	-	-	-	-	177	-	-	-	-	-	-	-	-	-	-	-	-	-	-	177
23 - Skyline Shops Frenchs Forest	-	-	-	-	401	358	67	-	-	268	134	134	-	-	403	-	23	-	-	-
24 - Sorlie Rd Frenchs Forest	-	-	44	-	239	176	-	-	-	238	-	-	-	-	-	-	220	-	2,132	-
25 - South Creek Rd East Dee Why	-	-	-	-	414	53	220	247	-	-	-	-	-	-	53	-	334	-	62	392
26 - Wheeler Heights	-	-	-	-	613	360	-	-	-	-	-	-	-	-	93	-	266	-	255	-
27 - Collaroy	-	-	-	-	2,588	7,085	-	914	109	410	164	188	-	-	95	527	1,178	179	26,227	-
28 - Dee Why (The Strand)	-	-	-	-	220	5,356	-	-	-	241	-	-	-	-	-	-	141	346	16,678	623

Assessment of Economic Development of the Warringah Employment Strategy / Final report

	ANZSIC Industry category (1 digit)																			
	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	V	W	X
29 - Devitt St Narrabeen	-	-	-	287	9,539	1,084	-	-	-	-	-	-	312	-	-	265	-	624	8,843	-
30 - Forestville	-	-	303	-	7,723	1,202	91	-	1,008	528	1,312	1,820	-	-	686	1,504	1,500	324	17,767	-
31 - Frenchs Forest	-	-	-	-	3,692	2,595	246	211	1,368	246	246	-	246	211	1,479	246	1,578	-	-	-
32 - Glenoside	-	-	-	-	8,032	-	484	-	484	-	343	484	-	-	527	3,321	484	263	1,717	703
33 - Lawrence St Freshwater	-	214	-	-	5,633	2,833	-	-	205	680	453	-	-	-	1,974	589	2,065	388	1,971	575
34 - Manly Vale	300	-	450	422	16,119	974	-	256	-	80	1,884	754	270	-	391	60	2,558	4,696	10,206	443
35 - Narrabeen	-	-	-	-	2,039	1,159	-	181	-	-	-	-	-	-	59	-	446	91	-	-
36 - Terry Hills	-	-	-	-	580	532	131	-	-	208	-	-	54	-	105	-	584	105	-	-
37 - Veterans Parade Collaroy Plateau	-	-	-	-	1,431	983	-	-	156	-	-	-	-	-	-	-	-	-	1,987	-
38 - Waterloo St Narrabeen	-	-	-	-	6,803	1,645	3,282	1,107	822	1,220	189	115	-	-	2,051	109	2,845	1,079	32,280	-
39 - Brookvale	165,060	3,573	29,412	79,777	286,200	23,116	59,528	26,359	6,956	10,870	43,213	45,528	2,357	7,220	19,740	19,794	121,783	86,650	66,993	28,882
40 - Dee Why	25	129	392	101	44,033	14,537	1,038	2,437	8,043	4,802	6,912	985	9,027	2,520	19,237	3,457	14,163	23,149	90,387	5,151
40 - Austlink Business Park	31,081	-	8,815	5,687	78,582	10,293	36,755	7,960	-	880	26,322	35,889	139	46	565	2,126	2,159	26,163	37,105	-
41 - Cromer Industrial	98,231	11,472	10,392	18,361	2,535	551	5,286	3,200	-	1,070	39,884	4,883	6,459	6,497	544	6,571	10,066	14,355	6,521	3,759
42 - Forestville Industrial	355	-	354	-	2,779	-	1,599	-	-	-	254	1,293	599	-	-	609	2,744	-	-	191
43 - Frenchs Forest Business Park	84,270	3,400	7,495	18,395	181,500	7,250	26,297	47,894	10,389	-	100,408	27,471	280	4,634	13,388	5,954	6,764	22,218	8,848	1,011
44 - Freshwater Industrial	3,164	-	2,810	1,502	3,789	67	479	-	-	591	316	-	-	942	529	311	3,972	2,948	939	716
45 - Manly Vale Industrial	3,105	491	1,668	630	826	-	-	-	-	-	728	-	111	-	-	71	1,117	319	-	613
46 - Terry Hills, Industrial	7,592	-	725	3,995	1,570	-	965	-	-	-	1,924	3,083	915	-	-	-	387	2,865	408	719
99 - Cromer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	393,308	19,278	62,386	128,346	520,649	88,365	156,841	95,179	29,732	23,851	225,001	122,502	20,748	23,003	64,370	49,836	173,367	190,792	365,958	46,290
Source: SGS (2012)																				

Table 31. Floorspace by precinct and BLC category

	AST	BP	D	FL	LL	ML	BLC category							US	VBL	TOTAL
							O	RB	RBC	RES	RM	S				
1 - Adams St Curl Curl	-	-	-	-	-	-	754	-	-	-	-	-	-	-	-	754
2 - Allambie	-	-	-	-	-	-	-	-	-	-	8,590	-	-	-	-	8,590
3 - Allambie Heights	-	-	-	-	-	-	-	-	-	-	2,761	-	-	-	-	2,761
4 - Arthur St Forestville	-	-	-	-	-	-	-	-	-	-	712	-	-	-	-	712
5 - Aubreen St Collaroy Plateau	-	-	-	-	-	-	-	-	-	289	1,705	-	-	-	-	1,994
6 - Bantrey Bay Frenchs Forest	-	-	-	-	543	-	-	-	-	-	1,386	-	-	-	-	1,929
7 - Bridge Rd Queenscliff	-	-	-	-	-	-	-	-	-	252	601	-	-	-	-	854
8 - Brighton St Curl Curl	-	-	-	-	-	-	-	-	-	78	685	-	-	-	-	763
9 - Carawa Rd Cromer	-	-	-	-	-	-	-	-	-	-	1,011	-	-	74	-	1,085
10 - Corrie Rd Manly North	-	-	-	-	-	-	-	-	-	352	804	-	434	-	-	1,590
11 - Cromer Heights	-	-	-	-	285	-	-	-	-	-	885	-	-	-	-	1,179
12 - Griffin Rd North Curl Curl	-	-	-	-	-	-	-	-	-	985	3,997	-	-	-	-	4,982
13 - Harbord Rd	-	-	-	-	-	-	-	-	-	-	991	-	419	-	-	1,410
14 - Killamey Heights	-	-	-	-	-	-	455	-	-	2,082	5,322	413	-	-	-	8,271
15 - Long Reef	-	-	-	-	-	-	-	-	-	-	25,085	-	-	-	-	25,085
16 - Mimosa Davidson	-	-	-	-	-	-	2,182	-	-	-	-	-	-	-	-	2,182
17 - Narrabeen Local Retail	-	-	-	-	-	-	-	-	1,697	1,618	-	-	-	-	-	3,315
18 - Narrabeen Local Retail	-	-	121	-	-	-	-	-	-	1,486	-	-	-	-	-	1,607
19 - North Balgowlah	-	-	-	-	3,347	-	-	-	-	-	-	-	-	-	-	3,347
20 - Pitt Rd North Curl Curl	-	-	-	-	-	-	-	-	-	-	2,854	-	-	-	-	2,854
21 - Ralston Ave Belrose	-	-	-	-	-	-	-	-	-	-	3,114	-	304	-	-	3,417
22 - Rayner St Narrabeen	-	-	-	-	-	-	-	-	-	177	-	-	-	-	-	177
23 - Skyline Shops Frenchs Forest	-	-	-	-	-	-	1,155	-	-	-	635	-	-	-	-	1,790
24 - Sorlie Rd Frenchs Forest	-	-	-	-	919	-	-	-	2,132	-	-	-	-	-	-	3,051
25 - South Creek Rd East Dee Why	-	-	-	-	-	-	-	-	-	-	1,775	-	-	-	-	1,775
26 - Wheeler Heights	-	-	-	-	-	-	-	-	-	-	1,587	-	-	-	-	1,587
27 - Collaroy	3,559	-	-	-	-	-	-	-	-	16,619	19,407	-	-	80	-	39,664
28 - Dee Why (The Strand)	-	-	-	-	-	-	-	-	6,606	17,001	-	-	-	-	-	23,607
29 - Devitt St Narrabeen	-	-	-	-	-	-	-	-	2,210	18,743	-	-	-	-	-	20,953
30 - Forestville	-	-	-	-	111	-	-	5,187	-	17,767	10,188	2,525	-	-	-	35,778
31 - Frenchs Forest	-	-	-	-	99	-	-	11,885	417	-	-	-	-	-	-	12,202
32 - Glenrose	-	-	184	-	-	-	2,866	9,882	-	-	-	4,023	287	-	-	16,842
33 - Lawrence St Freshwater	-	-	-	-	-	-	-	-	209	15,972	1,195	214	-	-	-	17,690
34 - Manly Vale	-	-	-	-	465	-	3,227	-	3,052	785	31,478	-	-	837	-	39,843
35 - Narrabeen	-	-	-	-	-	-	-	-	-	-	3,780	286	-	-	-	4,066
36 - Terry Hills	-	-	-	-	-	-	-	-	-	-	2,298	-	-	-	-	2,298
37 - Veterans Parade Collaroy Plateau	-	-	-	-	-	-	-	-	-	-	4,557	-	-	-	-	4,557
38 - Waterloo St Narrabeen	-	-	-	-	-	-	-	-	-	26,287	24,424	770	86	-	-	53,547

Assessment of Economic Development of the Warringah Employment Strategy / Final report

	AST	BP	D	FL	LL	ML	O	RB	RBG	RES	RM	S	US	VBL	TOTAL
39 - Brookvale	5,558	68,335	8,327	7,312	503,425	59,889	141,008	129,383	44,845	14,957	127,475	552	11,644	12,280	1,134,790
39 - Dee Why	-	-	2,065	-	-	-	18,030	20,097	-	58,804	142,540	21,476	343	8,980	280,335
40 - Austlink Business Park	-	60,887	-	28,704	31,828	-	82,018	-	106,820	-	-	-	-	-	310,057
41 - Cromer Industrial	-	-	-	8,823	82,608	93,077	34,462	-	3,784	406	4,120	13,255	6,213	3,899	250,645
42 - Forestville Industrial	-	-	-	-	5,201	-	1,419	2,470	-	191	-	354	1,143	-	10,778
43 - Frenchs Forest Business Park	2,776	153,456	-	8,810	45,462	78,833	122,544	-	-	-	371	-	2,532	-	414,786
44 - Freshwater Industrial	-	-	-	-	15,578	-	-	-	798	-	2,781	1,142	-	2,494	22,794
45 - Manly Vale Industrial	-	-	-	-	9,573	-	-	-	-	-	-	-	-	-	9,573
46 - Terry Hills, Industrial	-	-	-	-	18,627	-	4,613	-	-	-	1,163	-	743	-	25,146
99 - Cromer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	11,893	282,678	10,698	53,650	718,081	231,599	414,533	178,505	159,516	132,708	494,076	45,991	24,340	28,643	2,786,911

Source: SGS (2012)

20120028-final report-130415

P. 120

Table 32. Floorspace by ANZSIC and BLC category – Warringah LGA

	AST	BP	D	FL	LL	ML	O	RB	RBG	RES	RM	S	US	VBL	Total
C	-	90,127	-	1,236	137,384	122,411	30,195	58	6,282	-	5,166	-	450	-	393,308
D	-	2,693	-	-	6,675	-	8,574	-	-	-	129	-	1,207	-	19,278
E	-	13,041	-	-	36,196	-	3,857	-	5,027	-	3,486	571	207	-	62,395
F	-	12,402	-	7,587	80,713	6,697	7,136	-	7,194	1,193	6,423	-	-	-	129,346
G	-	1,286	711	-	92,948	9,098	13,763	132,473	104,819	530	159,585	703	4,734	-	520,649
H	11,893	4,133	4,164	-	3,501	-	2,509	8,372	8,906	296	44,365	227	-	-	88,365
I	-	21,331	-	43,685	48,867	6,447	2,181	2,061	-	-	5,072	-	7,196	-	136,841
J	-	27,421	-	-	4,952	27,571	14,155	9,603	-	1,744	6,758	1,751	1,224	-	95,179
K	-	2,526	-	-	3,372	-	8,676	5,589	-	109	9,459	-	-	-	29,732
L	-	880	-	-	5,080	-	4,083	246	764	724	12,080	95	-	-	23,951
M	-	43,534	121	-	32,108	35,171	98,877	246	-	164	10,280	4,500	-	-	225,001
N	-	15,250	-	1,142	17,535	2,628	78,429	2,929	-	99	2,267	-	2,223	-	122,502
O	-	139	-	-	3,054	-	9,157	246	-	-	1,922	-	6,230	-	20,748
P	-	1,956	-	-	2,002	-	6,258	672	615	-	3,760	7,750	-	-	23,013
Q	-	8,573	895	-	8,166	-	9,306	2,482	4,171	1,115	20,524	9,137	-	-	64,370
R	-	2,435	4,164	-	11,377	-	6,448	1,379	4,960	109	10,732	8,232	-	-	49,836
S	-	3,456	643	-	112,633	7,444	10,516	8,409	1,169	159	27,387	7,025	526	-	179,367
V	-	18,409	-	-	50,312	6,847	58,957	188	1,488	5,877	19,942	130	-	28,643	190,792
W	-	12,075	-	-	39,520	842	34,942	3,553	14,120	119,729	136,687	5,147	343	-	366,958
X	-	1,011	-	-	21,686	6,443	6,513	-	-	859	8,053	725	-	-	45,290
Total	11,893	282,678	10,698	53,650	718,081	231,599	414,533	178,505	159,516	132,708	494,076	45,991	24,340	28,643	2,786,911

Source: SGS (2012)

Table 33. Derived FSR by precinct and BLC

	AST	BP	D	FL	LL	ML	BLC category							US	VBL	Precinct
							O	RB	RBG	RES	RM	S				
1 - Adams St Curl Curl	-	-	-	-	-	-	1.59	-	-	-	-	-	-	-	-	1.59
2 - Allambie	-	-	-	-	-	-	-	-	-	-	1.86	-	-	-	-	1.86
3 - Allambie Heights	-	-	-	-	-	-	-	-	-	-	0.45	-	-	-	-	0.45
4 - Arthur St Forestville	-	-	-	-	-	-	-	-	-	-	1.21	-	-	-	-	1.21
5 - Aubreen St Collaroy Plateau	-	-	-	-	-	-	-	-	-	1.62	0.93	-	-	-	-	0.99
6 - Bartray Bay Frenchs Forest	-	-	-	-	0.28	-	-	-	-	-	0.87	-	-	-	-	0.55
7 - Bridge Rd Queenscliff	-	-	-	-	-	-	-	-	-	0.89	1.88	-	-	-	-	1.41
8 - Brighton St Curl Curl	-	-	-	-	-	-	-	-	-	0.15	1.80	-	-	-	-	0.84
9 - Carawa Rd Cromer	-	-	-	-	-	-	-	-	-	-	0.81	-	-	0.33	-	0.74
10 - Corrie Rd Manly North	-	-	-	-	-	-	-	-	-	0.39	0.42	-	0.32	-	-	0.38
11 - Cromer Heights	-	-	-	-	0.31	-	-	-	-	-	0.72	-	-	-	-	0.54
12 - Griffin Rd North Curl Curl	-	-	-	-	-	-	-	-	-	0.80	1.41	-	-	-	-	1.23
13 - Harbord Rd	-	-	-	-	-	-	-	-	-	-	0.93	-	0.34	-	-	0.62
14 - Killamey Heights	-	-	-	-	-	-	0.37	-	-	0.68	1.12	0.30	-	-	-	0.79
15 - Long Reef	-	-	-	-	-	-	-	-	-	-	2.05	-	-	-	-	2.05
16 - Mimosa Davidson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.96
17 - Narrabeen Local Retail	-	-	-	-	-	-	0.96	-	-	1.69	2.85	-	-	-	-	2.11
18 - Narrabeen Local Retail	-	-	0.33	-	-	-	-	-	-	-	0.58	-	-	-	-	0.55
19 - North Balgowlah	-	-	-	-	1.43	-	-	-	-	-	-	-	-	-	-	1.43
20 - Pitt Rd North Curl Curl	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	1.05
21 - Ralston Ave Belrose	-	-	-	-	-	-	-	-	-	0.00	0.37	-	0.28	-	-	0.74
22 - Rayner St Narrabeen	-	-	-	-	-	-	-	-	-	-	0.67	-	-	-	-	0.12
23 - Skyline Shops Frenchs Forest	-	-	-	-	-	-	1.03	-	-	-	-	-	-	-	-	0.56
24 - Sorlie Rd Frenchs Forest	-	-	-	-	0.69	-	-	-	-	1.56	-	-	-	-	-	1.13
25 - South Creek Rd East Dee Why	-	-	-	-	-	-	-	-	-	-	0.83	-	-	-	-	0.83
26 - Wheeler Heights	-	-	-	-	-	-	-	-	-	-	0.42	-	-	-	-	0.42
27 - Collaroy	1.76	-	-	-	0.00	-	-	-	-	2.11	1.70	-	-	1.00	-	1.79
28 - Dee Why (The Strand)	-	-	-	-	-	-	-	-	-	2.18	1.93	-	-	-	-	1.99
29 - Devitt St Narrabeen	-	-	-	-	-	-	-	-	-	-	1.22	-	-	-	-	1.36
30 - Forestville	-	-	-	-	0.57	-	-	1.27	-	1.55	1.26	0.37	-	-	-	1.13
31 - Frenchs Forest	-	-	-	-	-	-	-	-	0.02	-	-	-	-	-	-	0.59
32 - Glenrose	-	-	0.26	-	-	-	-	0.20	0.93	-	-	-	0.25	0.31	-	0.40
33 - Lawrence St Freshwater	-	-	-	-	-	-	-	-	-	0.85	0.72	1.40	0.14	-	-	0.68
34 - Manly Vale	-	-	-	-	-	-	1.55	-	1.14	0.95	1.11	-	-	0.86	-	1.12
35 - Narrabeen	-	-	-	-	-	-	-	-	-	-	2.65	-	-	-	-	0.97
36 - Terry Hills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.64
37 - Veterans Parade Collaroy Plateau	-	-	-	-	-	-	-	-	-	-	1.44	-	-	-	-	1.44
38 - Waterloo St Narrabeen	-	-	-	-	-	-	-	-	-	2.57	1.38	0.55	0.86	-	-	1.77

Assessment of Economic Development of the Warringah Employment Strategy / Final report

	AST	BP	D	FL	LL	ML	O	RB	RBG	RES	RM	S	US	VBL	Precinct
39 - Brookvale	0.98	1.37	1.27	0.84	0.94	1.19	1.46	0.75	0.79	0.98	0.88	0.57	0.24	0.43	0.90
39 - Dee Why	-	-	0.84	-	-	-	0.55	0.34	-	1.97	1.76	1.31	0.33	1.51	1.09
40 - Austlink Business Park	-	0.61	-	0.44	0.54	-	0.91	-	1.39	-	-	-	-	-	0.71
41 - Cromer Industrial	-	-	-	0.67	0.97	0.62	0.85	-	1.15	0.72	4.33	0.21	0.19	0.37	0.56
42 - Forestville Industrial	-	-	-	-	0.89	-	0.91	0.22	-	-	-	-	0.36	-	0.49
43 - Frenchs Forest Business Park	0.15	0.76	-	0.32	0.68	0.95	0.83	-	-	-	0.13	0.00	0.07	-	0.59
44 - Freshwater Industrial	-	-	-	-	0.85	-	-	-	0.58	-	1.01	1.78	-	0.97	0.84
45 - Manly Vale Industrial	-	-	-	-	0.53	-	-	-	-	-	-	-	-	-	0.53
46 - Terry Hills, Industrial	-	-	-	-	0.52	-	0.44	-	-	-	0.28	-	0.68	-	0.49
99 - Cromer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LGA	0.45	0.80	1.06	0.47	0.86	0.82	0.94	0.69	0.99	1.69	1.19	0.40	0.19	0.58	-

Source: SGS (2012)

20120028-final report-130415

P. 123

Appendix 3 - Precinct by precinct analysis

Introduction

There are 46 employment generating precincts within Warringah LGA. These precincts are split up into:

- 28 Neighbourhood Centres
- 10 Small Villages
- Waterloo Street, Narrabeen Village
- Brookvale – Dee Why Major Centre
- 7 Industrial Areas.

0 (see section 2.1) illustrates the location of these employment generating precincts across the Warringah LGA. The total area of employment generating land in these precincts is around 306 hectares, according to the Employment Precinct Profiles (Attachment A of the Study Brief). The table below shows the breakdown of the land area by precinct type.

Table 34. Breakdown of employment generating land, in terms of land area and percentage

Precinct type	Land Area (hectare)	Percentage
Neighbourhood Centre	8.37	3%
Small Village	20.2	7%
Village	2.98	1%
Major Centre	141.05	46%
Industrial Area	137.27	44%
Total	309.87	100%

Source: Warringah Council, Employment Precinct Profile.

Main employment precincts

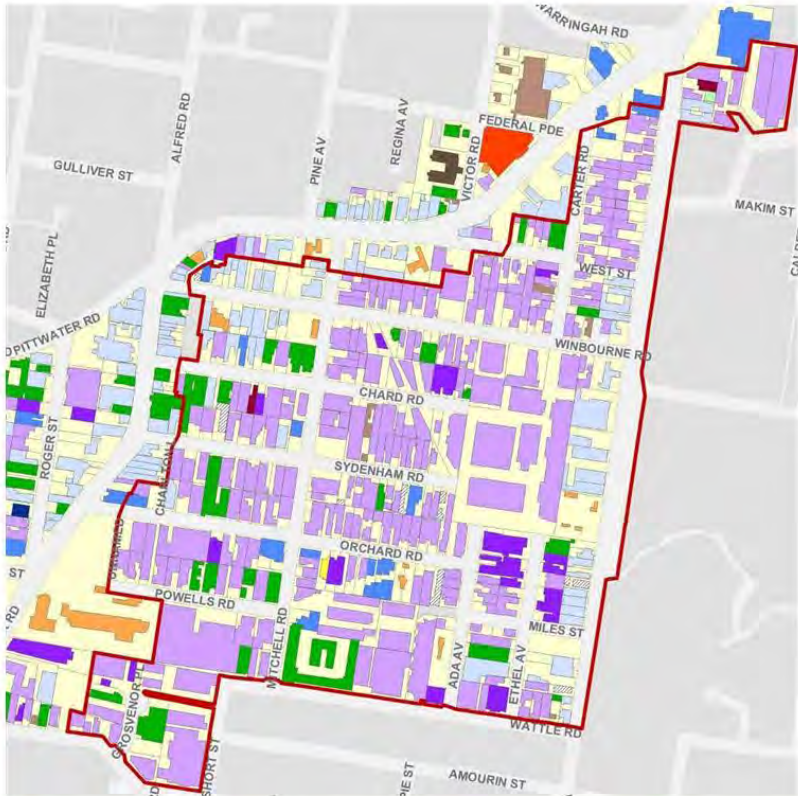
This section of the report describes the role and function, current land use, current and recommended zone/s of the following main employment precincts:

- Brookvale – Dee Why Major Centre
- Waterloo St Narrabeen Village
- Seven Industrial Areas, namely:
 - Austlink Business Park
 - Frenchs Forest Business Park
 - Cromer Industrial
 - Forestville Industrial
 - Freshwater Industrial
 - Manly Vale Industrial
 - Terrey Hills Industrial

Brookvale-Dee Why is the only Major Centre within the Warringah LGA. For the purpose of this analysis, we have separated the Major Centre into Brookvale and Dee Why, whilst Brookvale Major Centre is further divided into the following sub-precincts, including:

- Brookvale Industrial Area, East
- Brookvale Industrial Area, West
- Brookvale Pittwater Road Corridor
- Warringah Mall

Brookvale Industrial Area, East

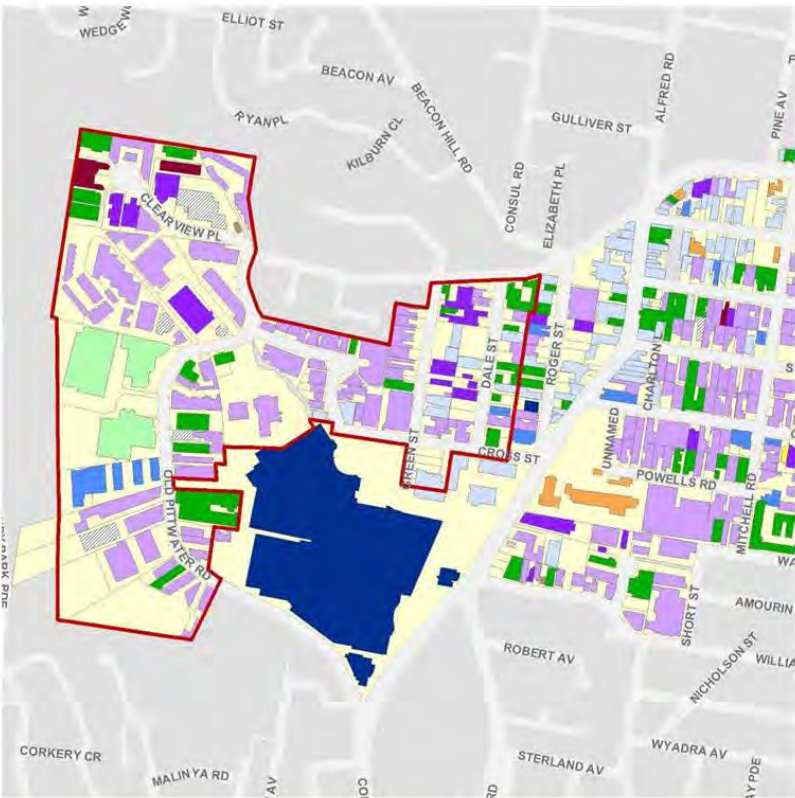
	Current Zone – IN1	Recommended Zone – IN2 ³⁰
Description	<p>This area is located on the eastern part of Brookvale Major Centre and is an old industrial area. Most of the sites in this industrial area have a relatively small size. The area functions as a population servicing hub by providing a range of local light and urban support services (including car repairers and timbers and building supplies) to Warringah and Northern Beaches. Other land uses include office, light manufacturing and urban service.</p> <p>It is recommended to rezone this area to IN2 Light Industrial, given its population servicing role.</p> 	
Gross area of	489,601	

³⁰ Note, in the existing LEP/DCP there is an assertion that IN2 generally reflects (or is compatible to) the present land uses contained within the precinct.

Assessment of Economic Development of the Warringah Employment Strategy / Final report

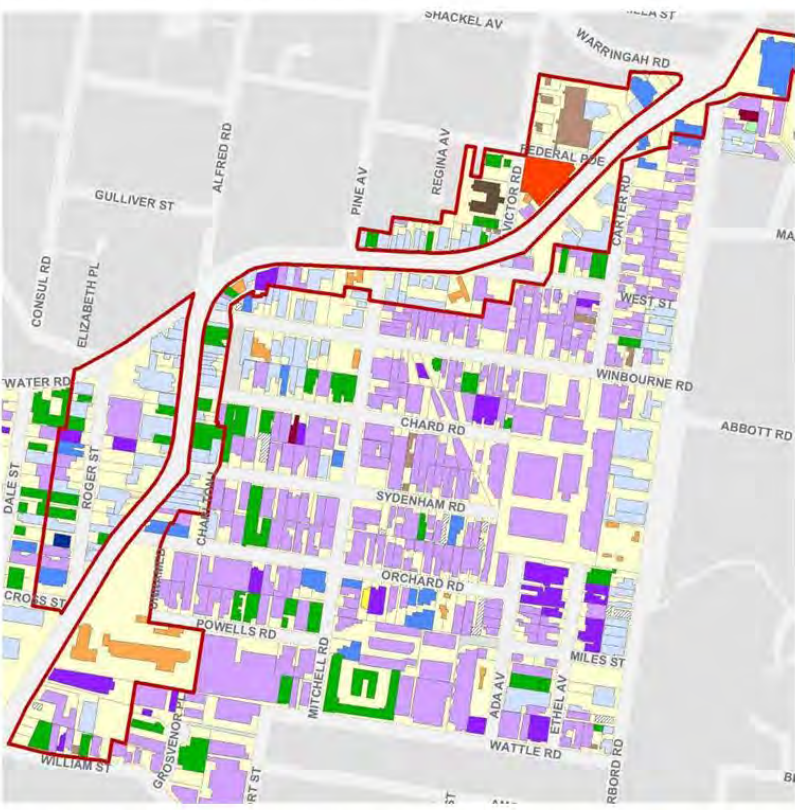
audited floorspace (sqm)				
Vacant sites (Ha)	0.35			
Vacant floorspace (sqm)	38,198 (7.8%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	487,597	127,337	
	By 2036	474,940	114,679	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	3,886	1%
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	1,553	0%
	LL	Local light industrial and urban support	333,905	68%
	ML	Light Manufacturing	26,725	5%
	O	Office	60,756	12%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	8,193	2%
	RES	Residential	1,789	0%
	RM	Mainstreet Retail	45,360	9%
	S	Special Activities	552	0%
	US	Urban Services	3,048	1%
	VBL	Vacant Building	3,833	1%

Brookvale Industrial Area, West

	Current Zone – IN1	Recommended Zone – IN1
Description	<p>Brookvale Industrial Area, West is a newer industrial and commercial employment area, located along Old Pittwater Road to the west of Warringah Mall.</p> <p>The area is currently zoned IN1 General Industrial and functions as one of the strategic industrial precincts within Warringah, servicing light manufacturing, local lights and freight and logistics businesses. The availability of large lots and proximity to the Pittwater Road make this industrial area attractive for freight, logistics and warehousing users. The western border of the area is also surrounded by Allenby Park, which acts as a natural barrier to the residential areas.</p> <p>We recommend the IN1 zoning to be retained for this area.</p>	
		
Gross area of	321,070	

audited floorspace (sqm)				
Vacant sites (Ha)	0.9			
Vacant floorspace (sqm)	31,651 (9.85%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	590,487	256,655	
	By 2036	586,084	252,253	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	64,448	20%
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	5,759	2%
	LL	Local light industrial and urban support	138,164	43%
	ML	Light Manufacturing	23,496	7%
	O	Office	55,184	17%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	13,291	4%
	RES	Residential	195	0%
	RM	Mainstreet Retail	12,228	4%
	S	Special Activities	-	-
	US	Urban Services	-	-
	VBL	Vacant Building	8,306	3%

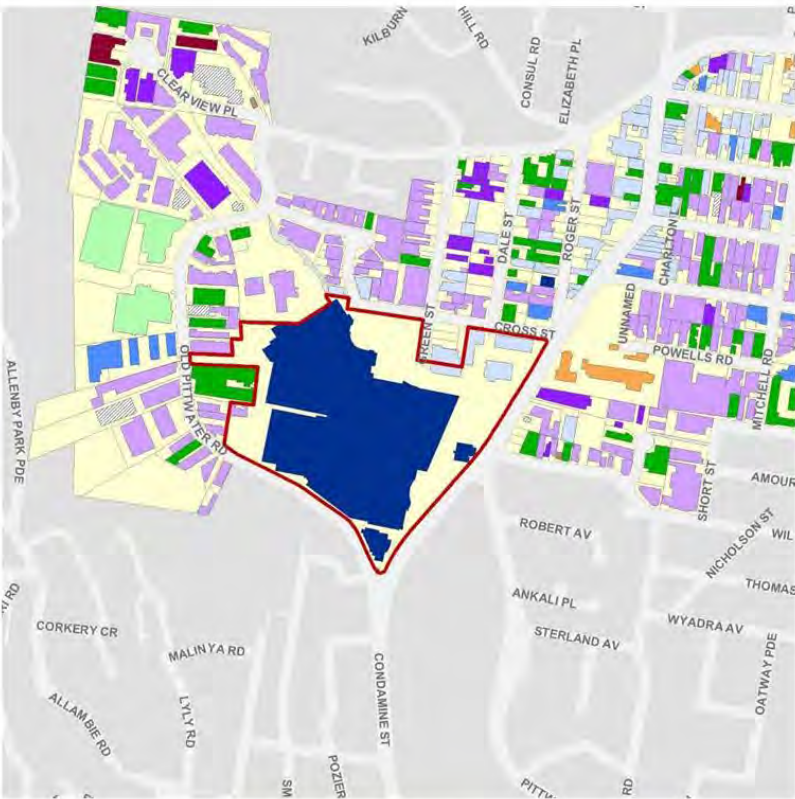
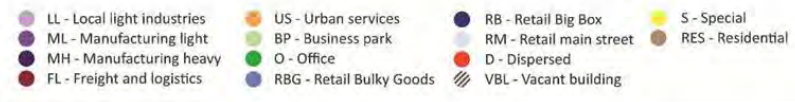
Brookvale, Pittwater Road Corridor

	Current Zone – B5	Recommended Zone – B5
Description	<p>This area straddles Pittwater Road, between the north of William Street and south of Warringah Road. The area largely consists of street front retailers, motor vehicle showrooms, offices, bulky good retailers and some urban services (such as bus depot). The corridor also contains a strip commercial area that is traditionally defined as the Brookvale Town Centre (just south of Brookvale Oval), which provides supporting services to businesses and industries in the surrounding area.</p> <p>The corridor is also an ideal location for the establishment of a bulky goods cluster. The high traffic volume will support the viability of the bulky goods retailers.</p>	
		
Gross area of audited floorspace (sqm)	188,463	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Vacant sites (Ha)	0.14			
Vacant floorspace (sqm)	15,457 (8.2%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	318,285	133,633	
	By 2036	310,704	126,052	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	5,558	3%
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	8,327	4%
	FL	Freight and Logistics	-	-
		Local light industrial and urban support		
	LL		30,767	16%
	ML	Light Manufacturing	9,468	5%
	O	Office	25,068	13%
	RB	Big Box Retail	529	0%
	RBG	Bulky Goods Retail	23,361	12%
	RES	Residential	12,973	7%
	RM	Mainstreet Retail	63,675	34%
	S	Special Activities	-	-
	US	Urban Services	8,596	5%
	VBL	Vacant Building	141	0%


Brookvale, Warringah Mall

	Current Zone – B3	Recommended Zone – B3
Description	<p>Warringah Mall is an important local and regional retail destination. It attracts customers from across the North East subregion and beyond, because of its size, diversity and relative accessibility. The enclosed shopping centre encompasses a wide range of speciality shops, discounted department stores, department stores, together with a cinema complex, fitness club and community facilities. The owners have obtained development consent for the potential increase in floorspace by a further 35,000 sqm by 2021.</p> 	
		
Gross area of audited floorspace (sqm)	135,656	
Vacant sites (Ha)	-	
Vacant	344 (0.25%)	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

floorspace (sqm)				
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	83,906	-10,092	
	By 2036	75,157	-18,841	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	589	0%
	ML	Light Manufacturing	-	-
	O	Office	-	-
	RB	Big Box Retail	128,855	95%
	RBG	Bulky Goods Retail	-	-
	RES	Residential	-	-
	RM	Mainstreet Retail	6,213	5%
	S	Special Activities	-	-
	US	Urban Services	-	-
	VBL	Vacant Building	-	-


Dee Why Major Centre

	Current Zone – B4	Recommended Zone – B4
Description	<p>Dee Why Major Centre straddles Pittwater Road, between the north of Warringah Road intersection and south of the Dee Why Parade and Kingsway. The centre comprises a strip commercial/retail area fronting Pittwater Road and a clustered retail 'town square' (off the Pittwater Road) encompassing large floorspace space grocery stores, small business and office spaces, arcades and al fresco restaurants/cafes.</p> <p>The area is currently zoned B4 Mixed Use and predominately used for retail activities, with some residential developments on the edge of the centre. It is envisaged that Dee Why is likely to function as a key civic and community centre of Warringah in the future, with major upgrades of public domain, street activation and possible refurbishment of Civic Centre.</p>	
		
Gross area of	250,335	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

audited floorspace (sqm)				
Vacant sites (Ha)	0.64			
Vacant floorspace (sqm)	23,149 (10.0%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	46,730	-32,721	
	By 2036	39,645	-39,806	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	2,065	1%
	FL	Freight and Logistics	-	-
		Local light industrial and urban support		
	LL		-	-
	ML	Light Manufacturing	-	-
	O	Office	18,030	7%
	RB	Big Box Retail	20,097	8%
	RBG	Bulky Goods Retail	-	-
	RES	Residential	36,804	15%
	RM	Mainstreet Retail	142,540	57%
	S	Special Activities	21,476	9%
	US	Urban Services	343	0%
	VBL	Vacant Building	8,980	4%

Waterloo Street, Narrabeen

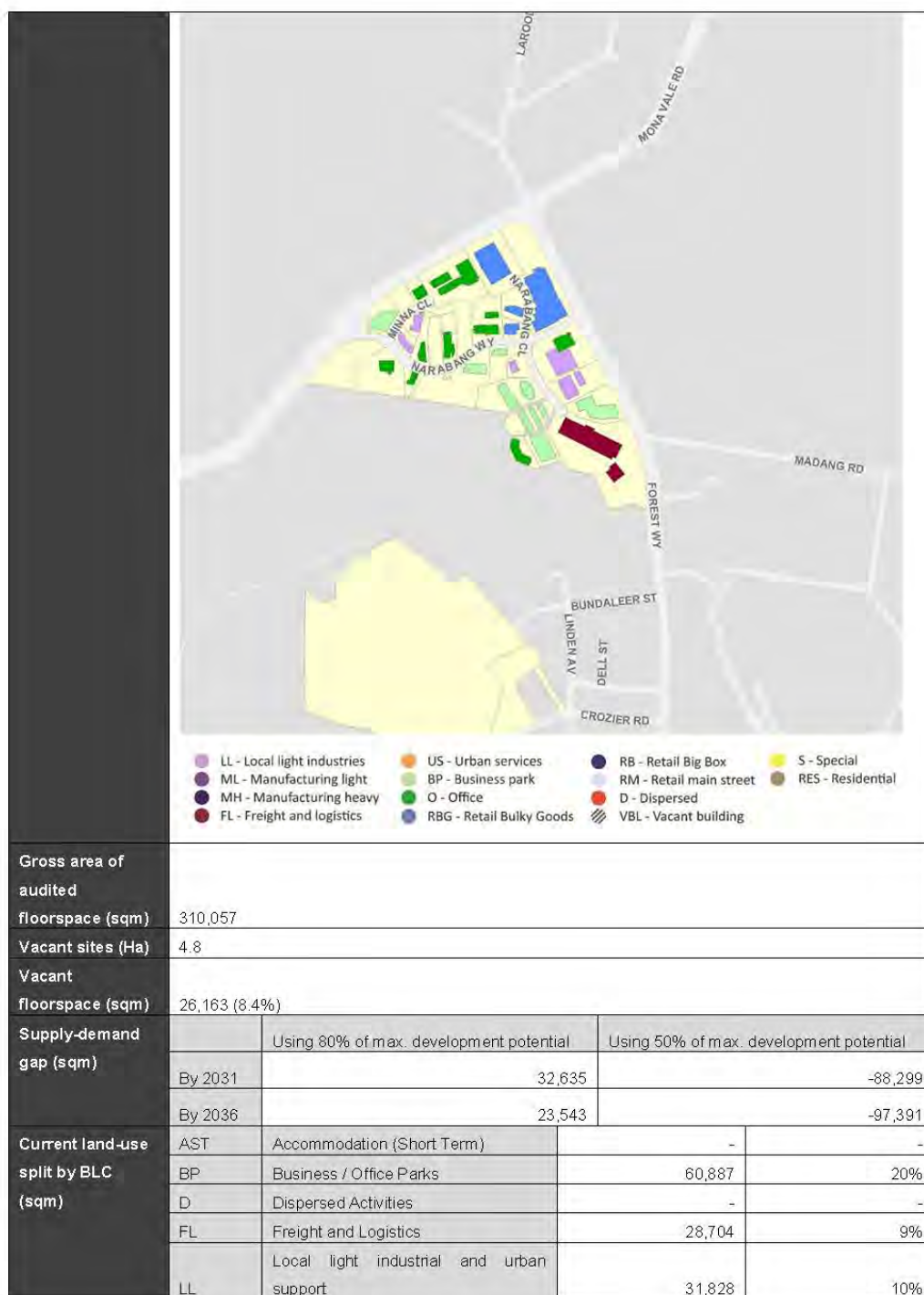
	Current Zone – B2	Recommended Zone – B2
Description	<p>Waterloo Street, Narrabeen, the only village in Warringah LGA, is located to the north-east of the Warringah LGA and is located alongside Pittwater Road and adjoining the Pittwater LGA. The Village services the needs of surrounding residents and a wider catchment (both Warringah and Pittwater LGAs). Waterloo Street, Narrabeen contains a wider range of services (such as health, medical and financial services), offices, retailers, community and educational facilities. There is also a significant amount of shop top housing and strict residential development scattered throughout the Village.</p> <p>The predominant land uses of the Village include main street retail and residential uses.</p> 	
Gross area of audited floorspace (sqm)	53,547	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Vacant sites (Ha)	-			
Vacant floorspace (sqm)	1,079 (2.0%)			
Supply-demand gap (sqm)		Using 80% of max. development potential		Using 50% of max. development potential
	By 2031	16,695		411
	By 2036	15,422		-862
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	-	-
	ML	Light Manufacturing	-	-
	O	Office	-	-
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	-	-
	RES	Residential	28,287	53%
	RM	Mainstreet Retail	24,424	46%
	S	Special Activities	770	1%
	US	Urban Services	66	0%
	VBL	Vacant Building	-	-

Austlink Business Park

	Current Zone – B7	Recommended Zone – B7
Description	<p>Austlink Business Park is located on the south-western corner of Forest Way and Mona Vale Road in Belrose and surrounded by the Australian National Park Bushland. The Austlink Business Park is currently zoned B7 Business Park. Clause 3 of the Schedule 1 (Additional permitted uses) in the WLEP 2011 permits the development of bulky goods premises, business premises and short term accommodations (if a gross floor area not exceeding 2,500m²) with consent, within majority parts of the Austlink Business Park.</p> <p>The predominant land uses of the Business Park include office, business park and bulky goods retail. Austlink Business Park is one of the two business park precincts in Warringah and is accessible from both Mona Vale Road and Forest Way, which are major arterial roads across the LGA. Austlink is a strategic employment destination for office and business park uses, with an existing clustering of 'green' sector business.</p> <p>Austlink is not a perfect location for bulky goods as it is not located in proximity to a centre. On the other hand, it is located on a busy transport corridor and serves relatively large transport catchment. Although Austlink is designated as a business park, flexibility in the planning system has encouraged the growth of bulky goods, particularly in the northern precinct. This area is likely to play an important role in accommodating growth of demand for bulky goods (overspill from centres) in the Warringah.</p>	

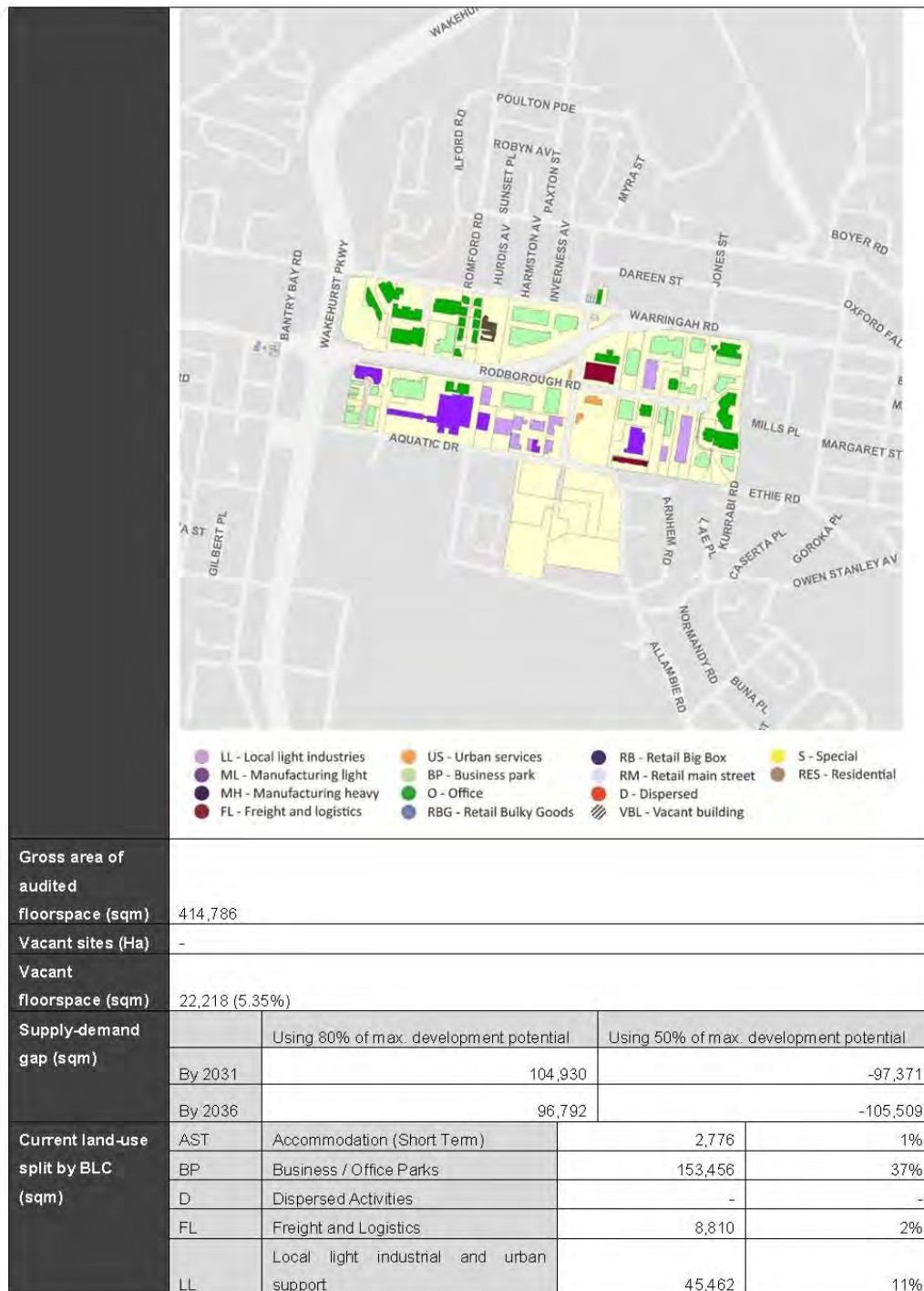


Assessment of Economic Development of the Warringah Employment Strategy / Final report

	ML	Light Manufacturing	-	-
	O	Office	82,018	26%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	106,620	34%
	RES	Residential	-	-
	RM	Mainstreet Retail	-	-
	S	Special Activities	-	-
	US	Urban Services	-	-
	VBL	Vacant Building	-	-

Frenchs Forest Business Park

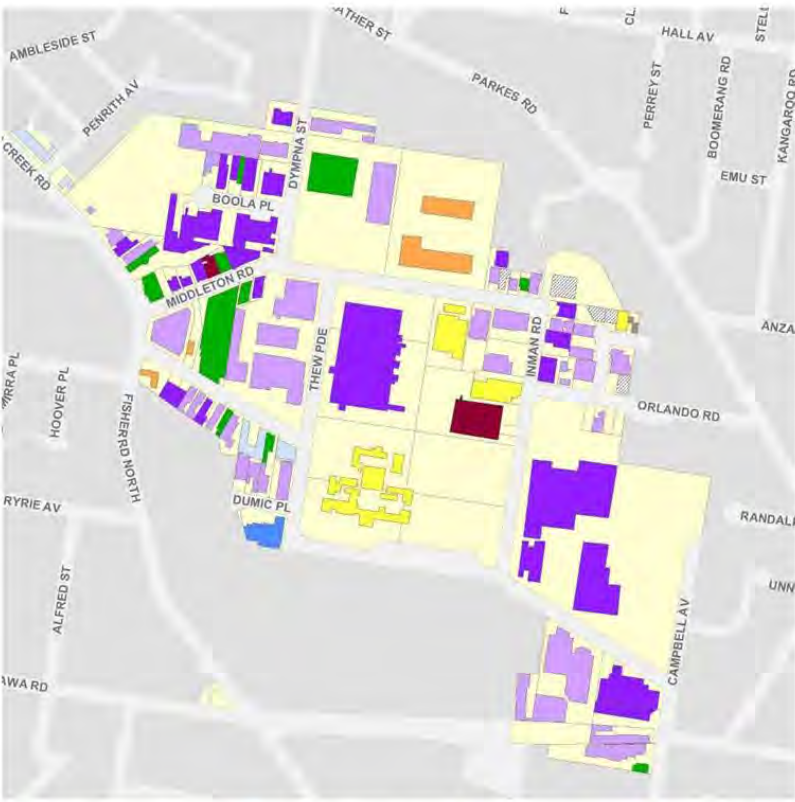
	Current Zone – B7	Recommended Zone – B7
Description	<p>Frenchs Forest Business Park is bounded by Warringah Road to the north, Wakehurst Parkway to the west and Aquatic Drive to the south. French Forest Business Park is currently zoned B7 Business Park and largely contains high tech industries and commercial offices. The main land uses include office, business park, local light and light manufacturing.</p> <p>The availability of large lot size and central location in the subregion make Frenchs Forest Business Park attractive to those businesses who need large floor plates, good access to population and would like to consolidate their offices with showrooms or warehouses. The commitment of the NSW Government to construct a level 5 hospital at Frenchs Forest is likely to drive new investment and employment opportunities, not only in the hospital precinct itself but also in the surrounding Frenchs Forest Business Park. The precinct functions as a premium business park hub that attracts jobs from outside of the LGA and with the hospital acting as magnet infrastructure, the business park is likely to be further transformed.</p> <p>With good traffic management and investment in new transport infrastructure and services, including upgraded links between Brookvale-Dee Why Major Centre and Frenchs Forest, the Business Park is likely to experience further intensification of activity and employment in a range of areas complementary to the hospital, including education, commercial office space, advanced bio-medical research and manufacturing, and accommodation and hospitality. To protect its premium business park brand, it is not recommended to encourage bulky goods in the Frenchs Forest Business Park</p>	



Assessment of Economic Development of the Warringah Employment Strategy / Final report

	ML	Light Manufacturing	78,833	19%
	O	Office	122,544	30%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	-	-
	RES	Residential	-	-
	RM	Mainstreet Retail	371	0%
	S	Special Activities	-	-
	US	Urban Services	2,532	1%
	VBL	Vacant Building	-	-


Cromer Industrial

	Current Zone – IN1	Recommended Zone – IN1, IN2
Description	<p>Cromer Industrial area is located to the northeast of the Cromer suburb and less than five minutes drive from the Dee Why Major Centre via Fisher Road. The industrial area largely consists of manufacturing businesses, building suppliers, vehicular servicing and repairers, council depots and wholesalers. Large organisations/institutions operating in this area include Energy Australia, Roche Pharmaceuticals Warringah Council Depot and Northern Beaches Secondary Colleges. Cromer Industrial is zoned IN1 General Industrial and is a main industrial area within the LGA that should be retained for strategic industrial purposes.</p> <p>In light of the strong forecast demand for light manufacturing uses in Cromer Industrial, IN1 zoning should be kept to maintain the industrial character of the precinct, with appliance of IN2 zoning on the edge (particularly on the north west side) to create a buffer to the residential area.</p>	
		

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Gross area of audited floorspace (sqm)	250,645			
Vacant sites (Ha)	0.2			
Vacant floorspace (sqm)	14,355 (5.72%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	610,086	282,622	
	By 2036	602,304	274,841	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	8,823	4%
	LL	Local light industrial and urban support	82,608	33%
	ML	Light Manufacturing	93,077	37%
	O	Office	34,462	14%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	3,784	2%
	RES	Residential	406	0%
	RM	Mainstreet Retail	4,120	2%
	S	Special Activities	13,255	5%
	US	Urban Services	6,213	2%
	VBL	Vacant Building	3,899	2%


Forestville Industrial

	Current Zone – IN2	Recommended Zone – IN2
Description	<p>Forestville Industrial is located on the south-eastern corner of Warringah Road and Currie Road in Forestville. Predominant land uses include local light industries, urban services, special uses and bulky goods retail.</p> <p>The area is currently zoned IN2 Light Industrial, which should be maintained as the precinct is envisaged to continue its local servicing role for established residential communities.</p> 	
Gross area of audited floorspace (sqm)	10,778	
Vacant sites (Ha)	-	
Vacant	No vacancy	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

floorspace (sqm)				
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	35,282	17,198	
	By 2036	34,770	16,686	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	5,201	48%
	ML	Light Manufacturing	-	-
	O	Office	1,419	13%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	2,470	23%
	RES	Residential	191	2%
	RM	Mainstreet Retail	-	-
	S	Special Activities	354	3%
	US	Urban Services	1,143	11%
	VBL	Vacant Building	-	-


Freshwater Industrial

	Current Zone – IN2	Recommended Zone – IN2
Description	<p>Freshwater Industrial is located on the southern border of Freshwater, fronting the Pittwater Road. The area largely consists of local light industries and bulky goods retail.</p> <p>The area is currently zoned IN2 Light Industrial, which should be maintained as the precinct is envisaged to continue its local servicing role for established residential communities. Bulky goods retail should be eliminated from the industrial estate.</p> 	
Gross area of audited floorspace (sqm)	22,794	
Vacant sites (Ha)	-	
Vacant	2,948 (10%)	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

floorspace (sqm)				
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	9,764	-2,905	
	By 2036	8,766	-3,902	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	15,578	68%
	ML	Light Manufacturing	-	-
	O	Office	-	-
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	798	4%
	RES	Residential	-	-
	RM	Mainstreet Retail	2,781	12%
	S	Special Activities	1,142	5%
	US	Urban Services	-	-
	VBL	Vacant Building	2,494	11%


Manly Vale Industrial

	Current Zone – IN2	Recommended Zone – IN2
Description	<p>Manly Vale Industrial is located on the north-eastern border of Manly Vale, to the south of Passmore Reserve. The whole industrial area is currently being used for local light and urban support services.</p> <p>The area is currently zoned IN2 Light Industrial, which should be maintained as the precinct is envisaged to continue its local servicing role for established residential communities.</p>  <ul style="list-style-type: none"> LL - Local light industries ML - Manufacturing light MH - Manufacturing heavy FL - Freight and logistics US - Urban services BP - Business park O - Office RBG - Retail Bulky Goods RB - Retail Big Box RM - Retail main street D - Dispersed VBL - Vacant building S - Special RES - Residential 	
Gross area of audited		
floorspace (sqm)	9,573	
Vacant sites (Ha)	-	
Vacant		
floorspace (sqm)	313 (2.2%)	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	7,069	58	
	By 2036	6,554	-457	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	9,573	100%
	ML	Light Manufacturing	-	-
	O	Office	-	-
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	-	-
	RES	Residential	-	-
	RM	Mainstreet Retail	-	-
	S	Special Activities	-	-
	US	Urban Services	-	-
	VBL	Vacant Building	-	-

Terrey Hills Industrial

	Current Zone – IN2	Recommended Zone – IN2
Description	<p>Terrey Hills Industrial is located in the northern part of Terrey Hills and surrounded by residential areas. The area is within good proximity to the Mona Vale Road. Predominant land uses in this area include local light and urban support services and offices.</p> <p>The area is currently zoned IN2 Light Industrial, which should be maintained as the precinct is envisaged to continue its population servicing role for residential communities in the surrounding areas and Warringah LGA. Consultation suggests there is a potential for redevelopment of industrial uses in Terrey Hills, if landscaping, car parking and building footprint controls can be revised to better suit market needs.</p>	
	 <p> ● LL - Local light industries ● US - Urban services ● RB - Retail Big Box ● S - Special ● ML - Manufacturing light ● BP - Business park ● RM - Retail main street ● RES - Residential ● MH - Manufacturing heavy ● O - Office ● D - Dispersed ● FL - Freight and logistics ● RBG - Retail Bulky Goods ■ VBL - Vacant building </p>	
Gross area of audited	25,146	

Assessment of Economic Development of the Warringah Employment Strategy / Final report

floorspace (sqm)				
Vacant sites (Ha)	-			
Vacant floorspace (sqm)	2,865 (11.4%)			
Supply-demand gap (sqm)		Using 80% of max. development potential	Using 50% of max. development potential	
	By 2031	73,267	35,807	
	By 2036	72,294	34,834	
Current land-use split by BLC (sqm)	AST	Accommodation (Short Term)	-	-
	BP	Business / Office Parks	-	-
	D	Dispersed Activities	-	-
	FL	Freight and Logistics	-	-
	LL	Local light industrial and urban support	18,627	74%
	ML	Light Manufacturing	-	-
	O	Office	4,613	18%
	RB	Big Box Retail	-	-
	RBG	Bulky Goods Retail	-	-
	RES	Residential	-	-
	RM	Mainstreet Retail	1,163	5%
	S	Special Activities	-	-
	US	Urban Services	743	3%
	VBL	Vacant Building	-	-

Special purpose precincts

Instead of the on-foot assessment, desktop land use audit has been carried out for the special purpose precincts. A brief description of the land use types within each special purpose precinct is provided below.

Sydney Academy of Sport and Recreation



The Sydney Academy of Sport and Recreation precinct is located on the Wakehurst Parkway, west of Narrabeen Lakes. The site is reasonably isolated as it is surrounded by public reserves. The precinct incorporates sport and recreation, conference and camping facilities, including:

- Motel and dormitory style accommodation for up to 500 guests
- Conference, seminar and meeting rooms
- Sports science and sports medicine services
- Extensive landscaped grounds and recreational activities
- Surface car parking.

This precinct is unlikely to contribute a substantial increase in jobs.

ANZAC Village



ANZAC Village is a retirement village with more than 500 homes located on Veterans Parade, Narrabeen. The site contains a licensed bar, bistro and coffee shop, hair and beauty salon, 250 seat auditorium, function rooms, heated pool and spa, craft workshop, lawn bowls, croquet, chapel, therapy and lifestyle centre, a medical centre, with general practitioners, specialists, dentist, pathology and X-Ray and a gymnasium.

Businesses within the Village provide mainly supporting services to the residents living in the retirement homes and are unlikely to expand in the future.

Salvation Army – Warringah Place & Collaroy Centre



This precinct is located off Pittwater Road in Collaroy, and is home to Warringah Place aged care village and Collaroy Centre conference and camp facilities. Both venues are owned and run by the Salvation Army.

Warringah Place aged care village contains a number of independent living units and serviced apartments, as well as administration and support services.

The Collaroy Centre is a conference and camp provider incorporating meeting/seminar rooms, auditoriums, a chapel, dining facilities, cabin and hotel accommodation, as well as surface car parking and extensive landscaped grounds.

This precinct is unlikely to contribute a substantial increase in jobs.

Australian Army Reserve



Australian Army Reserve is located on South Creek Road, Dee Why.

This site is home to the 28 Field Battery and 7 Field Regiment of the Australian Army. The site incorporates a two-storey office and administration building with surface car parking and extensive landscaped grounds. And it is not likely to create additional jobs.

Water Research Laboratory & Manly Hydraulics Lab

It is located adjacent to Manly Reservoir and Manly Dam, and is home to the Manly Hydraulics Laboratory and the Water Research Laboratory.

The Manly Hydraulics Laboratory is a business within the NSW Government Department of Public Works and Services and the Water Research Laboratory is owned and run by UNSW. Both facilities provide consulting and research services in the area of water, coastal and environmental solutions. The site contains a range of single and two-storey administration offices and laboratories, as well as a workshop, conference area, surface parking and storage facilities.

The site is unlikely to provide opportunities for future employment expansion.

Allambie Heights Precinct



This precinct is located on Allambie Road, in Allambie Heights. The precinct contains a number of health and accommodation related uses including:

- The McLeod Centre – Cerebral Palsy Alliance
- Sunnyfield Independence – disability support services
- Fred Hutley Village – retirement village
- Arrounounbai School – school for children with disabilities.

The McLeod Centre - Cerebral Palsy Alliance was founded in 1945. The site contains a two-storey administration and services building, surface car park and extensive landscaped gardens. Development of a new Master Plan has commenced on site which will include 8 new administration, support and accommodation buildings, as well as additional surface car parking. The project will deliver a new state of the art Cerebral Palsy Centre, a Services Centre building and an integrated Seniors Living Apartment development comprising 131 apartments.

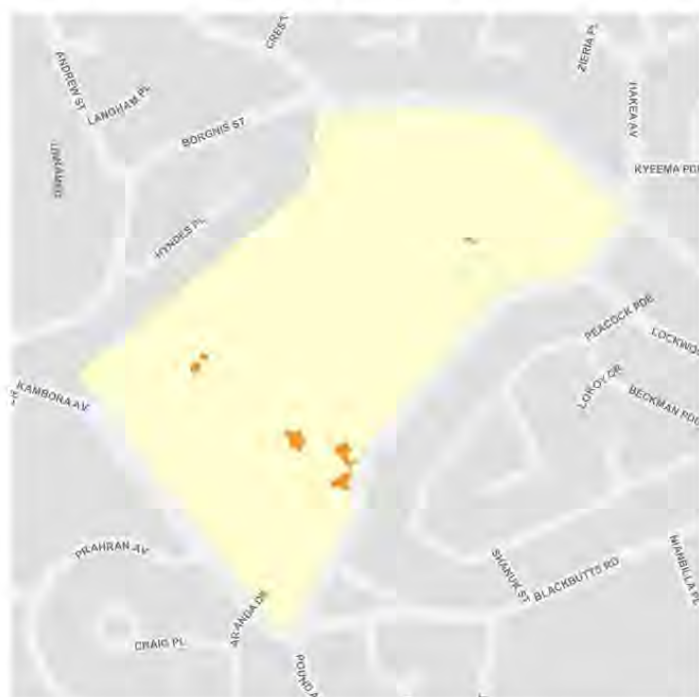
Sunnyfield Independence is a support service for people with intellectual disabilities. The site contains a hostel (a larger congregate care centre), an activity therapy centre and an accommodation facility.

The Fred Hutley Village is a self-care retirement village for people aged over 55 years. The village includes 108 self-contained units including 96 bedsitters (single) and 12 one bedroom (doubles), as well as a recreation hall and surface car parking.

The Arronounbai School is a school for children with disabilities from kindergarten to year 12. The site contains a one-storey administration and services building, surface car park and children's play areas.

The precinct is unlikely to expand and to be redeveloped in the near future and therefore is not likely to contribute a substantial increase in jobs within Warringah.

Frenchs Forest Bushland Cemetery



The Frenchs Forest Bushland Cemetery is located on Hakea Avenue, Davidson. The site occupies an area of 22 hectares of typical Hawkesbury Sandstone Bushland. The Cemetery was gazetted in 1932 by the Metropolitan Lands Department. The Cemetery utilises the existing native vegetation to reinforce the unique bushland character of the area. Buildings/structures on site include an office, chapel, manager's residence, public toilet, telecommunications tower and electricity substation. All buildings are single storey. There is little scope for the precinct to expand due to the surrounding bushland.

Frenchs Forest Bushland Cemetery



The Frenchs Forest Bushland Cemetery is located on Hakea Avenue, Davidson. The site occupies an area of 22 hectares of typical Hawkesbury Sandstone Bushland. The Cemetery was gazetted in 1932 by the Metropolitan Lands Department. The Cemetery utilises the existing native vegetation to reinforce the unique bushland character of the area. Buildings/structures on site include an office, chapel, manager's residence, public toilet, telecommunications tower and electricity substation. All buildings are single storey. There is little scope for the businesses within this precinct to expand due to the surrounding bushland.

Memorial Reserve



JJ Melbourne Hills Memorial Reserve is located on Kamber Rd in Terrey Hills. The recreational area of JJ Melbourne Hills Memorial Reserve lies within the 44 hectare park and is surrounded by native bushland. It is located near Garigal National Park.

The recreational area within the reserve is used for a variety of activities and includes an equestrian arena, BMX track and field archery area. The reserve has unique environmental and biodiversity values with a number of threatened species occurring in the reserve. As such, the precinct is unlikely to provide opportunities for future employment expansion.

Kimbricki Resource Recovery Centre



It is located off Monavale Road in Terry Hills. Originally a landfill site, it has been operating as a recycling and waste disposal centre since 1990. Site incorporates an educational eco house, administration building, offices, and material handling facility.

This precinct is unlikely to contribute a substantial increase in jobs.

Figure 1 Map of Community Preferred Dredge Sites

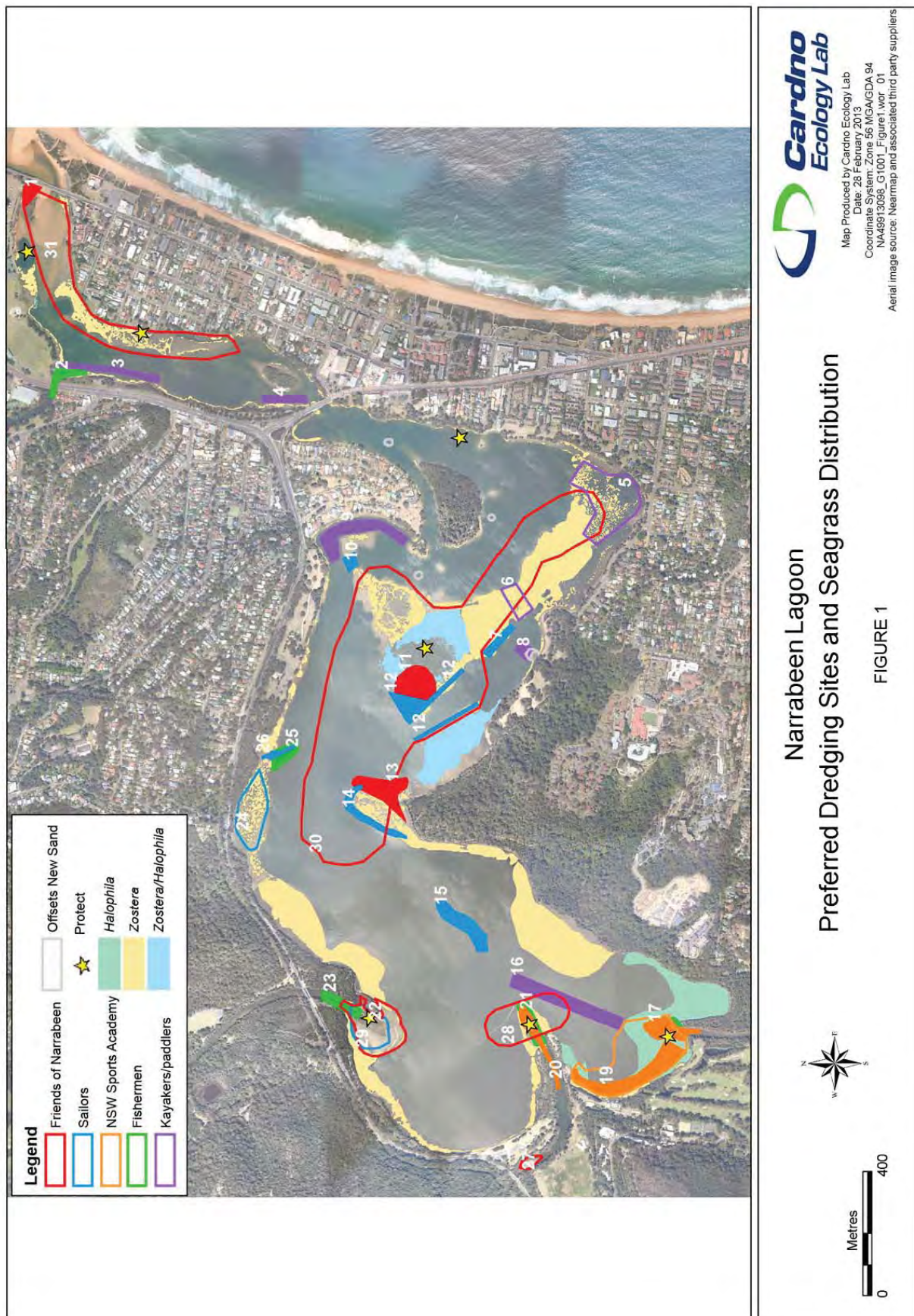


















Table 1 Detailed List of Environmental Feasibility.

KEY: Green = certainly feasible; Red = certainly not feasible; Orange = likely unfeasible but requires more data. For site locations please refer to Figure 1.


Site no.	Feasibility	User group	Environmental factors that influence feasibility	Seagrass area (m ²)	Advised max. cost for permit to harm seagrasses ¹
1		Friends of Narrabeen	Not within PoM - Controlled by Entrance Management; Nearby "protect" habitat	0	-
2		Fishermen	Not within PoM - Controlled by Entrance Management	148	-
3		Kayakers/ paddlers	Not within PoM - Controlled by Entrance Management; Site not shallow; Nearby "protect" habitat	117	-
4		Kayakers/ paddlers	Not within PoM - Controlled by Entrance Management; Site not shallow	0	-
5		Kayakers/ paddlers	Large area of <i>Zostera</i> seagrass	7,227	\$ 722,722
6		Kayakers/ paddlers	Moderate area of <i>Zostera</i> seagrass	209	\$ 20,800
7		Sailors	Large area of <i>Zostera</i> seagrass	3,055	\$ 305,469
8		Kayakers/ paddlers	Adjoining endangered ecological community	0	\$ 0
9		Kayakers/ paddlers	No known impediment to dredging; May be deep enough – To confirm depth and usage with user group	0	\$ 0
10		Sailors	No known impediment to dredging	0	\$ 0
11		Friends of Narrabeen	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass; Nearby "protect" habitat	11,955	\$ 1,195,534
12		Sailors	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass	6,099 + 1,581	\$ 1,394,000
13		Friends of Narrabeen	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass; Adjoining endangered ecological community	2,780	\$ 278,000
14		Sailors	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass	5007	\$ 500,700

Site no.	Feasibility	User group	Environmental factors that influence feasibility	Seagrass area (m ²)	Advised max. cost for permit to harm seagrasses ¹
15		Sailors	No known impediment to dredging	0	\$ 0
16		Kayakers/ paddlers	No known impediment to dredging	0	\$ 0
17		Sydney Academy Sport & Rec	Small area of <i>Halophila</i> seagrass; Presence of EPBC Act protected bird species; Nearby "protect" habitat	123	\$ 12,280
18		Fishermen	Small area of <i>Halophila</i> seagrass; Presence of EPBC Act protected bird species; Nearby "protect" habitat	76	\$ 7,644
19		NSW Sports Academy	Potential presence of seasonal <i>Halophila</i> seagrass bed; Adjoining endangered ecological community; Nearby "protect" habitat	17,073	Up to \$1,707,251
20		NSW Sports Academy	Large area of <i>Zostera</i> seagrass; Presence of EPBC Act protected bird species; "protect" habitat onsite; Potential impacts on creek hydrodynamics and geomorphology	4,807	\$ 480,740
21		Fishermen	Large area of <i>Zostera</i> seagrass; Adjoining endangered ecological community; Presence of EPBC Act protected bird species; Onsite "protect" habitat.	2,636	\$ 263,600
22		Sailors Friend of Narrabeen	Moderate area of <i>Zostera</i> seagrass; Onsite endangered ecological community; Presence of EPBC Act protected bird species; Onsite "protect" habitat.	321	\$ 32,120
23		Fishermen	Moderate area of <i>Zostera</i> seagrass; Onsite endangered ecological community; Presence of EPBC Act protected bird species; Onsite "protect" habitat; Potential impacts on creek hydrodynamics and geomorphology	321	\$ 32,060
24		Sailors	Large area of <i>Halophila</i> seagrass; Adjoining endangered ecological community	8,822	\$ 882,233
25		Fishermen	Adjoining endangered ecological community	0	\$ 0
26		Sailors	Small, patchy area of <i>Zostera</i> seagrass; Adjoining endangered ecological community	78	\$ 7,797
27		Friends of Narrabeen	Remnant site of Restoration Project. Not proposed by community in Stage 1	0	\$ 0
28		Friends of Narrabeen	Large area of <i>Zostera</i> seagrass; Presence of EPBC Act protected bird species; Not proposed by community in Stage 1	7,281	\$ 728,100
29		Friends of Narrabeen	Large area of <i>Zostera</i> seagrass; Remnant site of Restoration Project. Not proposed by community in Stage 1	3,203	\$ 320,300

Site no.	Feasibility	User group	Environmental factors that influence feasibility	Seagrass area (m ²)	Advised max. cost for permit to harm seagrasses ¹
30		Friends of Narrabeen	Large area of Halophila and Zostera seagrass; Remnant site of Restoration Project. Not proposed by community in Stage 1	133,898	\$ 13,389,800
31		Friends of Narrabeen	Not within PoM - Controlled by Entrance Management; Large area of Zostera seagrass; Remnant site of Restoration Project. Not proposed by community in Stage 1	17,667	\$ 1,766,700

¹ Under the FM Act 1994 Policy and Guidelines for Aquatic Habitat Management and Fish Conservation, monetary compensation may be required to permit an activity that will harm or destroy habitat. Compensation is calculated at \$100 per m² of habitat lost.

Table 2. Short-list of Environmentally Feasible Sites

Site no.	Feasibility	User Group	Environmental factors that influence feasibility	Seagrass Area (m ²)	Advised max. cost for permit to harm seagrasses ¹
6		Kayakers/paddlers	Moderate area of <i>Zostera</i> seagrass	209	\$ 20,800
7		Sailors	Large area of <i>Zostera</i> seagrass	3,055	\$ 305,469
8		Kayakers/paddlers	Adjoining endangered ecological community	0	\$ 0
9		Kayakers/paddlers	No known impediment to dredging; May be deep enough – To confirm depth and usage with user group	0	\$ 0
10		Sailors	No known impediment to dredging	0	\$ 0
12		Sailors	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass	6,099 + 1,581	\$ 1,394,000
13		Friends of Narrabeen	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass; Adjoining endangered ecological community	2,780	\$ 278,000
14		Sailors	Large area of <i>Zostera</i> and <i>Halophila</i> seagrass	5007	\$ 500,700
15		Fishermen	Adjoining endangered ecological community	0	\$ 0
16		Sailors	Small, patchy area of <i>Zostera</i> seagrass; Adjoining endangered ecological community	78	\$ 7,797
25		Fishermen	Adjoining endangered ecological community	0	\$ 0
26		Sailors	Small, patchy area of <i>Zostera</i> seagrass; Adjoining endangered ecological community	78	\$ 7,797

¹ Under the FM Act 1994 Policy and Guidelines for Aquatic Habitat Management and Fish Conservation, monetary compensation may be required to permit an activity that will harm or destroy habitat. Compensation is calculated at \$100 per m² of habitat lost.

Figure 2. Map of Feasible (green numbers) and Potentially Feasible (orange numbers) Options. Green numbers are Feasible, orange numbers and Potentially Feasible.

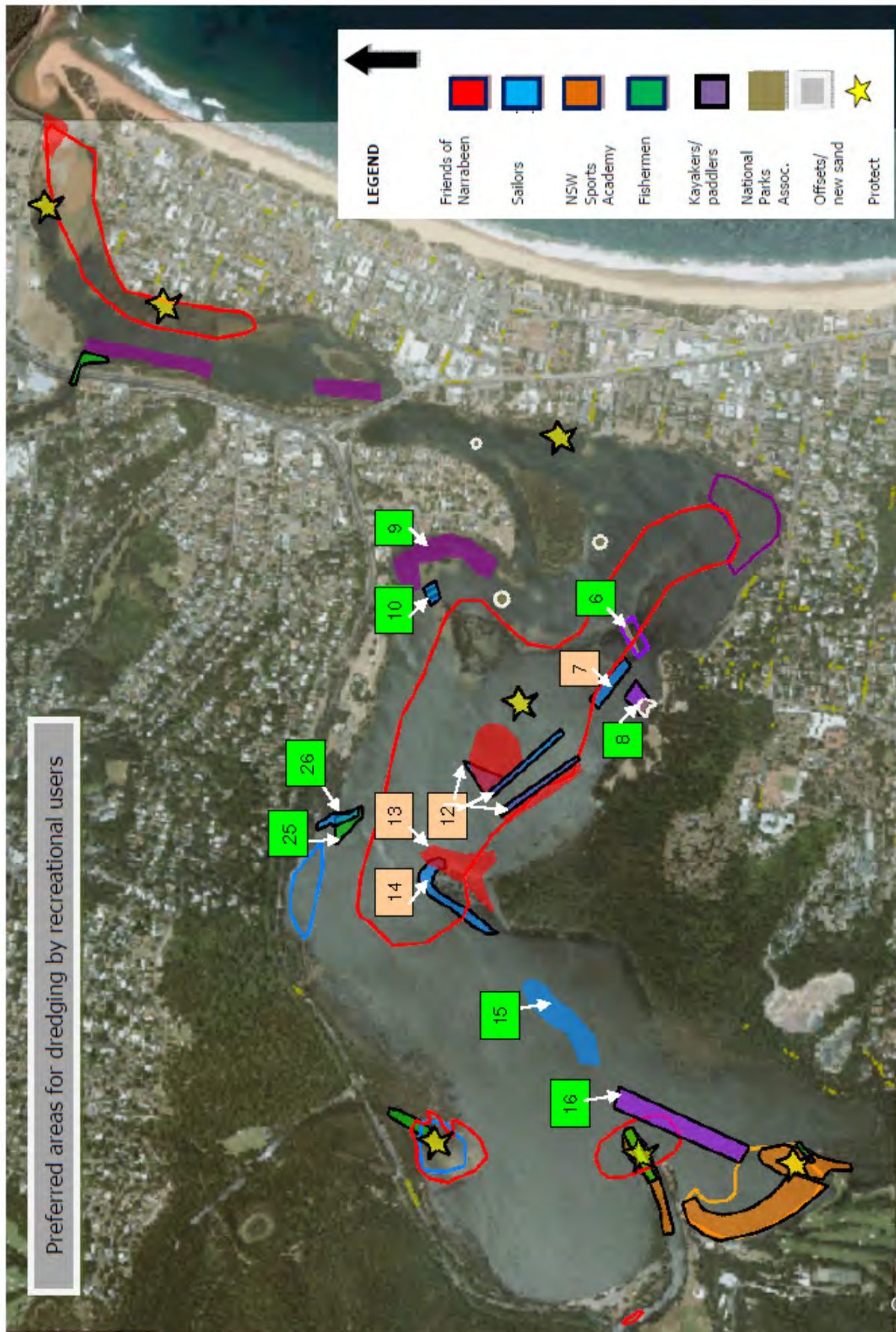


Figure 3. Endangered Ecological Communities of Narrabeen Lagoon

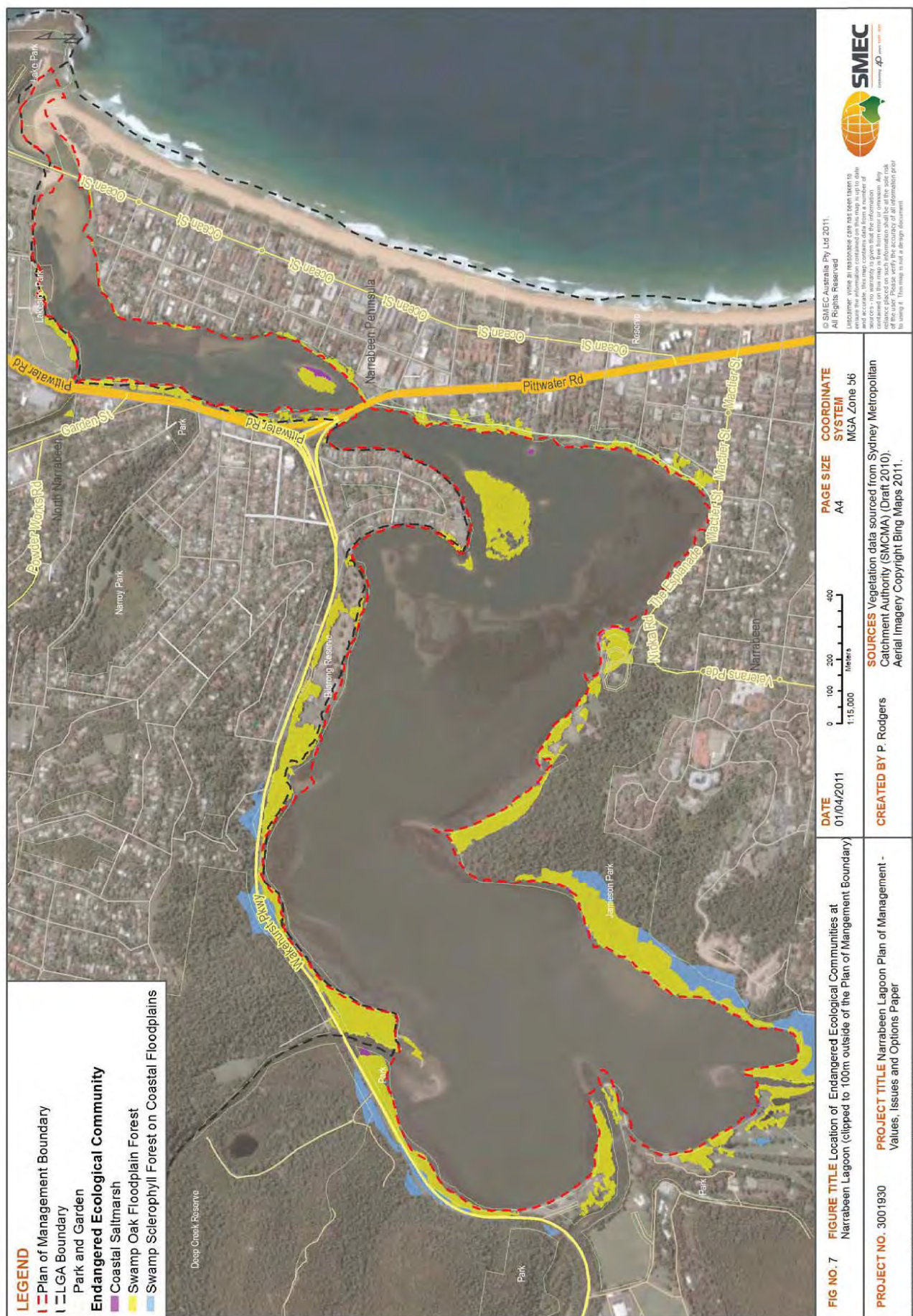


Figure 4. Narrabeen Lagoon Foreshore Vegetation

